

**VINELAND DEVELOPMENT CORPORATION**

**REQUEUST FOR PROPOSALS**

**LANDIS THEATER/MORI BUILDING/MICROBREWERY  
RENOVATIONS AND SITE WORK**

**DUE DATE: AUGUST 14, 2025  
BY 4:00 P.M.**

**SEND RESPONSES TO:**

**VINELAND DEVELOPMENT CORPORATION  
ATT: SANDRA FOROSISKY, EXECUTIVE DIRECTOR  
640 E. WOOD STREET  
ECONOMIC DEVELOPMENT  
4<sup>TH</sup> FLOOR  
VINELAND, NJ 08360**

**BID ISSUE JULY 22, 2025**

**RENOVATIONS FOR  
WANDERBACK BREWERY & LANDIS THEATER**

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**NOTICE TO CONTRACTORS  
VINELAND DEVELOPMENT CORPORATION  
640 E. WOOD STREET  
VINELAND, NJ 08360**

The Vineland Development Corporation has issued a Request for Proposals for the following project:

**LANDIS THEATER/MORI BUILDING/MICROBREWERY  
RENOVATIONS AND SITE WORK**

Proposals must be received by Sandra Forosisky, Executive Director of the Vineland Development Corporation by **Thursday, August 14, 2025 at 4:00 P.M.**, prevailing time at **640 E. Wood Street, Vineland, New Jersey, 4<sup>th</sup> Floor.**

Submission packages may be obtained by contacting J W Pedersen Architect at [info@jwparch.com](mailto:info@jwparch.com) using the subject line **“LANDIS THEATER/MORI BUILDING/MICROBREWERY, RENOVATIONS AND SITE WORK”** and requesting the General Instructions and Specifications. For further information, call 856-692-5622.

All bids submitted to Sandra Forosisky must comply with the provisions of the General Instructions and Specifications issued therefore and include all required submittals.

This is a Prevailing Wage project.

By Resolution of the Vineland Development Corporation

Sandra Forosisky, Executive Director

## **GENERAL REQUIREMENTS/INSTRUCTIONS**

### **Proposal Submission Information**

Interested contractors are invited to submit their proposals for the Landis Theater/Mori Building/Microbrewery Renovations and Site Work to Sandra Forosisky, Executor Director of the Vineland Development Corporation, in accordance with these General Requirements/Instructions, and the Plans and Specifications for the work subject to this Request for Proposals.

### **Submission Date and Time:**

Thursday, August 14, 2025, by 4:00 P.M.

### **Submission Office:**

Vineland Development Corporation  
Att: Sandra Forosisky, Executive Director  
640 E. Wood Street  
4<sup>th</sup> Floor  
Vineland, NJ 08360

**Contractors shall clearly mark their submittal package with the title of this RFP and the name and address of the responding firm, and an e-mail address for a contact person, addressed to the Vineland Development Corporation, Att: Sandra Forosisky. The original proposal shall be marked to distinguish it from the copies.**

Respondents are required to submit their expressions of interest, qualifications and experience. **One (1) original and Three (3) copies** of the Proposal, **INCLUSIVE OF ALL** information must be provided to the Sandra Forosisky. Proposals are scheduled to be opened **4:00 PM on Thursday, August 14, 2025**. Any proposals received after said opening whether by mail or otherwise, will be returned unopened. The Vineland Development Corporation assumes no responsibility for delays in any form of carrier, mail, or delivery service causing the proposal to be received after the above-referenced due date and time. Submission by fax, e-mail or telephone is NOT PERMITTED. Delivery of a proposal to any other person, location, or office is not acceptable. It is the contractor's responsibility to make sure the proposal is delivered to the proper office as listed above.

**Only those RFP responses received prior to or on the submission date & time will be considered.** Responses delivered before the submission date and time specified above may be withdrawn upon written application of the respondent who shall be required to produce evidence showing that the individual is or represents the principal or principals

involved in the proposal. After the submission date and time specified above, responses must remain firm for a period of sixty (60) days.

Proposals will be received only on the forms attached to this Request for Proposals or a true copy thereof with all notations to be done in ink or typed and signatures must be done in ink. **ONLY ORIGINAL SIGNATURES ON ALL DOCUMENTS WILL BE ACCEPTED. RUBBER STAMPS, COMPUTER GENERATED SIGNATURES, COPIER GENERATED SIGNATURES, OR ANY OTHER ARTIFICIAL SIGNATURES SHALL NOT BE ACCEPTABLE AND SHALL BE REASON FOR REJECTION.**

All prices and amounts must be written in ink or preferably machine printed. Proposals containing any conditions, omissions, unexplained erasures or alterations, items not called for in the proposal form, attachment of additive information not required by the specifications, or irregularities of any kind, may be rejected by the Vineland Development Corporation. Any changes, whiteouts, strikeouts, etc. in the proposal must be initialed in ink by the person signing the proposal.

Contractors are hereby cautioned that the specifications and submittals may or may not be complete if the specifications/submittals were provided by a third-party supplier other than Hightail at <https://www.hightail.com/>. The Vineland Development Corporation shall not be responsible for third party supplied RFP packages. The Vineland Development Corporation shall not be responsible if they fail to receive any updates or addenda to the specification if they haven't contacted the Vineland Development Corporation.

Each proposal form must give the full business address, business phone, and e-mail of the contact person of the contractor and be signed by an authorized representative as follows:

Proposals submitted by partnerships must furnish the full name of all partners and must be signed in the partnership name by one of the members of the partnership or by an authorized representative, followed by the signature and designation of the person signing.

Proposals submitted by corporations must be signed in the legal name of the corporation, followed by the name of the State in which incorporated and must contain the signature and designation of the president, secretary or other person authorized to bind the corporation in the matter.

Proposals submitted by sole-proprietorship shall be signed by the proprietor.

When requested, satisfactory evidence of the authority of the officer signing shall be furnished.

The Vineland Development Corporation reserves the right to reject individual and/or all proposals in its sole discretion.

**Vineland Development Corporation Representative for this Solicitation**

Please direct all questions in writing to:

Sandra Forosisky

Voice: (856) 794-4000 x 4623

Email: [sforsisky@vinelandcity.org](mailto:sforsisky@vinelandcity.org)

**NOTE: Questions must be submitted in writing or by e-mail no later than 4:00 pm. on Tuesday, August 5, 2025. Questions received after this day and time will not be accepted.**

**Interpretations and Addenda**

Respondents are expected to examine the RFP with care and observe all its requirements. All questions about the meaning or intent of this RFP, all interpretations and clarifications considered necessary by the owner's representative in response to such comments and questions will be issued by Addenda mailed, e-mailed, or delivered to all parties recorded as having received the RFP package. Only comments and questions responded to by formal written Addenda will be binding. Oral interpretations, statements or clarifications are without legal effect.

- A. The contractor understands and agrees that its proposal is submitted on the basis of the specifications prepared by the Vineland Development Corporation. The contractor accepts the obligation to become familiar with these specifications. Contractors are expected to examine the specifications and related documents with care and observe all their requirements. Ambiguities, errors or omissions noted by contractors should be promptly reported in writing or by e-mail to Sandra Forosisky. Any challenges to this RFP or the specification shall be filed in writing, or by e-mail, with the Vineland Development Corporation no less than three business days prior to the opening of the proposals. Challenges filed after that time shall be considered void and having no impact on the Vineland Development Corporation or the award of a contract. In the event a contractor fails to notify the Vineland Development Corporation of such ambiguities, errors or omissions, the contractor shall be bound by the requirements of the specifications and the contractor's submitted proposal.
- C. No oral interpretation and or clarification of the meaning of the specifications for any goods and services will be made to any contractor. Such request shall be in writing, addressed to Sandra Forosisky. In order to be given consideration, a written request must be received by **4:00 pm. on Tuesday, August 5, 2025.**



All interpretations, clarifications and any supplemental instructions will be in the form of written addenda and will be distributed to all prospective contractors. All addenda so issued shall become part of the specification and proposal documents and shall be acknowledged by the contractor as part of its proposal. The Vineland Development Corporation's interpretations or corrections thereof shall be final.

When issuing addenda, the Vineland Development Corporation shall provide required notice prior to the official receipt of proposals to any person who has submitted a proposal or who has requested a copy of this RFP and the specifications.

### **Pre-Submittal Conference.**

A non-mandatory pre-submittal conference for this proposal will be held on **Thursday, July 29, 2025, beginning at 11:00 am**, prevailing time, at the project site 830 E. Landis Avenue, Vineland, New Jersey. Attendance is not mandatory but is strongly recommended. Failure to attend does not relieve the contractor of any obligations or requirements. A site visit will immediately follow the pre-submittal conference. Bidders are required to make, and acknowledge that they have made, a site visit. Additional site visits can be scheduled by contacting Sandra Forosisky at [sforosisky@vinelandcity.org](mailto:sforosisky@vinelandcity.org).

### **Cost Liability and Additional Costs**

The owner assumes no responsibility and liability for costs incurred by the respondents prior to the issuance of an agreement. The liability of the owner shall be limited to the terms and conditions of the contract.

Respondents will assume responsibility for all costs not stated in their proposals. All unit rates either stated in the proposal or used as a basis for its pricing are required to be all-inclusive. Additional charges, unless incurred for additional work performed by request of the owner, are not to be billed and will not be paid.

### **Statutory and Other Requirements**

#### **Compliance with Laws**

Any contract entered into between the contractor and the owner must be in accordance with and subject to compliance by both parties with The contractor must agree to comply with the non-discrimination provisions and all other laws and regulations applicable to the performance of services there under. The respondent shall sign and acknowledge such forms and certificates as may be required by this section.

#### **Mandatory Affirmative Action Compliance**

No firm may be issued a contract unless it complies with the Affirmative Action requirements of N.J.S.A. 10:5-31 et seq. and N.J.A.C. 17:27 as identified in the documents attached hereto. The form enclosed herein shall be properly executed.

### **Americans with Disabilities Act of 1990**

Discrimination on the basis of disability in contracting for the delivery of services is prohibited. Respondents are required to read American with Disabilities language that is part of the documents attached hereto and agree that the provisions of Title II of the Act are made part of the contract. The contractor is obligated to comply with the Act and hold the owner harmless.

### **Prevailing Wage Act**

The contractor shall comply with the provisions of the Prevailing Wage Act. The contractor shall be required to submit a certified payroll record to the Vineland Development Corporation within ten (10) days of the payment of the wages. The contractor is also responsible for obtaining and submitting all subcontractors' certified payroll records within the aforementioned time period. The contractor shall submit said certified payrolls in the form set forth in N.J.A.C. 12:60-6.1(c). Contractors are cautioned to take into consideration the payment of prevailing wages. It is Contractor's sole responsibility for determining the correct labor classification(s) and paying the correct and proper wage and benefits and it is imperative that the Contractor familiarize itself with the current wage and benefit rates before submitting proposals based on these specifications. **NOTE: Additional information and current wage rates are available at: [http://lwd.state.nj.us/labor/wagehour/wagehour\\_index.html](http://lwd.state.nj.us/labor/wagehour/wagehour_index.html).**

### **Stockholder Disclosure**

No corporation or partnership shall be awarded any contract for the performance of any work or the furnishing of any goods, unless, with receipt of the proposal of said corporation or partnership, there is submitted a statement setting forth the names and addresses of all stockholders in the corporation or partnership who own ten (10) percent or greater interest therein. Respondents shall complete and submit the form of statement included herein.

### **N.J. Business Registration Certificate**

Pursuant to C57, PL2004, all New Jersey and out of state business organizations must obtain a Business Registration Certificate from the New Jersey Department of the Treasury, Division of Revenue, prior to conducting business in the State of New Jersey. Respondents shall be required to submit proof of their valid Business Registration prior to contract award. Questions regarding Business Registration may be directed to the

Division of Revenue at (609) 292-1730. Online filing is available at [www.state.nj.us/treasury/revenue/taxreg.htm](http://www.state.nj.us/treasury/revenue/taxreg.htm).

## **Insurance**

The Contractor and each one of his subcontractors shall have in place the following insurance coverage which will insure against claims which may arise out of or result from the business operations under the Contract and for which the Contractor may be legally liable. All required insurance coverages must be underwritten by insurers allowed to do business in the State of New Jersey and acceptable to Vineland Development Corporation. Insurance shall be written for not less than the limits specified below or required by law, whichever may be greater. The Contractor shall not commence work under this contract until it has obtained the insurance required under this section.

**Commercial General Liability** insurance for bodily injury, personal and advertising injury and property damage including loss of use, with minimum limits of:

- \$1,000,000 each occurrence;
- \$1,000,000 personal and advertising injury;
- \$2,000,000 general aggregate per project;
- \$2,000,000 products/completed operations aggregate;

Policy shall include:

- Liability arising from premises operations;
- Liability arising from the actions of independent contractors;
- Liability arising from products and ongoing & completed operations with such coverage to be maintained for two (2) years after completion of the work;
- Blanket contractual liability including protection for the Contractor from bodily injury and/or property damage claims arising out of liability assumed under this Contract.
- Explosion, Collapse and Underground Property Coverage

**Business Automobile Liability** insurance including applicable No-Fault coverage, with limits of liability not less than \$1,000,000 per accident combined single limit Bodily Injury and Property Damage. Coverage shall include all owned vehicles, all non-owned vehicles, and all hired vehicles.

**Workers' Compensation** insurance with statutory benefits as required by any State or Federal law, including "other states" coverage and **Employer's Liability** insurance with minimum limits of:

\$1,000,000 each accident for bodily injury by accident;  
\$1,000,000 each employee for bodily injury by disease; and  
\$1,000,000 policy limit for bodily injury by disease

**Umbrella Liability** insurance with a minimum limit of \$2,000,000 per occurrence/annual aggregate. Coverage shall follow form over the general liability, automobile liability and workers' compensation coverages.

**Builder's Risk Insurance:** The Contractor shall provide Builder's Risk Insurance for all risk of physical loss or damage to the property described hereunder in an amount equal to the Total Project Value; excepting excavations, foundations and other structures customarily excluded by such insurance. The Policy shall name the Vineland Development Corporation as loss payee as their interests may appear on a primary and non-contributory basis. The Builders Risk Policy is to include coverage for the perils of Earthquake, Flood, Full Windstorm, Equipment Breakdown and Theft (excluding employee theft), contain an endorsement allowing permission to occupy and include coverage for both transit and offsite storage. The policy is also to include all contractors, subcontractors, and sub-subcontractors as well as the Vineland Development Corporation as Additional Named Insureds on a primary and non-contributory basis. The contractor and all subcontractors are responsible for all policy deductibles and uninsured or underinsured losses.

**Contractor's Pollution Liability** insurance or its equivalent with limits of liability not less than \$1,000,000 per occurrence/\$2,000,000 policy aggregate.

The Vineland Development Corporation, including all elected and appointed officials, all employees and volunteers, all boards, commissions and/or authorities and their board members, employees, and volunteers; shall be added as additional insured on the general liability, automobile liability and umbrella liability policies with respect to work performed by the insured and on the pollution liability policy if the coverage is not included in the GL policy.

A copy of the additional insured endorsement(s) must be attached to the certificate.

Coverage shall be primary to the additional insureds and shall not be contributing with any other insurance or similar protection available to the additional insureds, whether other available insurance be primary, contributing or excess.

**Waiver of Subrogation** Contractor hereby grants to the Vineland Development Corporation a waiver of any right to subrogation (Except for Workers Compensation Coverage) which any insurer or contractor may acquire from contractor by virtue of the payment of any loss. Contractor agrees to obtain any endorsement that may be necessary to affect this waiver of subrogation.

**Subcontractors** Contractor shall require and verify that all subcontractors maintain insurance meeting all the requirements stated herein.

The Contractor shall provide the Vineland Development Corporation, at the time the contract is returned to them for execution, Certificate(s) of Insurance evidencing such required coverages. A copy of the General Liability Additional Insured Endorsement shall be attached to the certificate.

Coverage required under this Agreement shall not be canceled or non-renewed without 30 days prior written notice from contractor to the Vineland Development Corporation, except where cancellation is for non-payment of premium, then 10 days' prior notice shall be given.

### **Indemnification**

To the fullest extent permitted by law, contractor agrees to defend, indemnify, save harmless the Vineland Development Corporation, its elected and appointed officials, officers, consultants, agents, and employees from and against all claims, losses, expenses, and attorney's fees, damages, or injury included death and. or property loss, expense claims or demands arising out of or caused or alleged to have been caused in any manner by a defect in any equipment or materials supplied under this Contract or by the performance of any work under this Contract, including all suits or actions of every kind or description brought against the Vineland Development Corporation either individually or jointly with Vendor for or on account of any damage or injury to any person or persons or party, caused or occasioned or alleged to have caused by, or account of, the performance of any work pursuant to or in connection with this Contract, or through any negligence or alleged negligence in safeguarding the work area, or through any act, omission or fault or alleged act, or mission or fault or alleged act, omission, or fault of the Vendor, its employees, subcontractors or agents or others under the Vendor's contract.

### **Security and Bonding Requirements**

The following provisions shall be applicable to this RFP and be made a part of the proposal documents:

#### **Guarantee**

Contractor shall submit with its proposal a certified check, cashier's check or a bond in the amount of ten percent (10%) of its total proposal, but not in excess of \$20,000, payable unconditionally to the Vineland Development Corporation.

When submitting a bond, it shall contain Power of Attorney for full amount of bond from a surety company authorized to do business in the State of New Jersey and acceptable to the City.

The check or bond of the unsuccessful contractor(s) shall be returned to the contractor. The check or bond of the contractor to whose proposal is accepted shall be retained until a contract is executed and the required performance bond or other security is submitted.

The check or bond of the successful contractor shall be forfeited if the contractor fails to enter into a contract within 10 days of the acceptance of the proposal.

### **Consent of Surety**

The contractor shall submit with the proposal a Certificate (Consent of Surety) with Power of Attorney for full amount of proposal from a Surety Company authorized to do business in the State of New Jersey and acceptable to the Vineland Development Corporation stating that it will provide said contractor with a Performance Bond in the full amount of the proposal. This certificate shall be obtained to confirm that the contractor whose proposal is accepted will furnish Performance and Payment Bonds from an acceptable surety company on behalf of said contractor, any or all subcontractors or by each respective subcontractor or by any combination thereof which results in performance security equal to the total amount of the contract.

### **Performance Bond**

The successful contractor shall simultaneously with the delivery of the executed contract, submit an executed bond in the amount of one hundred percent (100%) of its proposal as security for the faithful performance of the contract.

The performance bond provided shall not be released until final acceptance of the whole work and then only if any liens or claims have been satisfied. The surety on such bond or bonds shall be a duly authorized surety company authorized to do business in the State of New Jersey pursuant to N.J.S.A. 17:31-5.

Failure to submit a performance bond with the executed contract shall be cause for declaring the contract null and void.

### **Labor and Material (Payment) Bond**

Contractor shall with the delivery of the performance bond submit an executed payment bond to guarantee payment to laborers and suppliers for the labor and material used in the work performed under the contract.

Failure to submit a labor and material bond with the performance bond shall be cause for declaring the contract null and void.

### **Maintenance Bond**

Upon acceptance of the work by the Vineland Development Corporation, the contractor shall submit a maintenance bond in an amount not to exceed 100% of the project costs guaranteeing against defective quality of work or materials for the period of 2 years.

### **Multiple Proposals Not Accepted**

More than one proposal from an individual, a firm or partnership, a corporation or association under the same or different names, shall not be considered.

### **Failure to Enter Contract**

Should the respondent, to whom the contract is awarded, fail to enter into a contract within ten (10) days of being presented to the contractor, Sundays and holidays excepted, the owner may then, at its option, accept the proposal of another respondent.

### **Termination of Contract**

If, through any cause, the contractor shall fail to fulfill in a timely and proper manner obligations under the contract or if the contractor violates any requirements of the contract, the owner shall thereupon have the right to terminate the contract by giving written notice to the contractor of such termination at least thirty (30) days prior to the proposed effective date of the termination. Such termination shall relieve the owner of any obligation for the balances to the contractor of any sum or sums set forth in the contract.

Notwithstanding the above, the contractor shall not be relieved of liability to the Vineland Development Corporation for damages sustained by the Vineland Development Corporation by virtue of any breach of the contract by the contractor and the Vineland Development Corporation may withhold any payments to the contractor for the purpose of compensation until such time as the exact amount of the damage due the Vineland Development Corporation from the contractor is determined.

The contractor agrees to indemnify and hold the owner harmless from any liability to subcontractors/suppliers concerning payment for work performed or goods supplied arising out of the lawful termination of the contract by the owner under this provision. In case of default by the contractor, the owner may procure the articles or services from other sources and hold the contractor responsible for any excess cost occasioned thereby.

In case of default by the contractor, the Vineland Development Corporation may procure the goods or services from other sources and hold the contractor responsible for any excess cost.

### **Challenge of Specifications**

Any respondent who wishes to challenge a specification shall file such challenge in writing with the Director of Purchasing no less than three (3) business days prior to the opening of the RFP's. Challenges filed after that time shall be considered void and having no impact on the owner or the award of contract.

## **Payment**

No payment will be made unless duly authorized by the Vineland Development Corporation's authorized representative and accompanied by proper documentation. The Vineland Development Corporation will not pay down payments or deposits on contracts.

Invoices shall specify, in detail, the period for which payment is claimed, the services performed during the prescribed period, the amount claimed and correlation between the services claimed and the Proposal Document.

The Vineland Development Corporation may withhold all or partial payments on account of subsequently discovered evidence including but not limited to the contractor not complying with the terms of the contract.

When the above grounds are removed, payment shall be made for amounts withheld because of them.

Contractor shall complete W-9 form and submit to the Vineland Development Corporation prior to contract award. This form is available at the following link:

<http://www.irs.gov/pub/irs-pdf/fw9.pdf?portlet=3>

## **Ownership of Material**

The owner shall retain all of its rights and interest in any and all documents and property both hard copy and digital furnished by the owner to the contractor for the purpose of assisting the contractor in the performance of this contract. All such items shall be returned immediately to the owner at the expiration or termination of the contract or completion of any related services, pursuant thereto, whichever comes first. None of the documents and/or property shall, without the written consent of the owner, be disclosed to others or used by the contractor or permitted by the contractor to be used by their parties at any time except in the performance of the resulting contract.

Ownership of all data, materials and documentation originated and prepared for the owner pursuant to this contract shall belong exclusively to the owner. All data, reports, computerized information, programs and materials related to this project shall be delivered to and become the property of the owner upon completion of the project. The contractor shall not have the right to use, sell, or disclose the total of the interim or final



work products, or make available to third parties, without the prior written consent of the owner. All information supplied to the owner may be required to be supplied on CD-ROM media compatible with the owner's computer operating system, MS Windows based, Lotus Suite.

### **Required Submittals.**

The following forms are contained in the attachments. All forms are required and shall be completed and made part of the proposal submitted.

- Check List
- Statement of Ownership Interest
- Proposal/Bid Document
- Acknowledgment of Receipt of Addenda, if any.

### **Proposals to Remain Subject to Acceptance**

RFP responses shall remain open for a period of sixty (60) calendar days from the stated submittal date. The owner will either award the Contract within the applicable time period or reject all proposals. The owner may extend the decision to award or reject all proposals beyond the sixty (60) calendar days when the proposals of any respondents who consent thereto may, at the request of the owner, be held for consideration for such longer period as may be agreed.

### **Rejection of Proposals**

The Vineland Development Corporation reserves the right to reject any or all proposals, or to reject any proposals if the evidence submitted by, or investigation of such respondent fails to satisfy the owner that such respondent is properly qualified to carry out the obligations of the RFP and to complete the work contemplated therein. The owner reserves the right to waive any informality in the RFP.

### **Evaluation Process**

An evaluation team will review all proposals to determine if they satisfy the Proposal Requirements, determine if a proposal should be rejected and evaluate the proposals based upon the Evaluation Criteria. The highest-ranking respondent will then be recommended to the governing body for award of contract, based on price and other factors.

### **Evaluation Criteria**

The criteria considered in the evaluation of this proposal shall be as follows. The arrangement of the criteria is not meant to imply order of importance in the selection process. All criteria will be used to select the successful respondent or respondents.

#### **Understanding of the Requested Work**

The proposals will be evaluated for general compliance with instructions and requests issued in the RFP. Non-compliance with significant instructions shall be grounds for disqualification of proposals.

#### **Knowledge and Technical Competence**

This includes the ability of the respondent to perform all of the tasks and adequately fulfill the requirements specified herein.

#### **Management, Experience and Personnel Qualifications**

Expertise of the firm shall be demonstrated by past contract successes providing government agencies with similar services.

The respondent will be evaluated on knowledge, experience, prior collaboration and successful completion of projects/services similar to that requested in this RFP. In addition to relevant experience, respondents shall provide personnel qualifications in the Proposal.

#### **Ability to Complete the Services in a Timely Manner**

This is based on the estimated duration of the tasks and the respondent's ability to accomplish these tasks as stated.

#### **Cost to Provide Services**

Provide your costs for the services requested on the Cost Proposal page provided in RFP.

#### **Notice of Award**

The successful contractor will be notified of the award of contract upon a favorable decision by the Vineland Development Corporation at which time the respondent shall be required to execute a contract in the form of AIA Document No. A101-2017 and related General Conditions (AIA Document No. A201-2017).

#### **Date of Completion**

The contractor will be required to substantially complete the work within 140 days calendar days from the Notice of Award

### **Choice of Law**

The agreement with the successful contractor shall be construed in accordance with the laws of the State of New Jersey. In the event of litigation or other legal proceedings commenced to enforce the terms of the agreement, the venue of such litigation shall be the Superior Court of New Jersey, Cumberland County.

### **Contract Records**

Contractor shall maintain all documentation related to products, transactions or services under this contract for a period of five years from the date of final payment. Such records shall be made available to the Vineland Development Corporation upon request.

### **Brand Names, Standards Of Quality and Performance.**

Brand names and/or descriptions used in the specifications are to acquaint contractors with the types of goods and services desired and will be used as a standard by which goods and services offered as equivalent will be evaluated.

Variations between the goods and services described and the goods and services offered are to be fully identified and described by the contractor on a separate sheet and submitted with the proposal form. In the absence of any exceptions by the contractor, it will be presumed and required that the goods and services as described in the proposed specification will be provided or performed.

It is the responsibility of the contractor to document and/or demonstrate the equivalency of the goods and services offered. The Vineland Development Corporation reserves the right to evaluate the equivalency of the goods and services.

In submitting its proposal, the contractor certifies that the goods and services to be furnished will not infringe upon any valid patent or trademark and that the successful contractor shall, at its own expense, defend any and all actions or suits charging such infringement, and will save the Vineland Development Corporation harmless from any damages resulting from such infringement.

The contractor shall guarantee any or all goods and services supplied under these specifications. Defective or inferior goods shall be replaced at the expense of the contractor. The contractor will be responsible for return freight or restocking charges.

### **Pricing Information for Preparation of Proposals.**

The Vineland Development Corporation is exempt from any local, state or federal sales, use or excise tax.

This is a lump sum proposal.

Contractor shall be responsible for obtaining and paying for any applicable permits or licenses from any government entity that has jurisdiction to require the same. All proposals shall include an allowance in the amount of \$35,000.00 for permits and licenses.

Contractors shall insert prices for furnishing goods and services required by these specifications. Prices shall be net, including any charges for packing, crating, containers, etc. All transportation charges shall be fully prepaid by the contractor, F.O.B. destination and placement at locations specified by the Vineland Development Corporation. As specified, placement may require inside deliveries. No additional charges will be allowed for any transportation costs resulting from partial shipments made for the contractor's convenience.

**USE THESE  
DOCUMENTS  
WHEN  
SUBMITTING  
YOUR ORIGINAL  
PROPOSAL**

## **PROPOSAL CHECKLIST**

**Failure by the contractor to submit with their bid all of the MANDATORY  
Items that are check below shall be cause for rejection of bid.**

PROJECT TITLE  
LANDIS THEATER/MORI BUILDING/MICROBREWERY  
RENOVATIONS AND SITE WORK

DATE (August 14, 2025)

---

	<b><u>REQUIRED WITH BID</u></b>	<b><u>INITIAL &amp; SUBMIT</u></b>
1. Proposal Guarantee <b>(IN DUPLICATE)</b> (a proposal bond is not a consent of surety)	<u>  X  </u>	<u>          </u>
2. Certificate or Consent of Surety Form <b>(IN DUPLICATE)</b>	<u>  X  </u>	<u>          </u>
3. Statement of Ownership Disclosure <b>(IN DUPLICATE)</b>	<u>  X  </u>	<u>          </u>
4. EEO/Affirmative Action Compliance Notice <b>(IN DUPLICATE)</b>	<u>          </u>	<u>          </u>
5. Check List <b>(IN DUPLICATE)</b>	<u>  X  </u>	<u>          </u>
6. Proposal <b>(IN DUPLICATE)</b>	<u>  X  </u>	<u>          </u>
7. Acknowledgement of Receipt of Addenda <b>(IN DUPLICATE)</b>	<u>  X  </u>	<u>          </u>
8. List of Subcontractors per NJSA 40A:11-16, if any, If none, state so. <b>(IN DUPLICATE)</b>	<u>          </u>	<u>          </u>

**The items that are checked below shall be submitted no later than the time period indicated.**

<b><u>Required as Conditioned</u></b>	<b><u>Item</u></b>	<b><u>Read, Initialed Shall Submit</u></b>
<u>  X  </u>	Performance Bond (Due with the executed contract)	<u>          </u>
<u>  X  </u>	Labor and Material Payment Bond (Due with the executed contract)	<u>          </u>

(continued on next page)

<u>  X  </u>	Maintenance Bond (Due with the executed contract)	_____
_____	Public Works Contractor Registration Certificate(s) for the General or Prime Contractor and any Subcontractor submitted in the bid proposal with a date effective at the time the proposal is submitted (Due prior to contract award)	_____
<u>  X  </u>	New Jersey Business Registration Certificate (Due prior to contract award)	_____
_____	Disclosure of Investment Activities in Iran (Due prior to contract award)	_____
<u>  X  </u>	Certificate(s) of Insurance as specified In the Bid Document (Due with executed contract)	_____
_____	Certification of Non-Debarment for Federal Contracts. (Due prior to contract award)	_____
_____	Certification of Regarding Debarment Suspension. (Due prior to contract award)	_____

The items that are checked below are to be reviewed by the bidders.

<u>Review Required</u>	<u>Item</u>	<u>Read &amp; Initialed</u>
<u>  X  </u>	Americans with Disabilities Act Language	_____
<u>  X  </u>	General Instructions	_____
<u>  X  </u>	Technical Specifications	_____

THE ITEMS AND/OR FORMS INDICATED ABOVE SHALL BE REVIEWED AND/OR SUBMITTED WITH YOUR BID. THIS CHECKLIST IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY. ALL REQUIRED DOCUMENTATION MAY NOT BE LISTED ABOVE AND IT SHALL BE THE RESPONSIBILITY OF THE BIDDER TO CAREFULLY REVIEW THE COMPLETE BID PACKAGE, FAMILIARIZE THEMSELVES WITH THE REQUIREMENTS OF THIS BID AND TO SUBMIT WITH THEIR BID ALL REQUIRED DOCUMENTATION.

**SIGNATURE**

The undersigned hereby acknowledges that they have submitted and/or reviewed the above listed requirements:

\_\_\_\_\_  
(COMPANY)

\_\_\_\_\_  
(NAME – PLEASE PRINT OR TYPE)

\_\_\_\_\_  
(SIGNATURE)

\_\_\_\_\_  
(DATE)

**SECTION 00301**

**PROPOSAL FORM**

**1. PROPOSAL**

Pursuant to and in compliance with your Invitation to Submit Proposal the undersigned hereby offers to furnish all labor, materials, equipment and other facilities and things necessary or proper for, or incidental to, or required by, the drawings and specifications for the Theater and Brewery Renovations for Wanderback Brewery and Landis Theater 2025 prepared by J.W. Pedersen Architect, P.C. and others along with all addenda issued and sent to the undersigned prior to the date of opening proposals whether received by the undersigned or not.

**PROPOSALS ARE TO BE BASED ON PLANS AND SPECIFICATIONS.**

**CONTRACT - BASE PROPOSAL**

I, or We, propose to fully execute and complete all work under this Contract for General Construction - Base Proposal.

FOR THE TOTAL SUM OF

\_\_\_\_\_ dollars (written out)

\$ \_\_\_\_\_ in figures

**2. ALTERNATES:**

- a) The following amounts shall be added to or deducted from the base proposal price. Refer to 01030 Alternates. (If no Alternate is being proposed than indicate by "No Proposal").

# 1- THEATER LOBBY \_\_\_\_\_.

**ALTERNATE 1A-THEATER LOBBY**

**ADD**

\$ \_\_\_\_\_ in figures

\_\_\_\_\_ dollars (written out)

# 2- SITE WORK \_\_\_\_\_.

**ALTERNATE 2A – SIDE EXTERIOR PATIO AND LANDSCAPING**

**ADD**

\$ \_\_\_\_\_ in figures



# WANDERBACK BREWERY & LANDIS THEATER - PROPOSED RENOVATIONS

\_\_\_\_\_ dollars (written out)

**WANDERBACK BREWERY & LANDIS THEATER - PROPOSED RENOVATIONS**

**ALTERNATE #2B –FRONT EXTERIOR PATIO, RAILINGS, POSTS, ETC.**

**ADD**

\$ \_\_\_\_\_ in figures

\_\_\_\_\_ dollars (written out)

**# 3-BREWERY TASTING AREA - FINISH UPGRADES**

**ALTERNATE 3A – BREWERY -WOMENS TOILET ROOM - FINISH UPGRADES**

**ADD**

\$ \_\_\_\_\_ in figures

\_\_\_\_\_ dollars (written out)

**ALTERNATE 3B – LOWER TASTING ROOM FINISH UPGRADES**

**ADD**

\$ \_\_\_\_\_ in figures

\_\_\_\_\_ dollars (written out)

**ALTERNATE 3C – MEZZANINE TASTING ROOM FLOOR, STAIR AND BASE FINISH UPGRADES**

**ADD**

\$ \_\_\_\_\_ in figures

\_\_\_\_\_ dollars (written out)

**# 4 – CLUB AREA FLOORING AND BASE**

**ALTERNATE 4A – CLUB AREA FLOORING AND BASE**

**ADD**

\$ \_\_\_\_\_ in figures

\_\_\_\_\_ dollars (written out)

**WANDERBACK BREWERY & LANDIS THEATER - PROPOSED RENOVATIONS**

**# 5 – ROOFING**\_\_\_\_\_.

**ALTERNATE 5A – ADDED ROOF WORK AT PREVIOUS GREEN ROOM ADDITION**

**ADD**

**\$** \_\_\_\_\_ in figures

\_\_\_\_\_ dollars (written out)

**ALTERNATE 5B –ADDITIONAL WORK AT EXISTING CHIMNEY WORK**

**ADD**

**\$** \_\_\_\_\_ in figures

\_\_\_\_\_ dollars (written out)

**\*The Owner reserves the right to accept, reject, and/or negotiate Alternates.**

## WANDERBACK BREWERY & LANDIS THEATER - PROPOSED RENOVATIONS

### VALUE ENGINEERING:

ALL PROPOSALS MUST BE BASED UPON THE PROPOSAL DOCUMENTS WITH NO SUBSTITUTIONS. Contractors MAY provide value engineering suggestions and substitution requests. These should be separate from the proposal and listed on a separate sheet on the Contractors letter head. .

### 3. SITE VISIT:

- a. The contractor hereby affirms that he has visited the site, examined all conditions affecting the work, including Contract Documents for this and other Contract Divisions.

DATE: \_\_\_\_\_ BY: \_\_\_\_\_

### 4. SIGNATURE

If written, notice to the acceptance of this proposal is mailed, telegraphed, or delivered to the undersigned within ninety (90) days, after the opening of proposals, or any time thereafter before this proposal is withdrawn, the undersigned will, within ten (10) days after the date of such mailing, telegraphing, or delivering of such notice, execute a contract. The undersigned hereby designates as his office to which notice of acceptance may be mailed, telegraphed or delivered.

The contractor also affirms based upon signing the below document that they are not aware of any material error or omission in the proposal documents that would lead to extra expense for the owner and also that if awarded the proposal they would provide all the work and material as specified without material deviation to the project as presented. As noted above the owner may entertain proposed changes to the project, but these are to be presented independently of this proposal form and may be negotiated or discussed with owner prior to any acceptance.

DATE: \_\_\_\_\_

BY: \_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Firm Name

\_\_\_\_\_  
Telephone number

(Seal) \_\_\_\_\_

\_\_\_\_\_  
Address

END OF PROPOSAL FORM

**CITY OF VINELAND**  
**ACKNOWLEDGMENT OF RECEIPT OF ADDENDA**

Pursuant to N.J.S.A. 40A:11-23.1a, the undersigned bidder hereby acknowledges receipt of the following notices, revisions, or addenda to the bid advertisement, specifications or bid documents. By indicating date of receipt, bidder acknowledges the submitted bid takes into account the provisions of the notice, revision or addendum. Note that the local unit's record of notice to bidders shall take precedence and that failure to include provisions of changes in a bid proposal may be subject for rejection of the bid.

Addendum Number	Dated	Acknowledge Receipt (Initial)
_____	_____	_____
_____	_____	_____
_____	_____	_____

\_\_\_\_\_ No addenda received.

Acknowledged for: \_\_\_\_\_  
(Name of Bidder)

By: \_\_\_\_\_  
(Signature of Authorized Representative)

Name: \_\_\_\_\_  
(Please type or Print)

Title: \_\_\_\_\_

Date: \_\_\_\_\_

### **STATEMENT OF OWNERSHIP DISCLOSURE**

This statement shall be completed, certified to, and included with all bid and proposal submissions. Failure to submit the required information is cause for automatic rejection of the bid or proposal.

Name of Organization: \_\_\_\_\_

Organization Address: \_\_\_\_\_

#### **Part I:**

Check the box that represents the type of business organization:

- ☐ Sole Proprietorship (skip Parts II and III, execute certification in Part IV)
- ☐ Non-Profit Corporation (skip Parts II and III, execute certification in Part IV)
- ☐ For-Profit Corporation (any type)
- ☐ Limited Liability Company (LLC)
- ☐ Limited Partnership
- ☐ Limited Liability Partnership (LLP)
- ☐ Other (be specific): \_\_\_\_\_

#### **Part II:**

The list below contains the names and addresses of all stockholders in the corporation who own 10 percent or more of its stock, of any class, or of all individual partners in the partnership who own a 10 percent or greater interest therein, or of all members in the limited liability company who own a 10 percent or greater interest therein, as the case may be. **(COMPLETE THE LIST BELOW IN THIS SECTION)**

**OR**

No one stockholder in the corporation owns 10 percent or more of its stock, of any class, or no individual partner in the partnership owns a 10 percent or greater interest therein, or no member in the limited liability company owns a 10 percent or greater interest therein, as the case may be. **(SKIP TO PART IV)**

**(Please attach additional sheets if more space is needed):**

Name of Individual or Business Entity	Address

**Part II DISCLOSURE OF 10% OR GREATER OWNERSHIP IN THE STOCKHOLDERS, PARTNERS OR LLC MEMBERS LISTED IN PART II**

If a bidder has a direct or indirect parent entity which is publicly traded, and any person holds a 10 percent or greater beneficial interest in the publicly traded parent entity as of the last annual federal Security and Exchange Commission (SEC) or foreign equivalent filing, ownership disclosure can be met by providing links to the website(s) containing the last annual filing(s) with the federal Securities and Exchange Commission (or foreign equivalent) that contain the name and address of each person holding a 10% or greater beneficial interest in the publicly traded parent entity, along with the relevant page numbers of the filing(s) that contain the information on each such person. Attach additional sheets if more space is needed.

Website (URL) containing the last annual SEC (or foreign equivalent) filing	Page #s

Please list the names and addresses of each stockholder, partner or member owning a 10 percent or greater interest in any corresponding corporation, partnership and/or limited liability company (LLC) listed in Part II other than for any publicly traded parent entities referenced above. The disclosure shall be continued until names and addresses of every non-corporate stockholder, and individual partner, and member exceeding the 10 percent ownership criteria established pursuant to N.J.S.A. 52:25-24.2 has been listed. Attach additional sheets if more space is needed.

Stockholder/Partner/Member and Corresponding Entity Listed in Part II	Address

**Part IV Certification**

I, being duly sworn upon my oath, hereby represent that the foregoing information and any attachments thereto to the best of my knowledge are true and complete. I acknowledge: that I am authorized to execute this certification on behalf of the bidder/proposer; that the <name of contracting unit> is relying on the information contained herein and that I am under a continuing obligation from the date of this certification through the completion of any contracts with <type of contracting unit> to notify the <type of contracting unit> in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I am subject to criminal prosecution under the law and that it will constitute a material breach of my agreement(s) with the, permitting the <type of contracting unit> to declare any contract(s) resulting from this certification void and unenforceable.

Full Name (Print) :		Title :	
Signature :		Date :	

**AMERICANS WITH DISABILITIES ACT OF 1990**  
**Equal Opportunity for Individuals with Disability**

The contractor and the VINELAND DEVELOPMENT CORPORATION (the "VDC") do hereby agree that the provisions of title 11 of the Americans With Disabilities Act of 1990 (the "Act") (42 U.S.C. §12101 et seq.), which prohibits discrimination on the basis of disability by public entities in all services, programs, and activities provided or made available by public entities, and the rules and regulations promulgated pursuant thereto, are made a part of this contract. In providing any aid, benefit, or service on behalf of the VDC pursuant to this contract, the contractor agrees that the performance shall be in strict compliance with the Act. In the event that the contractor, its agents, servants, employees, or subcontractors violate or are alleged to have violated the Act during the performance of this contract, the contractor shall defend the VDC in any action or administrative proceeding commenced pursuant to this Act. The contractor shall indemnify, protect, and save harmless the VDC its agents, servants, and employees from and against any and all suits, claims, losses, or damages, of whatever kind or nature arising out of or claimed to arise out of the alleged violation. The contractor shall, at its own expense, appear, defend, and pay any and all charges for legal services and any all costs and other expenses arising from such action or administrative proceeding or incurred in connection therewith. In any and all complaints brought pursuant to the VDC's grievance procedure, the contractor agrees to abide by any decision of the VDC which is rendered pursuant to said grievance procedure. If any action or administrative proceeding results in an award of damages against the VDC or if the VDC incurs any expense to cure a violation of the ADA which has been brought pursuant to its grievance procedure, the contractor shall satisfy and discharge the same at its own expense.

The VDC shall, as soon as practicable after a claim has been made against it, give written notice thereof to the contractor along with full and complete particulars of the claim. If any action or administrative proceedings is brought against the VDC, or any of its agents, servants, and employees, the VDC shall expeditiously forward or have forwarded to the contractor every demand, complaint, notice, summons, pleading, or other process received by the VDC or its representatives.

It is expressly agreed and understood that any approval by the VDC of the services provided by the contractor pursuant to this contract will not relieve the contractor of the obligation to comply with the Act and to defend, indemnify, protect, and save harmless the VDC pursuant to this paragraph.

It is further agreed and understood that the VDC assumes no obligation to indemnify or save harmless the contractor, its agents, servants, employees and servants, employees and subcontractors for any claim which may arise out of their performance of this Agreement. Furthermore, the contractor expressly understands and agrees that the provisions of this indemnification clause shall in no way limit the contractors obligations assumed in this Agreement, nor shall they be construed to relieve the contractor from any liability, nor preclude the VDC from taking any other actions available to it under any other provisions of the Agreement or otherwise at law.



**USE THESE  
DOCUMENTS  
WHEN SUBMITTING  
YOUR  
DUPLICATE  
PROPOSAL**

## **PROPOSAL CHECKLIST**

**Failure by the contracto to submit with their bid all of the MANDATORY  
Items that are check below shall be cause for rejection of bid.**

**PROJECT TITLE  
LANDIS THEATER/MORI BUILDING/MICROBREWERY  
RENOVATIONS AND SITE WORK**

**DATE (August 14, 2025)**

	<b><u>REQUIRED WITH BID</u></b>	<b><u>INITIAL &amp; SUBMIT</u></b>
1. Proposal Guarantee <b>(IN DUPLICATE)</b> (a proposal bond is not a consent of surety)	<u>  X  </u>	<u>          </u>
2. Certificate or Consent of Surety Form <b>(IN DUPLICATE)</b>	<u>  X  </u>	<u>          </u>
3. Statement of Ownership Disclosure <b>(IN DUPLICATE)</b>	<u>  X  </u>	<u>          </u>
4. EEO/Affirmative Action Compliance Notice <b>(IN DUPLICATE)</b>	<u>          </u>	<u>          </u>
5. Check List <b>(IN DUPLICATE)</b>	<u>  X  </u>	<u>          </u>
6. Proposal <b>(IN DUPLICATE)</b>	<u>  X  </u>	<u>          </u>
7. Acknowledgement of Receipt of Addenda <b>(IN DUPLICATE)</b>	<u>  X  </u>	<u>          </u>
8. List of Subcontractors per NJSA 40A:11-16, if any, If none, state so. <b>(IN DUPLICATE)</b>	<u>          </u>	<u>          </u>

**The items that are checked below shall be submitted no later than the time period indicated.**

<b><u>Required as Conditioned</u></b>	<b><u>Item</u></b>	<b><u>Read, Initialed Shall Submit</u></b>
<u>  X  </u>	Performance Bond (Due with the executed contract)	<u>          </u>
<u>  X  </u>	Labor and Material Payment Bond (Due with the executed contract)	<u>          </u>

(continued on next page)

<u>  X  </u>	Maintenance Bond (Due with the executed contract)	_____
_____	Public Works Contractor Registration Certificate(s) for the General or Prime Contractor and any Subcontractor submitted in the bid proposal with a date effective at the time the proposal is submitted (Due prior to contract award)	_____
<u>  X  </u>	New Jersey Business Registration Certificate (Due prior to contract award)	_____
_____	Disclosure of Investment Activities in Iran (Due prior to contract award)	_____
<u>  X  </u>	Certificate(s) of Insurance as specified In the Bid Document (Due with executed contract)	_____
_____	Certification of Non-Debarment for Federal Contracts. (Due prior to contract award)	_____
_____	Certification of Regarding Debarment Suspension. (Due prior to contract award)	_____

The items that are checked below are to be reviewed by the bidders.

<u>Review Required</u>	<u>Item</u>	<u>Read &amp; Initialed</u>
<u>  X  </u>	Americans with Disabilities Act Language	_____
<u>  X  </u>	General Instructions	_____
<u>  X  </u>	Technical Specifications	_____

THE ITEMS AND/OR FORMS INDICATED ABOVE SHALL BE REVIEWED AND/OR SUBMITTED WITH YOUR BID. THIS CHECKLIST IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY. ALL REQUIRED DOCUMENTATION MAY NOT BE LISTED ABOVE AND IT SHALL BE THE RESPONSIBILITY OF THE BIDDER TO CAREFULLY REVIEW THE COMPLETE BID PACKAGE, FAMILIARIZE THEMSELVES WITH THE REQUIREMENTS OF THIS BID AND TO SUBMIT WITH THEIR BID ALL REQUIRED DOCUMENTATION.

**SIGNATURE**

The undersigned hereby acknowledges that they have submitted and/or reviewed the above listed requirements:

\_\_\_\_\_  
(COMPANY)

\_\_\_\_\_  
(NAME - PLEASE PRINT OR TYPE)

\_\_\_\_\_  
(SIGNATURE)

\_\_\_\_\_  
(DATE)

**SECTION 00301**

**PROPOSAL FORM**

**1. PROPOSAL**

Pursuant to and in compliance with your Invitation to Submit Proposal the undersigned hereby offers to furnish all labor, materials, equipment and other facilities and things necessary or proper for, or incidental to, or required by, the drawings and specifications for the Theater and Brewery Renovations for Wanderback Brewery and Landis Theater 2025 prepared by J.W. Pedersen Architect, P.C. and others along with all addenda issued and sent to the undersigned prior to the date of opening proposals whether received by the undersigned or not.

**PROPOSALS ARE TO BE BASED ON PLANS AND SPECIFICATIONS.**

**CONTRACT - BASE PROPOSAL**

I, or We, propose to fully execute and complete all work under this Contract for General Construction - Base Proposal.

FOR THE TOTAL SUM OF

\_\_\_\_\_ dollars (written out)

\$ \_\_\_\_\_ in figures

**2. ALTERNATES:**

- a) The following amounts shall be added to or deducted from the base proposal price. Refer to 01030 Alternates. (If no Alternate is being proposed than indicate by "No Proposal").

**# 1- THEATER LOBBY** \_\_\_\_\_

**ALTERNATE 1A-THEATER LOBBY**

**ADD**

\$ \_\_\_\_\_ in figures

\_\_\_\_\_ dollars (written out)

**# 2- SITE WORK** \_\_\_\_\_

**ALTERNATE 2A - SIDE EXTERIOR PATIO AND LANDSCAPING**

**ADD**

\$ \_\_\_\_\_ in figures

**WANDERBACK BREWERY & LANDIS THEATER - PROPOSED RENOVATIONS**

\_\_\_\_\_ dollars (written out)

**WANDERBACK BREWERY & LANDIS THEATER - PROPOSED RENOVATIONS**

**ALTERNTE #2B –FRONT EXTERIOR PATIO, RAILINGS, POSTS, ETC.**

**ADD**

\$ \_\_\_\_\_ in figures

\_\_\_\_\_ dollars (written out)

**# 3-BREWERY TASTING AREA - FINISH UPGRADES**

**ALTERNATE 3A – BREWERY -WOMENS TOILET ROOM - FINISH UPGRADES**

**ADD**

\$ \_\_\_\_\_ in figures

\_\_\_\_\_ dollars (written out)

**ALTERNATE 3B – LOWER TASTING ROOM FINISH UPGRADES**

**ADD**

\$ \_\_\_\_\_ in figures

\_\_\_\_\_ dollars (written out)

**ALTERNATE 3C – MEZZANINE TASTING ROOM FLOOR, STAIR AND BASE FINISH UPGRADES**

**ADD**

\$ \_\_\_\_\_ in figures

\_\_\_\_\_ dollars (written out)

**# 4 – CLUB AREA FLOORING AND BASE**

**ALTERNATE 4A – CLUB AREA FLOORING AND BASE**

**ADD**

\$ \_\_\_\_\_ in figures

\_\_\_\_\_ dollars (written out)

**WANDERBACK BREWERY & LANDIS THEATER - PROPOSED RENOVATIONS**

**# 5 – ROOFING**

**ALTERNATE 5A – ADDED ROOF WORK AT PREVIOUS GREEN ROOM ADDITION**

**ADD**

**\$ \_\_\_\_\_ in figures**

**\_\_\_\_\_ dollars (written out)**

**ALTERNATE 5B –ADDITIONAL WORK AT EXISTING CHIMNEY WORK**

**ADD**

**\$ \_\_\_\_\_ in figures**

**\_\_\_\_\_ dollars (written out)**

**\*The Owner reserves the right to accept, reject, and/or negotiate Alternates.**

## WANDERBACK BREWERY & LANDIS THEATER - PROPOSED RENOVATIONS

### VALUE ENGINEERING:

ALL PROPOSALS MUST BE BASED UPON THE PROPOSAL DOCUMENTS WITH NO SUBSTITUTIONS. Contractors MAY provide value engineering suggestions and substitution requests. These should be separate from the proposal and listed on a separate sheet on the Contractors letter head. .

### 3. SITE VISIT:

- a. The contractor hereby affirms that he has visited the site, examined all conditions affecting the work, including Contract Documents for this and other Contract Divisions.

DATE: \_\_\_\_\_ BY: \_\_\_\_\_

### 4. SIGNATURE

If written, notice to the acceptance of this proposal is mailed, telegraphed, or delivered to the undersigned within ninety (90) days, after the opening of proposals, or any time thereafter before this proposal is withdrawn, the undersigned will, within ten (10) days after the date of such mailing, telegraphing, or delivering of such notice, execute a contract. The undersigned hereby designates as his office to which notice of acceptance may be mailed, telegraphed or delivered.

The contractor also affirms based upon signing the below document that they are not aware of any material error or omission in the proposal documents that would lead to extra expense for the owner and also that if awarded the proposal they would provide all the work and material as specified without material deviation to the project as presented. As noted above the owner may entertain proposed changes to the project, but these are to be presented independently of this proposal form and may be negotiated or discussed with owner prior to any acceptance.

DATE: \_\_\_\_\_

BY: \_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Firm Name

\_\_\_\_\_  
Telephone number

(Seal) \_\_\_\_\_

\_\_\_\_\_  
Address

END OF PROPOSAL FORM



**CITY OF VINELAND**  
**ACKNOWLEDGMENT OF RECEIPT OF ADDENDA**

Pursuant to N.J.S.A. 40A:11-23.1a, the undersigned bidder hereby acknowledges receipt of the following notices, revisions, or addenda to the bid advertisement, specifications or bid documents. By indicating date of receipt, bidder acknowledges the submitted bid takes into account the provisions of the notice, revision or addendum. Note that the local unit's record of notice to bidders shall take precedence and that failure to include provisions of changes in a bid proposal may be subject for rejection of the bid.

Addendum Number	Dated	Acknowledge Receipt (Initial)
_____	_____	_____
_____	_____	_____
_____	_____	_____

\_\_\_\_\_ No addenda received.

Acknowledged for: \_\_\_\_\_  
(Name of Bidder)

By: \_\_\_\_\_  
(Signature of Authorized Representative)

Name: \_\_\_\_\_  
(Please type or Print)

Title: \_\_\_\_\_

Date: \_\_\_\_\_

### **STATEMENT OF OWNERSHIP DISCLOSURE**

This statement shall be completed, certified to, and included with all bid and proposal submissions. Failure to submit the required information is cause for automatic rejection of the bid or proposal.

Name of Organization: \_\_\_\_\_

Organization Address: \_\_\_\_\_

#### **Part I:**

Check the box that represents the type of business organization:

- ☐ Sole Proprietorship (skip Parts II and III, execute certification in Part IV)
- ☐ Non-Profit Corporation (skip Parts II and III, execute certification in Part IV)
- ☐ For-Profit Corporation (any type)
- ☐ Limited Liability Company (LLC)
- ☐ Limited Partnership
- ☐ Limited Liability Partnership (LLP)
- ☐ Other (be specific): \_\_\_\_\_

#### **Part II:**

The list below contains the names and addresses of all stockholders in the corporation who own 10 percent or more of its stock, of any class, or of all individual partners in the partnership who own a 10 percent or greater interest therein, or of all members in the limited liability company who own a 10 percent or greater interest therein, as the case may be. (COMPLETE THE LIST BELOW IN THIS SECTION)

OR

No one stockholder in the corporation owns 10 percent or more of its stock, of any class, or no individual partner in the partnership owns a 10 percent or greater interest therein, or no member in the limited liability company owns a 10 percent or greater interest therein, as the case may be. (SKIP TO PART IV)

**(Please attach additional sheets if more space is needed):**

Name of Individual or Business Entity	Address

**Part III DISCLOSURE OF 10% OR GREATER OWNERSHIP IN THE STOCKHOLDERS, PARTNERS OR LLO MEMBERS LISTED IN PART II**

If a bidder has a direct or indirect parent entity which is publicly traded, and any person holds a 10 percent or greater beneficial interest in the publicly traded parent entity as of the last annual federal Security and Exchange Commission (SEC) or foreign equivalent filing, ownership disclosure can be met by providing links to the website(s) containing the last annual filing(s) with the federal Securities and Exchange Commission (or foreign equivalent) that contain the name and address of each person holding a 10% or greater beneficial interest in the publicly traded parent entity, along with the relevant page numbers of the filing(s) that contain the information on each such person. Attach additional sheets if more space is needed.

Website (URL) containing the last annual SEC (or foreign equivalent) filing	Page #s

Please list the names and addresses of each stockholder, partner or member owning a 10 percent or greater interest in any corresponding corporation, partnership and/or limited liability company (LLC) listed in Part II other than for any publicly traded parent entities referenced above. The disclosure shall be continued until names and addresses of every non-corporate stockholder, and individual partner, and member exceeding the 10 percent ownership criteria established pursuant to N.J.S.A. 52:25-24.2 has been listed. Attach additional sheets if more space is needed.

Stockholder/Partner/Member and Corresponding Entity Listed in Part II	Address

**Part IV Certification**

I, being duly sworn upon my oath, hereby represent that the foregoing information and any attachments thereto to the best of my knowledge are true and complete. I acknowledge that I am authorized to execute this certification on behalf of the bidder/proposer; that the <name of contracting unit> is relying on the information contained herein and that I am under a continuing obligation from the date of this certification through the completion of any contracts with <type of contracting unit> to notify the <type of contracting unit> in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I am subject to criminal prosecution under the law and that it will constitute a material breach of my agreement(s) with the, permitting the <type of contracting unit> to declare any contract(s) resulting from this certification void and unenforceable.

Full Name (Print) :		Title :	
Signature :		Date :	

**AMERICANS WITH DISABILITIES ACT OF 1990**  
**Equal Opportunity for Individuals with Disability**

The contractor and the VINELAND DEVELOPMENT CORPORATION (the "VDC") do hereby agree that the provisions of title 11 of the Americans With Disabilities Act of 1990 (the "Act") (42 U.S.C. §12101 et seq.), which prohibits discrimination on the basis of disability by public entities in all services, programs, and activities provided or made available by public entities, and the rules and regulations promulgated pursuant thereto, are made a part of this contract. In providing any aid, benefit, or service on behalf of the VDC pursuant to this contract, the contractor agrees that the performance shall be in strict compliance with the Act. In the event that the contractor, its agents, servants, employees, or subcontractors violate or are alleged to have violated the Act during the performance of this contract, the contractor shall defend the VDC in any action or administrative proceeding commenced pursuant to this Act. The contractor shall indemnify, protect, and save harmless the VDC its agents, servants, and employees from and against any and all suits, claims, losses, or damages, of whatever kind or nature arising out of or claimed to arise out of the alleged violation. The contractor shall, at its own expense, appear, defend, and pay any and all charges for legal services and any all costs and other expenses arising from such action or administrative proceeding or incurred in connection therewith. In any and all complaints brought pursuant to the VDC's grievance procedure, the contractor agrees to abide by any decision of the VDC which is rendered pursuant to said grievance procedure. If any action or administrative proceeding results in an award of damages against the VDC or if the VDC incurs any expense to cure a violation of the ADA which has been brought pursuant to its grievance procedure, the contractor shall satisfy and discharge the same at its own expense.

The VDC shall, as soon as practicable after a claim has been made against it, give written notice thereof to the contractor along with full and complete particulars of the claim. If any action or administrative proceedings is brought against the VDC, or any of its agents, servants, and employees, the VDC shall expeditiously forward or have forwarded to the contractor every demand, complaint, notice, summons, pleading, or other process received by the VDC or its representatives.

It is expressly agreed and understood that any approval by the VDC of the services provided by the contractor pursuant to this contract will not relieve the contractor of the obligation to comply with the Act and to defend, indemnify, protect, and save harmless the VDC pursuant to this paragraph.

It is further agreed and understood that the VDC assumes no obligation to indemnify or save harmless the contractor, its agents, servants, employees and servants, employees and subcontractors for any claim which may arise out of their performance of this Agreement. Furthermore, the contractor expressly understands and agrees that the provisions of this indemnification clause shall in no way limit the contractors obligations assumed in this Agreement, nor shall they be construed to relieve the contractor from any liability, nor preclude the VDC from taking any other actions available to it under any other provisions of the Agreement or otherwise at law.

**PLEASE PRINT (LEGIBLY) OR TYPE**

Accompanying this proposal is a certified check in the amount of \$\_\_\_\_\_, a cashier's check in the amount of \$\_\_\_\_\_, or a bid bond in the amount of \$\_\_\_\_\_, payable to the City of Vineland which is to be forfeited as liquidated damages, if in the event that this proposal is accepted, the undersigned shall fail to execute the contract or to furnish satisfactory bond as require.

WITNESS\_\_\_\_\_

The bidder shall state on the line below, if a corporation, the name of the state in which incorporated.

\_\_\_\_\_

\_\_\_\_\_  
(Contact Person Who Prepared Proposal)

\_\_\_\_\_  
(Telephone Number)

\_\_\_\_\_  
(Federal I.D. Number)

\_\_\_\_\_  
(Email address)

COMPANY\_\_\_\_\_

ADDRESS\_\_\_\_\_

\_\_\_\_\_

TELEPHONE\_\_\_\_\_

BY\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Name-please print or type)

\_\_\_\_\_  
(Title)

DATE\_\_\_\_\_

Have you attached the required items listed on the Check List? Failure to do so may result in automatic rejection of this bid.

\_\_\_\_\_  
(Fax Number)

**SECTION 01010**  
**SUMMARY OF THE WORK**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General Conditions and other Division-1 Specification Sections, apply to this Section.

**1.2 PROJECT DESCRIPTION**

- A. The Scope of Work is indicated on the drawings and in the specification and includes:
  - 1. General conditions, site work, concrete, masonry, steel, carpentry, doors and windows, thermal and moisture protection, finishes, equipment, specialties, electrical, plumbing and HVAC work.
- B. The work consists of the renovations to an existing Theater, Club and Restaurant Building.
- C. The Contract is for a complete project. Include all incidental and necessary work whether specifically indicated or not as required to complete the work. During the bid stage, it is the bidders' legal obligation to notify the Architect and/or Owner of any potential conflicts or lapses in the documents they feel have been missed or are unclear.

**1.3 CONTRACTOR USE OF PREMISES**

- A. The owner will occupy the facility throughout the construction period.
- B. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on site.
- C. Disposal of Waste Materials: Dispose of construction debris daily. Do not allow materials to accumulate. Coordinate an on site location for trash dumpster with Township officials so as to minimize impact on adjacent neighbors. Do not dispose of waste material on site, either by burial or by burning.

**1.4 TENANT, OUTSIDE VENDORS, OWNER OCCUPANCY – USE**

- A. The owner will occupy and do work throughout the project construction period. Cooperate with the these personnel during construction operations to minimize conflicts and facilitate their work.

**1.5 PROJECT COMPLETION AND START DATE**

- A. See dates noted in Instructions to Bidders in this project manual.

**1.6 SITE AND BUILDING MAINTENANCE AND RESTORATION**

- A. The contractor shall be required to maintain the premises in good and safe condition and to restore the areas where they have completed work and/or utilized the property to its pre-construction condition or better.

**PART 2 - PRODUCTS (Not applicable).**

**PART 3 - EXECUTION (Not used)**

**END OF SECTION 01010**

**SECTION 01019**  
**RESPONSIBILITY MATRIX**

**PART 1 – GENERAL**

1.1 GENERAL

- A. GC - The terms 'GC', 'Contractor', "Subcontractor" (to the General Contractor), are interchangeable for this document. For this document this term shall include the General Contractor (GC) and all their subcontractors, suppliers, vendors etc.
- B. Owner - The terms 'Owner' and 'Landlord' are interchangeable for this document. For this document this term shall refer to the Vineland Development Corp. and all their vendors and suppliers other than the "GC".
- C. Tenants - The building is and will be occupied by 2 separate Tenants. The terms "Tenant", 'Leasee', other are interchangeable. The tenants will lease their portion of the property from the owner. Each tenant is an independent company. There are aspects of the work and property that will be utilized in common between the tenants and between the Tenants and the Owner.
  - a. Theater (Landis Theater), Club (930 East) – Tenant is currently leasing, occupying and utilizing all areas of the building and site except those noted to be part of the new Brewery.
  - b. Brewery (Wanderback Brewery) – Tenant will lease and occupy the first floor of the Mori Building and the adjacent site areas.
- D. Owner and their Tenant's retain the right to place and install, in coordination with Contractor's construction schedule, as many items and/or as much equipment as it may require during the progress of the Work, before completion of the various parts of the Work. This shall not in any way evidence completion of the Work or any portion thereof, nor shall it signify Owner's acceptance of the Work or any portion thereof.
  - a. It should be assumed that all work and items shown on the drawings and called for in the specifications shall be part of the work of the Construction Contract except where specifically noted otherwise.

1.2 CATEGORIES OF ITEMS (see the following matrix)

- A. Provided by Owner/Tenant(s) for the Contractor to Install: Items shown or noted "By Owner" on the drawings and/or in the specifications shall be furnished by Owner to Contractor/subcontractor for installation by Contractor/subcontractor as part of the construction contract. Contractor/subcontractor shall receive, unload as required, store and be responsible to the extent of carrying necessary insurance to cover items in the event of theft, fire, loss, malicious damage and other miscellaneous damage.
- B. Owner/Tenant to Provide and Install: Items shown or noted ("NIC") on the drawings and/or in the specifications shall be furnished and installed by Owner/Tenant under separate contract, except as described hereinafter. The Owner/tenant shall receive, unload as required, store, and be responsible to the extent of carrying necessary insurance to cover items in the event of theft, fire, loss, malicious damage and other miscellaneous damage.
- C. Contractor to Provide and Install: Items **not** shown or noted as "*By the Owner*" or "*By Others*" or "*NIC*" or by "*Tenant*" on the drawings and/or in the specifications shall be furnished and installed by Contractor as part of the construction contract. The Contractor shall receive, unload as required, store, and be responsible to the extent of carrying necessary insurance to cover items in the event of theft, fire, loss, malicious damage and other miscellaneous damage.

This category is provided only for those items where the scope may not be entirely clear. See notes above and below for further clarification.

### 1.3 COORDINATION

- A. The contractor is required to coordinate the installation of all items. The contractor is to provide blocking, openings, raceways, etc. to accommodate the installation of items provided by others. **The contractor shall make all final electrical, plumbing and HVAC connections to items requiring the same that are provided by others.** For material items, the contractor is to include in his price all accessories, fasteners, backings, etc as required for a complete installation.
- B. **SELECTIVE DEMOLITION**
  - a. Certain building systems utilized in common must remain in operation thru the work. Refer to the logistics plan and existing conditions for information. This shall include but not be limited to:
    - i. Fire Suppression
    - ii. Fire Alarm
    - iii. Certain Drainage systems for Club/Theater
    - iv. Hot and Cold water for Club/Theater
    - v. Electric for Club/Theater
  - b. For items listed as Owner/Tenant to provide and install the demolition or relocation of those systems is to be coordinated and scheduled between the Contractor and the Owner/Tenant. DO NOT remove any item prior to obtaining approval from the Owner/Tenant.
- C. **MOVING OF ITEMS IN WORK AREAS**
  - a. General
    - i. The contractor shall remove and dispose of any item (furniture, equipment, other) not noted or required to remain in the Brewery Work area at the start of their work.
  - b. Club Flooring – The Theater tenant shall move any furniture in the Club Areas to receive new flooring and base.
  - c. Brewery - The Tenant/Owner shall move any loose furniture items they may intend to keep outside of the work area.

## PART 2 – PRODUCTS-NOT USED

## PART 3 – EXECUTION

### 3.1 RECEIPT OF ITEMS

- A. During the course of construction, some deliveries of equipment and miscellaneous items will be made to the job site by common carrier. Contractor shall receive and inspect items for conformance to delivery ticket(s) and for damage. If during receipt any missing or damaged items are observed, Contractor shall:
  - 1. Make notation of any and all discrepancies on the delivery ticket(s).
  - 2. Call delivery carrier and advise of the problem.
  - 3. Call the Owner.



	ITEM	OWNER/ TENANT SUPPLIED GC TO INSTALL	GC TO SUPPLY AND INSTALL	OWNER/ TENANT – TO PROVIDE AND INSTALL	NOTE	
1	Computer System			X	2	
2	Telephone System			X	2	
3	Sound System			X	2	
4	Burglar Alarm			X	2	
5	Cameras			X	2	
6	General Signage		X	X	3	
7	Loose Furniture			X		
8	Wash Accessories		X			
9	Testing			X		
10	Utility Fees			X	5	
11	Permit Fees			X	5	
12	Door Hardware and Keying		X		4	
13	Moving, and Relocations			X	13	
14	Temporary Protections		X	X	14	
16	Site Irrigation				15	
17	Specific Signage			X	3, 32	
18	Finishes in existing building		X		18	
20	Final cleaning		X	X	20	
21	Existing building selective interior demolition		X		21	
23	IP Wall and Ceiling		X		24	
26	All work not specifically noted by owner and/or tenant		X		26	
28	Selected Wall and Roof Openings		X		28	
29	Temporary wall openings, accessway and enclosures		X		29	
	EQUIPMENT- SEE LIST BELOW	X	X	X	25	

NOTES:

1. ALL ITEMS =
  - i. Refer to drawings and other project manual sections also
  - ii. **All items not noted “NIC” or “By Owner”, “By Tenant” are to be provided as part of the General Contract.**
  - iii. **Cooperate with the Owner & Tenants to facilitate their work and operations.**
  - iv. **Certain work elements must be completed in conjunction with the Owner’s and/or Tenant’s work. (openings, temporary protections, access, storage, etc.)**
2. Certain portions of the work may be part of the contract as noted (receptacles, chases, blocking, conduit, etc.).
  - i. Certain existing system elements may need to be moved and/or relocated. Contractor to identify and coordinate with Owner/Tenants. Owner/Tenants shall move and/or relocate these items.
3. Site, Handicap and Caution signage as indicated is to be provided by the contractor.
4. Door Hardware and Keying – GC is to provide **all** material and work unless specifically noted otherwise. See specification section 08710-Door Hardware. All keying is to be compatible with existing systems. Club tenant may want certain specific cyper locks relocated and/or reused. If new items for these are required the Tenant shall provide the new material but the contractor shall install.
5. Utility Fees and Permit Fees –

- i. Contractor to apply for, Owner to pay for permits and utility fees.

6 – 12 NOT USED

13. Moving and Relocations

- a. See general notes 1.3 Coordination above
- b. Owner/Tenant shall be responsible to relocate and move items noted in section above to help facilitate the work
- c. Electrical, fire suppression HVAC, Lighting, systems piping etc. in the Work Areas shall be relocated by the Contractor.

14. Temporary Protections

- a. Contractor
  - i. Shall be responsible for all building construction work-related temporary protections and their relocation and removal at their work areas including but not limited to temporary walls, dust protections, shoring, supports, environmental barriers, etc. as indicated and required. See Temporary Facilities.
  - ii. For Tenant-Owner supplied or on site items, the contractor shall conduct work so as to not damage, harm, dirty, etc.
- b. Owner/Tenant
  - i. Shall be responsible to cover their own equipment with dust protections.

15. Site Irrigation

- a. The GC shall provide exterior water lines and connection points/boxes as indicated. The owner is to provide all other exterior related irrigation related work.

16. NOT USED

17. NOT USED

18. Finishes in Existing Building.

- a. Refer also to the finish plan.
- b. Refer also to the project alternates.
- c. The GC will be responsible for all finishes (walls, base, floor, ceiling, trims, sealants, etc.
- d. The GC will be responsible for all new and existing Insulated panel materials, trims, sealants, etc.
- e. Alternate pricing is to be provided for certain finish work.
- f. The GC will be responsible to do certain preparation work in the existing at areas where they are completing demolition and new construction.
- g. All new floor/base to existing flooring, walls, doors, equipment, base shall be neatly and professionally completed.

19. NOT USED

20. Final cleaning

- a. See Temporary Facilities for cleaning during construction. See Project Closeout 01700 for final cleaning.
- b. The GC shall remove all debris caused by created by their work. All GC work areas are to be swept cleaned and wet wiped down by the GC. All dirt is to be removed. See
- c. After the GC is done with their cleaning, the Owner/Tenants will complete a final sanitary cleaning of the facility. After the owner's/Tenant sanitary cleaning, any work area the GC does work in the GC will be responsible for cleaning that area to the owner's sanitary standards.
- d. All exterior (roof, walls, site, windows, etc) cleaning will be by the GC.

21. Existing building Selective Demolition.

- a. The GC shall be responsible for all removals not specifically noted to be by the Owner/tenant including but not limited to
    - i. All wall removals (full, and partial) and wall openings indicated
    - ii. All window and door removals.
    - iii. All floor removals
    - iv. Patching, restoring and trimming/finishing of all floors, bollards, walls, base and ceilings at removed items.
    - v. Openings –
      - 1. GC - Creating of any openings, penetrations etc. required by any GC installed systems (electric, plumbing, hvac, fire suppression, compressed air, other scheduled, and as indicated on the drawings etc.
      - 2. The owner/tenant shall create, seal and trim any openings (controls, low voltage that are not shown or called for their equipment and systems.
  - b. The GC shall remove
    - i. Electric, plumbing, HVAC, Fire Suppression, Hood, food/kitchen, equipment, etc items located in work areas
24. IMP Wall and Ceiling Openings.
- a. GC is to provide and install all openings and opening trims in the new IMP walls and ceilings required and indicated in the work
  - b. IP Wall and Ceiling Patching.
    - i. Patching shall include the neat trimming, sealing and insulation of all IP items at removed items including fasteners, penetrations, cuts, tec.
    - ii. The GC shall patch the existing IP walls and ceilings at all items impacted by their work (electric, sprinkler, piping, wall .)
    - iii. The Owner/Tenant shall patch the walls and ceilings at items they remove.
25. New Brewery Process Equipment Indicated
- a. In general
    - 1. Brewery Tenant and GC shall coordinate the:
      - a. Rough in, schedule, delivery, installation of tenant equipment
      - b. Voltages, wall, ceiling and floor openings and penetrations
      - c. Plumbing and system connection points
    - 2. Brewery Tenant shall be responsible to/for
      - a. Take delivery, unload, rig, store etc. their equipment
      - b. Install and set all Brewery Equipment with control systems, and process piping FROM equipment Unless Noted Otherwise or “By GC”.
      - c. Install and Set Tasting area equipment
      - d. Protection tarping of their equipment items as stored or installed. installed.
    - 3. The GC shall be responsible to/for
      - a. Provide all general drains, water piping, electrical systems, as indicated in on drawings.
      - b. Clearing and preparing the spaces for the tenant’s supplied items,
      - c. Provide the work related to the owner supplied equipment as indicated.
      - d. Make proper and code compliant water, electric and duct connections for Contractor indicated MEP items and equipment.
      - e. Not damage the Tenant supplied and installed equipment and if necessary provide additional protections.
      - f. Provide certain finish work prior to and after the completion of the owner’s installation.
      - g. For certain supports, openings, temporary openings,

- connections, etc. for particular items as noted.
  - h. Certain electrical, plumbing and HVAC connections as noted on the documents.
- d. The Brewery Tenant Equipment shall consist of (refer to the brewery equipment plan and schedule and the MEP drawings).
- 1. Grain Handling
    - a. GC to provide and install
      - i. Floor openings
      - ii. Electrical power w/disconnects as indicated
    - b. Tenant to provide and install
      - i. Control wiring
      - ii. Safety systems
  - 2. Brewery Boiler System
    - a. GC to provide and install
      - i. Gas Connection
      - ii. Flue(s) & Combustion Air to and thru roof
      - iii. Water input connection
      - iv. Housekeeping pad
      - v. Electric power connection
    - b. Tenant to provide and install
      - i. All other work
  - 3. Brew house System
    - a. GC to provide and install
      - i. Electric connection to unit as indicated
      - ii. Passive Steam vent thru roof
      - iii. Water connections indicated
    - b. Tenant to Provide and install
      - iv. Control wiring
      - v. Boiler and chiller connections
      - vi. Process piping
  - 4. Brewery Process- Hot Liquor and Cold Liquor Tanks
    - a. Tenant to Provide and install
      - i. Boiler and chiller connections
  - 5. Cellar
    - a. GC to provide and install
      - ii. Electrical connections as indicated
    - b. Tenant to Provide and install
      - i. Delivery, leveling and setting of units
      - ii. Process Piping to and from units
      - iii. Boiler and Chiller connections
  - 6. Chiller
    - a. GC to provide and install
      - i. Concrete Pad
      - ii. Wall panel for penetration
      - iii. Electrical connections as indicated
      - iv. Interior masonry wall opening for line sets
    - b. Tenant to Provide and install
      - i. Delivery, leveling and setting of units

- ii. Process Piping to and from units including insulation.
- iii. Exterior Wall panel penetration, trim and sealing
- iv. Interior wall opening trim

20. Air Compressor System

- a. GC to provide and install
  - i. Power disconnect and connection
  - ii. Railing installation coordination
- b. Tenant to provide and install
  - i. Final electric connection and controls
  - ii. Compressor system piping, drops, etc.

21-27 Packing / Canning Line

- a. GC to provide and install
  - a. Power connection points as indicated
    - i. with drop cords if/as indicated
- b. Tenant to provide and install
  - a. System(s)
  - b. Controls

30-31 Brewery Area Sinks (hand sinks, wash sinks, service sinks)

- a. GC to provide and install
  - a. Plumbing Drains
  - b. Hot and cold water lines
  - c. Connections to sinks
  - d. Assembly, setting and mounting of sinks
  - e. Piping systems, fittings, etc.
- b. Tenant to provide
  - a. Units delivered to site for installation by GC.

40 Cooler

- a. GC to provide and install
  - i. Complete system with supports, insulation, selants, walls, ceilings, door, refrigeration condenser and evaporators, line sets, controls, heater tracing, etc.
  - ii.

50. CO2 Micro Bulk Tank

- a. GC to provide and install
  - i. Concrete pad
  - ii. Window wall panel for penetrations
- b. Tenant to provide and install
  - i. Unit setting and anchorage
  - ii. Controls
  - iii. System piping and penetrations
  - iv. Coordinate any alarms with Contractor

70-75 Tasting Room Equipment

- a. GC to provide and install
  - i. Electric and plumbing connections as indicated
- b. Tenant to provide and install
  - i. Unit setting and anchorage

90 Emergency Eye Wash and Shower

- a. GC to provide and install.

- b.
- 26. Specific Signage –
  - a. Construction warning signage noted on the drawings and as required is to be provided and installed by the GC.
  - b. Other permanent signage as might be necessary will be provided by the owner.
  - c. Contractor to perform certain work in support of the owner's installation.
- 27. NOT USED
- 28. Selected Wall and Roof Openings
  - a. See the above notes and the documents for further clarity.
  - b. In General, the GC shall be responsible to
    - i. Structurally create, and permanently frame and trim all roof (new and existing), exterior wall and existing precast concrete wall openings indicated and required
    - ii. Make all exterior openings weather tight.
- 29. Temporary wall openings, accessways and enclosures
  - a. The GC shall be responsible to create, protect, relocate, maintain and remove all temporary wall openings, accessways and enclosures.at Interior and Exterior openings.

**END OF SECTION 01019**

**SECTION 01030**  
**ALTERNATES**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. This Section specifies administrative and procedural requirements for Alternates.
- B. Definition: An Alternate is an amount proposed by Bidders and stated on the Bid Form for certain construction activities defined in the Bidding Requirements that may be added to or deducted from Base Bid amount if the Owner decides to accept a corresponding change in either the amount of construction to be completed, or in the products, materials, equipment, systems or installation methods described in Contract Documents. The option to accept certain Alternates as defined below may be exercised after the award of contracts. If these are accepted, after award of the contract, a change order in the amount of the alternate will be issued.
- C. Coordination: Coordinate related Work and modify or adjust adjacent Work as necessary to ensure that Work affected by each accepted Alternate is complete and fully integrated into the project.
- D. Schedule: A "Schedule of Alternates" is included at the end of this Section. Specification Sections referenced in the Schedule contain requirements for materials and methods necessary to achieve the Work described under each Alternate.
  - 1. Include as part of each Alternate, miscellaneous devices, accessory objects and similar items incidental to or required for a complete installation whether or not mentioned as part of the Alternate.
  - 2. In general, the alternates are NOT listed in the order in which they may be accepted.
- E. Acceptance: Acceptance of Alternates will be exercised at the option of Owner. Alternate pricing is to be held for a minimum period of 30 days beyond the date of the notice to proceed. If the alternates are accepted during this time, after a contract has been awarded, a change order will be prepared in the amount of the alternate bid.
- F. Work required for each alternate may be shown on all drawings and any specification section. Effort has been made to provide a clear delineation of the alternates. If any bidder requires additional clarification, it is their responsibility to provide a request for clarification prior to submitting a bid. All work should be assumed to part of the Base Bid unless noted otherwise.
- G. Alternate work is to be complete and is to include all necessary work including but not limited to
  - 1. General Conditions, Temporary Facilities, etc.
  - 2. Existing Conditions, Selective Demolition, Site work
  - 3. Concrete
  - 4. Masonry
  - 5. Metals
  - 6. Woods, plastics and composites
  - 7. Thermal and moisture protection
  - 8. Openings
  - 9. Finishes
  - 10. Specialties
  - 11. Equipment

12. Furnishings
13. Special Construction
21. fire suppression
22. Plumbing
23. HVAC
26. Electrical and Fire Alarm
33. Utilities

**PART 2 - PRODUCTS (Not applicable).**

**PART 3 – EXECUTION**

**3.1 SCHEDULE OF ALTERNATES**

**1 ALTERNATE 1 – THEATER LOBBY**

**ALTERNATE 1A = THEATER LOBBY**

- a. Under the Base Bid the work in the Theater Lobby is limited to the work at the NEW Chairlift and at the NEW stair door.
- b. Under this ALTERNATE provide the **ADDED** cost to renovate the theater lobby as primarily shown on drawings A200a, A201a, A400a and the related Structural, Mechanical, Plumbing, and Electrical Engineer drawings.
- c. Alternate work is to include General Conditions, Temporary Facilities,

**2 ALTERNATE 2 – SITE WORK**

**ALTERNATE 2A– SIDE EXTERIOR PATIO AND LANDSCAPING  
(EAST AVE TERRACE)**

- a. Under the Base Bid the site work is to be completed as shown including but not limited to new terrace directly off the upper tasting room, the new accessible Brewery entrance and service yard, brewery yard, brewery sign base along with utility work as noted and indicated in the base bid work areas. Existing landscape and pavement areas are to be retained and restored as required.
- b. Under this ALTERNATE provide the ADDED cost to complete the side patio (terrace) including landscaping, terrace, paving, lighting, poles, site walls in the work area as indicated on the drawings

**ALTERNATE 2B- FRONT EXTERIOR PATIO, RAILINGS, POSTS, ETC.  
(LANDIS TERRACE)**

- a. Under the Base Bid the site work is to be completed as shown including but not limited to new terrace directly off the upper tasting room, the new accessible Brewery entrance and service yard, brewery yard, brewery sign base along with utility work as noted and indicated in the base bid work areas. Existing landscape and pavement areas are to be retained and restored as required.
- b. Under this ALTERNATE provide the ADDED cost to complete the Front terrace including landscaping, terrace, paving, lighting, poles, site walls in the work area as indicated on the drawings



### **3     ALTERNATE 3 – BREWERY TASTING AREA FINISH UPGRADES**

#### **ALTERNATE 3A– BREWERY WOMENS TOILET ROOM – FINISH UPGRADES**

- a. Under the Base Bid the new Women's Toilet room is to have Resinous floor and base finish, FRP wall finish and Painted GWB ceiling finish.
- b. Under this ALTERNATE provide the **ADDED** cost to provide Tile Floor and Wall Finish on all walls in the toilet room. Wall tile is to be extend from the floor to 1 foot below the ceiling. Include upgrade wall board for tile work. See project manual for tile specification. See drawings for sample tile patterning.

#### **ALTERNATE 3B- LOWER TASTING ROOM FINISH UPGRADES**

- a. Under the Base Bid the new and work impacted wall and soffit surfaces in the lower Tasting room and Mezzanine Tasting Room are to receive new base, trim and painted GWB finishes to match the existing work. Exposed concrete floor is to remain. The existing ACT ceiling tiles are to be replaced in the existing grid. The other previously painted wall and soffit finishes are to remain.
- b. Under this ALTERNATE provide the **ADDED** cost for the entire lower tasting room and mezzanine tasting room area to
  - i. Paint all trim, walls and soffits and other previously painted surfaces.
  - ii. Provide all new wall base.
  - iii. At lower tasting room provide new LVT flooring. Include all necessary floor and wall preparation, transitions and termination.

#### **ALTERNATE 3C–MEZZANINE TASTING ROOM FLOOR, STAIR AND BASE FINISH UPGADES**

- a. Under the Base Bid the new and work impacted wall and soffit surfaces in the lower Tasting room and Mezzanine Tasting Room are to receive new base, trim and painted GWB finishes to match the existing work. Floor and base for mezzanine and steps is to remain. . The existing ACT ceiling tiles are to be replaced in the existing grid. The other previously painted wall and soffit finishes are to remain.
- b. Under this ALTERNATE provide the **ADDED** cost to
  - i. Remove and replace all carpet floor and base at mezzanine and steps with LVT flooring and base with resilient stair treads and risers. Paint all trim, walls and soffits. Include all necessary floor and wall preparation, transitions and terminations.

### **4     ALTERNATE 4 – CLUB AREA FLOORING AND BASE**

#### **ALTERNATE 4A – CLUB AREA FLOORING AND BASE**

- a. Under the Base Bid certain existing flooring at and base at the Club Area (Mori Building, 2<sup>nd</sup> Floor and 1<sup>st</sup> and 2<sup>nd</sup> Floor Stairs and Landings) the existing flooring and base is to remain with limited work at certain Base Bid work areas.
- b. Under this ALTERNATE provide the **ADDED** cost to remove and replace the flooring and base in the designated Club areas (2<sup>nd</sup> floor and the related stairs and landings. Refer to sheet A105.

**5     ALTERNATE 5 – ROOFING**

**ALTERNATE 5A – GREEN ROOM ROOF REPAIR AND RECOVERING**

- a. Under the Base Bid the Mori Building Roof is to be repaired and recovered. Certain related roof work is to be completed on the Green Room Roof area including work at the new and replace MUA Unit, new walk pads and roof tie ins.
- b. Under this ALTERNATE provide the ADDed cost to repair and recover the Green Room area roof. Roof work is to match specification of the Mori Building Roof work.

**ALTERNATE 5B -EXISTING CHIMENY WORK**

- a. Under the Base Bid the existing Mori Building Roof is to repair and recovered as specified. The existing brick chimney is to remain and receive new counter flashing.
- b. Under this ALTERNATE provide the ADDed cost to repoint the chimney work and provide a new metal cap at the top.

**6     ALTERNATE 6 - NOT USED**

**END OF SECTION 01030**

## **SECTION 01040 PROJECT COORDINATION**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division -1 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. This Section specifies administrative and supervisory requirements necessary for Project coordination including, but not necessarily limited to:
  - 1. Coordination.
  - 2. Administrative and supervisory personnel.
  - 3. General installation provisions.
  - 4. Cleaning and protection.
- B. Progress meetings, coordination meetings and pre-installation conferences are included in Section "Project Meetings".
- C. Requirements for the Contractor's Construction Schedule are included in Section "Submittals".
- D. The Contractor for General Construction shall be responsible for overall project coordination, preparing schedules and issuing memorandum of meetings.

#### **1.3 COORDINATION**

- A. Coordination: Coordinate construction activities included under various Sections of these Specifications to assure efficient and orderly installation of each part of the Work. Coordinate construction operations included under different Sections of the Specifications that are dependent upon each other for proper installation, connection, and operation.
  - 1. Where installation of one part of the Work is dependent on installation of other components, either before or after its own installation, schedule construction activities in the sequence required to obtain the best results.
  - 2. Where availability of space is limited, coordinate installation of different components to assure maximum accessibility for required maintenance, service and repair.
  - 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Where necessary, prepare memoranda for distribution to each party involved outlining special procedures required for coordination. Include such items as required notices, reports, and attendance at meetings.
  - 1. Prepare similar memoranda for the Owner and separate Contractors where coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
  - 1. Preparation of schedules.
  - 2. Installation and removal of temporary facilities.
  - 3. Delivery and processing of submittals.
  - 4. Progress meetings.
  - 5. Project Close-out activities.

#### **1.4 COORDINATION OF TRADES**

- A. Trades shall coordinate Equipment Size and supports, Work access and Clearances, Pipe Routing, Penetration of materials, etc.
- B. Schedule and develop work so as not to delay other trades. Work improperly scheduled that requires cutting and patching shall be at the Contractors expense and not an additional cost to the owner.
- C. Coordinate work in determining the exact location of outlets, pipes, and equipment to avoid interferences with properly installed work and existing structural elements.
- D. The following work hierarchy shall be followed (high to low priority)
  - 1. Structural
  - 2. Roof drain piping
  - 3. Sanitary Drain Piping
  - 4. Electrical
  - 5. Lighting
  - 6. Ductwork and diffusers
  - 7. Plumbing water piping
  - 8. Fire Protection piping
  - 9. Traffic marking & Site work

## **PART 2 - PRODUCTS (Not Applicable)**

## **PART 3 - EXECUTION**

### **3.1 GENERAL INSTALLATION PROVISIONS**

- A. Inspection of Conditions: Require the Installer of each major component to inspect both the substrate and conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.
- B. Manufacturer's Instructions: Comply with manufacturer's installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.
- C. Measurements and Existing Conditions: Before ordering, fabricating or performing work verify all measurements and existing conditions to confirm dimensions and that the proposed work can proceed as indicated.
- D. Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items.
- E. Provide attachment and connection devices and methods necessary for securing Work. Secure Work true to line and level. Allow for expansion and building movement.
- F. Visual Effects: Provide uniform joint widths in exposed Work. Arrange joints in exposed Work to obtain the best visual effect. Refer questionable choices to the Architect for final decision.
- G. Recheck measurements and dimensions, before starting each installation.
- H. Install each component during weather conditions and Project status that will ensure the best possible results. Isolate each part of the completed construction from incompatible material as necessary to prevent deterioration.
- I. Coordinate temporary enclosures with required inspections and tests, to minimize the necessity of uncovering completed construction for that purpose.
- J. Mounting Heights: Where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry for the particular application indicated. Refer questionable mounting height decisions to the Architect for final decision.
- K. Route items parallel to building lines.

### 3.2 CLEANING AND PROTECTION

- A. During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- B. Clean and maintain completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- C. Limiting Exposures: Supervise construction activities to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

**END OF SECTION 01040**

## **SECTION 01045 CUTTING AND PATCHING**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.
- B. Refer to the Section 01010 Summary of Work for a partial description of the responsibilities of the Contractors, Architect and Engineer. For the purposes of this section, Contractor shall mean each contractor and Architect shall mean either the architect or engineer as appropriate.

#### **1.2 SUMMARY**

- A. This Section specifies administrative and procedural requirements for cutting and patching.
- B. Refer to other Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.
- C. Demolition of selected portions of the building for alterations is included in Section "Selective Demolition."

#### **1.3 SUBMITTALS (Not Used)**

#### **1.4 QUALITY ASSURANCE**

- A. Requirements for Structural Work: Do not cut and patch structural elements in a manner that would reduce their load-carrying capacity or load-deflection ratio.
- B. Operational and Safety Limitations: Do not cut and patch operating elements or safety related components in a manner that would result in reducing their capacity to perform as intended, or result in increased maintenance, or decreased operational life or safety.

### **PART 2 - PRODUCTS**

#### **2.1 MATERIALS**

- A. Use materials that are identical to existing materials. If identical materials are not available or cannot be used where exposed surfaces are involved, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials whose installed performance will equal or surpass that of existing materials.

### **PART 3 - EXECUTION**

#### **3.1 INSPECTION**

- A. Before cutting existing surfaces, examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed.
- B. After uncovering work, inspect the conditions affecting the installation of products, or performance of the work.
- C. Report unsatisfactory or questionable conditions to the Architect in writing: do not proceed with the work until directed to do so, or until resolution of questions concerning such conditions.

#### **3.2 PREPARATION**

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the Project that might be exposed during cutting and patching operations.
- C. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Take all precautions necessary to avoid cutting existing pipe, conduit or ductwork serving the building, but scheduled to be removed or relocated until provisions have been made to bypass them.

### 3.3 PERFORMANCE

- A. General: Employ skilled workmen to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.
  - 1. Cut existing construction to provide for installation of other components or performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original condition.
- B. Cutting: Cut existing construction using methods least likely to damage elements to be retained or adjoining construction. Where possible review proposed procedures with the original installer; comply with the original installer's recommendations.
- C. Patching: Patch with durable seams that are as invisible as possible. Comply with specified tolerances.

### 3.4 CLEANING

- A. Thoroughly clean areas and spaces where cutting and patching is performed or used as access. Remove completely paint, mortar, oils, putty and items of similar nature. Thoroughly clean piping, conduit and similar features before painting or other finishing is applied. Restore damaged pipe covering to its original condition.

**END OF SECTION 01045**

## **SECTION 01070 ABBREVIATIONS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division - 1 Specifications sections, apply to work of this Section.

#### **1.2 GLOSSARY OF ABBREVIATIONS - Specification**

- A. Abbreviations for names of technical societies, organizations and agencies referenced by Contract Documents shall be interpreted as follows:

AA	The Aluminum Association
AABC	Associated Air Balance Council
AAMA	Architectural Aluminum Manufacturers Association
AAN	American Association of Nurserymen, Inc.
AASHTO	American Association of State Highway Officials
ACI	American Concrete Institute
ACPA	American Concrete Pipe Association
AGA	American Gas Association
AGC	American General Contractors of America
AI	The Asphalt Institute
AIA	American Institute of Architects
AIMA	Acoustical and Insulating Materials Association
AISC	American Institute of Steel Construction, Inc.
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ANSI	American National Standards Institute (formerly ASA-USASI)
APA	American Polywood Association (formerly DFPA)
API	American Petroleum Institute
ARI	Air Conditioning and Refrigeration Institute
ASACC	American Society of Architectural Hardware Consultants
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc.
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AVATI	Asphalt & Vinyl Asbestos Tile Institute
AWI	Architectural Woodwork Institute
AWMA	American Walnut Manufacturers Association
AWPA	American Wood Preservers Association
AWPB	American Wood Preservers Bureau
AWPI	American Wood Preservers Institute
AWS	American Welding Society, Inc.
AWWA	American Water Works Association
BIA	Brick Institute of America
CBM	Certified Ballast Manufacturer
CISPI	Cast Iron Soil Pipe Institute
CPI	Clay Pipe Institute
CRSI	Concrete Reinforcing Steel Institute
CS	Commercial Standards
CSI	Construction Specification Institute
EEI	Edison Electrical Institute
EIA	Electronic Industry Association



ETL	Electrical Testing Laboratory
FGMA	Flat Glass Marketing Association
FIA	Factory Insurance Association
FM	Factory Mutual Insurance
FS	Federal Specifications
FTI	Facing Tile Institute
GA	Gypsum Association
HPACNA	Heating, Piping, and Air Conditioning Contractors National Association
IBI	Insulation Board Institute
ICEA	Insulated Cable Engineers Association
IEEE	Institute of Electrical and Electronic Engineers
IES	Illuminating Engineering Society
ILIA	Indiana Limestone Institute of America, Inc.
IPCEA	Insulated Power Cable Engineers Association
LIA	Lead Industries Association, Inc.
MEMA	Maple Flooring Manufacturers Association
MIA	Marble Institute of America
MIL	Military Specifications
MLA	Metal Lath Association
MSS	Manufacturers Standardization Society
NAAMM	National Association of Architectural Metals Manufacturers
NAFM	National Association of Fan Manufacturers
NAMLM	National Association of Metal Lath Manufacturers
NBHA	National Builder's Hardware Association
NBFU	National Board of Fire Underwriters
NBS	National Bureau of Standards
NCMA	National Concrete Masonry Association
NEC	National Electrical Code
NECA	National Electrical Contractors Association
NEMA	National Electrical Manufacturers Association
NESC	National Electrical Safety Code
NFiPA	National Fire Protection Association
NFoPA	National Forest Products Association
NLA	National Lime Association
NOFMA	National Oak Flooring Manufacturers Association
NPA	National Particle Board Association
NRMCA	National Ready Mixed Concrete Association
NSA	National Slag Association
NTMA	The National Terrazzo & Mozaic Association, Inc.
NWMA	National Woodwork Manufacturing Association
OSHA	Occupational Safety & Health Act.
PCA	Portland Cement Association
PCI	Prestressed Concrete Association
PDCA	Painting and Decorating Contractors of America
PEI	Porcelain Enamel Institute
PI	Perlite Institute
SBI	Steel Boilers Institute
SBTMA	Southern Brick and Tile Manufacturers Association
SCPI	Structural Clay Products Institute
SDI	Steel Deck Institute (formerly DRDTI)
SDI	Steel Door Institute
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association

SPIB	Southern Pine Inspection Bureau
SJI	Steel Joint Institute
SSPC	Steel Structures Painting Council
SWI	Steel Window Institute
TCA	Tile Council of America, Inc.
UL	Underwriter's Laboratories, Inc.
USC	United States Code
USSI	USA Standards Institute
WWPA	Western Wood Products Association (WPA & WCLA)

### 1.3 GLOSSARY OF ABBREVIATIONS – Drawings

#### A. Partial List of Abbreviations utilized on the drawings:

ABV	Above	HC	Handicap
ACT	Acoustical Ceiling	HR	Handrail
	Tile	IN	Inch
AFF	Above Finished Floor	INTERV.	Interview
BM	Beam	JAN	Janitor
BOT	Bottom	MICRO	Microphone
BSMT	Basement	M.O.	Masonry Opening
CLG	Ceiling	MTL	Metal
COL	Column	NA	Not Applicable
CONC	Concrete	NIC	Not in Contract
CONF	Conference	OPNG	Opening
CPT	Carpet	PLAM	Plastic Laminate
C.T.	Ceramic Tile	PL	Plastic Laminate
DEMO	Demolition	PTD	Painted
DIA	Diameter	RESIL	Resilient
DN	Down	RF	Roof
ELEC	Electric	RM	Room
EX	Existing	SLP	Slope
EXIST	Existing	STL	Steel
FDN	Foundation	TYP	Typical
FIN.FLR	Finished Floor	TELE	Telephone
FT	Feet	VCT	Vinyl Composition
FTG	Footing		Tile
GWB	Gypsum Wall Board	VIF	Verify in Field

### PARTS 2 & 3 - PRODUCTS AND EXECUTION – (Not applicable)

**END OF SECTION 01070**

**SECTION 01090**  
**DEFINITIONS AND STANDARDS**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division - 1 Specification Sections, apply to this Section.

**1.2 DEFINITIONS**

- A. General: Basic Contract definitions are included in the General Conditions.
- B. "Indicated" refers to graphic representations, notes or schedules on the Drawings, or other Paragraphs or Schedules in Specifications, and similar requirements in Contract Documents. Where terms such as "shown," "noted," "scheduled," and "specified" are used, it is to help locate the reference; no limitation on location is intended except as specifically noted.
- C. Directed: Terms such as "directed", "requested", "authorized", "selected", "approved", "required", and "permitted" mean "directed by the Architect", "requested by the Architect", and similar phrases. However, no implied meaning shall be interpreted to extend the Architect's responsibility into the Contractor's area of construction supervision.
- D. Approve: The term "approved," where used in conjunction with the Architect's action on the Contractor's submittals, applications, and requests, is limited to the duties and responsibilities of the Architect as stated in General and Supplementary Conditions. Such approval shall not release the Contractor from responsibility to fulfill Contract requirements unless otherwise provided in the Contract Documents.
- E. Regulation: The term "Regulations" includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the construction industry that control performance of the Work, whether lawfully imposed by authorities having jurisdiction or not.
- F. Furnish: The term "furnish" is used to mean "supply and deliver to the Project site, ready for unloading, unpacking, assembly, installation, and similar operations."
- G. Install: The term "install" is used to describe operations at project site including the actual "unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations."
- H. Provide: The term "provide" means "to furnish and install, complete and ready for the intended use."
- I. Installer: An "Installer" is the Contractor or an entity engaged by the Contractor, either as an employee, subcontractor, or sub-subcontractor for performance of a particular construction activity, including installation, erection, application, and similar operations. Installers are required to be experienced in the operations they are engaged to perform.
- J. Project Site is the space available to the Contractor for performance of construction activities, either exclusively or in conjunction with others performing other construction activities as part of the Project. The extent of the Project Site is shown on the Drawings and may or may not be identical with the description of the land upon which the Project is to be built.

**1.3 DRAWING SYMBOLS**

- A. Graphic symbols: Where not otherwise noted, symbols are defined by "Architectural Graphic Standards," published by John Wiley & Sons, Inc., eighth edition.

#### 1.4 INDUSTRY STANDARDS

- A. Applicability of Standards: Except where the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents. Such standards are made a part of the Contract Documents by reference. Individual Sections indicate which codes and standards the Contractor must keep available at the Project Site for reference.
- B. Publication Dates: Where the date of issue of a referenced standard is not specified, comply with the standard in effect as of date of Contract Documents.
- C. Conflicting Requirements: Where compliance with two or more standards is specified, and they establish different or conflicting requirements for minimum quantities or quality levels, the most stringent requirement will be enforced, unless the Contract Documents indicate otherwise. Refer requirements that are different, but apparently equal, and uncertainties as to which quality level is more stringent to the Architect for a decision before proceeding.
- D. Copies of Standards: Each entity engaged in construction on the Project is required to be familiar with industry standards applicable to that entity's construction activity. Copies of applicable standards are not bound with the Contract Documents.
- E. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. Where such acronyms or abbreviations are used in the Specifications or other Contract Documents, they mean the recognized name of the trade association, standards generating organization, authority having jurisdiction, or other entity applicable to the context of the text provision. Refer to the "Encyclopedia of Associations," published by Gale Research Co., available in most libraries.

#### 1.5 GOVERNING REGULATIONS/AUTHORITIES

- A. Contact governing authorities directly for necessary information and decisions having a bearing on of the work.
- B. Copies of Regulations: Obtain copies of the following regulations and retain at the Project Site, available for reference by parties who have a reasonable need for such reference. Codes governing construction, safety, hiring practices, and other related aspects of the work as required by authorities having jurisdiction.

#### 1.6 SUBMITTALS

- A. Permits, Licenses, and Certificates: For the Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence, and records established in conjunction with compliance with standards and regulations bearing upon performance of the Work.

#### **PART 2 - PRODUCTS (Not applicable)**

#### **PART 3 - EXECUTION (Not applicable)**

**END OF SECTION 01090**

**SECTION 01200**  
**PROJECT MEETINGS**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.
- B. Meetings may be held at the owner's direction.

**1.2 SUMMARY**

- A. This Section specifies administrative and procedural requirements for project meetings including but not limited to:
  - 1. Pre-Construction Conference.
  - 2. Pre-Installation Conferences.
  - 3. Progress Meetings.
- B. Construction schedules are specified in another Division-1 Section.
- C. Separate project meetings will be held for each project.

**1.3 PRE-CONSTRUCTION CONFERENCE**

- A. A pre-construction conference and organizational meeting shall be scheduled at the Project site or other convenient location no later than 15 days after execution of the Agreement and prior to commencement of construction activities. Conduct the meeting to review responsibilities and personnel assignments.
- B. Attendees: The Owner, Architect, the Contractors and its superintendent/foreman, major subcontractors, and other concerned parties shall each be represented at the conference by persons familiar with and authorized to conclude matters relating to the Work.
- C. Agenda: Discuss items of significance that could affect progress including such topics as:
  - 1. Tentative construction schedule.
  - 2. Critical Work sequencing.
  - 3. Designation of responsible personnel.
  - 4. Procedures for processing field decisions and Change Orders.
  - 5. Procedures for processing Applications for Payment.
  - 6. Submittal of Shop Drawings, Product Data and Samples.
  - 7. Use of the premises.
  - 8. Office, Work and storage areas.
  - 9. Equipment deliveries and priorities.
  - 10. Security.
  - 11. Housekeeping.
  - 12. Working hours.

**1.4 PROGRESS MEETINGS**

- A. Progress meetings shall be held at the Project site at bi-weekly intervals. Notify the Owner and Architect of scheduled meeting dates. Coordinate dates of meetings with preparation of the payment request.
- B. Attendees: In addition to representatives of the Owner, Architect, Engineer, each Contractor and their subcontractors, suppliers or other entity concerned with current progress or involved in planning, coordination or performance of future activities shall be represented at these meetings by persons familiar with the Project and authorized to conclude matters relating to progress.
- C. Agenda: Review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the current status of the Project.

1. Contractor's Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
  2. Review the present and future needs of each entity present.
- D. Reporting: No later than 5 days after each progress meeting date, the **General Contractor** is to prepare and distribute copies of minutes of the meeting to each party present and to other parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report. The copies of these minutes may only be provided electronically.
1. Schedule Updating: Revise the construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue the revised schedule concurrently with the report of each meeting.

**PART 2 - PRODUCTS (Not applicable)**

**PART 3 - EXECUTION (Not applicable)**

**END OF SECTION 01200**

## **SECTION 01300 SUBMITTALS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division -1 Specification Sections, apply to this Section.
- B. The owner's General and Supplementary Conditions takes precedence over the following when they are in conflict.

#### **1.2 SUMMARY**

- A. This Section specifies administrative and procedural requirements for submittals required for performance of the Work, including;
  - 1. Contractor's construction schedule.
  - 2. Shop Drawings.
  - 3. Product Data.
  - 4. Samples.
- B. Administrative Submittals: Refer to other Division -1 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to:
  - 1. Permits.
  - 2. Applications for payment.
  - 3. Performance and payment bonds.
  - 4. Insurance certificates.
  - 5. List of Subcontractors.
- C. The Schedule of Values submittal is included in Section "Applications for Payment."

#### **1.3 SUBMITTAL PROCEDURES**

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
  - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals and related activities that require sequential activity.
  - 2. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.
    - a. The Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
  - 3. Processing: Allow sufficient review time so that installation will not be delayed as a result of the time required to process submittals, including time for re-submittals.
- B. Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.
  - 1. Provide a space approximately 4" x 5" on the label or beside the title block on Shop Drawings to record the Contractor's review and approval markings and the action taken.
  - 2. Include the following information on the label for processing and recording action taken.
    - a. Project name.

- b. Date.
  - c. Name and address of Architect.
  - d. Name and address of Contractor.
  - e. Name and address of subcontractor.
  - f. Name and address of supplier.
  - g. Name of manufacturer.
  - h. Number and title of appropriate Specification Section.
  - i. Drawing number and detail references as appropriate.
- C. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from Contractor to Architect using a transmittal form. Submittals received from sources other than the Contractor will be returned without action.
  - 1. On the transmittal Record relevant information and requests for data. On the form, or separate sheet, record deviations from Contract Document requirements, including minor variations and limitations. Include Contractor's certification that information complies with Contract Document requirements.
  - 2. Transmittal Form: Use AIA Document G 810.

#### 1.4 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Bar-Chart Schedule: Prepare a fully developed, horizontal bar- chart type Contractor's construction schedule. Submit within 10 days of the date established for "Commencement of the Work".
  - 1. Provide a separate time bar for each significant construction activity. Provide a continuous vertical line to identify the first working day of each week. Use the same breakdown of units of the Work as indicated in the "Schedule of Values".
  - 2. Within each time bar indicate estimated completion percentage in 10 percent increments. As Work progresses, place a contrasting mark in each bar to indicate Actual Completion.
  - 3. Prepare the schedule on a sheet, or series of sheets, of stable transparency, or other reproducible media, of sufficient width to show data for the entire construction period.
  - 4. Indicate completion in advance of the date established for Substantial Completion. Indicate Substantial Completion on the schedule to allow time for the Architect's procedures necessary for certification of Substantial Completion.
- B. Work Stages: Indicate important stages of construction for each major portion of the Work, including testing and installation.
- C. Distribution: Following response to the initial submittal, print and distribute copies to the Architect, Owner, subcontractors, and other parties required to comply with scheduled dates. Post copies in the Project meeting room.
- D. Schedule Updating: Revise the schedule after each meeting or activity, where revisions have been recognized or made. Issue the updated schedule concurrently with report of each meeting.

#### 1.5 SHOP DRAWINGS

- A. Submit newly prepared information, drawn to accurate scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings.



- B. Shop Drawings include fabrication and installation drawings, setting diagrams, schedules, patterns, templates and similar drawings. Initial Submittal: Submit 3 blue- or black-line and 1 reproducible sepia prints for the Architect's review; one will be returned.

#### 1.6 PRODUCT DATA

- A. Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams and performance curves.

#### 1.7 SAMPLES

- A. Submit full-size, fully fabricated Samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture and pattern.

#### 1.8 ARCHITECT'S ACTION

- A. Except for submittals for record, information or similar purposes, where action and return is required or requested, the Architect will review each submittal, mark to indicate action taken, and return promptly. Contractor is to allow 3 weeks for items requiring only architects review and 4 weeks for items requiring review by the engineers.
  - 1. Compliance with specified characteristics is the Contractor's responsibility.
- B. Action Stamp: The Architect will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked, as follows, to indicate the action taken:
  - 1. Final Release: Where submittals are marked "Reviewed," that part of the Work covered by the submittal may proceed provided it complies with requirements of the Contract Documents; final acceptance will depend upon that compliance.
  - 2. Final-But-Restricted Release: When submittals are marked "Reviewed as Noted," that part of the Work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents; final acceptance will depend on that compliance.
  - 3. Returned for Re-submittal: When submittal is marked "Not Approved, Revise and Resubmit," do not proceed with that part of the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal in accordance with the notations; resubmit without delay. Repeat if necessary to obtain a different action mark.
    - a. Do not permit submittals marked "Not Approved, Revise and Resubmit" to be used at the Project site, or elsewhere where Work is in progress.
  - 4. Other Action: Where a submittal is primarily for information or record purposes, special processing or other activity, the submittal will be returned, marked "Action Not Required".

**PART 2 - PRODUCTS (Not applicable)**

**PART 3 - EXECUTION (Not applicable)**

**END OF SECTION 01300**

## **SECTION 01400**

### **QUALITY REQUIREMENTS**

#### **PART 1 - GENERAL**

##### **1.1 GENERAL REQUIREMENTS**

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

##### **1.2 SECTION INCLUDES**

- A. This Section includes administrative and procedural requirements for quality assurance and quality control.

##### **1.3 RELATED SECTIONS**

- A. Coordination — Section 01040.
- B. Divisions 2 through 16 Sections for specific test and inspection requirements.

##### **1.4 DEFINITIONS**

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and ensure that proposed construction complies with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that completed construction complies with requirements. Services do not include contract enforcement activities performed by Architect.
- C. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

##### **1.5 DELEGATED DESIGN**

- A. Delegated design is limited to those components or systems specifically authorized by the Architect.
- B. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
  - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

##### **1.6 SUBMITTALS**

- A. Qualification Data: For testing agencies specified in “Quality Assurance” Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.

- C. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
  - 1. Specification Section number and title.
  - 2. Description of test and inspection.
  - 3. Identification of applicable standards.
  - 4. Identification of test and inspection methods.
  - 5. Number of tests and inspections required.
  - 6. Time schedule or time span for tests and inspections.
  - 7. Entity responsible for performing tests and inspections.
  - 8. Requirements for obtaining samples.
  - 9. Unique characteristics of each quality-control service.
- D. Reports: Prepare and submit certified written reports that include the following:
  - 1. Date of issue.
  - 2. Project title and number.
  - 3. Name, address, and telephone number of testing agency.
  - 4. Dates and locations of samples and tests or inspections.
  - 5. Names of individuals making tests and inspections.
  - 6. Description of the Work and test and inspection method.
  - 7. Identification of product and Specification Section.
  - 8. Complete test or inspection data.
  - 9. Test and inspection results and an interpretation of test results.
  - 10. Ambient conditions at time of sample taking and testing and inspecting.
  - 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
  - 12. Name and signature of laboratory inspector.
  - 13. Recommendations on retesting and re-inspecting.
- E. Permits, Licenses, and Certificates: For Owners records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the work.

#### 1.7 QUALITY ASSURANCE

- A. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- B. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufactures products that are similar in material, design, and extent to those indicated for this Project.
- C. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- D. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in the State of New Jersey and who is experienced in providing engineering services of the kind indicated. Engineering services are

defined as those performed for installations of the system, assembly, or products that are similar to those indicated for this Project in material, design, and extent.

- F. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
  - 1. Requirement for specialists shall not supersede building codes and similar regulations governing the Work, nor interfere with local trade-union jurisdictional settlements and similar conventions.
- G. Testing Agency Qualifications: An agency with the experience and capability to conduct testing and inspecting indicated, as documented by ASTM E 548, and that specializes in types of tests and inspections to be performed.
- H. Inspection Testing and Quality Assurance Services: Unless otherwise specified in other sections of the specifications, the owner shall pay for all fees with Testing Agency Inspection and Quality Assurance Services required by governing authorities or specified in other sections of these specifications or drawings. GC shall cooperate and assist in the work of the Testing Agency and shall patch or repair any work requiring destructive or invasive testing.

## **PART 2 - PRODUCTS (Not Applicable)**

## **PART 3 - EXECUTION**

### **3.1 REPAIR AND PROTECTION**

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
  - 1. Provide materials and comply with installation requirements specified in other Sections of these Specifications. Restore patched areas and extend restoration into adjoining areas in a manner that eliminates evidence of patching.
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

**END OF SECTION 01400**

## **SECTION 01500 TEMPORARY FACILITIES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.
- B. Refer to the Section 01010 Summary of Work for a partial description of the responsibilities of the Contractors, Architect and Engineer. For the purposes of this section, Contractor's shall mean each contractor and Architect shall mean either the architect or engineer as appropriate.

#### **1.2 DESCRIPTION OF REQUIREMENTS**

- A. This section specifies requirements for temporary services and facilities required for the project, including temporary utility services, temporary construction and support facilities, and project security and protection.
  - 1. Temporary utility services include but are not limited to:
    - a. Water service and distribution.
    - b. Temporary electric power and light.
    - c. Telephone service.
    - d. Storm and sanitary sewer
  - 2. Temporary construction and support facilities include but are not limited to:
    - a. Temporary heat and ventilation.
    - b. Field offices and storage sheds – need is to be as determined.
    - c. Sanitary facilities, including drinking water.
    - d. Dewatering facilities and drains.
    - e. Temporary enclosures.
    - f. Hoists
    - g. Project identification signs and temporary signs.
    - h. Waste disposal services.
    - i. Rodent and pest control.
    - j. Construction aids and miscellaneous services and facilities.
  - 3. Security and protection facilities and services include but are not limited to:
    - a. Temporary fire protection.
    - b. Safety and protection facilities and services.
    - c. Warning signs, lights.
    - d. Sidewalk bridges, enclosure fencing for the site.
    - e. Environmental protection.
    - f. Watchman services.
    - g. Traffic control.
  - 4. Building Access and Egress Protection
  - 5. Project Identification Signage
- B. Division of Responsibilities
  - 1. Definitions: Terms "Prime Contractors", "Each Contractor", "Contractors" – shall mean the General Contractor or his sub- contractors.
  - 2. Contractor identified in this section as responsible for certain temporary facilities shall provide, maintain, operate and remove such facilities, and shall pay related costs except those specified as the responsibility of the Owner or of another entity. Each Contractor shall comply with requirements of this section not specified as responsibilities of other specific contractors
  - 3. Contractor shall be responsible for:
    - a. Plug-in electric power cords and supplementary plug-in lighting necessary exclusively for its own activities.
    - b. Its own field office, complete with necessary furniture, utilities and telephone service.
    - c. Its own storage and fabrication sheds.
    - d. Temporary heat, ventilation, humidity control and enclosure of its own work areas where necessary for its activity
    - e. Cleanliness of its own work areas, including:
      - 1. Collection and disposal of its own hazardous, dangerous unsanitary or other harmful waste material.
      - 2. Removal of its own rubbish to a collection point designated by the General Contractor.

- f. Secure lockup of its own tools, materials and equipment.
  - g. Hoists, ladders, warning signs and temporary facilities required only for its own short-term use.
  - h. Temporary telephone service. Cell phones are adequate.
  - i. Temporary field offices for his own use.
  - j. Temporary toilets, including disposable supplies.
  - k. Temporary wash facilities, including disposable supplies.
  - l. Temporary enclosure of buildings. – Each contractor shall be responsible to secure their portion of the work.
  - m. General hoisting facilities.
  - n. Project identification and temporary signs.
  - o. Removal and disposal of wastes from designated collection point, except harmful wastes of other contractors.
  - p. Rodent and Pest control.
  - q. Warning signs and lights.
  - r. Enclosure Fence.  
- It is a project requirement to protect and prevent unauthorized access to worksite. Provide construction fence or barrier if required secure the area or material storage. Other fencing as may be required or deemed necessary is to be provided by the contractor whose work requires protection.
  - s. Environmental protection.
  - t. Dewatering facilities and storm drainage.
  - u. Development and enforcement of fire protection procedures, and provision of temporary fire hoses and fire extinguishers.
  - v. Enforcement of overall cleanliness and order at the site.
  - w. Temporary facilities required for the Project and not identified in this section as the responsibility of another entity.
  - x. Internet Access – Contractor shall have on site the ability to receive and print emails and pdf files.
  - y. Temporary lighting. – see below.
4. **HVAC**
- a. **Contractor is required to provide temporary heat and ventilation as required by the work. Permanent building systems may only be used if approved by the owner. This permission should not be assumed that it will be granted.**
- C. Costs:
- 1. Contractor shall pay costs related to the installation, maintenance, operation, expansion, relocation and repair of temporary facilities for which he is responsible except where note otherwise.
  - 2. Contractor shall pay costs for special electric power, fuel, telephone, water usage and other usage costs from the start of the Project until the date of Substantial Completion, whether delivered by way of temporary or permanent service and distribution systems.
- D. Availability: Temporary facilities shall be available for the use of Contractors, the Owner, the Architect and other entities, at no additional cost.
- E. Relocate, revise and expand temporary facilities as required by the progress of the work.
- F. Remove temporary facilities when no longer required.

### 1.3 SUBMITTALS

- A. Reports and Permits: The contractor shall submit, as a matter of record, copies of reports and permits required by governing authorities, for installation and operation of temporary services and facilities.
  - 1. Submit copies of reports of tests, inspections, meter readings and other procedures performed on temporary utilities.
  - 2. Submit copies of permits, easements and other documentation necessary for the installation, use and operation of temporary utility services.
- B. Arrangement Drawing: If requested, General Contractor shall submit sketch plan showing proposed arrangement of field offices, storage areas, parking and other significant temporary facilities.

### 1.4 QUALITY ASSURANCE

- A. General: Contractor and all sub-contractors shall comply with the provisions of this Article.
- B. Regulations: Comply with requirements of laws and regulations governing construction, and local industry standards in the installation and maintenance of temporary services and facilities.

- C. Inspect and test each service before placing temporary utilities in use. Arrange for required inspections and tests by governing authorities, and obtain required certifications and permits for use.

#### 1.5 REFERENCED STANDARDS:

- A. Contractor shall comply, as applicable to each temporary facility, with the requirements of NFPA Code 241, "Building Construction and Demolition Operations", the ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition", and the NECA National Joint Guideline NJG-6 "Temporary Job Utilities and Services".

#### 1.6 JOB CONDITIONS

- A. General: Provide each temporary service and facility when first needed. Maintain, expand and modify as needed throughout the work. Do not remove services or facilities until no longer needed, or until replaced by the authorized use of permanent facilities.
- B. Conditions of Use: Operate temporary services and facilities in a safe and efficient manner. Do not overload temporary services or facilities. Do not allow unsanitary conditions, public nuisances or hazardous conditions to develop or persist.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS AND EQUIPMENT, GENERAL

- A. Materials and equipment may be new or used, but must be adequate in capacity for the required usage, must not create unsafe conditions, and must not violate requirements of applicable codes and standards.
- B. Additional requirements for each temporary facilities category are specified in Part 3 - Execution.

### PART 3 – EXECUTION

#### 3.1 TEMPORARY UTILITIES

- A. General:
  - 1. Provide adequate utility capacity at each stage of construction. Prior to installation of temporary utilities at the site, provide trucked-in services for start-up of construction operations, at cost of Contractor required to provide each service.
  - 2. Each Contractor shall obtain and pay for temporary easements required to bring temporary utilities for which he is responsible to the project site, where the Owner's permanent easement cannot be utilized for that purpose.
  - 3. Where source is utility company, Contractor responsible for each utility service shall engage utility company to install temporary service to the project, or to make connections to existing service. Include meters and changes to existing meters and services required by utility companies. If source is other than utility company, Contractor responsible for each utility service shall make connections. If service must be interrupted, arrange with the companies and existing users for an acceptable time.
- B. Temporary Water Service:
  - 1. Install and maintain water service and distribution piping of sizes and pressures adequate for the following uses, as applicable to the Project.
    - a. Construction processes.
    - b. Fire protection.
    - c. Drinking water.
    - d. Sanitary facilities.
    - e. Cleaning.
    - f. Testing of heating/cooling and other building equipment, if permanent water service not available at time scheduled for testing.
  - 2. **Source: Owner's existing water system.** The owner will not be responsible to provide any modification to the existing system required by the contractors.  
NOTE that some cleaning process's recommend the use of warm water. This may be available from the owner's system however the contractor shall provide and connections required to this system and shall be required to remove any added items. Hoses and pipes if used must not be placed in a way that will create a tripping or other hazard.
  - 3. Potability: Provide warning signs at outlet of non-potable water.
  - 4. Distribution: Provide distribution piping to each construction area. Provide on 3/4 inch valved hose-threaded outlet for each floor level of each area, spaced so that work requiring water can be reached with a 100 foot length of hose. Provide one 3/4 inch flexible hose 100 feet long with an adjustable nozzle, at each outlet where work requiring water is in progress. Provide back flow and/or air break protection.

5. Protection: Wherever water could damage work in progress or completed work, maintain distribution system, hose connections and outlet valves in leak proof condition. Provide a drip pan of suitable size at each outlet. Drain water promptly from pans as it accumulates.
6. Sterilize temporary piping for potable water prior to use. Refer to Division 15 for procedures.
- C. Temporary Electric Power and Lighting:
  1. General:
    - a. Provide a weatherproof, grounded temporary electric power service and distribution system, 120/240 volts, single phase, 3 wire, and of sufficient capacity to accommodate power to field offices, temporary lighting, and hand tools and equipment rated one horsepower or less.
      - 1.) Provide additional temporary power service required to operate:
        - a.) Dewatering pumps, if such pumps are required.
        - 2.) Electric power for tools or other equipment with larger power requirements shall be provided as work of Contractor whose work requires such power.
    - b. Comply with the National Electric Code (NFPA 70).
    - c. Provide necessary poles and other temporary supports, connections for utility wiring, service and revenue metering, wiring, panel boards, transformers, outlets, switches, lamps, lamp holders, circuit protection devices, controls, and accessories.
    - d. Power systems may also be used by owner's equipment installers. Install devices with proper circuit breakers on roof, bakery (5 location), clean room (2 locations), packing room (4 locations), clean room attic (2 locations)
  2. **Source: For Power Connections - Owner's Existing System. All construction power in the Brewery Area shall utilize the brewery service only.** The segregation of the services should be established as soon as possible. The owner will not be responsible to provide any modification to the existing system required by the contractors. The contractors shall not be wasteful of the owner's power.
    - a. For remote portions of the site, at the Contractor's option may utilize portable generator as source in lieu of extending temporary power cables.
  3. Distribution: If required -
    - a. Provide circuits of adequate size and proper characteristics for each use. Run wiring to minimize exposure to damage. Provide rigid steel conduit or equivalent raceways for wiring which must be located where exposed to possible damage or abuse.
    - b. Provide metal enclosures or boxes for wiring devices.
    - c. Provide overload-protected disconnect switch for each temporary circuit.
    - d. For power hand tools and task lighting, provide temporary 4-gang outlets, with 110-120 volt, 20 amp. grounded receptacles, at each floor level, spaced so that a 50 foot extension cord can reach each area of work.
    - e. Provide 220-240 volt temporary outlets as required.
  4. Temporary Lighting:
    - a. Provide switching of temporary lighting, to conserve energy and to reduce load on temporary system to only that required for work in progress, safety and security.
    - b. Provide sufficient illumination for safe work and traffic conditions in every area of work.
    - c. Lighting within buildings: Provide not less than one 200-watt incandescent lamp per 1000 square feet of floor area, uniformly distributed, for general construction lighting. In corridors and similar traffic areas provide one 100-watt incandescent lamp every 50 feet. In stairways and at ladder runs, provide on lamp minimum per story, located to illuminate each landing and flight. For small enclosed areas, provide not less than on 100-watt incandescent lamp for every 100 sq. ft. or fraction thereof, when work is in progress in each such space.
      - 1.) At the Contractor's option, provide fluorescent or other luminary types providing equivalent illumination to lamps specified.
    - d. Site and sign lighting: Where adequate permanent illumination is not present, provide temporary lighting for:
      - 1.) Security of work and temporary facilities.
      - 2.) Illumination of signs, as specified in paragraph: Project Identification and Temporary Signs, of this section.
    - e. OWNER will provide illumination at entry and exit areas. Other lighting is to be provided and/or maintained if required by work and site conditions.
    - f. Include lighting systems in attics and under platforms.
- D. Sanitary Sewers and Drainage:



1. Dispose of effluents in a lawful manner. Comply with accepted erosion control plan and other applicable regulations of authorities having jurisdiction.

### 3.2 TEMPORARY CONSTRUCTION AND SUPPORT FACILITIES

#### A. General:

1. Locate field offices, storage and fabrication sheds and other support facilities for easy access to the Work. There is no requirement that the contractor provide on site offices, however provisions for communication and meetings at the site must be made.
2. Maintain a reasonably neat and uniform appearance, acceptable to the Owner's Representative.
3. Except as otherwise specified, change from use of temporary services and facilities to use of permanent facilities at the earliest date acceptable to Owner's Representative, at each portion of the work, to minimize hazards and interferences with performance of the work.
4. Maintain field offices, storage and fabrication sheds, temporary sanitary facilities, waste collection and disposal systems, and project identification and temporary signs until near Substantial Completion. Remove immediately prior to Substantial Completion. Personnel remaining at the site beyond Substantial Completion will be permitted to use certain permanent facilities, under restricted use conditions acceptable to the Owner.

#### B. Temporary **Heat and Ventilation**:

1. Provide temporary heat and ventilation where needed for performance of the work, curing or drying, or protection of work in place from adverse effects of low temperatures or high humidity. Use methods known to be safe and not harmful to the work in place or being installed.
  - 1.) Requirements for temporary enclosure are specified in paragraph: Temporary Enclosures in this section.
  - 2.) If temporary heating is required in areas which are not enclosed and which cannot be temporarily enclosed, Contractor requiring such temporary heat shall provide same.
2. Open burning or salamander type heating units may NOT be used. Permanent building systems may be utilized at the owners discretion but only if systems are properly protected against dirt intrusion, all filters are replaced when work is completed, ducts and coils are cleaned, if units are reduced in use when dusty activities are scheduled and when separate outside exhaust is provided to direct dust and dirt away from the system. Use of units shall not cause any reduction in the owner's warranty's. If these standards cannot be met, the contractor is to provide separate heat and ventilation systems as required. Fabric ducts are not to be used as part of the temporary system if the permanent systems are utilized. The systems with fabric ducts may be not used or alternate diffuser installed and duct socks installed after substantial completion.
3. When painting or other activities that may cause odors, smoke or other contaminants to impact the building occupants, supplemental negative pressure exhaust system directed to the exterior is to be provided.

#### C. Field Offices-Provide area on site on site or in building for project meetings and record keeping.

#### D. Storage and Fabrication Facilities: Contractor shall provide, as required to accommodate his own work, and to provide storage conditions specified for materials and equipment. Facilities may be open shelters, trailers, or fully enclosed spaces.

#### E. Sanitary Facilities:

1. General: Provide sanitary facilities including temporary toilets, wash facilities and drinking water fixtures. Comply with safety and health codes for the type, number, location, operation and maintenance of fixtures and facilities. Locate toilets and drinking water fixtures that no one within the building construction area will need to walk more than 2 stories vertically or 200 feet horizontally to each of these facilities.
  - a. Supply and maintain toilet tissue, paper towels, paper cups and similar disposable materials. Provide covered waste containers.
2. **Toilets: Contractor to provide toilet facilities, use of the owner's facilities by the contractor is not permitted.** Facilities must be kept clean.
3. Wash Facilities: Each contractor shall provide potable-water-supplied wash facilities at locations convenient to construction personnel. Drain and dispose of drainage properly. Supply soap and other cleaning materials appropriate for each condition.
4. Drinking Water Fixtures: Each contractor shall provide drinking water fountains where and when piped potable water is reasonably accessible. Otherwise, provide tap-dispenser bottled-water type drinking water units, including paper cup supply.

#### F. Dewatering Facilities and Drains:

1. Provide, maintain and operate temporary drainage and dewatering facilities not specified as work of individual work sections Maintain the site, excavations and construction free of water.
  2. Dispose of rainwater in a lawful manner which will not flood the project or adjoining property, nor endanger either permanent work or temporary facilities.
  3. Provide temporary drainage where roofing or other waterproof deck construction is completed before the permanent drainage system is operational.
  4. Clear snow and ice which creates safety problems, which interferes with progress of the work, or which could overload or damage work in place or stored materials.
- G. **Temporary Enclosures:**
1. The existing building is to remain watertight, weather tight and vermin tight during the duration of the work. Once the building is enclosed and temporary heat is installed the building itself shall be vermin and weathertight. Provide as soon as required to protect work in place or work in progress, or when temporary heat is needed and the permanent building enclosure is not yet completed. Construct with provisions for ventilating as required. Provide access to front and rear of the building.
  2. Interior Temporary Partitions – Construct walls and barriers to limit access to work areas and to prevent dirt and dust from moving going from work areas to occupied and finished areas.
  3. Install substantial and durable general temporary enclosure of partially completed areas of construction. Provide locking entrances adequate to prevent unauthorized entrance, vandalism, theft and other violations of project security.
  4. Except where heavier construction is required for security, provide temporary enclosures using tarpaulins or equivalent materials installed securely, using a minimum of wood framing and other combustible materials. Individual openings of 25 square feet or less may be closed with plywood or other rigid panels.
    - a. Close openings through the floor decks, roof decks and other horizontal surfaces with construction which will support anticipated loads.
    - b. Where temporary wood or plywood enclosure exceeds 100 square feet in area, use fire-retardant treated material (UL labeled Class “A”) for the main sheathing, and use a minimum of non-treated wood framing and trim.
    - c. Provide temporary exterior doors with self-closing hardware and padlocks.
    - d. Construct enclosures to be removable as necessary for work and for the handling of materials.
    - e. **Refer to the logistic plans for certain ‘basic protections to be provided.**
- H. Hoists Use:
1. Provide adequate facilities for hoisting materials and employees. Do not permit employees to ride hoists which comply only with requirements for hoisting materials. The Contractor responsible for each hoist shall be responsible for selection of type, size and number of facilities. Truck cranes and similar devices used for hoisting are considered as being “tools and equipment” and not temporary facilities.
- I. Project Signs:
1. Temporary Signs:
    - a. Provide, within the site and as required by site and project status, signs for the following purposes:
      - 1.) Entry, exit and other traffic movements.
      - 2.) Identification of field offices, first aid and sanitary facilities.
      - 3.) Identification of dangerous areas and conditions.
      - 4.) Security and emergency information.
    - b. Delivery instruction signs will be permitted if approved by the Owner’s Representative before installation as informational and not advertising.
  2. Visibility: Locate signs so that they are clearly visible during time periods listed, including illumination by permanent or temporary lighting:
    - a. Signs warning of danger: 24 hours a day.
    - b. Other signs: When work is being performed.
  3. Bulletin Boards: Provide and maintain, at or near the General Contractor’s field office, a bulletin board for display of labor regulations, safety procedures, and such other documents as are required to be so displayed.
- J. Collection and Disposal of Wastes:
1. Collect and dispose of waste materials daily. Separate, handle and dispose of different types of waste materials as required by governing regulations.
  2. Burying or burning of waste materials on the site will not be permitted.

3. Washing waste materials down sewers or into waterways will not be permitted.
  4. Provide rodent proof containers for garbage and similar wastes.
  5. If the Contractors fail to remove rubbish or to correct conditions deemed by Owner to be unsafe or unsanitary, Owner may remove such rubbish or otherwise correct such conditions, and charge costs to the Contractor's account. Should such conditions develop, Owner will give Contractor seven days notice, except shorter notice if he considers that immediate hazards exist.
- K. Rodent and Pest Control:
1. Early in the construction process before deep foundation work has been completed, retain a recognized local exterminator or insect-and-pest control company to recommend practices that will minimize attraction and harboring of rodents, roaches and other pests. Employ this service to perform extermination and control procedures at regular intervals to keep the Project free of pests and their residues. Perform control operations in a lawful manner using environmentally safe materials.
- L. Construction Aids:
1. Design, construct, and maintain construction aids and miscellaneous general services and facilities as needed for safe and effective performance of the work including but not limited to temporary stairs and ladders, guardrails, walkways, ramps, platforms, scaffolding and chutes.
- M. Concrete Splatter Protection and Wet Cutting Protections
1. **Provide special protections and measures to protect existing exposed items and equipment to remain and installed new items from spatter from the installation of concrete work and from waste water from wet cutting. Install protections, maintain pumping systems, clean up promptly, etc.**
- N. Roof Storm Water Control
1. **The existing roof storm water drains to the building addition area. As soon as possible install and maintain a stormwater diversion system to drain this water away from the work area and prevent water damage to the existing building as well as the building subgrade and finish work and to maintain a safe, code compliant and clean work site.**

### 3.3 SECURITY AND PROTECTION FACILITIES

- A. **General: The contractors shall maintain security and protection at a sufficient level to protect the work, including temporary facilities, against losses or damage which would adversely affect either the schedule or the quality of the finished work.**
- B. Watchman: From the start of work at the site, including installation of temporary facilities, until the work has reached its final state of enclosure and vulnerable temporary facilities have been remove, The Contractors shall provide watchman service such that vulnerable building and site areas are inspected at periodic intervals from each end of work day in afternoon until beginning of work day the next morning. **To be provided if warranted, Owner and architect shall not be liable for any theft, damage or other impacts to or on the contractors equipment, materials, tools, etc and materials stored for installation in the work. The contractor shall be solely responsible for site security of these items.**
- C. Temporary Fire Protection:
1. General: Contractor shall develop and maintain a fire prevention and first-aid fire protection program for personnel at the project site. Review needs with the local fire department officials and establish procedures to be followed. Post warnings and information. Instruct other Sub-Contractors.
    - a. Each Sub-Contractor shall instruct his personnel in methods and procedures to be followed, and enforce strict discipline.
  2. Fire Prevention: Contractor shall conduct his operations in a manner to prevent the creation of fire hazards. Take precautionary measures required by the National Fire Protection Association, National Board of Fire Underwriters, and applicable laws to prevent fire from starting.
    - a. Do not overload or overfuse electrical circuits.
    - b. Tarpaulins used shall be flame proofed and securely installed.
    - c. Avoid use of straw or hay for curing if a temporary enclosure or temporary heat can be feasibly used. Where use of straw or hay cannot be avoided, remove as soon as possible. Perform no cutting and welding until the area is cleared of such material.
    - d. Supervise cutting and welding operations, combustion type temporary heating units, and similar sources of ignition, to assure that safe practices are observed.
    - e. Place flammable debris and rubbish in metal containers with covers, and remove from the premises daily.

- f. Remove highly combustible packing materials from shipping packages which must be stored within buildings.
  - g. Do not store flammable products such as gasoline, fuel oil, and paint, in the building, except that more than one day's supply may be handled inside the building, but only in proper safety containers.
  - h. Prohibit smoking in hazardous areas. Owner requirements may limit smoking in general.
  - i. Welding, soldering, etc work where required shall be avoided where adjacent to or in close proximity to wood or other combustible items. Great care and precautions must be taken to prevent any fire hazard to the building.
3. First-Aid Fire Fighting:
- a. The Contractor shall provide and maintain portable fire extinguishers of types suited for types of fires likely to occur. Comply with the applicable recommendations of NFPA Standard 10 "Standard for Portable Fire Extinguishers". Locate fire extinguishers where they are most convenient and effective for their intended purpose, but provide not less than one extinguisher on each floor at or near each usable stairwell.
    - 1.) Each Sub-Contractor performing work which requires additional fire extinguishers, or fire extinguishers of a type different from those generally distributed, shall provide such extinguishers during periods needed.
    - 2.) Temporary fire extinguishers shall remain the property of the Sub-Contractor providing same.
  - b. The Contractor shall establish and enforce fire access routes, to:
    - 1.) Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways and other access routes for fighting fires.
    - 2.) Maintain clear accesses for fire company vehicles.
  - c. Where temporary water outlets are available, Contractors shall provide hoses of sufficient length to reach construction areas. Identify hoses with signs, to the effect that hoses are for fire protection purposes only and are not to be removed.
4. Permanent Fire Protection: At the earliest feasible date in each area of the project, each Contractor providing permanent fire protection systems, including connected services, shall complete such systems and services and place into operation and use. Instruct key personnel at the site on use of facilities which may not be self-explanatory.
- a. For activating sprinkler, halon, or other automatic fire suppression systems, comply with requirements specified in Division 15.
  - b. Where fire protection standpipes are included in the Work, Plumbing Trade Contractor shall provide those standpipes, ready for use, the earliest possible date.
- D. Safety: Contractor shall comply with the following, relative to work of his contract. The contractor is solely responsible for the safety of their workpersons and the workplace.
- 1. Federal Law: Comply with the regulations established under the Federal Occupational Safety and Health Act of 1970 (OSHA), including agreements with the U.S. Department of Labor and the State in which the work is performed, under the State Plan Section of the Act, and applicable amendments or revisions thereof, whether associated with the furnishing and installation of equipment and systems, the construction of facilities, the performance of services of other contractual relationship.
  - 2. Statutory Law: Comply with applicable safety requirements of labor laws and regulations of the State in which work is performed, and to the requirements of the authorities having jurisdiction over same.
  - 3. Contractor shall be responsible for violations of the regulations, including payment of costs for correction of violations, hearing or appeal procedures, and claims and fines associated with said violations.
  - 4. Comply with the "American Safety Code for Building Construction, American National Standards Association Code A10.2, and the National Safety Council's Accident Prevention Manual".
  - 5. Maintain adequate protection against damage to persons and property, and provide necessary protective devices until completion and final acceptance of the building by the Owner.
  - 6. In an emergency threatening persons or property, Contractors may act at their own discretion without authorization by the Owner's Representative.
  - 7. Should a storm or high wind warning be issued or broadcast, Contractors shall take every practical precaution to minimize danger to persons and to the work. Precautions shall include the closing of openings, additional guying and bracing, tying down sheet stock and other materials subject to becoming airborne, and removing or securing scaffolding and other temporary work.
- E. Enclosure Fence:

1. When substantial elements of the Work begin, to prevent unauthorized, incidental or unintended access to an area undergoing work provide a general enclosure fence with lockable entrance gates. Locate as required. Install in a manner that will prevent persons and small animals from easily entering the work area, except by way of the entrance gates when open.
  - a. Provide 7' - 0" high galvanized chain-link fencing and gates. Keep gates locked during non-working hours. Set in a compacted mixture of gravel and earth.
2. Provide a barrier at the driveway to keep unauthorized vehicles from entering the work area.
- F. Protection: The Contractor, during construction and until final acceptance of the work, shall protect and be responsible for all their work. Protect products in storage, and installed work immediately after installation.
  1. Provide constant protection against rain, wind, storms, frost, and heat so as to keep work, materials, apparatus, and fixtures free from damage. At the end of each day's work, cover work likely to be damaged. During cold weather, protect work from damage by freezing.
  2. Shore, brace, underpin, secure and protect foundations and other parts of structures on the site, adjacent to or in the vicinity of the site, which may be in a way affected by excavations or other operations.
  3. Provide temporary protection for finished work until the building receives its final cleaning. Cover stair threads and risers immediately after installation, with heavy building paper, on top of which place boards, securely fastened in place; maintain until completion of the project.
  4. Where materials and equipment must be temporarily stored, prior to and during construction, and are of substantial value or are attractive for possible theft, provide a secure lockup and enforce strict discipline in release of materials, to minimize the opportunity for theft and vandalism.
  5. Do not load a part of the structure in a way that might endanger its safety.
  6. Protect existing trees and work on the site, indicated as remaining, from damage of such type which might result from contract operations.
- G. Environmental Protection: Contractor, for work of its contract, shall conduct activities to comply with environmental regulations, and to minimize the possibility that air, waterways and soils might be contaminated or polluted. Restrict the use of noise making tools and equipment to hours that will minimize disturbance to persons or other activities near the project site. Contain airborne dust to the immediate area of work.

### 3.4 BUILDING ACCESS AND EGRESS PROTECTION

- A. The building will be occupied by the owner and the public through out the duration of the work. There are multiple access-egress points to the building. Provide temporary, structurally sound overhead protection at the Handicap Accessible entrance while any overhead work is ongoing. Provide temporary protection, signage and/or fencing at the other points while work is ongoing in that area. Work at the main entry may impede this entry during work hours but it must be safe to use at the end of each work day. Prevent overhead materials from falling on persons or property below. Provide signage to direct users to entrances away from primary work areas each day.
- B. Maintain walks to building free of debris, hoses, wires, etc. during anytime the public is occupying the building.

### 3.5 TERMINATION AND REMOVAL

- A. General: Unless the Owner's Representative requests that it be maintained for a longer period of time, The Contractor shall remove each temporary service and facility for which he is responsible, promptly when the need for it has ended, or when it has been replaced by the authorized use of a permanent facility, but no later than Substantial Completion. Complete or restore permanent work delayed or affected by temporary facilities.
- B. Repair or replace street paving, curbs, sidewalks, and any other off site construction, site features or utilities damaged by the work, as required by the governing authority or Owner thereof.
- C. Materials and equipment that constitute temporary services and facilities are and remain the property of the Contractor providing same, except that the Owner reserves the right to take possession of the project identification signs.
- D. At substantial completion, each Contractor shall clean and renovate permanent services and facilities provided by him, that have been used to provide temporary services and facilities during the construction period.

**END OF SECTION 01500**

## SECTION 01630 PRODUCTS AND SUBSTITUTIONS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division -1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling requests for substitutions made after award of the Contract.
- B. This Section specifies administrative and procedural requirements governing the Contractor's selection of products for use in the Project.

#### 1.3 SUBMITTALS

- A. Substitution Request Submittal: Requests for substitution will be considered if received within 10 days after commencement of the Work. Requests received more than 10 days after commencement of the Work may be considered or rejected at the discretion of the Architect.
  - 1. Submit 3 copies of each request for substitution for consideration. Submit requests in the form and in accordance with procedures required for Change Order proposals.
  - 2. Identify the product, or the fabrication or installation method to be replaced in each request. Include related Specification Section and Drawing numbers. Provide complete documentation showing compliance with the requirements for substitutions, and the following information, as appropriate:
    - a. Product Data, including Drawings and descriptions of products, fabrication and installation procedures.
    - b. Samples, where applicable or requested.
    - c. A detailed comparison of significant qualities of the proposed substitution with those of the Work specified. Significant qualities may include elements such as size, weight, durability, performance and visual effect.
    - d. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by the Owner and separate Contractors that will become necessary to accommodate the proposed substitution.
    - e. A statement indicating the substitution's effect on the Contractor's Construction Schedule compared to the schedule without approval of the substitution. Indicate the effect of the proposed substitution on overall Contract Time.
    - f. Cost information, including a proposal of the net change, if any in the Contract Sum.
    - g. Certification by the Contractor that the substitution proposed is equal-to or better in every significant respect to that required by the Contract Documents, and that it will perform adequately in the application indicated. Include the Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of the failure of the substitution to perform adequately.
  - 3. Architect's Action: Within one week of receipt of the request for substitution, the Architect will request additional information or documentation necessary for evaluation of the request. Within 2 weeks of receipt of the request, or one week of receipt of the additional information or documentation, which ever is later, the Architect will notify the Contractor of acceptance or rejection of the proposed

substitution. If a decision on use of a proposed substitute cannot be made or obtained within the time allocated, use the product specified by name. Acceptance will be in the form of a Change Order.

#### 1.4 QUALITY ASSURANCE

- A. Source Limitations: To the fullest extent possible, provide products of the same kind, from a single source.
  - 1. When specified products are available only from sources that do not or cannot produce a quantity adequate to complete project requirements in a timely manner, consult with the Architect for a determination of the most important product qualities before proceeding. Qualities may include attributes relating to visual appearance, strength, durability, or compatibility. When a determination has been made, select products from sources that produce products that possess these qualities, to the fullest extent possible.
- B. Compatibility of Options: When the Contractor is given the option of selecting between two or more products for use on the Project, the product selected shall be compatible with products previously selected, even if previously selected products were also options.
- C. Nameplates: Except for required labels and operating data, do not attach or imprint manufacturer's or producer's nameplates or trademarks on exposed surfaces of products which will be exposed to view in occupied spaces or on the exterior.
  - 1. Labels: Locate required product labels and stamps on a concealed surface or, where required for observation after installation, on an accessible surface that is not conspicuous.

#### 1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store and handle products in accordance with the manufacturer's recommendations, using means and methods that will prevent damage, deterioration and loss, including theft.
  - 1. Schedule delivery to minimize long-term storage at the site and to prevent overcrowding of construction spaces.
  - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft and other losses.
  - 3. Deliver products to the site in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting and installing.
  - 4. Inspect products upon delivery to ensure compliance with the Contract Documents, and to ensure that products are undamaged and properly protected.
  - 5. Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.
  - 6. Store heavy materials away from the Project structure in a manner that will not endanger the supporting construction.
  - 7. Store products subject to damage by the elements above ground, under cover in a weather-tight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

## PART 2 - PRODUCTS

### 2.1 SUBSTITUTIONS

- A. Conditions: The Contractor's substitution request will be received and considered by the Architect when one or more of the following conditions are satisfied, as determined by

the Architect; otherwise requests will be returned without action except to record noncompliance with these requirements.

1. Extensive revisions to Contract Documents are not required.
  2. Proposed changes are in keeping with the general intent of Contract Documents.
  3. The request is timely, fully documented and properly submitted.
  4. The request is directly related to an "or equal" clause or similar language in the Contract Documents.
  5. The specified product or method of construction cannot be provided within the Contract Time. The request will not be considered if the product or method cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly.
  6. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.
  7. A substantial advantage is offered the Owner, in terms of cost, time, energy conservation or other considerations of merit, after deducting offsetting responsibilities the Owner may be required to bear. Additional responsibilities for the Owner may include additional compensation to the Architect for redesign and evaluation services, increased cost of other construction by the Owner or separate Contractors, and similar considerations.
  8. The specified product or method of construction cannot be provided in a manner that is compatible with other materials, and where the Contractor certifies that the substitution will overcome the incompatibility.
  9. The specified product or method of construction cannot be coordinated with other materials, and where the Contractor certifies that the proposed substitution can be coordinated.
  10. The specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Contractor certifies that the proposed substitution provide the required warranty.
- B. The Contractor's submittal and Architect's acceptance of Shop Drawings, Product Data or Samples that relate to construction activities not complying with the Contract Documents does not constitute an acceptable or valid request for substitution, nor does it constitute approval.

## 2.2 PRODUCT SELECTION

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, unused at the time of installation.
1. Provide products complete with all accessories, trim, finish, safety guards and other devices and details needed for a complete installation and for the intended use and effect.
  2. Standard Products: Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.
- B. Product Selection Procedures: Product selection is governed by the Contract Documents and governing regulations, not by previous Project experience. Procedures governing product selection include the following:
1. Proprietary Specification Requirements: Where only a single product or manufacturer is named, provide the product indicated. No substitutions will be permitted.
  2. Semi proprietary Specification Requirements: Where two or more products or manufacturers are named, provide one of the products indicated. No substitutions will be permitted.



- a. Where products or manufacturers are specified by name, accompanied by the term "or equal," or "or approved equal" comply with the Contract Document provisions concerning "substitutions" to obtain approval for use of an unnamed product.
3. Non-Proprietary Specifications: When the Specifications list products or manufacturers that are available and may be incorporated in the Work, but do not restrict the Contractor to use of these products only, the Contractor may propose any available product that complies with Contract requirements. Comply with Contract Document provisions concerning "substitutions" to obtain approval for use of an unnamed product.
4. Descriptive Specification Requirements: Where Specifications describe a product or assembly, listing exact characteristics required, with or without use of a brand or trade name, provide a product or assembly that provides the characteristics and otherwise complies with Contract requirements.
5. Performance Specification Requirements: Where Specifications require compliance with performance requirements, provide products that comply with these requirements, and are recommended by the manufacturer for the application indicated. General overall performance of a product is implied where the product is specified for a specific application.
6. Compliance with Standards, Codes and Regulations: Where the Specifications only require compliance with an imposed code, standard or regulation, select a product that complies with the standards, codes or regulations specified.
7. Visual Matching: Where Specifications require matching an established Sample, the Architect's decision will be final on whether a proposed product matches satisfactorily.
8. Visual Selection: Where specified product requirements include the phrase "...as selected from manufacturer's standard colors, patterns, textures..." or a similar phrase, select a product and manufacturer that complies with other specified requirements. The Architect will select the color, pattern and texture from the product line selected.
9. Allowances: Refer to individual Specification Sections and "Allowance" provisions in Division-1 for allowances that control product selection, and for procedures required for processing such selections.

### **PART 3 - EXECUTION**

#### **3.1 INSTALLATION OF PRODUCTS:**

- A. Comply with manufacturer's instructions and recommendations for installation of products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other Work.
  1. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

**END OF SECTION 01630**

## SECTION 01700 PROJECT CLOSEOUT

### PART 1 – GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division -1 Specification Sections, apply to this Section.
- B. **Refer to owner requirements also. When in conflict, the requirements of the owner supersede this section.**

#### 1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for project closeout, including but not limited to:
  - 1. Inspection procedures.
  - 2. Project record document submittal.
  - 3. Operating and maintenance manual submittal.
  - 4. Submittal of warranties.
  - 5. Final cleaning.
- B. Additional closeout requirements for specific construction activities are included in the appropriate Sections in Divisions -2 through -16.

#### 1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete the following. List exceptions in the request.
  - 1. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the portion of the Work claimed as substantially complete. Include supporting documentation for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum.
  - 2. Advise Owner of pending insurance change-over requirements.
  - 3. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents.
  - 4. Obtain and submit releases enabling the Owner unrestricted use of the Work and access to services and utilities; include occupancy permits, operating certificates and similar releases.
  - 5. Submit record drawings, maintenance manuals, final project photographs, damage or settlement survey, property survey, and similar final record information.
  - 6. Deliver tools, spare parts, extra stock, and similar items.
  - 7. Make final change-over of permanent locks and transmit keys to the Owner. Advise the Owner's personnel of change-over in security provisions.
  - 8. Complete start-up testing of systems, and instruction of the Owner's operating and maintenance personnel. Discontinue or change over and remove temporary facilities from the site, along with construction tools, mock-ups, and similar elements.
  - 9. Complete final clean up requirements, including touch-up painting. Touch-up and otherwise repair and restore marred exposed finishes.
- B. Inspection Procedures: On receipt of a request for inspection, the Architect will either proceed with inspection or advise the Contractor of unfilled requirements. The Architect will prepare the Certificate of Substantial Completion following inspection, or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.
  - 1. The Architect will repeat inspection when requested and assured that the Work has been substantially completed.

2. Results of the completed inspection will form the basis of requirements for final acceptance.

#### 1.4 FINAL ACCEPTANCE

- A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.
  1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
  2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
  3. Submit a certified copy of the Architect's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance.
  4. Submit consent of surety to final payment.
  5. Submit a final liquidated damages settlement statement.
  6. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
- B. Re-inspection Procedure: The Architect will re-inspect the Work upon receipt of notice that the Work, including inspection list items from earlier inspections, has been completed.
  1. Upon completion of re-inspection, the Architect will prepare a certificate of final acceptance, or advise the Contractor of Work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.
  2. If necessary, re-inspection will be repeated.

#### 1.5 RECORD DOCUMENT SUBMITTALS

- A. Record Product Data: Maintain one copy of each Product Data submittal. Mark these documents to show significant variations in actual Work performed in comparison with information submitted. Include variations in products delivered to the site, and from the manufacturer's installation instructions and recommendations.
- B. Miscellaneous Record Submittals: Refer to other Specification Sections for requirements of miscellaneous record-keeping and submittals in connection with actual performance of the Work. Immediately prior to the date or dates of Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to the Architect for the Owner's records.
- C. Maintenance Manuals: Organize operating and maintenance data into suitable sets of manageable size. Bind properly indexed data in individual heavy-duty 2-inch, 3-ring vinyl-covered binders, with pocket folders for folded sheet information. Mark appropriate identification on front and spine of each binder.

### **PART 2 - PRODUCTS (Not Applicable)**

### **PART 3 – EXECUTION**

#### 3.1 CLOSEOUT PROCEDURES

- A. Operating and Maintenance Instructions: Arrange for each installer of equipment that requires regular maintenance to meet with the Owner's personnel to provide instruction in proper operation and maintenance. If installers are not experienced in procedures, provide instruction by manufacturer's representatives.

#### 3.2 FINAL CLEANING

- A. General: General cleaning during construction is required by the General Conditions and included in Section "Temporary Facilities".
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Comply with manufacturer's instructions.
  - 1. Complete the following cleaning operations before requesting inspection for Certification of Substantial Completion.
    - a. Remove labels that are not permanent labels.
    - b. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compound and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials.
    - c. Clean exposed exterior and interior hard-surfaced finishes to a dust-free condition, free of stains, films and similar foreign substances. Restore reflective surfaces to their original reflective condition. Leave concrete floors broom clean. Vacuum carpeted surfaces.
    - d. Clean the site, including landscape development areas, of rubbish, litter and other foreign substances. Sweep paved areas broom clean; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth even-textured surface.
- C. Removal of Protection: Remove temporary protection and facilities installed for protection of the Work during construction.
- D. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful or dangerous materials into drainage systems. Remove waste materials from the site and dispose of in a lawful manner.
  - 1. Where extra materials of value remaining after completion of associated Work have become the Owner's property, arrange for disposition of these materials as directed.

**END OF SECTION 01700**

## **SECTION 01720 RECORD DOCUMENTS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification sections, apply to work of this section.
- B. Related requirements specified in other Sections:
  - 1. Section 01300 - Submittals
  - 2. Section 01040 – Coordination
  - 3. Section 01020 – Applications for Payment
  - 4. Section 01700 - Project Closeout

#### **1.2 DESCRIPTION OF REQUIREMENTS**

- A. Each Contractor shall maintain contract files at the site for the use of the Architect and Owner. Unless noted otherwise, include one record copy of:
  - 1. Drawings: Clean, black and white drawing copy for recording conditions to be developed into Record Documents.
  - 2. Project Manual.
  - 3. Addenda.
  - 4. Change Orders and Other Modifications to the Contract.
  - 5. Architect's Field Orders or written instructions.
  - 6. Reviewed Shop Drawings (3 Copies), Product Data and Samples.
  - 7. Field Test Records.
  - 8. Permits and Inspection Reports.

#### **1.3 MAINTENANCE OF DOCUMENTS AND SAMPLES**

- A. Store documents and samples in Contractor's field office apart from documents used for construction.
  - 1. Provide files and racks for storage of documents.
  - 2. Provide locked cabinet or secure storage space for storage of samples.
- B. File documents and samples in accordance with data filing format furnished by the Architect utilizing the Construction Specifications Institute (CSI) Index System.
- C. Maintain documents in a clean, dry, legible conditions and in good order. Do not use record documents for construction purposes.
- D. Make documents and samples available during construction for review by the Architect.

#### **1.4 MARKING DEVICES**

- A. Provide felt tip marking pens for recording information in the color code designated by Architect.

#### **1.5 RECORDING**

- A. Label each document "RECORD DOCUMENTS" in neat large printed letters.
- B. Record information concurrently with construction progress.
  - 1. Do not conceal any work until required information is recorded.
- C. Drawings: Legibly mark in drawing quality to record actual construction:
  - 1. Depths of various elements of foundation in relation to finish first floor datum.
  - 2. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

3. Location of internal utilities and appurtenances concealed in the construction referenced to visible and accessible features of the structure.
  4. Field changes of dimension and detail.
  5. Changes made by Field Order or by Change Order.
  6. Details not on original Contract Drawings.
  7. Surveys establishing lines and levels of building.
  8. Plant treatment records (wood, soil, etc.) and soil treatment records and certificates.
  9. Inspections and certification by governing authorities.
  10. Ambient and substrate condition tests.
- D. Specifications and Addenda: Legibly mark each Section to record:
1. Manufacturer, trade name, catalog number, and Supplier of each product and item or equipment actually installed.
  2. Changes made by Field Order or by Change Order.

1.6 SUBMITTAL

- A. At Contract closeout, deliver Record Documents to Architect to review for completeness. Final review by Architect will be made prior to submission to the Owner. Documents incomplete will be returned for correction to Contractor and must be reviewed for compliance by Architect prior to the processing of the final payment voucher.
- B. Accompany submittal with transmittal letter in duplicate containing:
1. Date.
  2. Project title and number.
  3. Contractor's name and address.
  4. Title and number of each Record Document.
  5. Signature of Contractor or his authorized representative.

**PART 2 – PRODUCTS - Not Used**

**PART 3 – EXECUTION – Not Used**

**END OF SECTION 01720**

**SECTION 01740**  
**WARRANTIES AND BONDS**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. This Section specifies general administrative and procedural requirements for warranties and bonds required by the Contract Documents, including manufacturers standard warranties on products and special warranties.
  - 1. Refer to the General Conditions for terms of the Contractor's special warranty of workmanship and materials.
  - 2. General closeout requirements are included in Section "Project Closeout."
  - 3. Specific requirements for warranties for the Work and products and installations that are specified to be warranted, are included in the individual Sections of Divisions-2 through -16.
  - 4. Certifications and other commitments and agreements for continuing services to Owner are specified elsewhere in the Contract Documents.
- B. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.
- C. Separate Prime Contracts: Each prime Contractor is responsible for warranties related to its own Contract.

**1.3 WARRANTY REQUIREMENTS**

- A. Related Damages and Losses: When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.
- B. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
- C. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through a portion of its anticipated useful service life.
- D. Owner's Recourse: Written warranties made to the Owner are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights, or remedies.
  - 1. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the Contract Documents.
- E. The Owner reserves the right to refuse to accept Work for the Project where a special warranty, certification, or similar commitment is required on such Work or part of the Work, until evidence is presented that entities required to countersign such

commitments are willing to do so.

#### 1.4 SUBMITTALS

- A. Submit written warranties to the Architect prior to the date certified for Substantial Completion. If the Architect's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the Work, submit written warranties upon request of the Architect.
  - 1. When a designated portion of the Work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Architect within fifteen days of completion of that designated portion of the Work.
- B. When a special warranty is required to be executed by the Contractor, or the Contractor and a subcontractor, supplier or manufacturer, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner through the Architect for approval prior to final execution.
- C. Forms for special warranties are included at the end of this Section. Prepare a written document utilizing the appropriate form, ready for execution by the Contractor, or the Contractor and subcontractor, supplier or manufacturer. Submit a draft to the Owner through the Architect for approval prior to final execution.
  - 1. Refer to individual Sections of Divisions-2 through -16 for specific content requirements, and particular requirements for submittal of special warranties.

**PART 2 – PRODUCTS** – Not Used

**PART 3 – EXECUTION** – Not Used

**END OF SECTION 01740**



**SECTION 01750**  
**CONTRACTOR'S ONE YEAR GUARANTEE**

The Undersigned, \_\_\_\_\_,  
as Contractor, is hereby held and firmly bound unto the as Owner and do hereby Guarantee all of the work  
under the contract to be free from faulty materials and workmanship, in every particular, and against injury  
from proper and usual wear, and hereby agree to replace or re-execute, without extra cost or offset to the  
Owner, such work as may be found to be improper or imperfect in the opinion of the Owner and to make good  
damage caused to either work or materials due to such required replacement or re-execution.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH, that whereas the above named  
Contractor did on the \_\_\_\_\_ day of \_\_\_\_\_, 2025 enter into a contract with the Owner for:

**THEATER & BREWERY RENOVATIONS FOR WANDERBACK BREWERY & LANDIS THEATER**  
which said contract is made a part of this Guarantee the same as though set forth herein. Neither the Final  
Certificate of Payment nor any provision in the contract shall relieve the contractor of responsibility for neglect  
or faulty materials or workmanship during the period covered by the Guarantee.

Now, should any defects develop in aforesaid work within the specified periods due to fault, in  
materials and/or workmanship, the Contractor shall make repairs and do necessary work to correct defective  
work as directed by the Owner. The Contractor shall execute such repairs and corrective work, including costs  
of making good other work damaged by or otherwise affected by making of repairs or corrective work, without  
extra cost or offset to the Owner, at entire cost to the Contractor, within five (5) days after written notice to the  
Contractor by the Owner. The Guarantee shall be made to cover, and does cover, a period of one year from the  
date of acceptance by the Owner of all work under the Contract, or for longer period where so stipulated in the  
Contract Documents. The Contractor's One (1) Year Guarantee Period shall commence on the \_\_\_\_\_ day  
of \_\_\_\_\_, 20\_\_\_\_.

IN WITNESS WHEREOF, the Contractor has caused its name to be hereunto subscribed and its seal  
to be

hereunto affixed this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_

\_\_\_\_\_  
Signature of Principal

\_\_\_\_\_  
Type Name of Principal

\_\_\_\_\_  
Title

*Affix Company Seal*

*Above*

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_

Notary Public:

My Commission expires: \_\_\_\_\_

**SECTION 02070**  
**SELECTIVE DEMOLITION**

**PART 1 - GENERAL**

**1.1 DESCRIPTION OF WORK**

- A. Extent of selective demolition work includes removal and proper disposal of various items as shown on the drawings and required for a complete project.
- B. Contractor shall be responsible for the removal and proper lawful disposal of all items related to their work unless specifically indicated otherwise.
- C. Related Documents
  - 1. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

**1.2 JOB CONDITIONS**

- A. Condition of Structures: Owner assumes no responsibility for actual condition of items or structures to be demolished or removed.
  - 1. Conditions existing at time of commencement of contract will be maintained by Owner insofar as practicable. However, variations within structure may occur by Owner's removal and salvage operations prior to start of selective demolition work.
- B. Protections: Provide temporary barricades and other forms of protection as required to protect the general public from injury due to selective demolition work. Protect existing items to remain for damage as required.
  - 1. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of structure or element to be demolished, and adjacent facilities or work to remain.
  - 2. Protect from damage existing finish work that is to remain in place and becomes exposed during demolition operations.
  - 3. Construct temporary insulated solid dustproof partitions where required to separate areas where noisy or extensive dirt or dust operations are performed. Equip partitions with dustproof doors and security locks if required.
  - 4. Provide temporary weather protection during interval between demolition and removal of existing construction on exterior surfaces, and installation of new construction to insure that no water leakage or damage occurs to structure or interior areas of existing building.
  - 5. Remove protections at completion of work.
- C. Damages: Promptly repair damages caused to adjacent facilities by demolition work at no cost to Owner.
- D. Mechanical and Electrical Systems: Removal of certain existing mechanical and electrical work is work of this section, as specified in Part 3-Execution, of this section. The term "Electrical" includes wire systems.
- E. Multiple Prime Contracts: Carefully coordinate work of this section with Contractors for mechanical and electrical work, where mechanical and electrical systems are encountered during selective demolition.
- F. Traffic: Conduct selective demolition operations and debris removal in a manner to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities.
  - 1. Do not close, block or otherwise obstruct streets, walks or other occupied or used facilities without written permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
- G. Utility Services: Maintain existing utilities indicated to remain, keep in service, and protect against damage during demolition operations.
  - 1. Do not interrupt existing utilities serving occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to governing authorities.

## **PART 2 - PRODUCTS (Not Applicable).**

## **PART 3 - EXECUTION**

### **3.1 INSPECTION**

- A. Prior to commencement of selective demolition work, inspect areas in which work will be performed. Photograph existing conditions to structure surfaces, equipment or to surrounding properties which could be misconstrued as damage resulting from selective demolition work; file with Owner's Representative prior to starting work.

### **3.2 PREPARATION**

- A. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement or collapse of structures to be demolished and adjacent facilities to remain.
  - 1. Cease operations and notify the Owner's Representative immediately if safety of structure appears to be endangered. Take precautions to support structure until determination is made for continuing operations.
- B. Cover and protect furniture, equipment and fixtures to remain from soiling or damage when demolition work is performed in rooms or areas from which such items have not been removed.
- C. Erect and maintain dust-proof partitions and closures as required to prevent spread of dust or fumes to occupied portions of the building.
  - 1. Where selective demolition occurs immediately adjacent to occupied portions of the building, construct dust-proof partitions of minimum 4" studs, 5/8" drywall (joints taped) on occupied side, 1/2" fire-retardant plywood on demolition side, and fill partition cavity with sound-deadening insulation.
  - 2. Provide weatherproof closures for exterior openings resulting from demolition work.
- D. Locate, identify, stub off and disconnect utility services that are not indicated to remain.
  - 1. Provide by-pass connections as necessary to maintain continuity of service to occupied areas of building. Provide minimum of 72 hours advance notice to Owner if shut-down of service is necessary during change-over.

### **3.3 DEMOLITION**

- A. Perform selective demolition work in a systematic manner. Use such methods as required to complete work indicated on Drawings in accordance with demolition schedule and governing regulations.
  - 1. Demolish concrete and masonry in small sections. Cut concrete and masonry at junctures with construction to remain using power-driven masonry saw or hand tools; do not use power-driven impact tools.
  - 2. Provide services for effective air and water pollution controls as required by local authorities having jurisdiction.
- B. If unanticipated mechanical, electrical or structural elements which conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict. Submit report to Architect in written, accurate detail. Pending receipt of directive from Architect rearrange selective demolition schedule as necessary to continue overall job progress without delay.

### **3.4 DISPOSAL OF DEMOLISHED MATERIALS**

- A. Remove debris, rubbish and other materials resulting from demolition operations from building site. Transport and legally dispose of materials off site.
  - 1. If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws, and ordinances concerning removal, handling and protection against exposure or environmental pollution.
  - 2. Burning of removed materials is not permitted on project site.

### **3.5 CLEAN-UP AND REPAIR**

- A. Upon completion of demolition work, remove tools, equipment and demolished materials from site. Remove protections and leave interior areas broom clean.

- B. Repair demolition performed in excess of that required. Return structures and surfaces to remain to condition existing prior to commencement of selective demolition work. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.

END OF SECTION 02070

## **SECTION 02110 SITE CLEARING**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. This Section includes the following:
  - 1. Protection of existing trees indicated to remain.
  - 2. Removal of trees and other vegetation.
  - 3. Topsoil stripping.
  - 4. Clearing and grubbing.
  - 5. Removing above-grade improvements.
  - 6. Removing below-grade improvements.

#### **1.3 PROJECT CONDITIONS**

- A. Traffic: Conduct site-clearing operations to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct streets, walks, or other occupied or used facilities without permission from authorities having jurisdiction.
- B. Protection of Existing Improvements: Provide protections necessary to prevent damage to existing improvements indicated to remain in place.
  - 1. Protect improvements on adjoining properties and on Owner's property.
  - 2. Restore damaged improvements to their original condition, as acceptable to property owners.
- C. Protection of Existing Trees and Vegetation: Protect existing trees and other vegetation indicated to remain in place against unnecessary cutting, breaking or skinning of roots, skinning or bruising of bark, smothering of trees by stockpiling construction materials or excavated materials within drip line, excess foot or vehicular traffic, or parking of vehicles within drip line. Provide temporary guards to protect trees and vegetation to be left standing.
  - 1. Water trees and other vegetation to remain within limits of contract work as required to maintain their health during course of construction operations.
  - 2. Provide protection for roots over 1-1/2 inch (38 mm) in diameter that are cut during construction operations. Coat cut faces with an emulsified asphalt or other acceptable coating formulated to use on damaged plant tissues. Temporarily cover exposed roots with wet burlap to prevent roots from drying out; cover with earth as soon as possible.
  - 3. Repair or replace trees and vegetation indicated to remain that are damaged by construction operations in a manner acceptable to Architect. Employ a licensed arborist to repair damage to trees and shrubs.
  - 4. Replace trees that cannot be repaired and restored to full-growth status, as determined by arborist.

#### **1.4 EXISTING SERVICES**

- A. General: Indicated locations are approximate; determine exact locations before commencing Work.
- B. Arrange and pay for disconnecting, removing, capping, and plugging utility services. Notify affected utility companies in advance and obtain approval before starting this Work.
- C. Place markers to indicate location of disconnected services. Identify service lines and capping locations on Project Record Documents.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 SITE CLEARING

- A. General: Remove trees, shrubs, grass, and other vegetation, improvements, or obstructions, as required, to permit installation of new construction. Remove similar items elsewhere on site or premises as specifically indicated. Removal includes digging out and off-site disposal of stumps and roots.
  - 1. Cut minor roots and branches of trees indicated to remain in a clean and careful manner where such roots and branches obstruct installation of new construction.
  - 2. Remove existing material from under building as indicated on the drawings.
- B. Topsoil: Topsoil is defined as friable clay loam surface soil found in a depth of not less than 4 inches (100 mm). Satisfactory topsoil is reasonably free of subsoil, clay lumps, stones, and other objects over 2 inches (50 mm) in diameter, and without weeds, roots, and other objectionable material.
  - 1. Strip topsoil to whatever depths encountered in a manner to prevent intermingling with underlying subsoil or other objectionable material. Remove heavy growths of grass from areas before stripping.
    - a. Where existing trees are indicated to remain, leave existing topsoil in place within drip lines to prevent damage to root system.
  - 2. Stockpile topsoil in storage piles in areas indicated or directed. Construct storage piles to provide free drainage of surface water. Cover storage piles, if required, to prevent wind erosion.
  - 3. Dispose of unsuitable or excess topsoil as specified for disposal of waste material.
- C. Clearing and Grubbing: Clear site of trees, shrubs, and other vegetation, except for those indicated to be left standing.
  - 1. Completely remove stumps, roots, and other debris protruding through ground surface.
  - 2. Use only hand methods for grubbing inside drip line of trees indicated to remain.
  - 3. Fill depressions caused by clearing and grubbing operations with satisfactory soil material, unless further excavation or earthwork is indicated.
    - a. Place fill material in horizontal layers not exceeding 6 inches (150 mm) loose depth, and thoroughly compact each layer to a density equal to adjacent original ground.
- D. Removal of Improvements: Remove existing above-grade and below-grade improvements as indicated and as necessary to facilitate new construction.

3.2 DISPOSAL OF WASTE MATERIALS

- A. Burning on Owner's Property: Burning is not permitted on Owner's property.
- B. Removal from Owner's Property: Remove waste materials from Owner's property.

**END OF SECTION 02110**

## **SECTION 02200 EARTHWORK**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Refer Site, Structural and MEP drawings for additional requirements. Where there are disagreements between the project requirements specified therein or elsewhere the greater or better quality shall be included in the bid and provided. Contractors are to utilize best practices in preparing the site for the work to be completed and executing the work. All fill required to be brought to the site must be well graded gravel with limited fines and clays.
- C. Review also requirements for site work and soil conservation work specified on the Site Drawings. Where there are disagreements between the project requirements specified therein or elsewhere the greater or better quality shall be included in the bid and provided.

#### **1.2 SUMMARY**

- A. This Section includes the following:
  - 1. Preparing and grading subgrades for slabs-on-grade, walks, pavements, and landscaping.
  - 2. Excavating and backfilling for buildings and structures.
  - 3. Drainage and moisture-control fill course for slabs-on-grade.
  - 4. Subbase course for walks and pavements.
  - 5. Subsurface drainage backfill for walls and trenches.
  - 6. Excavating and backfilling trenches within building lines.
  - 7. Excavating and backfilling for underground mechanical and electrical utilities and appurtenances.
- B. Related Sections: The following Sections contain requirements that relate to this Section.
  - 1. Division 2 Section "Site Clearing" for site stripping, grubbing, topsoil removal, and tree protection.

#### **1.3 DEFINITIONS**

- A. Excavation consists of the removal of material encountered to subgrade elevations and the reuse or disposal of materials removed.
- B. Subgrade: The uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.
- C. Borrow: Soil material obtained off-site when sufficient approved soil material is not available from excavations.
- D. Subbase Course: The layer placed between the subgrade and base course in a paving system or the layer placed between the subgrade and surface of a pavement or walk.
- E. Base Course: The layer placed between the subbase and surface pavement in a paving system.
- F. Drainage Fill: Course of washed granular material supporting slab-on-grade placed to cut off upward capillary flow of pore water.
- G. Unauthorized excavation consists of removing materials beyond indicated subgrade elevations or dimensions without direction by the Architect. Unauthorized excavation, as well as remedial work directed by the Architect, shall be at the Contractor's expense.
- H. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below ground surface.
- I. Utilities include on-site underground pipes, conduits, ducts, and cables, as well as underground services within building lines.

#### 1.4 SUBMITTALS

- A. General: Submit the following according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product data for the following: (Not Applicable)

#### 1.5 QUALITY ASSURANCE

- A. Codes and Standards: Perform earthwork complying with requirements of authorities having jurisdiction.
- B. Testing and Inspection Service: The Owner may have a qualified independent geotechnical engineering testing agency to classify proposed on-site and borrow soils to verify that soils comply with specified requirements and to perform required field and laboratory testing.

#### 1.6 PROJECT CONDITIONS

- A. Existing Utilities: Do not interrupt existing utilities serving facilities occupied by the Owner or others except when permitted in writing by the Architect and then only after acceptable temporary utility services have been provided.
- B. Protect all utilities and site conditions intended to remain during or after the course of the work.**
- C. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies to shutoff services if lines are active.

### PART 2 - PRODUCTS

#### 2.1 SOIL MATERIALS

- A. General: Provide approved borrow soil materials from off-site when sufficient approved soil materials are not available from excavations.
- B. Satisfactory Soil Materials: ASTM D 2487 soil classification groups GW, GP, GM, SW, SP, and SM; free of rock or gravel larger than 2 inches (50 mm) in any dimension, debris, waste, frozen materials, vegetation and other deleterious matter.
- C. Unsatisfactory Soil Materials: ASTM D 2487 soil classification groups GC, SC, ML, MH, CL, CH, OL, OH, and PT.
- D. Backfill and Fill Materials: Satisfactory soil materials.
- E. Subbase and Base Material: Dense graded aggregate base course or soil aggregate base course. Designation I-5 conforming to NJDOT specifications.
- F. Engineered Fill: Subbase or base materials.
- G. Drainage Fill: Washed, evenly graded mixture of crushed stone, or crushed or uncrushed gravel, ASTM D 448, coarse aggregate grading size 57, with 100 percent passing a 1-1/2 inch (38 mm) sieve and not more than 5 percent passing a No. 8 (2.36 mm) sieve.
- H. Filtering Material: Evenly graded mixture of natural or crushed gravel or crushed stone and natural sand, with 100 percent passing a 1-1/2 inch (38 mm) sieve and 0 to 5 percent passing a No. 50 (300 micrometer) sieve.

#### 2.2 ACCESSORIES

- A. Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility.
- B. Detectable Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches (150 mm) wide and 4 mils (0.1 mm) thick minimum, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches (750 mm) deep.
  - 1. Tape Colors: Provide tape colors to utilities as follows:



- a. Red: Electric.
  - b. Yellow: Gas, oil, steam, and dangerous materials.
  - c. Orange: Telephone and other communications.
  - d. Blue: Water systems.
  - e. Green: Sewer systems.
- C. Filter Fabric: Manufacturer's standard nonwoven pervious geotextile fabric of polypropylene, nylon or polyester fibers, or a combination.
  - 1. Provide filter fabrics that meet or exceed the listed minimum physical properties determined according to ASTM D 4759 and the referenced standard test method in parentheses:
    - a. Grab Tensile Strength (ASTM D 4632): 100 lb (45 kg).
    - b. Apparent Opening Size (ASTM D 4751): #100 U.S. Standard (150 micrometer sieve).
    - c. Permeability (ASTM D 4491): 150 gallons per minute per sq. ft. (102 L/s per sq. m).

### **PART 3 - EXECUTION**

#### **3.1 PREPARATION**

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
- B. Protect subgrades and foundation soils against freezing temperatures or frost. Provide protective insulating materials as necessary.
- C. Provide erosion control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- D. Tree protection is specified in the Division 2 Section "Site Clearing."

#### **3.2 DEWATERING**

- A. Prevent surface water and subsurface or ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.
- B. Protect subgrades and foundation soils from softening and damage by rain or water accumulation.

#### **3.3 EXCAVATION**

- A. Explosives: Do not use explosives.
- B. Unclassified Excavation: Excavation is unclassified and includes excavation to required subgrade elevations regardless of the character of materials and obstructions encountered.

#### **3.4 STABILITY OF EXCAVATIONS**

- A. Comply with local codes, ordinances, and requirements of authorities having jurisdiction to maintain stable excavations.

#### **3.5 EXCAVATION FOR WALKS AND PAVEMENTS**

- A. Excavate surfaces under walks and pavements to indicated cross sections, elevations, and grades.

#### **3.6 EXCAVATION FOR UTILITY TRENCHES**

- A. Excavate trenches to indicated slopes, lines, depths, and invert elevations.

1. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line.
  - B. Excavate trenches to uniform widths to provide a working clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches (300 mm) higher than top of pipe or conduit, unless otherwise indicated.
    1. Clearance: 12 inches (300 mm) each side of pipe or conduit.
  - C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove stones and sharp objects to avoid point loading.
    1. For pipes or conduit less than 6 inches (150 mm) in nominal diameter and flat-bottomed, multiple-duct conduit units, hand-excavate trench bottoms and support pipe and conduit on an undisturbed subgrade.
    2. For pipes and conduit 6 inches (150 mm) or larger in nominal diameter, shape bottom of trench to support bottom 90 degrees of pipe circumference. Fill depressions with tamped sand backfill.
    3. Where encountering rock or another unyielding bearing surface, carry trench excavation 6 inches (150 mm) below invert elevation to receive bedding course.
- 3.7 APPROVAL OF SUBGRADE
- A. Notify Architect when excavations have reached required subgrade.
  - B. When Architect determines that unforeseen unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.
    1. Unforeseen additional excavation and replacement material will be paid according to the Contract provisions for changes in Work.
  - C. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by the Architect.
- 3.8 UNAUTHORIZED EXCAVATION
- A. Fill unauthorized excavation under foundations or wall footings by extending indicated bottom elevation of concrete foundation or footing to excavation bottom, without altering required top elevation. Lean concrete fill may be used to bring elevations to proper position when acceptable to the Architect.
    1. Fill unauthorized excavations under other construction as directed by the Architect.
  - B. Where indicated widths of utility trenches are exceeded, provide stronger pipe, or special installation procedures, as required by the Architect.
- 3.9 STORAGE OF SOIL MATERIALS
- A. Stockpile excavated materials acceptable for backfill and fill soil materials, including acceptable borrow materials. Stockpile soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent wind-blown dust.
    1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.
- 3.10 BACKFILL
- A. Backfill excavations promptly, but not before completing the following:
    1. Acceptance of construction below finish grade including, where applicable, dampproofing, waterproofing, and perimeter insulation.
    2. Surveying locations of underground utilities for record documents.
    3. Testing, inspecting, and approval of underground utilities.
    4. Concrete formwork removal.

5. Removal of trash and debris from excavation.
6. Removal of temporary shoring and bracing, and sheeting.
7. Installing permanent or temporary horizontal bracing on horizontally supported walls.

### 3.11 UTILITY TRENCH BACKFILL

- A. Place and compact bedding course on rock and other unyielding bearing surfaces and to fill unauthorized excavations. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.
- B. Place and compact initial backfill of satisfactory soil material or subbase material, free of particles larger than 1 inch (25 mm), to a height of 12 inches (300 mm) over the utility pipe or conduit.
  1. Carefully compact material under pipe haunches and bring backfill evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of utility system.
- C. Coordinate backfilling with utilities testing.
- D. Fill voids with approved backfill materials as shoring and bracing, and sheeting is removed.
- E. Place and compact final backfill of satisfactory soil material to final subgrade.
- F. Install warning tape directly above utilities, 12 inches (300 mm) below finished grade, except 6 inches (150 mm) below subgrade under pavements and slabs.

### 3.12 FILL

- A. Preparation: Remove vegetation, topsoil, debris, wet, and unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placing fills.
  1. Plow strip, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing surface.
- B. When subgrade or existing ground surface to receive fill has a density less than that required for fill, break up ground surface to depth required, pulverize, moisture-condition or aerate soil and recompact to required density.
- C. Place fill material in layers to required elevations for each location listed below.
  1. Under grass, use satisfactory excavated or borrow soil material.
  2. Under walks and pavements, use subbase or base material, or satisfactory excavated or borrow soil material.
  3. Under steps and ramps, use subbase material.
  4. Under building slabs, use drainage fill material.
  5. Under footings and foundations, use engineered fill.

### 3.13 MOISTURE CONTROL

- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to within 2 percent of optimum moisture content.
  1. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
  2. Remove and replace, or scarify and air-dry satisfactory soil material that is too wet to compact to specified density.
    - a. Stockpile or spread and dry removed wet satisfactory soil material.
- A. Place backfill and fill materials in layers in strict accordance with the Geotechnical Report.

### 3.15 GRADING

- A. General: Uniformly grade areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

1. Provide a smooth transition between existing adjacent grades and new grades.
  2. Cut out soft spots, fill low spots, and trim high spots to conform to required surface tolerances.
- B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:
1. Lawn or Unpaved Areas: Plus or minus 1.2 inches (30 mm).
  2. Walks: Plus or minus 1.2 inches (30 mm).
  3. Pavements: Plus or minus 1/2 inch (13 mm).
- C. Grading Inside Building Lines: Finish subgrade to a tolerance of 1/2 inch (13 mm) when tested with a 10 foot (3 m) straightedge.

### 3.16 SUBBASE AND BASE COURSES

- A. Under pavements and walks, place subbase course material on prepared subgrades. Place base course material over subbases to pavements.
1. Compact subbase and base courses at optimum moisture content to required grades, lines, cross sections and thickness to not less than 95 percent of ASTM D 4254 relative density.
  2. Shape subbase and base to required crown elevations and cross-slope grades.
  3. When thickness of compacted subbase or base course is 6 inches (150 mm) or less, place materials in a single layer.
  4. When thickness of compacted subbase or base course exceeds 6 inches (150 mm), place materials in equal layers, with no layer more than 6 inches (150 mm) thick or less than 3 inches (75 mm) thick when compacted.

### 3.17 DRAINAGE FILL

- A. Under slabs-on-grade, place drainage fill course on prepared subgrade.
1. Compact drainage fill to required cross sections and thickness.
  2. When compacted thickness of drainage fill is 6 inches (150 mm) or less, place materials in a single layer.
  3. When compacted thickness of drainage fill exceeds 6 inches (150 mm) thick place materials in equal layers, with no layer more than 6 inches (150 mm) thick nor less than 3 inches (75 mm) thick when compacted.

### 3.18 FIELD QUALITY CONTROL

- A. Testing Agency Services: Owner may engage a testing agency to inspect Earthwork. Allow testing agency to inspect and test each subgrade and each fill or backfill layer. Do not proceed until test results for previously completed work verify compliance with requirements.

### 3.19 PROTECTION

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
- B. Repair and re-establish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or lose compaction due to subsequent construction operations or weather conditions.
1. Scarify or remove and replace material to depth directed by the Architect; reshape and recompact at optimum moisture content to the required density.
- C. Settling: Where settling occurs during the Project correction period, remove finished surfacing, backfill with additional approved material, compact, and reconstruct surfacing.
1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to the greatest extent possible.

3.21 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Disposal: Transport surplus satisfactory soil to designated storage areas on the Owner's property. Stockpile or spread soil as directed by Architect.
  - 1. Remove waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off the Owner's property.

**END OF SECTION 02200**

**SECTION 02485  
LAWNS AND SEEDING**

**PART 1 GENERAL**

**1.01 DESCRIPTION**

A. Provide seeded lawns as shown and specified. The work includes:

1. Soil preparation.
2. Seeding lawns, and other indicated areas.
3. Mulching.
4. Reconditioning existing lawns.

B. Related work:

1. Section 02200: Earthwork.
2. Section 02955 Landscaping.

**1.02 QUALITY ASSURANCE**

A. Comply with Section 02000 requirements.

**1.03 DELIVERY, STORAGE, AND HANDLING**

A. Deliver seed and fertilizer materials in original unopened containers showing weight, analysis, and name of manufacturer. Store in a manner to prevent wetting and deterioration.

**1.04 PROJECT CONDITIONS**

- A. Work notification: Notify Owner at least five (5) working days prior to start of seeding operations.
- B. Protect existing utilities, paving, and other facilities from damage caused by seeding operations.
- C. Perform seeding work only after planting and other work affecting ground surface has been completed.
- D. The Owner is responsible for restricting traffic from lawn areas upon notification of completion of work.
- E. Provide hose and lawn watering equipment as required. Owner to provide water on site.

**1.05 WARRANTY**

- A. The Contractor warrants all seeded areas to be installed according to specifications, until accepted by Owner.
- B. Disclaimer - Acts of God and other conditions beyond the landscape contractor's control such as vandalism shall not be the responsibility of the landscape contractor. Any over-seeding or re-grading contributed to this must be in addition to the contract amount.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Lawn seed: Recommendation of seed mix from local extension service for that area. Fresh, clean, and new crop seed mixture.
- B. Seed type: as specified on drawings or recommended from local extension service. A Tall Turf-Type fescue should be used in most lawn applications unless otherwise specified. Seed mix should be 80% to 100% germination.
- C. Fertilizer:
  1. Granular, non-burning product composed of not less than 50% organic, slow acting, guaranteed analysis professional fertilizer.
  2. Starter fertilizer containing 10% nitrogen, 10% phosphoric acid, and 10% potash by weight, or similar approved composition.
- D. Ground limestone: Containing not less than 85% of total carbonates and ground to such fineness that 50% will pass through a 100 mesh sieve and 90% will pass through a 20 mesh sieve.

- E. Mulch
  1. Straw: Clean oat or wheat straw well seasoned before baling, free from mature seed-bearing stalks or roots of prohibited or noxious weeds. Should be free of rot and mildew.
  2. Cellulose fiber mulch or equal.
- F. Water: Free of substance harmful to seed growth. Hoses or other methods of transportation furnished by Contractor. Water provided by Owner on site.

## **PART 3 EXECUTION**

### **3.01 INSPECTION**

- A. Examine finish surfaces, grades, topsoil quality, and depth. Do not start seeding work until unsatisfactory conditions are corrected.

### **3.02 PREPARATION**

- A. Limit preparation to areas which will be immediately seeded.
- B. Loosen topsoil of lawn areas to minimum depth of 3", if compacted. Remove stones over 1" in any dimension, sticks, roots, rubbish, and extraneous matter.
- C. Apply limestone at a rate to adjust pH of topsoil to not less than 5.5 nor more than 6.8. Distributed evenly by machine and incorporate thoroughly into topsoil.
- D. Apply fertilizer to indicated turf areas at a rate equal to 1.0 lb. of actual nitrogen per 1,000 sq. ft. (220 lbs./acre).
- E. Grade lawn areas to a smooth, free-draining, even surface with a loose, moderately coarse texture.
- F. Restore prepared areas to specified condition if eroded, settled, or otherwise disturbed after fine grading and prior to seeding.

### **3.03 INSTALLATION**

- A. Seeding:
  1. Seed immediately after preparation of bed. Spring seeding between March 1 and June 15 and fall seeding between August 15 and November 1, or at such other times acceptable to the Owner's Representative.
  2. Seed indicated areas within contract limits. Areas outside contract limits disturbed as a result of construction operations will be charged according to area and in addition to contract.
  3. Apply seed with a rotary or drop type distributor. Install seed evenly by sowing equal quantities in two(2) directions, at right angles to each other.
  4. Sow grass seed at a rate recommended by type of seed used.
  5. Incorporate seed into top 1/8" of soil and roll.
- B. Mulching:
  1. Place straw or fiber mulch on seeded areas within 24 hours after seeding.
    - (a). Place straw mulch uniformly in continuous blanket at the rate of 2 ½ tons per acre, or 2 bales per 1,000 sq. ft. of area. A mechanical blower may be used for straw mulch application when acceptable to the Owner.
    - (b) A cellulose fiber or approved equal may be used in aqueous mixture at the rate of 1500 lbs./acre.
  2. Secure straw to soil by approved methods.

### **3.04 RECONDITIONING EXISTING LAWNS**

- A. Analyze the condition of existing turf areas to remain, and determine the extent of necessary reconditioning. Provide unit cost and estimate of work. Obtain Owner's approval prior to commencement of work.
- B. Recondition existing lawn areas damaged by Contractor's operations, including storage of materials or equipment and movement of construction vehicles, and existing lawn areas as indicated.

- C. Provide fertilizer, seed and soil amendments as specified for new lawns and as required to provide a satisfactorily reconditioned lawn. Provide topsoil as required to fill low areas and meet new finished grades.
- D. Cultivate bare and compacted areas thoroughly.
- E. Remove diseased or unsatisfactory lawn areas. Do not bury into soil. Remove topsoil containing foreign materials resulting from Contractor's operations, including oil drippings, stone, gravel, and other construction materials.
- F. Where substantial but thin lawn remains, rake, aerate if compacted, or cultivate soil; fertilize and seed.

### 3.05 MAINTENANCE

- A. Maintenance of installed and accepted seeded lawns will be performed by the Owner.

### 3.06 ACCEPTANCE

- A. Seeded areas will be inspected at completion of installation and accepted subject to compliance with specified materials and installation requirements.
- B. Sections of the work may be accepted when complete upon agreement of the Owner and the Contractor.
- C. Upon acceptance, the Owner will assume lawn maintenance.

### 3.07 CLEANING

- A. Perform cleaning during installation of the work and upon completion of the work. Remove from site all excess materials, debris, and equipment. Repair damage resulting from seeding operations.

**END OF SECTION**





**SECTION 02511**  
**HOT MIX ASPHALT PAVING**

**PART 1 – GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. This Section includes the following:
  - 1. Hot-mix asphalt paving.
  - 2. Hot-mix asphalt overlays.
  - 3. Pavement-marking paint.
  - 4. Wheel stops.
- B. Related Sections include the following:
  - 1. Division 2 Section "Earthwork" for aggregate subbase and base courses and aggregate pavement shoulders.
  - 2.

**1.3 SYSTEM DESCRIPTION**

- A. Provide hot-mix asphalt pavement according to the materials, workmanship, and other applicable requirements of the standard specifications of the New Jersey Department of Transportation.

**1.4 SUBMITTALS**

- A. Product Data: For each product specified. Include technical data and tested physical and performance properties.
- B. Job-Mix Designs: Certification, by authorities having jurisdiction, of approval of each job mix proposed for the Work.

**1.5 QUALITY ASSURANCE**

- A. Installer Qualifications: Engage an experienced installer who has completed hot-mix asphalt paving similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.
- B. Manufacturer Qualifications: Engage a firm experienced in manufacturing hot-mix asphalt similar to that indicated for this Project and with a record of successful in-service performance.
- C. E. Asphalt-Paving Publication: Comply with AI's "The Asphalt Handbook," except where more stringent requirements are indicated.
- D. F. Preinstallation Conference: Conduct conference at Project site to comply with requirements of Division 1 Section "Project Meetings" Review methods and procedures related to asphalt paving including, but not limited to, the following:

**1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver pavement-marking materials to Project site in original packages with seals unbroken and bearing manufacturer's labels containing brand name and type of material, date of manufacture, and directions for storage.
- B. Store pavement-marking materials in a clean, dry, protected location and within temperature range required by manufacturer. Protect stored materials from direct sunlight.

**1.7 PROJECT CONDITIONS**

- A. Environmental Limitations: Do not apply asphalt materials if substrate is wet or excessively damp or if the following conditions are not met:

1. Prime and Tack Coats: Minimum surface temperature of 60 deg F (15.5 deg C).
  2. Slurry Coat: Comply with weather limitations of ASTM D 3910.
  3. Asphalt Base Course: Minimum surface temperature of 40 deg F (4 deg C) and rising at time of placement.
  4. Asphalt Surface Course: Minimum surface temperature of 60 deg F (15.5 deg C) at time of placement.
- B. Pavement-Marking Paint: Proceed with pavement marking only on clean, dry surfaces and at a minimum ambient or surface temperature of 40 deg F (4 deg C) for oil-based materials, 50 deg F (10 deg C) for water-based materials, and not exceeding 95 deg F (35 deg C).

## **PART 2 - PRODUCTS**

### **2.1 AGGREGATES**

- A. General: Use materials and gradations that have performed satisfactorily in previous installations.
- B. Coarse Aggregate: Sound; angular crushed stone; crushed gravel; or properly cured, crushed blast-furnace slag; complying with ASTM D 692.
- C. Fine Aggregate: Sharp-edged natural sand or sand prepared from stone; gravel, properly cured blast-furnace slag, or combinations thereof; complying with ASTM D 1073.
  1. For hot-mix asphalt, limit natural sand to a maximum of 10 percent by weight of the total aggregate mass.

### **2.2 ASPHALT MATERIALS**

- A. Asphalt Cement: ASTM D 3381 for viscosity-graded material; ASTM D 946 for penetration-graded material.
- B. Prime Coat: ASTM D 2027; medium-curing cutback asphalt; MC-30, MC-70, or MC-250.
- C. Prime Coat: Asphalt emulsion prime conforming to state DOT requirements.
- D. Tack Coat: ASTM D 977, emulsified asphalt or ASTM D 2397, cationic emulsified asphalt, slow setting, factory diluted in water, of suitable grade and consistency for application.
- E. Water: Potable.

### **2.3 AUXILIARY MATERIALS**

- A. Sand: ASTM D 1073, Grade Nos. 2 or 3.
- B. Pavement-Marking Paint: Alkyd-resin type, ready-mixed, complying with FS TT-P-115, Type I, or AASHTO M-248, Type N.
- C. Wheel Stops: Precast, air-entrained concrete, 2500-psi (17.2-MPa) minimum compressive strength, approximately 6 inches (150 mm) high, 9 inches (225 mm) wide, and 84 inches (2130 mm) long. Provide chamfered corners and drainage slots on underside, and provide holes for anchoring to substrate.
  1. Dowels: Galvanized steel, diameter 3/4 inch (19 mm), minimum length 10 inches (254 mm).

### **2.4 MIXES**

- A. Hot-Mix Asphalt: Provide dense, hot-laid, hot-mix asphalt plant mixes approved by authorities having jurisdiction and designed according to procedures in AI's "Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types."
  1. Provide mixes with a history of satisfactory performance in geographical area where Project is located.
  2. Provide mixes complying with the composition, grading, and tolerance requirements of ASTM D 3515 for the following nominal, maximum aggregate sizes:
    - a. Base Course: 4 inch (25 mm). OR AS NOTED ON DRAWINGS
    - b. Surface Course: 2 inch (13 mm). OR AS NOTED ON DRAWINGS

## **PART 3 - EXECUTION**

### 3.1 EXAMINATION

- A. Verify that subgrade is dry and in suitable condition to support paving and imposed loads.
- B. Proof-roll subbase using heavy, pneumatic-tired rollers to locate areas that are unstable or that require further compaction.
- C. Notify Architect in writing of any unsatisfactory conditions. Do not begin paving installation until these conditions have been satisfactorily corrected.

### 3.2 COLD MILLING

- A. Clean existing paving surface of loose and deleterious material immediately before cold milling. Remove existing asphalt pavement, including hot-mix asphalt and, as necessary, unbound-aggregate base course, by cold milling to grades and cross sections indicated.
  - 1. Repair or replace curbs, manholes, and other construction damaged during cold milling.

### 3.3 PATCHING AND REPAIRS

- A. Patching: Saw cut perimeter of patch and excavate existing pavement section to sound base. Recompact new subgrade. Excavate rectangular or trapezoidal patches, extending 12 inches (300 mm) into adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically.
  - 1. Tack coat faces of excavation and allow to cure before paving.
  - 2. Fill excavation with dense-graded, hot-mix asphalt base mix and, while still hot, compact flush with adjacent surface.
  - 3. Partially fill excavation with dense-graded, hot-mix asphalt base mix and compact while still hot. Cover asphalt base course with compacted, hot-mix surface layer finished flush with adjacent surfaces.
- B. Portland Cement Concrete Pavement: Break cracked slabs and roll as required to reseal concrete pieces firmly.
  - 1. Pump hot undersealing asphalt under rocking slabs until slab is stabilized or, if necessary, crack slab into pieces and roll to reseal pieces firmly.
  - 2. Remove disintegrated or badly broken pavement. Prepare and patch with hot-mix asphalt.
- C. Leveling Course: Install and compact leveling course consisting of dense-graded, hot-mix asphalt surface course to level sags and fill depressions deeper than 1 inch (25 mm) in existing pavements.
  - 1. Install leveling wedges in compacted lifts not exceeding 3 inches (75 mm) thick.
- D. Crack and Joint Filling: Remove existing filler material from cracks or joints to a depth of 1/4 inch (6 mm). Refill with asphalt joint-filling material to restore watertight condition. Remove excess filler that has accumulated near cracks or joints.
- E. Tack Coat: Apply uniformly to existing surfaces of previously constructed asphalt or portland cement concrete paving and to surfaces abutting or projecting into new, hot-mix asphalt pavement. Apply at a uniform rate of 0.05 to 0.15 gal./sq. yd. (0.2 to 0.7 L/sq. m) of surface.
  - 1. Allow tack coat to cure undisturbed before paving.
  - 2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

### 3.4 SURFACE PREPARATION

- A. General: Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared subgrade is ready to receive paving.
  - 1. Sweep loose granular particles from surface of unbound-aggregate base course. Do not dislodge or disturb aggregate embedded in compacted surface of base course.
- B. Place paving in consecutive strips not less than 10 feet (3 m) wide, except where infill edge strips of a lesser width are required.

1. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Complete asphalt base course for a section before placing asphalt surface course.
  - C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.
- 3.6 JOINTS
- A. Construct joints to ensure continuous bond between adjoining paving sections. Construct joints free of depressions with same texture and smoothness as other sections of hot-mix asphalt course.
    1. Clean contact surfaces and apply tack coat.
    2. Offset longitudinal joints in successive courses a minimum of 6 inches (150 mm).
    3. Offset transverse joints in successive courses a minimum of 24 inches (600 mm).
    4. Construct transverse joints by bulkhead method or sawed vertical face method as described in AI's "The Asphalt Handbook."
    5. Compact joints as soon as hot-mix asphalt will bear roller weight without excessive displacement.
    6. Compact asphalt at joints to a density within 2 percent of specified course density.
- 3.7 COMPACTION
- A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or vibratory-plate compactors in areas inaccessible to rollers.
    1. Complete compaction before mix temperature cools to 185 deg F (85 deg C).
  - B. Breakdown Rolling: Accomplish breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Repair surfaces by loosening displaced material, filling with hot-mix asphalt, and rerolling to required elevations.
  - C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling, while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:
    1. Average Density: 92 percent of reference maximum theoretical density according to ASTM D 2041, but not less than 90 percent nor greater than 96 percent.
  - D. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.
  - E. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while still hot, with back of rake or smooth iron. Compact thoroughly using tamper or other satisfactory method.
  - F. Repairs: Remove paved areas that are defective or contaminated with foreign materials. Remove paving course over area affected and replace with fresh, hot-mix asphalt. Compact by
  - G. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.
  - H. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.
- 3.8 INSTALLATION TOLERANCES
- A. Thickness: Compact each course to produce the thickness indicated within the following tolerances:
    1. Base Course: Plus or minus 1/2 inch (13 mm).
    2. Surface Course: Plus 1/4 inch (6 mm), no minus.

- B. Surface Smoothness: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot (3-m) straightedge applied transversely or longitudinally to paved areas:
  - 1. Base Course: 1/4 inch (6 mm).
  - 2. Surface Course: 1/8 inch (3 mm).

3.9 PAVEMENT MARKING

- A. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Architect.
- B. Allow paving to cure for 30 days before starting pavement marking.
- C. Sweep and clean surface to eliminate loose material and dust.
- D. Apply paint with mechanical equipment to produce pavement markings of dimensions indicated with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 15 mils (0.4 mm).
  - 1. Broadcast glass spheres uniformly into wet pavement markings at a rate of 6 lb/gal. (0.72 kg/L).

**END OF SECTION 02511**

## SECTION 02521 SITE CONCRETE

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes exterior portland cement concrete paving for the following:
  - 1. Walkways and door pads
  - 2. Standards
    - a. Concrete will not be accepted if graffiti is present. Concrete with graffiti or other defacement shall be removed by the Contractor and replaced at Contractor's expense.
    - b. **Exterior concrete** to be constructed of 4500 psi air entrained concrete reinforced with 6 x 6 #10 welded plain cold drawn steel wire fabric, with hand broom finish. Sidewalks shall be minimum 4" thick with turndowns where indicated, on compacted base of naturally or artificially graded mixture of natural or crushed gravel, crushed stone, crushed slag, natural or crushed sand, Type I-5 complying with NJDOT.
    - c. Transverse contraction joints shall occur at a maximum of 8' - 0" on center for 6' - 0" wide sidewalks. Transverse expansion joints with premolded joint fillers shall occur at a maximum of 24'-0" on center. Premolded joint fillers shall be 1/2" thick asphalt impregnated fiber board conforming to ASTM C 1751. Contraction joints shall be made with tools that provide slightly curved edges and no flats on the surface of the sidewalk. See scoring detail for University pattern in Part IV, Standard Details section of this Manual.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
  - 1. Division 2 Section "Earthwork" for subgrade preparation, grading and subbase course.
  - 2. Division 7 Section "Paving Joint Sealants" for joint fillers and sealants within concrete paving and at joints with adjacent construction

#### 1.3 SUBMITTALS

- A. General: Submit the following according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Design mixes for each class of concrete. Include revised mix proportions when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments.
- C. Material certificates in lieu of material laboratory test reports when permitted by Architect. Material certificates shall be signed by manufacturer and Contractor certifying that each material item complies with or exceeds requirements. Provide certification from admixture manufacturers that chloride content complies with requirements.

#### 1.4 QUALITY ASSURANCE

- A. Concrete Standards: Comply with provisions of the following standards, except where more stringent requirements are indicated.
  - 1. American Concrete Institute (ACI) 301, "Specifications for Structural Concrete for Buildings."
  - 2. ACI 318, "Building Code Requirements for Reinforced Concrete."
  - 3. Concrete Reinforcing Steel Institute (CRSI) "Manual of Standard Practice."

- B. Concrete Manufacturer Qualifications: Manufacturer of ready-mixed concrete products complying with ASTM C 94 requirements for production facilities and equipment.
  - C. Concrete Testing Service: Owner shall engage a qualified independent testing agency to perform materials evaluation tests and to design concrete mixes.
  - D. Preinstallation Conference: Conduct conference at Project site to comply with requirements of Division 1 Section "Project Meetings" and the following:
- 1.5 PROJECT CONDITIONS
- A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

## **PART 2 - PRODUCTS**

### **2.1 FORMS**

- A. Form Materials: Plywood, metal, metal-framed plywood, or other acceptable panel-type materials to provide full-depth, continuous, straight, smooth exposed surfaces.
  - 1. Use flexible or curved forms for curves of a 100-foot or less radius.
- B. Form Release Agent: Provide commercial formulation form-release agent with a maximum of 350 g/L volatile organic compounds (VOCs) that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

### **2.2 REINFORCING MATERIALS**

- A. Reinforcing Bars and Tie Bars: ASTM A 615, Grade 60, deformed.
- B. Epoxy-Coated Reinforcing Bars: ASTM A 775 with ASTM A 615, Grade 60 deformed steel bars.
- C. Plain, Cold-Drawn Steel Wire: ASTM A 82.
- D. Welded Steel Wire Fabric: ASTM A 185.
  - 1. Furnish in flat sheets, not rolls, unless otherwise acceptable to Architect.
- E. Deformed-Steel Welded Wire Fabric: ASTM A 497.
- F. Fabricated Bar Mats: Welded or clip-assembled steel bar mats, ASTM A 184. Use ASTM A 615, Grade 60 steel bars, unless otherwise indicated.
- G. Joint Dowel Bars: Plain steel bars, ASTM A 615, Grade 60. Cut bars true to length with ends square and free of burrs.
- H. Epoxy-Coated Joint Dowel Bars: ASTM A 775 with ASTM A 615, Grade 60 plain steel bars.
- J. Supports for Reinforcement: Chairs, spacers, dowel bar supports and other devices for spacing, supporting, and fastening reinforcing bars, welded wire fabric, and dowels in place. Use wire bar-type supports complying with CRSI specifications.
  - 1. Use supports with sand plates or horizontal runners where base material will not support chair legs.

### **2.3 CONCRETE MATERIALS**

- A. Portland Cement: ASTM C 150, Type I.
  - 1. Use one brand of cement throughout Project unless otherwise acceptable to Architect.
- B. Fly Ash: ASTM C 618, Type F.
- C. Normal-Weight Aggregates: ASTM C 33, Class 4, and as follows. Provide aggregates from a single source.
  - 1. Maximum Aggregate Size: 1-1/2 inches.
  - 2. Do not use fine or coarse aggregates that contain substances that cause spalling.
  - 3. Local aggregates not complying with ASTM C 33 that have been shown to produce concrete of adequate strength and durability by special tests or actual service may be used when acceptable to Architect.
- D. Water: Potable.

### **2.4 ADMIXTURES**



- A. Provide concrete admixtures that contain not more than 0.1 percent chloride ions.
- B. Air-Entraining Admixture: ASTM C 260, certified by manufacturer to be compatible with other required admixtures.
- C. Water-Reducing Admixture: ASTM C 494, Type A.
- D. High-Range Water-Reducing Admixture: ASTM C 494, Type F or Type G.
- E. Water-Reducing and Accelerating Admixture: ASTM C 494, Type E.
- F. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.
- G. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
- H. Products: Subject to compliance with requirements, provide one of the following:
  - 1. Air-Entraining Admixture:
    - a. Air-Tite or Amex 210; Cormix Construction Chemicals.
    - b. Air-Mix or Perma-Air; Euclid Chemical Co.
    - c. Sika AER; Sika Corp.
    - d. or approved equal.
  - 2. Water-Reducing Admixture:
    - a. Chemtard; ChemMasters Corp.
    - b. Type A Series; Cormix Construction Chemicals.
    - c. Eucon WR-75; Euclid Chemical Co.
    - d. h. or approved equal.
  - 3. High-Range Water-Reducing Admixture:
    - a. Super P; Anti-Hydro Co., Inc.
    - b. Cormix 2000, PSI Super, or Melmet; Cormix Construction Chemicals.
    - c. Sikament 300; Sika Corp.
    - d. h. or approved equal.
  - 4. Water-Reducing and Accelerating Admixture:
    - a. Q-Set; Conspec Marketing & Manufacturing Co.
    - b. Accel-Set; Metalcrete Industries.
    - c. g. or approved equal.
  - 5. Water-Reducing and Retarding Admixture:
    - a. Type D Series; Cormix Construction Chemicals.
    - b. Plastiment; Sika Corporation.
    - c. or approved equal.

## 2.5 CURING MATERIALS

- A. Absorptive Cover: Burlap cloth made from jute or kenaf, weighing approximately 9 oz. per sq. yd., complying with AASHTO M 182, Class 2.
- B. Moisture-Retaining Cover: One of the following, complying with ASTM C 171.
  - 1. Waterproof paper.
  - 2. Polyethylene film.
  - 3. White burlap-polyethylene sheet.
- C. Clear Solvent-Borne Liquid Membrane-Forming Curing Compound: ASTM C 309, Type I, Class A or B, wax free.
- E. Evaporation Control: Monomolecular film-forming compound applied to exposed concrete slab surfaces for temporary protection from rapid moisture loss.
- F. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
  - 1. Clear Waterborne Membrane-Forming Curing Compound:
    - a. Diamond Clear VOX; Euclid Chemical Co.
    - b. Dress & Seal #22 WB; L&M Construction Chemicals, Inc.
    - c. 1100 Clear Series; W.R. Meadows, Inc.
    - d. Kure-N-Seal WB; Sonneborn-Chemrex.

- e. or approved equal.
- 3. Evaporation Control:
  - a. Aquafilm; Conspec Marketing and Mfg. Co.
  - b. Eucobar; Euclid Chemical Co.
  - c. E-Con; L&M Construction Chemicals, Inc.
  - d. or approved equal.

## 2.6 RELATED MATERIALS

- A. Nonslip Aggregate Finish: Fused aluminum oxide granules or crushed emery as the abrasive aggregate for a nonslip finish, with emery aggregate containing not less than 50 percent aluminum oxide and not less than 25 percent ferric oxide. Use material that is factory-graded, packaged, rustproof, nonglazing, and unaffected by freezing, moisture, and cleaning materials.
- B. Bonding Agent: Acrylic or styrene butadiene.
- C. Epoxy Adhesive: ASTM C 881, two-component material suitable for dry or damp surfaces. Provide material type, grade, and class to suit requirements.

## 2.7 CONCRETE MIX

- A. Prepare design mixes for each type and strength of normal-weight concrete by either laboratory trial batch or field experience methods as specified in ACI 301. For the trial batch method, use a qualified independent testing agency for preparing and reporting proposed mix designs.
  - 1. Do not use the Owner's field quality-control testing agency as the independent testing agency.
  - 2. Limit use of fly ash to 25 percent of cement content by weight.
- B. Proportion mixes according to ACI 211.1 and ACI 301 to provide normal-weight concrete with the following properties:
  - 1. Compressive Strength (28-Day): 4500 psi
  - 2. Maximum Water-Cement Ratio at Point of Placement: 0.40.
  - 3. Slump Limit at Point of Placement: 3 inches.
    - a. Slump limit for concrete containing high-range water-reducing admixture (superplasticizer): Not more than 8 inches after adding admixture to site-verified 2-to-3-inch slump concrete.
- C. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having an air content as follows with a tolerance of plus or minus 1-1/2 percent:
  - 1. Air Content: 5.5 percent for 1-1/2-inch maximum aggregate.
  - 2. Air Content: 6.0 percent for 1-inch maximum aggregate.
- E. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, project conditions, weather, test results, or other circumstances warrant.

## 2.8 CONCRETE MIXING

- A. Ready-Mixed Concrete: Comply with requirements and with ASTM C 94.
  - 1. When air temperature is between 85 deg F (30 deg C) and 90 deg F (32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

## PART 3 - EXECUTION

### 3.1 SURFACE PREPARATION

- A. Proof-roll prepared subbase surface to check for unstable areas and verify need for additional compaction. Do not begin paving work until such conditions have been corrected and are ready to receive paving.
- B. Remove loose material from compacted subbase surface immediately before placing concrete.

### 3.2 EDGE FORMS AND SCREED CONSTRUCTION

- A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides for paving to required lines, grades, and elevations. Install forms to allow continuous progress of work and so that forms can remain in place at least 24 hours after concrete placement.
- B. Clean forms after each use and coat with form release agent as required to ensure separation from concrete without damage.

### 3.3 PLACING REINFORCEMENT

- A. General: Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars" for placing and supporting reinforcement.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.
- C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.
- D. Install welded wire fabric in lengths as long as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.
- E. Install fabricated bar mats in lengths as long as practicable. Handle units to keep them flat and free of distortions. Straighten bends, kinks, and other irregularities or replace units as required before placement. Set mats for a minimum 2-inch overlap to adjacent mats.

### 3.4 LAYOUT & JOINTS

- A. General: Construct contraction, construction, and isolation joints true to line with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to the centerline, unless indicated otherwise.
  - 1. Locate joints per drawings
  - 2. When joining existing paving, place transverse joints to align with previously placed joints, unless indicated otherwise.
  - 3. Locate joints and turn downs where required and where shown on the documents.
- B. Contraction Joints: Provide weakened-plane contraction joints, sectioning concrete into areas as shown on Drawings. Construct contraction joints for a depth equal to at least 1/4 of the concrete thickness, as follows:
  - 1. Tooled Joints: Form contraction joints in fresh concrete by grooving and finishing each edge of joint with a radiused jointer tool.
- C. Construction Joints: Set construction joints at side and end terminations of paving and at locations where paving operations are stopped for more than 1/2 hour, unless paving terminates at isolation joints.
- D. Isolation Joints: Form isolation joints of preformed joint filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, walks, other fixed objects, and where indicated.
  - 1. Locate expansion joints at intervals of 50 feet, unless indicated otherwise.
  - 2. Extend joint fillers full width and depth of joint, not less than 1/2 inch or more than 1 inch below finished surface where joint sealant is indicated. Place top of joint filler flush with finished concrete surface when no joint sealant is required.
  - 3. Furnish joint fillers in one-piece lengths for full width being placed wherever possible. Where more than one length is required, lace or clip joint filler sections together.

### 3.5 CONCRETE PLACEMENT

- A. Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast in. Notify other trades to permit installation of their work.
- B. Remove snow, ice, or frost from subbase surface and reinforcing before placing concrete. Do not place concrete on surfaces that are frozen.

- C. Moisten subbase to provide a uniform dampened condition at the time concrete is placed. Do not place concrete around manholes or other structures until they are at the required finish elevation and alignment.
- D. Comply with requirements and with ACI 304R for measuring, mixing, transporting, and placing concrete.
- E. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.
  - 1. When concrete placing is interrupted for more than 1/2 hour, place a construction joint.
- F. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- G. Consolidate concrete by mechanical vibrating equipment supplemented by hand-spading, rodding, or tamping. Use equipment and procedures to consolidate concrete complying with ACI 309R.
  - 1. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand-spreading and consolidation. Consolidate with care to prevent dislocating reinforcing, dowels, and joint devices.
- H. Screed paved surfaces with a straightedge and strike off. Use bull floats or darbies to form a smooth surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces prior to beginning finishing operations.
- M. Cold-Weather Placement: Comply with provisions of ACI 306R and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
  - 1. When air temperature has fallen to or is expected to fall below 40 deg F (4 deg C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F (10 deg C) and not more than 80 deg F (27 deg C) at point of placement.
  - 2. Do not use frozen materials or materials containing ice or snow.
  - 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise accepted in mix designs.
- N. Hot-Weather Placement: Place concrete complying with ACI 305R and as specified when hot weather conditions exist.
  - 1. Cool ingredients before mixing to maintain concrete temperature at time of placement to below 90 deg F (32 deg C). Mixing water may be chilled or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
  - 2. Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that steel temperature will not exceed the ambient air temperature immediately before embedding in concrete.
  - 3. Fog spray forms, reinforcing steel, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

### 3.6 CONCRETE FINISHING

- A. Float Finish: Begin floating when bleed water sheen has disappeared and the concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats, or by hand-floating if area is small or inaccessible to power units.  
Specified Overall Value - FF 38 / FL 25 , Minimum Local Value FF 19 / FL 13.  
Cut down high spots and fill low spots. Refloat surface immediately to a uniform granular texture.
  - 1. Medium-to-Fine-Textured Broom Finish – Standard for walks unless noted otherwise: Draw a soft bristle broom across concrete surface perpendicular to line of traffic to provide a uniform fine line texture finish. Form smooth tooled edges at sidewalk joints.

3. For driveways provide Medium-to-Coarse-Textured Broom Finish: Provide a coarse finish by striating surface 1/16 inch to 1/8 inch deep with a stiff-bristled broom, perpendicular to line of traffic.
  - B. Final Tooling: Tool edges of paving, gutters, curbs, and joints formed in fresh concrete with a jointing tool to the following radius. Repeat tooling of edges and joints after applying surface finishes. Eliminate tool marks on concrete surfaces.
    1. Radius: 1/4 inch with flat edging.
- 3.7 CONCRETE PROTECTION AND CURING
- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with the recommendations of ACI 306R for cold weather protection and ACI 305R for hot weather protection during curing.
  - B. Evaporation Control: In hot, dry, and windy weather, protect concrete from rapid moisture loss before and during finishing operations with an evaporation-control material. Apply according to manufacturer's instructions after screeding and bull floating, but before floating.
  - C. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.
  - D. Curing Methods: Cure concrete by moisture curing, moisture-retaining-cover curing, curing compound, or a combination of these as follows:
    1. Moisture Curing: Keep surfaces continuously moist for not less than 7 days with the following materials:
      - a. Water.
      - b. Continuous water-fog spray.
      - c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with a 12-inch lap over adjacent absorptive covers.
    2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
    3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's directions. Recoat areas subjected to heavy rainfall within 3 hours after initial application. Maintain continuity of coating and repair damage during curing period.
- 3.8 FIELD QUALITY CONTROL TESTING
- A. The Owner may employ a qualified testing and inspection agency to sample materials, perform tests, and submit test reports during concrete placement.
- 3.9 REPAIRS AND PROTECTION
- A. Remove and replace concrete paving that is broken, damaged, or defective, or does not meet the requirements of this Section.
  - B. Protect concrete from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.
  - C. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep concrete paving not more than 2 days prior to date scheduled for Substantial Completion inspections.

**END OF SECTION 02521**

**SECTION 02832**  
**RETAINING WALL SYSTEM – LOOSE LAID**

**PART 1 - GENERAL**

1.01 SECTION INCLUDES

- A. Retaining wall system constructed of concrete segmental retaining wall units.
- B. Geosynthetic reinforcement fabric
- C. Leveling pad base
- D. Drainage aggregate
- E. Backfill
- F. Drainage pipe
- G. Adhesives

1.02 RELATED SECTIONS

- A. Section 02200 - Earthwork: For finish grading.

1.02 REFERENCES

- A. American Association of State Highway Transportation Officials (AASHTO)
  - 1. AASHTO M288 Geotextile Specification for Highway Applicable
  - 2. AASHTO Standard Specifications for Highway Bridges
- B. American Society for Testing and Materials (ASTM)
  - 1. ASTM C140 Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units [*Last Update: 01ae1*]
  - 2. ASTM C1262 Standard Test Method for Evaluating the Freeze-Thaw Durability of Manufactured Concrete Masonry Units and Related Concrete Units [*Last Update: 98*]
  - 3. ASTM C1372 Standard Specification for Segmental Retaining Wall Units [*Last Update: 01a*]
  - 4. ASTM D448 Standard Classification for Sizes of Aggregate for Road and Bridge Construction [*Last Update: 98*]
  - 5. ASTM D698 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft<sup>3</sup>)(600 kN-m/m<sup>3</sup>) [*Last Update: 00a*]
  - 6. ASTM D1556 Standard Test Method for Density and Unit Weight of Soil In Place by the Sand Cone Method [*Last Update: 00*]
  - 7. ASTM D1557 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft<sup>3</sup>)(2700 kN-m/m<sup>3</sup>) [*Last Update: 00*]
  - 8. ASTM D2487 Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System) [*Last Update: 00*]
  - 9. ASTM D2922 Standard Test Methods for Density of Soil and Soil-Aggregate In Place by Nuclear Methods (Shallow Depth) [*Last Update: 01*]
  - 10. ASTM D3034 Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer pipe and Fittings [*Last Update: 00*]
  - 11. ASTM D4318 Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils [*Last Update: 00*]
  - 12. ASTM D4595 Standard Test Method for Tensile Properties of Geotextiles by the Wide-Width Strip Method [*Last Update: 86 (2001)*]
  - 13. ASTM D5262 Standard Test Method for Evaluating the Unconfined Tension Creep Behavior of Geosynthetics [*Last Update: 97*]
  - 14. ASTM F405 [*Last Update: 97*] Standard Specification for Corrugated Polyethylene (PE) Tubings and Fittings
  - 15. ASTM G51 Standard Test Method for Measuring pH of Soil for Use in Corrosion Testing [*Last Update: 95 (2000)*]
- C. National Concrete Masonry Association (NCMA)
  - 1. NCMA Design Manual For Segmental Retaining Walls, Second Edition, Second Printing

- (1997)
2. NCMA SRWU-1 Determination of Connection Strength Between Geosynthetics and Segmental Concrete Units
  3. NCMA SRWU-2 Determination of Shear Strength Between Segmental Concrete Units
- 1.03 DEFINITIONS
- A. Backfill: Soil which is used as fill behind the drainage aggregate, and within the reinforced soil mass (if applicable).
  - B. Drainage Aggregate: Material used within (if applicable), between, and directly behind the concrete retaining wall units.
  - C. Filter Fabric: Material used for separation and filtration of dissimilar soil types.
  - D. Foundation Soil: Soil mass supporting the leveling pad and reinforced soil zone of the retaining wall system.
  - E. Geosynthetic Reinforcement: Material specifically fabricated for use as a soil reinforcement.
  - F. Global Stability: The general mass movement of a soil reinforced segmental retaining wall structure and adjacent soil mass.
  - G. Project Geotechnical Engineer: A registered engineer employed by the Owner to perform site observations, provide recommendations for foundation support, and verify soil shear strength parameters.
- 1.04 SUBMITTALS
- A. Submit the following in accordance with Section 01300:
    1. Product Data: Material description and installation instructions for each manufactured product specified.
    2. Shop Drawings: Retaining wall system design, including wall elevation views, geosynthetic reinforcement layout, pertinent details, and drainage provisions. The shop drawings shall be signed by a registered professional engineer licensed in the state of wall installation.
    3. Design Calculations: Engineering design calculations prepared in accordance with the NCMA Design Manual For Segmental Retaining Walls, or the AASHTO Standard Specifications for Highway Bridges, Section 5.8 (whichever is applicable). Analysis of global stability must be addressed and incorporated into the shop drawings.
    4. Samples
      - a. Furnish one unit in the color and face pattern specified, if requested.
      - b. Furnish 12 inch square or larger piece of the geosynthetic reinforcement specified.
    5. Test Reports: Independent laboratory reports stating moisture absorption and compressive strength properties of the concrete retaining wall units meet the Project Specifications when tested in accordance with ASTM C140, Sections 6, 8 and 9.
- 1.05 DELIVERY, STORAGE AND HANDLING
- A. Deliver, store, and handle materials in accordance with manufacturer's recommendations, in such a manner as to prevent damage. Check the materials upon delivery to assure that proper material has been received. Store above ground on wood pallets or blocking. Remove damaged or otherwise unsuitable material, when so determined, from the site.
    1. Exposed faces of concrete wall units shall be free of chips, cracks, stains, and other imperfections detracting from their appearance, when viewed from a distance of 20 feet.
    2. Prevent mud, wet cement, adhesives and similar materials which may harm appearance of units, from coming in contact with system components.
- 1.06 EXTRA MATERIALS
- A. Furnish Owner with 1 pallet of replacement units identical to those installed on the Project.

## **PART 2 - PRODUCTS**

### **2.01 MATERIALS**

- A. Concrete Retaining Wall Units: EP Henry's "Cast Stone Wall" Plus Retaining Wall Units and

and Chapeau single and double sided caps. as manufactured by EP Henry Corporation or its licensed manufacturer. Or approved equal.

1. Physical Requirements
  - a. Meet or exceed the requirements of ASTM C1372.
  - b. Color: Selected by the Architect from manufacturer's full range of standard colors:
  - c. Include Coventry Wall Plus pins.
  - d. Mixture of sizes - 8" width, 6" height, 6, 10, 12, 16 & 14" long. w/
2. Provide 1 sided units typical. Provide 2 sided or back to back units at wall segments where both sides of the walls will be visible above grade..
- B. Geosynthetic Reinforcement: Polyester fiber geogrid or geotextile, or polypropylene woven geotextile, as shown on the Drawings.
- C. Leveling Pad Base
  1. Aggregate Base: Crushed stone or granular fill meeting the following gradation as determined in accordance with ASTM D448:

<u>Sieve Size</u>	<u>Percent Passing</u>
1 inch	100
No. 4	35 to 70
No. 40	10 to 35
No. 200	3 to 10

    - a. Leveling Pad Base Thickness: 6 inches (minimum compacted thickness).
    - b. Leveling Pad Base Width: 24" minimum
  2. Concrete Base: Nonreinforced lean concrete base.
    - a. Compressive Strength: 1,000 psi (maximum).
    - b. Base Thickness: At least 2 inches, but not more than 3 inches.
- D. Drainage Aggregate: Clean crushed stone or granular fill meeting the following gradation as determined in accordance with ASTM D448:

<u>Sieve Size</u>	<u>Percent Passing</u>
1 inch	100
3/4 inch	75 to 100
No. 4	0 to 60
No. 40	0 to 50
No. 200	0 to 5
- E. Backfill: Soil free of organics and debris and consisting of either GP, GW, SP, SW, or SM type, classified in accordance with ASTM D2487 and the USCS classification system.
  1. Soils classified as SC, ML, and CL are considered suitable soils for segmental retaining walls with a total height of less than 15 feet unless the Plasticity Index (PI) is 20 or more.
  2. Maximum particle size for backfill is 2 inches.
  3. Unsuitable soils are organic soils and those soils classified as CH, OH, MH, OL, or PT.
- F. Impervious Material: Clayey soil or other similar material which will prevent percolation into the drainage zone behind the wall.
- G. Drainage Pipe: Perforated or slotted PVC or corrugated HDPE pipe manufactured in accordance with D3034 and/or ASTM F405. The pipe may be covered with a geotextile filter fabric to function as a filter.
- H. Construction Adhesive: Exterior grade concrete adhesive as recommended by the retaining wall unit manufacturer.

### **PART 3 - EXECUTION**

#### **3.01 EXAMINATION**

- A. Examine the areas and conditions under which the retaining wall system is to be erected, and notify the Architect & Engineer in writing of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected.
- B. Promptly notify the wall design engineer of site conditions which may affect wall performance, soil conditions observed other than those assumed, or other conditions that may require a reevaluation of the wall design.



- C. Verify the location of structures and utilities prior to excavation.

### 3.02 PREPARATION

- A. Ensure surrounding structures are protected from the effects of wall excavation.
- B. Excavation support, if required, is the responsibility of the Contractor, including the stability of the excavation and its influence on adjacent properties and structures.

### 3.03 EXCAVATION

- A. Excavate to the lines and grades shown on the Drawings. Over-excavation not approved by the Engineer will not be paid for by the Owner. Replacement of these soils with compacted fill and/or wall system components will be required at the Contractor's expense. Use care in excavating to prevent disturbance of the base beyond the lines shown.

### 3.04 FOUNDATION PREPARATION

- A. Excavate foundation soil as required for footing or base dimension shown on the Drawings, or as directed by the Project geotechnical engineer.
- B. The Project geotechnical engineer will examine foundation soil to ensure that the actual foundation soil strength meets or exceeds that indicated on the Drawings. Remove soil not meeting the required strength. Oversize resulting space sufficiently from the front of the block to the back of the reinforcement, and backfill with suitable compacted backfill soils.
- C. The Project geotechnical engineer will determine if the foundation soils will require special treatment or correction to control total and differential settlement.
- D. Fill over-excavated areas with suitable compacted backfill, as recommended by the Project geotechnical engineer.

### 3.05 BASE COURSE PREPARATION

- A. Place base materials to the depths and widths shown on the Drawings, upon undisturbed soils, or foundation soils prepared in accordance with Article 3.04.
  - 1. Extend the leveling pad to a minimum width of 24 inches, with at least 6 inches in front and behind the lowermost concrete retaining wall unit.
  - 2. Provide aggregate base compacted to 6 inches thick (minimum).
  - 3. The Contractor may at their option, provide a concrete leveling pad as specified in Subparagraph 2.01.C.2, in lieu of the aggregate base.
  - 4. Where a reinforced footing is required by local code official, place footing below frost depth.
- B. Compact aggregate base material to provide a level, hard surface on which to place the first course of units.
- C. Prepare base materials to ensure complete contact with retaining wall units. Gaps are not allowed.

### 3.06 ERECTION

- A. General: Erect units in accordance with manufacturer's instructions and recommendations, and as specified herein.
- B. Place first course of concrete wall units on the prepared base material. Use only 7" x 18" units for the first course. Check units for level and alignment. Maintain the same elevation at the top of each unit within each section of the base course.
- C. Ensure that foundation units are in full contact with compacted base.
- D. Place concrete wall units side-by-side for full length of wall alignment. Alignment may be done by using a string line measured from the back of the block. Gaps are not allowed between the foundation concrete wall units.
- E. Place filter fabric directly behind the concrete wall units, only if specified by the engineer.
- F. Place 12 inches (minimum) of drainage aggregate between, and directly behind the concrete wall units. Fill voids in retaining wall units with drainage aggregate. Provide a drainage zone behind the wall units to within 6 inches of the final grade. Cap the backfill and drainage aggregate zone with 6 inches of impervious material.

- G. Install drainage pipe at the lowest elevation possible, to maintain gravity flow of water to outside of the reinforced zone. Slope the main collection drainage pipe, located just behind the concrete retaining wall units, 2 percent (minimum) to provide gravity flow to the daylighted areas. Daylight the main collection drainage pipe through the face of the wall, and/or to an appropriate location away from the wall system at each low point or at 50 foot (maximum) intervals along the wall. Alternately, the drainage pipe can be connected to a storm sewer system.
- H. Remove excess fill from top of units and install next course. Ensure drainage aggregate and backfill are compacted before installation of next course.
- I. Check each course for level and alignment. Adjust units as necessary to maintain level and alignment prior to proceeding with each additional course.
- J. Install each succeeding course, using 6-inch, 12-inch, and 18-inch units (both 3 ½" and 7" heights) in accordance with a repeating or random pattern that provides for uniform coursing at 21" intervals. Backfill as each course is completed. Pull the units forward until the Coventry Wall Plus Pins are in contact (use 5/8" batter option for earth retaining applications). Attach concrete retaining wall units at exterior corners with adhesive specified.
- K. Install geosynthetic reinforcement in accordance with geosynthetic manufacturer's recommendations and the shop drawings.
  - a. Orient geosynthetic reinforcement with the highest strength axis perpendicular to the wall face.
  - b. Prior to geosynthetic reinforcement placement, place the backfill and compact to the elevation of the top of the wall units at the elevation of the geosynthetic reinforcement.
  - c. Place geosynthetic reinforcement at the elevations and to the lengths shown on the Drawings.
  - d. Lay geosynthetic reinforcement horizontally on top of the concrete retaining wall units and the compacted backfill soils. Place the geosynthetic reinforcement within one inch of the face of the concrete retaining wall units. Place the next course of concrete retaining wall units on top of the geosynthetic reinforcement.
  - e. The geosynthetic reinforcement shall be in tension and free from wrinkles prior to placement of the backfill soils. Pull geosynthetic reinforcement hand-taut and secure in place with staples, stakes, or by hand-tensioning until the geosynthetic reinforcement is covered by 6-7 inches of loose fill.
  - f. The geosynthetic reinforcements shall be continuous throughout their embedment lengths. Splices in the geosynthetic reinforcement strength direction are not allowed.
  - g. Do not operate tracked construction equipment directly on the geosynthetic reinforcement.
    - i. At least 6 inches of compacted backfill soil is required prior to operation of tracked vehicles over the geosynthetic reinforcement. Keep turning of tracked construction equipment to a minimum.
  - h. Rubber-tired equipment may pass over the geosynthetic reinforcement at speeds of less than
    - i. 5 miles per hour. Turning of rubber-tired equipment is not allowed on the geosynthetic reinforcement.

### 3.07 BACKFILL PLACEMENT

- A. Place reinforced backfill, spread and compact in a manner that will minimize slack in the reinforcement.
- B. Place fill within the reinforced zone and compact in lifts not exceeding 7 inches (loose thickness).
  - 1. Only lightweight hand-operated compaction equipment is allowed within 4 feet of the back of the retaining wall units. If the specified compaction cannot be achieved within 4 feet of the back of the retaining wall units, replace the reinforced soil in this zone with drainage aggregate material.
- C. Minimum Compaction Requirements for Fill Placed in the Reinforced Zone
  - 1. Walls Less Than 15 Feet High: Compact to 95 percent of the soil's standard Proctor maximum dry density (ASTM D698) [modified Proctor maximum dry density (ASTM

- D1557)] for the entire wall height
  - 2. Walls 15 Feet and Higher: Change compaction requirements to 98 percent of the soil's standard Proctor maximum dry density (ASTM D698) [modified Proctor maximum dry density (ASTM D1557)] for depths below 15 feet.
  - 3. Increase compaction requirements for retaining walls with slope heights at the back of the reinforced soil zone greater than 5 feet above the top of wall. Verify compaction requirements with Project geotechnical engineer.
  - 4. Moisture Content: Within 2 percentage points of the optimum moisture content for all wall heights.
  - 5. Compaction specifications may be changed based on recommendations by the Project geotechnical engineer. If changes are required, the Contract Sum will be adjusted by written Change Order.
  - D. At the end of each day's operation, slope the last level of compacted backfill away from the interior (concealed) face of the wall to direct surface water runoff away from the wall face.
    - a. The General or Site Contractor is responsible for ensuring that the finished site drainage is directed away from the retaining wall system.
    - b. In addition, the General or Site Contractor is responsible for ensuring that surface water runoff from adjacent construction areas is not allowed to enter the retaining wall area of the construction site.
  - E. Refer to Article 3.10 for compaction testing.
- 3.08 CAP UNIT INSTALLATION
- A. Apply adhesive to the top surface of the unit below and place the cap unit into desired position.
  - B. Cut cap units as necessary to obtain the proper fit.
  - C. Backfill and compact to top of cap unit .
- 3.09 SITE CONSTRUCTION TOLERANCES
- A. Site construction tolerances (vertical and horizontal) to be determined by the Architect.
- 3.10 FIELD QUALITY CONTROL
- A. Installer is responsible for quality control of installation of system components.
  - B. Employ a qualified independent third party to verify the correct installation of system components in accordance with these specifications and the Drawings, and perform compaction testing of the reinforced backfill.

END OF SECTION 02832

## **SECTION 02955 LANDSCAPE WORK**

### **PART 1 GENERAL**

#### **1.01 GENERAL**

- A. Provide landscape work in accordance with these general requirements apply to all landscape operations. Refer to specification sections as required.

B.

#### **1.02 QUALITY ASSURANCE**

- A. Comply with all applicable local, state and federal requirements regarding materials, methods of work, and disposal of excess and waste materials.
- B. Obtain and pay for all required inspections, permits, and fees. Provide notices required by governmental authorities.

#### **1.03 PROJECT CONDITIONS**

- A. Locate and identify existing underground and overhead services and utilities within contract limit work areas. Provide adequate means of protection of utilities and services designated to remain. Repair utilities damaged during site work operations at Contractor's expense.
- B. When uncharted or incorrectly charted underground piping or other utilities and services are encountered during site work operations, notify the applicable utility company immediately to obtain procedure directions. Cooperate with the applicable utility company in maintaining active services in operation.
- C. Locate, protect, and maintain benchmarks, monuments, control points and project engineering reference points. Re-establish disturbed or destroyed items at Contractor's expense.
- D. Obtain governing authorities written permission when required to close or obstruct street, walks and adjacent facilities. Provide alternate routes around closed or obstructed traffic ways when required by governing authorities.
- E. Control dust caused by the work. Dampen surfaces as required. Comply with pollution control regulations of governing authorities.
- F. Protect existing buildings, paving, and other services or facilities on site and adjacent to the site from damage caused by work operations. Cost of repair and restoration of damaged items at Contractor's expense.
- G. Protect and maintain streetlights, utility poles and services, traffic signal control boxes, curb boxes, valves and other services, except items designated for removal. Remove or coordinate the removal of traffic signs, parking meters and postal mailboxes with the applicable governmental agency.

H.

### **PART 2 PRODUCTS**

#### **2.01 MATERIALS AND EQUIPMENT**

- A. Materials and equipment: As selected by Contractor, except as indicated.

### **PART 3 EXECUTION**

#### **3.01 PREPARATION**

- A. Examine the areas and conditions under which work is to be performed. Do not proceed with the work until unsatisfactory conditions are corrected.
- B. Consult the available records and drawings of adjacent work and of existing services and utilities which may affect work operations, as provided by owner.

END OF SECTION 02000

SECTION 02490

## ***TREES, PLANTS, AND GROUND COVERS***

### **PART 1 GENERAL**

#### **1.01 DESCRIPTION**

- A. Provide trees, plants, and ground covers as shown and specified. The work includes:

1. Soil preparation.
  2. Trees, plants, and ground covers.
  3. Planting mixes.
  4. Mulch and planting accessories.
  5. Existing plant relocation.
- B. Related work:
1. Section 02200: Earthwork.
  2. Section 02485: Seeding.
  3. Section 02487: Sodding.

## **1.02 QUALITY ASSURANCE**

- A. Comply with Section 02000 requirements.
- B. Plant names indicated, should comply with “Standardized Plant Names” as adopted by the latest edition of the American Joint Committee of Horticultural Nomenclature. Provide stock true to botanical name. Do not substitute without permission of owner.
- C. Comply with sizing and grading standards of the latest edition of “American Standard for Nursery Stock.” A plant shall be dimensioned as it stands in its natural position.
- For plant material grown in fabric-ground containers, the following chart shall determine root mass size in relation to caliper:

Fabric-ground Suggested Container Diameter Caliper of Size Plant

10”	1”
12”	1”
14” - 16”	1 ½” - 2”
18” - 20”	2” - 3”
22” - 24”	3” - 4”

- D. All plants shall be nursery grown under climatic conditions similar to those in the locality of the project.
- E. Stock furnished shall be at least the minimum size indicated. Larger stock is acceptable, at no additional cost to owner. Root systems must meet AAN standards as specified. Plants should not be altered by pruning or other means to meet specifications.
- F. Provide “specimen” plants with a special height, shape or character of growth. Specimen trees or shrubs may be tagged at the source of supply. The Owner shall inspect specimen selections at the source of supply for suitability and adaptability to selected location. When specimen plants cannot be purchased locally, provide sufficient photographs of the proposed specimen plants for approval.
- G. Plants may be inspected and approved at the place of growth, for compliance with specification requirements for quality, size and variety.

## **1.03 SUBMITTALS**

- A. Submit the following material samples, if requested:
1. Mulch -Bulk or Bagged.
  2. Decorative Stone or Gravel -Bag or Bulk
- B. Submit the following materials certification, if requested:
1. Topsoil source and pH value.
  2. Peat moss, compost, or other organic soil amendments
  3. Plant fertilizer.

## **1.04 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver fertilizer materials in original, unopened and undamaged containers showing weight, analysis, and name of manufacturer. Store in manner to prevent wetting and deterioration.
- B. Take all precautions customary in good nursery practice to prepare plants for transport.
- Workmanship, which fails to meet the highest standards, will be rejected. Spray deciduous plants

- in foliage with an approved Anti- Desiccant immediately before digging to prevent dehydration.  
Dig, pack, transport, and handle plants with care to ensure protection against injury.
- C. Cover plants transported on open vehicles with a protective covering to prevent windburn.

### **1.05 PROJECT CONDITIONS**

- A. Work notification: Notify Owner at least five (5) working days prior to installation of plant material.
- B. Protect existing utilities, paving, and other facilities from damage caused by landscaping operations. Call Miss Utility to mark underground utilities a minimum of 48 hours before digging.
- C. A complete list of plants, including a schedule of sizes, quantities, and other requirements is shown on the drawings. In the event that quantity discrepancies or material omissions occur in the plant materials list, the planting plans shall govern. Payment shall be based on actual installed plant count.

### **1.06 WARRANTY**

- A. Warrant plant material to remain alive and be in a healthy, vigorous condition for a period of one (1) year after acceptance, provided plants are given proper care during this period.
1. Contractor to call for final inspection of plants.
- B. Remove and immediately replace all plants, as determined by the Owner, to be unsatisfactory during the initial planting installation.
- C. Replace once, in accordance with the drawings and specifications, all plants that are dead or, as determined by Owner, are in a severely unhealthy condition within warranty period.  
Replacements to be installed at next best planting season.
- D. Warranty shall not include damage or loss of trees, plants, or ground covers caused by fires, floods, drought, freezing rains, lightning storms, or winds over 75 miles per hour, winter kill caused by extreme cold and severe winter conditions not typical of planting areas; acts of vandalism or negligence on the part of the Owner. Any replacement attributed to these causes must be in addition to the contract amount.

## **PART 2 PRODUCTS**

### **2.01 MATERIALS**

- A. Plants: Provide plants typical of their species or variety; with normally developed branches and vigorous root systems. Provide only sound, healthy, vigorous plants free from defects, disfiguring knots, sunscald injuries, frost cracks, abrasions of the bark, plant diseases, insect eggs, borers, and all forms of infestation.
1. Dig balled and burlapped plants with firm, natural balls of earth of sufficient diameter and depth as necessary for full recovery of the plant. Provide ball sizes complying with the latest edition of the "American Standard for Nursery Stock." Cracked or mushroomed balls are not acceptable.
2. Container-grown stock shall have grown in a container for sufficient length of time for the root system to have developed to hold its soil together, firm and whole.
- a. No plants shall be loose in the container.
- b. Container stock shall not be pot bound.
3. If the use of larger than specified plants is acceptable, increase the spread of roots or root ball in proportion to the size of the plant.
4. The height of the trees, measured from the crown of the roots to the top of the top branch, shall not be less than the minimum size and variety designated in the plant list and according to the AAN Standards for Nursery Stock.
5. Shrubs and small plants shall meet the requirements for spread and/or height indicated in the plant list and be in accordance with AAN standards.

## 2.02 ACCESSORIES

- A. Topsoil for planting beds: Fertile, friable, natural topsoil without admixture of subsoil material, obtained from a well-drained arable site, reasonably free from clay, lumps, coarse sands, stones, plants, roots, sticks, and other foreign materials, with acidity range of between pH 5.5 to 6.0 and be typical of the area.
  - 1. Identify source location of topsoil proposed for use on the project.
  - 2. Provide topsoil free of substances harmful to the plants which will be grown in the soil.
- B. Peat moss: Brown to black in color, weed and seed free granulated raw peat or baled peat, containing not more than 9% mineral on a dry basis.
- C. Organic Matter- Organic matter can be from peat moss, compost, or locally available organic waste. Organic matter should be free from debris, weed seeds, and insects or diseases which may be harmful to the intended planting.
- D. Fertilizer:
  - 1. Plant fertilizer: Commercial type approved by the Owner, containing 10% nitrogen, 10% phosphoric acid and 10% potash by weight, \_\_\_\_\_ of nitrogen in the form of nitrates, \_\_\_\_\_ n form of ammonia salt and \_\_\_\_\_ in form of organic nitrogen, or as specified.
- E. Anti-Desiccant: Protective film emulsion providing a protective film over plant surfaces;; permeable to permit transpiration. Mixed and applied in accordance with manufacturer's instructions.
- F. Water: Hoses or other methods of transportation furnished by Contractor. Water to be provided by the Owner at the site.
- G. Stakes for staking: Hardwood, 2" x 2" (6-8') long (2x4 pine is permissible).
- H. Stakes for guying: Hardwood, 2" x 2" x 24" long.
- I. Guying/staking wire: 12- or 14-gauge galvanized wire.
  - 1. Turnbuckles: Galvanized steel of size and gauge required to provide tensile strength equal to that of the wire. Turnbuckle openings shall be at least 3".
- J. Staking and guying hose: Two-ply, reinforced garden hose not less than ½" inside diameter. Shall be uniform in color.
- K. Plastic guy material no less than ¼". Shall be uniform in color and level as applied.
- L. Twine: Two-ply jute material.
- M. Weed control barrier: Rot resistant polypropylene fabric or equivalent, water and air permeable.

## PART 3 EXECUTION

### 3.01 INSPECTION

- A. Examine proposed planting areas and conditions before installation. Do not start planting work until unsatisfactory conditions are corrected.

### 3.02 PREPARATION

- A. Time of planting:
  - 1. Evergreen material: Plant evergreen materials between September 1 and December 1 or in spring before new growth begins. If Owner requires planting at other times, plants shall be sprayed with anti-desiccant prior to digging operations, weather dependent.
  - 2. Deciduous material: Plant deciduous materials in a dormant condition. If deciduous trees are planted in- leaf, they shall be sprayed with an anti-desiccant prior to digging operation.
- B. Planting shall be performed only by experienced workmen familiar with planting procedures under the supervision of a qualified supervisor.
- C. Locate plants as indicated on drawings. If obstructions are encountered that are not shown on the drawings, do not proceed with planting operations until Owner has selected alternate plant locations.
- D. Excavate circular plant pits with vertical sides, except for plants specifically indicated to be planted in beds. Provide shrub pits at least twice as wide as the root system and 24" greater for trees. Depth of it shall be no greater than the root ball depth. Scarify bottom of the pit. Remove excess excavated materials from the site.

- E. Provide pre-mixed ground cover bed planting mixture for use around the balls and roots of the plants consisting of five (5) parts existing soil to one (1) part peat moss and 1lb. plant fertilizer for each cubic yard of mixture or equivalent. Bagged bark professional mixes are an equivalent substitute for peat moss.
- F. Provide pre-mixed ground cover bed planting mixture consisting of three (3) parts existing soil to one (1) part peat moss and 1lb. plant fertilizer per cubic yard. Provide beds a minimum of 6" deep. Bagged bark professional mixes are an equivalent substitute for peat moss.

### 3.03 DELIVERY, STORAGE, AND HANDLING

- A. Deliver fertilizer materials in original, unopened and undamaged containers showing weight, analysis, and name of manufacturer. Store in manner to prevent wetting and deterioration.
- B. Take all precautions customary in good nursery practice to prepare plants for transport. Workmanship, which fails to meet the highest standards, will be rejected. Spray deciduous plants in foliage with an approved Anti-Desiccant immediately before digging to prevent dehydration. Dig, pack, transport, and handle plants with care to ensure protection against injury.
- C. Cover plants transported on open vehicles with a protective covering to prevent wind burn.

### 3.04 PROJECT CONDITIONS

- A. Work notification: Notify Owner at least five (5) working days prior to installation of plant material.
- B. Protect existing utilities, paving, and other facilities from damage caused by landscaping operations. Call Miss Utility to mark underground utilities a minimum of 48 hours before digging.
- C. A complete list of plants, including a schedule of sizes, quantities, and other requirements is shown on the drawings. In the event that quantity discrepancies or material omissions occur in the plant materials list, the planting plans shall govern. Payment shall be based on actual installed plant count.

### 3.05 INSTALLATION

- A. Set plant material in the planting pit to proper grade and alignment. If Fabric In-ground container material is used, remove fabric bag first. Set plants upright, plum and faced to give the best appearance or relationship to each other or adjacent structure. Set plant material no lower than the finish grade or 2" - 3" above finished grade. No filling will be permitted around trunks or stems. Back fill the pit with existing soil or approved top soil or mix. Form a ring of soil around the edge of each planting pit to retain water.
- B. After plants are set, muddle planting soil mixture around bases of balls and fill all voids.
  - 1. Remove all burlap, ropes, and wires from the collar of balls.
- C. Space ground cover plants in accordance with indicated dimensions.
- D. Watering: Water planting thoroughly to pull soils against root ball and settle air pockets. Additional soil may be needed, water again to ensure complete compaction.
- E. Mulching:
  - 1. Mulch tree and shrub planting pits and shrub beds with required mulching material 2" - 3" deep immediately after planting. After watering, rake mulch to provide a uniform finished surface.
  - 2. Mulch ground cover beds with mulch 2" deep before planting.
- F. Wrapping, guying, staking:
  - 1. Wrapping should be done only on an as need basis.
  - 2. Staking/Guying
    - a. Stake/guy should only be used when trees are loose or weak stemmed. (See Staking details on the drawings)
- G. Pruning:
  - 1. Remove or cut back broken, damaged and asymmetrical growth of new wood.
  - 2. Unless otherwise directed, prune evergreens only to remove broken or damaged branches.



### 3.06 MAINTENANCE

- A. Maintenance of installed and accepted plantings will be performed by the Owner.
- B. Contractor's maintenance shall include pruning, cultivating, weeding, watering, and application of appropriate insecticides and fungicides necessary to maintain plants free of insects and disease until acceptance.
  - 1. Re-set settled plants to proper grade and position. Restore planting saucer and adjacent material and remove dead material.
  - 2. Tighten and repair guy wires and stakes as required, only if originally needed.
  - 3. Correct defective work as soon as possible after deficiencies become apparent and weather and season permit.
  - 4. Water trees, plants and ground cover beds.

**END OF SECTION**

## **SECTION 03501 CONCRETE SEALER**

### **PART 1 - GENERAL**

#### **1.1 SUMMARY**

- A. Section Includes:
  - 1. Single application cure-seal-hardener for new concrete floors.
  - 2. Precautions for avoiding staining concrete before and after application.
- B. Related Section:
  - 1. 03300 Concrete Work – Concrete slabs. See Section 03300, Item 3.9 for areas to be sealed.

#### **1.2 REFERENCES**

- A. ASTM International (ASTM):
  - 1. ASTM C39 Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
  - 2. ASTM C779 Standard Test Method for Abrasion Resistance of Horizontal Concrete Surfaces.
  - 3. ASTM C805 Standard Test Method for Rebound Number of Hardened Concrete.
  - 4. ASTM C1028 Standard Test Method for Determining the Static Coefficient of Friction of Ceramic Tile and Other Like Surfaces by the Horizontal Dynamometer Pull-Meter Method.
  - 5. ASTM D3359 Standard Test Methods for Measuring Adhesion by Tape Test.
  - 6. ASTM G23 Practice for Operating Light-Exposure Apparatus (Carbon-Arc Type) With and Without Water for Exposure of Nonmetallic Materials (Withdrawn 2000).
  - 7. USDA – United States Department of Agriculture -

#### **1.3 SUBMITTALS**

- A. General: Submit listed submittals in accordance with Conditions of the Contract and Section 01600.
- B. Product Data: Submit product data, including manufacturer's SPEC-DATA® sheet, installation instructions and technical bulletins for specified products.
- C. Certificates: Manufacturer's certification that the installer is acceptable.
- D. Maintenance Data: Maintenance instructions, including precautions for avoiding staining after application.
- E. Compliance – Provide certificate from the manufacturer indicating the product is acceptable for use in USDA regulated food processing facilities.

#### **1.4 QUALITY ASSURANCE**

- A. Installer Qualifications: Acceptable to the manufacturer.

#### **1.5 DELIVERY, STORAGE & HANDLING**

- A. General: Comply with Division 01 Product Requirements section.
- B. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- C. Storage and Protection: Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer.
- D. Handling: Protect materials from dirt, corrosion, oil, grease and other contaminants.

### **PART 2 - PRODUCTS**

## 2.1 MATERIAL

- A. Manufacturer: Curecrete Distribution, Inc.
  - 1. Contact: 1203 W. Spring Creek Place, Springville, UT 84663-0551; Telephone: (800) 998-5664, (801) 489-5663; Fax: (801) 489-3307; website: [www.ashfordformula.com](http://www.ashfordformula.com).
- B. Cure-Seal-Hardener: Ashford Formula, a water-based chemically reactive penetrating sealer and hardener that seals by densifying concrete so that water molecules cannot pass through but air and water vapor can, and allows concrete to achieve full compressive strength, minimizing surface crazing and eliminating dusting.
  - 1. Abrasion Resistance to Revolving Disks: At least a 32.5% improvement over untreated samples when tested in accordance with ASTM C779.
  - 2. Surface Adhesion: At least a 22% increase in adhesion for epoxy when tested in accordance with ASTM D3359.
  - 3. Hardening: As follows when tested in accordance with ASTM C39:
    - a. After 7 Days: An increase of at least 40% over untreated samples.
    - b. After 28 Days: An increase of at least 38% over untreated samples.
  - 4. Coefficient of Friction: 0.86 dry, 0.69 wet when tested in accordance with ASTM C1028.
  - 5. Rebound Number: An increase of at least 13.3% over untreated samples when tested in accordance with ASTM C805.
  - 6. Light Exposure Degradation: No evidence of adverse effects on treated samples when tested in accordance with ASTM G23.

## 2.2 PRODUCT SUBSTITUTIONS

- A. Substitutions: Substitutions in accordance with 01600.

# PART 3 - EXECUTION

## 3.01 MANUFACTURER'S INSTRUCTIONS

- A. Compliance: Comply with manufacturer's product data, including product technical bulletins, product catalog installation instructions and product carton instructions for installation.

## 3.2 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared and are suitable for application of product.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

## 3.3 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Do not use frozen material. Thaw and agitate prior to use.
- D. If construction equipment must be used for application, diaper all components that might drip oil, hydraulic fluid or other liquids.

## 3.4 INSTALLATION

- A. New Concrete: Apply cure-seal-hardener to new concrete as soon as the concrete is firm enough to work on after troweling;
  - 1. Spray on at rate of 200 ft<sup>2</sup>/gal (5 m<sup>2</sup>/L).
  - 2. Keep surface wet with cure-seal-hardener for a minimum soak-in period of 30 minutes without allowing it to dry out or become slippery. In hot weather, slipperiness may appear before the 30 minute time period has elapsed. If that

occurs, apply additional cure-seal-hardener as needed to keep the entire surface in a non-slippery state for the first 15 minutes. For the remaining 15 minutes, mist the surface as needed with water to keep the material in a non-slippery state. In hot weather conditions, follow manufacturer's special application procedures.

3. When the treated surface becomes slippery after this period, lightly mist with water until slipperiness disappears.
4. Wait for surface to become slippery again, and then flush entire surface with water to remove all cure-seal-hardener residue.
5. Squeegee surface completely dry, flushing any remaining slippery areas until no residue remains.
6. Wet vacuum or scrubbing machines can be used in accordance with manufacturer's instructions to remove residue.

### 3.5 PROTECTION

#### A. **Protect installed floors for at least 3 months until chemical reaction process is complete.**

1. Do not allow traffic on floors for 3 hours after application.
2. Do not allow parking of vehicles on concrete slab.
3. If vehicles must be temporarily parked on slab, place dropcloths under vehicles during entire time parked.
4. Do not allow pipe cutting using pipe cutting machinery on concrete slab.
5. Do not allow temporary placement and storage of steel members on concrete slabs.
6. Clean up spills immediately and spot-treat stains with degreaser or oil emulsifier.
7. Clean floor regularly in accordance with manufacturer's recommendations.
8. Prior to turn over of building to owner, Power scrub all floors.

**END OF SECTION 03501**

**SECTION 04220**  
**MASONRY THIN VENEER**  
®

**PART 1: GENERAL**

1.1 SECTION INCLUDES

- A. Architectural masonry thin Veneer.

1.2 RELATED SECTIONS

- A. SECTION 04200 – Unit Masonry.
  - a. See structural drawings

1.3 DEFINITIONS

- A. Architectural Thin Brick Veneer: An architectural thin brick veneer unit manufactured to be similar to the existing building brick. Meets ASTM C 90 requirements.

1.4 SUBMITTALS

- A. Comply with Section 01330 - Submittal Procedures.
- B. Product Data: Submit manufacturer's product data.
- D. Samples: Submit pieces of manufacturer's veneer units that represent general range of texture and color proposed to be furnished for project.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
  - 1. Sufficient plant facilities to provide quality, shapes, quantities, and sizes of veneer units required without delaying progress of the Work.
  - 2. Minimum of 25 years experience in producing masonry units.
  - 3. Manufacturer shall have an internal Quality Assurance Testing Program with certified laboratory technician(s).

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Delivery:
  - 1. Deliver veneer units secured to shipping pallets and protected from damage and discoloration.
  - 2. Provide itemized shipping list.
- B. Storage:
  - 1. Store veneer units and installation materials in accordance with manufacturer's instructions.
  - 2. Store veneer units on pallets with non-staining, waterproof covers.
  - 3. Do not double stack pallets.
  - 4. Ventilate units under covers to prevent condensation.
  - 5. Prevent contact with dirt and splashing.
- C. Handling:
  - 1. Protect veneer units, including corners and edges, during storage, handling, and installation to prevent chipping, cracking, staining, or other damage.
  - 2. Handle long units at center and both ends simultaneously to prevent cracking.
  - 3. Do not use pry bars or other equipment in a manner that could damage units.

1.7 SCHEDULING

- A. Schedule and coordinate production and delivery of veneer units with unit masonry work.

**PART 2 : PRODUCTS**

2.1 MANUFACTURER AND SELECTION

- A. Watontown Brick, Manhattan Series, Madison SM Clear or approved equal

2.2 DISTRIBUTOR

- A. Church Brick

2.3 VENEER MATERIALS

- A. Wall Veneer
  - a. Texture: Brick-face
  - b. Color: as selected by owner
  - c. Units: ST-303 3-5/8" X (H) 7 5/8" X (L) 23 5/8"
  - d. Set in 1/2 bond
  - e. Provide units for outside square
- B. Portland Cement: ASTM C 150, Type I or III. White and/or gray as required to match specified color.
- C. Coarse Aggregates: ASTM C 33, except for gradation.
- D. Fine Aggregates: ASTM C 33, except for gradation. Manufactured or natural sands.
- E. Pigments: ASTM C 979, except do not use carbon black pigments. Inorganic iron oxide pigments.
- F. Water Reducing, Retarding, and Accelerating Admixtures: ASTM C 494.
- G. Other admixtures: integral water repellents and other chemicals, for which no ASTM Standard exists, shall be previously established as suitable for use in concrete by proven field performance or through laboratory testing.
- H. Water: Potable.

2.5 TEXTURE AND COLOR

- A. General: Match texture and color of full-size sample on file with Architect.
- B. Finish:
  - 1. Minor chipping resulting from shipping and delivery shall not be grounds for rejection of units.
  - 2. Minor chips shall not be obvious under direct daylight at 20 feet, as determined by Architect.
  - 3. The occurrence of crazing or efflorescence shall not constitute a cause for rejection.
- C. Color Variation:
  - 1. Viewing Conditions: Compare in direct daylight at 20 feet, between units of similar age, subjected to similar weathering conditions.

2.6 MORTAR

- A. Mortar: ASTM C 270, Type N As specified in Section 04200

2.7 ACCESSORIES

- A. Sealant: As specified in Section 07900.
- B. Cleaner: Prosoco Sure Klean Custom Masonry Cleaner, Prosoco Sure Klean 600 Detergent Prosoco Sure Klean Vana Trol, Prosoco Light Duty Cleaner \* or EaCo Chem NMD-80. If EaCo Chem NMD-80 is used follow their application process. \*

2.8 FABRICATION

- A. Shapes: As indicated on drawings.

2.9 TOLERANCES

- A. General: Manufacture veneer units within tolerances in accordance with ASTM C 90, unless otherwise specified.

- B. Length, height, width: Do not deviate by more than plus or minus 1/8 inch from approved dimensions. These requirements do not apply to split faced units.

### **PART 3: EXECUTION**

#### **3.1 EXAMINATION**

- A. Examine construction to receive veneer units. Notify Architect if construction is not acceptable. Do not begin installation until unacceptable conditions have been corrected.
- B. Examine veneer units before installation. **Do not install unacceptable units.**

#### **3.2 INSTALLATION**

- A. Install units in conjunction with UNIT MASONRY, as specified on structural drawings.
- B. Pull units from multiple cubes during installation to minimize variation in color and help with natural blending.
- C. Cut units using motor-driven masonry saws. Finished ends should be turned to the visible side and the saw cut turned to the inside of the mortar joint to hide exposed aggregates and saw marks.
- D. Do not use pry bars or other equipment in a manner that could damage units.
- E. Fill dowel holes and anchor slots completely with mortar or non-shrink grout.
- F. Use Type N mortar (ASTM C 270), unless specified otherwise.
- G. Per ACI 530.1, it is not necessary, nor recommended, to wet the units prior to installation.
- H. Set units in full bed of mortar, unless otherwise indicated on the drawings.
- I. Fill vertical joints with mortar.
- J. Make joints 3/8 inch, unless otherwise indicated on the drawings.
- K. Tuck point mortar joints to slight concave profile (unless specified otherwise).
- L. Remove excess mortar immediately.
- M. Remove mortar fins and smears before tooling joints.
- N. Cover for protection and bond separation with plastic, felt paper or other approved products.
- O. Cover freshly installed masonry products as required to assist with the curing process.
- P. Sealant Joints:
  - 1. As specified in Section 07900.
  - 2. Prime ends of units, insert properly sized backing rod, and install sealant.
  - 3. Provide sealant joints at following locations:
    - a. Joints at relieving angles.
    - b. Control and expansion joints.
    - c. As indicated on the drawings.

#### **3.3 TOLERANCES**

- A. Installation Tolerances:
  - 1. Variation from Plumb: Do not exceed 1/8 inch in 5 feet or 1/4 inch in 20 feet or more.
  - 2. Variation from Level: Do not exceed 1/8 inch in 5 feet, 1/4 inch in 20 feet, or 3/8 inch maximum.
  - 3. Variation in Joint Width: Do not vary joint thickness more than 1/8 inch or 1/4 of nominal joint width, whichever is greater.
  - 4. Variation in Plane between Adjacent Surfaces: Do not exceed 1/8-inch difference between planes of adjacent units or adjacent surfaces indicated to be flush with units.

#### **3.4 CLEANING**

- A. Clean exposed units after mortar is thoroughly set and cured.
- B. Perform test of cleaner on small area of 4' x 4' on each type and color and receive approval by Architect before full cleaning. Let test area dry 4 to 5 days before inspection. Keep test area for future comparison.

- C. Clean units by wetting down the surface first, before using the specified cleaner (as specified in Section 2.7.C). Brush on cleaner, let dwell for 2 to 3 minutes. Reapply cleaner, scrub surface with masonry brush and rinse off thoroughly. Areas with heavy soiling use a wood block or non-metallic scraper.
- D. Apply cleaner to units in accordance with cleaner manufacturer's instructions.
- E. When using NMD80 follow manufacturer's cleaning techniques and utilization of EZ jet.
- E. Do not use the following to clean units:
  - 1. Muriatic acid.
  - 2. Power washing.
  - 3. Sandblasting.
  - 4. Harsh cleaning materials or methods that would damage or discolor surfaces.

### 3.5 INSPECTION AND ACCEPTANCE

- A. Inspect completed installation in accordance with ACI 530 requirements.

### 3.7 PROTECTION

- A. Protect installed units from splashing, stains, mortar, and other damage.

**END OF SECTION**



**SECTION 04900**  
**BRICK REPOINTING AND REPAIR**

**PART 1 – GENERAL**

1.1 Summary

A. Section Includes

1. Removal of joint sealant in all exterior masonry joints.
2. Removal of all prior Portland cement replacement mortar, including pointing and reconstruction.
3. Careful salvaging and cleaning of historic materials.
4. Raking out of all unsound mortar from all exterior stone and brick joints.
5. Removal of mortar excess from brick faces.
6. Repointing of selected exterior stone and brick joints.

1.2 References

A. American Society for Testing and Materials

1. ASTM C136 – Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
2. ASTM C141 – Standard Specification for Hydraulic Lime for Structural Purposes.
3. ASTM C144 – Standard Specification - Aggregate for Masonry Mortar.

1.3 Submittals

A. Product Data:

1. Natural Hydraulic Lime: Product Data Sheets.
2. Aggregate: Sieve Analysis

B. Samples

1. Submit one cup (8 oz.) sample of aggregate.
2. Submit 4" x 4" x \_" dried mortar sample.

1.4 Quality Assurance

- A. Installer: Work must be performed by a firm having not less than 5 years successful experience in comparable masonry restoration projects and employing personnel skilled in the restoration process and operations indicated.

B. Masons:

1. Raking, repointing, removal, material salvage, and finishing operations shall be performed by craftspersons who are familiar with historic lime mortar formulations, curing conditions and performance characteristics. Contractor shall provide proof of such knowledge.
2. Only skilled journeymen masons who are familiar and experienced with the materials and methods specified and are familiar with the design requirements shall be used for masonry restoration.

1.5 Qualifications

1.6 Mock-up

A. Construct mock-ups of the following:

1. Repair and replacement of brick bond courses with shallow (up to 1 -1/2" deep) repointing or deep (exceeding 1 -1/2" or multiple lifts) repointing.

2. Retain approved mock-ups in undisturbed condition, suitable identified, during restoration as a standard for judging completed work.
- B. Approvals
  1. Approved samples and mock-ups shall remain as part of a permanent work.]
  2. Obtain approval of raking out and surface preparation before finishing joints.
- 1.7 Delivery, Storage and Handling
  - A. Deliver materials to site and store in manufacturer's original unopened containers and packaging.
  - B. Protect restoration materials during storage and construction from adverse conditions.
- 1.8 Project Conditions
  - A. Do not perform any masonry application unless air temperatures are between 40 degrees Fahrenheit and 85 degrees Fahrenheit and will remain so for at least 48 hours after completion of work or provide proper protection.
  - B. Provide sun, wind and rain protection.

## PART 2 – PRODUCTS

- 2.1 Mortar Materials
  - A. Manufacturer: All St. Astier NHL shall be obtained from: Lime Works. US PO Box 151 Milford Square, PA 18935-0151; 215-536-6706; 215-536-2281 Fax [www.limeworks.us](http://www.limeworks.us) [begreen@limeworks.us](mailto:begreen@limeworks.us) **Or approved equal**
  - B. A list of all of the manufacturer's products are listed below. The manufacturer shall provide written direction on the materials to be used for this project and the contractor / bidder shall include the cost for the manufacturer's recommended materials in their bid.
  - C. It is the intent that the new mortar match as close as possible the look, color and texture of the existing mortar, that it provide a durable, weather tight surface and that it do no harm or damage to the existing brick.
- 2.2 Components
  - A. Mortar Materials
    1. Binder: St. Astier Natural Hydraulic Lime NHL [2] [3.5] [5].
    2. Aggregate: Natural or Manufactured Sharp Sand with at least 4 grades forming a substantial part of the sand and no more than 3% of particles smaller than grade #200 (0.075mm).
    3. Casein for Lime Mortar Grouts: Casein powder additive; American Casein Company, Burlington, New Jersey, USA.]
    4. [Premix: [Ecomortar G] [Ecomortar F][Ecologic G] [Ecologic F].]
- 2.3 Tools and Accessories
  - A. Shims: Hard Plastic; removable; size and shape as required for temporary support.
  - B. Chisels: Carbide-tipped stone carving chisels.
    1. Hand Chisels
    2. Barre \_" type B short stroke pneumatic carving tool.
  - C. Pointing Irons: Width slightly less than joint width. Various widths required to suit project conditions.
  - D. Brushes of various sizes for cleaning raked-out joints.
  - E. Garden sprayer, water hose, and shop-type vacuum for cleaning raked-out joints.

- F. Hand water mister bottle and garden sprayer for curing, cleaning, and finishing pointed joints.
- G. Grinders:
  - 1. Blade width limited to 1/16" .
  - 2. Equip grinders with source extraction vacuum units to contain dust]
- H. Mortar Injectors: For full-depth pointing, if Contractor so elects, Contractor will be permitted to use powered injection equipment of suitable design, providing that Contractor demonstrates that joints can be completely filled and compacted to the same degree as accomplished by hand placement of mortar by conventional methods. Where mortar injectors are employed, the final 5/8" shall be placed by hand.
- I. Mixing Equipment: Standard paddle mixer for mixing mortar.
- J. Other tools as necessary for the Work.

## 2.4 Mortar Mixes

- A. NHL [2] [3.5] [5] Mix Design
  - 1. 1 part NHL [2] [3.5] [5] and [1.5] [2] [2.5] [3] parts of sand, proportioned by volume. Mortar should be mixed for at least 10 minutes. Greater workability and better mortar performance is achieved with less water and longer mixing. (Mortars can be left to stand and fatten up for up to 1-3 hours depending on the mix; and tempered before use.) Mortar can be reworked for up to 8 hours after mixing.
  - 2. [Premix: [Ecomortar G] [Ecomortar F][Ecologic G] [Ecologic F].]
- B. Casein Lime Grout:
  - 1. Mix NHL Mortar as described in 2.4 A.1.
  - 2. Add 1% by weight casein powder until desired consistency.

## PART 3 – EXECUTION

### 3.1 Examination and General

- A. Examine conditions, with installer present, for compliance with requirements for installation tolerances and other specific conditions, and other conditions affecting performance of unit masonry.
- B. Do not proceed until unsatisfactory conditions have been corrected.
- C. Before removing any deteriorated work, establish bonding patterns, levels, and coursings.
- D. In areas of work, if loose bricks are encountered, remove clean and reset.

### 3.2 Protection

- A. Prevent repointing mortar from staining the face of masonry or other surfaces to be left exposed. Remove repointing mortar that comes in contact with such surfaces.
- B. Cover partially completed work when work is not in progress.
- C. Protect sills, ledges and projections from droppings.

### 3.3 Temporary Support

- A. Provide temporary support where necessary to prevent displacement of stone during repointing and until mortar has achieved sufficient strength.

### 3.4 Removing Anchors

- A. Remove and discard anchors, nails, pins, and similar devices.
- B. Remove ferrous material completely. Do not allow portions to remain embedded.]
- C. Point hole with mortar.

### 3.5 Removing Joint Sealant from Joints

- A. Cut out joint sealant with a caulking cutter (Fein tool) assisted by hand tools.
- B. Trim joint sealant from joint faces.
- C. Grind remaining sealant from joint faces without appreciably widening joint width or altering appearance of units. Leave edges of units square and perpendicular to exposed face of unit. Do not round off edges of units.
- D. Vigorously scrub joint faces with a stiff brush to remove embedded dust and debris from joint faces, followed by vacuuming, working from top to bottom of wall.
- E. Remove existing underlying mortar to the depth specified prior to repointing.

### 3.6 Removing Existing Mortar

- A. Existing horizontal mortar joints (bed joints) that are pointed with a Portland cement mortar may be raked out by a skilled mason by carefully scoring the center of the mortar joint with a rotary grinder to relieve the stress on the joint. The remaining mortar in head and bed joints shall be removed to the required depth using hard or pneumatic stone carving chisels or by hand. Do not grind the mortar from the face of the joints.]
- B. Vertical joints (head joints) shall not be raked out using a grinder. All vertical head joints must be removed by hand in brickwork.
- C. All joints shall be raked back to sound, solid, back up material. Raking out shall leave a clean, square face at the back of the joint to provide for maximum contact of pointing mortar with the masonry back up mortar. Shallow or feather edging will not be permitted.]
- D. Existing historic lime-based mortar shall be removed using only small-headed hand or pneumatic stone carving chisels that are no wider than half the width of the existing masonry joints.
- E. Do not widen the existing masonry joints. Do not spall or chip the surrounding masonry edges in the process of mortar removal. Damage to surrounding brick or stone resulting from rotary blade over running shall not be permitted. Contractor shall replace brick or stone damaged during mortar removal with replacement units that match the original as determined by the Architect.
- F. Brush joint faces and vacuum debris from joint to remove dirt and loose debris, working from top to bottom of wall.

### 3.7 Mortar Removal Depth

- A. Existing mortar joints shall be raked out to whichever depth is greatest:
  - 1. 5/8 inch.
  - 2. 2-1/2 times the width of the existing mortar joint.
  - 3. The depth necessary to remove previously pointed Portland cement mortar.
  - 4. Until bonded, cohesive existing lime mortar is encountered.

### 3.8 Full Depth Pointing (only where required)

- A. Provide temporary support where necessary to prevent displacement of brick or stone during repointing and until mortar has achieved sufficient strength.
- B. Where required to maintain support of units, rake out and repoint each unit in stages, allowing freshly repointed portions to cure sufficiently before raking out and repointing remaining portion of joints supporting the unit.
- C. Remove temporary shims and supports when no longer necessary, and repoint voids left by temporary shims and supports.

### 3.9 Prewetting

- A. Brush joint faces and flush out joints with water to remove dirt and loose debris, working from top to bottom of wall. Rinse stone joints with water to remove dust and mortar particles. Thoroughly wet wall below to avoid soiling. Joint surfaces should be damp but free from standing water.
- B. Prior wetting is necessary to achieve the proper absorption rate before masonry repair commences and is essential to good masonry practice. Presoak walls and joints with water as required by project and weather conditions. During hot or windy weather, wet walls and joints several times in advance of pointing. Re-wet walls and joints yet to be pointed if masonry dries out before pointing. Masonry units shall be damp but without standing water at the time of pointing.
- C. Maintain hand mister bottles or a garden sprayer with clean, clear, potable water immediately available to masons at all times during the repointing process. A very low pressure spray (garden hose with nozzle adjusted to a fine, low-volume mist) may be used over large areas providing erosion of joints is prevented.
- D. Exposed surface of masonry adjacent to joint shall be wet prior to repointing.

### 3.10 Repointing of Mortar Joints

- A. Joints shall be pointed in layers or "lifts" where the joints are deeper than 3/4 inch.
  - 1. Joints greater than 3/4 inches deep shall be pointed with an initial lift to bring the joint depth to a uniform 3/4 inches deep.
  - 2. Compact each layer at the time it is placed in the joint by applying firm pressure with the pointing tool.
  - 3. Allow each lift to become thumbprint hard before applying the next lift.
- B. Finish joints uniformly. Do not overwork. Leave the surface of the masonry clean.

### 3.11 Grouting with Casein Lime Mortar

- A. Control of absorption rate is critical for flowing material. Thoroughly pre-wet cavity with water.
- B. Casein mortar can be injected with a grout pump or poured in place as project conditions permit.
- C. Form a dam with either pointing mortar at the face of the joint or cavity, or use a backer rod to be removed after the casein mortar firms up. Insure that area of grout is contained.
- D. Inject or pour mortar and, if backer rod used, remove backer rod when mortar is firm. Proceed with repointing if necessary.

### 3.12 Cleaning

- A. Maintain clean surfaces on the face, sills, ledges, and projections of masonry on a daily basis.
- B. With a trowel, strike off minor dabs of adherent mortar from face of masonry.
- C. Remove minor mortar marks from masonry by misting with water and brushing with a small, stiff-bristle brush.

### 3.13 Curing

- A. Keep mortar from drying out too quickly.
- B. Mist walls with water as required by project and weather conditions to insure slow curing of the lime mortar.
- C. Shield from direct sun and drying winds for the first 48 hours after installation.

END OF SECTION 04900

**SECTION 05400**  
**LIGHT GAUGE STEEL FRAMING**

**PART 1 – GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.
  - 1. Unit Masonry
  - 2. Concrete
  - 3. Rough Carpentry
  - 4. Finish Carpentry
  - 5. PVC Paneling
  - 6. Building Insulation
  - 7. Weather Resistive Barrier
  - 8. Gypsum Board Systems
  - 9. Painting

**1.2 SCOPE**

- A. Furnish and install light gauge steel framing members, their connections, and all appurtenances including bridging, slide clips, deflection tracks, and brackets.

**1.3 QUALITY ASSURANCE**

- A. The material supplier shall have five years experience in the manufacture and fabrication of light gauge metal framing.
- B. The erector shall have five years experience in the erection and connection of light gauge metal framing.
- C. Sections shall be standard sections as shown in the manufacturer's literature or listed AISI standard tables.
- D. Access to the construction shall be provided to the Engineer for the purpose of inspection.
- E. Inspect the structure or foundation to which the framing is to be attached and notify the Engineer of any discrepancies. Absence of such notification or starting the erection shall be construed as acceptance of the supporting structure or foundation.

**1.4 SUBMITTALS**

- A. Furnish manufacturer's literature and catalog cuts, shop drawings, connection details, and, when requested, material certifications and samples prior to fabrication
- B. Shop Drawings
  - 1. Show materials, shop coatings, steel thicknesses, and section properties.
  - 2. Show details of fabrication and details of attachment to adjoining work including size, location and spacing fasteners for attaching framing to itself and to the structural steel if applicable.
  - 3. Show accessories and their installation and critical installation procedures.
- C. Light gauge metal stud designations shown on the drawings assume Marino Ware as a design basis. Manufacturer must submit literature indicating that the members supplied provide equivalent strength and stiffness. Manufacturer and/or supplier to prepare information indicating capacity of members, framing details, connections, bracing, bridging and all other appurtenances of members to conform to load criteria as directed by contractor/construction manager.

**PART 2 – PRODUCTS**

**2.1 MATERIALS**

- A. All studs and/or joists and accessories shall be of the type, size, gauge and spacing shown on the plans. Studs, runners (track), bracing and bridging shall be

manufactured per ASTM Specifications C955. Load bearing studs and joists shall have stiffened flanges.

- B. All sections shall be G60 galvanized and shall be in accordance with ASTM C955 and Section 1.2 of the AISI "Specification for the Design of Cold-Formed Steel Structural Members", latest edition.
- C. Sections 16 Ga. and heavier shall be ASTM A653 structural quality grade 50.
- D. Sections 18 Ga. and lighter shall be ASTM A653 structural quality grade 33.
- E. Substitutions must furnish equivalent load carrying capacities and stiffness.
- F. Physical properties and allowable load capabilities of members shall be developed in accordance with AISI "Specification for the Design of Cold-Formed Steel Structural Members", latest edition.
- G. Fasteners
  - 1. Self-drilling, Self-tapping Screws, Bolts, Nuts and Washers: Hot Dip Galvanize according to ASTM A153.
    - a. NOTE certain fasteners to framing may be stainless steel. Refer to drawings.
  - 2. Anchorage Devices:
    - a. Powder actuated fasteners (PAF's): 0.045" in diameter minimum unless noted otherwise on the Contract Documents. All fasteners to have a corrosion resistant coating.
    - b. Drive-In Fasteners: Zamac nail-drive fastener as manufactured by Powers Fasteners or approved equal having stainless steel nails. See Contract Documents for diameter, spacing, and required embedment.
    - c. Post-installed anchors: One-piece, heavy duty screw anchor with hex washer head intended for installation into concrete and masonry construction. Fasteners to be installed in pre-drilled hole in substrate and to have corrosion resistant finish. Refer to Contract Drawings for fastener size, spacing, and embedment required. If not specified, provide ½" diameter fasteners with 4 ¼" embedment into concrete and masonry, 48" maximum spacing.
  - 3. Welding: In conformance with AWS D1.1 and AWS D1.3, as noted in the Contract Documents.
  - 4. Wire tying of framing components is not permitted.

### **PART 3 – EXECUTION**

#### **3.1 STORAGE OF MATERIALS**

- A. Protect materials from conditions that may cause any physical damage.
- B. Store materials on a flat plane.
- C. Remove from the site all rusted, dented, bent, twisted, or otherwise damaged material.

#### **3.2 CORROSION RESISTANT FINISHES**

- A. Metal studs, track, lateral bracing and miscellaneous light gauge metal items for exterior wall assemblies and all work in brewer brewhouse area shall be hot dipped galvanized with minimum G90 coating thickness.
- B. Metal studs, track, lateral bracing and miscellaneous light gauge metal items for other interior wall and floor assemblies shall be hot dipped galvanized with minimum G60 coating thickness.

#### **3.3 INSTALLATION: GENERAL**

- A. Methods of construction may be either piece by piece (stickbuilt), or by fabrication into panels either on or off site.

- B. Connections shall be accomplished with self-drilling screws or welding so that the connections meet or exceeds the design loads required at that connection.
- C. Cutting of steel framing members shall be accomplished with a saw or shear. Torch cutting is not permitted.
- D. Provide temporary bracing leave in place until work is permanently stabilized.
- E. Diaphragm rated materials may be installed in place of bridging, however, it shall be installed prior to loading the wall. If such a material is installed on one side of the wall, the other stud flange must still be supported with suitable bridging.
- F. Coordinate installation of insulation so that it can be placed in areas that will be made inaccessible by the framing.
- G. Attach jack studs, for support of headers, securely to the headers and to the adjacent studs and bottom track.
- H. **Provide horizontal Header framing at all openings**
- I. Wall track shall not be used to support any load unless specifically designed for that purpose.
- J. Provide reinforcement where holes are cut through load bearing members in accordance with manufacturer's recommendations and as approved by the Engineer.
- K. Touch up all steel after welding using zinc-rich paint or cold galvanizing compound.
- L. **Studs**
  - 1. Transversely loaded studs of interior partitions need not sit squarely in tracks but must be attached to them. Cut and install all other studs for bearing.
  - 2. Seat axially loaded studs squarely (within 1/16") against the web portion of the top and bottom tracks. Tracks shall rest on a continuous uniform bearing surface.
  - 3. Maintain full bearing under tracks to provide for load transfer in axially loaded assemblies.
  - 4. Install bridging of size and type recommended by the manufacturer.
  - 5. Install miscellaneous connections, accessories, and supplementary framing.
  - 6. Isolate curtainwall framing from building structure using slide clips or deflection track to prevent transfer of vertical loads while providing lateral support.
  - 7. Maintain vertical alignment of studs at floor/wall intersections or design tracks for load transfer.
  - 8. Space studs as shown on the drawings or to suit the design requirements and limitations of collateral facing materials.
  - 9. Attach sheathing to steel studs in accordance with ASTM C840 except that the steel drill screws shall be spaced not more than 12" o.c.
  - 10. Provide additional studs as required at wall intersections, doors, windows, control joints, expansion joints, and other locations to ensure that sheathing can be attached along all edges.
  - 11. Splicing of axially loaded members is not permitted.
  - 12. Where splicing of track is necessary between stud spacings, place a piece of stud in the track and fasten with two screws or welds per flange to each piece of track.
  - 13. Install headers in all openings in axially loaded walls that are larger than the stud spacing in that wall. Form headers as shown on the drawings or in accordance with the manufacturer's standard detail.
- M. **Furring**
  - 1. Provide inert (rot proof, no wood) shims and blocking at furring over interior masonry and at all exterior masonry walls to provide plumb and in line finish work.

### 3.3 INSTALLATION: NON-PANELIZED (STICKBUILT) CONSTRUCTION



- A. Align track accurately at the supporting structure and fasten to the structure as shown on drawings.
  - B. Track intersections shall butt evenly.
  - C. Studs shall be plumbed, aligned and securely attached to the flange or web of the upper and lower tracks. Axially loaded studs shall be seated squarely in both top and bottom tracks.
- 3.4 FASTENINGS AND ATTACHMENTS
- A. Anchorage of the tracks to the structure shall be as shown on the drawings or as recommended by the manufacturer.
  - B. Welds shall conform to the requirements of AWS D.1.1, AWS D1.3 and AISI Manual Section 4.2. All welds shall be touched-up using zinc-rich paint.
  - C. Steel drill screws shall be of the minimum diameter indicated on the drawings or as recommended by the manufacturer. Penetration through joined materials shall not be less than 3 exposed threads.
  - D. Screws shall be cadmium plated and suitable for use in exterior assemblies.
- 3.5 TOLERANCES
- A. Studs and walls shall be plumb within  $1/960^{\text{th}}$  of the span ( $1/8''$  in  $10''-0''$ ).
  - B. Walls shall be level within  $1/960^{\text{th}}$  of their length ( $1/8^{\text{th}}''$  in  $10''-0''$ ).
  - C. Spacing of studs shall not be more than  $\pm 1/8''$  from the designed spacing providing that the cumulative error does not exceed the requirements of the finishing materials.
  - D. Prefabricated panels shall not be more than  $1/8''$  out of square within the length or height of the panel.
- 3.6 INSPECTIONS
- A. The erector is responsible to assure strict conformance to the drawings and tolerances at all phases of construction.
    - 1. Check all members for proper alignment, bearing, completeness of attachments, proper alignment, reinforcement, etc.
    - 2. Check all attachments for conformance with the drawings, and specifications.

**END OF SECTION 05400**

**SECTION 05500  
METAL FABRICATIONS**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 01 Specification sections, apply to work of this section.
- B. Closely-related work specified in other sections:
  - 1. Ferrous metal attachment devices for work specified in other sections are specified in those sections.
  - 2. Installation of work built into concrete and masonry is specified in Divisions 03 and 04, respectively.
  - 3. Structural Steel – See Structural drawings
  - 4. Concrete – See Structural drawings
  - 5. Division 9 – Finishes - paintings

**1.2 DESCRIPTION**

- A. Provide all metal fabrications, defined as items made from iron, steel, and other metal shapes, plates, bars, strips, tubes, pipes and castings which are not a part of structural steel or other metal systems specified elsewhere, and including:
  - 1. Railings - (guardrails, handrails, interior and exterior)
  - 2. Bollards
  - 3. Miscellaneous framing and supports.
  - 4. Miscellaneous steel trim.
  - 5. All other metal fabrications as defined above and on the drawings which are indicated, scheduled, or specified in this section.
- B. Furnish and locate inserts and anchoring devices which must be set in concrete or build into masonry for the installation of metal fabrications work.
- C. Furnish custom metals work related to carpentry work.
- D. Perform design and engineering for fabrication in conformance with the design criteria ,code requirements and design arrangement shown on drawings and specified herein.

**1.3 SUBMITTALS**

- A. Product Data: Submit manufacturer’s specifications, anchor details and installation instructions prior to fabrication.
- B. Compliance: Where materials or fabrications are indicated or specified to comply with certain requirements for design loadings, shop drawings shall indicate compliance with required design loadings, and **shall be sealed by a Professional Engineer registered in the state in which the Project is constructed. For information only, include structural computations, material properties and other information justifying statement of compliance.**
  - **Handrails**
  - **Guardrails**
- C. Shop Drawings: Submit shop drawings for fabrication and erection. Include plans, elevations and details of sections and connections. Show anchorage and accessory items. Provide templates or location dimensions for anchor bolts and other devices to be installed under other sections.

**1.4 QUALITY ASSURANCE**

- A. Welding process and welding operators: Qualified in accordance with AWS “Standard Qualifications Procedures”.
- B. Fabricator: Must be able to demonstrate successful completion of comparable work within the past 3 years.

## 1.5 REFERENCED STANDARDS

- A. Comply with the applicable provisions of all codes, standards, and specifications referenced in this section, including but not limited to the following:
1. AISC: "Specifications for the Design, Fabrication, and Erection of Structural Steel for Buildings," including the "Commentary on the AISC Specification".
  2. AISI: "Specification for the Design, of Cold-formed Steel Structural Members".
  3. AWS: "Code for Welding in Building Construction".
  4. NAAMM Publications:
    - a. Metal Product Outline for Division-5 Metals.
    - b. Metal Bar Grating Manual.
    - c. Pipe Railing Manual.
    - d. Metal Stairs Manual.
    - e. Metal Finishes Manual.
  5. SSPC: Steel Structures Painting Manual, Volumes 1 and 2.
  6. Part 1910 - Occupational Safety and Health Standards.
  7. ANSI A14.3 - Safety Code for Fixed Ladders.
  8. As referenced in Parts 2 and 3: ASTM Standards: Military Specifications and Federal Specifications.
  9. Aluminum Association (AA)
    - a. ABH-21 Aluminum Brazing Handbook
    - b. ASD-1 Aluminum Standards and Data
    - c. DAF-45 Designation System for Aluminum Finishes
    - d. SAA-46 Standards for Anodized Architectural Aluminum
  10. American Architectural Manufacturers Association (AAMA)
    - a. AAMA 605.1 Specification for High Performance Organic Coatings on Architectural Extrusions and Panels.
    - b. AAMA 606.1 Voluntary Guide Specifications and Inspection Methods of Integral Color Anodic Finishes for Architectural Aluminum.
    - c. AAMA 607.1 Voluntary Guide Specifications and Inspection Methods for Clear Anodic Finishes for Architectural Aluminum.
    - d. AAMA 608.1 Voluntary Guide Specifications and Inspection Methods for Electrolytically Deposited Color Anodic Finishes for Architectural Aluminum.
  11. American Concrete Institute (ACI)
    - a. ACI 347-78 Recommended Practice for Concrete Formwork
    - b. American Iron and Steel Institute (AISI)
    - c. Steel Products Manual; Stainless and Heat Resisting Steel.
  12. American National Standards Institute (ANSI)
    - a. A21.1 Safety Requirements for Floor and Wall Openings, Railings and Toe Boards.
    - b. A58.1 Minimum Design Loads in Buildings and Other Structures.
    - c. A117.1 Accessible and Usable Buildings and Facilities.
  13. American Society for Testing and Materials (ASTM)
    - a. B 483 Specification for Aluminum and Aluminum-Alloy Drawn Tubes for General Purpose Applications.
    - b. E 894 Standard Test Methods for Anchorage of Permanent Metal Railing Systems and Rails for Buildings.
    - c. E 935 Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for Buildings.
    - d. E 985 Specification for Permanent Metal Railing Systems and Rails for Buildings.
  14. National Association of Architectural Metal Manufacturers (NAAMM)

- a. Metal Finishes Manual
- b. Pipe Railing Manual
- c. Stair Manual
- 15. National Ornamental and Miscellaneous Metals Association (NOMMA)  
Metal Rail Manual

## 1.6 PRODUCT HANDLING

- A. Deliver, store and protect finished metal work so that, upon completion of the work, metal work shows no evidence of rust or physical damage.

## PART 2 – PRODUCTS

### 2.1 ACCEPTABLE MANUFACTURERS: Not used.

### 2.2 MATERIALS

- A. Ferrous Metals:
  - 1. Metal Surfaces, General: For work which will be exposed to view use only materials which are smooth and free of surface blemishes including pitting, seam marks, roller marks, rolled trade names and roughness.
  - 2. Steel Plates, Shapes and Bars: ASTM A36/A36M.
  - 3. Steel Bar Grating: ASTM A569 or ASTM A36.
  - 4. Steel Tubing: Cold-formed, ASTM A500; hot-rolled, ASTM A501.
  - 5. Structural Steel Sheet: Hot-rolled, ASTM A570; cold-rolled ASTM A611, Class 1; of grade required for design loading.
  - 6. Galvanized Structural Steel Sheet: ASTM A446, of grade required for design loading. Coating designation as indicated, or if not indicated, G90.
  - 7. Steel Pipe: ASTM A53; Type and grade as required for design loading; schedule 40, unless otherwise indicated or specified.
    - a. Black Finish, unless otherwise indicated.
    - b. **Hot Dipped Galvanized finish at all exterior installations, inside of brewery area and where indicated.**
  - 8. Gray Iron Castings: ASTM A48, Class 30.
  - 9. Malleable Iron Castings: ASTM A47, grade as selected by fabricator.
  - 10. Brackets, Flanges and Anchors: Cast or formed metal of the same type material and finish as supported rails unless otherwise indicated or specified.
  - 11. Concrete Inserts: Threaded or wedge type; galvanized ferrous castings, either malleable iron, ASTM A47, or cast steel, ASTM A27. Provide bolts, washers and shims as required, hot-dip galvanized, ASTM A153.
- B. Aluminum:
  - 1. Extruded Pipe: Alloy 6063-T6 meeting ASTM B 221
  - 2. Extruded Bars, Shapes and Mouldings: Alloy 6063-T52 meeting ASTM B 221
  - 3. Castings: Almag 35 meeting ASTM B 26
  - 4. Finish (refer to NAAMM Metal Finishes Manual):
  - 5. Anodized finish shall be AA-M10-C22-A31 (204R1)
- C. Grout: Non-shrink non-metallic, pre-mixed, factory-packaged, non-staining, non-corrosive, and non-gaseous, complying with CD CRD-C621. Provide grout specifically recommended by manufacturer for each application.
- D. Fasteners: Select fasteners for the type, grade and class required for each application. Provide hot-dipped galvanized fasteners for exterior use and where built into exterior walls.
  - 1. Bolts and Nuts: Hexagon head, ASTM A307, Grade A
  - 2. Lag Bolts: Square or hexagon head, FS FF-B-561.
  - 3. Machine Screws: Cadmium plated steel, FS FF-S-92.
  - 4. Wood Screws: Flat head carbon steel, FS FF-S-111.
  - 5. Plain Washers: Round, carbon steel, FS FF-W-92.

6. Expansion Shields: FS FF-S-325.
  7. Toggle Bolts: Tumble-wing type, FS FF-B-588.
  8. Lock Washers: Helical spring type, carbon steel, FS FF-W-84.
- E. Paint:
1. Shop Primer for Ferrous Metal: Manufacturer's or Fabricator's standard, fast-curing, lead-free, "universal" primer; selected for good resistance to normal atmospheric corrosion, for compatibility with finish paint systems to be applied and for capability to provide a sound foundation for field-applied topcoats despite prolonged exposure; complying with performance requirements of FS TT-P-645.
  2. Galvanizing Repair Paint: High zinc dust content paint for regalvanizing welds in galvanized steel, complying with the Military Specifications MIL-P-21035 (Ships) or SSPC-Paint-20.

### 2.3 FABRICATION, GENERAL

- A. Take field measurements prior to preparation of shop drawings and fabrication, where possible. Allow for trimming and fitting where taking field measurements before fabrication would delay work.
- B. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling. Clearly mark units for reassembly and installation.
- C. Workmanship: Use materials of size and thickness indicated, or if not indicated, as required to produce strength and durability in finished product for use intended. Use proven details of fabrications and support.
- D. Form exposed work true to line and level with accurate angles and surfaces and straight edges. Ease exposed edges to a radius of approximately 1/32 inch unless larger radius indicated. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- E. Welded connections: Weld continuously, except as otherwise specified. Comply with AWS recommendations. At exposed connections, grind exposed weld smooth and flush to match and blend with adjoining surfaces.
  1. Where not exposed to view or weather in the finished work, weld to provide required strength of connection; such welds need not be continuous.
- F. Mechanically fastened connections: Form exposed connections with hairline joints, flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of type indicated or, if not indicated, Phillips flat-head (countersunk) screws or bolts. All nuts; hexagonal head.
- G. Provide for anchorage of type indicated, or if not indicated, of type needed to develop proper strength and rigidity. Coordinate anchorages with supporting structure. Fabricate and space anchoring devices to provide adequate support for intended use.
- H. Cut, reinforce, drill and tap metal work as required to receive finish hardware and other items to be attached.
- I. Galvanizing: Provide a zinc coating for those items indicated or specified to be galvanized, as follows:
  1. ASTM A153 for galvanizing iron and steel hardware.
  2. ASTM A123 for galvanized rolled, pressed and forged steel shapes, plates, bars and strip 1/8 inch thick and heavier.
  3. ASTM A386 for galvanizing assembled steel products.
- J. Fabricate joints which will be exposed to weather to exclude water or provide weep holes to drain areas where water may accumulate.
- K. Shop Painting:
  1. Apply shop primer to all surfaces of metal fabrications except as listed below. Comply with SSPC-PA1 "Paint Application Specification No. 1" for shop painting. Thoroughly coat all edges, corners, crevices, bolts, welds and sharp edges.

- a. Omit shop priming on the following:
      - Aluminum surfaces
      - Galvanized surfaces
      - Surfaces to be embedded in concrete or masonry
  - 2. Surface Preparation: Comply with SSPC surface preparation specifications for each exposure condition of work when installed.
    - a. Exteriors (SSPC Zone 1B): SSPC-SP6 “Commercial Blast Cleaning”.
  - L. Interiors (SSPC Zone 1A): SSPC-SP3 “Power Tool Cleaning”.
- 2.4 ROUGH HARDWARE
  - A. Furnish bent or otherwise custom fabricated bolts, plates, anchors, hangers, dowels and other miscellaneous steel and iron shapes as required for framing and supporting woodwork, and for anchoring or securing woodwork to concrete or other structures. Straight bolts and other stock rough hardware items are specified in Division 06 Sections.
  - B. Fabricate items to sizes, shapes and dimensions required. Furnish malleable-iron washers for heads and nuts which bear on wood structural connections; elsewhere, furnish steel washers.
- 2.5 MISCELLANEOUS FRAMING AND SUPPORTS
  - A. Provide miscellaneous steel framing and supports which are not a part of structural steel framework, as required to complete work.
  - B. Design and engineer, as part of this work, framing and supports not so detailed in the contract documents. Design to support loads indicated or set forth on finally reviewed shop drawings for work to be supported.
  - C. Fabricate to sizes, shapes and profiles indicated or, if not indicated, as designed by fabricator’s engineer and of required dimensions to receive adjacent work to be retained by framing. Except as otherwise indicated, fabricate from structural steel shapes, plates and bars of welded construction, for field connection by welding or bolting. Cut, drill and tap units to receive hardware and other items to be attached.
  - D. Equip units with integrally welded anchors for casting into concrete or building into masonry. Furnish inserts if units must be installed after concrete is placed. Except as otherwise required by conditions, space anchors not more than 24 inches o.c., and provide minimum anchor units of 1-1/2” by 1/4 “ by 8” steel straps.
  - E. Hot Dip Galvanize all exterior miscellaneous frames and supports, and interior miscellaneous frames and supports where indicated.
- 2.6 MISCELLANEOUS STEEL TRIM
  - A. Fabricate to indicated profiles, from structural steel shapes, plates and steel bars, with continuously welded joints and smooth exposed edges. Use concealed field splices wherever possible. Provide cutouts, fittings and anchorages as required for coordination of assembly and installation with other work.
  - B. Galvanize miscellaneous steel trim, for all exterior installations, and for interior installations where indicated.
- 2.7 STEEL PIPE RAILINGS AND HANDRAILS
  - A. Form members of pipe of sizes and wall thickness indicated or specified, but not less than required to support design loading and comply with governing codes.
    - 1. **Handrails and Toprails: Capable of withstanding the loading conditions specified and applied as indicated when tested per ASTM E 935 and IBC 2021, NJ Edition, Section 1607.9.1**
    - 2. **Top Rail of Guardrail Systems: Capable of withstanding the following loads applied as indicated:**

- a. **Concentrated load of 200 pounds applied at any point and in any direction along the top railing member.**
  - b. **Uniform load of 50 pounds per foot applied in any direction**
  - c. **Concentrated and uniform loads above need not be assumed to act concurrently.**
- 3. **Handrails Not Serving as Top Rails: Capable of withstanding the following loads applied as indicated:**
  - a. **Concentrated load of 200 pounds applied at any point and in any direction.**
  - b. **Uniform load of 50 pounds per foot applied in any direction.**
  - c. **Concentrated and uniform loads above need not be assumed to act concurrently.**
- 4. **Infill Area of Guardrail Systems: Capable of withstanding a horizontal concentrated load of 50 lbf applied to one sq. ft. at any point in the system, including panels, intermediate rails balusters, or other elements composing the infill area.**
  - a. **Above load need not be assumed to act concurrently with uniform horizontal loads on top rail of railing systems in determining stress on guard.**
- 5. **Openings between horizontal intermediate rail members shall be less than 21".**
- B. Interconnect railing and handrail members by butt-welding or welding with internal connectors, at fabricator's option, except non-welded connections where indicated or where specifically accepted.
  - 1. At tee and cross intersections provide coped joints.
  - 2. At bends interconnect pipe by means of prefabricated elbow fittings and flush radius bends, or by bending pipe, at fabricator's option.
- C. Bend pipe in jigs to produce uniform curvature for each repetitive configuration required; maintain cylindrical cross-section of pipe throughout entire bend without buckling, twisting or otherwise deforming exposed surfaces of pipe.
- D. Provide wall returns at all ends of wall-mounted handrails.
- E. Close exposed ends of pipe by welding 3/16 inch thick steel plate in place or by use of prefabricated fittings.
- F. Brackets, Flanges, Fittings and Anchors: Provide wall brackets, end closures, flanges, miscellaneous fittings and anchors for interconnections of pipe and attachment of railings and handrails to other work. Furnish inserts and other anchorage devices for connecting railings and handrails to concrete or masonry work.
  - 1. For railing posts set in concrete provide sleeves of galvanized steel pipe not less than 6 inches long and with an inside diameter not less than 1/2 inch greater than the outside diameter of pipe. Provide steel plate closure welded to bottom of sleeve and of width and length not less than 1 inch greater than outside diameter of sleeve.
  - 2. Provide friction fit, removable covers designed to keep sleeves clean and hold top edge of sleeve 1/2 inch below finished-surface of concrete.
  - 3. Where indicated on the drawings provide cast bronze handrail brackets. Reference Product and Manufacturer: Bracket No. 388 by Julius Blum.
- G. Hot Dip Galvanize all exterior steel fabrications and other steel railings where so indicated, including pipe, fittings, brackets, fasteners and other ferrous components. Provide black steel pipe for interior railings not indicated otherwise.

## 2.8 PIPE BOLLARDS

- A. Fabricate bollards from galvanized, schedule 80 steel pipe, diameter and length as shown. See item 3.2 for additional information.

## PART 3 – EXECUTION

### 3.1 PREPARATION

- A. Coordinate and furnish anchorages, setting drawings, diagrams, templates, instructions, and directions for installation of anchorages, such as concrete inserts, sleeves, anchor bolts and integral anchors, which are to be embedded in concrete or masonry construction, or attached to other construction. Coordinate delivery of such items with affected work.

### 3.2 INSTALLATION

- A. General:
  - 1. Securely fasten metal fabrications to in-place construction, using devices and fasteners which will develop fully rigid and strong connections, including treaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws and other connectors as required. Fastenings shall develop design loadings specified for items fastened.
  - 2. Perform cutting, drilling and fitting required for installation of metal fabrications. Set work accurately in location, alignment and elevation; level, true and free of rack. Provide temporary supports as required.
  - 3. Fit exposed connections to form tight hairline joints. Weld connections which cannot be shop welded because of shipping size limitations. Grind exposed joints smooth and touch-up shop paint coat. Do not weld, cut or abrade the surfaces of units which have been hot-dip galvanized after fabrication, and are intended for bolted or screwed field connections.
  - 4. Field Welding: Comply with AWS Code for procedures of manual shielded metal-arc welding, appearance and quality of welds made, and methods used in correcting welding work.
- B. Pipe Bollards:
  - 1. Set and plumb bollards in reinforced concrete footings as shown, fill solid with concrete and finish top to a convex profile to shed water.
  - 2. Provide plastic covers

### 3.3 CLEANING, TOUCH-UP PAINTING, AND PROTECTING

- A. Cleaning: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint.
  - 1. Prime painted surfaces: Paint exposed areas with same material as used for shop painting. Apply by brush or spray to provide a minimum dry film thickness of 2.0 mils.
  - 2. Galvanized surfaces: Touch up with galvanizing repair paint to comply with ASTM A 780. If shop prime paint coat is specified, touch up same after galvanizing repair paint has cured.
- B. Protecting:
  - 1. Provide protective covers, fenders, and other work as necessary to maintain metal work in same condition as installed.
  - 2. Periodically inspect installed work. If prime coating becomes damaged, or if rusting develops, promptly remove any rust, and touch up damaged coating.

**END OF SECTION 05500**



## SECTION 06100 ROUGH CARPENTRY

### PART 1 – GENERAL

#### 1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
- B. Refer to structural drawings for additional notes and project requirements. In the event of conflict, the requirements included on the structural drawings supersede the following standards.**

#### 1.2 SUMMARY:

- A. Types of work in this section include rough carpentry for:
  - 1. Wood framing repairs
  - 2. Wood construction demolition
  - 3. Wood replacement/repair sheathing and decking
  - 4. Wood wall infills and new construction (refer to plans for framing types). Generally all new walls are to be metal stud framed.
  - 5. Wood grounds, nailers, and blocking.
  - 6. Other

#### 1.3 DEFINITIONS:

- A. Rough carpentry includes carpentry work not specified as part of other sections and which is generally not exposed, except as otherwise indicated.

#### 1.4 SUBMITTALS:

- A. Product Data: Submit manufacturer's specifications and installation instructions for materials listed below:
- B. Material Certificates: Where dimensional lumber is provided to comply with minimum allowable unit stresses, submit listing of species and grade selected for each use, and submit evidence of compliance with specified requirements. Compliance may be in form of a signed copy of applicable portion of lumber producer's grading rules showing design values for selected species and grade.
- C. Wood Treatment Data: Submit chemical treatment manufacturer's instructions for handling, storing, installation and finishing of treated material.
  - 1. Preservative Treatment: For each type specified, include certification by treating plant stating type of preservative solution and pressure process used, net amount of preservative retained and conformance with applicable standards.
  - 2. Fire Retardant Treatment: Not required generally.

#### 1.5 PRODUCT HANDLING:

- A. Delivery and Storage: Keep materials under cover and dry. Protect against exposure to weather and contact with damp or wet surfaces. Stack lumber as well as plywood and other panels; provide for air circulation within and around stacks and under temporary coverings including polyethylene and similar materials.

#### 1.6 PROJECT CONDITIONS:

- A. Coordination: Fit carpentry work to other work; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds and similar supports to allow attachment of other work.

## **PART 2 – PRODUCTS**

### **2.1 LUMBER, GENERAL:**

- A. Lumber Standards: Manufacture lumber to comply with PS 20 "American Softwood Lumber Standard" and with applicable grading rules of inspection agencies certified by American Lumber Standards Committee's (ALSC) Board of Review.
- B. Inspection Agencies: Inspection agencies and the abbreviations used to reference with lumber grades and species include the following:
  - 1. SPIB - Southern Pine Inspection Bureau.
  - 2. WWPA - Western Wood Products Association.
- C. Grade Stamps: Factory-mark each piece of lumber with grade stamp of inspection agency evidencing compliance with grading rule requirements and identifying grading agency, grade, species, moisture content at time of surfacing, and mill.
  - 1. For exposed lumber apply grade stamps to ends or back of each piece, or omit grade stamps entirely and issue certificate of grade compliance from inspection agency in lieu of grade stamp.
- D. Nominal sizes are indicated, except as shown by detail dimensions. Provide actual sizes as required by PS 20, for moisture content specified for each use.
  - 1. Provide dressed lumber, S4S, unless otherwise indicated.
  - 2. Provide seasoned lumber with 19 percent maximum moisture content at time of dressing and shipment for sizes 2" or less in nominal thickness, unless otherwise indicated.

### **2.2 DIMENSION LUMBER:**

- A. For Structural framing (2" to 4" thick, 2" to 4" and wider, provide the following grade and species:
  - 1. Any species and grade which meets or exceeds the following values:
    - a. Fb (minimum extreme fiber stress in bending); 1500 psi.
    - b. E (minimum modulus of elasticity); 1,500,000 psi.

### **2.3 MISCELLANEOUS LUMBER:**

- A. Provide wood for support or attachment of other work including rooftop equipment curbs and support bases, cant strips, bucks, nailers, blocking, furring, grounds, stripping and similar members. Provide lumber of sizes indicated, worked into shapes shown, and as follows:
- B. Moisture content: 19 percent maximum for lumber items not specified to receive wood preservative treatment.
- C. Grade: Standard Grade light framing size lumber of any species or board size lumber as required. No. 3 Common or Standard grade boards per WCLIB or WWPA rules or No. 3 boards per SPIB rules.

### **2.4 CONSTRUCTION PANELS:**

- A. Construction Panel Standards: Comply with PS 1 "U.S Product Standard for Construction and Industrial Plywood" for plywood panels and, for products not manufactured under PS 1 provisions, with American Plywood Association (APA) "Performance Standard and Policies for Structural-Use Panels", Form No. E445.
- B. Trademark: Factory-mark each construction panel with APA trademark evidencing compliance with grade requirements.
- C. Concealed APA Performance-Rated Panels: Where construction panels will be used for the following concealed types of applications, provide APA Performance-Rated Panels complying with requirements indicated for grade designations, span rating, exposure durability classification, edge detail (where applicable) and thickness.
  - 1. Wall Sheathing: APA RATED SHEATHING, PLYWOOD

(not OSB (Oriented Strand Board) )

- a. Exposure Durability Classification: EXPOSURE 1.
- b. Thickness: 17/32 inch
- c. Span Rating: 40/20

## 2.5 MISCELLANEOUS MATERIALS:

- A. Fasteners and Anchorages: Provide size, type, material and finish as indicated and as recommended by applicable standards, complying with applicable Federal Specifications for nails, staples, screws, bolts, nuts, washers and anchoring devices. Provide metal hangers and framing anchors of the size and type recommended by the manufacturer for each use including recommended nails.
  - 2. Where rough carpentry work is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners and anchorages with a hot-dip zinc coating (ASTM A 153).
- B. Building Paper: ASTM D 226, Type I; asphalt saturated felt, non-perforated, 15-lb. type.
- C. Metal Connectors - Joist Hangers, Straps, etc: Sized as noted or as required by the imposed loading. All metal work is to have a hot-dipped galvanized finish. Products of Simpson Strong-Tie are specified.
- D. Fasteners – for roof blocking plates use hot dip galvanized thru bolts and Simpson SDS screw anchors for primary connections. Utilize framing nails for supplementary connections.

## 2.6 WOOD TREATMENT BY PRESSURE PROCESS:

- A. Preservative Treatment: Where lumber or plywood is indicated as "Trt-Wd", "Pr.Tr.", "PT" or "Treated", or is specified herein to be treated, comply with applicable requirements of AWPB Standards. Treatment system is to be "ACQ". Mark each treated item with the AWPB Quality Mark Requirements. All lumber must be inspected, marked according to grade and certified by the appropriate bureau governing that product.
  - 1. Pressure-treat above-ground items with water-borne preservatives to comply with AWPB LP.
  - 2. After treatment, kiln-dry lumber and plywood to a maximum moisture content, respectively, of 19 percent and 15 percent. Treat indicated items and the following:
    - d. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers and waterproofing.
    - e. Wood sills, sleepers, blocking, furring, stripping and similar concealed members in contact with masonry or concrete.
    - f. Wood framing members less than 18" above grade.

## 2.8 FIRE RETARDANT TREATED WOOD

- A. Where fireproofed wood is used, the fireproofing treatment shall be accomplished by means or pressurization. The same is true for preservation treatment for wood, such treatments being required for all wood in damp areas or in contact with earth, concrete, masonry, plaster, or roofing. All rough carpentry materials except that used for wood blocking in roof assembly shall be fire retardant treated.
- B. Product Treatment: Dricon fire retardant treatment for wood is produced by licensed treatment plant. Fire retardant chemical shall provide protection against termites and fungal decay, shall be registered for use as a wood preservative by the U.S.

Environmental Protection Agency (EPA), shall comply with formulation FR-1 of the current edition of AWPAC Standard P17, and shall be free of halogens, sulfates and ammonium phosphate. Treated wood shall have a flamespread of less than 25 when tested in an extended 30 minute tunnel test in accordance with ASTM E 84, NFPA 255 or UL 723.

1. Corrosion Properties: Fire retardant treated wood in contact with carbon steel, galvanized steel, aluminum, copper and red brass shall exhibit corrosion rates less than 1 mil (0.025 mm) per year when tested in accordance with Fed. Spec. MIL-L-19140, Paragraph 4.6.5.2.
  2. Testing: Testing on fire performance, strength and corrosion properties of fireretardant treated wood shall be recognized by issuance of a National Evaluation Services Report.
- C. Fire Retardant Treatment: Manufacturer's solution for fire retardant treatment of wood.
1. Lumber Treatment Standard: Comply with AWPAC Standard C20, current edition, and Appendix H of AWPAC Use Category System.
  2. Plywood Treatment Standard: Comply with AWPAC Standard C27, current edition, and Appendix H of AWPAC Use Category System.
- D. Moisture Content:
1. Provide fire retardant treated wood with moisture content as follows:
    - a. Lumber: Dried to a maximum moisture content of 19% after treatment.
    - b. Plywood: Dried to a maximum moisture content of 15% after treatment.
    - c. Lumber: Dressed lumber, S4S, unless otherwise indicated.
- E. Per Dricon approval, use galvanized fasteners with treated wood.

### **PART 3 – EXECUTION**

#### **3.1 INSTALLATION, GENERAL:**

- A. Discard units of material with defects which might impair quality of work, and units which are too small to use in fabricating work with minimum joints or optimum joint arrangement.
- B. Protect wood products from adverse weather conditions as soon as possible. Follow manufacturers recommendations for protection of wood products.

#### **3.2 WOOD GROUNDS, NAILERS, BLOCKING AND SLEEPERS:**

- A. Provide wherever shown and where required for screeding or attachment of other work. Form to shapes as shown and cut as required for true line and level of work to be attached. Coordinate location with other work involved.

#### **3.3 WOOD FRAMING, GENERAL:**

- A. Provide blocking members of sizes and on spacings shown, and frame openings as shown, or if not shown, comply with recommendations of National Forest Products Association (N.F.P.A.).
- B. Anchor and nail as shown, and to comply with "Recommended Nailing Schedule" of "Manual for House Framing" and "National Design Specifications for Wood Construction" published by N.F.P.A.

END OF SECTION 06100

**SECTION 06200  
FINISH CARPENTRY**

**PART 1 - GENERAL**

**1.01 SECTION INCLUDES**

- A. Wood trim – Interior
- B. Millwork (counters, cabinets, shelving, etc.)
- C. Installation of:
  - 1. Doors
  - 2. Hardware
  - 3. Weatherstripping and seals
  - 4. Millwork
- D. Nails, screws, bolts, fasteners, glue, etc.

**1.2 RELATED SECTIONS**

- A. Section 09900 – Painting – for finishing of wood work.

**1.3 SUBCONTRACTORS QUALIFICATIONS**

- A. Millwork must be fabricated and assembled by a millwork subcontractor equipped and experienced to do work equal to the "Quality Standards" of the Architectural Woodwork Institute for fabricating quality millwork.

**1.4 MILLWORK DESIGN AND FABRICATION**

- A. Details shown on drawings are outline requirements and are not intended to interfere with fabricator's standard shop procedures and practices. Where important differences occur between details and fabricator's standards, flag such differences on shop drawings. The standards of AWI shall apply and by reference are part of this specification.

**1.5 REFERENCE STANDARDS**

- A. Federal Specifications (FS)
- B. Western Wood Products Association (WWPA)
- C. American Woodwork Institute (AWI)

**1.6 SUBMITTALS**

- A. Submit Shop Drawings per SUBMITTALS Section to Architect for acceptance prior to fabrication. Include material lists and drawings showing fabrication of typical units, unit assemblies, locations and installation setting details. List cabinet hardware proposed; suited to use or function of item. Identify materials required to complete work; ready for installation.
  - 1. Samples: Submit two samples of each of the following items:
    - i. 12" X 12" samples of each type of plywood.
    - ii. 12 inch long sample of each type of wood trim.
    - iii. Laminated plastic sample chips showing texture, finish and color indicated on the drawings.

**PART 2 – PRODUCTS**

**2.1 MANUFACTURER**

- A. The drawings were prepared and portions of this specification written on the basis of using the products of specific manufacturers. It is not the intent to limit competitive bidding. Products with equal characteristics by other manufacturers are acceptable under the conditions of these specifications.

**2.2 MATERIALS**

- A. General: Work solid stock to patterns shown. Standard shape materials shall conform to patterns indicated in current grading rules for the species.
- B. STANDARD – All Work - AWI STANDARD – **PREMIUM**
- C. WOOD - EXPOSED
  - 1. General - Millwork at theater is to match existing adjacent work (profiles, wood species, wood finish, etc). Existing work consists of both stained wood and painted wood elements.
  - 2. Interior - Stained finish – Trim, Window Trim, Wall Panels, Wall Base, Chair Rail, etc – Match existing wood type and cut.
  - 3. Interior Trim – Painted Finish Poplar
  - 4. Plywood - MDO
  - 5. Fixed Shelving: 3/4 inch AB Grade Fir plywood with exposed edges edge banded.
  - 6. Slate wall – high quality with metal tracks and trims, and wood finish.
- D. FASTNERS
  - 1. All work is to be securely and strongly fastened, installed and joined.
  - 2. Nails: FS FF-N-103c and FF-N- 105a. Concealed at stain finished wood.
  - 3. Screws: Concealed - FS FF-S-11 lb.
  - 4. Screws and bolts - **Exposed** - #12-11 Stainless steel, 300 series. round head, 3/8" diameter minimum. At windows fastners are to be removable to allow for future window retrofit.
  - 5. Lag Screws and Bolts: FS FF-B-561, type and grade best suited for purpose used.
  - 6. Toggle Bolts: FS FF-B-588b.
  - 7. Other as required.
- E. CABINETS AND COUNTERS – **BASE LEVEL** - GENERAL:
  - 1. Doors, Panels, Ends, Etc.: Laminated plastic assemblies.
  - 2. Stiles, Rails, Etc.: 3/4 inch paint grade solid birch.
  - 3. Shelving and Dividers: 3/4 inch AB Grade Fir plywood; exposed edges banded.
  - 4. Backs: 1/4 inch AB Grade fir plywood.
  - 5. Framing, Blocking, Nailers, Etc.: SPF No. 2 or better.
  - 6. Hinges: Standard European – Blum 110 deg. Top soft close, nickel, Min 2 per door.
  - 7. Drawer Slides – KV 8450FM Soft close, full extension 100 lb. drawer slide.
  - 8. Filler Strips Match face materials.
  - 9. Misc. Hardware: Hager, Knappe and Vogt, Stanley; to suit functions.
  - 10. Pulls: Delwith P3040-SN 192 mm Satin Nickel
  - 11. Shelf Standards and Brackets
- F. LAMINATED PLASTIC ASSEMBLIES (PLASTIC LAMINATE) :
  - 1. NEMA standard LD-1; Class 1, high-pressure decorative laminates:
  - 2. Surface Sheet: .05 inch thick
  - 3. backing Sheet: .02 inch thick phenolic backing sheet.
  - 4. Edging: .028 inch thick.
  - 5. Adhesive: Fire resistant; Acceptable to laminate manufacturer.
  - 6. Backing: 3/4 inch AB Group 1, exterior grade, APA fir plywood.
  - 7. Colors: Shall be as selected by the owner/architect. One color will be selected for countertops and backsplashes, one color we be selected for cabinet faces.
- G. SOLID SURFACE ASSEMBLIES (COUNTER TOPS AND BACKSPLASHES, WINDOW SILLS) :
  - 1. Meganite Acrylic Solid Surface, or approved equal.
  - 2. 1/2" Thick.
  - 3. Counter Edge – Top round over
  - 4. Adhesive: Fire resistant; Acceptable to laminate manufacturer.
  - 5. Backing: 3/4 inch AB Group 1, exterior grade, APA fir plywood.
  - 6. Colors: Shall be as selected by the owner/architect. One color will be utilized throughout.
  - 7. Warranty – Commercial warranty against manufacturing defects for 10 years.

## H. MISCELLANEOUS

1. Closets A & M AM 08508.
2. Cabinet - recessed with brackets – KV 0080 ANO
3. Coat Hooks: Amerock H55457 2-3/4" satin Nickel
4. Locks Compx Nation 7/8" Cylinder deadbolt lock or similar type suitable for the application.

## I. NEW LOBBY MILLWORK

1. For casework at theater lobby, see notes on drawings for hardware.

### 2.3 MOISTURE CONTENT

- A. Trim lumber; 12% maximum at time of delivery.

### 2.4 GRADING AND MARKING

- A. Softwood Lumber: FS MM-L-00751f.
- B. Hardwood Lumber: FS MM-L-00736a.

### 2.5 FABRICATION

- A. Fabricate in shop of millwork subcontractor and assemble in single and complete units to the greatest extent that requirements of delivery and installation in building will permit.

## PART 3 – EXECUTION

### 3.1. TRIM CARPENTRY

- A. Install true and square. Blind nail finish surfaces wherever possible; set surface nails. Use commercially long lengths; jointed at solid fastenings. Butt joint square members, cope internal corners, and miter external corners.

### 3.2. MILLWORK, SOLID SURFACE AND LAMINATED PLASTIC ASSEMBLIES

- A. Delivery, Storage and Conditions: Deliver when weather is favorable and store in building at time temperature of 65° F to 75° F can be maintained.
- B. Workmanship: Fabricate in shops having record of production of quality work; wood with fine, smooth surfaces and joints tight. Shop joints made with water resistant glue or hot-glued under pressure.
- C. Installation: Fit in proper location and securely anchor to walls and floor; plumb, true and square. Drill holes in wood when required. Provide blocking, nailers, fillers, trim, etc.

### 3.3. DOORS, HARDWARE AND WEATHERSTRIPPING SEALS

- A. General: Install doors, frames and trim, including hardware and weatherstripping; fit, adjust and place in operating condition. Remove doors and hardware for finishing doors and frames and re-install after finishing; re-adjust and place in operating condition.
  1. Installation of Doors and Hardware: Accurately fit hardware in accord with manufacturer's instructions and adjust to smooth quiet operation. Fit and hand doors plumb and true; uniform 1/8 inch space around edges and 1/2 inch clearance at floor unless otherwise shown on the drawings. Active edge of door shall be in contact with stop from top to bottom. Match door hardware to frame hardware. Hardware locations unless shown otherwise on drawings.
  2. Top Butts: 5 inches down to top of butt from head of frame section.
  3. Bottom Butts: 10 inches up from floor to bottom of butt.
  4. Middle Butts: 3'-2" to centerline from floor.
  5. Knobs: 3'-2" to centerline from floor.
  6. Pulls: 3'-6" to centerline from floor.
  7. Pushes: 4'-2" to centerline from floor.
  8. Locks: 3'-2" to centerline from floor.

9. Installation of Weatherstripping and Seals: Accurately fit per manufacturer's instructions.

3.4. FASTENERS – Certain elements may require exposed fasteners. These fasteners shall match the adjacent metal. Exposed fasteners shall be uniform in size and shall be installed in uniform and consistent patterns. They are to be straight and square and shall not dimple, mar or otherwise damage the material being finished

3.5. SANDING

- A. After installation, hand-sand and steel-wool millwork, trim, and finished woodwork to produce fine, smooth, uniform clean surfaces; free of defects. Ease square edges with sandpaper.

3.6. CLEAN-UP

- A. Upon completion of work of this section, remove related debris from premises.

**END OF SECTON 06200**



**SECTION 06300**  
**COMPOSITE TRIM – EXTERIOR and INTERIOR**

**PART 1 - GENERAL**

**1.1 SECTION INCLUDES**

- A. Exterior-grade, treated wood composite trim for non-structural applications.

**1.2 RELATED SECTIONS**

- A. Section 06200 –Finish Carpentry.
- B. Section 07460 - Siding
- C. Section 09900 - Painting

**1.3 REFERENCES**

- A. ASTM D 1037 -Standard Test Methods for Evaluating Properties of Wood-Base Fiber and Particle Panel Materials.

**1.4 SUBMITTALS**

- A. Comply with Section 01330 -Submittal Procedures.
- B. Product Data: Submit manufacturer's product data.
- C. Certificate of Compliance: Submit manufacturer's certificate of compliance indicating composite panels comply with specified requirements.
- D. Application: Submit manufacturer's application instructions
- E. Warranty: Submit manufacturer's standard warranty.

**1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- B. Storage:
  - 1. Store materials in accordance with manufacturer's instructions.
  - 2. Indoor Storage: Store composite materials flat.
  - 3. Outdoor Storage: Store composite materials under cover, protected from weather, off ground, and on flat base.
  - 4. Keep composite materials dry.
- C. Handling: Protect materials during handling and installation to prevent damage.

**1.6 WARRANTY**

- A. Warranty: Provide 30-year material warranty.

**PART 2 - PRODUCTS**

**2.1 MANUFACTURER**

- A. CMI, 500 West Monroe Street, Suite 2010, Chicago, Illinois 60661. Toll Free (866) 382-8701. Fax (312) 382-8703. Website [www.miratectrim.com](http://www.miratectrim.com). E-mail [info@miratectrim.com](mailto:info@miratectrim.com). Or approved equal.

**2.2 TREATED WOOD COMPOSITE**

- A. Composite Trim: "MiraTEC" treated exterior composite trim.
  - 1. Description: Exterior-grade, treated wood composite trim for non-structural applications.
- B. Boards: Refer to drawings and details for specified width & thickness
  - 1. Material: Wood fibers combined with phenolic resins, zinc borate, and water repellent. No added formaldehyde.
  - 2. Surface: Clear cedar texture one side, smooth the other. Primed 4 sides

3. Substrate: 1-piece solid substrate, uniform density, not laminated. No knots or voids.
4. Thickness: 4/4 & 5/4 Nominal

## 2.3 ADHESIVES

- A. Adhesives: Designed for use on wood composite materials.

## 2.4 FINISH

- A. Paint Application:
  1. Prime and paint all exposed field-cut edges of exterior trim using a high quality exterior oil/alkyd solvent based or acrylic latex primer recommended by the manufacturer for application over composite wood substrates.
  2. Coat all exposed surfaces including the bottom edge.
  3. Finish MiraTEC Trim with two coats of paint within 90 days after installation. If the material is not painted within 90 days, reprime the trim using an exterior primer that is recommended for use on composite wood products and is compatible with the topcoat to be used. Use the same primer for repair of any damage to the original factory applied primer.
  4. A total field-applied dry film paint thickness of a minimum of 2-1/2 mils is required on MiraTEC Trim.

# PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Examine areas and surfaces to receive composite materials. Notify Architect if areas or surfaces are not acceptable. Do not begin installation until unacceptable conditions have been corrected.

## 3.2 INSTALLATION

- A. Cutting
  - a. Use a fine toothed hand saw or power saw with a combination blade.
  - b. Cut into exposed face of the material
- B. Fastening
  - a. Double nail a maximum of 16" O.C. for all trim applications.
  - b. Double nail a maximum of 24" O.C. for fascia.
  - c. Do not nail into cut edge of material.
  - d. Nails must penetrate a minimum of 1 1/4" into framing member.
  - e. Fasten MiraTEC from one end to the other, do not nail towards the ends from center.
- C. Butt Joints
  - a. All joints must fall over a framing member.
  - b. Space all butt and scarf joints 1/8" and apply sealant into the full depth of the 1/8" joint.
  - c. Double nail on both sides of joint, at least 1/2" from the edge.
- D. Fasteners
  - a. Use nails with a 3/16" head diameter, long enough to penetrate 1 1/4" into structural framing member.
  - b. Use nails with performance equivalent to hot dipped galvanized or better (such as 304 SS).
  - c. Screws, ring shank nails, etc. can be used as long as they meet the same minimum performance criteria as above.
  - d. Tapered or bugle head fasteners are permitted when heads are properly seal from moisture.
  - e. Do not countersink fasteners more than 1/8". All slightly counter sunk fasteners less than 1/8" should be filled with exterior putty and painted.

- E. Flashing and Moisture Control
  - a. Do not apply trim to wet sheathing.
  - b. Do not apply trim closer than 6" to finished grade or landscaping.
  - c. Do not allow the trim to stand in water.
  - d. Do not allow direct contact with masonry or concrete. Properly flash and space a minimum of 1/2" from any concrete flatwork or horizontal brick ledge.
  - e. At foundations or brick veneer, the product should be separated from the masonry by metal flashing, polyethylene film, 30 lb. felt or a 1/4" to 1/2" air space using masonry standoffs.
- F. Sealant
  - a. Do not allow water to stand on or leak behind any trim.
  - b. Sealant is required at butt joints and where trim abuts siding, windows, doors, or other materials.
  - c. Do not use hard-setting caulk. Rather, use exterior quality sealants that remain flexible over time.
  - d. Caulks and sealants that at a minimum meet ASTM C920 are recommended.
- G. Machining
  - a. Maintain a minimum angle of 100 degrees from the vertical to provide positive drainage.
  - b. Reprime all machined areas.

**END OF SECTION 06300**

## SECTION 06 60 00

### PVC PANELING

#### PART 1 GENERAL

##### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

##### 1.2 SECTION INCLUDES:

- A. Plastic wall liner panels.  
Plastic ceiling panels.

##### 1.3 RELATED SECTIONS:

- A. Division 06: Rough and Finish Carpentry.
- B. Division 05: Light Gauge Steel Framing  
Division 07: Sealants

##### 1.4 REFERENCES

- A. ASTM E84 – Standard Test Method for Surface Burning Characteristics of Building Materials.
- B. S102.2-18 Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Covering, and Miscellaneous Materials and Assemblies
- C. ASTM D4226 -Standard Test Method for Impact Resistance  
ASTM G21-Standard Test Method Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi

##### 1.5 SUBMITTALS

- A. Submit under provisions of Section 01300 "Submittals".
- B. Product Data: Manufacturer's product information and data sheets for each product specified in this section, including:
  - 1. Preparation instructions and recommendations.
  - 2. Installation means and methods.
  - 3. Recommendations and requirements for proper storage and handling.
- C. Shop Drawings: Include layout dimensions, profiles, product components, anchorage details, track mounting and support, and interface with adjoining construction.
  - 1. Submit Manufacturer's approved shop drawings detailing the section and elevation views of each product to be installed.
  - 2. Coordinate with locations listed on Contract Drawings.
- D. Verification Samples: Provide two samples of specified product, representing actual color, finish, and patterns.
- E. Informational Submittals:
  - 1. Installer qualifications.
  - 2. Product test reports.
  - 3. Sample warranties.
- F. Closeout Submittals:
  - 1. Maintenance data for installed system.

##### 1.6 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Primary products shall be manufactured and supplied by a single manufacturer.
- B. Installer Qualifications: Products shall be installed by a single installer with demonstrated experience in installing products of the same type and scope as specified.
- C. Mock-Up: Arrange for the construction of a mock-up of the products specified in this section for evaluation of surface preparation techniques and application workmanship.
  - 1. **Finish areas designated by Architect.**
  - 2. **Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.**
  - 3. **Refinish mock-up area as required to produce acceptable work**

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store and handle materials and products in accordance with the manufacturer's instructions and recommendations and industry standards.
- B. Store all materials in the manufacturer's original packaging until 24 hours prior to installation.
- C. Store materials flat, and in a clean, dry area indoors in accordance with manufacturer's instructions.
- D. Store materials in the location where they will be installed for no less than 24 hours prior to installation to minimize post-installation expansion or contraction and ensure the best possible installation. Loosen or remove any packaging material that may restrain the product while acclimatizing.

#### 1.8 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits. Panels should be installed in an environment where panels have been acclimatized to a temperature between 50 degrees F and 68 degrees F (10 degrees C and 20 degrees C) for at least 24 hours before installation.
- B. Prior to fabrication, verify that dimensions are consistent with those found in the construction drawings. Where discrepancies exist, confirm the proper dimensions with the Architect before proceeding with work.
- C. Cold Temperatures – Do NOT install panels at temperature at or below 32 degrees F (0 degrees C).

#### 1.9 WARRANTY

- A. Warranty: Manufacturer agrees to replace or refund the purchase price of nonconforming PVC panels and trim defective in material or workmanship within the specified warranty period of twenty (20) years or lifetime upon registration.

### PART 2 PRODUCTS

#### 2.1 MANUFACTURERS

- A. Basis of Design Manufacturer: Trusscore Inc.
  - 1. **Address: 140 Minto Road Palmerston, ON N0G2P0**
  - 2. **Phone: +1 (888) 418-4679**
  - 3. **Fax: (866) 457-9859**
  - 4. **Website: <https://trusscore.com>**
  - 5. **Email: [hello@trusscore.com](mailto:hello@trusscore.com)**
- B. Or Approved Equal

#### 2.2 PERFORMANCE REQUIREMENTS

- A. Physical Performance:

1. Impact Resistance: Minimum 2.08 In-l/mil in according to ASTM D4226.
  2. Coefficient of Thermal Expansion: Maximum  $5.7 \times 10^{-5}$  in/in/°F; according to ASTM D696.
  3. Material Density: Density rating of 1.46 according to ASTM D792.
  4. Tensile Strength: Minimum of 6575 psi rating according to ASTM D638.
- B. Surface-Burning Characteristics: Meet the following values according to ASTM E84 and CAN/ULC-S102:
1. ASTM E84 Class A Flame-Spread Index: 15.
  2. CAN/ULC-S102 Class A Flame-Spread Index: 10.
  3. ASTM E84 Smoke Developed Index: 450.
  4. CAN/ULC-S102 Smoke Developed Index: 380.
- C. Environmental Performance:
1. Food Processing Facilities: CFIA approved and compliant with FDA and USDA guidelines.
  2. Fungus Resistance: Pass; Growth rating of 0 according to ASTM G21 and ISO 846:2019.  
Boards do not contain cellulosic material.
- D. Waterproof; nonporous.
- E. Corrosion Proof:
- F. Sustainability Performance:

## 2.3 PVC WALL PANELS

- A. Basis-of-Design Product: Trusscore Wall & Ceiling Board, by Trusscore Inc.
1. General: Provide Tongue-and-groove, Rib-reinforced PVC liner panel with nailing fins.
  2. Description:
    - a. Material: PVC;
    - b. Outside Surface: Flat.
    - c. Width: 16-Inches (406-mm).
    - d. Length: One Piece for all
    - e. Thickness: 1/2-Inch (13-mm).
    - f. Weight: 0.8 Pounds per square foot.
    - g. Color: White

## 2.4 ACCESSORIES

- A. Basis-of-Design Product: Trusscore PVC Trim, by Trusscore Inc. All PVC
1. Base Trim.
  2. F Trim.
  3. H Channel Snap-In Kit.
  4. Inside Cove Corner.
  5. J Trim 1/2 inch.
  6. Outside Corner.
  7. 45 Degree H Channel.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

### 3.2 INSTALLATION

- A. Wall Panels: Install PVC panels in accordance with manufacturer's instructions at locations indicated on the Drawings.
  1. Ensure panels are plumb, level, square, and in proper alignment.

2. Anchor wall panels with construction adhesive and fasteners in accordance with manufacturer's instructions.
- B. **High Moisture Environment Installation (BREWERY):**
  1. Apply silicone sealant inside the grooved end of the panel prior to inserting the next panel.
  2. Ensure that drainage pathways are created in trim pieces, in accordance with manufacturers written instructions.
- C. Fasteners: Corrosion resistant No. 8 or No. 10 gauge screws with a flat-bottomed, low-profile head and a minimum head diameter of 3/8 Inch.
  1. Fastening into Wood: Stainless Steel or Zinc coated, 1-1/4 Inch, No. 10 or No. 8 round washer or truss screws.
  2. Fastening into Metal Studs: Self-tapping, stainless steel or zinc coated, 1-1/4 Inch, No. 10 or No. 8 round washer or truss screws.
    - a. AT BREWERY WALL AREAS UTILIZE STAINLESS STEEL SCREWS
  3. Fastening into Masonry: Stainless steel, corrosion resistant, 3/16-inch x 1-1/4 Inch flathead concrete screws.
  4. Install fasteners in pre-punched holes 16 inches to 24 inches (406mm - 610mm) on center into screw flange.
  5. Ensure screw flange lays flat against surface, between screw head and substrate, not deformed around screw heads.
  6. Do not recess screw heads into nailing fins.
  7. Ensure fasteners are not exposed.
  8. When applying over drywall, screws should be 1-3/4 Inch to 2 Inches long. If furring strips or strapping are part of your installation, screws should be 2-1/2 Inches.
  9. For highly corrosive or moist environments, use stainless-steel screws.
- D. Cutting Panels:
  1. Field-cut panels as necessary in accordance with manufacturer's instructions.
  2. Ensure cuts are straight, square, and do not damage panels.

### 3.3 CLEANING AND PROTECTION

- A. Clean surfaces with a mild detergent or soap scum remover.
- B. In cases when hand cleaning is not satisfactory, pressure washers may be used with mild soap and a sponge or soft cloth, provided the guidelines below are followed:
  1. Power washing nozzle should be at least 4-6 ft away from the wall.
  2. Use a small-to mid-size power washer with less than 3,000 psi.
  3. Use a wide spray nozzle angle (40° or greater is preferred) to distribute the water pressure across the wall.
- C. Multi-purpose cleaners may be used, provided they are PVC compatible. Spot test material in an inconspicuous location prior to cleaning.
- D. Provide final protection and maintain conditions that ensure that products are without damage or deterioration at time of Substantial Completion.

END OF SECTION

**SECTION 07160**  
**UNDERSLAB VAPOR RETARDER**

**PART 1 GENERAL**

1.01 SECTION INCLUDES

- A. Surface preparation.
- B. Application of an underslab vapor retarder.

1.02 RELATED SECTIONS

- A. Section 03300 - Concrete.
- B. DIVISION 9 – RESINOUS FLOORING. Proper installation of the retarder system is essential for the proper performance of the resinous floor system.

1.03 REFERENCES

- A. American Society for Testing and Materials (ASTM)
  - 1. ASTM E1745 Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil Or Granular Fill Under Concrete Slabs.
  - 2. ASTM E154 Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs.
  - 3. ASTM E96 Standard Test Methods for Water Vapor Transmission of Materials.
  - 4. ASTM E1643 Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.
  - 5. ASTM F1249-01 Standard Test Method for Water Vapor Transmission Rate Through Plastic Film and Sheeting Using a Modulated Infrared Sensor.
- B. American Concrete Institute (ACI)
  - 1. ACI 302.1R-96 Vapor Barrier Component (plastic membrane) is not less than 10 mils thick.

1.04 SUBMITTALS

- A. Comply with Section 01330 - Submittal Procedures.
- B. Submit manufacturer's product data and application instructions.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- B. Store materials in a clean dry area in accordance with manufacturer's instructions.
- C. Stack membrane on smooth ground or wood platform to eliminate warping.
- D. Protect materials during handling and application to prevent damage or contamination.
- E. Ensure membrane is stamped with manufacturer's name, product name and membrane thickness at intervals of no more than 85" (220 cm).

1.06 ENVIRONMENTAL REQUIREMENTS

- A. Product not intended for uses subject to abuse or permanent exposure to the elements.
- B. Do not apply on frozen ground.

1.07 – FIELD QUALITY CONTROL

- A. Prior each concrete slab pour, the GC shall inspect the Vapor Barrier/Retarder to verify that all the joints and penetrations have properly lapped and taped. The GC shall provide a written memorandum after each pour to record the results of their verification.

**PART 2 PRODUCTS**

2.01 MANUFACTURER



- A. W.R. Meadows, Inc., PO Box 338, Hampshire, Illinois 60140-0338. (800) 342-5976. (847) 683-4500. Fax (847) 683-4544. Web Site [www.wrmeadows.com](http://www.wrmeadows.com).

## 2.02 MATERIALS

- A. Plastic Vapor Retarder
  - 1. Performance Based Specification: Vapor Retarder membrane must meet or exceed all requirements of ASTM E1745 Classes A, B, & C.
    - a. Maximum Permeance ASTM E96: 0.018 Perms
    - b. Water Vapor Transmission Rate ASTM F1249 calibrated to ASTM E96 (water method): 0.007 grains/ft<sup>2</sup>/hr
    - c. Resistance to Organisms and Substrates in Contact with Soil
      - a. ASTM E154, Section 13: 0.027 Perms
    - d. Tensile Strength ASTM E154, Section 9: 84 LBS. Force/Inch
      - i. Puncture Resistance ASTM D1709, Method B: 4,335 Grams
    - e. Water Vapor Retarder ASTM E1745: Meets or exceeds Class A, B & C
    - f. Thickness of Retarder (plastic) ACI 302.1R-96: Not less than 10 mils
- B. Proprietary Based Specification
  - a. Perminator™ 15 mil by W.R. Meadows.
  - b. Stego-Wrap 15 mil by Stego Industries.
  - c. Make substitution requests in accordance with Section 01600.

## 2.03 ACCESSORIES

- A. Seam Tape
  - 1. High Density Polyethylene Tape with pressure sensitive adhesive. Minimum width of 4 inches.
- B. Pipe Boots
  - 1. Construct pipe boots from vapor barrier material and pressure sensitive tape per manufacturer's instructions.

# PART 3 EXECUTION

## 3.01 EXAMINATION

- A. Examine surfaces to receive membrane. Notify Architect if surfaces are not acceptable. Do not begin surface preparation or application until unacceptable conditions have been corrected.

## 3.02 SURFACE PREPARATION

- A. Prepare surfaces in accordance with manufacturer's instructions.

## 3.03 APPLICATION

- A. Installation shall be in accordance with manufacturer's instructions and ASTM E 1643-98.
- B. Unroll vapor barrier with the longest dimension parallel with the direction of the pour.
- C. Lap vapor barrier over footings and seal to foundation walls.
- D. Overlap joints 6 inches and seal with manufacturer's tape.
- E. Seal all penetrations (including pipes) with manufacturer's pipe boot.
- F. No penetration of the vapor barrier is allowed except for reinforcing steel and permanent utilities.
- G. Repair damaged areas by cutting patches of vapor barrier, overlapping damaged area 6 inches and taping all four sides with tape.

END OF SECTION

## **SECTION 07210 BUILDING INSULATION**

### **PART 1 - GENERAL**

#### **1.01 GENERAL REQUIREMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 01 Specification sections, apply to work of this section.
- B. General
  - a. Completeness – provide a complete, code compliant, air tight insulation envelope for the new work areas integrated with the existing building elements.
    - i. Vinyl Faced Batt Insulation may be installed in un exposed to finished area Attics at the roof to wall condition.

#### **1.02 SECTION INCLUDES**

- A. Provide insulation work for the following applications:
  - 1. All sound batt insulation indicated on Drawings
  - 2. Safing insulation not specified in other sections.
  - 3. Blanket-type glass fiber building insulation not specified in other sections.
  - 4. Foundation Insulation
  - 5. Cavity Insulation
  - 6. Other
- B. Related Sections
  - 1. Section 07211 Foam in Place Insulation
  - 2. Section 07220 Roof - Insulation for roof insulation to be provided at the Membrane Roof systems
  - 3. Section 07255 – Weather Resistive Barrier Self adhering
  - 4. Section 07600 – Flashing and Sheet Metal
  - 5. Section 07920 – Joint Sealers

#### **1.03 SUBMITTALS**

- A. Product Data: Submit manufacturer's product literature and installation instructions for each type of insulation material.
- B. Compliance: If requested, for products other than those named in this section, submit copies of certified test reports showing compliance with specified performance values and fire performance characteristics.

#### **1.04 QUALITY ASSURANCE**

- A. Fire Performance Characteristics: Provide materials identical to those whose fire performance characteristics, for each assembly of which insulation is a part, have been determined by testing, by UL or other agency acceptable to authorities having jurisdiction, using following methods:
  - 1. Surface Burning Characteristics: ASTM E84.
  - 2. Fire Resistance Ratings: ASTM E119.
  - 3. Combustion Characteristics: ASTM E136.

#### **1.05 REFERENCED STANDARDS**

- A. Comply with the applicable provisions of all codes, standards and specifications referenced in this section, including but not limited to the following:
  - 1. ASTM Standard Specifications and Test Procedures referenced in Part 2 Products, and in Article 1.04 Quality Assurance.

#### **1.06 PRODUCT HANDLING**

- A. Protect all insulation from physical damage and moisture. Comply with manufacturer's recommendations for handling, storage and protection.
- B. Plastic Insulation: Protect against ignition at all times. Deliver to project site immediately before installation. Do not expose to sunlight, except as necessary for installation. Conceal promptly after installing.

## **PART 2 - PRODUCTS**

### **2.01 ACCEPTABLE MANUFACTURERS**

- A. Subject to compliance with requirements, provide products of one of the following for each product type:
  - 1. Glass Fiber Insulation:
    - a. CertainTeed Corp.
    - b. Manville Corp.
    - c. Owens-Corning Fiberglas Corp.
  - 2. Semi-refractory Fiber Insulation:
    - a. Fibrex Inc.
    - b. USG Corp.
    - c. Cofco Industries, Inc.
  - 3. Extruded Polystyrene Board Insulation:
    - a. Amoco Foam Products Co.
    - b. Dow Chemical U.S.A.
    - c. Minnesota Diversified Products, Inc.
    - d. UC Industries
  - 4. Vinyl Laminates for Fiberglass Insulation
    - a. Lamtec
    - b. Approved equal
  - 5. Stone Wool Insulation Board
    - a. Rockwool Cavityrock semi rigid stone wool insulation board

### **2.02 INSULATING MATERIALS AND SCHEDULE**

- A. General:
  - 1. The exterior of the building is to have a complete, code compliant thermal insulation barrier. Roof Insulation is specified elsewhere in this specification. Provide tie and interfaces between the various insulations and systems to provide a complete barrier.
  - 2. All work must comply with the NJ Energy Code at a minimum.
  - 3. Schedule – See schedule on Drawings and Published Codes for Minimum R Values
    - a. Exterior Walls – Existing Masonry Spandrels, Theater lobby exterior walls behind new case work
      - i. Existing exterior masonry with new furring 2" Rockwool Cavity Wall
    - b. Exterior Walls – Existing Masonry exposed by new work and requiring repair
      - i. Fiberglass with FSK facing. Provide supports to retain and properly joint to remaining wall, roof and other insulation to maintain building envelope.
    - c. Under Slab – Below floor of Cooler (where Indicated) R7.5
      - i. Dow Styrofoam Highload 60
    - d. Exterior foundation Walls as indicated and as required. 2" minimum thickness.
      - 1. Foamular by V.C. Industries, Inc.

2. Amocofoam SB by Amoco Foam Product Company
3. Styrofoam by Dow.

B. Standards:

1. Thermal Resistivity:
  - a. R-values: Rate of heat flow through a homogenous material exactly 1" thick, measured by specified test method; temperature difference in degrees F. between the two exposed faces required to cause one BTU to flow through one square foot per hour at mean temperatures specified.
  - b. R-values: Rate of heat flow through total thickness of material, measured and expressed as above.
2. Preformed Units: Provide in manufacturer's standard thicknesses, and in standard widths and lengths, except as otherwise required by spacing or location of other components.

C. Flexible Glass Fiber Board Insulation: Thermal insulation produced by combining glass fibers with thermosetting resin binders, ASTM C553, Class B-4; nominal density 1.5 lbs. per cu. ft.; r-value 4.13 at 75 degrees F. (23.9° C.); passing ASTM E136 for combustion characteristics of unfaced board; maximum flame spread and smoke developed values of 25 and 50m respectively. Provide following types:

1. Faced one side with foil-scrim-draft vapor-retarder.

D. Mineral Fiber Blanket-Batt Insulation: Thermal insulation produced by combining fibers manufactured from glass or slag with thermosetting resins to comply with ASTM C665 for each type required; unfaced blanket/batt passing ASTM E136 for combustion characteristics; maximum flame spread and smoke developed values of 25 and 50, respectively, and as follows: Provide following types

1. Unfaced: ASTM C665. Type I.
2. Faced: ASTM C665 Type III, Class A (blankets with reflective vapor-retarder membrane facing with flame spread of 25 or less on one face.)

E. Semi-Refractory Fiber Board Safing Insulation: Semi-rigid Boards designed for use as a fire stop at openings between edge of slab and exterior wall panels, produced by combining semi-refractory material fiber manufactured from slag with thermosetting resin binders to comply with ASTM C 612, Class 1 and 2; nominal density 4.0 lbs. per cu. ft.; passing ASTM E136 for combustion characteristics; r-value 4.0 at 75 degrees F. (23.9°C.).

F. Exterior Masonry Wall Insulation Product: ROCKWOOL Cavityrock

1. R-value: 4.2 /inch at 75°F.
2. Thickness 2"
3. Facing (Cavityrock): Unfaced
4. Facing (Cavityrock Black): Black Mat
5. Melting Point – Minimum melting point temperature of 1177°C (2150°F).
6. Surface Burning Characteristics: Tested in accordance with ASTM E84
  - a. Unfaced: Flame Spread 0 and Smoke Developed 0
  - b. Faced: Flame Spread 10 and Smoke Developed 25
7. Monolithic Density (Thickness: 1", 1.5", 2"): > 4.3 lbs/ft<sup>3</sup> (>69 kg/m<sup>3</sup>), nominal.
8. Dual Density (Thickness: ≥ 2.5"): 6.2 lbs/ft<sup>3</sup> (100 kg/m<sup>3</sup>) outer layer and 3.8 lbs/ft<sup>3</sup> (61 kg/m<sup>3</sup>) inner layer, nominal..
9. Dual Density: Must have dual densities for all thicknesses greater than or equal to 2.5".
10. Moisture Resistance: Absorption of less than 0.03 percent by volume, when tested in accordance with ASTM C1104.

11. Corrosion Resistance: Non-corrosive/Passed, when tested in accordance with ASTM C665 for Steel & ASTM C795 for Stress Corrosion Cracking Tendency of Austenitic Stainless Steel.
  12. Fungi resistance: Zero mold growth to ASTM C1338
  13. Linear Shrinkage at 1200°F (650°C): Average linear shrinkage in all dimensions not to exceed 0.7% when tested to ASTM C356 at 1200°F (650°C).
  14. Tumbling Friability: Material loss not to exceed 15% when tested to ASTM C421 – Standard Test Method for Tumbling Friability of Preformed Block-Type Thermal Insulation.
  15. Recyclability: Material to be capable of being fully recyclable at end of life with the intention of sending zero waste to landfill.
  16. Environmental Product Declaration (EPD): Material must be included on a UL Certified EPD in accordance with EN 15804 and ISO 14025.
  17. DECLARE Certified
- G. Extruded Polystyrene Board Insulation: Rigid, cellular thermal insulation with closed-cells and integral high density skin, formed by the expansion of polystyrene have resin in an extrusion process to comply with ASTM C 578 for Type IV, compressive strength of 15 psi; with 5-year aged r-values of 5.4 and 5 at 40 and 75 Degrees F. (4.4° C. and 23.9° C.), respectively; and as follows:
1. Surface Burning Characteristics: Maximum flame spread and smoke developed values of 5 and 165, respectively.
  2. FOUNDATION INSULATION - Reference Product and Manufacturer
    - a. Foamular by V.C. Industries, Inc.
    - b. Amocoam SB by Amoco Foam Product Company
    - c. Styrofoam by Dow.
  3. COOLER SLAB INSULATION – Reference Product and Manufacturer
    - a. Dow Styrofoam Highload 60
    - b. Make substitutions requests under the provisions of specification section 01300.
- H. Vinyl Faced Batt Insulation.
1. **Blanket Wall Insulation (if used)**
    - a. Faced Building Insulation: Metal type Building Insulation meeting the requirements of NAIMA 202-96, with a suitable vapor retarder facing complying with ASTM C1136 (non-perforated) having a composite flame spread index of 25 or less and a smoke developed index of 50 or less per ASTM E84 or UL 723. R-Value of the insulation to be specified in accordance with applicable energy codes or standards. Insulation to be supplied with an extended tab or tabs to maintain continuity of the facing throughout the roof and walls.
      1. 4” fiberglass Batt laminated to Lamtec WMP -10 Standard duty facing.

## 2.03 AUXILIARY MATERIALS

- A. Adhesive for Bonding Insulation: Type recommended by insulation manufacturer, and complying with requirements for fire performance characteristics.
- B. Mechanical Anchors: Type and size as recommended by insulation manufacturer for type of application and condition of substrate.

## PART 3 - EXECUTION

### 3.01 INSPECTION AND PREPARATION

- A. Examine substrates. A satisfactory substrate is one that complies with requirements of the section in which substrate is specified. Report in writing conditions detrimental to

- performance of work of this section. Do not proceed with installation of insulation until unsatisfactory conditions have been corrected.
- B. Clean substrates of substances harmful to insulations or facings; remove projections which might puncture facings.

### 3.02 INSTALLATION, GENERAL

- A. Comply with manufacturer's instructions for each condition. If printed instructions are not available or do not apply to project conditions, consult manufacturer's technical representative for specific recommendations before proceeding.
- B. Extend insulation full thickness as shown, or thickness to produce R-value shown, over entire area to be insulated. Cut and fit tightly around obstructions, and fill voids with insulation.
- C. Apply insulation in a single layer, unless multiple layers shown or required to make up total thickness.

### 3.03 INSTALLATION OF PERIMETER AND UNDER-SLAB INSULATION

- A. On vertical surfaces, set units in adhesive recommended by manufacturer of insulation.
- B. Horizontal perimeter insulation: Install on evenly-graded substrate immediately before installing vapor retarder. Minimize traffic on installed board to minimize damage to board.

### 3.04 INSTALLATION OF GENERAL BUILDING INSULATION

- A. Apply insulation units to substrate by method indicated, or, if no specific method is indicated, bond units of substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.
- B. Set vapor retarder faced units with vapor retarder to warm side of construction (interior of building unless specifically indicated otherwise). Do not obstruct ventilation spaces, except for firestopping. Tape joints and ruptures in vapor retarder, and seal each continuous area of insulation to surrounding construction to ensure vapor-tight installation.
- C. Stuff loose glass fiber insulation into miscellaneous voids and cavity spaces where insulation is shown and where board or blanket/batt type cannot be properly fitted. Compact to approximately 40 percent of normal maximum volume to produce a density of approximately 2.5 lbs. per cu. ft.

### 3.05 INSTALLATION OF BLANKET WALL INSULATION

- A. Blanket Wall Insulation: Install in accordance with the industry guidelines found in North American Insulation Manufacturers Association (NAIMA) MB-316.
- B. Standard method of rolling insulation down the walls. Faced building insulation should be cut to length plus an additional 12" (minimum) per sheet for overhang.
- C. Unroll the insulation and cut the dimension from base angle to eave strut or rake plus 12" extra.
- D. Install the facing toward the building interior. The width of the first run of insulation should be 12" wider than the width of the wall panel. Succeeding runs should be either the same width or twice the width of wall panels.
- E. Attach the insulation to the eave rake angle with clamps or double faced tape.
- F. Pull from the bottom end to stretch the insulation tightly outside the girts from the eave or rake to the base angle.
- G. Before insulation is attached to the base angle, the extra fiber glass should be carefully cut off (approximately 6") and then removed from the facing. Be careful not to cut the facing. After removal of the extra of insulation, fold the extra facing up over the insulation at the bottom and staple to the side tabs to hold in place. Attach to base angle

with double faced tape. Maintain the bottom of the insulation 1/2" above the base flashing.

- H. Attach the metal wall panel to the structure according to the manufacturer's instructions.
- I. Place the next roll of insulation in the same manner with edge butted snugly, and fasten tabs using one of the methods described in the Tab Fastening Instructions section.
- J. Provide a rubber or neoprene closure for rodent protection.
- K. Tab Seams
  - 1. The first roll of insulation (starter roll) be at least 12" wider than the width of the metal wall panel being installed. This ensures the insulation joints are not lined up with the metal panel joints and prevents working directly at the edge of a panel when folding and stapling the tabs.
  - 2. When working with a 6" tab, spray or brush a good quality moisture-proof adhesive on the back. Extend the tab over the facing of the adjacent roll of insulation and press firmly with a damp cloth along the seam to smooth it and remove excess adhesive. In cases where continuity of the vapor retarder properties of the facing is not critical, it is common practice to install as described, but without the use of adhesive.
- L. Cover any rips or tears with matching facing tape to ensure a tight seal. Do not use patching tape to seal tabs.
- M. Trim excessive insulation flush at eaves and rakes to keep water out of the insulation .

### 3.06 PROTECTION

- A. Protect installed insulation from weather and physical abuse. Provide temporary covering or enclosure where permanent concealing work is not immediately installed.
- B. Professional repair any torn or damaged Vinyl Faced Insulation.
- C. Continuous Insulation at Horizontal Siding
  - 1. Exterior wall insulation is not intended to be left exposed for extended periods of time in excess of 60 days without adequate protection. If extended exposure is anticipated all exposed foam surfaces including corners, window and door openings, should be taped with a compatible waterproof tape.
  - 2. Protect installed products until completion of project.
  - 3. Cover the top and edges of unfinished roof panel work to protect it from the weather and to prevent accumulation of water in the cores of the panels.
  - 4. Do not leave panels exposed to moisture. Wet panels shall be removed or allowed to completely dry prior to application of vapor barrier and/or roof covering.
  - 5. Repair or replace damaged products before Substantial Completion

END OF SECTION 07210

**SECTION 07211**  
**FOAMED-IN-PLACE INSULATION**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Section Includes:
  - 1. Closed-cell spray polyurethane foam for use in sealing various perimeter building wall, cooler, roof, floor, etc. gaps, joints, seams, etc.
- B. Related Requirements:
  - 1. Section 07210 Building Insulation
  - 2. Section 07600 Flashing and Sheet Metal
  - 3. Section 07920 Elastomeric Joint Sealants
  - 4. Section 13038 Insulated Panels – Walls, Ceilings, Rooms
  - 5. Other – uses to seal gaps in and around building.

**1.2 REFERENCES**

- A. Abbreviations and Acronyms:
  - 1. CPI: Center for the Polyurethane Industry.
  - 2. SPF: Spray-polyurethane foam.
  - 3. SPFA: Spray Polyurethane Foam Alliance.
  - 4. UES/IAMPO: Uniform Evaluation Service and International Association of Plumbing and Mechanical Officials.

**1.3 ACTION SUBMITTALS**

- A. Product Data: For each type of product.

**1.4 INFORMATIONAL SUBMITTALS**

- A. Qualification Data:
  - 1. Individual Applicator: Submit the following:
    - a. CPI - American Chemistry Council High-Pressure Safety Training: Submit current CPI ID numbers for each worker.
    - b. Current copy of SPFA Professional Certification Program (PCP) Master Installer Certification card, or certificate of completion of training for SPF.
  - 2. Contractor Company Accreditation: Submit copy of current Carlisle Spray Foam Insulation (CSFI) applicator information program certificate.
- B. Product Test Reports: For each product, for tests performed by a qualified testing agency.
- C. Evaluation Reports: For spray-applied polyurethane foam-plastic insulation, from UES/IAPMO.

**1.5 QUALITY ASSURANCE**

- A. Installer Qualifications:
  - 1. CPI - American Chemistry Council High-Pressure Safety Course: Each worker to have current CPI ID number.
  - 2. Contractor Company Accreditation: SPF insulation applied by Contractor company holding accreditation from SPF insulation manufacturer.

**PART 2 - PRODUCTS**

**2.1 CLOSED-CELL SPRAY POLYURETHANE FOAM, ABAA LISTED**

- A. Closed-Cell Spray Polyurethane Foam: ASTM C1029, Type II, minimum density of 2.0 lb/cu. ft. (32 kg/cu. m) and minimum aged R-value at 1-inch (25.4-mm) thickness of 6.9 deg F x h x sq. ft./Btu at 75 deg F (48 K x sq. m/W at 24 deg C).



1. Basis-of-Design Product: Subject to compliance with requirements, provide Carlisle Spray Foam Insulation; SealTite PRO **Closed Cell** or comparable product by one of the following:
  - a. BASF Corporation.
  - b. Gaco Western LLC.
  - c. Icynene Inc.
2. Surface-Burning Characteristics: Report surface-burning characteristics in accordance with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
  - a. Flame-Spread Index: 25 or less.
  - b. Smoke-Developed Index: 450 or less.
3. Fire Propagation Characteristics:
  - a. Passes NFPA 285 testing as part of an approved assembly.
  - b. Passes NFPA 286 testing when covered with intumescent coating approved by SPF insulation manufacturer or product as listed in UES/IAMPO report.
4. Compressive Strength: 47 psi (324 kPa).
5. Air Permeance per 1 Inch (25.4 mm): 0.004 cfm/sq. ft. at 1.57 lbf/sq. ft. (0.02 L/s x sq. m at 75 Pa) or less.
6. Water Vapor Permeance: In accordance with ASTM E96 water method.
  - a. 0.8 perms or less at 1 inch (46 ng/Pa x s. x sq. m or less at 25.4 mm).
  - b. 0.23 perms or less at 3.5 inches (13 ng/Pa x s. x sq. m or less at 88.9 mm).
7. Dimensional Stability: Less than 9 percent change in volume per ASTM D2126.

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. Verify that substrates are clean, dry, and free of dust, debris, oil, solvents, and other materials that may adversely affect SPF adhesion.

#### **3.2 PREPARATION**

- A. Do not begin installation until substrates have been properly prepared.
- B. Clean surfaces thoroughly prior to installation.
- C. Mask and protect adjacent surfaces from fugitive overspray.
- D. Establish measures to protect non-SPF trade workers and building occupants.
  1. Non-SPF trade workers are recommended to vacate building during SPF installation.
  2. For large structures, all non-SPF workers and occupants shall vacate building unless SPF Installer establishes enclosures to isolate Work area. For SPF enclosure assistance, see CPI Spray Foam Coalition's "Guidance of Ventilation during Installation of Interior Applications of High-Pressure Spray Polyurethane Foam."
  3. Properly ventilate SPF work areas.
  4. Continue ventilation for 24 hours after interior application of SPF insulation, with a minimum outdoor air exchange rate of one air change per hour.
  5. Recommended re-occupancy times after completion of SPF insulation installation are as follows:
    - a. Non-SPF Trade Workers: 12 hours.
    - b. All Others: One-hour reentry with minimum 20 ACH.
- E. Prepare surfaces using SPF manufacturer's written instructions for achieving best result for substrate under Project conditions. Surfaces shall be clean, dry, and firmly anchored.
  1. Wood Surfaces:

- a. Plywood or OSB shall contain no more than 18 percent water as measured in accordance with ASTM D4449 and ASTM D4444.
- 2. Steel Surfaces:
  - a. Primed: Clean primed metal surfaces free of loose scale, rust, weathering, or chalking paint. Remove grease, oil, or other contaminants with proper cleaning solutions.
  - b. Previously Painted: Clean painted metal surface using hand or power tools to remove loose scale and dirt. Remove grease, oil, and other contaminants using a power wash technique or proper cleaning solutions.
- 3. Concrete and Masonry Surfaces: Cured with loose dirt and other contaminants, including asphaltic materials, removed.
- 4. Sheathing Board: None.
- F. Priming: Prime substrates where recommended by insulation manufacturer. Apply primer to comply with insulation manufacturer's written instructions. Confine primers to areas to be insulated; do not allow spillage or migration onto adjoining surfaces.

### 3.3 INSTALLATION

- A. Comply with insulation manufacturer's written instructions applicable to products and applications, as found on drum labels, product data sheets, and application guidelines. Specific care is directed to the following:
  - 1. Schedule installation for times when substrate is dry, and dew point is more than 5 deg F (minus 15 deg C) cooler than ambient temperatures.
- B. Spray insulation to envelop entire area to be insulated and fill voids.
- C. Thickness – 2” minimum thickness over all uninsulated surfaces.
- D. Exothermic Caution:
  - 1. Spray closed-cell polyurethane in minimum single-pass lifts of 1/2 inch (13 mm) or up to a maximum of 5.5 inches (140 mm).
  - 2. System may be applied in a double pass of 3.5 and 3.75 inches (89 and 91 mm) without the need to allow for cooling. Allow surface to cool for 10 minutes or until surface temperature is below 100 deg F (37.8 deg C) between subsequent passes.
  - 3. When applying SPF on CPVC, the lift thickness must be limited to 1/2 inch (13 mm) on the first lift and 2 inches (51 mm) on additional lifts.
- E. Ignition Barrier – Provide Thermal barrier of ½ mold resistant gwb or Intumescent coating approved by manufacturer.

### 3.4 PROTECTION

- A. Protect installed insulation from damage due to harmful weather exposures, exposure to UV sunlight for more than 48 hours, physical abuse, and other causes, until Project completion.

END OF SECTION 07211

**SECTION 07215  
SHEET BARRIER**

**PART 1 - GENERAL**

**1.01 GENERAL REQUIREMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 01 Specification sections, apply to work of this section.

**1.02 SECTION INCLUDES**

- A. Provide sheet barrier work for the following applications:
  - 1. Interior sheet backer lining over existing masonry walls behind Metal Furring and Vinyl wall panels at Brewery Area.
- B. Related Sections
  - 1. SECTION 05400 – Light Gage Steel Framing

**1.03 SUBMITTALS**

- A. Product Data: Submit manufacturer's product literature and installation instructions for each type of insulation material.
- B. Compliance: If requested, for products other than those named in this section, submit copies of certified test reports showing compliance with specified performance values and fire performance characteristics.

**1.04 QUALITY ASSURANCE**

- A. Fire Performance Characteristics: Provide materials identical to those whose fire performance characteristics, for each assembly of which insulation is a part, have been determined by testing, by UL or other agency acceptable to authorities having jurisdiction, using following methods:
  - 1. Surface Burning Characteristics: ASTM E84.
  - 2. Fire Resistance Ratings: ASTM E119.
  - 3. Combustion Characteristics: ASTM E136.

**1.05 REFERENCED STANDARDS**

- A. Comply with the applicable provisions of all codes, standards and specifications referenced in this section, including but not limited to the following:
  - 1. ASTM Standard Specifications and Test Procedures referenced in Part 2 Products, and in Article 1.04 Quality Assurance.

**1.06 PRODUCT HANDLING**

- A. Protect all products from physical damage and moisture. Comply with manufacturer's recommendations for handling, storage and protection.

**PART 2 - PRODUCTS**

**2.01 ACCEPTABLE MANUFACTURERS**

- A. Subject to compliance with requirements, provide products of one of the following for each product type:
  - 1. Vinyl Laminates
    - a. Lamtec
    - b. Approved equal

**2.02 SHEET MATERIALS**

- A. General:
  - 1. Sheet membrane to be install to provide an intermediate level of interior wall protection.
    - a. **Sheet -**
      - 1. Lamtec WMP 50 Heavy Duty with Added Abuse Resistance
      - 2. Install Facing on masonry walls, under face of horizontal furring. Provide extra trim and accessories as required to provide fastening at areas without furring (wall base, wall top, corners. columns, doors, etc)

### **PART 3 - EXECUTION**

#### **3.01 INSPECTION AND PREPARATION**

- A. Examine substrates. A satisfactory substrate is one that complies with requirements of the section in which substrate is specified. Report in writing conditions detrimental to performance of work of this section. Do not proceed with installation of insulation until unsatisfactory conditions have been corrected.
- B. Clean substrates of substances harmful to facings; remove projections which might puncture facings.

#### **3.02 INSTALLATION OF SHEETS**

- A. Install materials to shed any moisture to drain downwards.
- B. Overlap all horizontal and vertical joints a minimum of 12 inches.
- C. Cover any rips or tears with matching facing tape to ensure a tight seal.
  - 1. Do not seal overlaps tabs.
- D. Trim excessive insulation flush at eaves and rakes to keep water out of the insulation

#### **3.03 PROTECTION**

- A. Protect installed sheet from weather and physical abuse. Provide temporary covering or enclosure where permanent concealing work is not immediately installed.
- B. Repair any torn or damaged facing.

END OF SECTION 07210

## SECTION 07530

### WORK WITH EXISTING ROOF

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. Existing Roof - The existing roof system is an Modified Bitumen Roof installed directly over an OSB Wood Deck over wood framing.
- B. New Roofing Work. The new roofing work consists of (refer all to drawings
  - 1. Removal of selected mechanical, electrical and plumbing items.
  - 2. Removal and replacement of rotted wood decking and associated roofing.
  - 3. Removal of selected metal copings, flashings, etc as required for new work.
  - 4. Proper
  - 5. Installation of a new replacement roof drains on the Mori Roof
  - 6. Installation of new selected new mechanical equipment including related framing work.
  - 7. Installation of new roof insulation at areas with rotted deck.
  - 8. Installation of new roofing system with flashings, copings, insulation, membrane, tie ins etc. as indicated and as required for a complete, warrantable roof system.
    - A. All new work and tie in work shall provide a complete, fully functional watertight system. Include all accessories, appurtances, etc as required. Coordinate with work as shown on the drawings and as required by all the trade contractors
    - B. New work System is to meet the wind load Requirements of the building code and/or the loads indicated on the Structural Drawings whichever is more stringent. Include additional fastening at roof edges, corners and other special areas.
    - C. All New Roof work shall be compatible with the installed roof systems and shall include all work and procedures necessary to maintain the owner's existing warranty.

##### 1.2 RELATED SECTIONS

- A. Section 06000 – Rough Carpentry
- B. Section 07600 – Flashing and Sheet Metal
- C. Section 07530 Single Ply Roofing (new system)
- D. Mechanical
- E. Electrical
- F. Plumbing,
- G. Structural
- H. General Conditions
- I. ETc.
- J. Selective Demolition

##### 1.3 SUBMITTALS

- A. Submit product data under provisions of Section 01300.
- B. Submit manufacturer's installation instructions under provisions of Section 01300.
- C. Submit Roofing system manufacturer's written certification that materials meet or exceed specified requirements and that the work will not result in the loss of the roof warranty.

##### 1.4 QUALITY ASSURANCE

- A. Installer Field Supervision: Installer shall maintain full-time supervisor/foreman on project site during times in which roofing work is in progress.
  - B. Pre-Roofing Meeting: Organize and conduct a meeting at the construction site 2 weeks before scheduled start of roof system installation with roofing membrane installer; installer of each component of related work; the architect; the owner; roofing manufacturer's representative; and other parties involved with roofing system performance, to review project conditions and roofing system installation.
    - 1. Walk roof areas to review and discuss substrate preparation including repair of unacceptable surfaces, roof drainage, penetrations, equipment curbs, and work performed by other trades which requires coordination with roofing system.
  - C. UL Listing: Class A external fire exposure.
- 1.5 PROJECT CONDITIONS
- A. Begin roofing renovation when weather conditions are within acceptable limits according to manufacturer's installation instructions.
- 1.6 PRODUCT HANDLING
- A. Deliver materials to project site in manufacturer's unopened sealed containers or unopened packages, with manufacturer's labels intact.
- 1.7 WARRANTIES
- A. Manufacturer's Product Warranty: Submit manufacturer's standard limited product warranty signed by the manufacturer's authorized official, guaranteeing to correct failures in product which may occur during the warranty period, without reducing or otherwise limiting any other rights to correction which the owner may have under the contract documents.
    - 1. Warranty period: 20 years, starting from date of substantial completion.

## **PART 2 – PRODUCTS**

- 2.1 REFER TO 07540 SINGLE PLY ROOF SPECIFICATION
- A.

## **PART 3 - EXECUTION**

### **3.1 PREPARATION**

- A. Maintain building water tight during construction work.
- B. Neatly clean and cut all area of roofing and roof insulation at new work areas.
- C. Assure roof drainage systems are lower than the surrounding roof areas to facilitate drainage.
- D. Install roof protection boards to protect existing roof and roof access points from damage of work and from construction activities.
- E. Work to limit access to new work areas from existing roof areas. Install signage and warnings as required.
- F. If access is to new work areas is to be across the existing roof, then any damage is to be repaired and walk pads are to installed a minimum of 4 feet wide continuous from the access point to the new work area(s). GC shall be responsible to assure work traffic utilizes the specified walk path.
- G. Provide, install and maintain all safety measures. Remove at the conclusion of the work.

### **3.2 INSULATION INSTALLATION**

- A. Repair, replace and reseal all building insulation exposed by work.

- B. Remove any dirt and debris related to work that fall inside building or above existing building ceilings.

### 3.3 MEMBRANE INSTALLATION

- A. General: Comply with membrane manufacturer's instructions for handling, laying, seaming, and securing membrane.
- B. Install new roof membrane integrated to existing roofing membrane in accordance with the manufacturers requirement to maintain the warranty and to provide a watertight, permanent and professional installation.
- C. Properly seam the new roofing items to the existing roof items a minimum of 18" beyond any new work areas. Properly clean, prime and seal seams between new and old Modified Bitumen segments.

END OF SECTION 07530

## **SECTION 07540 –**

### **SINGLE PLY ROOFING**

#### **THERMOPLASTIC POLYOLEFIN (TPO) MEMBRANE ROOFING GENERAL**

##### **1.1 SECTION INCLUDES**

- A. Warrantable, TPO membrane reroofing system over existing roof system and decking including all necessary work, accessories required by code and by the manufacturer.
  - 1. PRODUCTS OF JOHNS MANVILLE ARE THE BASIS OF DESIGN. MAKE PREBID SUBSTITUTIONS IN ACCORDANCE WITH SECTION 01600.

##### **1.2 RELATED WORKS**

- A. SECTION 01030 - Alternates
- B. SECTION 04900 – Brick Repointing
- C. SECTION 07210 – Building Insulation
- D. SECTION 07530 – Work with Existing Roof
- E. SECTION 07600 – Flashing and Sheet Metal
- F. SECTION 07920 – Elastomeric Joint Sealants
- G. Structural – Deck replacement and repair
- H. Plumbing – Roof drain, gas and plumbing vent work
- I. Mechanical – New roof top Mechanical items

##### **1.3 REFERENCES**

- A. Roofing Terminology: Refer to the following publications for definitions of roofing work related terms in this Section:
  - 1. ASTM D 1079 “Standard Terminology Relating to Roofing and Waterproofing.”
  - 2. Glossary of NRCA’s “The NRCA Roofing and Waterproofing Manual.”
  - 3. Roof Consultants Institute “Glossary of Building Envelope Terms.”
- B. Sheet Metal Terminology and Techniques: SMACNA “Architectural Sheet Metal Manual.”

##### **1.4 DESIGN CRITERIA**

- A. General: Installed roofing membrane system shall remain watertight; and resist specified wind uplift pressures, thermally induced movement, and exposure to weather without failure.
- B. Material Compatibility: Roofing materials shall be compatible with one another under conditions of service and application required, as demonstrated by roofing system manufacturer based on testing and field experience.
- C. Installer must comply with current code requirements based on authority having jurisdiction.
- D. Wind Uplift Performance: Roofing system shall be identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist wind uplift pressure calculated in accordance with ASCE 7-16.
- E. Fire-Test-Response Characteristics: Provide roofing materials with the fire-test-response characteristics indicated as determined by testing identical products per test method below by UL, FMG or another testing and inspecting agency acceptable to authorities having jurisdiction. Materials shall be identified with appropriate markings of applicable testing and inspecting agency.
  - 1. Exterior Fire-Test Exposure: Class A; ASTM E 108, for application and roof slopes indicated.



## 1.5 SUBMITTALS

- A. Product Data: Manufacturer's data sheets for each product to be provided.
- B. Detail Drawings: Provide roofing system plans, elevations, sections, details, and details of attachment to other Work, including:
  - 1. Base flashings and membrane terminations.
  - 2. Tapered insulation, including slopes.
  - 3. Crickets, saddles, and tapered edge strips, including slopes.
  - 4. Insulation fastening.
- C. Verification Samples: Provide for each product specified.
- D. Installer Certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, and licensed by manufacturer to install roofing system.
- E. Maintenance Data: Refer to Johns Manville's latest published documents on [www.JM.com](http://www.JM.com).
- F. Guarantees: Provide manufacturer's current guarantee specimen.
- G. Prior to roofing system installation, roofing sub-contractor shall provide a copy of the Guarantee Application Confirmation document issued by Johns Manville Roofing Systems indicating that the project has been reviewed for eligibility to receive the specified guarantee and registered.

## 1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive the specified manufacturer's guarantee.
- B. Manufacturer Qualifications: Qualified manufacturer that has UL listing for roofing system identical to that used for this Project.
- C. Testing Agency Qualifications: An independent testing agency with the experience and capability to conduct the testing indicated, as documented according to ASTM E 329.
- D. Test Reports:
  - 1. Roof drain and leader test or submit plumber's verification.
  - 2. Roof deck fastener pullout test.
- E. Source Limitations: Obtain all components from the single source roofing manufacturer guaranteeing the roofing system. All products used in the system must be labeled by the single source roofing manufacturer issuing the guarantee.

## 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storage.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer.
- C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
- D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

## 1.8 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when current and forecasted weather conditions permit roofing system to be installed in accordance with manufacturer's written instructions and guarantee requirements.

## 1.9 GUARANTEE

- A. Provide manufacturer's system guarantee equal to Johns Manville's Peak Advantage No Dollar Limit Roofing System Guarantee.
  - 1. Single-Source special guarantee includes roofing membrane, base flashings, roofing membrane accessories, roof insulation, fasteners, cover board, walkway products, manufacturer's edge metal products, and other single-source components of roofing system marketed by the manufacturer.
  - 2. Guarantee Period: 20 years from date of Substantial Completion.
- B. Installer's Guarantee: Submit roofing Installer's guarantee, including all components of roofing system for the following guarantee period:
  - 1. Guarantee Period: Two years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 REROOFING SYSTEM

- 1. Products of Manville are specified as a Basis of Design.
    - 1) Manville Project Number 2166466
    - 2) Assembly Letter Dated 5-29-2025
    - 3) Riders – SDR # JGTRF05292025t,
      - a) Wind MPH 80
  - b. Make substitution requests in accordance with the requirements of the specification and as noted herein.
2. BASE BID - THERMOPLASTIC POLYOLEFIN ROOFING MEMBRANE - TPO
- a. Fabric-Reinforced Thermoplastic Polyolefin Sheet: ASTM D 6878, uniform, flexible sheet formed from a thermoplastic polyolefin, internally fabric or scrim reinforced.
    - 1) Membrane
      - a) JM TPO 60
      - b) Induction heat welded
      - c) Membrane Thickness: 60 mils, nominal
    - 2) Flashing
      - a) JM TPO 60
    - 3) Deck Information
      - a) Existing Wood Plywood – 5/8". Damaged areas to be removed.
      - b) Materials left in place – Smooth Modified Bitumen Torch Down Torch
      - c) Slope match existing- +/- 1/8" in 12
    - 4) Insulation Layer
      - a) ENRGY 3, 2" Thick, 4'x8' boards
      - b) Attachment – Rhino Plate Grid Pattern. JM high load Fasteners & JM TPO Rhino Plates
      - c) Attachment Pattern (fasteners and plates per board)
        - Field Prime (Zone 1): 6 (six)
        - Field (Zone 1) 6 (six)
        - Perimeter (Zone 2) 9 (nine)
        - Corner (Zone 3) 12 (twelve)
    - 5) Materials Left in Place – JM Recommendation
      - a) Moisture Scan Required
      - b) All Wet and damaged material must be removed and replaced.

- Assume number of sheathing boards indicated along south wall PLUS 10 (ten) more 4x8 sheets.
- c) All flashings must be removed and replaced.
- d) All drawings to be cut and new sumps installed.

## 2.2 AUXILIARY ROOFING MATERIALS

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing.
  - 1. Liquid-type auxiliary materials shall meet VOC limits of authorities having jurisdiction.
- B. Sheet Flashing: Manufacturer's internally reinforced or scrim reinforced, smooth backed membrane with same thickness and color as sheet membrane. Basis of Design: JM TPO
- C. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening membrane to substrate, and acceptable to membrane roofing system manufacturer. Basis of Design: High Load Fasteners
- D. Induction Welding Plate: A round specially coated Galvalume® plate with a recessed center and raised flat bonding surface specifically designed for induction welding application. Basis of Design: JM TPO RhinoPlates
- E. Bonding Adhesive: Manufacturer's LVOC bonding adhesive for base flashings. Basis of Design: JM Membrane LVOC Bonding Adhesive (TPO&EPDM)
- F. Metal Termination Bars: Manufacturer's standard predrilled stainless-steel or aluminum bars, with anchors. Basis of Design: JM Termination Systems
- G. Miscellaneous Accessories: Provide pourable sealers, primers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, cover strips, and other accessories required for full installation. Basis of Design: JM TPO Pourable Sealer A & B, JM TPO Pipe Boots, JM TPO Universal Corners, JM TPO Edge Sealant, JM TPO T-Joint Patch, JM TPO Membrane Cleaner, JM TPO Membrane Primer, JM TPO Membrane Primer (Low VOC), JM TPO Sealing Mastic, JM TPO Cover Tape, JM TPO Detail Membrane, JM TPO Peel & Stick 10" RPS, JM TPO Peel & Stick 6" RTS, JM TPO-Coated Metal, JM TPO Curb Flashing and JM Single Ply Caulk

## 2.3 ROOF INSULATION

- A. General: Preformed roof insulation boards that comply with requirements and referenced standards, selected from manufacturer's standard sizes and of thicknesses indicated.
- B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class 1, Grade 2 (20 psi), Basis of Design: ENRGY 3
  - 1. R Values ( to be verified) MINIMUM

## 2.4 TAPERED INSULATION

- A. Tapered Insulation: ASTM C 1289, Type II, Class 1, Grade 2 (20 psi), provide factory-tapered insulation boards fabricated to slope of 1/4 inch per 12 inches (1:48), unless otherwise indicated. Basis of Design: Tapered ENRGY 3
  - 1. Utilize for roof crickets

## 2.5 INSULATION ACCESSORIES

- A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatible with membrane roofing.
- B. Provide factory preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.

- C. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening roof insulation to substrate, and furnished by roofing system manufacturer.

## 2.6 AUXILIARY ROOFING SYSTEM COMPONENTS

- A. Expansion Joints: Provide factory fabricated weatherproof, exterior covers for expansion joint openings consisting of flexible rubber membrane, supported by a closed cell foam to form flexible bellows, with two metal flanges, adhesively and mechanically combined to the bellows by a bifurcation process. Provide product manufactured and marketed by single-source membrane supplier that is included in the No Dollar Limit guarantee. Basis of Design: Expand-O-Flash
- B. Fascia System: Manufacturer's factory fabricated fascia consisting of a base piece and a snap-on cover. Provide product manufactured and marketed by single-source membrane supplier that is included in the No Dollar Limit guarantee. Basis of Design: Presto-Tite Fascia
  - 1. Fascia System shall .040 aluminum in manufacturer's standard color selected by owner.

## 2.7 WALKWAYS

- A. Flexible Walkways: Factory-formed, nonporous, heavy-duty, slip-resisting, surface-textured walkway pads sourced from membrane roofing system manufacturer. Basis of Design: JM TPO Walkpad

# PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. General:
  - 1. Verify that roof openings and penetrations are in place and set and braced and that roof drains are securely clamped in place.
  - 2. Verify that wood cants, blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
- B. Wood Decks:
  - 1. Verify that surface plane flatness and fastening of roof deck complies with requirements.
  - 2. Verify that deck – new and existing is securely fastened and properly blocked if/as required. Install new work as required.
  - 3. Remove and replace any damaged decking and and framing.

## 3.2 PREPARATION

- A. Clean and remove from substrate sharp projections, dust, debris, moisture, and other substances detrimental to roofing installation in accordance with roofing system manufacturer's written instructions.
- B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.
- D. Prepare all existing to remain roof at tie points as required to accept new roofing and to meet warranty requirements.
  - 1. Remove roof flashing if/as required.

### 3.3 INSULATION INSTALLATION

- A. Coordinate installation of roof system components so insulation and cover board is not exposed to precipitation or left exposed at the end of the workday.
- B. Comply with roofing system manufacturer's written instructions for installation of roof insulation and cover board.
- C. Install tapered insulation at crickets to conform to slopes indicated.
- D. Install insulation boards with long joints in a continuous straight line. Joints should be staggered between rows, abutting edges and ends per manufacturer's written instructions. Fill gaps exceeding 1/4 inch (6 mm) with like material.
- E. Install 2 or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches (150 mm) in each direction.
- F. Trim surface of insulation boards where necessary at roof drains so completed surface is flush and does not restrict flow of water.
- G. Install tapered edge strips at perimeter edges of roof that do not terminate at vertical surfaces.
- H. Loose Laid Insulation with Top Layer Mechanically Fastened: Loose lay insulation with staggered joints and secure top layer of insulation to deck using mechanical fasteners designed and sized for fastening specified board-type to deck type.

### 3.4 ROOFING MEMBRANE INSTALLATION, GENERAL

- A. Install roofing membrane in accordance with roofing system manufacturer's written instructions, applicable recommendations of the roofing manufacturer and requirements in this Section.
- B. Start installation of roofing membrane in presence of roofing system manufacturer's technical personnel.
- C. Where roof slope exceeds 1/2 inch per 12 inches (1:24), contact the membrane manufacturer for installation instructions regarding installation direction and backnailing.
- D. Cooperate with testing and inspecting agencies engaged or required to perform services for installing roofing system.
- E. Coordinate installing roofing system so insulation and other components of the roofing membrane system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is imminent.
  - 1. Provide tie-offs at end of each day's work to cover exposed roofing membrane sheets and insulation.
  - 2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system.
  - 3. Remove and discard temporary seals before beginning work on adjoining roofing.

### 3.5 INDUCTION WELDED ROOFING MEMBRANE INSTALLATION

- A. Install roofing membrane over area to receive roofing according to roofing system manufacturer's written instructions. Unroll roofing membrane and allow to relax before installing.
- B. Accurately align roofing membranes and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.
- C. Always install membrane laps perpendicular to the steel deck flutes. "Picture Frame" installation method is not permitted.
- D. Apply roofing membrane with side laps shingled with roof slope, where possible.
- E. Seams: Clean seam areas, overlap roofing membrane, and hot-air weld side and end laps of roofing membrane according to manufacturer's written instructions to ensure a watertight seam installation.

1. Test lap edges with probe to verify seam weld continuity. Apply lap sealant to seal cut edges of roofing membrane.
  2. Verify field strength of seams a minimum of twice daily and repair seam sample areas.
    - a. Remove and repair any unsatisfactory sections before proceeding with Work.
  3. Repair tears, voids, and lapped seams in roofing membrane that do not meet requirements.
- F. Spread sealant or mastic bed over deck drain flange at deck drains and securely seal roofing membrane in place with clamping ring.
- G. Induction Welding Installation:
1. Perform calibration and set-up as detailed by the Induction Welder Owner's Manual
  2. Center the Induction Welder over the first plate in pattern and activate the weld.
    - a. Induction Welder shall be centered over the plate to create a 100% bond.
    - b. If an error occurs during activation, refer to the induction welder owner's manual for corrective action.
  3. Prior to every use, clean face of Heat Sink Magnet.
  4. Place Heat Sink Magnet over the welded plate.
    - a. Keep Heat Sink Magnet in place at least 45 seconds while the assembly cools.
  5. Repeat process for each plate.

### 3.6 BASE FLASHING INSTALLATION

- A. Install sheet flashings and preformed flashing accessories and adhere to substrates per membrane roofing system manufacturer's written instructions.
- B. Apply bonding adhesive at required rate and allow to partially dry. Do not apply bonding adhesive to seam area of flashing.
- C. Flash penetrations and field-formed inside and outside corners per manufacturer's installation instructions.
- D. Clean seam areas and overlap and firmly roll sheet flashings into the adhesive. Weld side and end laps to ensure a watertight seam installation.
- E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.

### 3.7 WALKWAY INSTALLATION

- A. Flexible Walkways: Install walkway products in locations indicated. Heat weld and adhere walkway products to substrate according to roofing system manufacturer's written instructions.

### 3.8 FIELD QUALITY CONTROL

- A. Testing Agency: Owner MAYI engage a qualified independent testing and inspecting agency to perform roof tests and inspections and to prepare test reports.
- B. Final Roof Inspection: Arrange for roofing system manufacturer's Registered Roof Observer (RRO) to inspect roofing installation on completion and submit report to Architect.
  1. Notify Architect or Owner 48 hours in advance of date and time of inspection.
- C. Repair or remove and replace components of roofing system where test results or inspections indicate that they do not comply with specified requirements.
- D. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

### 3.9 PROTECTION AND CLEANING

- A. Protect roofing system from damage and wear during remainder of construction period.

- B. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 07540

**SECTION 07600**  
**FLASHING AND SHEET METAL**

**PART 1 - GENERAL**

**1.1 GENERAL REQUIREMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 01 Specification sections, apply to work of this section.
- B. See Color Elevation for Additional information.

**1.2 SECTION INCLUDES**

- A. Provide flashing and sheet metal work including:
  - 1. Metal flashing not built into masonry.
  - 2. Scuppers and Downspouts related to roof work.
  - 3. Miscellaneous sheet metal accessories and fabrications.
  - 4. Sealant work internal to sheet metal work.
  - 5. Interior Sheet Metal Trim
  - 6. Other sheet metal work not specified in other sections.

**1.3 RELATED DOCUMENTS/ SECTIONS**

- A. Closely-related work specified in other sections:
  - 1. SECTION 6100 – ROUGH CARPENTRY
  - 2. SECTION 06300 – COMPOSITE TRIM
  - 3. SECTION 06600 – PVC PANELING
  - 4. SECTION 07210 – BUILDING INSULATION
  - 5. SECTION 07255 – WEATHER RESISTIVE BARRIER
  - 6. SECTION 07540 – SINGLE PLY ROOFING
  - 7. SECTION 07650 – FLEXIBLE FLASHING
  - 8. SECTION 07920 – JOINT SEALERS - applies to elastomeric sealant work of this section.
  - 9. SECTION 08410 – ALUMINUM STOREFRONTS
  - 10. SECTION 09250 -GYPSUM WALL BOARD AND SHEATHING
  - 11. SECTION 13038 – INSULATED PANEL WALLS, FLOORS AND ROOMS

**1.4 SUBMITTALS**

- A. Product Data: Submit manufacturer's product data and general recommendations for each sheet material and fabricated product.
- B. Color Selections: Submit color charts for factory-finished products requiring color selection.
- C. Shop Drawings: Submit shop drawings showing layout, joining, profiles, and anchorages of fabricated work, including profiles, and field assembled/fabricated conditions.
- D. Samples:
  - 1. Submit 8 inches square samples of sheet materials to be exposed as finish surfaces.
  - 2. Submit 12 inches long, completely finished units of gutters, downspouts, and other factory-fabricated products exposed as finished work.

**1.5 REGULATORY REQUIREMENTS**

- A. Comply with the applicable provisions of codes and standards meet local, State and Federal jurisdiction.



## 1.6 REFERENCED STANDARDS

- A. (SMACNA): Sheet Metal and Air Conditioning Contractor's National Association.
  - 1. Architectural Sheet Metal Manual.
- B. (NAAMM): National Association of Architectural Metal Manufacturers.
  - 1. Metal Finishes Manual.
- C. (NRCA): National Roofing Contractor's Association
  - 1. Roofing and Waterproofing Manual.
- D. ASTM Standards:
  - 1. As referenced in Part 2 Products.
- E. Federal Specifications:
  - 1. As referenced in Part 2 Products.

## PART 2 - PRODUCTS

### 1.3 SHEET METAL MATERIALS

- A. Stainless Steel: -  
USES –
  - Roof Counter Flashing Assembly,
  - Interior Corner Guards,
  - 1. AISI Type 302/304, ASTM A167, 2D annealed finish, except where other finish specified; soft except where harder temper required for forming or performance; 24 gauge except if different gauge is indicated.
    - a. Interior Wall Corner Trims where noted, Both Floors, full height.
      - i. 18 gage
- B. Galvanized Steel Sheet:  
USES Typical Unless Noted Others
  - Interior & Exterior
    - miscellaneous trims
  - Fascias
  - any trim material not specified otherwise
  - 1. ASTM A 526, commercial quality, G90 hot-dip galvanized. Minimum thickness:
    - Interior and Exterior Openings (Windows, Doors, Open) Trims, extenders and panels. Both floors, heads and jambs full height.
    - 18 gage
  - 2. Finish –Interior Exposed to View – 24ga, and all 18ga Kynar 500 fluoropolymer coating. Color is to be selected from the manufacturers standard range of colors
- C. Aluminum:  
USES – Exterior –  
Downpouts & Scuppers  
.050 Aluminum  
Finish – Kynar 500 fluoropolymer coating. Color is to be selected from the manufacturers standard range of colors

### 2.2 MISCELLANEOUS MATERIALS AND ACCESSORIES

- A. Solder:
  - 1. For use with steel or copper: 50 - 50 tin/lead solder (ASTM B32), with rosin flux.
  - 2. For use with stainless steel: 60 - 40 tin/lead solder (ASTM B32), with acid-chloride type flux, except use rosin flux over tinned surfaces.
- B. Fasteners: Same metal as flashing/sheet metal or, other non-corrosive metal as recommended by sheet manufacturer. Match finish of exposed heads with material being fastened. Where connecting the pressure treated wood or between dissimilar metals utilize stainless steel fasteners.
- C. Bituminous Coating: SSPC - Paint 12, solvent type bituminous mastic, nominally free of sulfur, compounded for 15-mil dry film thickness per coat.
- D. Mastic Sealant: Polyisobutylene; nonhardening, nonskinning, non-drying, nonmigrating sealant.
- E. Elastomeric Sealant: Generic type recommended by manufacturer of metal and fabricator of components being sealed and complying with requirements for joint sealants as specified in Division 7 Section "Joint Sealers."
- F. Paper Slip Sheet: 5-lb. rosin-sized building paper.
- G. Polyethylene Underlayment: Minimum 6-mil carbonated polyethylene film; resistant to decay when tested in accordance with ASTM E 154.
- H. Reglets: Metal or plastic units of type and profile indicated, compatible with flashing indicated, noncorrosive.
- I. Metal Accessories: Provide sheet metal clips, straps, anchoring devices and similar accessory units as required for installation of work, matching or compatible with material being installed, noncorrosive, size and gage required for performance.
- J. Cast-Iron Drainage Boots: Grey iron castings of size and pattern indicated, ASTM A 48, bituminous shop-coated.
- K. Elastic Flashing Filler: Closed-cell polyethylene or other soft closed-cell material recommended by elastic flashing manufacturer as filler under flashing loops to ensure movement with minimum stress on flashing sheet.
- L. Roofing Cement: ASTM D 2822, asphaltic.
- M. Epoxy Seam Sealer: 2-part noncorrosive metal seam cementing compound, recommended by metal manufacturer for exterior/interior non-moving joints including riveted joints.

## 2.3 FABRICATION

- A. General:
  - 1. Shop-fabricate work to greatest extent possible. Fabricate for waterproof and weather-resistant performance; **with expansion provisions for running work**, sufficient to permanently prevent leakage, damage or deterioration of the work. Form work to fit substrates. Comply with material manufacturer instructions and recommendations for forming material. Form exposed sheet metal work without excessive oil-canning, buckling and tool marks, true to line and levels indicated, with exposed edges folded back to form hems.
  - 2. The Drawings show typical conditions. For conditions and intersections not detailed, fabricate work for continuity of appearance and weather-resistant performance.
  - 3. Nonmoving seams: Fabricate with flat-lock seams. Tin edges to be seamed, form seams, and solder.

4. Expansion Provisions: Where lapped or bayonet-type connections cannot be used, or would not be sufficiently water-weatherproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant concealed within joints.
5. Sealant Joints: Where movable, non-expansion type joints are indicated or required for proper performance, form metal to provide for installation of elastomeric sealant, in compliance with Section 07900: Joint Sealers.
6. Separate metals from noncompatible metals and corrosive substrates by coating concealed surfaces at locations of contact, with bituminous coating or other permanent separation as recommended by manufacturer/fabricator.

#### 2.4 METAL FLASHINGS FABRICATION

- A. Fabricate of specified metal, to profiles indicated or required.
- B. Surfaces which shall be exposed to view in the finish work: Smooth surface.
- C. Flashing elements partially exposed and partially embedded: Fabricate as two-part flashings, each part as specified above for application, joined by a weathertight lock joint.
- D. Fabricate for not less than 4 inches lap at joints.

#### 2.5 DOWNSPOUTS AND GUTTERS

- A. Fabricate as indicated below and complete with the following accessories:
  1. Gutters:  
Fabricate to profiles indicated.  
Provide secure fastened to building via. brackets @ 3'-0" oc maximum.
  2. Downspouts:  
Fabricate to profiles indicated.
  3. Downspout Hangers:  
Same material as downspout, fabricated not less than 1 inch x 1/6 inch strap type, one hanger each at top and bottom of downspout, and one at each intermediate joint.
  4. Elbow at bottom of downspout, except where downspout discharges into drainage pipe or C.1 boot.
  5. Splash Pan: Precast Concrete – see plan ( 10" x 24" min)

#### 2.6 SHEET METAL FINISHES

- A. General: Comply with NAAMM “ Metal Finishes Manual” for finish designations and application recommendations, except as otherwise indicated. For components which are assemble or welded in factory, apply finish after fabrication is completed. Provide colors from manufacturer’s standard colors
- B. Kynar 500 fluoropolymer coating where noted.
- C. Baked Enamel Finish: AA-C12C42R1x Cleaned with inhibited chemicals, conversion coated with an acid-chromate-phosphate treatment, and painted with organic coating specified below. Apply baked enamel finish in strict compliance with paint manufacturer’s specifications for cleaning, conversion coating and painting. Organic Coating: Manufacturer’s standard thermosetting acrylic enamel, 0.8 mil min dry film thickness.
- D. All metal work exposed to view is to be factory pre finished.

### PART 3 – EXECUTION

#### 1.1 INSTALLATION

- A. General: Except where more stringent requirements indicated, comply with manufacturer’s installation instructions and recommendations, and with SMACNA “Architectural Sheet Metal Manual”. Anchor work securely in place, providing for

thermal expansion; conceal fasteners where possible. Set units true to lines, levels, and indicated gradients. Install work with laps, joints and seams which shall be permanently watertight and weatherproof.

- B. Joint Sealers: Install gaskets and sealants where required for weatherproof performance of this work. Comply with Section 07920 of these specifications for product and installation requirements applicable to joint sealers.
- C. Underlayment: Where stainless steel or aluminum is to be installed directly on cementitious or wood substrates, install a slip sheet of red rosin paper and a course of polyethylene underlayment.
- D. Bed flanges of work in a thick coat of bituminous roofing cement where required for waterproof performance.
- E. Provide WRB backer behind all exterior metal work to provide redundant, durable and complete weatherproofing.

### 3.2 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces, removing substances which might cause corrosion of metal or deterioration of finishes.
- B. Protection: Installer shall advise Contractor of required procedures for surveillance and protection of flashings and sheet metal work during construction, to ensure that work shall be without damage or deterioration, other than natural weathering, at time of Substantial Completion.

END OF SECTION 07600

SECTION 07650  
FLEXIBLE FLASHING

**PART 1 - GENERAL**

**1.1 SECTION INCLUDES**

- A. Self-adhering flexible flashing, Primers, Fasteners.
- B. Flexible flashings are to be used at ALL window and opening perimeters, and as and where noted.

**1.2 RELATED SECTIONS**

- A. SECTION 06100 – ROUGH CARPENTRY
- B. SECTION 07210 – BUILDING INSULATION
- C. SECTION 07250 – WEATHER RESISTIVE BARRIER
- D. SECTION 07410 – METAL SIDING
- E. SECTION 07600 – FLASHING AND SHEET METAL
- F. SECTION 07920 – ELASTOMERIC JOINT SEALANTS
- G. SECTION 08410 - ALUMINUM STOREFRONT WINDOWS

**1.3 REFERENCES**

- A. ASTM International
  - 1. ASTM C920; Standard Specification for Elastomeric Joint Sealants
  - 2. ASTM C1193; Standard Guide for Use of Joint Sealants
  - 3. ASTM E96; Test Method for Water Vapor Transmission of Materials
  - 4. ASTM E331; Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference

**1.4 SUBMITTALS**

- A. Refer to Section 01330 Submittals.
  - 1. Product Data: Submit manufacturer current technical literature for each type of product.
  - 2. Samples: Each type of product specified. 4 inches by 4 inches.
- B. Quality Assurance Submittals
  - 1. Design Data, Test Reports: Provide manufacturer test reports indicating product compliance with indicated requirements.
  - 2. Manufacturer Instructions: Provide manufacturer's written installation instructions.

**1.5 QUALITY ASSURANCE**

- A. Qualifications
  - 1. Installer shall have documented successful experience with installation of flexible flashing systems under similar conditions.
  - 2. Installation shall be in accordance with manufacturer's installation guidelines and recommendations.

**1.6 DELIVERY, STORAGE AND HANDLING**

- A. Deliver flexible flashing materials and components in manufacturer's original, unopened, undamaged containers with identification labels intact.
- B. Store flexible flashing materials as recommended by manufacturer. Keep away from open flame or sources of ignition.

## 1.7 PROJECT CONDITIONS

- A. Do not apply flexible flashing on wet or damp surfaces.
- B. Apply to surfaces free of dirt, oils, lubricants and other debris.
- C. Install flexible flashing materials at temperatures above 40°F. At temperatures below 40°F, apply primer in accordance with flashing manufacturer recommendations, prior to installation of flashing.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURER

- A. DuPont; 4417 Lancaster Pike, Chestnut Run Plaza 728, Wilmington, DE 19805; 1-800-44-TYVEK (8-9835); <http://www.construction.tyvek.com>

### 2.2 MATERIALS

- A. Self-Adhering – Straight Flashing:
  - 1. Basis of Design: Self-adhering straight flashing membrane tape is based on DuPont™ StraightFlash™
  - 2. Description:
    - a. Face Material Composition: Textured polyethylene laminate barrier.
    - b. Face color: white
    - c. Adhesive composition: Butyl adhesive
    - d. Thickness: 30 mil
    - e. Release Liner: 1 piece siliconized paper
    - f. Dimension: [4 inches wide by 150 feet or 9 inches wide by 125 feet]
- B. Self Adhering -- Dual-Sided Straight Flashing
  - 1. Basis of Design: Dual-sided, self-adhering straight flashing membrane tape is based on DuPont™ StraightFlash™ VF
  - 2. Description:
    - a. Face Material Composition: Spunbonded polyethylene
    - b. Face Color: white
    - c. Adhesive Composition: Dual-sided butyl adhesive
    - d. Thickness: 30 mil
    - e. Release liner: 2-piece siliconized paper
    - f. Dimension: 6 inches wide by 125 feet
- C. Self-Adhering – Flexible Flashing
  - 1. Basis of Design: Self-adhering flexible flashing membrane is based on DuPont™ FlexWrap™.
  - 2. Description:
    - a. Face Material Composition: Conformable textured polyethylene laminate barrier.
    - b. Face color: White.
    - c. Adhesive composition: Butyl adhesive
    - d. Thickness: 70 mil
    - e. Release liner: 2-part siliconized paper.
    - f. Dimension: [7 inches wide by 75 feet or 9 inches wide by 75 feet]
- D. Performance Characteristics:
  - 1. Water intrusion: No leakage at 75 Pa, when tested in accordance with ASTM E331.
  - 2. Water Vapor Permeability: < 1 perm, when tested in accordance with ASTM E96.

### 2.3 ACCESSORIES

- A. Seam Tape: DuPont™ Tyvek® Tape as distributed by DuPont Building Innovations.
  - 1. Description: Pressure sensitive, polypropylene substrate with acrylic based adhesive.

- B. Fasteners:
  - 1. DuPont™ Tyvek® Wrap Caps, as distributed by DuPont Building Innovations: #4 nails with large 1-inch plastic cap fasteners, or 1-inch plastic cap staples with leg length sufficient to achieve a minimum penetration of 5/8-inch into the wood stud.
- C. Sealants
  - 1. Refer to Section 07920 Elastomeric Joint Sealants.
  - 2. Products:
    - a. Sealants recommended by the weather barrier manufacturer.
- D. Primer:
  - 1. Provide flashing manufacturer recommended primer to assist in adhesion between substrate and flashing
  - 2. Products:
    - a. 3M High Strength 90
    - b. Denso Butyl Spray
    - c. Permagrip 105
    - d. ITW TACC Sta' Put SPH
    - e. Primers recommended by the flashing manufacturer

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Verify substrate and surface conditions are in accordance with flexible flashing manufacturer recommended tolerances prior to installation.
- B. Review requirements for sequencing of installation of flexible flashing assembly with installation of windows, doors, louvers and wall penetrations to provide a weather-tight flashing assembly.

### **3.2 FLASHING**

- A. Wrap over and under flashing as indicated at both Wood Clad Windows and at Aluminum Storefront windows. Provide redundant protection over and under all metal flashing with particular attention to the metal seams, downward facing fasteners, sills at jamb/corner transitions.
- B. Attach weather barrier membrane apron under sill. Extend apron a minimum of 10 inches beyond sides of rough opening, and below the rough opening to overlap the sill plate or the weather barrier below. Securely attach sides of apron to wall, leaving bottom free to overlap later weather barrier installation.
- C. Cut DuPont™ FlexWrap™ or DuPont™ FlexWrap™ NF a minimum of 12 inches longer than width of sill rough opening.
- D. Cover horizontal sill by aligning DuPont™ FlexWrap™ or DuPont™ FlexWrap™ NF edge with inside edge of sill. Adhere to rough opening across sill and up jambs a minimum of 6 inches.
- E. Fan DuPont™ FlexWrap™ or DuPont™ FlexWrap™ NF at bottom corners onto face of wall. Firmly press in place. Mechanically fasten fanned edges. Mechanical fastening is not required for DuPont™ FlexWrap™ NF.
- F. For clad Wood window Options, on exterior, apply continuous bead of sealant to wall or backside of window mounting flange across jambs and head. Do not apply sealant across sill.
- G. Coordinate with window installation.
- H. Complete flashing after installation of window
  - 1. Apply 4-inch wide strips of DuPont™ StraightFlash™ at jambs overlapping entire mounting flange. Extend jamb flashing 1-inch above top of rough opening and below bottom edge of sill flashing.
  - 2. Apply 4-inch wide strip of DuPont™ StraightFlash™ as head flashing overlapping the mounting

- flange. Head flashing should extend beyond outside edges of both jamb flashings.
3. Position weather barrier head flap across head flashing. Adhere using 4-inch wide DuPont™ StraightFlash™ over the 45-degree seams.
  4. Tape head flap in accordance with manufacturer recommendations.
  5. On interior, install backer rod in joint between frame of window and flashed rough framing. Apply sealant around entire window to create air seal. Apply sealant in accordance with sealant manufacturer's instructions and ASTM C 1193.

### 3.7 FIELD QUALITY CONTROL

- A. Notify manufacturer's designated representative to obtain periodic observations of flexible flashing assembly installation.

### 3.8 PROTECTION

- A. Protect installed flexible flashing from damage during construction.

**END OF SECTION 07650**



**SECTION 07920**  
**ELASTOMERIC JOINT SEALANTS**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Section includes: Provide elastomeric joint sealants, joint backer materials and accessories needed to ensure a complete and durable weather tight seal at all locations indicated.
- B. Related work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
  - 2. Refrigerated Panels: Provide sealants for panel work consistent with installer and manufacturer requirements.

**1.2 SUBMITTALS**

- A. Comply with pertinent provisions of Section 01300.
- B. Product data:
  - 1. Materials list of items proposed to be provided under this Section;
  - 2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements;
  - 3. Written documentation of applicator's qualifications, including reference projects of similar scope and complexity, with current phone contacts of architects and owners for verification.
  - 4. Certification from sealant manufacturers that their products are suitable for the use indicated and comply with specification requirements.
  - 5. Report from sealant applicator summarizing results of pre-construction field adhesion testing.

**1.3 QUALITY ASSURANCE**

- A. Use adequate numbers of skilled workmen thoroughly trained and experienced in the necessary crafts and completely familiar with the specified requirements and methods needed for proper performance of the work of this Section.
- B. Applicator qualifications:
  - 1. Applicator shall have at least three years experience in installing materials of types specified and shall have successfully completed at least three projects of similar scope and complexity.
  - 2. Applicator shall designate a single individual as project foreman who shall be on site at all times during installation.
- C. Single source responsibility for joint sealants:
  - 1. Obtain joint sealants from single manufacturer for each different product required to ensure compatibility.
  - 2. Manufacturer shall instruct applicator in procedures for intersecting sealants.
- D. Perform work in accord with ASTM C-1193 guidelines except where more stringent requirements are indicated or specified.
- E. Pre-construction compatibility and adhesion testing:
  - 1. Submit to joint sealant manufacturer samples of actual materials that will contact or affect their joint sealants in the Work for compatibility and adhesion testing.
  - 2. This testing will not be required where sealant manufacturer is able to furnish data acceptable to Architect based on previous testing for adhesion and compatibility to materials matching those of the Work.
- F. Pre-construction field adhesion testing:

1. In jobsite field samples prior to general installation, conduct field-tests for adhesion of joint sealants to actual joint substrates using proposed joint preparation methods recommended by manufacturer.
  2. Do not use joint preparation methods or sealants that produce less than satisfactory adhesion to joint substrates during testing.
- G. Standard of acceptance:
1. Joints installed during pre-construction field adhesion testing that are accepted by Architect shall be retained as standard of acceptability and incorporated into Work of that area during general installation.
  2. At least one such standard of minimum 5 feet in length shall be established for each type of sealant and substrate.
  3. The use of 2-part polysulfide, 2-part polyurethane or silicone-synthetic rubber type sealant is preferable. The Architect shall determine which particular sealant type is best applicable to each individual design. Specify pourable urethane base sealants for construction joints in traffic bearing locations such as concrete walks, patios, steps, and similar locations.
- H. Schedule applications of waterproofing, water repellents and preservative finishes after sealant installation unless sealant manufacturer approves otherwise in writing. Ensure that installed sealant is allowed to cure sufficiently prior to subsequent applications.
- 1.4 DELIVERY, STORAGE AND HANDLING
- A. Deliver the materials to the job site in the manufacturer's unopened containers with all labels intact and legible at time of use.
  - B. Store materials in accord with manufacturer's recommendations with proper precautions to ensure fitness of material when installed.
  - C. Comply with pertinent provisions of Section 01630.
- 1.5 SUBSTRATE CONDITIONS
- A. General:
1. Provide joints properly dimensioned to receive the approved sealant system.
  2. Provide joint surfaces that are clean, dry, sound and free of voids, deformations, protrusions and contaminants which may inhibit application or performance of the joint sealant.
  3. Where expansion joints having preformed joint fillers are scheduled to be sealed, provide a reservoir to accept the sealant such as by a molded breakaway joint cap or a removable block out.
- 1.6 WARRANTY
- A. Deliver to the Architect signed copies of the following written warranties against adhesive and cohesive failure of the sealant and against infiltration of water and air through the sealed joint for a period of 3 years from date of completion.
1. Manufacturer's standard warranty covering sealant materials;
  2. Applicator's standard warranty covering workmanship.

## **PART 2 - PRODUCTS**

### **2.1 GENERAL**

- A. Acceptable manufacturers:
1. Tremco
  2. Pecora
  3. Sika
  4. Substitutions requests per section 01630
- B. Compatibility:

1. Provide joint sealants, joint fillers and accessory joint materials that are compatible with one another and with joint substrates under project conditions.
  2. Install joint sealants, joint fillers and related joint materials that are non-staining to visible joint surfaces and surrounding substrate surfaces.
- C. Provide colors selected by Architect from manufacturer's standard color range.

## 2.2 ELASTOMERIC SEALANTS

### A. Sealant Type A: **EXTERIOR**

1. For **exterior** joints in vertical surfaces and non-traffic horizontal surfaces such as, but not limited to:
  - a. Perimeter joints between materials listed above and frames of doors, windows, storefronts, louvers and similar openings.
2. Provide single-component or multi-component, low-modulus, non-sag sealant; comply with ASTM C920, Type S or M, Grade NS, Class 25.(Class 50 ?), Class 100/50
3. Acceptable sealants:
  1. Hybrid
    - i. Tremco Dymonic FC
  2. Silicones
    - i. Tremco Spectrem 1

### B. Sealant Type B: **GENERAL PURPOSE INTERIOR ALL AREAS – EXPOSED AND CONCEALED- EXCEPT EXPOSED IN BREWERY SPACE**

1. For interior joints in vertical surfaces and non-traffic horizontal surfaces such as, but not limited to:
  - a. Control and expansion joints on exposed interior surfaces of exterior walls.
  - b. Perimeter joints on exposed interior surfaces of exterior openings.
  - c. Perimeter joints between interior wall surfaces and frames of interior doors, windows, storefronts, louvers, elevator entrances and similar openings.
  - e. Trim or finish joints subject to movement.
2. Acceptable sealants:
  - a. Multi Component Urethane
    - i. Tremco Dymonic 100
  - b. Single Component Silicone
    - i. Tremco Spectrem 1

Internal-Concealed Vinyl wall panel joints

### C. Sealant Type C: **EXPOSED WITHIN BREWRY SPACE**

1. For interior joints in vertical and horizontal surfaces where incidental food contact may occur. This applies to the following Rooms and Spaces Brewery (all connected areas), Cooler
2. NSF Approved
  - a. Polyurethane
    - i. Sika – Sikaflex 201 US – White
      - a. Primers as required and recommended

### C. Sealant Type D: **CONCRETE FLOOR JOINTS EXPOSED WITHIN BREWRY SPACE**

1. For interior floor joints in floor surfaces where incidental food contact may occur. This applies to the following Rooms and Spaces Brewery (all connected areas), Cooler
  - a. Polyurethane
    - i. Sika – Sikaflex 201
  - b. If acceptable to the tenant
    - i. Polyurethane
      - a. Tremco Dymonic 100 (Not NSF listed)

- E. Sealant Type E: **INTERNAL TO SHEET METAL WORK**
  - 1. For interior or exterior joints in vertical surfaces between laps in fabrications of sheet metal.
  - 2. Acceptable products:
    - a. Silicone
      - i. Tremco Spectrem 4-TS
- F. Sealant Type F: **UNDER DOOR THRESHOLDS AND BEDDING SEALANT**
  - 1. For exterior vertical joints under metal thresholds and saddles or as bedding sealant for sheet metal flashing and frames of metal or wood.
  - 2. Acceptable products:
    - a. Urethanes
      - 1. Dymonic 100
    - b. Silicone
      - 1. Spectrem 2
    - c. Other
      - 1. Tremco Butyl Sealant
- G. Sealant Type G **BREWERY AREA ABOVE ACT CEILING GWB TO METAL**
  - 1. For interior paintable applications. For sealing GWB to metal trim where noted.
    - a. Paintable Acrylic latex sealant
      - i. Tremco Tremflex 834
- H. Sealant Type H **COMPRESSIBLE FOAM SEALANT AS SECONDARY JOINT**
  - 1. Precompressed Foam Joints Expandable precompressed foam joint seal for locations noted.
    - i. Tremco Willseal 600 . 1-1/2" Roll width.

### 2.3 ACCESSORIES

- A. Joint cleaner: Cleaner as recommended by sealant manufacturer for substrates indicated.
- B. Joint primer: As recommended by sealant manufacturer for substrates, conditions and exposures indicated.
- C. Bond breaker: Polyethylene tape or other adhesive faced tape as recommended by sealant manufacturer to prevent sealant contact where it would be detrimental to sealant performance.
- D. Joint backer: Closed cell or soft rod Polyethylene foam rod or other compatible non-waxing, non-extruding, non-staining resilient material in dimension 25 percent to 50 percent wider than joint width as recommended by sealant manufacturer for conditions and exposures indicated.
- E. Masking tape: Non-staining, non-absorbent tape product compatible with joint sealants and adjacent joint surfaces that is suitable for masking.

### 2.4 OTHER MATERIALS

- A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor and approved by the sealant manufacturer as compatible, subject to review of the Architect.

## PART 3-EXECUTION

### 3.1 SURFACE CONDITIONS

- A. Coordinate as required with other trades to assure proper and adequate provision in the work of those trades for interface with the work of this Section.
- B. Applicator shall examine the areas and conditions under which work of this Section will be performed.
  - 1. Verify conformance with manufacturer's requirements;
  - 2. Report unsatisfactory conditions in writing to the Architect;
  - 3. Do not proceed until unsatisfactory conditions are corrected.

### 3.2 PREPARATION

- A. Prepare surfaces to receive sealants in accord with sealant manufacturer's instructions and recommendations except where more stringent requirements are indicated.
- B. Thoroughly clean joint surfaces using cleaners approved by sealant manufacturer whether primers are required or not.
  - 1. Remove all traces of previous sealant and joint backer by mechanical methods, such as by cutting, grinding and wire brushing, in manner not damaging to surrounding surfaces.
  - 2. Remove paints from joint surfaces except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer.
  - 3. Remove wax, oil, grease, dirt film residues, temporary protective coatings and other residues by wiping with cleaner recommended for that purpose. Use clean, white, lint-free cloths and change cloths frequently.
  - 4. Remove dust by blowing clean with oil-free, compressed air.
- C. Provide joint backer material uniformly to depth required by sealant manufacturer for proper joint design using a blunt instrument.
  - 1. Fit securely by compressing backer material 25 percent to 50 percent so no displacement occurs during tooling.
  - 2. Avoid stretching or twisting joint backer.
- D. Provide bond-breaker where indicated or recommended by sealant manufacturer, adhering strictly to the manufacturers installation requirements.
- E. Prime joint substrates where required.
  - 1. Use and apply primer according to sealant manufacturers recommendations.
  - 2. Confine primers to sealant bond surfaces; do not allow spillage or migration onto adjoining surfaces.
- F. Taping:
  - 1. Use masking tape where required to prevent sealant or primer contact with adjoining surfaces that would be permanently stained or otherwise damaged by such contact or the cleaning methods required for removal.
  - 2. Apply tape so as not to shift readily and remove tape immediately after tooling without disturbing joint seal.

### 3.3 INSTALLATION

- A. Provide the approved sealant system where shown on the Drawings, and in strict accord with the manufacturer's recommendations as approved by the Architect.
- B. Install sealants immediately after joint preparation.
- C. Mix and apply multi-component sealants in accord with manufacturer's printed instructions.
- D. Install sealants to fill joints completely from the back, without voids or entrapped air, using proven techniques, proper nozzles and sufficient force that result in sealants directly contacting and fully wetting joint surfaces.
- E. Install sealants to uniform cross-sectional shapes with depths relative to joint widths that allow optimum sealant movement capability as recommended by sealant manufacturer.
- F. Tool sealants in manner that forces sealant against back of joint, ensures firm, full contact at joint interfaces and leaves a finish that is smooth, uniform and free of ridges, wrinkles, sags, air pockets and embedded impurities.
  - 1. Dry tooling is preferred; tooling liquids that are non-staining, non-damaging to adjacent surfaces and approved by sealant manufacturer may be used if necessary when care is taken to ensure that the liquid does not contact joint surfaces before the sealant.
  - 2. Provide concave tooled joints unless otherwise indicated to provide flush tooling or recessed tooling.
  - 3. Provide recessed tooled joints where the outer face of substrate is irregular.
- G. Remove sealant from adjacent surfaces in accord with sealant and substrate manufacturer recommendations as work progresses.

- H. Protect joint sealants from contact with contaminating substances and from damages. Cut out, remove and replace contaminated or damaged sealants, immediately, so that they are without contamination or damage at time of substantial completion.

END OF SECTION 07920

SECTION 08110  
STEEL DOORS AND FRAMES

**PART 1 - GENERAL**

- 1.1 RELATED DOCUMENTS:
- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to this section.
- 1.2 SUMMARY
- A. Section Includes:
    - 1. Interior heavy-duty hollow metal doors and frames at locations indicated on the Drawings.
    - 2. Exterior extra-heavy-duty hollow metal doors and frames at locations indicated on the Drawings.
    - 3. Finish hardware as specified in Division 8.
    - 4. Building in of anchors and grouting of frames in masonry construction is specified in Division 4.
  - B. Related Sections include the following:
    - 1. Section 08211 "Flush Wood Doors."
    - 2. Section 08710 "Finish Door Hardware."
- 1.3 COORDINATION
- A. Coordinate anchorage installation for steel frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.
- 1.4 SUBMITTALS:
- A. Product Data: Submit manufacturer's technical product data substantiating that products comply with requirements.
  - B. Shop Drawings: Submit for fabrication and installation of steel doors and frames. Include details of each frame type, elevations of door design types, conditions at openings, details of construction, location and installation requirements of finish hardware and reinforcements, and details of joints and connections. Show anchorage and accessory items.
    - 1. Details of electrical raceway and preparation for electrified hardware, access control systems, and security systems.
  - C. Product Schedule: For hollow-metal doors and frames, prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with final door hardware schedule.
- 1.5 QUALITY ASSURANCE:
- A. Provide doors and frames complying with Steel Door Institute "Recommended Specifications: Standard Steel Doors and Frames" (SDI-100) and as herein specified.
- 1.6 DELIVERY, STORAGE AND HANDLING:
- A. Deliver hollow metal work cartoned or crated to provide protection during transit and job storage. Provide additional sealed plastic wrapping for factory finished doors.
  - B. Inspect hollow metal work upon delivery for damage. Minor damages may be repaired provided refinished items are equal in all respects to new work and acceptable to Architect; otherwise, remove and replace damaged items as directed.
  - C. Store doors and frames at building site under cover. Place units on minimum 4 inch high wood blocking. Avoid use of non-vented plastic or canvas shelters which could create humidity chamber. If cardboard wrapper on door becomes wet, remove carton immediately. Provide 1/4 inch spaces between stacked doors to promote air circulation.

**PART 2 - PRODUCTS**

## 2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Rated Assemblies: Complying with NFPA 80 and listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.

## 2.2 ACCEPTABLE MANUFACTURERS:

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering steel doors and frames which may be incorporated in the work include; but are not limited to, the following:
  - 1. Ceco Corp.
  - 2. Curries Mfg., Inc.
  - 3. Fenestra Corp.

## 2.3 MATERIALS:

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B.
- C. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.
- D. Supports and Anchors: Fabricate of not less than 18 gage galvanized sheet steel.
- E. Inserts, Bolts, and Fasteners: Manufacturer's standard units, except hot-dip galvanize items to be built into exterior walls, complying with ASTM A 153, Class C or D as applicable.
- F. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with SDI A250.10; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

## 2.4 EXTERIOR STANDARD STEEL DOORS AND FRAMES

- A. Construct hollow-metal doors and frames to comply with standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.
- B. Extra-Heavy-Duty Doors and Frames: SDI A250.8, Level 3; SDI A250.4, Level A.
  - 1. Doors:
    - a. Type: As indicated in the Door and Frame Schedule.
    - b. Thickness: 1-3/4 inches.
    - c. Face: Metallic-coated steel sheet, minimum thickness of 0.042 inch, with minimum A60 coating.
    - d. Edge Construction: Model 2, Seamless.
    - e. Edge Bevel: Provide manufacturer's standard beveled or square edges.
    - f. Top Edge Closures: Close top edges of doors with flush closures of same material as face sheets. Seal joints against water penetration.
    - g. Bottom Edges: Close bottom edges of doors where required for attachment of weather stripping with end closures or channels of same material as face sheets. Provide weep-hole openings in bottoms of exterior doors to permit moisture to escape.
    - h. Core: Manufacturer's standard kraft-paper honeycomb, polystyrene, polyurethane, polyisocyanurate, or mineral-board at manufacturer's discretion.
      - 1) Thermal-Rated Doors: Provide doors fabricated with thermal-resistance value (R-value) of not less than 2.1 deg F x h x sq. ft./Btu when tested according to ASTM C 1363
  - 2. Frames:
    - a. Materials: Metallic-coated steel sheet, minimum thickness of 0.053 inch, with minimum A60 coating.
    - b. Construction:
      - 1) Exterior: Full profile welded.



- c. Exposed Finish: Prime.

## 2.5 INTERIOR STANDARD STEEL DOORS AND FRAMES

- A. Construct hollow-metal doors and frames to comply with standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.
- B. Heavy-Duty Doors and Frames: SDI A250.8, Level 2; SDI A250.4, Level B.
  - 1. Doors:
    - a. Type: As indicated in the Door and Frame Schedule.
    - b. Thickness: 1-3/4 inches.
    - c. Face: Metallic-coated steel sheet, minimum thickness of 0.042 inch.
    - d. Edge Construction: Model 1, Full Flush.
    - e. Edge Bevel: Provide manufacturer's standard beveled or square edges.
    - f. Core: Manufacturer's standard.
    - g. Fire-Rated Core: Manufacturer's standard vertical steel stiffener core for fire-rated doors.
  - 2. Frames:
    - a. Materials: Metallic-coated steel sheet, minimum thickness of 0.053 inch.
    - b. Construction:
      - 1) Interior: Knock down.
  - 3. Exposed Finish: Prime.

## 2.6 FABRICATION, GENERAL:

- A. Fabricate steel door and frame units to be rigid, neat in appearance and free from defects, warp or buckle. Wherever practicable, fit and assemble units in manufacturer's plant. Clearly identify work that cannot be permanently factory- assembled before shipment, to assure proper assembly at project site.
- B. Provide metal frames for doors, transoms, sidelights, borrowed lights, and other openings, of types and styles as shown on drawings and schedules. Conceal fastenings, unless otherwise indicated. Fabricate sound rated conditions frames matching specified exterior frames.
- C. Hollow-Metal Doors:
  - 1. Steel-Stiffened Door Cores: Provide minimum thickness 0.026 inch, steel vertical stiffeners of same material as face sheets extending full-door height, with vertical webs spaced not more than 6 inches apart. Spot weld to face sheets no more than 5 inches o.c. Fill spaces between stiffeners with glass- or mineral-fiber insulation.
  - 2. Fire Door Cores: As required to provide fire-protection ratings indicated.
  - 3. Vertical Edges for Single-Acting Doors: Provide beveled or square edges at manufacturer's discretion.
  - 4. Top Edge Closures: Close top edges of doors with inverted closures, except provide flush closures at exterior doors of same material as face sheets.
  - 5. Bottom Edge Closures: Close bottom edges of doors where required for attachment of weather stripping with end closures or channels of same material as face sheets.
  - 6. Exterior Doors: Provide weep-hole openings in bottoms of exterior doors to permit moisture to escape. Seal joints in top edges of doors against water penetration.
  - 7. Astragals: Provide overlapping astragal on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated. Extend minimum 3/4 inch beyond edge of door on which astragal is mounted or as required to comply with published listing of qualified testing agency.
- D. Hollow-Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
  - 1. Form exterior frames and all frames in interior masonry walls of hot-dip galvanized steel.
  - 2. Fabricate frames with mitered and welded corners.

3. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
  4. Plaster Guards: Provide 26 gage steel plaster guards or mortar boxes, welded to frame, at back of finish hardware cutouts where mortar or other materials might obstruct hardware operation and to close off interior of openings.
  5. Floor Anchors: Weld anchors to bottoms of jambs with at least four spot welds per anchor; however, for slip-on drywall frames, provide anchor clips or countersunk holes at bottoms of jambs.
  6. Jamb Anchors: Provide number and spacing as recommended by steel door and frame manufacturer.
  7. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers as follows. Keep holes clear during construction.
    - a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
    - b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.
  8. Sanitary Door Frame: Where indicated on door schedule, provide upgraded frame at specified door. Upgraded frame to include hospital stops at each jamb. Hospital stop to provide clear face at frame from finished floor to 4 inches above floor with 45 degree beveled return of stop above.
- E. Fabricate concealed stiffeners, reinforcement, edge channels, louvers and moldings from cold-rolled steel.
- F. Exposed Fasteners: Unless otherwise indicated, provide countersunk flat Phillips heads for exposed screws and bolts and glazing stops.
- G. Hardware Preparation: Factory prepare hollow-metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to SDI A250.6, the Door Hardware Schedule, and templates.
1. Reinforce doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.
  2. Comply with applicable requirements in SDI A250.6 and BHMA A156.115 for preparation of hollow-metal work for hardware.

## 2.7 STEEL FINISHES

- A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.
1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with SDI A250.10; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces. Touch up factory-applied finishes where spreaders are removed.
- B. Drill and tap doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.

### 3.2 INSTALLATION:

- A. General: Install standard sheet doors, frames, and accessories in accordance with final shop drawings, manufacturer's data, and as herein specified.
- B. Metal Frames: Comply with SDI A250.11.
1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces without damage to completed Work.
    - a. Where frames are fabricated in sections, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces. Touch-up finishes.

- b. Install frames with removable stops located on secure side of opening.
    - 2. Fire-Rated Openings: Install frames according to NFPA 80.
    - 3. Floor Anchors: Secure with postinstalled expansion anchors.
      - a. Floor anchors may be set with power-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.
    - 4. Solidly pack mineral-fiber insulation inside frames.
    - 5. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout or mortar.
    - 6. In-Place Concrete or Masonry Construction: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
      - a. In masonry construction, locate 3 wall anchors per jamb at hinge and strike levels.
  - C. Metal Doors: Fit and adjust hollow-metal doors accurately in frames, within clearances specified below.
    - 1. Non-Fire-Rated Steel Doors: Comply with SDI A250.8.
    - 2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.
- 3.3 ADJUSTING AND CLEANING
- A. Prime Coat Touch-Up: Immediately after erection, sand smooth any rusted or damaged areas of prime coat and apply touch-up of compatible air-drying primer.
  - B. Protection Removal: Immediately prior to final inspection, remove protective plastic wrappings from prefinished doors.
  - C. Final Adjustments: Check and readjust operating finish hardware items, leaving steel doors and frames undamaged and in complete and proper operating condition.

END OF SECTION 08110

**SECTION 08211**  
**FLUSH WOOD DOORS**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification sections, apply to work of this section.
- B. Closely Related work specified in other Sections:
  - 1. Section 08110: Steel Frames.
  - 2. Section 08710: Finish Hardware

**1.2 DESCRIPTION OF WORK**

- A. Provide flush wood doors shown on Drawings and in schedules, and in accordance with the provisions of this Section.
- B. Types of doors required:
  - 1. Solid core doors with veneer faces.
- C. Provide the following work:
  - 1. Factory finishing of wood doors.
  - 2. Factory preparation for hardware (pre-machining) for fire-rated doors.

**1.3 SUBMITTALS**

- A. Product Data: Submit manufacturer's product data for each type of door, including details of core and edge construction, trim for openings and louvers, and specifications for factory finishing.
- B. Compliance: Submit evidence that products comply with required fire ratings, and with other requirements not readily apparent in product data.
  - 1. If requested, confirm by manufacturer's letter that manufacturer shall provide specified warranties.
- C. Color Selection: For preliminary selection, submit color selection charts for the following:
  - 1. Stains for veneer faces when factory finishing includes staining.
  - 2. INTENT – Where noted, match existing door finish color, wood type, wood cut, etc.
- D. Shop Drawings: Submit shop drawings and door schedule indicating location and size of each door, elevation of each kind of door, special details, location and extent of hardware blocking, fire ratings, and other pertinent data.
  - 1. Prepare door schedule using same reference numbers as those on Contract Documents.
  - 2. Indicate coordination of glazing frames and stops with glass and glazing requirements.
- E. Samples: Submit samples for the following:
  - 1. Stained Finished Doors:
    - a. Face veneers 8 inches x 11 inches, plain and shop-primed with selected stain, representing typical range of color and grain for each species specified.
  - 2. Metal Frames for Light Openings: Submit 6 inch long sections of frames for each material, type and finish required. Window light sizes as follows: 10 x 10, 4 x 25, and ½ lite.

**1.4 QUALITY ASSURANCE**

- A. Quality Standards: Provide doors complying with association of designations for grade and door construction refer to this standard.

1. Section 1300 “Architectural Flush Doors” of “Architectural Woodwork Quality Standards” published by Architectural Woodwork Institute (AWI).
  - B. Manufacturer: Obtain doors of each face type from a single manufacturer to ensure uniformity of appearance and construction.
- 1.5 REGULATORY REQUIREMENTS
- A. Comply with the applicable provisions of codes and standards acceptable to local, state, and federal jurisdictions.
- 1.6 REFERENCE STANDARDS
- A. AWI: Architectural Woodwork Institute
    1. Architectural Woodwork Quality Standards, Guide Specifications and Quality Certification Program.
  - B. NWWDA: National Wood Window and Door Association.
    1. I.S.1. Series Industry Standard for Wood Flush Doors.
    2. Pamphlet (Undated): How to Store, Handle, Finish and Maintain Wood Doors.
- 1.7 PRODUCT HANDLING
- A. Protect doors wrapped in cardboard box during transit, storage and handling to prevent damage, soiling and deterioration.
  - B. Comply with recommendations of NWWDA pamphlet “How to Store, Handle, Finish, Install, and Maintain Wood Doors”, and with manufacturer’s instructions.
  - C. Identify each door with individual opening numbers used on shop drawings using temporary, removable or concealed markings.
- 1.8 WARRANTIES
- A. In addition to warranties specified in Divisions 00 and 01, furnish the following warranties:
    1. Door Manufacturer’s Warranty: Submit written agreement on door manufacturer’s standard form signed by Manufacturer, Installer and Contractor, agreeing to repair or replace defective doors which have warped (bow, cup or twist) or which show telegraphing of core construction in face veneers, or do not conform to AWI tolerances. Include amendment to incorporate any specified requirements which are not standard with manufacturer.
    2. Submit, with warranty, statement identifying initial purchaser and intermediate suppliers.
    3. Period of Warranty: Warranty shall be in effect during following period of time after date of Substantial Completion.
      - a. Life of installation.
  - B. Contractor shall be responsible for full period of warranty for replacement or refinishing of doors where Contractor’s work contributed to rejection or to voiding of manufacturer’s warranty.
  - C. Specified warranties shall be in addition to and not a limitation of other rights the Owner may have under the Contract Documents.

## **PART 2 - PRODUCTS**

### **2.1 ACCEPTABLE MANUFACTURERS**

- A. Subject to compliance with requirements provide product from one of the following manufacturers for each type door:
  1. Solid Core Doors with Wood Veneer Faces:
    - a. Algoma Hardwoods, Inc.
    - b. Eggers Industries.

Marshfield Door Systems  
Mohawk  
Oshkosh

2. Substitution: Make substitution under provisions of Section 01630.

2.2 INTERIOR DOORS

- A. INTENT – Match existing door wood type, cut, finish color.
- B. Solid Core, Stained finish Finish:
  - 1. Faces: Red Oak, plain sliced. (verify)
  - 2. Grade: Premium
  - 3. Construction: Staved Core, 5 ply, AWI Spec. Symbol SLC-5.
  - 4. Door Edges- fabricate of matching wood to the face.

2.3 FACTORY FINISHING

- A. General: Comply with applicable requirements of Section 1500 of referenced AWI standard for types of finish systems indicated.
  - 1. Prefinish wood doors at factory.
- B. Stained Finish: Comply with requirements indicated for grade, finish system, staining effect and sheen.
  - 1. Grade: Custom
  - 2. Finish: AWI System No. 3 alkyd-urea conversion varnish.
  - 3. Staining: To match approved sample for color.
  - 4. Effect: Open grain finish.
  - 5. Sheen: Satin-medium rubbed effect.

2.4 GENERAL FABRICATION REQUIREMENTS

- A. Provide door undercuts and bottom clearance as indicated in schedules and on the drawings.

2.5 PREFITTING and PREPARATION for HARDWARE

- A. Prefit and premachine following doors at factory:
  - 1. Fire-Rated doors as required by NFPA 80.
- B. Comply with tolerance requirements of AWI and NFPA 80. Machine doors for hardware requiring cutting of doors.
- C. Comply with final hardware schedules and door frame shop drawings and with hardware templates, to ensure proper fit of doors and hardware.
- D. Take accurate field measurements of hardware mortises in metal frames to verify dimensions and alignment before proceeding with machining in factory.

**PART 3 - EXECUTION**

3.1 INSPECTION

- A. Examine door frames after their installation, and doors prior to their hanging.
  - 1. Verify that frames comply with requirements for type, size, location, and swing characteristics and have been installed with plumb jambs and level heads.
  - 2. Verify that doors are free of defects that could cause their rejection.
- B. Prepare and distribute written report listing conditions detrimental to compliance with requirements of this Section.
- C. Do not proceed with installation until unsatisfactory conditions have been corrected.
- D. Proceeding with installation shall be considered as acceptance of door and frame conditions.

3.2 INSTALLATION

- A. Condition doors to average prevailing humidity in installation area prior to hanging.
- B. Install doors to comply with manufacturer's instructions and with referenced AWI standard.
- C. Hardware Installation: See Sections 08710 and 08711.
- D. Job-Fit Doors:
  - 1. Align and fit doors in frames with uniform clearances and bevels as indicated below.
  - 2. Machine doors for hardware.
  - 3. Seal cut surfaces after fitting and machining.
  - 4. Fitting Clearances, Non-rated Doors:
    - a. 1/8 inch at jambs and heads; 1/16 inch per leaf at meeting stiles for pairs of doors; and 1/4 inch from bottom of door to top of floor finish or covering over which door will swing.
    - b. Where threshold is shown or scheduled, provide 1/4 inch clearance from bottom of door to top of threshold.
    - c. Do not trim stiles and rails in excess of limits set by manufacturer.
    - d. Bevel 1/8 inch in 2 inches at lock and hinge edges.
  - 5. Fitting Clearances, Fire-rated Doors; Comply with NFPA 80.
    - a. Bevel 1/8 inch in 2 inches in lock edge; trim stiles and rails only to extent permitted by labeling agency.

### 3.3 ADJUSTMENT AND CLEANING

- A. Operation: Rehang or replace doors which do not swing or operate freely, as directed.
- B. Repair or replace doors damaged during installation, as directed.
- C. Protect as recommended by door manufacturer to assure that doors shall be without damage or deterioration at time of Substantial Completion.

### END OF SECTION 08211

## SECTION 08220

### FIBERGLASS REINFORCED DOORS AND FRAMES

#### PART 1- GENERAL

##### 1.1 DESCRIPTION

- A. Work Includes: Fiberglass reinforced plastic doors and frames.
- B. Related Work:
  - 1. General Conditions, Supplementary Conditions and Division I Sections apply to this work.
  - 2. Section 08710— Finish Hardware.
  - 3. Section 08800 — Glass and Glazing.

##### 1.2 SUBMITALS

- A. Submit shop drawings and product data under provisions of Section 01300.
- B. Indicate frame configuration, anchor types and spacing, location of cutouts for hardware, reinforcement and finish.
- C. Indicate door elevations and internal, reinforcement.
- D. Submit manufacturer's product literature, fabrication descriptions and installation instructions under provision of Section 01300.

##### 1.3 DELIVERY, STORAGE AND PROTECTION

- A. Deliver, handle and store doors and frames at the job site in such a manner as to prevent damage. Doors shall not be received before the building is enclosed. Only remove cartons upon arrival of doors at job site if cartons are wet or damaged. Doors shall be stored out of weather and/or extreme temperatures. The doors shall be stored in a vertical position on blocking, clear of the floor and with blocking between the doors to permit air circulation between the doors. All damaged or otherwise unsuitable doors and frames, when so ascertained, shall be immediately removed from the job site.

##### 1.4 REGULATORY REQUIREMENTS

- A. Flame Spread: All FRP component parts, including the gel coat finish, shall have a flame spread classification of 25 or less per ASTM E84 and shall be self extinguishing per ASTM D635 unless operating conditions dictate otherwise.
- B. Resins: Resins to meet with USDA and FDA standards for incidental food contact, if applicable to this project.

#### PART 2- PRODUCTS

##### 2.1 ACCEPTABLE MANUFACTURERS

- A. Products manufactured by CORRIM Company, Oshkosh, Wisconsin 54901, Telephone (920)231-2000. Fax (920) 231-2238 complying with these specifications.
- B. Substitutions: Make substitution requests under the provisions of Section 01630

##### 2.2 DOORS

- A. Door Fabrication FRP (Fiberglass Reinforced Plastic) Face Sheets.
  - 1. Face Sheets: Standard face sheets shall be manufactured using a corrosion resistant resin system with light stabilizing additives. The resin shall be reinforced with fiberglass, 40% by weight.
  - 2. Face sheets shall be 0.070" to 0.125" thickness. Standard being 0.120". Total door thickness to be a nominal 1-3/4".
  - 3. Finish:
    - a. Standard gel coat color gray or white.
    - b. 15 mil thick coverage, +/- 3 mils.



- C. Smooth, seamless finish.
- B. Internal Construction
  - 1. Core:
    - Option A: Polyurethane Foam Core.
  - 2. Stiles and Rails: Stiles and rails shall be 1-1/2" square pultruded fiberglass tubes. A polyester-based resin filled with 1/4" chopped glass strands and aerosol shall be used for reinforcements and corner blocks, etc. The bottom rail shall allow 1-1/4 inches of height alterability without loss of the panel's integrity. No metal or wood lumber reinforcements will be allowed.
- C. Hardware Preparations
  - 1. Reinforcement Blocking;
    - a. Lockset — non-swelling polymer blocking.
    - b. Surface mount hardware — non-swelling polymer blocking.
    - c. Thru-bolted hardware — non-swelling polymer blocking.
  - 2. Mortise Hardware
    - a. Full mortise hinges — non-swelling polymer blocking.
    - b. Mortise locksets — to suit template provided.
    - c. Exit devices — to suit template provided.
  - 3. All doors shall be mortised and reinforced to allow application of hinges and locks, in accordance with hardware schedule and manufacturer's templates. The hinges shall be attached by using stainless steel wood screws. Pilot holes shall be in strict accordance to manufacturer's recommendations.
- D. Door Accessories
  - 1. Glazing: Glazing support structures shall ensure that the glass area is weather sealed as not to permit moisture to enter the core of the door. This is to be accomplished by utilizing pultruded FRP tubes to fabricate the window opening. Glazing must allow for ready access for repair, in the event of damage or replacement, without affecting the sealed integrity of the cutout in the door panel itself. Openings cut directly into the core material will not be allowed.
  - 2. Fasteners: Provide stainless steel fasteners as required for glazing openings and louvers.

## 2.3 FRAMES

- A. Frame Fabrication FRP (Fiberglass Reinforced Plastic)
  - 1. Jamb Depth:
    - a. At IMP walls frame to wrap around IMP panels (IMP panels 4" thick). 5-3/4" standard, Width over/under 5-3/4" available upon request, refer to frame schedule for exact sizes.
    - b. At masonry walls – provide masonry infitting frame
    - c. At frame walls – provide wrap around drywally type frame.
    - d. Fire Rating - Galvanized HM at all fire-rated openings, gel coated to match non-rated frames or stainless steel, #304 stainless with a #4 finish.
  - 2. Face Dimension: 2" standard. Headers available in 2" and 4".
  - 3. Return: 7/16"
  - 4. Stop: 5/8" Hospital Stops: Terminate stops at 4 inches above finished floor, cut stop at a 45 deg. angle and close.
  - 5. Rabbet: 1-15/16"
  - 6. Corner Miter: Head and Jamb members shall be standard 45 deg. miter, providing a neatly mitered corner connection, fabricated for Knocked Down (KD) field assembly.
  - 7. 4 side frames – see plan notes for openings with 4 (four) sided frames.
  - 8. Pultrusion: In compliance with pultrusion industry standards.
- B. Reinforcements and Braces/Supports

1. Corner Reinforcement: 4" x 4" x 5-3/8" x 1/4" thick pultruded fiberglass angle. Attached to head bar at factory using stainless steel screws or suitable polymer rivets.
  2. Mortise Hinge Reinforcement: 1-1/2" x 7" x 1/4" thick polymer. Attached to frame by means of bonding and stainless steel countersunk screws.
  3. Closer Reinforcement: Same as mortise hinge reinforcement, less screws.
  4. Strike Reinforcement: 1-1/2" x 9" x 3/4" thick polymer material. Attached to frame by means of bonding and stainless steel countersunk screws or suitable polymer rivets.
- C. Anchoring Systems
1. "T"-Strap or Wire Anchor for masonry construction.
  2. Concealed existing wall anchor if necessary.
- D. Finish
1. Gel coat: 15 mils thick, +, - 3 mils on all exposed surfaces. Color to match door unless otherwise indicated.

## 2.4 FABRICATION

- A. Fabricate FRP doors and frames as shown on the drawings and in accordance with best shop practices. Frames shall be rigid, neat in appearance and free from defects. Field measurements shall be taken as required for coordinating with adjoining work.
- B. Form exposed surfaces free from warp, wave and buckle, with all corners square, unless otherwise shown. Set each member in proper alignment and relationship to other members with all surfaces straight and in a true plane.
- C. Reinforce members and joints with plates, tubes or angles for rigidity and strength.
- D. Doors and frames shall be mortised and reinforces for hardware in accordance with the hardware manufacturer's instructions and templates. The reinforcing shall be designed to receive hinges, locks, strikes, closures, etc.
- E. Furnish at least three (3) metal anchors or polymer spacers in each jamb of frames up to 84" high and one (1) additional anchor for each 24" in height above 84", in shapes, sizes and spacing shown or required for anchorage into adjoining wall construction. Fabricate joint anchor of stainless steel.
- F. Terminate bottom of frames at the indicated finished floor level.
- G. Provide clearance for doors of 1/8" at jambs and heads; 1/4" clearance above threshold.

## PART 3- EXECUTION

### 3.1 INSPECTION

- A. Installer shall examine the substrate and conditions under which fiberglass reinforced plastic work is to be installed and notify the General Contractor in writing of any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the installer.

### 3.2 INSTALLATION

- A. General: Install FRP doors, frames and accessories in accordance with final shop drawings, NFPA 80 standards at fire-rated openings, and as herein specified. Installation to be similar to that of hollow metal doors and frames, and in accordance with FRP manufacturer's written instructions.
- B. Frame Installation
  1. Place frames prior to construction of enclosed walls and ceilings. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders leaving surfaces smooth and undamaged. Frame must not be drilled for bracing supports as finish may be damaged.

2. In masonry construction, locate three (3) wall anchors per jamb at hinge and strike levels. Frames may be grouted full of mortar at jambs and anchors shall be built to the joints as walls are laid up. A continuous bead of silicone sealant is to be applied between the head and jamb at the miter joint.
- C. Door Installation
  1. Fit FRP doors accurately in frames, within clearances specified in Paragraph 2.040 of this section. Install stops as required, refer to Architectural Drawings.
- 3.3 TOLERANCES
  - A. Maximum Diagonal Distortion: 1/4" measured with a straight edge, corner to corner. Maximum measurable plane is 4-0' x 7-0'.
- 3.4 ADJUSTING
  - A. At substantial completion, adjust all operable components to ensure proper installation and that they function smooth and freely.
- 3.5 CLEANING
  - A. Remove dirt and excess sealant from exposed surfaces. Follow the manufacturer's recommended cleaning techniques and procedures for cleaning all surfaces. Use only cleaning products that will not scratch or damage the surfaces, and are recommended by the manufacturer.
  - B. Remove debris from project site.
- 3.6 WARRANTY
  - A. To include ten (10) years free from defects in material and workmanship from date of shipment, and lifetime from degradation of failure due to corrosion from date of shipment, provided that the structural integrity of the doors and frames have not been violated or compromised. (No unauthorized cuts, bores, or other structural alterations affecting the core of the door, or the structure of the frame.)
  - B. Normal wear and tear, or physical abuse of a specific installation is not part of this warranty.

END OF SECTION 08220

## **SECTION 08310 ACCESS PANELS**

### **PART 1 - GENERAL**

#### **1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the contract, including supplementary conditions and Division 1 specification sections, apply to this section.

#### **1.02 SUMMARY**

- A. Section includes: access panels for the following types of installations:
  - 1. Ceiling access panels
  - 2. Wall access panels

#### **1.03 RELATED SECTIONS:**

- A. 06100 - Rough Carpentry
- B. Division 9 - Finishes – GWB, Painting, etc.

#### **1.04 SUBMITTALS**

- A. General: In accordance with conditions of Division 1 specifications.
  - 1. Shop drawings.
  - 2. Manufacturer's literature and data.

#### **1.05 QUALITY ASSURANCE**

- A. Provide all access panels for the project by the same source and the same manufacturer.

#### **1.06 COORDINATION**

- A. Determine specific locations and sizes for access panels needed to gain access to concealed equipment and indicate on schedule specified under "submittals" article.

#### **1.07 DELIVERY, STORAGE AND HANDLING**

- A. Package and ship in accordance to manufacturer's recommendations.
- B. Store in compliance to manufacturer's instructions.
- C. Store in dry area out of direct sunlight.

### **PART 2 - PRODUCTS**

#### **2.01 MANUFACTURER**

Babcock Davis 9300 73<sup>rd</sup> Avenue North, Brooklyn Park, MN 55428, Phone: 888.412.3726,  
Web: [www.babcockdavis.com](http://www.babcockdavis.com)

Requests for approval of equal substitutions will be considered in accordance with provisions of Section 01600.

Size Minimum 22" X 22". Min. or as noted on the drawings. Verify in Field. Provide larger size if required for adequate access.

#### **2.02 MATERIALS**

- A. Extruded Aluminum Alloy 6063-T6. Standard (1/2")
- B. Type X (5/8") proprietary gypsum board inlay
- C. Fiberglass re-enforced nylon. Zinc-plated screws, stainless steel springs. Nylon retaining hooks and installation handles. Rubber gasket.

## 2.03 ACCESS PANELS

- A. Exposed in Brewery IMP Wall to above cooler
  - a. Babcock Davis BXTA
  - b. 20" wide x 16" high clear opening
  - c. Wall installation
  - d. Non fire rated
  - e. Door 24 gage galvanized steel
  - f. Frame .Galvanized steel
  - g. 1" exposed flange
  - h. Hinge- Continuous flush piano hinge
  - i. Gasketed 4 sides
  - j. Finish Powder coat, white
  - k. Latch and Lock – Handle w/o lock.
- B. Brewery office - To above cooler
  - a. Flush Access Doors Model: BNT Architectural with Exposed Flanges Non-Rated General Purpose Access Door.
  - b. Description: Face of door flush with frame, with 1-inch exposed flange and concealed, removable, button hinge.
  - c. Locations: Wall.
  - d. Door Size: see drawings.
  - e. Material: Nominal 0.062 inch 16 gauge. Steel Fold on all four sides for structural rigidity
  - f. Frame Material: Nominal 0.062 inch, 16 gauge. Provide 1/4-inch mounting holes and easy install tabs.
  - g. Finish: Paintable White; powder-primer coat.
- C. Theater lobby Ceiling –
  - a. Babcock Davis Drywall BRGB, hinged door
  - b. Description: Welded aluminum outer and inner frame with two push latches and a 1/16 inch reveal. With drywall inlay for ceilings, drywall and various applications.
  - c. Drywall Inlay: Door face 1/2-inch gypsum board infill.
  - d. Locations: Ceiling.
  - e. Door Size: 20"X20" clear opening.
  - f. Frame and Door Material: 6063-T4 extruded aluminum
  - g. Finish: painted.
  - h. Hinges: Welded Pin.

## 2.04 FABRICATION

- A. Manufacture each access panel assembly as an integral unit ready for installation.
- B. Furnish number of latches required to hold door in flush smooth pane when closed.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Verify conditions are suitable for installation.

### 3.02 PREPARATION

- A. Advise installers of work relating to access panel installation including rough opening dimensions, locations of supports, and anchoring methods. Coordinate delivery with other work to avoid delay.

### 3.03 INSTALLATION

- A. Follow manufacturer's instructions for installing access panels.
- B. Set frames to proper alignment with the wall or ceiling.
- C. Position access panels for proper access to concealed equipment requiring access.

#### 3.04 ADJUST AND CLEAN

- A. Adjust panel after installation for proper operation. Remove drywall mud and/or dust from hinge and rabbet.
- B. Remove and replace panels or frames that are warped, bowed, or damaged.

**END OF SECTION 08310**

**SECTION 08360**  
**OVERHEAD SECTIONAL DOOR**

**PART 1 GENERAL**

**1.1 SECTION INCLUDES**

- A. Insulated Sectional Overhead Doors. - MANUAL
- B. Operating Hardware, tracks, and support.

**1.2 RELATED SECTIONS**

- A. Section 05500 Metal Fabrications – Overhead track supports, sill angle
- B. Section 06100 – Rough Carpentry – Opening Preparation
- C. Section 06300 – Composite Trim
- D. Section Concrete: opening sill
- E. Section 07600 Flashing and Sheet Metal
- F. Section 07920 - Joint Sealers: Perimeter sealant and backup materials.

**1.3 REFERENCES**

- A. ANSI/DASMA 102 - American National Standard Specifications for Sectional Overhead Type Doors.

**1.4 DESIGN / PERFORMANCE REQUIREMENTS**

- A. Wind Loads: Design and size components to withstand loads caused by pressure and suction of wind acting normal to plane of wall as calculated in accordance with applicable code.
  - 1. Design pressure of 90 lb/sq ft.
- B. Single-Source Responsibility: Provide doors, tracks, and accessories from one manufacturer for each type of door. Provide secondary components from source acceptable to manufacturer of primary components.
- C. International Energy Conservation Code (IECC) 2021 NJ
  - 1. Comply with all IECC requirements.
  - 2. Refer to Prescriptive IECC standards noted on drawings.
  - 3. Air Infiltration –
    - a. Refer to standards on drawing.
    - b. Provide testing as required.
    - c. Carefully and properly install all insulation, sealing, weatherstripping etc. as required to meet requirements.

**1.5 SUBMITTALS**

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
  - 1. Preparation instructions and recommendations.
  - 2. Storage and handling requirements and recommendations.
  - 3. Installation methods.
- C. Shop Drawings: Indicate plans and elevations including opening dimensions and required tolerances, connection details, anchorage spacing, hardware locations, and installation details.
- D. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
- E. Operation and Maintenance Data.

**1.6 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum five years documented experience.
- B. Installer Qualifications: Authorized representative of the manufacturer with minimum five years documented experience.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened labeled packaging until ready for installation.
- B. Protect materials from exposure to moisture until ready for installation.
- C. Store materials in a dry, ventilated weathertight location.

1.8 PROJECT CONDITIONS

- A. Pre-Installation Conference: Convene a pre-installation conference just prior to commencement of field operations, to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work.

**PART 2 PRODUCTS**

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Raynor Garage Doors 1101 East River Road, Dixon, Ill is the basis of design.
- B. Wayne Dalton Garage Doors is an acceptable substitution under provisions of Section 01630.
- C. Overhead Door Corporation is an acceptable substitution under provisions of Section 01630.
- D. Substitutions under provisions of Section 01630.

2.2 INSULATED SECTIONAL OVERHEAD DOORS

- A. Insulated Steel Sectional Overhead Doors: Basis of Design - Raynor AlumaView AV300 Overhead Doors, Units shall have the following characteristics:
  - a. Custom Items
    - 1) Added bottom panel to align horizontal rails with existing window system
    - 2) Corrosion resistant components and hardware for interior damp brewery environment.
    - 3) Neat mounting of track and track supports for sanitation, VR integrity and corrosion resistance.
    - 4) Overhead height – provide lift door and track to keep overhead door track as close to ceiling as possible
  - b. Material
    - 1) Material: 3 inches (76 mm) thick, 6063-T6 aluminum alloy stiles and rails joined together with 5/16 inch (8 mm) diameter screws. Aluminum panels 0.050 inch (1.3 mm) thick or glazing (when specified) fill the spaces between stiles and rails. Combined dimension of two adjoining intermediate meeting rails 5-1/2 inches (140 mm). Bottom rail height 6- 1/2 inches (165 mm). Top rail height 6-1/2 inches (165 mm). End stiles 3- 5/16 inches (89 mm) or 6-1/2 inches (165 mm) wide as determined by overall door width. Center stiles 3-5/8 inches (92 mm) wide.
    - 2) Windows: Provide door sections with windows in lieu of 0.050 inch (1.3 mm) aluminum filler panels. Locations to comply with door elevation drawings
  - c. Springs: 100,000 cycles.
  - d. Door assembly to be operated by a torsion spring configuration counter balance system, with helically wound, oil tempered torsion spring mounted on a steel shaft. Cable drums to be cast aluminum with galvanized aircraft cable, minimum 7 to 1 safety factor.
  - e. Insulation: 3/8" expanded polystyrene.
  - f. Thermally broke
  - g. Thermal Values: R-value of 10.25.
  - h. Air Infiltration: 0.21 cfm/ft<sup>2</sup> @ 25 mph
  - i. Pass-Door:
    - 1) Not required.
  - j. High-Usage Package: Provide with optional high-usage package.
  - k. Hardware – hot dipped galvanized.



1. Full Glazed Aluminum Sash Panels:
  - 1) Insulated double strength glass.
2. Windload Design: ANSI/DASMA 102 to meet applicable codes and standards.
3. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
4. Lock:
  - a. Interior mounted slide lock at doors..
5. Weatherstripping: - Provide redundant systems as required.
  - a. Bulb-type strip at bottom section.
  - b. Flexible Jamb seals.
  - c. Flexible Header seal.
6. Track: Provide 3" heavy duty track. Vertical track to be a minimum of 16 gauge galvanized steel tapered and mounted for wedge type closing. Horizontal tracks to be minimum of 14 gauge galvanized steel reinforced with a minimum of 13 gauge galvanized angles as required.
  - a. All tracks are to be mounted as high and as close to the wall as possible. Tracks are not permitted to mounted more than 2'-0" from a wall or ceiling. Provide all reinforcing and mounting as necessary. Provide Lift Clearance, follow the roof or back room tracks.
7. Manual Operation: Chain hoist for non motorized doors.
8. COLOR - Finish– Inside and Outside Face – Anodized Bronze to match existing aluminum frame windows.

### PART 3 EXECUTION

#### 3.1 EXAMINATION

- A. Do not begin installation until openings have been properly prepared.
- B. Verify wall openings are ready to receive work and opening dimensions and tolerances are within specified limits.
- C. If preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

#### 3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

#### 3.3 INSTALLATION

- A. installation with adjacent work to ensure proper clearances and allow for maintenance.
- B. Install overhead doors and track in accordance with approved shop drawings and the manufacturer's printed instructions.
- C. assembly to wall construction and building framing without distortion or stress.
- D. Securely brace door tracks suspended from structure. Secure tracks to structural members only.
- E. Fit and door assembly including hardware.

#### 3.4 CLEANING AND ADJUSTING

- A. Adjust door assembly to **smooth operation** and in full contact with weatherstripping.
- B. Clean doors, frames and glass.
- C. Remove temporary labels and visible markings.

#### 3.5 PROTECTION

- A. Do not permit construction traffic through overhead door openings after adjustment and cleaning.
- B. Protect installed products until completion of project.
- C. Touch-up, damaged coatings and finishes and repair minor damage before Substantial Completion.

END OF SECTION 08360

**SECTION 08410**  
**ALUMINUM FRAMED ENTRANCES & STOREFRONTS**

**PART 1 - GENERAL**

**1.01 SUMMARY**

- A. Section Includes:
  - 1. Aluminum Storefront and Window Wall System
    - a. Modifications to Existing Systems
- B. Related Sections:
  - 1. SECTION 07600 – FLASHING AND SHEET METAL
  - 2. SECTION 07920 – ELASTOMERIC SEALANTS for sealant requirements.
  - 3. SECTION 08710 – DOOR FINISH HARDWARE
  - 4. SECTION 08800 – GLAZING

**1.02 SYSTEM PERFORMANCE DESCRIPTION**

- A. Performance Requirements: Provide aluminum storefront systems that comply with performance requirements indicated, as demonstrated by testing manufacturer's assemblies in accordance with test method indicated.
  - 1. Air Infiltration: Completed storefront systems shall have 0.06 CFM/FT<sup>2</sup> (1.10 m<sup>3</sup>/h·m<sup>2</sup>) maximum allowable infiltration when tested in accordance with ASTM E 283 at differential static pressure of 6.24 PSF (299 Pa).
  - 2. Water Infiltration: No uncontrolled water when tested in accordance with ASTM E 331 at test pressure differential of: 10 PSF (479 Pa) (or when required, field tested in accordance with AAMA 503). Fastener Heads must be seated and sealed against Sill Flashing on any fasteners that penetrate through the Sill Flashing.
  - 3. Wind Loads: Completed storefront system shall withstand wind pressure loads normal to wall plane indicated:
    - a. Exterior Walls: Refer to Structural drawings for Wind Loads
    - b. Interior Walls (Pressure Acting in Either Direction): 5 PSF
  - 4. Deflection: Maximum allowable deflection in any member when tested in accordance with ASTM E 330 with allowable stress in accordance with AA Specifications for Aluminum Structures.
    - a. Without Horizontals: L/175 or 3/4" (19.1mm) maximum. .
    - b. With Horizontals: L/175 or L/240 + 1/4" (6.4mm) for spans greater than 13'-6" (4.1m) but less than 40'-0" (12.2m).
  - 5. Thermal Movement: Provide for thermal movement caused by 180 degrees F. (82.2 degrees C.) surface temperature, without causing buckling stresses on glass, joint seal failure, undue stress on structural elements, damaging loads on fasteners, reduction of performance, or detrimental effects.
  - 6. Thermal Performance: When tested in accordance with AAMA 507, AAMA 1503 and NFRC 100:
    - a. Condensation Resistance Factor (CRFf): A minimum of 68.
    - b. Thermal Transmittance U Value: 0.40 BTU/HR/FT<sup>2</sup>/°F or less. Note: Thermal Performance for the glazed system as a whole will be affected by the characteristics of the glass specified.

**1.03 SUBMITTALS**

- A. General: Prepare, review, approve, and submit specified submittals in accordance with "Conditions of the Contract" and Division 1 Submittals Sections. Product data, shop drawings, samples, and similar submittals are defined in "Conditions of the Contract."
- B. Product Data: Submit product data for each type storefront series specified.

- C. Product Submittals and Substitutions: - Per Section 01630.
- D. Shop Drawings: Submit shop drawings showing layout, profiles, and product components, including anchorage, accessories, finish colors and textures.
- E. Samples: Submit verification samples for colors on actual aluminum substrates indicating full color range expected in installed system.
- F. Quality Assurance / Control Submittals:
  - 1. Test Reports: Submit certified test reports showing compliance with specified performance characteristics and physical properties.
  - 2. Installer Qualification Data: Submit installer qualification data.
- G. Closeout Submittals:
  - 1. Warranty: Submit warranty documents specified herein.
  - 2. Project Record Documents: Submit project record documents for installed materials in accordance with Division 1 Project Closeout (Project Record Documents) Section.

#### 1.04 QUALITY ASSURANCE

- A. Qualifications:
  - 1. Installer Qualifications: Installer experienced (as determined by contractor) to perform work of this section who has specialized in the installation of work similar to that required for this project. If requested by Owner, submit reference list of completed projects.
  - 2. Manufacturer Qualifications: Manufacturer capable of providing field service representation during construction process.
- C. Pre-Installation Meetings: Conduct pre-installation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions, and manufacturer's warranty requirements.

#### 1.05 PROJECT CONDITIONS / SITE CONDITIONS

- A. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements, fabrication schedule with construction progress to avoid construction delays.

#### 1.06 WARRANTY

- A. Project Warranty: Refer to "Conditions of the Contract" for project warranty provisions.
- B. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by an authorized company official.
  - 1. Warranty Period: Manufacturer's one (1) year standard warranty commencing on the substantial date of completion for the project provided that the warranty, in no event, shall start later than six (6) months from the date of shipment by YKK AP America Inc.

### PART 2 - PRODUCTS

#### 2.01 MANUFACTURERS

- A. Acceptable Manufacturers:
  - 1. Basis of Design -
    - 1. GENERAL - YKK AP America Inc., 270 Riverside Parkway, Suite A, Austell, GA 30168, Telephone: (678) 838-6000; Fax: (678) 838-6001
  - 2. Kawneer
  - 3. Vistawall
  - 4. Substitutions per section 01630
    - 1. Description: 2-3/8" (60.3 mm) thick by 5" (127.0 mm) Door Stile
    - 2. Corner Construction: Fabricate door corners joined by concealed reinforcement secured with screws, and sigma deep penetration welding.
    - 3. Corner Construction: Fabricate door corners joined by concealed reinforcement secured with screws, and sigma deep penetration welding.

4. Weather-stripping: Manufacturer's standard pile type in replaceable rabbets for stiles; manufacturer's standard EPDM bulb type for door frames.
  5. Hardware: Manufacturer's standard as selected by Architect.
- B. Storefront Systems
1. Exterior - Windows
    - a. YKK AP Series YWW 45 FI Storefront System (Insulating Glazing)
      1. Description: pocket glazed and front glazed exterior system.
      2. 1" insulated glazing
  2. Exterior Entry Doors
    - b. YKK MegaTherm® XT Entrance Doors
      1. Wide Stile Swing Doors: YKK AP Series 50XT Wide Stile Entrance.
      2. Description: 2-3/8" (60.3 mm) thick by 5" (127.0 mm) Door Stile
      3. Corner Construction: Fabricate door corners joined by concealed reinforcement secured with screws, and sigma deep penetration welding.
      4. Corner Construction: Fabricate door corners joined by concealed reinforcement secured with screws, and sigma deep penetration welding.
      5. Weather-stripping: Manufacturer's standard pile type in replaceable rabbets for stiles; manufacturer's standard EPDM bulb type for door frames.
    - a. Hardware: Manufacturer's standard as selected by Architect
- C. Standard Hardware: **(SEE PROJECT MANUAL HARDWARE SECTION AND NOTES ON DRAWINGS FOR ADDITIONAL ITEMS).** Provide all necessary hardware for a functioning assembly whether specified or not.) Aluminum frame supplier to install all hardware at aluminum frames..

## 2.02 MATERIALS

- A. Extrusions: ASTM B 221 (ASTM B 221M), 6063-T5 Aluminum Alloy.
- B. Aluminum Sheet:
  - a. Anodized Finish: ASTM B 209 (ASTM B 209M), 5005-H14 Aluminum Alloy, 0.050" (1.27 mm) minimum thickness.
  - b. Match color of existing system

## 2.03 ACCESSORIES

- A. Manufacturer's Standard Accessories:
- B. Fasteners: Zinc plated steel concealed fasteners; Hardened aluminum alloys or AISI 300 series stainless steel exposed fasteners.
  1. Glazing: Setting blocks, edge blocks, and spacers in accordance with ASTM C 864, shore durometer hardness as recommended by manufacturer; Glazing gaskets in accordance with ASTM C 864.
  2. 0.050 Aluminum Sill Flashing End Dams must have 3 point attachment.

## 2.04 RELATED MATERIALS (Specified In Other Sections)

- A. Glass: Refer to Division 8 Glass and Glazing Section for glass materials.

## 2.05 FABRICATION

- A. Shop Assembly: Fabricate and assemble units with joints only at intersection of aluminum members with uniform hairline joints; rigidly secure, and sealed in accordance with manufacturer's recommendations.
  1. Hardware: Drill and cut to template for hardware. Reinforce frames and door stiles to receive Hardware in accordance with manufacturer's recommendations.
  2. Welding: Conceal welds on aluminum members in accordance with AWS recommendations or methods recommended by manufacturer. Members showing welding bloom or discoloration on finish or material distortion will be rejected.

## 2.06 FINISHES AND COLORS

- A. YKK AP America Anodized Plus® Finish: CODE DESCRIPTION YS1N\* Dark Bronzed Anodized
- B. Anodized Finishing: Prepare aluminum surfaces for specified finish; apply shop finish in accordance with the following:
  - 1. Anodic Coating: Electrolytic color coating followed by an organic seal applied in accordance with the requirements of AAMA 612. Aluminum extrusions shall be produced from quality controlled billets meeting AA-6063-T5.
  - 2. Exposed Surfaces shall be free of scratches and other serious blemishes.
  - 3. Extrusions shall be given a caustic etch followed by an anodic oxide treatment and then sealed with an organic coating applied with an electrodeposition process.
  - 4. The anodized coating shall comply with all of the requirements of AAMA 612: Voluntary Specifications, Performance Requirements and Test Procedures for Combined Coatings of Anodic Oxide and Transparent Organic Coatings on Architectural Aluminum. Testing shall demonstrate the ability of the finish to resist damage from mortar, salt spray, and chemicals commonly found on construction sites, and to resist the loss of color and gloss.
  - 5. Overall coating thickness for finishes shall be a minimum of 0.7 mils.
  - 6. Finishes testing
    - i. CASS Corrosion Resistance Test, CASS 240/ASTM B368 Test Method.
    - ii. Other AAMA 2605 Performance Tests specified in these specifications, such as: 7.3 Dry Film Hardness; 7.8.2 Salt Spray Resistance; 7.9.1.2 Color Retention, South Florida; 7.9.1.4 Gloss Retention, South Florida.
    - iii. Apply 0.5% solution NaOH, sodium hydroxide, to small area of finished sample area; leave in place for sixty minutes; lightly wipe off NaOH; Do not clean area further.
- C. Colors
  - 1. Interior and Exterior Units Bronze anodized finish **to match existing**

## PART 3 - EXECUTION

### 3.01 MANUFACTURER'S INSTRUCTIONS / RECOMMENDATIONS

- A. Compliance: Comply with manufacturer's product data, including product technical bulletins, installation instructions, and product carton instructions. The latest installation manual is available at [www.ykkap.com](http://www.ykkap.com).

### 3.02 EXAMINATION

- A. Site Verification of Conditions: Verify conditions (which have been previously installed under other sections) are acceptable for product installation in accordance with manufacturer's instructions.

### 3.03 PREPARATION

- A. Adjacent Surfaces Protection: Protect adjacent work areas and finish surfaces from damage during product installation.
  - 1. Aluminum Surface Protection: Protect aluminum surfaces from contact with lime, mortar, cement, acids, and other harmful contaminants.

### 3.04 INSTALLATION

- A. General: Install manufacturer's system in accordance with shop drawings, and within specified tolerances.

1. Protect aluminum members in contact with masonry, steel, concrete, or dissimilar materials using nylon pads or bituminous coating.
2. Shim and brace aluminum system before anchoring to structure.
3. Provide sill flashing at exterior storefront systems. Extend extruded flashing continuous with splice joints; set in continuous beads of sealant.
4. Verify storefront system allows water entering system to be collected in gutters and wept to exterior. Verify metal joints are sealed in accordance with manufacturers installation instructions.
5. Locate expansion mullions where indicated on reviewed shop drawings.
6. Seal metal to metal storefront system joints using sealant recommended by system manufacturer.

3.05 FIELD QUALITY CONTROL

- A. Manufacturer's Field Services: Upon request, provide manufacturer's field service consisting of site visit for inspection of product installation in accordance with manufacturer's instructions.
- B. Field Test: Conduct field test to determine water tightness of storefront system. Conduct test in accordance with AAMA 501.2.

3.06 ADJUSTING AND CLEANING

- A. Cleaning: The General Contractor shall clean installed products in accordance with manufacturer's instructions prior to owner's acceptance, and remove construction debris from project site. Legally dispose of debris.
- B. Protection: The General Contractor shall protect the installed product's finish surfaces from damage during construction.

**END OF SECTION 08410**

## SECTION 08710 DOOR HARDWARE

### PART 1 – GENERAL

#### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

- A. This Section includes the following:
  - 1. Commercial door hardware for the following:
    - a. New interior and exterior swinging doors and accessways
    - b. Replacement of noted door hardware at existing doors.
- B. Related Sections include the following:
  - 1. DIVISION 08 OPENINGS
- C. Intent
  - 1. Provide a complete door hardware package at all doors whether specifically scheduled or not. This includes, lock set, hinges/butts, thresholds and weatherstripping at all exterior doors, sound stripping at certain doors, stops, closers at all exterior and fire rated doors.
  - 2. Hardware standards are established herein.
  - 3. **Hardware sets are specified/outlined on the drawings.**
  - 4. GC to provide keying for all doors. Key systems are to be compatible with existing keying systems.

#### 1.03 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples: As requested by the architect. All approved samples shall be forwarded to the Contractor for incorporation into the work.
- C. Other Action Submittals:
  - 1. Door Hardware Sets: Prepared by or under the supervision of Architectural Hardware Consultant, detailing fabrication and assembly of door hardware, as well as procedures and diagrams.
    - a. Format: Use same scheduling sequence and format and use same door numbers as in the Contract Documents.
    - b. Content: Include the following information:
      - (1) Identification number, location, hand, fire rating, and material of each door and frame.
      - (2) Type, style, function, size, quantity, and finish of each door hardware item.
      - (3) Complete designations of every item required for each door or opening including name and manufacturer.

#### 1.04 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- B. Supplier Qualifications: Door hardware supplier with warehousing facilities in Project's vicinity and who is or employs a qualified Architectural Hardware Consultant, available during the course of the Work to consult with Contractor, Architect, and Owner about door hardware and keying.
- C. Scheduling Responsibility: Preparation of door hardware schedules.



- D. Architectural Hardware Consultant Qualifications: A person who is currently certified by the Door and Hardware Institute as an Architectural Hardware Consultant and who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project.
- E. Source Limitations: Obtain each type and variety of door hardware from a single manufacturer, unless otherwise indicated.
- F. Regulatory Requirements: Comply with provisions of the following:
  - 1. Where indicated to comply with accessibility requirements, comply with ANSI A117.1, as follows:
    - a. Handles, Pulls, Latches, Locks, and other Operating Devices: Shape that is easy to grasp with one hand and does not require tight grasping, tight pinching, or twisting of the wrist.
    - b. Door Closers: Comply with the following maximum opening-force requirements indicated:
    - c. Interior Hinged Doors: 5 lbf (22.2 N) applied perpendicular to door.
    - d. Fire Doors: Minimum opening force allowable by authorities having jurisdiction.
    - e. Thresholds: Not more than 1/2 inch (13 mm) high. Bevel raised thresholds with a slope of not more than 1:2.
  - 2. NFPA 101: Comply with the following for means of egress doors:
    - a. Latches, Locks, and Exit Devices: Not more than 15 lbf (67 N) to release the latch. Locks shall not require the use of a key, tool, or special knowledge for operation.
    - b. Door Closers: Not more than 30 lbf (133 N) to set door in motion and not more than 15 lbf (67 N) to open door to minimum required width.
    - c. Thresholds: Not more than 1/2 inch (13 mm) high.
  - 3. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to NFPA 252.
    - a. Test Pressure: After 5 minutes into the test, neutral pressure level in furnace shall be established at 40 inches (1016 mm) or less above the sill.
- G. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Meetings."

#### 1.05 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up for door hardware delivered to Project site
- B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.

#### 1.06 COORDINATION

- A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing door hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
- B. Coordinate hardware requirements with door manufacturers prior to door fabrication so door manufacture can provide blocking for all door hardware and avoid need for thru bolting of any hardware.

#### 1.07 WARRANTY

- A. General Warranty: Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Special Warranty: Written warranty, executed by manufacturer agreeing to repair or replace components of door hardware that fail in materials or workmanship within-specified warranty period. Failures include, but are not limited to, the following:
  - 1. Structural failures including excessive deflection, cracking, or breakage.
  - 2. Faulty operation of operators and door hardware.
  - 3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
- C. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fails in materials or workmanship within specified warranty period.
- D. Warranty Period: In accordance with Division 1, except as follows:
  - 1. Manual Closers: 10 years from date of Substantial Completion.

## **PART 2 – PRODUCTS**

### **2.01 SCHEDULED DOOR HARDWARE**

- A. General: Provide door hardware for each door to comply with requirements in this Section and door hardware sets indicated in Part 3 "Door Hardware Sets" Article.
  - 1. Door Hardware Sets: Provide quantity, item, size, finish or color indicated, and named manufacturers' products.
- B. Designations: Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of door hardware are indicated in Part 3 "Door Hardware Sets" Article. Products are identified by using door hardware designations, as follows:
  - 1. Named Manufacturers' Products: Manufacturer and product designation are listed for each door hardware type required. Approved Manufacturers' names are indicated in this Part.

### **2.02 HINGES, GENERAL**

- A. Template Requirements: Except for hinges and pivots to be installed entirely (both leaves) into wood doors and frames, provide only template-produced units.
- B. Non-removable Pins: Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for outswinging exterior doors and out-swinging corridor doors with locks.
- C. Fasteners: Comply with the following:
  - 1. Machine Screws: For metal doors and frames. Install into drilled and tapped holes.
  - 2. Wood Screws: For wood doors and frames.
  - 3. Threaded-to-the-Head Wood Screws: For fire-rated wood doors.
  - 4. Screws: Phillips flat-head. Finish screw heads to match surface of hinges.

### **2.03 HINGES**

- A. Template Hinge Dimensions: BHMA A156.7.
- B. Manufacturers:
  - 1. Bommer
  - 2. Hager.
  - 3. McKinney.
  - 4. Stanley.

### **2.04 CONTINUOUS HINGES**

- A. General: Minimum 0.120-inch- (3.0-mm-) thick, hinge leaves with minimum overall width of 4 inches (102 mm); fabricated to full height of door and frame and to template screw locations; with components finished after milling and drilling are complete.1. Fire Pins: Steel pins to hold labeled fire doors in place if required by tested listing.
  - B. Continuous, Gear-Type Hinges: Extruded-aluminum, pinless, geared hinge leaves; joined by a continuous extruded-aluminum channel cap; with concealed, self-lubricating thrust bearings.
    - 1. Manufacturers:
      - a. Roton.
      - b. McKinney.
      - c. Pemko.
      - d. Select.
- 2.05 LOCKS AND LATCHES, GENERAL
- A. Regulatory Requirements: In accordance with those indicated in Part 1.
  - B. Lock Throw: Comply with testing requirements for length of bolts required for labeled fire doors.
  - C. Backset: 2-3/4 inches (70 mm), unless otherwise indicated.
  - D. Strikes: Manufacturer's standard strike with strike box for each latch-bolt or lock bolt, with lip extended to protect frame and applied trim, finished to match door hardware set.
- 2.06 MECHANICAL LOCKS AND LATCHES
- A. Manufacturers:
    - 1. Schlage – to coordinate with the owners wide keying system.
    - 2. Yale 5400LN Series – to coordinate with the owners keying system.
- 2.07 AUXILIARY LOCKS AND LATCHES
- A. Manufacturers:
    - 1. Schlage. - to coordinate with the owners keying system
- 2.08 DOOR BOLTS
- A. Bolt Throw: Comply with testing requirements for length of bolts required for labeled fire doors.
  - B. Manual Flush Bolts: Not allowed under New Jersey amendment to International Building Code
  - C. Automatic and Self-Latching Flush Bolts: Designed for mortising into door edge.
    - 1. Manufacturers:
      - a. IVES.
      - b. McKinney
      - c. Rockwood.
      - d. Trimco.
- 2.09 EXIT DEVICES
- A. Regulatory Requirements: In accordance with those indicated in Part 1.
  - B. Panic Exit Devices: Listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for panic protection, based on testing according to UL 305.
  - C. Fire Exit Devices: Devices complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire and panic protection, based on testing according to UL 305 and NFPA 252.
  - D. Removable Mullions: Furnish mullions by the same Manufacturer as exit devices.

1. Fire-Exit Removable Mullions: Provide removable mullions for use with fire exit devices complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire and panic protection, based on testing according to UL 305 and NFPA 252. Mullions shall be used only with exit devices for which they have been tested.
  - E. Through Bolts: For exit devices and trim on metal doors, non-fire-rated wood and fire-rated wood doors.
  - F. Manufacturers:
    1. Yale 7100-7200 Series
    2. Corbin Russwin
- 2.10 LOCK CYLINDERS
- A. Cylinders: Manufacturer's standard tumbler type, constructed from brass or bronze, stainless steel, or nickel silver, and complying with the following:
    1. Number of Pins: Six or Seven. Coordinate requirements with Owner.
      - a. Provide cylinders zero bitted with two key blanks.
  - B. Construction Keying: Comply with the following:
    1. Construction Cores: Temporary cylinders and keys for the construction period will be provided by the Contractor
  - C. Final Keying – Contractor is to provide final keying of cylinders. Provide 4 extra cylinders.
  - D. Manufacturer: Schlage
- 2.11 KEYING
- A. Keying System:
    1. Door hardware supplier is to meet with the owner to consult with the owner to determine the final key arrangement. Provide 1 grand master, 3 sub masters and individual keying for each lock.
    2. Provide 1 grandmaster, Submasters (1 for **each** office suite and 2 for common areas) and individual keying.
  - B. Keys: Nickel silver. Cutting of all keys by Owner.
  - C. Quantity: Provide 2 cut grandmaster keys (mark do not copy), 10 cut keys for each sub master keys and 2 keys for individual locks. In addition to two key blanks for each cylinder, provide ten (10) additional key blanks.
- 2.12 OPERATING TRIM
- A. Manufacturers:
    1. IVES.
    2. McKinney.
    3. Rockwood.
    4. Trimco.
- 2.13 CLOSERS
- A. Regulatory Requirements: In accordance with those indicated in Part 1.
  - B. Size of Units: Unless otherwise indicated, comply with manufacturer's written recommendations for size of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Provide factory-sized closers, adjustable to meet field conditions and requirements for opening force.
  - C. Surface Closers: Provide type of arm indicated. Provide mounting plates and brackets to comply with manufacturers recommendations to assure proper operation and meet warranty requirements.
    1. Manufacturers:
      - a. LCN – #1460 commercial grade series.
      - b. Yale - #3500 Series

- D. Coordinators:
  - 1. Manufacturers:
    - a. McKinney.
    - b. Rockwood.
    - c. Trimco.

#### 2.14 PROTECTIVE TRIM UNITS

- A. Manufacturers:
  - 1. IVES.
  - 2. McKinney.
  - 3. Rockwood.
  - 4. Trimco.

#### 2.15 STOPS AND HOLDERS

- A. Stops and Bumpers: Floor stops shall not be allowed.
- B. Combination Overhead Stops and Holders:
- C. Manufacturers:
  - 1. ABH.
  - 2. Glynn Johnson.
  - 3. Rixson.
- D. Silencers for Door Frames:
  - 1. Manufacturers:
    - a. IVES.
    - b. McKinney.
    - c. Rockwood.
    - d. Trimco

#### 2.16 DOOR GASKETING

- A. General: Provide continuous weather-strip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated or scheduled. Provide noncorrosive fasteners for exterior applications and elsewhere as indicated.
  - 1. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.
  - 2. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.
  - 3. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.
- B. Smoke-Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke-control ratings indicated, based on testing according to UL 1784.
  - 1. Provide smoke-labeled gasketing on 20-minute-rated doors and on smoke-labeled doors.
- C. Gasketing Materials: ASTM D 2000 and AAMA 701/702.
- D. Manufacturers:
  - 1. McKinney.
  - 2. National Guard.
  - 3. Pemko.
  - 4. Reese.

#### 2.17 THRESHOLDS

- A. Regulatory Requirements: In accordance with those indicated in Part 1.
- B. Manufacturers:
  - 1. McKinney.
  - 2. National Guard.

3. Pemko.
4. Reese.

## 2.18 REMOVABLE MULLIONS

- A. Removal Mullions at door pairs – Compatible with Exit Device
  1. Von Duprin KR-4954-SP28 extruded aluminum

## 2.19 ELECTRIC STRIKE

- A. Provide complete system including electrical interface
  1. Von Duprin 6000 Series, 24VDC Fail Secure, Model to suite application, No Substitution.

## 2.20 MISCELLANEOUS DOOR HARDWARE

- A. Auxiliary Hardware:
  1. Manufacturers:
    - a. IVES.
    - b. McKinney.
    - c. Rockwood.
    - d. Trimco.

## 2.21 FABRICATION

- A. Base Metals: Produce door hardware units of base metal, fabricated by forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness. Furnish metals of a quality equal to or greater than that of specified door hardware units and BHMA A156.18. Do not furnish manufacturer's standard materials or forming methods if different from specified standard.
- B. Fasteners: Provide screws according to commercially recognized industry standards for application intended, except aluminum fasteners are not permitted. Provide Phillips flat-head screws with finished heads to match surface of door hardware, unless otherwise indicated.
  1. Comply with NFPA 80 for fasteners of door hardware in fire-rated applications.
- C. Finishes: BHMA A156.18, as indicated in door hardware sets.

# PART 3 – EXECUTION

## 3.1 INSTALLATION

- A. Steel Doors and Frames: Comply with DHI A115 Series. Drill and tap doors and frames for surface-applied door hardware according to ANSI A250.6.
- B. Wood Doors: Comply with DHI A115-W Series.
- C. Mounting Heights: Mount door hardware units at heights indicated as follows unless otherwise indicated or required to comply with governing regulations.
  1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
  2. Custom Steel Doors and Frames: DHI's "Recommended Locations for Builders' Hardware for Custom Steel Doors and Frames."
  3. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
- D. Install each door hardware item to comply with manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 09 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
- E. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant

complying with requirements specified in Division 07 Section "Joint Sealants."

- F. Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
1. Spring Hinges: Adjust to achieve positive latching when door is allowed to close freely from an open position of 30 degrees.
  2. Door Closers: Unless otherwise required by authorities having jurisdiction, adjust sweep period so that, from an open position of 70 degrees, the door will take at least 3 seconds to move to a point 3 inches (75 mm) from the latch, measured to the leading edge of the door.

### 3.2 DOOR HARDWARE SETS

All doors are to have hardware sets whether scheduled or not. Provide small format interchangeable core options to match owner system. **See drawings for list.**

1. Schlage ND Series; Rhodes lever, satin chrome finish #626. Or equivalent.

**END OF SECTION 08710**

**SECTION 08800**  
**GLAZING – GLASS AND METAL PANELS**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Types of work in this section include glazing work for:
  - 1. Exterior storefront and entrances
  - 2. Interior borrowed lites and door lites
  - 3. Replacement of existing non safety glass in existing storefronts
  - 4. Solid Panels for penetration panels
- B. Related Work
  - 1. Section 08410 Aluminum Entrances and Storefronts
  - 2. Section 08110 Steel Doors and Frames
- C. Related Work with separate glazing specification.
  - 1. Section 10800 Toilet and Bath Accessories – Mirrors.

**1.2 PERFORMANCE REQUIREMENTS AND STANDARDS**

- A. Exterior Glazing: Provide glazing assemblies which will withstand normal conditions without failure, loss of weathertightness, or deterioration. For coated glass: Development of visible defects in coating.
- B. ASTM C 1036 - Standard Specification for Flat Glass
- C. ASTM C 1048 - Standard Specification for Heat-Treated Flat Glass -- Kind HS, Kind FT Coated and Uncoated Glass.
- D. ASTM E 773 - Standard Test Method for Seal Durability of Sealed Insulating Glass Units
- E. GANA (GM) - FGMA Glazing Manual; Glass Association of North America.

**1.3 WARRANTIES**

- A. Manufacturer's Special Project Warranty on Insulating Glass: Provide written warranty signed by manufacturer of insulating glass agreeing to furnish f.o.b. point of manufacture, freight allowed project site, within specified warranty period indicated below, replacements for those insulating glass units developing manufacturing defects. Manufacturing defects are defined as failure or hermetic seal of air space (beyond that due to glass breakage) as evidenced by intrusion of dirt or moisture, internal condensation or fogging, deterioration of protected internal glass coatings, if any, and other visual indications of seal failure or performance; provided the manufacturer's instructions for handling, installing, protecting and maintaining units have been complied with during the warranty period. Warranty Period: Manufacturer's standard but not less than 10 years after date of substantial completion.

**1.4 SUBMITTALS**

- A. Product Data.
- B. Insulating Unit Warranty.

**PART 2 - PRODUCTS**

**2.1 MANUFACTURERS**

- A. Acceptable Manufacturers,
  - 1. Glass Panels
    - a. Flat Glass Materials: Sun Management Glass System, supplied by Pilkington; P.O. Box 799, 811 Madison Ave., Toledo, OH 43697-0799; Telephone 419-247-4721, FAX 419-247-4517, Internet Address: [www.pilkington.com](http://www.pilkington.com).
  - 2. Insulated Metal Panels
    - a. Mapes Architectural Panels
- B. Substitutions will be considered in accordance with Section 01630 - Products and Substitutions.

**2.2 PRIMARY GLASS PRODUCTS:**

- A. Solar Control Low-Emmissivity Pyrolytic Float Glass
  - 1. Acceptable Product: Pilkington Solar E™ Solar Control Low-E



2. Description: Solar Control Low-Emissivity Pyrolytic Float Glass meeting requirements of ASTM C 1036, Type 1, Class 2, Quality q3.
3. Nominal Glass Thickness: 1/4 inch (6 mm).
4. Performance Characteristics:
  - a. Visible Light Transmittance: 53 Percent.
  - b. Visible Light External Reflectance: 10 Percent.
  - c. Visible Light Internal Reflectance: 15 Percent.
  - d. Total Solar Energy Transmittance: 33 Percent.
  - e. Total Solar Energy Reflectance: 9 Percent.
  - f. UV Transmittance: 31 Percent.
- B. Clear Float Glass
  1. Acceptable Product: Pilkington Optifloat™ Clear Float
  2. Description: Clear Float Glass meeting requirements of ASTM C 1036, Type 1, Class 1, Quality q3.
  3. Nominal Glass Thickness: 1/4 inch (6 mm).
  4. Performance Characteristics:
    - a. Visible Light Transmittance: 88 Percent.
    - b. Visible Light Exterior Reflectance: 8 Percent.
    - c. Visible Light Interior Reflectance: 8 Percent.
    - d. Total Solar Energy Transmittance: 77 Percent.
    - e. Total Solar Energy Reflectance: 7 Percent.
    - f. UV Transmittance: 62 Percent.
- C. Tempered Glass
  1. Cut float glass materials to indicated sizes and provide cut-outs and holes, if indicated, before heat strengthening.
  2. Fully temper float glass materials in accordance with ASTM C 1048, Kind FT.

## 2.3 GLASS TYPES

- A. **Standard Glass** - Float Glass 1/4" thick. *USE - interior hollow metal window (loading dock office) where not otherwise specified or required by code. [Types IC1 and ID1]*
- B. **Tempered Safety Glass (TSG)** 1/4" thick, Glass color: Clear. *USE - Where specified, doors (interior and exterior), interior door sidelights, interior where required by code.*
- C. **Laminated Tempered Safety Glass** 1/4" thick, Glass color: Clear. *USE - Where specified, [Type IB1]*
- D. **Exterior Insulated Units** - Sealed Insulating Glass, – Exterior - Low E: - *USE – Replacement Units at All Exterior aluminum awning windows and aluminum storefront systems.*
  1. Fabricate units in accordance with ASTM E 774, Class CBA, with components and performance characteristics specified below.
  2. Fabricate units in accordance with ASTM E 774, Class CBA:
  3. Components:
    - a. Aluminum storefront windows
      - (1) Outer Pane:
        - a) Glass Type: Pilkington Solar E™ Solar Control Low-E
        - b) Glass Color: 20% Bronze tint
          - a. **INTENT IS TO MATCH EXISTING GLASS TINTING. VERIFY WITH SAMPLES IN FIELD.**
        - c) Glass Thickness: 1/4 inch (6 mm).
        - d) Heat Treating: Fully tempered where specified or required by code.
      - (2) Air Space: 1/2 inch wide, hermetically sealed, argon-filled.
      - (3) Inner Pane:
        - a) Glass Type: Pilkington Optifloat™ Clear Float
        - b) Glass Color: Clear.
        - c) Glass Thickness: 1/4 inch (6 mm) total – with pvc interlayer.
        - d) **Heat Treating: Laminated tempered safety**
  4. Performance Characteristics:
    - a. Visible Light Transmittance: 53 Percent.
    - b. Visible Light External Reflectance: 10 Percent.
    - c. Visible Light Internal Reflectance: 15 Percent.
    - d. Total Solar Energy Transmittance: 33 Percent.
    - e. Total Solar Energy Reflectance: 9 Percent.

- f. UV Transmittance: 31 Percent.
- g. Summer U-Value: 0.27
- h. Winter U-Value: 0.28
- i. Solar Heat Gain Coefficient: 0.43
- j. Shading Coefficient: 0.49
- 5. Provide unit edge seals meeting requirements of ASTM E 773, with aluminum spacers having mitered and corners, and silicone sealant for glass-to-spacer seals.

## 2.4 INSULATED METAL PANELS MATERIALS

- A. Mapes Architectural Products, Mapes -R panel, 1" thick to fit in existing glazing pocket (verify in field,
  - a. Insulating Core – 2# Density Polyisocyanurate
  - b. Substrate – Corelite (Corrugated PE)
  - c. Finish .040 Kynar Aluminum, 10 year finish warranty, standard color.

## 2.5 INSTALLATION MATERIALS

- A. Installation Materials - General: Select products which have appropriate performance characteristics as recommended by glass and glazing materials manufacturers and which are compatible with all materials with which they will come into contact.
- B. Spacer Shims: ASTM C 864, neoprene, 50 to 60 Shore A durometer hardness; length 3 inches (75 mm), one half height of glazing stop, thickness required for application, one face self-adhesive.
- C. Glazing Tape: Butyl compound tape with integral resilient tube spacer, 10 to 15 Shore A durometer hardness, black color, coiled on release paper; widths required for specified installation.
- D. Glazing Tape: Closed cell polyvinyl chloride foam, maximum water absorption by volume 2 percent, designed for 25 percent compression percent for air barrier and vapor retarder seal, black color, coiled on release paper over adhesive on two sides; widths required for specified installation.
- E. Glazing Splines: ASTM C 864, resilient polyvinyl chloride, extruded shape to fit glazing channel retaining slot; black color.
- F. Glazing Gaskets: ASTM C 864, resilient polyvinyl chloride, extruded shape to fit glazing channel retaining slot; black color.
- G. Glazing Clips: Manufacturer's standard type.
- H. Sealants: Specified in Section 07920.

## PART 3 - EXECUTION

### 3.1 EXAMINATION:

- A. Require Glazier to inspect work of glass framing erector for compliance with manufacturing and installation tolerances, including those for size, squareness, offsets at corners; for presence and functioning of weep system; for existence of minimum required face or edge clearances; and for effective sealing of joinery. Obtain Glazier's written report listing conditions detrimental to performance of glazing work. Do not allow glazing work to proceed until unsatisfactory conditions have been corrected.

### 3.2 PREPARATION:

- A. Clean glazing channels and other framing members to receive glass, immediately before glazing. Remove coatings which are not firmly bonded to substrates. Remove lacquer from metal surfaces where elastomeric sealants are indicated for use.

### 3.3 GLAZING, GENERAL:

- A. Comply with combined printed recommendations of glass manufacturers, of manufacturers of sealants, gaskets and other glazing materials, except where more stringent requirements are indicated, including those of referenced glazing standards.
- B. Glazing channel dimensions as indicated in details are intended to provide for necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by job conditions at time of installation.
- C. Protect glass from edge damage during handling and installation; use a rolling block in rotating glass units to prevent damage to glass corners. Do not impact glass with metal framing. Use suction cups to

shift glass units within openings; do not raise or drift glass with a pry bar. Rotate glass with flares or bevels along one horizontal edge which would occur in vicinity of setting blocks so that these are located at top of opening.

- D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction sealant-substrate testing.

### 3.4 METHODS

#### A. Exterior Dry Method (Tape and Gasket Spline):

1. Apply glazing tape or spline to glass; butt-joint tape edges; seal joints with butyl sealant.
2. Place setting blocks with edge blocks maximum 6 inches from glass edges and intermediate blocks at 1/4 points of glass panel length.
3. Set glass unit on setting blocks; apply pressure against fixed stop for full contact.
4. Install removable stops without displacing glazing tape or spline; apply pressure for full continuous contact.
5. Trim sight-exposed tape flush with stop.

#### B. Interior Dry Method (Tape and Tape):

1. Apply glazing tape to permanent stops, allowing tape edge to project 1/16 inch above stop; butt-joint tape edges; seal joints with butyl sealant.
2. Place setting blocks with edge blocks maximum 6 inches from glass edges and intermediate blocks at 1/4 points of glass panel length.
3. Set glass unit on setting blocks; apply pressure against fixed stop for full contact.
4. Apply glazing tape on free perimeter of glazing as described above.
5. Install removable stops without displacing glazing tape; apply pressure for full continuous contact.
6. Trim sight-exposed tape flush with stop.

#### C. Interior Wet/Dry Method (Tape and Sealant): Use at cold storage spaces.

1. Apply glazing tape to glass; butt-joint tape edges; seal joints with butyl sealant.
2. Place setting blocks with edge blocks maximum 6 inches from glass edges and intermediate blocks at 1/4 points of glass panel length.
3. Set glass unit on setting blocks; apply pressure against fixed stop for full contact.
4. Install removable stops without displacing glazing tape; insert spacer strips between glazing and applied stops; terminate spacer strips 1/4 inch below sight line; apply pressure for full continuous contact.
5. Fill gap between glazing and stop with sealant to depth equal to bite of frame on glazing and to uniform line flush with sight line; tool sealant surface smooth.
6. Trim sight-exposed tape flush with stop.

### 3.5 GLAZING REPLACEMENT IN EXISTING STOREFRONT

- A. Replace gasketing
- B. Clean pocket and assure all drainage paths are clean
- C. Install new sealants as required.

### 3.6 SOLID PANEL PENETRATIONS

- A. For Line Sets, Pipes, Conduits, Etc. thru store front systems.
- B. Provide neat core drilling of panels in organized manner.
- C. Oversize and sleeve holes to allow for continuity of pipe insulation and sealing.
- D. Install sleeves to allow for water drainage.
- E. Seal sleeves and pipe penetrations.
- F. Do not screw or fasten to panels.
- G. Support items independent of panel.

### 3.7 PROTECTION AND CLEANING:

- A. Protect exterior glazing/glass from breakage immediately upon installation by use of crossed streamers attached to framing and held away from glass. Do not apply markers to surfaces of glass. Remove nonpermanent labels and clean surfaces.
- B. Wash glazing/glass on both faces not more than 4 days prior to date scheduled for inspections intended to establish date of substantial completion in each area of project. Wash glass by method recommended by glass manufacturer.

END OF SECTION 08800

**SECTION 09250**  
**GYPSUM WALL BOARD (GWB) & SHEATHING (GYP. BD)**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS:**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

**1.2 SUMMARY:**

- A. This Section includes gypsum board construction
- B. Extent of each type of gypsum wallboard (GWB) and sheathing construction required is indicated on drawings. Refer to the schedule in PART 2 of this section for types of GWB and GWP BD and their area of use.
- C. RELATED SECTIONS
  - 1 SECTION 05400 = LIGHT GAUGE STEEL FRAMING
  - 2 SECTION 06200 – FINISH CARPENTRY
  - 3 SECTION 07600 – FLASHING AND SHEET METAL
  - 4 SECTION 07210 – BUILDING INSULATION
  - 5 SECTION 07211 - FOAM IN PLACE INSULATION
  - 6 SECTION 08110 – STEEL DOORS AND FRAMES
  - 7 SECTION 08410 – ALUMINUM STORE FRONTS & ENTRANCES
  - 8 DIVISION 09 – OTHER FINISHES
  - 9 SECTION 09510 – ACOUSTICAL CEILINGS
  - 10 SECTION 09530 – CEILING SUSPENSION ASSEMBLIES
  - 11 SECTION 09545 - REINFORCED PLASTIC PANELS-FRP
  - 12 SECTION 09900 - PAINT
  - 13 OTHER

**1.3 DEFINITIONS:**

- A. Gypsum Board Construction Terminology: Refer to ASTM C 11 and GA 505 for definitions of terms for gypsum board construction not otherwise defined in this section or other referenced standards.

**1.4 SUBMITTALS:**

- A. Product data from manufacturers for each type of product specified.

**1.5 QUALITY ASSURANCE:**

- A. Fire-Resistance Ratings: Where indicated, provide materials and construction which are identical to those of assemblies whose fire resistance rating has been determined per ASTM E 119 by a testing and inspecting organization acceptable to authorities having jurisdiction.
  - 1. Provide fire-resistance-rated assemblies identical to those indicated by reference to GA File No's. in GA-600 "Fire Resistance Design Manual" or to design designations in U.L. "Fire Resistance Directory" or in listing of other testing and agencies acceptable to authorities having jurisdiction.
- B. Single Source Responsibility: Obtain each type of gypsum board and related joint treatment materials from a single manufacturer.

**1.6 DELIVERY, STORAGE, AND HANDLING:**

- A. Deliver materials in original packages, containers or bundles bearing brand name and identification of manufacturer or supplier.
- B. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic

- and other causes. Neatly stack gypsum boards flat to prevent sagging.
- C. Handle gypsum boards to prevent damage to edges, ends, and surfaces. Do not bend or otherwise damage metal corner beads and trim.

1.7 PROJECT CONDITIONS:

- A. Environmental Conditions, General: Establish and maintain environmental conditions for application and finishing gypsum board to comply with ASTM C 840 and with gypsum board manufacturer's recommendations.
- B. Minimum Room Temperatures: For non adhesive attachment of gypsum board to framing, maintain not less than 40 deg F (4 deg C). For adhesive attachment and finishing of gypsum board maintain not less than 50 deg F (10 deg C) for 48 hours prior to application and continuously thereafter until drying is complete.
- C. Ventilate building spaces to remove water not required for drying joint treatment materials. Avoid drafts during dry, hot weather to prevent materials from drying too rapidly.

**PART 2 – PRODUCTS**

2.1 MANUFACTURERS:

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the Work include, but are not limited to, the following:
- B. Manufacturer: Subject to compliance with requirements, provide products of one of the following:
1. Gypsum Boards and Related Products:
    - a. Domtar Gypsum Co.
    - b. Georgia-Pacific Corp.
    - c. Gold Bond Building Products Div., National Gypsum Co.
    - d. United States Gypsum Co.

2.2 GYPSUM BOARD:

- A. **GWB -1** - Standard Gypsum Wallboard: ASTM C 36; maximum lengths available to minimize end-to-end butt joints in each area receiving finished gypsum board, 5/8" thick standard unless noted otherwise. Fire-resistant type (Type X or equivalent), where required for fire-resistant rated assemblies. Edges: Tapered.
1. **Areas of Use – All areas not specified below.**
- B. **GWB -2** - Impact, Moisture and Mold Resistant Wallboard: Georgia Pacific "Dens-Armor Plus, Interior Guard", Fiberglass mesh joint treatment, Level 4 finish or USG Tough Hide Primer finish base.
1. **Areas of Use**
    - a. **Walls – all new interior first floor GWB Wall Work**
    - b. **Brewery – Wall backer walls if specified**
    - c. **Brewery – Ceiling, over new furring on existing wood joists.**
    - d. **Women's Room - Ceiling**
- C. **Gypsum Sheathing – 5/8"** Gold Bond "Dens Glas Gold" or approved equal.
1. Areas of Use – any exterior work exterior side exterior walls and at exterior soffits.
- D. **Fire Rated Assemblies** – provide Type X products and accessories for compliance with specified rating.

2.3 TRIM ACCESSORIES:

- A. Cornerbead and Edge Trim for Interior Installation: Provide corner beads, edge trim and control joints which comply with ASTM C 1047 and requirements indicated below:

1. Material: Formed metal, plastic or metal combined with paper, with metal complying with the following requirement:
  - a. Sheet steel zinc-coated by hot-dip process.
2. Edge trim shapes indicated below by reference to designations of Fig. 1 in ASTM C 1047: Provide shapes at jamb conditions with zip strip or spackle screed.
  - a. "LC" Bead, unless otherwise indicated.
  - b. "LK" Bead with square nose for use with kerbed jambs.
  - c. "L" Bead where indicated.
  - d. "U" Bead where indicated.
3. One-Piece Control Joint: Formed with vee-shaped slot per Fig. 1 in ASTM C 1047, with slot opening covered with removable strip.
4. See drawings for selection and location of curved corner beads and reveal joints.

#### 2.4 GYPSUM BOARD JOINT TREATMENT MATERIALS:

- A. General: Provide materials complying with ASTM C 475, ASTM C 840, and recommendations of manufacturer of both gypsum board and joint treatment materials for the application indicated.
- B. Joint Tape: Paper reinforcing tape at standard and mold resistant board, Fiberglass mesh at Mold and moisture resistant.
- C. Joint Compounds: vinyl-type powder or ready-mixed vinyl-type for interior use. 2 separate grades, one specifically for bedding tapes and filling depressions, and one for topping and sanding.
  1. Where setting-type joint compounds are indicated for use as taping and topping compounds, use formulation for each which develops greatest bond strength and crack resistance and is compatible with other joint compounds applied over it.
  2. For prefilling gypsum board joints, use formulation recommended by gypsum board manufacturer for this purpose.
  3. For filling joints and treating fasteners of water-resistant gypsum backing board behind base for ceramic tile, use formulation recommended by gypsum board manufacturer for this purpose.

#### 2.5 MISCELLANEOUS MATERIALS:

- A. General: Provide auxiliary materials for gypsum drywall construction which comply with referenced standards and the recommendations of the manufacturer of the gypsum board.
- B. Laminating Adhesive: Special adhesive or joint compound recommended for laminating gypsum boards.
- C. Spot Grout: ASTM C 475, setting-type joint compound of type recommended for spot grouting hollow metal door frames.
- D. Gypsum Board Screws: ASTM C 1002.
- E. Gypsum Board Nails: ASTM C 514.
- F. Asphalt Felt: ASTM D 226, Type I (No. 15).

### PART 3 - EXECUTION

#### 3.1 EXAMINATION:

- A. Examine substrates to which drywall construction attaches or abuts, preset hollow metal frames, cast-in-anchors, and structural framing, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of drywall construction. Do not proceed with installation until unsatisfactory conditions have been corrected.

### 3.2 APPLICATION AND FINISHING OF GYPSUM BOARD, GENERAL:

- A. Gypsum Board Application and Finishing Standard: Install and finish gypsum board to comply with ASTM C 840.
- B. Install sound attenuation blankets where indicated, prior to gypsum board unless readily installed after board has been installed.
- C. Locate exposed end-butt joints as far from center of walls and ceilings as possible, and stagger not less than 24 inches in alternate courses of board.
- D. Install ceiling boards across framing in the manner which minimizes the number of end-butt joints, and which avoids end joints in the central area of each ceiling. Stagger end joints at least 24 inches.
- E. Install wall/partition boards in manner which minimizes the number of end-butt joints or avoids them entirely where possible. At stairwells and similar high walls, install boards horizontally with end joints staggered over studs.
- F. Install exposed gypsum board with face side out. Do not install imperfect, damaged or damp boards. Butt boards together for a light contact at edges and ends with not more than 1/16 inch open space between boards. Do not force into place.
- G. Locate either edge or end joints over supports, except in horizontal applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Position boards so that like edges abut, tapered edges against tapered edges and mill-cut or field-cut ends against mill-cut or field-cut ends. Do not place tapered edges against cut edges or ends. Stagger vertical joints over different studs on opposite sides of partitions.
- H. Attach gypsum board to steel studs so that leading edge or end of each board is attached to open (unsupported) edge of stud flange first.
- I. Attach gypsum board to supplementary framing and blocking provided for additional support at openings and cutouts.
- J. Spot grout hollow metal door frames for solid core wood doors, hollow metal doors and doors over 32 inches wide. Apply spot grout at each jamb anchor clip just before inserting board into frame.
- K. Form control joints and expansion joints at locations indicated, with space between edges of boards, prepared to receive trim accessories.
- L. Cover both faces of steel stud partition framing with gypsum board in concealed spaces (above ceilings, etc.), except in chase walls which are braced internally. Hold gwb ½ off floor.
- M. Isolate perimeter of non-load-bearing drywall partitions at structural abutments. Provide 1/4 inch to 1/2 inch space and trim edge with "U" bead edge trim. Seal joints with acoustical sealant.
- N. Where sound-rated drywall construction is indicated, seal construction at perimeters, control and expansion joints, openings and penetrations with a continuous bead of acoustical sealant including a bead at both faces of partitions. Comply with ASTM C 919 and manufacturer's recommendations for location of edge trim, and close off sound-flanking paths around or through construction, including sealing of partitions above acoustical ceilings.
- O. Space fasteners in gypsum boards in accordance with referenced gypsum board application and finishing standard and manufacturer's recommendations.
- P. Accessories, General: Where feasible, use the same fasteners to anchor trim accessory flanges as required to fasten gypsum board to the supports. Otherwise, fasten flanges to comply with manufacturer's recommendations.
- Q. Install corner beads at external corners.
- R. Install metal edge trim whenever edge of gypsum board would otherwise be exposed or semi-exposed, and except where plastic trim is indicated. Provide type with face flange to receive joint compound except where "U" bead (semi-finishing type) is

- indicated.
- S. Install control joints at locations indicated, or if not indicated, at spacings and locations required by referenced gypsum board application and finish standard, and approved by the Architect for visual effect.
- 3.3 FINISHING OF DRYWALL:
- A. General: Apply joint treatment at gypsum board joints (both directions); flanges of corner bead, edge trim, and control joints; penetrations; fastener heads, surface defects and elsewhere as required to prepare work for decoration.
  - B. Prefill open joints and rounded or beveled edges, if any, using setting-type joint compound.
  - C. Apply joint tape at joints between gypsum boards, except where trim accessories are indicated.
  - D. Finish interior gypsum wallboard by applying the following joint compounds in 3 coats (not including prefill of openings in base), and sand between coats and after last coat:
  - E. Partial Finishing: Omit third coat and sanding on concealed drywall construction which is indicated for drywall finishing or which requires finishing to achieve fire-resistance rating, sound rating or to act as air or smoke barrier.
  - F. Level of Finish – provide a level of finish so that with the specified paint finish the drywall board seams and fastener filler is not visible under normal conditions of lighting. At boards with heavier texture allow for extra finishing to blend with other work.
- 3.4 PROTECTION:
- A. Provide final protection and maintain conditions, in a manner suitable to Installer, which ensures gypsum drywall construction being without damage or deterioration at time of Substantial Completion.

END OF SECTION 09250



**SECTION 092513**  
**ACRYLIC PLASTER (STUCCO) FINISH**

**PART 1 GENERAL**

**1.1 SUMMARY**

- A. Provide textured finish system for vertical above grade exterior concrete, concrete masonry, and portland cement plaster wall surfaces.

**1.2 SUBMITTALS**

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used. Include manufacturer's Material Safety Data Sheets.

**1.3 REFERENCES**

- A. ASTM Standards
  - C 926 Standard Specification for Application of Portland Cement-Based Plaster
  - C 1063 Standard Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Based Plaster
- B. South Coast Air Quality Management District -  
(SCAQMD) Rule 1113 Architectural Coatings

**1.4 QUALITY ASSURANCE**

- A. Manufacturer's Qualifications: The textured finish system manufacturer shall be a company with at least thirty five years of experience in manufacturing specialty finishes and regularly engaged in the manufacture and marketing of products specified herein. The manufacturer shall have an ISO 9001:2008 certified quality system and ISO 14001:2004 certified environmental management system.
- B. Installer's Qualifications: The contractor shall be qualified to perform the work specified by reason of experience. Contractor shall have at least 5 years of experience in commercial textured finish application, and shall have completed at least 3 projects of similar size and complexity. Contractor shall provide proof before commencement of work that he/she will maintain and supervise a qualified crew of applicators through the duration of the work. When requested Contractor shall provide a list of the last three comparable jobs including the name, location, and start and finish dates for the work.
- C. Mock-ups: The contractor shall install a mock-up of the system for evaluation and approval by the design professional, building owner, or owner's representative/quality assurance agent.
- D. Testing: Testing shall be conducted as directed by the design professional, building owner, or owner's representative/quality assurance agent to verify wall assembly performance, and to verify adhesion to prepared substrates before and during construction. Where substrate is too dense or non-absorbent for adhesion, or where a bond inhibiting material is on the surface, or in any case where adhesion is in question, install portland cement plaster over metal lath or other appropriate plaster base as directed by design professional, owner, or owner's representative/quality assurance agent.

**1.5 DELIVERY, STORAGE AND HANDLING**

- A. Deliver products in original packaging, labeled with product identification, manufacturer, and batch number.
- B. Store products in a dry area with temperature maintained between 50 and 85 degrees F (10 and 29 degrees C). Protect from direct sunlight. Protect from freezing. Protect from extreme heat (>90 degrees F [32 degrees C]).

- C. Handle products in accordance with manufacturer's printed instructions.

## 1.6 **WARRANTY**

- A. Provide manufacturer's standard limited warranty. Maximum warranty period is achieved with Sto Crack Defense reinforcement layer.

## **PART 2 PRODUCTS**

### 2.1 **MATERIALS**

- A. Products of STO are specified as a basis of design
- B. Provide substitution requests under provisions of section 01630/

### 2.2 **FINISH COATS**

- A. Stolit<sup>®</sup> Textured Finishes acrylic based, integrally colored textured finishes Stolit R1.
- B. Base Coat (*select one*)
  - 1. Sto BTS Plus - one component polymer modified cement-based high build base coat material (for leveling up to 1/16 inch [1.6 mm] in one pass)
    - a. Sto Mesh – nominal 4.5 oz/yd<sup>2</sup> (153 g/m<sup>2</sup>) glass fiber reinforcing mesh treated for compatibility with Sto materials

## **PART 3 EXECUTION**

### 3.1 **INSTALLATION**

- A. General Surface Preparation
- B. All substrate surfaces shall be straight and true to within 1/8 inch in 10 ft (3 mm in 3 m).
- C. Weak surface conditions such as laitance, and any other surface defects, and free of surface contamination such as grease, oil, wax, dust, dirt, salts, algae, mildew, pollen or any other surface contamination that could inhibit adhesion. Surface must be absorbent, slightly pitted or scarified.
- D. Concrete Masonry: must be fully cured and free of cracks, weak surface conditions such as laitance, and any other surface defects, and free of surface contamination such as grease, oil, wax, dust, dirt, salts, algae, mildew, pollen or any other surface contamination that could inhibit adhesion.
- E. Portland Cement Plaster: portland cement plaster must be in conformance with ASTM C 926. Surface must be fully cured and free of cracks, weak surface conditions such as laitance, and any other surface defects, and free of surface contamination such as grease, oil, wax, dust, dirt, salts, algae, mildew, pollen or any other surface contamination that could inhibit adhesion.
- F. Test adhesion as directed by design professional to verify adhesion to prepared substrate surfaces before and during construction. Where substrate surfaces are too smooth, dense or non-absorbent for adhesion, install appropriate metal lath plaster base and portland cement plaster in conformance with ASTM C 926, as directed by the design professional, owner, or owner's representative/quality assurance agent.
- G. Mixing
  - 1. Mix Sto products in accordance with published literature. Refer to applicable Product Bulletins for specific information on use, handling, application, precautions, and limitations of specific products.
- H. Application
  - 1. Install a skim coat of the Sto BTS Plus base coat material to the prepared wall surface by trowel to fill and level the surface and allow to dry.

2. Note: refer to this specification (Section 2.02C) and applicable Product Bulletins for thickness limitations of base coats and select appropriate Product based on “trueness” of wall substrate surface. See Note in Section 3.01A.
  3. Crack Defense Reinforcement Layer: Install nominal 1/8 inch (3 mm) base coat by trowel to the wall surface. Work horizontally or vertically in strips of 40 inches (1016 mm), and immediately embed the mesh into the wet base coat by troweling from the center to the edges of the mesh. Overlap mesh not less than 2-½ inches (64 mm) at mesh seams and feather at seams. Double wrap all inside and outside corners with minimum 8-inch (203 mm) overlap in each direction. Avoid wrinkles in the mesh. The mesh must be fully embedded so that no mesh color shows through. Re-skim with additional base coat if mesh color is visible.
  4. Apply the textured finish by trowel. Apply finish in a continuous application, and work to a wet edge. Float the finish to achieve the desired texture.
  5. Do not install base coat, reinforcing mesh or finish coat over joint sealants, cold joints, control joints, or accessories. Install over prepared concrete, concrete masonry, or portland cement plaster surfaces only.
- I. Protection
1. Provide protection of installed materials from water infiltration into or behind them during and after construction.
  2. Provide protection of installed materials from dust, dirt, precipitation, freezing and continuous high humidity until they are fully dry.
  3. Provide coping and/or flashing at sills, projecting features, deck attachments, roof/wall intersections, parapets and similar construction details to prevent water entry into the wall assembly or into and behind the finish system. Seal penetrations through the finished wall surface with backer rod and sealant or other appropriate means to provide a watertight condition.

END OF SECTION 092513

**SECTION 09300**  
**TILE – WALL AND FLOOR**

**PART 1- GENERAL**

**1.1 SECTION INCLUDES**

- A. Tile and Accessories:
  - a. Tile
    - a. Porcelain - Color Body
    - b. Porcelain - Glazed
    - c. Ceramic - Floor and Wall Glazed.
    - d. Porcelain Mosaic = Floor
    - e. Quarry Tile – Floor and Base
  - b. Trim and Accessories.
  - c. Setting Materials.

**1.2 RELATED SECTIONS**

- A. SECTION 01030 – ALTERNATES –
  - a. Finish Upgrades at Women’s Toilet Room
- B. SECTION 05400 – LIGHT GAUGE STEEL FRAMING
- C. SECTION 09250 – GYPSUM WALLBOARD AND SHEATHING
- D. SECTION 07920 – ELASTOMERIC JOINT SEALANTS

**1.3 PERFORMANCE REQUIREMENTS**

- A. Static Coefficient of Friction: Tile on walkway surfaces shall be provided with the following values as determined by testing in conformance with ASTM C 1028.
  - a. Level Surfaces: Minimum of 0.6 (Wet).

**1.4 SUBMITTALS**

- A. Submit under provisions of Section 01300.
- B. Product Data : Manufacturer's data sheets on each product to be used, including:
  - a. Preparation instructions and recommendations.
  - b. Storage and handling requirements and recommendations.
  - c. Installation methods.
- C. Selection Samples: Color charts illustrating full range of colors and patterns.
- D. Selection Samples: Samples of actual tiles for selection.
- E. Samples: Mount tile and apply grout on two plywood panels, illustrating pattern, color variations, and grout joint size variations.
- F. Manufacturer's Certificate:
  - a. Certify that products meet or exceed specified requirements.
  - b. For each shipment, type and composition of tile provide a Master Grade Certificate signed by the manufacturer and the installer certifying that products meet or exceed the specified requirements of ANSI A137.1.
- G. Maintenance Data: Include recommended cleaning methods, cleaning materials, stain removal methods, and polishes and waxes.

**1.5 QUALITY ASSURANCE**

- A. Installer Qualifications: Company specializing in performing the work of this section with minimum two years experience.
- B. Single Source Responsibility: Obtain each type and color of tile from a single

source. Obtain each type and color of mortar, adhesive and grout from the same source.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store products in manufacturer's unopened packaging until ready for installation.
- B. Protect adhesives and liquid additives from freezing or overheating in accordance with manufacturer's instructions.
- C. Store tile and setting materials on elevated platforms, under cover and in a dry location and protect from contamination, dampness, freezing or overheating.

#### 1.7 ENVIRONMENTAL REQUIREMENTS

- A. Do not install adhesives in an unventilated environment.
- B. Maintain ambient and substrate temperature of 50 degrees F (10 degrees C) during tiling and for a minimum of 7 days after completion.

#### 1.8 EXTRA MATERIALS

- A. Provide for Owner's use a minimum of 2 percent of the primary sizes and colors of tile specified, boxed and clearly labeled.

### **PART 2 PRODUCTS**

#### 2.1 MANUFACTURERS

- a. Acceptable Manufacturer: Products of the following manufacturers, provided they comply with requirements of the contract documents, will be among those considered acceptable:
  - a. Dal-Tile Corporation.
  - b. American Olean Tile Company.
  - c. Lonestar.
- B. Requests for substitutions will be considered in accordance with provisions of Section 01600.

#### 2.2 TILE

- A. General: Provide tile that complies with ANSI A137.1 for types, compositions and other characteristics indicated. Provide tile in the locations and of the types colors and pattern indicated on the Drawings and identified in the Schedule and the end of this Section. Tile shall also be provided in accordance with the following:
  - a) Factory Blending: For tile exhibiting color variations within the ranges selected under Submittal of samples, blend tile in the factory and package so tile taken from one package shows the same range of colors as those taken from other packages.
  - b. Mounting: For factory mounted tile, provide back or edge mounted tile assemblies as standard with the manufacturer, unless otherwise specified.
  - c. Factory Applied Temporary Protective Coatings: Where indicated under tile type, protect exposed surfaces of tile against adherence of mortar and grout by precoating with a continuous film of petroleum paraffin wax applied hot. Do not coat unexposed tile surfaces.
- B. Color Body Porcelain Tile: -
  - a. Areas of Use

- a. General floor tile unless specified otherwise.
    - b. Wall Tile in Brewery
  - b. Product:
    - a. Cliff Pointe.
    - b. Continental Slate.
  - c. Moisture Absorption: Less than .5 percent to less than 20 percent.
  - d. Size and Shape: **18 inches square, nominal.**
  - e. Surface Finish:
    - a. Wall - Light Polished.
    - b. Floor Matte.
  - f. Colors: To be selected from manufacturer's standard range.
  - g. Pattern: As indicated on the Drawings. For brewery wall tile install in ½ bond pattern
  - h. Trim Units: Matching bullnose, cove base corner, cove base outcorner, jolly, grooved bullnose, cement bullnose, fabric bullnose, shapes in sizes coordinated with field tile.
- C. Wall and base Glazed Tile: -
- a. Areas of Use - Toilet Room Wall tile.
  - b. Product: Subway Tiles, 2 colors.
  - c. Moisture Absorption: Less than .5 percent to less than 20 percent.
  - d. Size and Shape: 6 inches x 3 inches , nominal.
  - e. Surface Finish: Polished.
  - f. Colors: To be selected from manufacturer's standard range.
  - g. Trim Units: Matching cove base, cove base corner, bullnose, cove/inside finger cove, radius cap, sink rail incorner/outcorner, outside cove corner shapes in sizes coordinated with field tile.
  - h. Trim Units: Matching bullnose, cove/inside finger cove, radius cap, sink rail, sink rail incorner/outcorner, cement bullnose, cove base, fabric bullnose, grooved bullnose, jolly shapes in sizes coordinated with field tile.

### 2.3 TRIM AND ACCESSORIES

- A. Non-Ceramic Trim: Satin natural anodized extruded aluminum, stainless steel, brass, etc, style and dimensions to suit application, for setting using tile mortar or adhesive; use in the following locations:
  - a. Open edges of floor tile.
  - b. Transition between floor finishes of different heights.
  - c. Thresholds at door openings.
  - d. Expansion and control joints, floor and wall.
- B. Stone Thresholds: Provide stone thresholds uniform in color and finish and fabricated as follows:
  - a. Material:
    - a. Marble,complying with ASTM C 503 for exterior use and with a minimum abrasive hardness of 10 when tested in accordance with ASTM C 241.
  - b. Color/Finish: As selected from the manufacturers standard range.
  - c. Size:
    - a. Fabricate 2 inches (50 mm) wide by full width of wall or frame opening; 1/2 inch (12 mm) thick; beveled one long edge with radiused corners on top side; without holes, cracks, or open seams.

- d. Provide to provide transition between tile surface and adjoining finishes and at the following locations:
  - a. At doorways where tile terminates.
  - b. At open edges of floor tile where adjacent finish is a different height.
- C. Flash Patching – provide level finish for all tile floors and walls as required at no extra cost to the owner. Provide Ardex or Uzin materials.

#### 2.4 LEVELING AND PATHING MATERAILS

- a. Products of Ardex, Uzin or approved equal.
- b. Contractors are to including all leveling work (patching, grinding, flashing, etc.) as required to provide a suitable and durable substrate for all tile and tile accessories.

#### 2.5 SETTING MATERIALS

- A. Organic Adhesive: ANSI A136.1, thinset bond type;
  - a. use Type I in areas subject to prolonged moisture exposure. - Brewery
- B. Polymer modified cement grout, sanded or unsanded, as specified in ANSI A118.7; color as selected.
- C. Cleavage Membrane:
  - a. No. 15 (6.9 kg) asphalt saturated felt, ASTM D226, Type 1.
  - b. Polyethylene film, ASTM D4397, 4.0 mil thickness.
- D.. Waterproofing Membrane – provide good quality waterproofing membrane at all tiles wall areas of brewery including integral tie in between conc base and wall. Properly seal and joint to all penetrations and materials. Provide transition materials as required.**

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Verify that wall and floor surfaces are free of substances which would impair bonding of setting materials, smooth and flat within tolerances specified in ANSI A137.1, and are ready to receive tile.
- B. Verify that sub-floor surfaces are dust-free, and free of substances which would impair bonding of setting materials to sub-floor surfaces, and are smooth and flat within tolerances specified in ANSI A137.1.
- C. Verify that concrete sub-floor surfaces are ready for tile installation by testing for moisture emission rate and alkalinity; obtain instructions if test results are not within limits recommended by tile manufacturer and setting materials manufacturer.
- D. Verify that required floor-mounted utilities are in correct location.

#### 3.2 PREPARATION

- A. Protect surrounding work from damage.
- B. Remove any curing compounds or other contaminates.
- C. Vacuum clean surfaces and damp clean.
- D. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.
- E. Prepare floors and walls as required. Install floor patch and leveling to create a level, even floor and wall.**
  - a. . Contractors are to include in their bid all necessary surface preparation.**
- F. Prepare substrate surfaces for adhesive installation in accordance with adhesive manufacturer's instructions.

### 3.3 INSTALLATION - GENERAL

- A. Install tile and grout in accordance with applicable requirements of ANSI A108.1 through A108.13, manufacturer's instructions, and TCA Handbook recommendations.
- B. Lay tile to pattern indicated. Arrange pattern so that a full tile or joint is centered on each wall and that no tile less than 1/2 width is used. Do not interrupt tile pattern through openings.
- C. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align floor joints.
- D. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make joints watertight, without voids, cracks, excess mortar, or excess grout.
- E. Form internal angles square and external angles bullnosed.
- F. Install ceramic accessories rigidly in prepared openings.
- G. Install non-ceramic trim in accordance with manufacturer's instructions.
- H. Install thresholds where indicated.
- I. Sound tile after setting. Replace hollow sounding units.
- J. Keep expansion joints free of adhesive or grout. Apply sealant to joints.
- K. Allow tile to set for a minimum of 48 hours prior to grouting.
- L. Grout tile joints. Use standard grout unless otherwise indicated.
- M. Apply sealant to junction of tile and dissimilar materials and junction of dissimilar planes.

### 3.4 INSTALLATION - FLOORS - THIN-SET METHODS

- A. Over interior concrete substrates, install in accordance with TCA Handbook Method F113, dry-set or latex-portland cement bond coat, with standard grout, unless otherwise indicated.
  - a. Where waterproofing membrane is indicated, install in accordance with TCA Handbook Method F122, with latex-portland cement grout.
  - b. Where epoxy bond coat and grout are indicated, install in accordance with TCA Handbook Method F131.

### 3.5 INSTALLATION - WALL TILE

- A. At Toilet Room –
  - a. Over gypsum wallboard on wood or metal studs install in accordance with TCA Handbook Method W243, thin-set with dry-set or latex-portland cement bond coat, unless otherwise indicated.
- B. At Brewery
  - a. **Over interior concrete and masonry – at Brewery – Parged or mortar bed** install in accordance with TCA Handbook Method CW222, coat method.
  - b. **Grout - Epoxy**
  - c. **.Properly prepare substrate surface for application of materials.**
  - d. **.Ensure backing is solid to permit future mounting of items thru tile to cmu wall behind and to avoid water damage.**
  - e. Components
    - 1). Existing masonry – remove any plaster.
    - 2) Cleavage membrane
    - 3) Metal lath
    - 4) Mortar Bed



- 5) Bond Coat
- 6) Tile and grout

3.6 CLEANING

- A. Clean tile and grout surfaces.

3.7 PROTECTION OF FINISHED WORK

- A. Do not permit traffic over finished floor surface for 72 hours after installation.
- B. Cover floors with kraft paper and protect from dirt and residue from other trades.
- C. Where floor will be exposed for prolonged periods cover with plywood or other similar type walkways

**END OF SECTION 09300**

**SECTION 09510**  
**ACOUSTICAL CEILING (ACT) SYSTEMS**

**PART 1 – GENERAL**

**1.1 SUMMARY:**

- A. Extent of each type of acoustical ceiling is shown and scheduled on drawings and in this specification section.
  - a. New Grid and Ceiling Tiles in Brewery Area
  - b. New Grid and Ceiling Tiles in Chair Lift Area
  - c. New Replacement Grid and Ceiling tiles in Brewery
  - d. Renovation of Grid and Tiles in Misc. Areas
  - e. New Ceiling Tiles in Existing Grid at Brewery
  - f. Other
- A. Types of acoustical ceilings specified in this section include acoustical panel ceilings, exposed suspension.

**1.2 SUBMITTALS:**

- A. Product Data: Submit manufacturer's technical data for each type of acoustical ceiling unit and suspension system required.

**1.3 QUALITY ASSURANCE:**

- A. Fire Performance Characteristics: Provide acoustical ceiling components that are identical to those tested for the following fire performance characteristics, according to ASTM test method indicated, by UL or other testing and inspecting agency acceptable to authorities having jurisdiction. Identify acoustical ceiling components with appropriate marking of applicable testing and inspecting agency.
  - 1. Surface Burning Characteristics: As follows, tested per ASTM E 84.
    - a. Flame Spread: 25 or less.
    - b. Smoke Developed: 50 or less.
- B. Coordination of Work: Coordinate layout and installation of acoustical ceiling units and suspension system components with other work supported by, or penetrating through, ceilings, including light fixtures, HVAC equipment, fire-suppression system components (if any), and partition system (if any).

**1.4 DELIVERY, STORAGE AND HANDLING:**

- A. Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination or other causes.
- B. Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.
- C. Handle acoustical ceiling units carefully to avoid chipping edges or damaging units in any way.

**1.5 PROJECT CONDITIONS:**

- A. Space Enclosure: Do not install interior acoustical ceilings until space is enclosed and weatherproof, wet-work in space is completed and nominally dry, work above ceilings is complete, and ambient conditions of temperature and humidity will be continuously maintained at values near those indicated for final occupancy.

**PART 2 – PRODUCTS**

**2.1 ACOUSTICAL CEILING UNITS, GENERAL:**

- A. Standard for Acoustical Ceiling Units: Provide manufacturer's standard units of configuration indicated which are prepared for mounting method designated and which comply with FS SS-

S-118 requirements, including those indicated by reference to type, form, pattern, grade (NRC or NIC' as applicable), light reflectance coefficient (LR), edge detail, and joint detail (if any).

1. Products of Armstrong are specified as a basis of design
2. USG Corporation is an acceptable substitution under provisions of Section 01630

## 2.2 ACOUSTICAL TILES:

- A. **BREWERY AREAS** – Armstrong Fine Fissured Ceramguard unperforated 2' x 4' with "Humdigard Plus" and bioblock paint.
  - a. **Grid**
    - i. **Bay X1to X2 – Armstrong Prelude Plus XL Stainless Steel-gasketed 15/16" metal grid, square edge,**
    - ii. **Bays X2-X3, X3-X4, X4-X5 – Armstrong Prelude Plus XL Aluminum gasketed.**
  - b. **Areas of Use**
    - i. **Brewery**
- B. **OTHER AREAS - Standard** - Armstrong Calla Health Zone Air Assure, 24"x48"x5/8" and 24x24with 15/16" grid, tegular edge, with "Humdigard" and bioblock paint or approved equal. Provide hold down clips near doors.
  - a. **Areas of Use**
    - i. **Replacement tiles in renovated areas as noted. (installed in existing grid)**
    - ii. **Tasting Room**
    - iii. **Chairlift Corridor. – Black Grid and Black Ceiling Tiles**

## 2.3 METAL SUSPENSION SYSTEMS, GENERAL:

- A. **Standard for Metal Suspension Systems:** Provide metal suspension systems of type, structural classification and finish indicated which comply with applicable ASTM C 635 requirements as manufactured by Armstrong or Approved equal. See tile specification for grid width.
- B. **Finishes and Colors:** Provide manufacturer's standard factory- applied finish for type of system indicated. For exposed suspension members and accessories with white painted finish. Stainless steel grid with SS finish.
- C. **Attachment Devices:** Size for 5 times design load indicated in ASTM C 635, Table 1, Direct Hung.
- D. **Hanger Wire:** Galvanized carbon steel wire, ASTM A 641, soft temper, prestretched, Class 1 coating, sized so that stress at 3- times hanger design load (ASTM C 635, Table 1, Direct Hung), will be less than yield stress of wire, but provide not less than 12 gage.

## PART 3 – EXECUTION

### 3.1 PREPARATION:

- A. **Coordination:** Furnish layouts for inserts, clips, or other supports required to be installed by other trades for support of acoustical ceilings.
- B. **Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less-than-half width units at borders, and comply with reflected ceiling plans wherever possible.**

### 3.2 INSTALLATION:

- A. **General:** Install materials in accordance with manufacturer's printed instructions, and to comply with governing regulations, fire-resistance rating requirements as indicated, and CISCA standards applicable to work.
- B. **Arrange acoustical units and orient directionally-patterned units (if any) in manner shown by reflected ceiling plans. Install tile with pattern running in one direction.**
- C. **Install suspension systems to comply with ASTM C 636, with hangers supported only from building structural members. Locate hangers not less than 6" from each end and spaced 4'-0"**

along each carrying channel or direct-hung runner, unless otherwise indicated, leveling to tolerance of 1/8" in 12'-0".

- a. Secure wire hangers by looping and wire-tying, either directly to structures or to inserts, eye-screws, or other devices which are secure and appropriate for substrate, and which will not deteriorate or fail with age or elevated temperatures.
- D. Install edge moldings of type indicated at perimeter of acoustical ceiling area and at locations where necessary to conceal edges of acoustical units.
- E. Install acoustical panels in coordination with suspension system, with edges concealed by support of suspension members. Scribe and cut panels to fit accurately at borders and at penetrations.
- F. Install hold-down clips in areas indicated, and in areas where required by governing regulations or for fire-resistance ratings; space as recommended by panel manufacturer, unless otherwise indicated or required.
- G. **AT BREWERY - Attach ceiling suspension wires thru gwb to metal furring or wood framing. GWB to be first coat painted prior to installation of wires. After installation of wires, install subsequent coats of paint to GWB with attention to all fasteners thru GWB.**

### 3.3 CLEANING:

- A. Clean exposed surfaces of acoustical ceilings, including trim, edge moldings, and suspension members; comply with manufacturer's instructions for cleaning and touch-up of minor finish damage. Remove and replace work which cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

**END OF SECTION 09510**

## **SECTION 09530 CEILING SUSPENSION ASSEMBLIES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes: Provide metal suspension system for GWB ceilings.
- B. Related Requirements:
  - 1. Section 09250 - Gypsum Wallboard .

#### **1.3 REFERENCES**

- A. Abbreviations and Acronyms:
  - 1. CISCA: Ceilings & Interior Systems Construction Association; [www.cisca.org](http://www.cisca.org).
- B. Reference Standards:
  - 1. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
  - 2. ASTM C635/C635M - Standard Specification for Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings
  - 3. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels
  - 4. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products
  - 5. ASTM C841 - Standard Specification for Installation of Interior Lathing and Furring

#### **1.4 SUBMITTALS**

- A. Product Data: Submit sheets listing dimensions, load carrying capacity and standard compliance.

#### **1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Protect system components from excessive moisture in shipment, storage, and handling. Deliver in unopened bundles and store in a dry place with adequate air circulation. Do not deliver material to building until wet conditions such as concrete, plaster, paint, and adhesives have been completed and cured to a condition of equilibrium.

#### **1.6 WARRANTY**

- A. Manufacturer Warranty: Submit a written warranty executed by manufacturer for a period of 40 years from date of Substantial Performance, agreeing to repair or replace suspension system components that fail or are compromised within the specified warranty period. Failed or compromised parts can include, but are not limited to:
  - 1. Rusting or defects directly made by the manufacturer.

### **PART 2 - PRODUCTS**

#### **2.1 MANUFACTURERS**

- A. Chicago Metallic [640-C] [660-C] Heavy Duty Double Web Suspension System manufactured by ROCKFON, 4849 South Austin Avenue, Chicago, IL 60638. 1-800-323-7164; [www.rockfon.com](http://www.rockfon.com).

## 2.2 MATERIALS

- A. Basic Steel Material and Finish: Commercial quality, CS Type A to ASTM A653/A653M, hot-dip galvanized to not less than Z120 (G40) zinc coating designation.
- B. Main Tees and Cross Tees: All suspension main tee and cross tee components are manufactured from commercial quality steel with factory punched cross tee slots, hanger holes, and non-directional bayonet-style end couplings while furring tees feature a stab-type end tab hook-type end tab coupling. The main tees are made with 0.530 mm (0.020") thick steel with a 35 mm (1-3/8") knurled face.
  - 1. Structural Classification Standard: ASTM C635/C635M Heavy Duty.
  - 2. Colour: Bare steel
  - 3. Specified Product: "Chicago Metallic 640 (Hook)/660 (Stab) Non-Fire Rated Drywall Grid System" by ROCKFON.
- C. Perimeter Treatment Components:
  - 1. Wall Track: Manufactured from 0.530 mm (0.020") thick steel, 40 mm (1-9/16") high by 3048 mm (120") long with a 25 mm (1") top and bottom flange.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas and conditions, including structural framing to which metal acoustical ceiling suspension assemblies attach or abut, with installer present, for compliance with requirements specified in this and other Sections affecting ceiling installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of metal acoustical ceiling suspension assemblies.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

- A. Install metal ceiling suspension assemblies to comply with ASTM C636/C636M and seismic design requirements indicated, according to manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."
- B. Furring Runners: Installed 1220 mm (48") on centre, by direct suspension from existing structure in accordance with ASTM C754 and ASTM C841 with not less than 2.642 mm (12 ga) steel hanger wires, wrapped tightly 3 full turns at each end.
- C. Furring Tees: Installed perpendicular to furring runners [406 mm (16")] [610 mm (24")] on centre to form [ ] by [ ] modules in accordance with ASTM C754 and ASTM C841.
- D. Cross Tees: Installed adjacent to each unsupported side of recessed fixtures.
- E. Wall Track: Installed on vertical surfaces, intersecting suspension components, by appropriate method in accordance with industry accepted practice.
- F. Additional Hanger Wires: Wrapped tightly 3 full turns to structure and components at locations where imposed loads could cause deflection exceeding 1/360 span.

### 3.3 REPAIR

- A. Remove damaged or compromised components; replace with undamaged components.

### 3.4 CLEANING

- A. Clean exposed grid with non-solvent based non-abrasive commercial cleaning solution. Comply with manufacturer's instructions for cleaning grid components. Remove any components that cannot be effectively cleaned or repaired.

END OF SECTION

**SECTION 09545**  
**REINFORCED PLASTIC PANELS (FRP)**

**PART 1 – GENERAL**

**1.01 SECTION INCLUDES**

- A. Reinforced plastic paneling – Walls and Ceilings.
- B. Moldings
- C. Adhesives

**1.02 RELATED SECTIONS**

- A. SECTION 09250 - Gypsum Wallboard and Sheathing:
- B. SECTION 07920 – Elastomeric Joint Sealants

**1.03 SUBMITTALS**

- A. Submit two samples, per SUBMITTALS Section, of each material proposed to the Owner for acceptance.

**PART 2 – PRODUCTS**

**2.01 MANUFACTURER**

- A. The drawings were prepared and portions of this specification written on the basis of using the products of The NUDO Corp., Springfield, IL, 800-826-4132. It is not the intent to limit competitive bidding. Products with equal characteristics by other manufacturers are acceptable under the conditions of these Specifications.

**2.02 MATERIALS**

- A. Panels: Nudo, Product No. LP-F9, .090" thick, fiberglass reinforced panels; manufacturer's standard Class A. Provide 4'x8', 4'x9' or 4'x10' sheets as required to minimize seams.
- B. Moldings: Manufacturer's standard, types for conditions intended for use.
- C. Adhesive: General purpose adhesive of type as recommended by manufacturer.
- D. Sealant: "Nudo, Super Silicone Sealant" of color to match panels.
- E. Colors: Manufacturer's standard colors as noted on the drawings.

**PART 3 – EXECUTION**

**3.01 HANDLING**

- A. Handle with care to prevent damage of any sort. Scratched, damaged panels will not be accepted in the finished work. Replace all defective panels at no additional cost to the Owner.
- B. Deliver materials in manufacturer's original packaging. Remove from shipping skid and restack on a solid, flat, dry surface a minimum of 24 hours prior to installation. Do not stack panels directly on concrete floor.
- C. Inspect panels for any defects or panels of unacceptable quality and remove from premises.

**3.02 PREPARATION**

- A. Panels: Back of panels shall be free of any foreign material or contaminants.
- B. Surfaces to be Covered: Surface shall be flat and true. Use a fast-setting underlayment to correct any surface irregularities. The surface to be covered shall be free of dirt, dust, grease, loose scaling paint, or other contaminants.

**3.03 INSTALLATION**

- A. Install in complete accord with manufacturer's printed instructions. Intermediate horizontal seams are not acceptable, except where specifically noted on the drawings.
- B. All edges and joints of panels shall receive molding. Use continuous 10 foot lengths of molding at all panels. Piecing will not be acceptable.

**3.04 CLEAN-UP**

- A. Upon completion of work of this section, remove related debris from premises.

**END OF SECTION 09545**

**SECTION 096513 –  
STAIR TREADS, RISERS AND LANDINGS**

**PART 1 – GENERAL**

**1.1 SUMMARY**

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications. Section includes: Resilient Stair Treads and Risers and Stringers and accessories.

**1.2 DESCRIPTION OF WORK**

- A. Work Included:
- i. Provide labor, materials and equipment necessary to complete the installation of resilient stair treads, risers and landings on existing and new stairs and landings including but not limited to the following:
    - a. Rubber Stair Treads, Risers and Landings
    - b. Resilient Accessories
  - ii. Removal of existing flooring and related items
  - iii. Preparation of surfaces for new finishes
    - a. Contractor is to review investigate existing conditions prior to submitting a bid and is to include all necessary work as required by the flooring manufacture.
      - (1) Existing stairs treads are of solid wood construction.
      - (2) Intermediate Existing landings are of wood construction.
      - (3) Landings at upper floor levels may have a gypcrete topping.
      - (4) At grade landings and first floor are of concrete slab on grade.
  - iv. Installation of new items
- B. Related Work: The following items are not included in this Section and are specified under the designated Sections:
- i. DIVISION-03 - Section Concrete - Cast-In-Place Concrete, Substrate Preparation
  - ii. DIVISION 06 - Rough Carpentry
  - iii. SECTION 09668 Resilient Floor Installation.
- C. References (Industry Standards):
- i. ASTM International (ASTM):
    - a. ASTM F2169, Standard Specification for Resilient Stair Treads
    - b. ASTM E648, Standard Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source
    - c. ASTM E662, Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials
    - d. ASTM F386, Standard Test Method for Thickness of Resilient Flooring Materials Having Flat Surfaces
    - e. ASTM F925, Standard Test Method for Resistance to Chemicals of Resilient Flooring
    - f. ASTM F1514, Standard Test Method for Measuring Heat Stability of Resilient Flooring by Color Change
    - g. ASTM D2240, Standard Test Method for Rubber Property—Durometer Hardness



- h. ASTM D2047, Standard Test Method for Static Coefficient of Friction as Measured by the James Machine
- i. ASTM D3389, Standard Test Method for Coated Fabrics Abrasion Resistance (Rotary Platform Abrader)
- j. ASTM F710, Standard Practice for Preparing Concrete to Receive Resilient Flooring
- k. ASTM F1482, Standard Guide to Wood Underlayments products Available for Use Under Resilient Flooring
- ii. National Fire Protection Association (NFPA):
  - a. NFPA 253, Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Energy Source
  - b. NFPA 258, Test Method for Specific Density of Smoke Generated by Solid Materials

### 1.3 SUBMITTALS

- A. General: Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedures.
- B. Product Data: Submit manufacturer's technical data sheet, care & maintenance document, submittal and/or warranty for each material and accessory proposed for use.
- C. Samples: Submit representative samples of each product specified for verification, in manufacturer's standard size samples of each resilient product color, texture and pattern required.

### 1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Provide resilient stair treads and accessory materials manufactured in the United States of America by a firm with a minimum of 10 years' experience with resilient flooring materials of type equivalent to those specified.
  - i. Provide resilient stair tread products, including risers, stringers, and subfloor preparation products from one manufacturer to ensure color matching and compatibility.
  - ii. Manufacturer shall be capable of providing technical training and technical field service representation.
- B. Installer Qualifications: Installer must be professional, licensed, insured and acceptable to manufacturer of resilient stair tread materials. Project Managers or Field Supervisors must be INSTALL (International Standards & Training Alliance) certified CFI (Certified Floorcovering Installers) Certified and/or an FCICA (The Flooring Contractors Association) CIM (Certified Installation Manager) for the requirements of the project.
- C. Sustainable Design Requirements:
  - i. Rubber Stair Tread must be easily cleaned and do not require coatings and strippers, or use chemicals that may be hazardous to human health.
  - ii. Rubber Stair Tread must have a published EPD.
  - iii. Rubber Stair Tread must have a published HPD.
  - iv. Rubber Stair Tread must have is 100% Recyclable.
  - v. Rubber Stair Tread must have be SCS FloorScore® Certified and meets California Specifications Section 01350.
  - vi. Rubber Stair Tread must be manufactured in a Facility that is ISO 14001 Certified.
  - vii. Rubber Stair Tread must be free of materials known to be teratogenic, mutagenic or carcinogenic including halogens, asbestos and chlorines.

### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in labeled packages. Store and handle in strict compliance with manufacturer's recommendations. Protect from damage due to weather, excessive temperatures, and construction operations.
- B. Deliver materials sufficiently in advance of installation to condition materials to the required temperature for 48-hours prior to installation.

#### 1.6 PROJECT CONDITIONS

- A. Install Rubber Stair Treads after other finishing operations, including painting, have been completed.
- B. Maintain temperature at service levels and/or the ambient temperature must remain steady ( $\pm 10^{\circ}$  F) between  $65^{\circ}$  F and  $85^{\circ}$  F for at least 48-hours prior to, during and until substantial completion.
- C. Maintain relative humidity at service levels, or between 40% and 65% RH.
- D. Avoid conditions in which dew point causes condensation on the installation surface.

#### 1.7 WARRANTY

- A. Provide manufacturer's standard limited commercial warranty to cover manufacturing defects.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURER

- A. Basis-of-Design: Roppe Corporation | 1602 N Union St. | Fostoria, OH 44830 | P: (800) 537-9527
- B. Substitutions: substitutions permitted

#### 2.2 PRODUCTS

- A. RUBBER STAIR TREADS
  - i. Raised circular Roppe Vantage Design #98
  - ii. Nosing – ADA compliant Relief cut with adaptor at wood nosing as required.
    - a. Color – Club – Black
    - b. Brewery – Selection by tenant from standard colors
  - iii. Provide nosing adaptor work as required. Nosings must meet HC Accessible and IBC code standards.
- B. RUBBER STAIR LANDINGS
  - i. To match stair tread product.
- C. RISERS
  - a. Height: 7" (177.8 mm) (cut/trim as/if required).
  - b. Thickness: .100" (2.5 mm)
  - c. Toe Length: 9/16" (14.28 mm)
  - d. Specify Riser Length: one piece
  - e. Color Matched to Color Selected for Raised Design Rubber Treads
- D. STRINGERS (if required. At areas with existing non flooring risers that is not part of wall separate stringers are not required)
  - a. Height: 10" (254 00 mm)
  - b. Thickness: .080" (2 mm)
- E. WALL BASE
  - i. Refer to other Division 09 Section.

#### 2.3 INSTALLATION AND MAINTENANCE MATERIALS

- A. Moisture Mitigation: Moisture testing is required for all Raised Design Rubber Stair Treads installations. Mitigation should be performed if results indicate high levels of moisture. Recommended Moisture Mitigation Product:
  - i. Excelsior MM-100, Moisture Mitigation provided by Roppe
- B. Substrate Preparation Products: Substrates should be prepared to properly receive the resilient flooring products being specified. Trowelable leveling and patching compounds that are latex-modified, Portland cement based or blended hydraulic cement based formulation. Recommended Substrate Preparation Products:
  - i. Excelsior NP-230, Non-Porous Substrate Primer provided by Roppe
  - ii. Excelsior CP-300, Cementitious Patch provided by Roppe
  - iii. Excelsior SU-310, Self-Leveling Underlayment provided by Roppe
- C. Adhesives: Adhesives should be selected based on the site conditions and use of the space being installed. Following manufacturer's Recommended Adhesive Products:
  - i. Excelsior AW-510, Acrylic Wet-Set Adhesive provided by Roppe
    - a. Unit Size: 1 Gallon & 4 Gallon
    - b. Coverage: 150 Square Feet
    - c. Standard installations over porous and non-porous substrates
    - d. Hard set adhesive adding to dimensionally stable materials
    - e. Excellent sheer strength
    - f. Approved for Hill-Rom Beds
    - g. Installation Limits
      - (1) 90% RH, ASTM F2170
      - (2) 6 lbs. MVER, ASTM F1869
      - (3) 7-10 pH
  - ii. Excelsior EN-610, Epoxy Nose Filler Adhesive provided by Roppe
    - a. Unit Size: 13.5 oz. Cartridge
    - b. Coverage: 25 linear feet with ½" bead / 50 linear feet with ¼" bead
    - c. Standard installations over porous and non-porous substrates
    - d. Directly install over concrete, metal or wood
    - e. Excellent sheer strength
    - f. Installation Limits
      - (1) 90% RH, ASTM F2170
      - (2) 6 lbs. MVER, ASTM F1869
      - (3) 7-10 pH
  - iii. Excelsior C-630, Contact Adhesive provided by Roppe
    - a. Unit Size: 1 Quart
    - b. Coverage: 20 – 40 sq. ft.  
120-140 lin. ft. per unit
    - c. Vertical or Horizontal installations over porous and non-porous substrates
    - d. Hard set adhesive adding to dimensionally stable materials
    - e. Superior sheer strength
    - f. Installation Limits
      - (1) 85% RH, ASTM F2170
      - (2) 6 lbs. MVER, ASTM F1869
      - (3) 7-10 pH
- D. Maintenance Materials: Proper maintenance of the installation is critical to the long term performance of the flooring products being specified. Using the appropriate chemicals to

maintain the product according to the environment in which it is specified is critical. Recommend maintenance products:

- i. Excelsior NC-900, All-Purpose Neutral pH Cleaner provided by Roppe
  - a. For initial maintenance.
  - b. For daily and routine maintenance.
- ii. Excelsior CM-910, Cleaner/Maintainer provided by Roppe
  - a. For daily or long-term maintenance.
  - b. Has a slight polymer to restore the luster of the product while providing cleaning efficacy.
- iii. Excelsior MF-940 for ease of floor maintenance, provided by Roppe
  - a. Creates protective wear layer that protects flooring and eases maintenance.
- iv. Excelsior GF-950, Gloss Acrylic Floor Finish, for ease of floor maintenance, provided by Roppe
  - a. Creates protective wear layer that protects flooring and eases maintenance.
- v. Excelsior PF-960, High Performance Floor Finish for ease of floor maintenance, provided by Roppe.
  - a. Creates a protective wear layer that protects flooring and eases maintenance.
- vi. Excelsior PR-930, High Performance Finish Remover, provided by Roppe.

### **PART 3 – EXECUTION**

#### **3.1 GENERAL**

- A. Contractor Responsibilities:
  - i. Supply a safe, climate controlled building and subfloor as detailed in manufacturer Technical Data Sheets.
  - ii. Ensure substrate meets the requirements of ASTM F2169,
    - a. Roppe Technical Data Sheets and Excelsior Technical Data Sheets.
  - iii. Provide a secure storage area that is maintained permanently or temporarily at normal operating temperature and humidity conditions between 65° F and 85° F and between 40% and 65% relative humidity, for at least 48-hours prior to and during the application of the flooring, so the flooring contractor can acclimate the flooring materials per manufacturer's instructions.
  - iv. Provide an installation area that is weather tight and maintained either permanently or temporarily at ambient service temperature and humidity. Normal operating temperature and humidity conditions are between 65° F and 85° F and between 40% and 65% relative humidity, for at least 48-hours prior to and during the application of the flooring per the manufacturer's instructions.
  - v. Ensure areas with direct prolonged exposure to sunlight are protected with protective UVA/UVB restrictive coatings or films.
  - vi. Areas of the flooring that are subject to direct sunlight through doors or windows should have them covered using blinds, curtains, cardboard or similar for the time of the installation and 72-hours after the installation to allow the adhesive to cure. Note: These areas should be installed using wet adhesives only.
  - vii. Conduct initial maintenance prior to final usage per the Roppe Care & Maintenance Documents. Do not conduct initial maintenance until adhesive has cured per the adhesive technical data.
- B. Flooring Contractor Responsibilities:
  - i. Provide trained installers that are professional, licensed, insured and acceptable to manufacturer of resilient stair tread materials.
  - ii. Ensure installers or installation teams meet one of the following requirements:

- iii. Have completed INSTALL (International Standards & Training Alliance) or CFI (Certified Floorcovering Installers) training programs and/or are certified by INSTALL or CFI.
- iv. Are being supervised by Project Managers or Field Supervisors that are INSTALL (International Standards & Training Alliance) certified, CFI (Certified Floorcovering Installers) Certified and/or an FCICA (The Flooring Contractors Association) CIM (Certified Installation Manager).
- v. Follow all requirements in the appropriate manufacturer Technical Data Sheets, Care & Maintenance Documents, Warranties and other technical documents or instructions.

### 3.2 EXAMINATION

- A. General: Follow guidelines laid out in Division 01, Examination and Preparation, as well as Quality Assurance.
- B. Verification of Conditions: Inspect all substrates to ensure they are clean, smooth, permanently dry, flat, and structurally sound. Confirm all areas are properly sealed and acclimated per manufacturer's requirements.
- C. Verification of Products: In accordance with manufacturer's installation requirements, visually inspect material for size, color or visual defects prior to installing. Any material that is incorrect or visually defective shall not be installed.

### 3.3 SUBSTRATE PREPARATION

- A. General: Follow guidelines laid out in Division 01. Examination and preparation. All work required ensuring substrate or subfloor meets manufacturers' guidelines are the responsibility of the general contractor.
  - i. Follow material manufacturer's as well as adhesive manufacturer's instructions for installation.
  - ii.
- B. Preparation: Ensure substrate meets the requirements of
  - a. ASTM F710 for concrete substrates
  - b. ASTM F1482 for wood substrates
  - c. ASTM-F2419 for gypsum substrates
  - d. and/or Roppe Technical Data Sheets and Excelsior Technical Data Sheets.
  - ii. Substrates must be free of visible water or moisture, dust, sealers, paint, sweeping compounds, curing compounds, residual adhesives and adhesive removers, concrete hardeners or densifiers, solvents, wax, oil, grease, asphalt, visible alkaline salts or excessive efflorescence, mold, mildew and any other extraneous coating, film, material or foreign matter.
  - iii. Acclimate all products to be used during the installation and the installation environment prior to installation according to the manufacturers written instructions.
- C. Concrete Substrates:
  - i. Moisture Testing: Perform moisture testing per the manufacturer's recommendations to determine conditions, it is recommended to treat new and existing slabs a little bit different to ensure adequate conditions exist for installation.
    - a. New concrete substrates: it is recommended to perform ASTM F2170 Relative Humidity testing no more than a week prior to installation to determine the levels present and when to proceed with the installation.
    - b. Existing concrete substrates: in addition to ASTM F2170 testing, existing slabs that have previously had floor covering installed, must be tested to ASTM F1869 Calcium Chloride test kits to determine the MVER of the concrete.

- ii. Mechanically remove contamination on the substrate that may cause damage to the flooring material, this includes paint, permanent and non-permanent markers, pens, crayons, etc. Leaving these on the substrate or marking with them on the back of the material could cause bleed through and damage the flooring.
  - iii. Fill cracks, holes, depressions and irregularities in the substrate to prevent transferring through to the surface of the resilient flooring. Use a high-quality Portland cement based product such as Excelsior installation products provided by Manufacturer.
- D. Wood Substrates: wood substrates must have a minimum 18" (45.7 cm) of cross ventilated space beneath the joist.
  - i. *Wood substrates must be a minimum 1" thick with a double layer construction.*
    - a. *PROVIDE ADDITIONAL LAYER OF THIN UNDERLAYMENT IF REQUIRED*
  - ii. *Wood substrates must be rigid and free of movement.*
  - iii. *Wood substrates must not be OSB (Oriented Strand Board), particle board, chip-board, lauan or composite type underlayments.*
- E. Gypsum Substrates - Existing
  - i. Review with manufacturer.
    - a. Remove all existing flooring, adhesives and residues as required.
    - b. Prepare surface(s) as required for new flooring
  - ii. Gypsum-based substrates are recommended to have a minimum compressive strength of 3500 PSI. The substrate must be structurally sound and firmly bonded to the subfloor below. Compressive strengths below 3500 PSI can reduce performance properties of products installed. Sometimes steps can be taken to improve the PSI of at least the surface of the gypsum-based surface. In light commercial, multi-family, and/or residential applications this may be lower or closer to 2500 PSI due to the specification of the product and therefore just be aware of the possibility of reduced performance due to the performance of the gypsum substrate. This does not affect the warranty of the product unless the properties of the gypsum-based substrate lead to or cause failure.
  - iii. Any cracked or fractured areas must be removed and repaired with a compatible patch or repair product for gypsum-based substrates. Follow those products installation instructions for installation over a gypsum substrate.
  - iv. Remove all
  - v. Apply sealer on the surface to prevent dusting and promote adhesion to the substrate. New or existing gypsum substrates may require additional primer just prior to finished

### 3.4 INSTALLATION

- A. General: Follow all relevant guidelines detailed in Division 01, as well as flooring and adhesive manufacturer's technical data sheets.
- B. Resilient Rubber Treads: Install material in accordance with manufacturer's recommendations.
  - i. Select the appropriate adhesive for the application and job site conditions.
  - ii. Install material is installed according to installation instructions.
  - iii. Ensure material is rolled appropriately into the adhesive.
- C. Resilient Rubber Risers: Install in accordance with manufacturer's installation recommendations.
  - i. Dry fit Risers to the required lengths.
  - ii. Scribe glue line on back of riser and at edge of Riser material.

- iii. Apply adhesive in full spread for complete coverage of the Riser material.
- iv. Apply Rubber Risers to the prepared surface as level and straight as possible.
- v. Hand roll Riser material onto wall and floor surface and remove excess adhesive.
- D. Resilient Rubber Stringers: Install in accordance with manufacturer's installation recommendations.
  - i. Substrates must be smooth, flat, flush, full and complete for the entire stairwell,
  - ii. Ensure adhesive is approved for use with stringer material and that proper trowel or applicator type and size is used.
  - iii. Hand roll Stringer material onto wall surface and remove excess adhesive.
- E. Interface with Other Work: If caulking or sealing is required after installation, please contact the manufacturer for a suitable, color matching caulk.

### 3.5 CLEANING & MAINTENANCE

- A. **General:** Clean up installation area and sweep, dust or wipe material to remove any dirt, dust or debris.
- B. **Initial Maintenance:** Conduct initial maintenance per the manufacturer's recommended procedures stated in the Maintenance Documents. All documentation is available upon request or from the manufacturer. Excelsior Cleaning products and floor finishes are the recommended products for use. All can be found linked to the product on the manufacturer website or at [www.excelsiorproducts.net](http://www.excelsiorproducts.net).
- C. **Regular Maintenance:** (tenant ) Conduct maintenance on regular intervals as needed. Insufficient cleaning will reduce the wear life of the flooring and alter the dissipative properties of the tiles. The amount of maintenance depends directly upon the amount of dirt and particulates the floor is subjected to.
- D.

### 3.6 CLOSEOUT ACTIVITIES

- A. **Protection:** Protect newly installed material with construction grade paper or protective boards, such as Masonite or Ram Board, to protect material from damage by other trades. Be sure all construction debris is swept up and removed prior to the protective material being installed and does not get trapped underneath. Limit usage and foot traffic according to the adhesive's requirements. When moving appliances or heavy furniture, protect wall base from scuffing and tearing using temporary floor protection as well.

END OF SECTION 096513

**SECTION 09653**  
**RESILIENT BASE AND ACCESSORIES**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. Section Includes:
1. Resilient base.
  2. Resilient molding accessories.
- B. Related Sections:
1. Division 9 Section
    - a. Resilient Stair Treads, Riser and Landings
    - b. Resilient LVT Flooring
    - c. Walk Off Carpet
    - d. Resinous Flooring
    - e. Carpet
    - f. Resilient Flooring Installation

**1.3 SUBMITTALS**

- A. Product Data: For each type of product indicated.
- B. LEED Submittal:
1. Product Data for Credit EQ 4.1: For adhesives, including printed statement of VOC content.
- C. Samples for Initial Selection: For each type of product indicated.
- D. Samples for Verification: For each type of product indicated, in manufacturer's standard-size Samples but not less than 12 inches (300 mm) long, of each resilient product color, texture, and pattern required.
- E. Product Schedule: For resilient products. Use same designations indicated on Drawings.

**1.4 QUALITY ASSURANCE**

- A. Fire-Test-Response Characteristics: As determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.
1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

**1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F (10deg C) or more than 90 deg F (32 deg C).

**1.6 PROJECT CONDITIONS**

- A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F (21 deg C) or more than 95 deg F (35 deg C), in spaces to receive resilient products during the following time periods:
1. 48 hours before installation.
  2. During installation.
  3. 48 hours after installation.
- B. Until Substantial Completion, maintain ambient temperatures within range recommended by



- manufacturer, but not less than 55 deg F (13 deg C) or more than 95 deg F (35 deg C).
- C. Install resilient products after other finishing operations, including painting, have been completed.

#### 1.7 EXTRA MATERIALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Furnish not less than 10 linear feet (3 linear m) for every 500 linear feet (150 linear m) or fraction thereof, of each type, color, pattern, and size of resilient product installed.

### PART 2 - PRODUCTS

- 2.1 General Meeting the performance requirements for the following Industry Standards:
- A. Wall Base - VINYL - THERMOPLASTIC VINYL (TV) WALL BASE specify - specify vinyl wall base with the following characteristics: Meets the performance requirements for the following Industry Standards:
- i. ASTM F1861, Standard Specification for Resilient Wall Base, Type TV (vinyl, thermoplastic), Group 2 (solid, layered), Style A&B (Straight, Cove)
  - ii. ASTM E84, Standard Test Method for Surface Burning Characteristics of Building Materials, Class A
  - iii. ASTM E648 (NFPA 253), Standard Test Method for Critical Radiant Flux, Class 1,  $>0.45 \text{ W/cm}^2$
  - iv. ASTM E662 (NFPA 258), Standard Test Method for Smoke Density, Passes,  $<450$
  - v. ASTM F137, Standard Test Method for Flexibility of Resilient Flooring Materials protocols, Passes
  - vi. ASTM F386, Standard Test Method for Thickness of Resilient Flooring Materials Having Flat Surfaces, Passes
  - vii. ASTM F925, Standard Test Method for Resistance to Chemicals of Resilient Flooring, Excellent
  - viii. ASTM F1515, Standard Test Method for Measuring Light Stability of Resilient Flooring protocols, Passes
  - ix. NFPA 253, Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Energy Source
  - x. NFPA 255, Standard Method of Test of Surface Burning Characteristics of Building Materials
  - xi. NFPA 258, Test Method for Specific Density of Smoke Generated by Solid Materials
- B. Floor Accessories – RUBBER -vulcanized thermoset, Group 1 solid, homogeneous
- i. ASTM E84, Standard Test Method for Surface Burning Characteristics of Building Materials, **Class B**
  - ii. ASTM E648 (NFPA 253), Standard Test Method for Critical Radiant Flux, **Class 1,  $>0.45 \text{ W/cm}^2$**
  - iii. ASTM E662 (NFPA 258), Standard Test Method for Smoke Density, Passes,  **$<450$**
  - iv. ASTM F137, Standard Test Method for Flexibility of Resilient Flooring Materials Protocols, **Passes**
  - v. ASTM F925, Standard Test Method for Resistance to Chemicals of Resilient Flooring, **Excellent**

- vi. ASTM F1515, Standard Test Method for Measuring Light Stability of Resilient Flooring protocols, **Passes**
- vii. NFPA 253, Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Energy Source
- viii. NFPA 255, Standard Method of Test of Surface Burning Characteristics of Building Materials
- ix. NFPA 258, Test Method for Specific Density of Smoke Generated by Solid Materials

## 2.2 RESILIENT BASE

- A. Resilient Base: Vinyl
  - 1. Manufacturers: Subject to compliance with requirements, provide products by following:
    - a. Roppe
    - b. Flexo
    - c. Burke
    - d. Johnsonite
  - 2. 1/8" thick,
  - 3. 4-1/2" height,
  - 4. Style: Standard top-set coved base
  - 5. Finish: Matte.

## 2.2 RESILIENT MOLDING ACCESSORYIES

- A. Resilient Accessories - Rubber
  - 1. Flooring Transitions as noted on drawings and as required for low profile transitions between new to new and new to existing floor finishes.
    - a. Reducers
    - b. Adapters
    - c. Transitions
  - 2. Transition Resilient Edge Strips: 1/8 inch thick, homogeneous rubber composition, tapered or bullnose edge, not less than 1 inch wide. Color as selected by Tenant from standard colors available. Installed to meet ADA/HC standards

## 2.3 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.
  - 1. Use adhesives that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
    - a. Cove Base Adhesives: Not more than 50 g/L or as recommended by manufacturer.
    - b. Rubber Floor Adhesives: Not more than 60 g/L or as recommended by manufacturer.
- C. Metal Edge Strips: Extruded aluminum with mill finish of width shown, of height required to protect exposed edges of tiles, and in maximum available lengths to minimize running joints.
- D. Floor Polish: Provide protective liquid floor polish products as recommended by manufacturer.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 PREPARATION**

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
- B. Substrates for Resilient Accessories
  - 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
  - 2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
- C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound and remove bumps and ridges to produce a uniform and smooth substrate.
- D. Do not install resilient products until they are same temperature as the space where they are to be installed.
  - 1. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
- E. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation.

### **3.3 RESILIENT ACCESSORY INSTALLATION**

- A. Comply with manufacturer's written instructions for installing resilient accessories.
- B. Resilient Accessories:
  - 1. Use filler to fill substrates that do not conform to tread contours.
  - 2. Tightly adhere to substrates throughout length of each piece.
  - 3. For treads installed as separate, equal-length units, install to produce a flush joint between units.
- C. Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of carpet resilient floor covering that would otherwise be exposed.

### **3.5 CLEANING AND PROTECTION**

- A. Comply with manufacturer's written instructions for cleaning and protection of resilient products.
- B. Perform the following operations immediately after completing resilient product installation:
  - 1. Remove adhesive and other blemishes from exposed surfaces.
  - 2. Sweep and vacuum surfaces thoroughly.
  - 3. Damp-mop surfaces to remove marks and soil.
- C. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
- D. Floor Polish: Remove soil, visible adhesive, and surface blemishes. Provide protective liquid base polish products as recommended by manufacturer.

- E. Cover resilient products until Substantial Completion.

**END OF SECTION 09653**

**SECTION 09667**  
**RESILIENT LVT FLOORING**

**PART 1 - GENERAL**

**1.01 SECTION INCLUDES**

- A. Providing and installing Resilient LVT Flooring and all accessories and all preparation work as shown on the drawings, as required, and as indicated by the requirements of this section.
- B. All required floor substrate preparation - repair, patching, leveling, etc - should be included in the contractors bid. Bidders may make any necessary project inspections they need to determine the proper scope of work prior to submitting their bid.
- C. Flooring Substrates include but may not be limited to:
  - a Raised wood flooring with gypsum topping – existing
  - b Raised concrete floor (different types and conditions) - existing
  - c Concrete Slab on grade – existing
- 1. All floor substrates are existing with existing floor covering finishes that are to be removed. Include all required floor preparation for code compliant, complete, durable and professional new flooring finish

**1.02 RELATED DOCUMENTS AND SECTIONS**

- A. General Provisions of the Contract (including General Conditions and Division 1 sections) apply to the work of this section.
- B. Drawings
- C. SECTION 09668 Resilient Flooring Installation
- D. SECTION 09653 Resilient Base and Accessories
- E. SECTION 09651 Resilient Stair Treads, Risers and Landings

**1.03 DESCRIPTION OF WORK**

- A. Provide resilient flooring and accessories,
  - 1. LVT-Type 1 – Plank Type Tile (Club Flooring) - Luxury Vinyl Tile - LVT
  - 2. LVT-Type 2 - Plank Type Tile (Theater and Brewery Flooring) - Luxury Vinyl Tile – LVT

**1.04 QUALITY ASSURANCE AND REGULATORY REQUIREMENTS**

- A. Flooring Contractor's Qualifications: Firm with not less than 5 consecutive years of experience in installation of commercial LVT of type, quantity and installation methods similar to work of this section. All flooring contractors must be certified the flooring manufacturer within the last 24 months and be approved by manufacturer prior to project bid date. In conjunction with certification, flooring contractor must offer a 5 year installation warranty on all flooring products.
- B. Manufacturer's Qualifications: Firm with not less than 5 consecutive years of production experience with LVT similar to type specified in this section; whose published product literature clearly indicates general compliance of products with requirements of this section. Manufacturer must be ISO 14001 certified.
- C. Measurement Verification: Dimensions shown on drawings are approximate. It is the Flooring Contractor's responsibility to verify all dimensions and job site conditions; order sufficient yardage to fully LVT areas as indicated and to fill overage requirements as specified. No substitutions shall be permitted to make up for any shortage of material in overage or in LVT to be installed.

- D. Flooring Contractor shall be totally responsible for the accuracy of his measurements of total yardage, individual floor yardage, and dye lot yardage requirements; no additional compensation shall be allowed for shortage of materials.
- E. Dye Lots: All LVT of the same type in continuous areas shall be from the same color/production lots.
- F. Owner reserves the right to test LVT at their expense to verify that the delivered LVT is as specified. If LVT does not meet specifications, manufacturer will reimburse owner the testing expense and the may be rejected.

#### 1. 05 SUBMITTALS

- A. Make submittals under provisions of Section 01340.
- B. Product Data:
  - 1. Submit identification of each type of resilient flooring and accessory proposed.
  - 2. If requested, submit manufacturer's technical data.
  - 3. Submit 1 copy of manufacturer's recommended maintenance practices for each type of resilient flooring and accessory.
- C. Color Selection: For initial selection see section 09900. For record purposes submit samples of all tile and accessories, showing full range of colors and patterns available.
- D. Samples: As above, for color selection.

#### 1. 06 QUALITY ASSURANCE

- A. Manufacturer: Provide each type of flooring and accessories by a single manufacturer, including primers, adhesives, sealants, and leveling compounds.
- B. Fire Performance: Provide resilient flooring which complies with the following criteria as determined by an independent testing laboratory acceptable to authorities having jurisdiction
  - 1. Critical Radiant Flux (CRF): Not less than the following rating per ASTM E648:
  - 2. Class I, 0.45 watts per sq. cm. for tile in corridors and exitways; Class II, 0.22 watts per sq. cm. for other applications.
- C. Flame Spread: Not more than 75 per ASTM E 84.
- D. Provide Resilient Tile Flooring which is slip-resistant per New Jersey Uniform Construction Code and is ADA compliant To ANSI 117.1 2009. ASTM D2047.

#### E. REFERENCED STANDARDS

- 1. Comply with the applicable provisions of codes, standards and specifications referenced in this Section.
  - a Federal Specifications:
  - b FS SS-I-312
  - c FS SS-W-40
  - d ASTM:
  - e E648: Standard Test Method for Critical Radiant Flux of Floor Covering Systems.
  - f E84: Surface Burning Characteristics of Building Materials.
  - g F710, Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring..

#### 1. 07 PRODUCT HANDLING

- A. Deliver, store, and handle products in accordance with manufacturer's instructions, and to prevent damage to product.
- B. Provide adequate ventilation while using adhesives

#### 1. 08 MAINTENANCE STOCK

- A. Deliver to Owner, at project site, maintenance materials from same manufactured lot as materials installed; and enclosed in protective packaging with labels identifying areas in which product is installed.
- B. Tile flooring; Furnish not less than one box for each 50 boxes or fraction thereof, for each type, color, pattern and size installed, except that, if less than 10 boxes of any tiles installed, furnish not less than 1/2 box.
- C. Project Manager to verify with maintenance for quantity provided.

#### 1.09 WARRANTY

- A. Material – tile, adhesives and underlayments - to be free from manufacturer defects for a period of 10 years from the date of purchase by the contractor for this project.
- B. Installation – Tiles shall remain firmly in place with no gaps forming loss of adhesion, loose tiles, etc for a period of 2 years

### PART 2 - PRODUCTS

#### 2.01 ACCEPTABLE MANUFACTURERS

- A. Subject to compliance with requirements, provide products of one of the following for each product type:
  - 1. LVT-Type 1 – Plank Type Tile (Club Flooring) - Luxury Vinyl Tile – LVT
    - a. As selected by Tenant
    - b. Aqua Armour LVT water proof vinyl plank, 7”X48”
  - 2. LVT-Type 2 - Plank Type Tile (Brewery and Theater Flooring) - Luxury Vinyl Tile – LVT
    - a. Patcraft Mark Making Resilient Plank, 5MM, 5.96” X 48” glue down.
      - i. 3 colors
      - ii. Stagger Pattern
    - b. Or Approved Equal, Make Substitution Requests in accordance with Section 01630.

#### 2.02 ACCESSORIES

- A. Adhesives: Waterproof, stabilized type as recommended by flooring manufacturer to suit material and substrate conditions.
  - a. See 09688 Resilient Flooring
  - b. As Recommended by Flooring Manufacturer
    - i. Resilient Solvent free adhesive.
- B. Patching and Leveling
  - a. See 09688 Resilient Flooring Installation –
  - b. As Recommended by Flooring Manufacturer
- C. Base and Accessories:
  - a. See Finish Plans and Schedule
  - b. See 09653 Resilient Base and Accessories

### PART 3 - EXECUTION

#### 3.01 PROJECT CONDITIONS

- A. Store flooring materials in spaces for at least 48 hours prior to beginning installation. Maintain minimum temperature of 65 degrees F (18 degrees C) in spaces to receive resilient flooring for at least 48 hours prior to installation and during installation. Subsequently, maintain minimum temperature of 65 degrees F. (13 degrees C) in areas where work is completed.
- B. Maintain building humidity within levels specified by the floor manufacturer.
- C. Install resilient flooring and accessories after other finishing operations, including painting, have been completed. Do not install resilient flooring over concrete slabs until the latter have been cured and are

sufficiently dry to achieve bond with adhesive as determined by resilient flooring manufacturer's recommended bond and moisture test.

### 3.02 INSPECTION. SITE TESTING AND CONDITIONING

- A. Refer to specification SECTION 09668 LVT INSTALLATION and flooring Manufacturer for specific installation requirements.
- B. Examine subfloors prior to installation to determine that surfaces are smooth and free from cracks, holes, ridges, and other defects that might prevent adhesive bond or impair durability or appearance of the flooring material.
- C. Inspect sub-floor surfaces to determine that they are satisfactory. A satisfactory sub-floor surface is defined as one that is smooth, within specified tolerances for levels, and free from cracks, holes, ridges, coatings preventing adhesive bond, and other defects impairing performance or appearance. Hairline cracks, small holes, and similar minor irregularities easily patched with compound do not constitute defects.
  - a. For substrates constructed as part of this work, file written report of any unsatisfactory conditions which cannot be promptly corrected by trades installing substrate.
  - b. Visually inspect for evidence of moisture, alkaline salts, carbonation, dusting, mold, or mildew.
- D. Acceptance - report conditions contrary to contract requirements that would prevent a proper installation to the architect and owner in writing. Do not proceed with the installation until unsatisfactory conditions have been corrected.
  - a. Do not proceed with installation until sub-floor surfaces are satisfactory.
  - b. Failure to call attention to defects or imperfections will be construed as acceptance and approval of the subfloor.
  - c. Installation indicates acceptance of substrates with regard to conditions existing at the time of installation.

### 3.03 PREPARATION

- A. Refer to specification SECTION 09668 LVT INSTALLATION and flooring Manufacturer for specific installation requirements
- B. Substrates shall be smooth, structurally sound, permanently dry, clean and free of all foreign material such as dust, wax, solvents, paint, grease, oils, old adhesive residue, curing and hardening/curing compounds, sealers and other foreign materials that might prevent adhesive bond.
  - 1. Remove existing adhesive as recommended by the flooring manufacturer and underlayment manufacturer.
    - i. Mechanically – such as bead blasting or scarifying
    - ii. Self leveling Portland cement underlayment.
    - iii. Do not use solvent or citrus adhesive removers.
- C. Fill small cracks, holes, and depressions in substrate with leveling and patching compound. Install self-leveling compound in required thickness where indicated or required to achieve a consistent substrate.
  - 1. Prior to installation of leveling compound, provide necessary preparation as indicated on the drawings or as recommended by the leveling compound manufacturer.
- D. Broom clean or vacuum surfaces to be covered.

### 3.04 INSTALLATION OF TILE

- A. Refer to specification SECTION 09668 LVT INSTALLATION and flooring Manufacturer for specific installation requirements
- B. Where movable partitions, or partitions not extending above ceilings, shall be installed, install flooring continuously and before partitions are erected.
- C. Install flooring in strict compliance with manufacturer's printed instructions. Extend resilient flooring into toe spaces, door reveals, and into closets and similar openings.



- D. Scribe, cut, and fit flooring to permanent fixtures, built-in furniture and cabinets, pipes, outlets and permanent columns, walls and partitions.
- E. Maintain reference markers, holes, or openings that are in place or marked for future cutting by repeating on finish flooring as marked on subfloor. Use removable marking.
- F. Tightly cement flooring to substrate without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, or other surface imperfections. Use full spread of adhesive. Hand roll flooring to assure adhesion.
- G. Install flooring on covers for telephone and electrical ducts, and similar items within flooring areas. Maintain continuity of color and pattern with flooring installed on covers. Tightly cement edges to perimeter of floor around covers and to covers.
- H. Lay out tile in each room so that tile at opposite edges of room are of equal width and not less than 1/2 tile. Lay tile square to room axis, unless otherwise shown.
- I. Install tiles from a minimum of three boxes of tile simultaneously.

### 3.05 INSTALLATION OF ACCESSORIES

- A. Refer to specification SECTION 09668 LVT INSTALLATION, SECTION 09653 RESILIENT BASE AND ACCESSORIES and Manufacturer for specific installation requirements
- B. Apply wall base to walls, columns, pilasters, casework, and other permanent fixtures in rooms or areas where scheduled. Install base in lengths as long as practicable, with preformed corner units, or fabricated from base materials with mitered or coped inside corners. No joints shall be permitted in sections 4' -0" or less in length. Tightly bond base to substrate, with continuous contact at horizontal and vertical surfaces.
  - a. On masonry and other irregular substrates, fill voids at top edge of base with manufacturer's recommended adhesive filler.
- C. Place resilient edge strips tightly to flooring and secure with adhesive. Install at edges of flooring which would otherwise be exposed.

### 3.06 CLEANING AND PROTECTION

- A. Immediately upon completion of installation:
  - 1. Sweep or vacuum floor thoroughly.
  - 2. Damp-mop floor to remove black marks and excessive soil. Do not wash floor until time period recommended by flooring manufacturer has elapsed to allow flooring to become well-sealed in adhesive.
  - 3. Remove any excess adhesive or other surface blemishes, using cleaner recommended by flooring manufacturer.
  - 4. Immediately prior to owner occupancy wash floors. Wax and seal floors AS REQUIRED OR RECOMMENDED BY MANUFACTURER.
- B. Protect flooring against damage during construction.
  - 1. Apply protective polish acceptable to flooring manufacturer.
  - 2. Protect flooring against damage from rolling loads by covering with plywood or hardboard. Use dollies to move stationary equipment or furnishings across floors.
  - 3. Cover resilient flooring with undyed, untreated, building paper until inspection for Substantial Completion.

END OF SECTION-09660

**SECTION 09668**  
**RESILIENT FLOORING INSTALLATION**

**PART 1 - GENERAL**

**1.01 SECTION INCLUDES**

- A. Directions on Installing resilient floor
  - 1 **Over wood framed and decked floors.**
  - 2 **Over wood framed floors with gypsum topping**
  - 3 **Over concrete slab on grade floors**
  - 4 **Over raised concrete floor slabs**
- B. Installation methods listed herein are as recommended by Armstrong Flooring. Contractor shall review installation requirements of the selected floor manufacturer and make adjustments as required.
  - 1 Installation adhesives
    - a. S-995 Adhesive,
    - b. S-1000 Adhesive,
    - c. S-319 Roll Strong™ Adhesive
  - 2 Location – All grade levels
  - 3 Substrates – Concrete; Approved Suspended Wood; Steel, Stainless Steel, Aluminum; Ceramic Tile, Terrazzo, Marble; Existing Resilient Floors; Polymeric Poured (Seamless Floors)
  - 4 NOTE: Installations over existing resilient flooring and acoustical underlayments such as S-1840 may be more susceptible to indentations.
  - 5 NOTE: To install over steel, stainless steel, or aluminum, use S-319. In areas subject to direct sunlight, topical moisture, or temperature fluctuations, use S-1000.

**1.02 ACCEPTABLE SUBFLOORS & UNDERLAYMENTS**

- A. Flooring may/can be installed on suspended wood, OSB, or a treated plywood subfloor with a 1/4" underlayment and a minimum of 18" of well-ventilated air space below.
- B. Not recommend installing resilient flooring on wood subfloors applied directly over concrete or on sleeper construction subfloors over, on, or below grade concrete. (not applicable)
- C. Subfloors must meet local and national building codes. Trade associations, such as the APA - The Engineered Wood Association, offer structural guidelines for meeting various code requirements.
- D. Refer to ASTM F 1482 Standard Practice for Installation and Preparation of Panel Type Underlayments to receive Resilient Flooring for additional information.
- E. Wood strip, board, or plank subfloors must meet structural requirements. If the top layer is tongue-and groove and the strip wood is 3" or less in face width, cover with 1/4" or thicker underlayment panels. All other layers should be covered with 1/2" or thicker underlayment panels.
- F. Subject to the board manufacturer's recommendations and warranties, the following underlayments may be used with flooring products:
  - Plywood rated as suitable underlayment for resilient floor coverings
  - Poplar or Birch Plywood with a fully sanded face and exterior glue
  - Luan Plywood, Type 1 (Exterior)
  - Fiber Reinforced Gypsum Underlayment, Fiber Cement Board & Cementitious backerboard rated as suitable underlayment for resilient floor coverings

**NOT Recommended - OSB or Treated Plywood (unless covered with a 1/4" of APA plywood underlayment), Particleboard or Hardboard.**

**1. 03 UNDERLAYMENTS FOR RESILIENT FLOORS**

**A. MUST:**

- 1 Be structurally sound. Resupport and refasten any loose or sagging or squeaking existing plywood subfloor.
- 2 Be designed for resilient flooring underlayment purposes. 1/4" Revolution Plywood.
- 3 Be a minimum of 1/4" thick
- 4 Have panels smooth enough so that texture or graining will not show through
- 5 Resist dents and punctures from concentrated loads
- 6 Be free of any substance that may stain vinyl such as edge patching compounds, marking inks, paints, solvents, adhesives, asphalt, dye, etc.
- 7 Be installed in strict accordance with the board manufacturer's recommendations
- 8 For approved underlayments, the panels are to be lightly butted and not filled or flashed, unless the manufacturer specifically recommends filling the joints. Differences in the thickness of wood panels should be corrected by sanding. Allow the panels to condition to the job site per manufacturer's recommendations.

**B. CONTRACTOR SHALL CONFIRM**

- a. that the existing flooring is completely and firmly bonded. Existing flooring must have been properly installed over underlayments and subfloors recommended as suitable for resilient flooring. They may not show evidence of moisture or alkaline.
- b. Waxes, polishes, and other finishes must be removed with a commercially available stripper. We would recommend using a 3M Black pad for stripping purposes only. Do not allow the stripping solution to dry at any time. Thoroughly rinse the existing flooring with clean water after removing the stripping solution. Do not flood with water or stripping solution at any time.
- c. Indentations or damaged areas should be replaced or repaired.

**1. 02 SUBSTRATE PREPARATION**

**A. General: Follow guidelines laid out in Division 01. Examination and preparation. All work required ensuring substrate or subfloor meets manufacturers' guidelines are the responsibility of the general contractor.**

- 1 Follow material manufacturer's as well as adhesive manufacturer's instructions for installation.

**B. Preparation: Ensure substrate meets the requirements of**

- a. ASTM F710 for concrete substrates
- b. ASTM F1482 for wood substrates
- c. ASTM-F2419 for gypsum substrates
- d. and/or Manufacturer Technical Data Sheets
- 2 Substrates must be free of visible water or moisture, dust, sealers, paint, sweeping compounds, curing compounds, residual adhesives and adhesive removers, concrete hardeners or densifiers, solvents, wax, oil, grease, asphalt, visible alkaline salts or excessive efflorescence, mold, mildew and any other extraneous coating, film, material or foreign matter.
- 3 Acclimate all products to be used during the installation and the installation environment prior to installation according to the manufacturers written instructions.

**C. Concrete Substrates:**

- 1 Moisture Testing: Perform moisture testing per the manufacturer's recommendations to determine conditions, it is recommended to treat new and existing slabs a little bit different to ensure adequate conditions exist for installation.
  - a. New concrete substrates: it is recommended to perform ASTM F2170 Relative Humidity testing no more than a week prior to installation to determine the levels present and when to proceed with the installation.
  - b. Existing concrete substrates: in addition to ASTM F2170 testing, existing slabs that have previously had floor covering installed, must be tested to ASTM F1869 Calcium Chloride test kits to determine the MVER of the concrete.
- 2 Mechanically remove contamination on the substrate that may cause damage to the flooring material, this includes paint, permanent and non-permanent markers, pens, crayons, etc. Leaving these on the substrate or marking with them on the back of the material could cause bleed through and damage the flooring.
- 3 Fill cracks, holes, depressions and irregularities in the substrate to prevent transferring through to the surface of the resilient flooring. Use a high-quality Portland cement based product such as Excelsior installation products provided by Manufacturer.

**D. Wood Substrates: wood substrates must have a minimum 18" (45.7 cm) of cross ventilated space beneath the joist.**

- 1 *Wood substrates must be a minimum 1" thick with a double layer construction.*
  - a. *PROVIDE ADDITIONAL LAYER OF THIN UNDERLAYMENT IF REQUIRED*
- 2 *Wood substrates must be rigid and free of movement.*
- 3 *Wood substrates must not be OSB (Oriented Strand Board), particle board, chipboard, lauan or composite type underlayments.*

**E. Gypsum Substrates - Existing**

- 1 Review with manufacturer.
  - a. Remove all existing flooring, adhesives and residues as required.
  - b. Prepare surface(s) as required for new flooring
- 2 Gypsum-based substrates are recommended to have a minimum compressive strength of 3500 PSI. The substrate must be structurally sound and firmly bonded to the subfloor below. Compressive strengths below 3500 PSI can reduce performance properties of products installed. Sometimes steps can be taken to improve the PSI of at least the surface of the gypsum-based surface. In light commercial, multi-family, and/or residential applications this may be lower or closer to 2500 PSI due to the specification of the product and therefore just be aware of the possibility of reduced performance due to the performance of the gypsum substrate. This does not affect the warranty of the product unless the properties of the gypsum-based substrate lead to or cause failure.
- 3 Any cracked or fractured areas must be removed and repaired with a compatible patch or repair product for gypsum-based substrates. Follow those products installation instructions for installation over a gypsum substrate.
- 4 Remove al
- 5 Apply sealer on the surface to prevent dusting and promote adhesion to the substrate. New or existing gypsum substrates may require additional primer just prior to finished

**1. 04 JOB CONDITIONS**

- A. Resilient flooring should only be installed in temperature-controlled environments. It is necessary to maintain a constant temperature before, during and after the installation. Therefore, the permanent or temporary HVAC system must be in operation before the installation of resilient flooring.
- B. Portable heaters are not recommended, as they may not heat the room and subfloor sufficiently. Kerosene heaters should never be used.

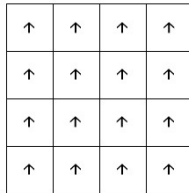
- C. The surface shall be free of dust, solvents, varnish, paint, wax, oil, grease, sealers, curing compounds, residual adhesive<sup>1</sup>, adhesive removers and other foreign materials that might affect the adhesion of resilient flooring to the substrate or cause a discoloration of the flooring from below. Spray paints, permanent markers and other indelible ink markers must not be used to write on the back of the flooring material or used to mark the substrate as they could bleed through, telegraphing up to the surface and permanently staining the flooring material. If these contaminants are present on the substrate, they must be mechanically removed prior to the installation of the flooring material
- D. In renovation or remodel work, remove any existing adhesive residue so that 100% of the overall area of the original substrate is exposed.
- E. ENVIRONMENTAL CONDITIONS
  - 1 Allow all flooring materials and adhesives to condition to the room temperature for a minimum of 48 hours before starting the installation.
  - 2 The area to receive the resilient flooring should be maintained at a minimum of 65° F (18° C) and a maximum of 85° F (29° C) for 48 hours before, during and for 48 hours after completion.
  - 3 During the service life of the floor, the temperature should never rise above 85° F (29° C) nor fall below 55° F (13° C). The performance of the flooring material and adhesives can be adversely affected outside this temperature range.
  - 4 Many adhesive removal products contain solvents that leave a residue within the subfloor. This residue can negatively affect the new adhesive and bleed through the new floor covering. The use of asbestos encapsulants or bridging materials over asphaltic adhesive is not recommended. These products may affect the bonding properties of the new adhesive.

#### 1. 05 KEYS TO A SUCCESSFUL INSTALLATION

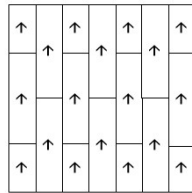
- A. To achieve a clean, straight cut, use a standard utility knife with a titanium blade or a German Concave Hook Blade. A MagnaShear designed for cutting resilient flooring can also be used.
- B. For cutting around pipes, door casings and other intricate cuts, use a heat gun or torch to heat the back of the tile prior to cutting. This will soften the backing enough to cut through the structure cleanly. If tile begins to cool during cutting, stop and reheat before proceeding with the cut.
- C. Do not heat the front of the tile.
- D. If you need to trim a small section off the tile horizontally or lengthwise, pliers will make snapping the cut section off easier. Score the tile with your blade as you normally would. Use a pair of standard pliers, tile nippers or wide-nose pliers (for lengthwise cuts) to grab the tile and snap at the score.

#### 1. 06 LAYOUT

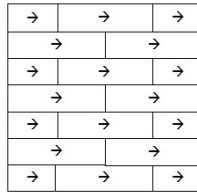
- A. It is important to align arrows on the back of planks and tiles for select flooring patterns as pictured below: Monolithic, Ashlar, Brick, and Stagger. This applies to all LVT collections, plank, and tile formats, except Exchange due to its unique design. For any other pattern, it is not necessary to align arrows.



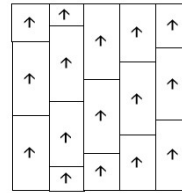
Monolithic



Ashlar



Brick



Stagger

- B. Whenever possible, plan the layout so that joints do not fall on top of joints or seams in the existing substrate. End joints of planks and tiles should be staggered a minimum of 6" (15.24 cm) apart. Do not install over expansion joints.
- C. Determine which direction the planks or tiles will run. Identify the center of each of the end walls (the walls perpendicular to the long dimension of the planks and tiles) and place a pencil mark on the floor. Connect these points by striking a chalk line down the center of the room. Do a dry layout of planks and/or tiles from the center line to the wall running parallel to the long direction of the planks and tiles to determine the width of the last row of planks.
- D. Avoid having border pieces less than 3" (7.6 cm) wide. If you find the border planks will be less than 1/2 the width of the plank, the center starting line should be shifted a distance equal to 1/2 the plank width. This will "balance" the room and provide for a larger cut piece at the wall.

#### 1. 07 FITTING

- A. Before installing the material, plan the layout so tile joints fall at least 6" (15.24 cm) away from subfloor/underlayment joints. Do not install over expansion joints.
- B. Recommended fitting procedures include straight scribing, pattern scribing or cutting with a tile cutter.
- C. Install the tile along the chalk lines. Install with arrows pointing in the same direction, quarter turned or randomly installed for customized visuals. Install the field area first and then fit in the border tile.

Adhesives	Set-in-Wet	Dry-to-Touch	Working Time	Traffic Post-Installation
S-319 Roll Strong™	-	<b>Open Time:</b> >15 minutes Roll on with medium nap roller. Dryto-Touch only.	4 Hours	Can be exposed to Heavy Traffic & Rolling Loads immediately
S-995 Adhesive	-	<b>Open Time:</b> >15 minutes. Dry-to-Touch only. <b>Trowel:</b> U Notch 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 1/32" (0.8 mm) apart	2 Hours	<b>Light Foot Traffic:</b> 24 Hours <b>Heavy Traffic &amp; Rolling Loads:</b> 48 Hours

S-1000 Adhesive	<b>Open Time:</b> Approximately 10–20 minutes <b>Trowel:</b> U Notch 1/32" (0.8 mm) deep, 1/16" (1.6 mm) wide, 1/32" (0.8 mm) apart		45 Minutes	<b>Light Foot Traffic:</b> 4 Hours  <b>Heavy Traffic &amp; Rolling  Loads:</b> 8 Hours
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**NOTE:** The amount of open time will vary according to job conditions — temperature, humidity, air flow and type of substrate. the proper open time will help to minimize tile shifting.

#### 1. 08 ABUTTING DIFFERENT GAUGES OF RESILIENT FLOORING

- A. When installing thinner gauge material next to thicker gauge materials, install thicker material first and then butt a 12" (30.5 cm) wide piece of scribing felt against the thicker material. Adhere the scribing felt to the subfloor with suitable adhesive. Use S-194 Patch, Underlayment and Embossing Leveler or S-466 Patch Strong™ to feather the edge of the scribing felt to the level of the substrate. Allow the patch to dry completely before installing the flooring. Scribing felt is not recommended to be used under the entire installation.

#### 1. 09 PROCEDURES

- A. **PROCEDURE | S-319 Roll Strong™ (Armstrong)**
- 1 A clean substrate is extremely important with the use of S-319 Roll Strong Adhesive. Thoroughly sweep and vacuum the substrate first. Damp mop to remove any remaining dust or debris. Extra attention to substrate preparation is essential for a successful installation. Failure to properly clean the substrate may result in telegraphing of debris.
  - 2 A roll-on application method is recommended with a medium nap (3/8" nap) roller to achieve a smooth even full-spread coating. Spread rate and drying time of the adhesive will depend on the porosity and texture of the substrates and the ambient temperature and relative humidity. **KEEP PAINT ROLLER WET!** Do not apply pressure to the roller, allow it to freely roll over the substrate. **ADHESIVE COVERAGE MUST NOT EXCEED 400 ft<sup>2</sup>/gal!** Once the coating has dried, it must be kept clean and apart from any contact with other surfaces until ready to begin the bonding process. Do not spread more adhesive than can be covered in 4 hours.
- F. Bond testing prior to the installation will help identify the appropriate application rate, open and working time, and any potential bonding problems to the substrate or flooring. To determine the accurate coverage rate, measure, and chalk line the substrate into grids

(using the appropriate square feet of area for the adhesive application) and apply adhesive onto each measured grid area.

- a. Allow the adhesive to dry completely with no transfer to fingers when lightly touched. Open time will vary depending on the adhesive coverage, substrate porosity and the ambient conditions.
  - b. Once the S-319 Roll Strong adhesive has dried, install LVT as per recommended. LVT can be repositioned as necessary prior to applying pressure. After completion of the installation, roll the entire floor in both directions with 100 lb. roller to achieve a full contact bond.
  - c. NOTE: After the flooring has been rolled or pressed into place, repositioning is not possible. Normal traffic and rolling loads may be allowed as soon as the installation, finishing and clean-up are complete.
  - d. SAFETY AND CLEAN UP: Wet adhesive should be cleaned up immediately with soap and water on a clean cloth. Remove any dried adhesive residue with a clean, white cloth dampened with denatured alcohol.
- 3 COVERAGE: Rate of application depends on porosity of the substrate. Approximately 300 - 400 square feet per gallon when applied with a 3/8" Nap roller.

B. PROCEDURE S-995 Flooring Adhesive

- 1 Apply adhesive with recommended trowel and allow it to set until dry-to-touch.
- 2 Begin laying planks along the center starting line and install row by row, including the cut pieces at the perimeter, until 1/2 of the installation is complete. Stagger end joints by at least 6" (15.24 cm). Apply adhesive to the remaining portion of the room, allow to dry-to-touch and complete the installation of planks in similar fashion. Immediately remove any adhesive from the surface of the flooring using a clean, white cloth dampened with a neutral detergent and water.
- 3 Roll the tile in both directions using a 100-lb. roller. Traffic is allowed 24 hours post-installation; heavy traffic, 48 hours post-installation. Use pieces of hardboard or underlayment panels to protect the floor when moving heavy furniture and appliances back into the room.



C. PROCEDURE | S-1000 Flooring Adhesive

- 1 Chalk Lines
  - a. Move the chalk lines to the corner or end of the room farthest from the doorway. These lines should be 2' or 3' from the wall depending on your reach.
- 2 Apply the Adhesive in 2' or 3' bands (Figure 2) being careful not to cover the chalk lines. Do not apply more adhesive than you can cover within 45 minutes. Allowing a 10-minute open time and fitting the border tile tightly will reduce tile shifting and adhesive oozing. DO NOT allow the adhesive to dry completely.
- 3 Immediately remove any adhesive from the surface of the flooring using a clean, white cloth dampened with a neutral detergent and water. Roll the tile in both directions within 30 minutes after installation using a 100-lb. roller.
- 4 Do not work on newly installed tile except to roll tile. If unavoidable, use a kneeling board. Repeat the First four steps until the installation has been completed.
- 5 Apply adhesive to 1/2 of the area at a time so you can start the installation along the center starting line.
- 6 Begin laying planks along the center starting line and install row by row including the cut pieces at the perimeter until 1/2 of the installation is complete. Stagger end joints by at least 6" (15.24 cm). Apply adhesive to the remaining portion of the room and complete the installation of planks in similar fashion.
- 7 After the planks are installed, immediately roll the entire floor with a 100-lb. roller. Use a hand roller in confined areas where the large floor roller will not reach, such as under toe kicks.
- 8 Planks and tiles may be exposed to light foot traffic four hours post-installation. The floor can be exposed to heavy rolling traffic in 8 hours post-installation. Use pieces of hardboard or underlayment panels to protect the floor when moving heavy furniture and appliances back into the room.

D. USING S-1840 UNDERLAYMENT WITH S-1000 & S-995 ADHESIVES

- 1 Make sure the subfloor is clean, flat, dry, and sound. It is important that the subfloor is free of all debris. Check the subfloor for unevenness or protruding objects such as nails or screws.
- 2 Begin in a corner and install the underlayment parallel to the wall in the opposite direction you plan to install the flooring planks. Leave at least 2" of excess underlayment up the wall and trim after completing the floor installation.
- 3 Roll out the next roll of underlayment in the same manner, making sure that the foam seams are butted together. The use of clear 2" wide packing tape can be used to attach the seams.
- 4 Adhere the underlayment to the subfloor and LVT to the underlayment. Follow the Procedures above using S-995 and/or S-1000. Do not use S-319 Roll Strong with S-1840.

1. 10 REMOVAL OF EXISTING RESILIENT FLOOR TILE, CARPET, SHEET FLOORING AND "CUTBACK" ADHESIVE

#### A. RECOMMENDED WORK PRACTICES

- 1 Instructions for removing resilient floor tile, sheet flooring and asphaltic “cutback” adhesives are not contained in this manual. Refer to the current Resilient Floor Covering Institute’s (RFCI) publication Recommended Work Practices for Removal of Resilient Floor Coverings, that addresses each in-place product type: resilient floor tile, resilient sheet flooring, asphaltic “cutback” adhesive or other adhesive.

#### 1. 11 REGULATIONS AFFECTING THE REMOVAL OF EXISTING FLOOR COVERINGS

- A. Various federal, state, and local government agencies have regulations governing the removal of in-place asbestos-containing material. If you contemplate the removal of a resilient floor covering structure that contains (or is presumed to contain) asbestos, you must review and comply with all applicable regulations.
- B. Vinyl-asbestos tile and asphalt tile contain asbestos fibers, as did some asphaltic “cutback” adhesives and the backings of many sheet vinyl floorings and lining felts. The presence of the asbestos in these products is not readily identifiable.
- C. Unless positively certain that the product is a non-asbestos containing material, you must presume it contains asbestos. Regulations may require that the material be tested to determine asbestos content.
- D. The Recommended Work Practices are a defined set of instructions that address the task of removing all resilient floor covering structures, whether or not they contain asbestos. When the Recommended Work Practices are followed, resilient floor covering structures that contain (or are presumed to contain) asbestos can be removed in a manner that will comply with the current Occupational Safety and Health Administration’s (OSHA) Occupational Exposure to Asbestos Standard’s Permissible Exposure Limits (PEL).
- E. Numerous products, devices and techniques have been introduced and/or recommended for the removal of resilient floor covering structures. Armstrong is only able to endorse the RFCI Recommended Work Practices. Before you use any other practice for the removal of an in-place resilient floor covering product that contains (or is presumed to contain) asbestos, you should determine if the practice meets all applicable regulations or standards, including those of OSHA, for occupational exposure to asbestos and that the material will be compatible with the new floor covering to be installed.
- F. See federal and location regulations on lead- based paint testing, safety precautions and notification requirements.

#### **WARNING**

EXISTING IN-PLACE RESILIENT FLOOR COVERING AND ASPHALTIC ADHESIVES. DO NOT SAND, DRY SWEEP, DRY SCRAPE, DRILL, SAW, BEADBLAST, OR MECHANICALLY CHIP OR PULVERIZE EXISTING RESILIENT FLOORING, BACKING, LINING FELT, ASPHALTIC “CUTBACK” ADHESIVE OR OTHER ADHESIVE.

**SECTION 09672**  
**RESINOUS FLOORING - BREWERY**

**PART 1 GENERAL**

**1.1 SECTION INCLUDES**

- A. Urethane Concrete Flooring and Base in Brewery Brewing Area
  - 1. Slurry-applied urethane cement composition flooring with slip resistant broadcast.
    - a. BASIS OF DESIGN - Dex-O-Tex Tek-Crete SL-B or Approved Equal.

**1.2 RELATED SECTIONS**

- A. Cast-in-Place Concrete SEE STRUCTURAL DRAWINGS
- B. SECTION 07160 Under Slab Vapor Retarder
- C. Concrete
  - 1. Should be either water cured or cured using curing compounds in compliance with ASTM C 309 or ASTM C 1315 only. Other types of curing compounds including sodium silicate are generally not acceptable.
  - 2. Concrete should be cured for a minimum of 28 days and exhibit a MVER of 3 lbs / 24 hrs. / 1000 sq ft, or a minimum of 3 days if coated with negative side moisture vapor barrier VaporControl Primer 1P.
  - 3. On grade floors to have functioning vapor retarder beneath slab.

**1.3 REFERENCES**

- A. American Standard Test Method International (ASTM):
  - 1. ASTM C307 - Standard Test Method for Tensile Strength of Chemical-Resistant Mortar, Grouts, and Monolithic Surfacing.
  - 2. ASTM C531 - Standard Test Method for Linear Shrinkage and Coefficient of Thermal Expansion of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes.
  - 3. ASTM C579 - Standard Test Methods for Compressive Strength of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes.
  - 4. ASTM C580 - Standard Test Method for Flexural Strength and Modulus of Elasticity of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes.
  - 5. ASTM D882 - Standard Test Method for Tensile Properties of Thin Plastic Sheet.
  - 6. ASTM D1308 - Standard Test Method for Effect of Household Chemicals on Clear and Pigmented Organic Finishes.
  - 7. ASTM D2240 - Standard Test Method for Rubber Property-Durometer Hardness.
  - 8. ASTM D4060 - Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser.
  - 9. ASDTM D4541 - Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers.
  - 10. ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source.
  - 11. ASTM F1679 - Standard Test Method for Using a Variable Incidence Tribometer (VIT).
  - 12. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
  - 13. ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.
- B. American Concrete Institute (ACI):

1. ACI 503.1 - Standard Specification for Bonding Hardened Concrete, Steel, Wood, Brick, and Other Materials to Hardened Concrete with a Multi-Component Epoxy Adhesive.
- C. American National Standards Institute (ANSI):
  1. ANSI A1264 - American National Standard for the Provision of Slip Resistance on Walking/Working Surfaces..
- D. International Concrete Repair Institute (ICRI):
  1. ICRI - 310.25 Selecting and Specifying Concrete Surface Preparation.
- E. National fire Protection Association (NFPA):
  1. NFPA 56A - Standard for the Use of Inhalation Anesthetics.
- F. Society of Protective Coatings (SSPC):
  1. SSPC - Monitoring and Controlling Ambient Condition During Coating operations.
  2. SSPC TU-10 - Procedures For Applying Thick Film Coatings and Surfacing Over Concrete Floors.
  3. SSPC TR-5 - Design, Installation, and Maintenance of Protective Polymer Flooring Systems for Concrete.
  4. SSPC TECHNOLOGY GUIDE NO. 10 - Guide to Specifying Coatings Conforming to Volatile Organic Compound (VOC) Content Requirements.
  5. SSPC-SP 13/NACE No. 6 - Surface Preparation of Concrete.
- G. United States Defense Standard (MIL):
  1. MIL-D-3134 - Deck Covering Materials.
  2. MIL-PRF-3135 - Performance Specification: Deck Covering Underlay Materials.

#### 1.4 SUBMITTALS

- A. Submit under provisions of Section 01300 - Administrative Requirements.
- B. Product Data:
  1. Manufacturer's data sheets on each product to be used.
  2. Preparation instructions and recommendations.
  3. Storage and handling requirements and recommendations.
- C. Verification Samples: For products specified, two samples, 6 inches (150 mm) square representing actual product, color, texture ranges and patterns.  
NOTE: For Color Only. For Final Finish and texture, refer to Section 1.5 – D.
- D. Shop Drawings: Details of materials, construction and finish. Include relationship with adjacent construction.
- E. Contractor Certification: Manufacturer letter certifying installer is properly trained in application of materials being installed and is acceptable to materials manufacturer.
- F. Guarantee Certification: Letter from the primary materials manufacture certifying that the manufacturer will issue a joint Installer/Manufacturer warranty with the installing contractor.
- G. Closeout Submittals:
  1. Care and Maintenance Data

#### 1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with ISO certification, or in the process of said certification, and a minimum of 10 years documented experience.
- B. Installer Qualifications:
  1. Firm specializing in work of this section with a minimum 5 years experience.
  2. Written approval by the flooring manufacturer.
- C. Regulatory Requirements:
  1. Dynamic coefficient of friction: Minimum 0.60, tested to ANSI A326.3

D. Source Limitations: Sole Source Responsibility:

1. Obtain materials; including primers, resins, hardening agents, and finish or sealing coats, from a single manufacturer. Private Label materials will not be accepted
2. Provide secondary materials, including patching and fill materials, joint sealant, accessory items, etc.. from a source recommended by the manufacturer of the primary materials
3. Private label materials will not be accepted.

E. Mock-Up: Mock-Up: If logistics permit, construct a 2' x 2' mock up with actual materials in sufficient time for Architect's review and to not delay construction progress. Locate mock-up as acceptable to Architect and provide temporary foundations and support.

- NOTE: Mock-up can also be done in the form of 4 – 12" x 12" samples made by the installation Contractor showing final finish and texture.
1. Intent of the mock-up is to demonstrate quality of workmanship, visual appearance and final finish and texture.
  2. If mock-up is not acceptable, rebuild mock-up until satisfactory results are achieved.
  3. Retain mock-up during construction as standard for comparison with completed work.
  4. Do not alter or remove mock-up until work is completed or removal is authorized.

1.6 PRE-INSTALLATION CONFERENCE

- A. Pre-installation Meetings: Coordinate work of this Section, with related work.
1. Attendance: Subcontractor performing work and manufacturers and fabricators involved, or affected by, installation. Coordinate installations that precede or follow.
  2. Agenda: Review progress of construction activities and preparations for the particular activity under consideration. Agenda shall include schedule, drain and floor sink interface, detailing, door thresholds, responsibilities, critical path items, and approvals.
  3. Record, agreements, and disagreements, and corrective measures and actions.
  4. Reporting: Distribute minutes to each party present and others requiring information.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages and containers with unbroken seals and bearing manufacturer's labels with date of manufacture and production lot number. Store and handle in strict compliance with manufacturer's written instructions and recommendations.
- B. Protect from damage due to weather, excessive temperature, and construction operations.
- C. When practical stage materials in area of Work 72 hours prior to beginning of Work.

1.8 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, surface temperature, material temperature and ventilation) within limits recommended by manufacturer during installation and cure. Do not install under conditions outside manufacturer's recommended limits.
- B. Restrict access to Work area except installing contractor and site supervision during preparation, installation and cure period.
- C. Lighting: Permanent lighting shall be in place prior to flooring installation.

1.9 WARRANTY

- A. Manufacturer's Warranty: Provide a joint Contractor/Manufacturer's standard limited warranty for the specified term.

**PART 2 PRODUCTS**

## 2.1 MANUFACTURERS

- A. Acceptable Manufacturer:
  - 1. Crossfield Products Corporation, which is located at: 140 Valley Road; Roselle Park, NJ 07204; ASD Phone: 908-245-2800; Fax: 908-245-0659; Email: info@dextotex.com; Web: www.dextotex.com.
- B. Or approved Equal. Requests for substitutions should be submitted two weeks prior to bid date. Substitution request received after MAY not be considered. Request will be considered per Section 01630 - Product Requirements.

## 2.2 SYSTEM

- A. ¼" Urethane Cement with Broadcast Sand, then top coated with Sealer CP, an aliphatic urethane cement sealer.

## 2.3 URETHANE CONCRETE FLOORING

- A. Slurry-Applied Urethane Cement Composition Mortar with Slip Resistant Sand Broadcast:
  - 1. Basis of Design: Dex-O-Tex Tek-Crete SL-B by Crossfield Products.
  - 2. Physical Properties:
    - a. Compressive Strength (ASTM C579): 6,100 psi (42.0 MPa).
    - b. Thermal Distortion (250 degrees F Emersion): Passes.
    - c. Tensile Strength (ASTM C307): 1,000 psi (6.89 MPa).
    - d. Flexural Strength (ASTM C580): 2,000 psi (13.8 MPa).
    - e. Thermal Co-Efficient of Thermal Expansion (ASTM C531): 1.4 x 10E5.
    - f. Density (ASTM C905): 130 pcf (20.4 kN/cu.m).
    - g. Water Absorption (MIL-PRF-3134): 0.64 percent.
    - h. Surface Hardness (ASTM D2240) 85-90 Durometer "D".
    - i. Abrasion Resistance (ASTM D1044): 33mg.
    - j. Adhesion (ASTM D4541): 400 psi (2.76 MPa), 100 percent failure in concrete.
    - k. Flammability-Critical Radiant Flux (ASTM E648): 1.07 watts/sq.cm.
    - l. Resistance to Fungal Growth (ASTM G21): Passes, Rating 1.
  - 3. Underlayment – **(If Required)** Trowelable mortar recommended AND manufactured by the Flooring Manufacturer
  - 4. Membrane – **(If Required)** Dex-O-Tex Cheminert SC Membrane applied in 2 coats with a sand broadcast per manufacturer's written recommendations.
  - 5. Body Coat: 3/16 to 1/4 inch (5 to 6 mm), with sand broadcast to rejection.
  - 6. Colors: TBD – Reference Dex-O-Tex Color Charts for proper color selection.
  - 7. Top Coat: Tek-Crete Sealer CP Pigmented Topcoat. Urethane cement, pigmented UV Stable Finish coat – Finished in 1 coat.  
**NOTE** – Polyaspartic, Novolac Epoxy and Urethane Topcoats are also available. Consult Manufacturer for proper recommendation.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Do not begin preparation and installation until substrates are properly constructed and inspected complying with ACI 311.4R-05 Guide for Concrete Inspection. The General Contractor is to correct non-conformities if defects are discovered. Repair per ACI 546.R-04. Turn over work in broom clean condition free of debris and foreign matter.
- B. If substrate preparation is responsibility of another contractor, inspect per ACI 311.4R-05

Guide for Concrete Inspection by a certified SSPC CCI inspector. If preparation is not satisfactory or if surface is contaminated, notify Architect in writing. Do not proceed with the installation before the deficiencies have been satisfactorily corrected.

- C. Perform moisture testing per ASTM F1869 and F2170. Document results per this specification. If MVER or RH exceeds manufactures recommend level for specified product. Apply vapor control primer before proceeding.

**NOTE: If a Membrane is required, a Vapor Control Primer as recommended by the manufacturer is applied. If there is no membrane required, a Vapor Control Primer is not needed.**

- D. Verify the substrate has proper levelness and flatness, or slope for drainage. If proper levelness and flatness, or slope for drainage is not in the substrate notify the Architect and General Contractor immediately. Do not proceed with flooring installation until the conditions are corrected.

### 3.2 PREPARATION

- A. Clean surfaces thoroughly prior to commencement of the preparation and installation.
- B. Prepare surfaces using methods recommended by manufacturer for achieving best result for substrate under project conditions.
- C. Concrete Surfaces: Shot-blast, or diamond grind per SSPC SP-13/NACE 6. Remove material to provide a sound surface free of laitance, glaze, efflorescence, bond inhibiting curing compounds or form release agents. Remove grease, oil, and other penetrating contaminants. Repair damaged and deteriorated concrete to acceptable condition per ACI 546.R-04. Produce a surface profile equal to ICRI 310.25 CPS 2, CPS 3, or CPS 4. Leave surface free of dust, dirt, laitance, and efflorescence.
- D. Slope and Drainage –
  - 1. Brewery floor are concrete floor slab is to be sloped.
  - 2. If necessary provide a trowel-grade underlayment as recommended and manufactured by the flooring manufacturer.
  - 3. Grind or taper finish for proper termination to drains, non coated floor, other materials as required.
- E. Cut 1/8" X 1/2" keyways around the perimeter, around drains, clean outs, access panels or other flooring interruption, and at expansion or isolation joints.

**NOTE:** Keyways are cut when basecoat is applied direct to concrete substrate. If a membrane is required, proceed as listed below:

  - 1. Apply Membrane in a 40 mil "neat" coat and allow to cure overnight. Apply a second 10 mil coat and broadcast with sand to rejection. Allow to cure.
- F. Sweep off the surface and apply the Urethane Cement basecoat directly to the broadcast surface.
- G. Verify proper surface profile per ICRI 310.25 CSP coupons. Perform water break test and tape dust cleanliness test per ISO 8502-3 to determine surface is acceptable to proceed.

### 3.3 INSTALLATION

- A. Apply Flooring System components according to manufacturer's written instructions. Produce a uniform, monolithic wearing surface of thickness, color and texture indicated.
  - 1. Coordinate application of components. Provide optimum adhesion of coatings to substrate, and optimum intercoat adhesion.
  - 2. Cure coatings per manufacturer's written instructions. Prevent contamination during application and curing processes.
  - 3. Expansion, Isolation and Control Joint Treatment: At substrate expansion, isolation and control joints, comply with resinous flooring manufacturer's written instructions.
  - 4. Contractor shall keep daily logs recording the work performed and environmental

conditions as required by the materials manufacturer.

- B. Install 4" integral cove base with 5/8" radius at all vertical horizontal transitions.

**NOTE: The Cove Base is Applied using epoxy as the basecoat.**

- C. Self-Leveling Body Coats: Apply in thickness indicated for flooring system.
  - 1. Aggregates: Broadcast aggregates at rate recommended by manufacturer. After resin cures, remove excess aggregates.
- D. Top Coat: Tek-Crete Sealer CP. Apply in number indicated for flooring system and at spreading rates recommended by manufacturer to produce wearing surface indicated.

#### 3.4 CLEANING AND PROTECTION

- A. Clean products after 96 hours cure in accordance with the manufacturer's recommendations.
- B. Prohibit foot and wheel traffic over flooring for 24 hours. Light foot traffic is acceptable after 24 hours. Normal traffic after 48 hours.
- C. Do not expose to harsh chemicals until full 7 days cure.
- D. Touch-up, repair or replace damaged products before Substantial Completion
- E. Provide floor protection acceptable to the materials manufacturer.

END OF SECTION



**SECTION 09673**  
**RESINOUS FLOORING AND COATINGS**  
**B103, B104, B105**

**PART 1 GENERAL**

**1.1 SECTION INCLUDES**

- A. Decorative Resinous Flooring:
  - 1. Decorative Quartz Epoxy Flooring. (Decor-Flor) for B103 Hall, B104 Stor. & B105 Women's Room,

**1.2 RELATED SECTIONS**

- A. Concrete – See structural drawings.

**1.3 REFERENCES**

- A. American Standard Test Method International (ASTM):
  - 1. ASTM C579 - Standard Test Methods for Compressive Strength of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes.
  - 2. ASTM C580 - Standard Test Method for Flexural Strength and Modulus of Elasticity of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes.
  - 3. ASTM D635 - Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position.
  - 4. ASTM D2240 - Standard Test Method for Rubber Property-Durometer Hardness.
  - 5. ASTM D4060 - Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser.
  - 6. .
  - 7. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
  - 8. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
  - 9. ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes1
- B. American National Standards Institute (ANSI):
  - 1. ANSI A1264 - American National Standard for the Provision of Slip Resistance on Walking/Working Surfaces.
- C. International Concrete Repair Institute (ICRI):
  - 1. ICRI - 310.25 Selecting and Specifying Concrete Surface Preparation.

**1.4 SUBMITTALS**

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- B. Product Data:
  - 1. Manufacturer's data sheets on each product to be used.
  - 2. Preparation instructions and recommendations.
  - 3. Storage and handling requirements and recommendations.
- C. Verification Samples: For products specified, two samples, 6 inches (150 mm) square representing actual product & color.
- D. Shop Drawings: Details of materials, construction and finish. Include relationship with adjacent construction.
- E. Contractor Certification: Manufacturer letter certifying installer is properly trained in application of materials being installed, and is acceptable to materials manufacturer.
- F. Guarantee Certification: Letter from the primary materials manufacture certifying that the

manufacturer will issue a joint installer manufacturer guarantee with the installing contractor.

- G. Certification: CA Department of Public Health 01350 Method for Testing and Evaluation of Volatile Organic Chemical Emissions From Indoor Sources Using Environmental Chambers.

#### 1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with ISO 9001 certification and a minimum ten years documented experience.
- B. Installer Qualifications: Specializes in installations to that required for Project with five years' experience. Engage an SSPC Concrete Coatings Inspector certified to perform inspections on Project. Installer will be acceptable to materials manufacturer.
- C. Source Limitations: Each product type from single manufacturer ensuring uniformity.
- D. Mock-Up: Construct a mock-up with actual materials in sufficient time for Tenants Reviews review and to not delay construction progress. Locate mock-up as acceptable to Architect and provide temporary foundations and support.
  - 1. Intent of mock-up is to demonstrate quality of workmanship and visual appearance.
  - 2. If mock-up is not acceptable, rebuild mock-up until satisfactory results are achieved.
  - 3. Retain mock-up during construction as standard for comparison with completed work.
  - 4. Do not alter or remove mock-up until work is completed or removal is authorized.
  - NOTE: If a mock up is not practical, 4 – 12"x12" sample boards made by the installation contractor and approved as control samples

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages and containers with unbroken seals and bearing manufacturer's labels with date of manufacture and production lot number. Store and handle in strict compliance with manufacturer's written instructions and recommendations.
- B. Protect from damage due to weather, excessive temperature, and construction operations.
- C. When practical stage materials in area of Work 48 hours prior to beginning of Work.

#### 1.7 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, surface temperature, material temperature and ventilation) within limits recommended by manufacturer during installation and cure. Do not install under conditions outside manufacturer's recommended limits.
- B. Restrict access to Work area except installing contractor and site supervision during preparation, installation and cure period.
- C. Lighting: Permanent lighting shall be in place prior to flooring installation

#### 1.8 WARRANTY

- A. Manufacturer's Warranty: Manufacturer's standard limited warranty for the specified term.

### PART 2 PRODUCTS

#### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer:
  - 1. Address: Crossfield Products Corporation, which is located at: 140 Valley Road; Roselle Park, NJ 07204; ASD Phone: 908-245-2800; Fax: 908-245-0659; Email: info@dexotex.com; Web: www.dexotex.com.
- B. Requests for substitutions must be submitted two weeks prior to bid date. Substitution request received after MAY not be considered. Request will be considered per Section 01 60 00 - Product Requirements.

## 2.2 DECORATIVE RESINOUS FLOORING

### A. Decorative Quartz Epoxy Flooring:

1. Basis of Design: Dex-O-Tex Decor-Flor
2. Physical Properties:
  - a. Applied Thickness: Nominal 1/8" double broadcast
  - b. Low Emitting: CDPH 1350 Compliant
  - c. Compressive Strength, Complete System (ASTM C109): 8,556 psi (59.0 MPa).
  - d. Compressive Strength, Resin Component (ASTM D695): 11,000 psi
  - e. Surface Hardness (ASTM D2240) 85.5 Durometer "D".
  - f. Aggregate Hardness (Moh's Mineral Scale): 6-1/2 to 7.
  - g. Indentation, Steadily Applied Load (MIL-PRF-3134, Paragraph 4.7.4.2.1): 0.005 indentation.
  - h. Impact Resistance (MIL-PRF-3134, Paragraph 4.7.3): 0.011 indentation, no cracking or loss of adhesion.
  - i. Adhesion (ACI 503.1): 345 psi (2.38 MPa), 100 percent failure in concrete.
  - j. Water Absorption (MIL-PRF-3134): Less than 1 percent.
  - k. Abrasion Resistance (ASTM C501: 19 Wear Index (H-22 Wheel).
  - l. Tensile Strength (ASTM D638): 4,400 psi (30.3 MPa).
  - m. Flexural Strength (ASTM C580): 1,800 psi
  - n. Elongation (ASTM D638): 19.6 percent.
3. Colors: To be selected by Architect from manufacturer's standard colors.
4. Broadcast: Ceramic coated quartz aggregate.
5. Thickness: 1/8 inch (3 mm).
6. Optional Finish Coat: UV Stable, abrasion resistant Urethane or Polyaspartic, as recommended by the material manufacturer
7. Anti-Microbial Additive: Prevents most bacteria, fungi, algae and actinomycetes.
8. Vapor Control Primer Membrane, (If Required): Type recommended or produced by manufacturer of flooring system for type of service and floor condition indicated.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Do not begin preparation and installation until substrates are properly constructed and inspected complying with ACI 311.4R-05 Guide for Concrete Inspection. The General Contractor is to correct non-conformities if defects are discovered. Repair per ACI 546.R-04. Turn over work in broom clean condition free of debris and foreign matter.
- B. If substrate preparation is responsibility of another contractor, inspect per ACI 311.4R-05 Guide for Concrete Inspection by a certified SSPC CCI inspector. If preparation is not satisfactory or if surface is contaminated, notify Architect in writing. Do not proceed with the installation before the deficiencies have been satisfactorily corrected.
- C. Perform moisture testing per ASTM F1869 and F2170. Document results per this specification. If MVER or RH exceeds manufactures recommend level for specified product. Apply vapor control primer before proceeding.

### 3.2 PREPARATION

- A. Clean surfaces thoroughly prior to commencement of the preparation and installation.
- B. Prepare surfaces using methods recommended by manufacturer for achieving best result for substrate under project conditions.
- C. Concrete Surfaces: Shot-blast, or diamond grind per SSPC SP-13/NACE 6. Remove material to provide a sound surface free of laitance, glaze, efflorescence, bond inhibiting curing compounds or form release agents. Remove grease, oil, and other penetrating contaminants. Repair damaged and deteriorated concrete to acceptable condition per ACI 546.R-04.

Produce a surface profile equal to ICRI 310.25 CPS 2, CPS 3, or CPS 4. Leave surface free of dust, dirt, laitance, and efflorescence.

1. NOTE: If the substrate is an existing overlay system, follow the same procedures using shotblasting, removing the topcoat completely.
  2. Check for any hollow or delamination sections of the existing flooring system, remove back to a solid surface and apply Dex-O-Tex A-81 Underlayment. Allow to cure prior to new flooring application
- D. Verify proper surface profile per ICRI 310.25 CSP coupons. Perform water break test and tape dust cleanliness test per ISO 8502-3 to determine surface is acceptable to proceed.

### 3.3 INSTALLATION

- A. Apply Flooring System components according to manufacturer's written instructions. Produce a uniform, monolithic wearing surface of thickness, color and texture indicated.
1. Coordinate application of components. Provide optimum adhesion of coatings to substrate, and optimum intercoat adhesion.
  2. Cure coatings per manufacturer's written instructions. Prevent contamination during application and curing processes.
  3. Expansion, Isolation and Control Joint Treatment: At substrate expansion, isolation and control joints, comply with resinous flooring manufacturer's written instructions.
  4. Contractor shall keep daily logs recording the work performed and environmental conditions as required by the materials manufacturer.
- B. Vapor Control Primer Membrane: If required, apply over prepared substrate at required spreading rate.
- C. Install integral 4" cove base with 5/8" radius.
- D. Crack Isolation/Anti-Fracture Membrane, (If Required): After Surface Preparation, route out cracks greater than 60 mils. Vacuum cracks and surrounding surface. Remove dust and debris. Fill cracks with flexibilized epoxy membrane, Dex-O-Tex Cheminert SC membrane. Strip with fabric reinforcement 2 inches (51 mm) on both sides of cracks or per manufacturer's recommendations.
1. Application Location: Substrate cracks.
- E. Self-Leveling Body Coats, (2): Apply in thickness indicated for flooring system.
1. Aggregates: Broadcast aggregates at rate recommended by manufacturer. After resin cures, remove excess aggregates. Repeat as a second Application to achieve desired 1/8" nominal thickness.
- F. Grout Coat: Apply clear epoxy, (Dex-O-Tex Décor Flor Resin), as recommended by resinous flooring manufacturer, to fill voids in final body coat surface.
- G. Top Coat – Apply clear epoxy, (Dex-O-Tex Décor Flor), in method recommended by material manufacturer.
- H. Optional Finish Coat: Apply a urethane, (Dex-O-Tex Aero-Flor LO), or Polyaspartic, (Dex-O-Tex Quik Glaze), in number indicated for flooring system and at spreading rates recommended by manufacturer to produce wearing surface indicated.

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### 3.4 CLEANING AND PROTECTION

- A. Clean products after 96 hours cure in accordance with the manufacturer's recommendations.
- B. Prohibit foot and wheel traffic over flooring for 24 hours. Light foot traffic is acceptable after 24 hours. Normal traffic after 48 hours.
- C. Do not expose to harsh chemicals until full 7 days cure.
- D. Touch-up, repair or replace damaged products before Substantial Completion.
- E. Protect the finished floor in a manner acceptable to the manufacturer.

END OF SECTION

## SECTION 09680

### WALK OFF CARPET

#### PART 1 GENERAL

##### 1.01 THIS SECTION INCLUDES

- A. Providing and installing Walk Off Carpet and all accessories and all preparation work as shown on the drawings, as required, and as indicated by the requirements of this section.
- B. All required floor substrate preparation - repair, patching, leveling, etc - should be included in the contractors bid. Bidders may make any necessary project inspections they need to determine the proper scope of work prior to submitting their bid.

##### 1.02 RELATED DOCUMENTS AND SECTIONS

- A. General Provisions of the Contract (including General Conditions and Division 1 sections) apply to the work of this section.
- B. Drawings
- C. SECTION 06100 ROUGH CARPENTRY
- D. SECTION 09650 RESILIENT FLOORING AND BASE

##### 1.03 QUALITY ASSURANCE AND REGULATORY REQUIREMENTS

- A. Installer: Firm specializing in carpet installation with not less than 5 years experience in installation of carpeting similar to that required for this project.
- B. If required, provide types of flooring and accessories supplied by one manufacturer, including leveling and patching compounds, and adhesives.
- C. If required, provide flooring material to meet the following fire test performance criteria as tested by a recognized independent testing laboratory:
  - 1. ASTM:
    - a. D2859 - Test Method for Flammability of Finished Textile Floor Covering Materials.
    - b. E662 - Test Method for Specific Optical Density of Smoke Generated by Solid Materials.
  - 2. National Fire Protection Association (NFPA):
    - a. NFPA 253 - Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source.
    - b. NFPA 255 - Test Method for Surface Burning Characteristics of Building Materials, or equivalent UL 723.
  - 3. American Association of Textile Colorists and Chemists (AATCC):
    - a. AATCC 16E - Colorfastness to Light: Water-Cooled Xenon Arc, Continuous Light.
    - b. AATCC 30 - Fungicides, Evaluation of Textiles; Mildew and Rot Resistance of Textiles.
    - c. AATCC 90 - Anti-Bacterial Activity of Fabrics, Detection of: AGAR Plate Method.
    - d. AATCC 100 - Anti-Bacterial Finishes on Fabrics.
    - e. AATCC 134 - Electrostatic Propensity of Carpets.

##### 1.04 PERFORMANCE REQUIREMENTS

- A. Routes.

##### 1.4 SUBMITTALS

- A. Manufacturer's Data Submit two (2) copies of manufacturer's specifications and installation instructions for carpet and related items specified.
- B. Shop Drawings
  - a. For carpeted areas submit shop drawings showing installation of carpeting including
    - i. seam diagram (see below)
    - ii. pattern direction,
    - iii. necessary installation accessories,
    - iv. Provisions for work of other trades.
    - v. Show location of different patterns or styles of carpet. Also, show locations of any

threshold conditions.

- C. Color Selection: For selections see Section 09001, For record purposes, submit manufacturer's standard size samples and color yarns showing full range of colors, textures, and patterns available for each type of carpet required.
- D. Samples: Submit for verification purposes, 9" x 9" samples of each carpet required. Samples shall be accompanied by manufacturer's technical specification for each carpet required using terminology characteristics as listed in this specification. Also include a complete representation in sample form of all available colorations. Provide full size tile samples of selected colors as requested by owner or Architect.

#### 1.05 QUALITY ASSURANCE AND REGULATORY REQUIREMENTS

- A. Flooring Contractor's Qualifications: Firm with not less than 5 consecutive years of experience in installation of commercial carpeting of type, quantity, and installation methods similar to work of this section. All flooring contractors must be certified the flooring manufacturer within the last 24 months and be approved by manufacturer prior to project bid date. In conjunction with certification, flooring contractor must offer a 5-year installation warranty on all flooring products.
- B. Manufacturer's Qualifications: Firm (carpet mill) with not less than 5 consecutive years of production experience with carpet similar to type specified in this section; whose published product literature clearly indicates general compliance of products with requirements of this section. Manufacturer must be ISO 14001 certified.
- C. Measurement Verification: Dimensions shown on drawings are approximate. It is the Flooring Contractor's responsibility to verify all dimensions and job site conditions; order sufficient yardage to fully carpet areas as indicated and to fill overage requirements as specified. No substitutions shall be permitted to make up for any shortage of material in overage or in carpet to be installed.
- D. Flooring Contractor shall be totally responsible for the accuracy of his measurements of total yardage, individual floor yardage, and dye lot yardage requirements; no additional compensation shall be allowed for shortage of materials.
- E. Dye Lots: All carpet of the same type in continuous areas shall be from the same dye lots. Carpets that are piece dyed and are limited to dye batch sizes must be approved by the owner. Transition from one dye lot to another shall be detailed on shop drawings and approved by owner.
- F. Owner reserves the right to test carpet at their expense to verify that the delivered carpet is as specified. If carpet does not meet specifications, manufacturer will reimburse owner the testing expense and the carpet may be rejected.

#### 1.06 PRODUCT DELIVERY, STORAGE & HANDLING

- A. Deliver carpeting materials in original mill protective wrapping with mill register numbers and tags attached. Maintain wrappers and protective covers in place until carpet is ready for installation. Store inside, in well-ventilated area, protected from weather, moisture and soiling.
- B. **Deliver all required overages and maintenance stock to owner's specified location prior to beginning installation.**

#### 1.07 ENVIRONMENTAL CONDITIONS

- A. Deliver materials in good condition to the jobsite in the manufacturer's original unopened containers that bear the name and brand of the manufacturer, project identification, and shipping and handling instructions.
- B. Store materials in a clean, dry, enclosed space off the ground, and protected from the weather and from extremes of heat and cold. Protect adhesives from freezing. Store flooring, adhesives, and accessories in the spaces where they will be installed for at least 48 hours before beginning installation.
- C. Maintain a minimum temperature in the spaces to receive the flooring and accessories of 65°F (18°C) and a maximum temperature of 100°F (38°C) for at least 48 hours before, during, and for not less than 48 hours after installation. Thereafter, maintain a minimum temperature of 55°F (13°C) in areas where work is completed. Protect all materials from the direct flow of

- heat from hot-air registers, radiators, or other heating fixtures and appliances.
  - D. Precondition: All of the carpet shall be spread in a room on site 24 hours prior to actual installation with the room preconditioned at a minimum of 65 degrees F with humidity between 10% to 65%.
  - E. Install flooring and accessories after the other finishing operations, including painting, have been completed. Close spaces to traffic during the installation of the flooring. Do not install flooring over concrete slabs until they are sufficiently dry to achieve a bond with the adhesive, in accordance with the manufacturer's recommended bond and moisture tests.
  - F. Close spaces to traffic during flooring installation and for time period after installation recommended in writing by the manufacturer.
- 1.08 FIELD MEASUREMENTS
- A. Verify that field measurements are as indicated on Drawings.
- 1.09 SEQUENCING
- A. Sequence installation so as to minimize possibility of damage and soiling of carpet.
  - B. Do not commence installation until painting and finishing work are complete, and ceiling and overhead work have been tested, approved, and completed.
- 1.10 EXTRA STOCK
- A. General: Furnish 10% additional yardage of each carpet type required; extra yardage is over and above any overage provided by manufacturer. Normal manufacturing overage not to exceed 10% for under 1000 yards, not to exceed 5% for over 1000 yards. Deliver to the Owner uncut in clearly marked dust-proof packages **prior to commencement of work**; store where directed.

## PART 2 PRODUCTS

### 2.01 ACCEPTABLE MANUFACTURERS

- A. Floor Mat - Subject to compliance with requirements provide products of:
  - a. Patcraft Beyond the Door Paseo- Obsidian 00595 24X24 – 6.78 mm - Monolithic.
  - b. Make substitution requests in accordance with the requirements of Specification Section 01630.

### 2.02 ACCESSORIES

- A. Leveling Compound: Latex type as recommended by carpet manufacturer; compatible with carpet adhesive and curing/sealing compound used on concrete.
- B. Multi-Purpose Adhesive: Low VOC permanent carpet adhesive as recommended by carpet manufacturer for direct glue down of carpet; comply with CRI Green Label Certification Program
  - a. **For Mat Carpet** – Waterproof adhesive as recommended by the manufacturer for the application.
  - b. For information regarding equivalent adhesives, please contact Shaw at 1.877.502.7429. TECHNICAL SERVICES DEPARTMENT
- C. Edge Guard: Extruded or molded heavy-duty vinyl or rubber carpet edge guard of size and profile indicated; minimum two (2) inch wide anchorage flange; colors selected from manufacturer's standard range of colors.
- D. Miscellaneous Materials: As recommended by manufacturer of carpet, cushion, and other carpeting products; as required to complete installation.
- E. Leveling and Patching Compounds: For patching, smoothing, and leveling monolithic subfloors (shot blasted concrete with moisture retarder and primer), provide Portland cement-based latex underlayment or patch and skim coat as recommended by the flooring manufacturer.
- F. Concrete Floor Sealers floor sealers as required by the manufacturer for concrete: Shaw Contract 9050 Floor Sealer and Shaw 8550 Level Primer.
- G. Seam Sealer - Shaw 8300

## PART 3 EXECUTION

### 3.01 INSPECTION. SITE TESTING AND CONDITIONING

- A. Maintain the temperature of the installation site, carpet, adhesive and seam sealer between 65° F and 95° F for 24 hours before installation. Do not begin the installation if the room or subfloor temperature is below 65° F. The adhesive and seam sealer will not function properly when applied over an extremely cold surface. Relative humidity should not exceed 65%. These conditions must be maintained for 24 hours prior to, during and 24 hours after installation.
- B. Examine subfloors prior to installation to determine that surfaces are smooth and free from cracks, holes, ridges, and other defects that might prevent adhesive bond or impair durability or appearance of the flooring material.
- C. Inspect sub-floor surfaces to determine that they are satisfactory. A satisfactory sub-floor surface is defined as one that is smooth, within specified tolerances for levels, and free from cracks, holes, ridges, coatings preventing adhesive bond, and other defects impairing performance or appearance. Hairline cracks, small holes, and similar minor irregularities easily patched with compound do not constitute defects.
  - a. For substrates constructed as part of this work, file written report of any unsatisfactory conditions which cannot be promptly corrected by trades installing substrate.
  - b. Visually inspect for evidence of moisture, alkaline salts, carbonation, dusting, mold, or mildew.
- D. Confirm compatibility of adhesive with curing compounds on concrete floors
- E. Acceptance - report conditions contrary to contract requirements that would prevent a proper installation to the architect and owner in writing. Do not proceed with the installation until unsatisfactory conditions have been corrected.
  - a. Do not proceed with installation until sub-floor surfaces are satisfactory.
  - b. Failure to call attention to defects or imperfections will be construed as acceptance and approval of the subfloor.
  - c. Installation indicates acceptance of substrates with regard to conditions existing at the time of installation.

### 3.02 SEAMING LAYOUT

- A. Wherever possible seams are to be positioned away from traffic areas.
- B. General - Main traffic to run parallel to seams rather than across seams.
  - 1 In classrooms, labs and seminar rooms, seams are to be run perpendicular to the teaching wall.
- C. In rooms under 12'-0" wide, there are to be no cross-grain seams.
- D. In rooms more than 140 square feet, 2 cross grain seams are acceptable.

### 3.03 FLOOR PREPARATION

- A. The subfloor must be free of dust, dirt, oil, grease, paint, wax, moisture, or any debris that could affect adhesion of these backings to the floor. Do not use sweeping compounds as they may leave an oily residue that can prevent adhesive from bonding to the sub floor.
- B. Existing Adhesives and Coatings
  - a. Must be removed to a bonded residue.
  - b. Remove paint, varnish, oils, release agents, sealers, and waxes.
  - c. Remove residual adhesives as recommended by the flooring manufacturer. Remove curing and hardening compounds not compatible with the adhesives used, as indicated by a bond test or by the compound manufacturer's recommendations for flooring. Avoid organic solvents
  - d. After removal existing flooring, coatings and adhesives wet scrub and mop all floor areas to remove any dust or organic growths.
- C. The subfloor must be level and smooth. Depressions and cracks must be filled with a liquid latex additive patching compound and all protrusions leveled.



- a. Remove sub-floor ridges and bumps. Fill minor or local low spots, cracks, joints, holes, and other defects with Sub-floor filler.
- b. Fill, level, and make smooth cracks 1/16 inch or more, holes, unevenness, and roughness with compatible latex floor patching compound. Feather floor filling or leveling compound a minimum of four (4) ft.
- c. Sweep floor of loose granular debris prior to filling. After filling, allow filler to dry. Damp mop floor with warm water and allow to dry. Vacuum after mopping to ensure that loose granular debris is removed and to provide a proper substrate to install broadloom carpet.
- d. Prohibit traffic until filler is cured.
- e. Existing quarry tile – At lobby to fully removed. At lounge provide full leveling of the floor remove tile completely.
- D. Concrete floors must be sealed if dusting or powdering exists.

### 3. 04 INSTALLATION GENERAL

- A. Install carpet in accordance with manufacturer's instructions and CRI Carpet Installation Standard.
- B. **Include in contract all required subfloor preparation required.**
- C. Install carpet under open-bottom obstructions and under removable flanges and furnishings, and into alcoves and closets (unless otherwise specified) in each space.
- D. Provide cutouts where required. Conceal cut edges with protective edge guards or flanges.
- E. Run carpet under open-bottom items and install tight against walls, columns, and cabinets so that the entire floor area is covered with carpet.
- F. Install edging guard at openings and doors wherever carpet terminates, unless indicated otherwise.
- G. Perform cutting in accordance with manufacturer's recommendation using tools designed for carpet being installed. Verify carpet match before cutting to ensure minimal variation between dye lots. Retain or dispose of scraps in accordance with manufacturer's environmental program.
- H. Install carpet from same dye lot and run within each continuous carpet area.
- I. Seal seams with manufacturer recommended seam sealer.
- J. Install carpet with pile-lay in same direction except when indicated otherwise on drawings.
- K. Use leveling compound where necessary. Feather floor leveling compound minimum of 4 ft.
- L. Trim carpet neatly at walls and around interruptions.
- M. Complete installation of edge strips, concealing exposed edges.
- N. Cut carpet at fixtures, architectural elements, and perimeters.
- O. Use a fixed reducer strip to secure broadloom area in open perimeter designs.
- P. Measure each space to receive carpeting as basis for supplying, cutting, and seaming the carpet. Do not scale the Contract Drawings or calculate sizes from dimensions shown.
- Q. Allow new concrete to cure for 90 days before carpet installation starts.
- R. Note that one area of flooring is to be installed over quarry tile that is to remain. Clean and level floor as required by manufacturer
- S. Clear away debris and scrape up cementitious deposits from surfaces to receive carpeting. Vacuum clean immediately before installation. Check concrete surfaces to ensure no dusting through installed carpet. Apply sealer where required to prevent dusting.

### 3. 05 ADHESIVE INSTALLATION

- A. Utilize methods required by the manufacturer.
- B. Recommended Application:
  - a. Pattern Products - 1/8" x 1/8" x 1/8" "U" notch trowel providing a coverage rate of 5 - 7 yds./gal. (container size 4 – gallon) depending on the porosity of the substrate.
  - b. Non – Pattern Products – 3/32 x 3/32 x 3/32 unotch trowel or equivalent that will provide a coverage rate of 8 – 9 yds./gal. (container size 4 – gallon) depending on the porosity of the substrate.
- C. On extremely porous or floors with residual multi-purpose adhesive, more glue will be needed.

Coverage rates should be closely monitored. Excessive rates may indicate a worn or improperly notched trowel. Due to the high solids content of these adhesives a reduced set up time can be expected. Adhesive open time will vary depending on the temperature and humidity at the job site. The adhesive is ready for carpet installation when the entire ridge of glue becomes tacky.

- a. Inadequate adhesive application or set up time may result in bubbles and/or peaked seams and repair will require more time and effort than proper initial installation.

### 3. 06 JOB LAYOUT

- A. Dry lay the entire area to be carpeted. Implement roll sequencing prior to cutting any textured, graphic product. Dry laying will minimize the normal variations encountered when pattern matching and reveal any bow or skew within the roll. Follow the roll numbers sequentially.

### 3. 07 ROLLING

- A. Backing to be rolled widthwise, and then lengthwise with a 75 – 100 lb. roller to assure transfer of the adhesive between floor and carpet backing and to eliminate any trapped air. Failure to perform this could result in bubbling or unwanted air pockets.

### 3. 08 CUTTING AND SEAMING

- A. Seam edges shall be trimmed using tools and techniques best suited for the carpet. Trim edges far enough into the material, to maintain the structural integrity of the carpet.
- B. Seam edges must be sealed to prevent edge ravel, tuft loss and delamination of the secondary backing layer.
- C. Row cut both edges.
- D. Correct pattern matching, gaps, and overlaid areas with use of a knee kicker, power stretcher, deadman, Roberts 10-117 or equivalent ministretcher and stay nails.
- E. Patterned carpets must be cut by the row cut/row cut method and dry laid to ensure pattern match, also check for sidematch and any visual defects. Use a screwdriver or awl to separate rows of yarn and cut with a cushion back or loop pile cutter.
- F. After the adhesive has become tacky, place the first drop into the adhesive and apply seam sealer, following with the second breadth pattern matching if necessary. Use of a power stretcher, deadman, Roberts 10-117 or equivalent mini stretcher and stay nails may be required to obtain proper match.
  - 1 Remove stay nails after the adhesive set-up – approximately 12-24 hours after installation.
  - 2 Cross seams can be made the same as side seams if the rows can be run across the width. If not, cut both sides of the carpeting on pattern and proceed to pattern match the seam.

### 3. 09 SEAM SEALING

- A. Install seam sealer per manufacturer's requirements.
- B. Seam sealer must be applied to the edges trimmed for seaming, and cover the thickness of both the primary and secondary backing without contaminating the face yarn. CAUTION: Seam edges must be sealed to prevent edge ravel, tuft loss, and delamination of the secondary backing in the seamed area.

### 3. 10 Bubbles, creases, pile distortion and crushing – if these occur contact the manufacturer for direction.

### 3. 11 TRANSITIONS Where carpet meets other floor coverings, the edges must be adequately protected with an appropriate transition molding or strip that covers the carpet edge at least ½.”

### 3. 12 FIELD QUALITY CONTROL

- A. Inspect completed carpet installation on each floor.
- B. Verify that installation is complete; work is properly done and acceptable.
- C. Remove and replace, at no additional cost to owner, any work found not to be acceptable.

### 3. 13 CLEANING

- A. On completion of installation in each area, remove dirt and carpet scraps from surface of

carpet. Remove soiling, spots, or excess adhesive on carpet with cleaning materials recommended by carpet manufacturer.

- B. **Remove debris; sort pieces from carpet scraps to redirected and recycled.**
- C. At completion of work, vacuum carpet using commercial vacuuming equipment as recommended by carpet manufacturer. Remove spots and replace carpet where spots cannot be removed. Remove rejected carpeting and replace with new carpeting. Remove any protruding yarns with shears or sharp scissors,

### 3. 14 PROTECTION

- A. Do not permit traffic over unprotected floor surface.
- B. Protect carpet against damage during construction. Cover with 6-mil thick polyethylene covering with taped joints during construction period whenever protection is required, so that carpet will be without any indication of deterioration, wear, or damage at time of completion.
- C. **Damaged carpet will be rejected and recycled. As carpet is installed, remove trimmings, excess pieces of carpet, and installation materials.**
- D. Maintain protection of carpeting on each floor or area until work is accepted.

### 3. 15 POST INSTALLATION CARE AND PROTECTION

- A. Use plywood over the carpet when heavy objects are moved within 24 hours after installation.
- B. Protective chair mats under chairs with casters are recommended. This will prevent excessive wear to the face of the carpeting.
- C. A non-staining building material paper must be placed over the carpet to protect it when additional construction activity is to take place that could soil or stain it. Do not use plastic sheeting as it could trap moisture. The self-sticking type can transfer adhesive residue to the carpet that will attract soil.
- D. These installation procedures are intended to assist in the installation and care of Shaw carpet under most job conditions. Specific questions regarding installation and maintenance not covered must be referred to the Shaw Technical Services Department at 1-800-471- 7429. Any variance from the manufacturer required procedures will become the responsibility of the contractor.

**END OF SECTION 09680**

## **SECTION 09900 PAINTING & STAINING**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to this section.

#### **1.2 SUMMARY**

- A. This Section includes surface preparation, painting, and finishing of exposed interior and exterior items and surfaces.
- B. Paint exposed surfaces whether or not colors are designated in "schedules," except where a surface or material is specifically indicated not to be painted or is to remain natural. Where an item or surface is not specifically mentioned, paint the same as similar adjacent materials or surfaces. If color or finish is not designated, the Architect shall select from standard colors or finishes available.
- B. Painting is not required on prefinished items, finished metal surfaces, concealed surfaces, operating parts, and labels.

#### **1.3 DEFINITIONS**

- A. "Paint" includes coating systems materials, primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate, or finish coats.

#### **1.4 SUBMITTALS**

- A. Product Data: Manufacturer's technical information, label analysis, and application instructions for each material proposed for use.
- B. Samples for verification purposes: Provide samples of each color and material to be applied, with texture to simulate actual conditions, on representative samples of the actual substrate.

#### **1.5 REGULATORY REQUIREMENTS**

- A. Comply with the applicable provisions of all codes, standards and specifications referenced in this section.
  - 1. All products must be in full compliance with NJAC 7:27 and 23.2 thru 23.9 Limiting Volatile Organic Substance (VOC) in Architectural Coatings.

#### **1.6 QUALITY ASSURANCE**

- A. Single-Source Responsibility: Provide primers and undercoat paint produced by the same manufacturer as the finish coats.
- B. Coordination of Work: Review other sections in which primers are provided to ensure compatibility of the total systems for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
  - 1. Notify the Architect of problems anticipated using the materials specified.

#### **1.7 DELIVERY, STORAGE, AND HANDLING**

- A. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F (7 deg C). Maintain containers used in storage in a clean condition, free of foreign materials and residue.
  - 1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily. Take necessary measures to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing, and application.

## 1.8 JOB CONDITIONS

- A. Apply water-based paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 50 deg F (10 deg C) and 90 deg F
- B. Apply solvent-thinned paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 45 deg F (7 deg C) and 95 deg F
- C. Do not apply paint in snow, rain, fog, or mist, when the relative humidity exceeds 85 percent, at temperatures less than 5 deg F (3 deg C) above the dew point, or to damp or wet surfaces.

## 1.9 ENVIRONMENTAL STANDARDS

- A. Specify environmentally preferable paints for all architecture and anti-corrosive paints. Paints Containing the following ingredients shall be prohibited:  
Inorganic compounds: antimony, cadmium, hexavalent chromium, lead, mercury.  
Organic compounds: methylene chloride, 1,1,1, - Tri- chlorethane, Benzene, Toluene( Methylbenzene), Ethylbenzene, Vinyl Chloride, Naphthalene, 1,2, - Dichlorobenzene, Di (2 – ethylhexyl) phthalate, Butyl phthalate, Di – n- butyl phthalate, Di – n – octyl 1 phthalate, diethyl 1 phthalate, Dimethyl 1 phthalate, Isophorone, Formaldehyde, MEK (methyl ethyl ketone) Methyl isobutyl ketone, Acrolein, Acrylonitrile  
Maximum Permitted VOC (volatile organic compound) levels for architectural and anti-corrosive paints:

Type of Paints	VOCs(g/L)	VOCs(lbs/gal)
Interior		
Flat	50	0.42
Non-flat	150	1.25
Exterior Architectural		
Flat	100	0.83
Non-flat	200	1.66
Anti-Corrosive		
Flat	250	2.10
Semi-gloss	250	2.10
Gloss	250	2.10

## PART 2 – PRODUCTS

### 2.1 MANUFACTURERS

- A. Standard Paints - Manufacturer: Subject to compliance with requirements, provide products of one of the following:
  - 1. The Sherwin-Williams Company (S-W).
- B. Reference Manufacturer: The products of S-W have been indicated for reference purposes in the paint schedules.
- C. M. A. Bruder & Sons, Inc. (MAB) is an acceptable substitution under provisions of Section 01630.

## PART 3 – EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates and conditions under which painting will be performed for compliance with requirements for application of paint. Do not begin paint application until unsatisfactory conditions have been corrected.
  - 1. Start of painting will be construed as the Applicator's acceptance of surfaces and conditions within a particular area.
  - 2. Up to two different paint colors may be selected for each room. Colors may be changed between different elements.

### 3.2 PREPARATION

- A. General Procedures: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items in place that are not to be painted, or provide surface-applied protection prior to surface preparation and painting. Remove these items if necessary for complete painting of the items and adjacent surfaces. Following completion of painting operations in each space or area, have items reinstalled by workers skilled in the trades involved.
  - 1. Clean surfaces before applying paint or surface treatments. Remove oil and grease prior to cleaning. Schedule cleaning and painting so that dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
- B. Steel Surface Preparation: Clean and prepare surfaces to be painted in accordance with the manufacturer's instructions for each particular substrate condition and as specified.
  - 1. Provide barrier coats over incompatible primers or remove and reprime. Notify Architect in writing of problems anticipated with using the specified finish-coat material with substrates primed by others.
- C. Steel: Structural, Plate, And Similar Items: Should be cleaned by one or more of the surface preparations described below. These methods are used throughout the world for describing methods for cleaning structural steel. Visual standards are available through the Society of Protective Coatings. A brief description of these standards together with numbers by which they can be specified follow.
  - 1. Solvent Cleaning, SSPC-SP1: Solvent cleaning is a method for removing all visible oil, grease, soil, drawing and cutting compounds, and other soluble contaminants. Solvent cleaning does not remove rust or mill scale. Change rags and cleaning solution frequently so that deposits of oil and grease are not spread over additional areas in the cleaning process. Be sure to allow adequate ventilation.
  - 2. Hand Tool Cleaning, SSPC-SP2: Hand Tool Cleaning removes all loose mill scale, loose rust, and other detrimental foreign matter. It is not intended that adherent mill scale, rust, and paint be removed by this process. Beforehand tool cleaning, remove visible oil, grease, soluble welding residues, and salts by the methods outlined in SSPC-SP1.
  - 3. Power Tool Cleaning, SSPC-SP3: Power Tool Cleaning removes all loose mill scale, loose rust, and other detrimental foreign matter. It is not intended that adherent mill scale, rust, and paint be removed by this process. Before power tool cleaning, remove visible oil, grease, soluble welding residues, and salts by the methods outlined in SSPC-SP1.
  - 4. White Metal Blast Cleaning, SSPC-SP5 or NACE 1: A White Metal Blast Cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter. Before blast cleaning, visible deposits of oil or grease shall be removed by any of the methods specified in SSPC-SP1 or other agreed upon methods.
  - 5. Commercial Blast Cleaning, SSPC-SP6 or NACE 3: A Commercial Blast Cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter, except for staining. Staining shall be limited to no more than 33 percent of each square inch of surface area and may consist of

light shadows, slight streaks, or minor discoloration caused by stains of rust, stains of mill scale, or stains of previously applied paint. Before blast cleaning, visible deposits of oil or grease shall be removed by any of the methods specified in SSPC-SP1 or other agreed upon methods.

6. Brush-Off Blast Cleaning, SSPC-SP7 or NACE 4: A Brush-Off Blast Cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, loose mill scale, loose rust, and loose paint. Tightly adherent mill scale, rust, and paint may remain on the surface. Before blast cleaning, visible deposits of oil or grease shall be removed by any of the methods specified in SSPC-SP 1 or other agreed upon methods.
7. Power Tool Cleaning to Bare Metal, SSPC-SP11: Metallic surfaces that are prepared according to this specification, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, paint, oxide corrosion products, and other foreign matter. Slight residues of rust and paint may be left in the lower portions of pits if the original surface is pitted. Prior to power tool surface preparation, remove visible deposits of oil or grease by any of the methods specified in SSPC-SP1, Solvent Cleaning, or other agreed upon methods.
8. Near-White Blast Cleaning, SSPC-SP10 or NACE 2: A Near White Blast Cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter, except for staining. Staining shall be limited to no more than 5 percent of each square inch of surface area and may consist of light shadows, slight streaks, or minor discoloration caused by stains of rust, stains of mill scale, or stains of previously applied paint. Before blast cleaning, visible deposits of oil or grease shall be removed by any of the methods specified in SSPC-SP1 or other agreed upon methods.
9. High- and Ultra-High Pressure Water Jetting for Steel and Other Hard Materials: SSPC-SP12 or NACE 5: This standard provides requirements for the use of high- and ultra-high pressure water jetting to achieve various degrees of surface cleanliness. This standard is limited in scope to the use of water only without the addition of solid particles in the stream.
10. Water Blasting, SSPC-SP12/NACE No. 5: Removal of oil grease dirt, loose rust, loose mill scale, and loose paint by water at pressures of 2,000 to 2,500 psi at a flow of 4 to 14 gallons per minute.

- C. *Concrete Floors – Scrub, high pressure detergent wash, steam clean or solvent wipe to remove dirt, oil, grease, pollutants and other contaminants. Allow to dry thoroughly. Allow new concrete to cure 30 days. Remove loose or excess mortar, efflorescence, laitance and concrete form release or curing compounds that impair adhesion. Abrade, scarify, acid etch or sandblast concrete floors to obtain a profile equivalent to medium sandpaper. Test concrete floors for dampness with a rubber mat or by taping a 12" square of polyethylene to surface for two days. If floor is damp under mat or condensation shows under polyethylene, do no paint.*

### 3.3 APPLICATION

- A. Apply paint in accordance with manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied. Apply in thicknesses recommended by the manufacturer.
- B. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
  1. Paint colors, surface treatments, and finishes are to be determined by the Architect.

2. Provide finish coats that are compatible with primers used.
3. The number of coats and film thickness required is the same regardless of the application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. Sand between applications where sanding is required to produce an even smooth surface in accordance with the manufacturer's directions.
4. Apply additional coats when undercoats, stains, or other conditions show through final coat of paint until paint film is of uniform finish, color, and appearance. Give special attention to ensure that surfaces, including edges, corners, crevices, welds, and exposed fasteners, receive a dry film thickness equivalent to that of flat surfaces.

- D. Concealed Areas - at all steel work at the Addition that is to be finish paint install a minimum of primer and one finish paint coat over all steel faces – concealed or exposed to a minimum of 14 feet above the finished floor. For faces exposed in the final construction, provide full specified paint coating.

### 3.4 PROTECTION

- A. Protect work of other trades, whether to be painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting, as acceptable to Architect.
- B. Provide "wet paint" signs to protect newly painted finishes. Remove temporary protective wrappings provided by others for protection of their work after completion of painting operations.
  1. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

### 3.5 INTERIOR AND EXTERIOR PAINT SCHEDULE

- A. All work shall be three coat work minimum.
- B. ***See finish schedule and finish plans for general painting outline for interior.***
- C. *Generally, in defined work areas all exposed (interior or exterior), new and existing, non prefinished items are to be painted whether scheduled or not.*
  - a. *Walls*
  - b. *Ceilings*
  - c. *Door Frames*
  - d. *Doors – if Previously Painted*
  - e. *Miscellaneous Metals previously painted*
  - f. *Other*
- D. *The following items generally do not require painting. If these items are dirty, rusty or damaged – painting may be required:*
  1. *Items above finished ceilings – **EXCEPT AT BREWERY AREA AS NOTED***
  2. *Galvanized steel work in good condition EXCEPT AS NOTED*
  3. *Galvanized steel roof or floor deck.*

### B. SCHEDULE

#### 1. EXTERIOR

- a. **Concrete Walls -Exterior**  
 Finish Type: Acrylic Latex  
 Semi-Gloss Finish,  
 Primer S-W Loxon Acrylic Masonry Primer-spot prime



Finish - (2) Coats S-W Luxon

b. **CMU Walls – Exterior**

Finish Type: Direct to masonry high build coating

Semi Gloss Finish

Primer- Block Filler, Spot prime

Finish (2) Coats Loxon XP

c. **Metal – Ferrous and Galvanized – Exterior**

*Doors, Frames, and other metal work indicated*

Finish Type – Acrylic

Gloss Finish

Primer – (1) one coat S-W Pro Industrial ProCryl Acrylic Primer

Finish – (2) two coats S-W Pro Industrial DTM Acrylic Coating

d. **Wood & Synthetic-Composite Trim – Exterior**

Finish Type – Exterior Acrylic Latex

Semi Gloss

Primer – (1) one coat S-W Multi Surface Primer

Finish (2) two Coats S-W Super Paint,

2. **INTERIOR**

a. **Concrete Floors Markings - Interior**

(NOT Resinous Flooring and NOT exterior line striping see other section)

Primer - (1) one coat S-W Armor Seal Tread Plex Primer

Finish - (2) two coats S-W Armor Seal Tread Plex

b. **Concrete Walls – Interior Exposed BREWERY–**

Finish Type – Epoxy

Semi-Gloss Finish

Primer – SW Loxon Concrete Primer-spot prime

Finish – (2) Coats S-W Pro Industrial pre-catalyzed epoxy semi gloss

c. **Existing Brick Piers in BREWERY**

Finish Type – Polyurethane – clear

Semi-gloss

Preparation – SSPC-SP12/NACE6.

Repoint loose mortar and Voids.

Primer – As required and recommended

Finish S-W Hi-Solids Polyurethane OR

Finish H+C Clarashield Waterbase Natural

d. **CMU Walls– Interior, Exposed– BREWERY  
Brewing Room/Space**

Interior - Walls,

Semi Gloss Finish

Finish Type: High Performance Epoxy

Primer - (1) one coat S-W Loxon Acrylic Block Surfacers

Finish - (2) two Coats – S-W Loxon Pro Industrial Waterbased Catalyzed

- e. **CMU Walls – Interior, Exposed – NON Brewing Room/Spaces**  
Interior – painted  
Finish Type - Latex  
Primer – (1) one coat PrepRite Block Filler  
Finish (2) two Coats S-W Pro Mar 200 HP Zero VOC  
Egg shell
- f. **STEEL- Interior, BREWERY -Interior A**  
*Brewery Area Steel interior exposed and concealed*
  - *Steel 2<sup>nd</sup> Floor beams – all surfaces above and below ACT ceiling.*
  - *Exposed Existing Lintels at exterior Walls*
  - *Non Galvanized – exposed items.**Gloss Finish*  
**Surface Preparation** SSPC-SP2/3  
*Finish Type – High Solids Polyamide Epoxy*  
Primer – SW Pro Cryl- prep  
Finish – (2 ) coats Macropoxy 646
- g. **STEEL & Metal – Ferrous and Galvanized – Interior**  
*Other steel/metal work not noted in f. above*  
*New metal work, exterior Doors, Door Frames, Other Steel Work not listed above.*  
Primer – (1) one coat S-W Pro Industrial ProCryl Acrylic Primer  
Finish – (2) two coats S-W Pro Industrial DTM Acrylic Coating
- h. **Metal Ductwork Exposed – Brewery**  
Primer: 1 Coat Pro Industrial ProCryl Universal Primer  
Finish: 2 Coats Pro Industrial DTM Acrylic Coating Semi-Gloss
- i. **Wood & Synthetic Trim - Interior**  
Interior – painted  
Finish Type - Alkyd Latex  
Primer – (1) one coat S-W Multi Surface Primer  
Finish (2) two Coats S-W ProClassic, semi/satin.  
*Paint seal/Cost all cut ends, edges, etc of material during installation*
- j. **Wood Trim – Interior**  
Interior – stained  
FinishType Stained  
Stain MinWax Water Based Semi Transparent color.  
Protective Finish – MinWax Polycrylic
- k. **GWB – Above ACT Ceiling at BREWERY -**  
*Interior - Ceiling,*  
Finish Type: Latex Primer-Sealer  
Two Coats - S-W Moisture Vapor Barrier  
Achieve minimum 3.2 mils D.F.T.

Sheen – Egg Shell standard

1<sup>st</sup> coat prior to installation of hangers and sealants.

2<sup>nd</sup> coat after installation of ALL hangers and any required repair work..

Touch painting as required.

**l.      GWB – Interior 1**

*Interior - Walls- Standard Unless Noted Otherwise,*

Finish Type: Latex enamel

First Coat: - S-W Drywall Primer

Two Coats - S-W Super Paint

Sheen – Egg Shell standard

**m.      GWB – Interior 2**

*Interior - Walls-Washable,*

Finish Type: Epoxy

Primer (1) one coat S-W ProMar 200 Zero VOC Primer

Finish (2) Coats S-W Pro Industrial Catalyzed Epoxy

**n.      GWB – Interior CEILINGS AND SOFFITS**

*Interior - Ceilings and soffits.*

Finish Type: Latex

Primer (1) one coat

Finish – (2) two Coats: - S-W Super Paint

Sheen – Flat

END OF SECTION 09900

## **SECTION 10160 TOILET PARTITIONS**

### **PART 1 – GENERAL**

#### **1.1 RELATED DOCUMENTS:**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

#### **1.2 SUMMARY:**

- A. Types of toilet compartments include:
  - 1. Solid plastic, homogenous color.
- B. Styles of toilet compartments include:
  - 1. Floor-anchored, overhead braced.
- C. Toilet accessories, such as toilet paper holders, grab bars, purse shelves, are specified elsewhere in Division 10.

#### **1.3 SUBMITTALS:**

- A. Product Data: Submit manufacturer's detailed technical data for materials, fabrication, and installation, including catalog cuts of anchors, hardware, fastenings, and accessories.
- B. Shop Drawings: Submit shop drawings for fabrication and erection of toilet partition assemblies not fully described by product drawings, templates, and instructions for installation of anchorage devices built into other work.
- C. Samples: Submit full range of color samples for each type of unit required. Submit 6" square samples of each color and finish on same substrate to be used in work, for color verification after selections have been made.

#### **1.4 QUALITY ASSURANCE:**

- A. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication where possible, to ensure proper fitting of work. However, allow for adjustments within specified tolerances where ever taking field measurements before fabrication might delay work.
- B. Coordination: Furnish inserts and anchorages which must be built into other work for installation of toilet partitions and related work; coordinate delivery with other work to avoid delay.

### **PART 2 – PRODUCTS**

#### **2.1 MANUFACTURERS:**

- A. Available Manufacturers: Products of Santana Products Co. are specified as a basis of design
- B. Bobrick is an acceptable substitution under provisions of Section 01630.

#### **2.2 Manufacturer: Subject to compliance with requirements, provide products of the following or an approved equal:**

- A. Santana Products Co., Solid HDPE Plastic, Floor Mounted/Overhead Braced, Integral Hinge System (FMOB 4004)
  - Door, Panels & Pilasters; 1" Solid Plastic; High Density Polyethylene, (HDPE)
  - "Poly-Marble" waterproof, non-absorbent, self lubricating surface. Virgin resin with color extended throughout. All edges to have machined radius of .25"
  - Fasteners; stainless steel tamper proof
  - End Cap; aluminum

- Headrail; Aluminum Ext. (6364-t5 Alloy) bright-dipped anodized finish; 1.188 lbs. Per ft.
  - Headrail Brackets: 18 gauge Stainless steel
  - Door Strike & Keeper; 6" Alum. (6364-T5 Alloy) bright anodized finish; with wrap around flange; thru-bolted to pilaster with one way sex bolt; slide bolt & button black anodized finish.
  - Handicapped doors to include one door pull & one wall stop.
  - Strike; Heavy duty aluminum
  - Bumper/ coat hook
  - Door Stop
  - Brackets; heavy duty aluminum extrusion
  - Hinges; Integral hinge system 1/2" nylon pin machined into panels factory set
  - Shoe; Solid Plastic construction with S.S. 1 1/2" # 14 screws.
  - Extended end panels (school spec.)
  - Continuous wall brackets
  - 15 year manufacturer's warranty covering all plastic & plastic hardware against breakage
- B. Anchorages and Fasteners: Manufacturer's standard exposed fasteners of stainless steel, chromium-plated steel, or brass finished to match hardware, with theft-resistant type heads and nuts. For concealed anchors, use hot-dip galvanized, cadmium-plated, or other rust-resistant protective-coated steel.

## 2.3 FABRICATION:

- A. General: Furnish standard doors, panels, screens, and pilasters fabricated for partition system, unless otherwise indicated. Furnish units with cutouts, drilled holes, and internal reinforcement to receive partition-mounted hardware, accessories, and grab bars, as indicated.
- B. Door Dimensions: Unless otherwise indicated, furnish 24" wide inswinging doors for ordinary toilet stalls and 36" wide (clear opening) outswinging doors at stalls equipped for use by handicapped.

## PART 3 – EXECUTION

### 3.1 INSTALLATION:

- A. General: Comply with manufacturer's recommended procedures and installation sequence. Install partitions rigid, straight, plumb, and level. Provide clearances of not more than 1/2" between pilasters and panels, and not more than 1" between panels and walls. Secure panels to walls with not less than two stirrup brackets attached near top and bottom of panel. Locate wall brackets so that holes for wall anchorages occur in masonry or tile joints. Secure panels to pilasters with not less than two stirrup brackets located to align with stirrup brackets at wall. Secure panels in position with manufacturer's recommended anchoring devices.
- B. Overhead-Braced Partitions: Secure pilasters to floor and level, plumb, and tighten installation with devices furnished. Secure overhead-brace to each pilaster with not less than two fasteners. Hang doors and adjust so that tops of doors are parallel with overhead-brace when doors are in closed position.
- C. Screens: Attach with concealed anchoring devices, as recommended by manufacturer to suit supporting structure. Set units to provide support and to resist lateral impact.

### 3.2 ADJUST AND CLEAN:

- A. Hardware Adjustment: Adjust and lubricate hardware for proper operation. Set hinges on inswinging doors to hold open approximately 30 degrees from closed position when unlatched. Set hinges on outswinging doors (and entrance swing doors)

- to return to fully closed position.
- B. Clean exposed surfaces of partition systems using materials and methods recommended by manufacturer, and provide protection as necessary to prevent damage during remainder of construction period.

END OF SECTION 10160

## **SECTION 10210**

### **LOUVERS- STATIONARY - ALUMINUM**

#### **PART 1 GENERAL**

##### **1.1 SECTION INCLUDES**

- A. Extruded aluminum stationary louvers with drainable head, non-drainable blades.

##### **1.2 RELATED SECTIONS**

- A. Section 07600 - Flashing and Sheet Metal.
- B. Section 07920 - Joint Sealants.
- C. Section 08410 Aluminum Storefronts & Doors

##### **1.3 REFERENCES**

- A. AAMA 2605-98 - High Performance Organic Coatings on Architectural Extrusions and Panels.
- B. AMCA 500-L - Test Methods for Louvers.
- C. AMCA 511 - Certified Ratings Program for Air Control Devices.

##### **1.4 SUBMITTALS**

- A. Comply with requirements of Section 01330 - Submittal Procedures.
- B. Product Data: Submit manufacturer's product data including performance data.
- C. Shop Drawings: Submit shop drawings indicating materials, construction, dimensions, accessories, and installation details.
- D. Samples: Submit sample of louver to show frame, blades, bird screen, gutters, downspouts, vertical supports, sill, accessories, finish, and color.

##### **1.5 QUALITY ASSURANCE**

- A. Louvers licensed to bear AMCA Certified Ratings Seal. Ratings based on tests and procedures performed in accordance with AMCA 511 and comply with AMCA Certified Ratings Program. AMCA Certified Ratings Seal applies to air performance and water penetration ratings.

##### **1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly indicating manufacturer and material.
- B. Storage: Store materials in a dry area indoors, protected from damage and in accordance with manufacturer's instructions.
- C. Handling: Protect materials and finishes during handling and installation to prevent damage.

#### **PART 2 PRODUCTS**

##### **2.1 MANUFACTURER**

- A. Greenheck Fan Corporation, Schofield Wisconsin
- B. Substitution: Make substitution under provisions of Section 01630

##### **2.2 EXTRUDED ALUMINUM STATIONARY LOUVERS**

- A. Fabrication:
  - 1. Model: EDJ-401.
  - 2. Performance Ratings: AMCA licensed for water penetration and air performance
  - 3. Frame:

- a. Material: Extruded aluminum, Alloy 6063-T5.
  - b. Wall Thickness: 0.081 inch (2.1 mm), nominal.
  - c. Depth: 4 inches (102 mm).  
provide offset flange to fit in aluminum glazing pocket.
  - d. Head: Drainable
  - 4. Blades:
    - a. Style: Non-drainable J Style
    - b. Material: Extruded aluminum, Alloy 6063-T5.
    - c. Wall Thickness: 0.081 inch (2.1 mm), nominal.
    - d. Angle: 37.5 degrees and 45 degrees
    - e. Centers: Approximately 4" centers nominal.
  - 5. Insect Screen:
    - a. Material: Aluminum, flattened.
    - b. Frame: Removable, rewireable.
  - 6. Gutters: Drain gutter in head frame.
  - 7. Downspouts: Downspouts in jambs to drain water from louver for minimum water cascade from blade to blade.
  - 8. Vertical Supports: Hidden vertical supports to allow continuous line appearance up to 120 inches (3,048 mm).
  - 9. Sill: Steeply angled integral sill eliminating areas of standing or trapped moisture where mold or mildew may thrive and effect indoor air quality.
  - 10. Assembly: Factory assemble louver components.
- B. Performance Data:
- 1. Based on testing 48 inch x 48 inch (1,219 mm x 1,219 mm) size unit in accordance with AMCA 500-L.
  - 2. Free Area: 52 percent, nominal.
  - 3. Free Area Size: 8.32 square feet
  - 4. Maximum Recommended Air Flow Thru Free Area: 963 feet per minute
  - 5. Air Flow: 8012 cubic feet per minute.
  - 6. Water Penetration: Maximum of 0.01 ounces per square foot (3.1 g/m<sup>2</sup>) of free area at an air flow of 963 feet per minute (245 m/min) free area velocity when tested for 15 minutes.
- C. Design Load: Incorporate structural supports required to withstand wind load of 20 pounds per square foot.

## 2.3 ACCESSORIES

- A. Blank-Off Panels: 1 inch (25 mm), aluminum skin, insulated core, factory installed with removable screws and neoprene gaskets.
- B. Insect Screens:
- C. Glazing adapters
- D. Security bars

## 2.4 FACTORY FINISH

- A. Bronze Anodized to match existing storefront colorh.

# PART 3 EXECUTION

## 3.1 EXAMINATION

- A. Inspect areas to receive louvers. Notify the Architect of conditions that would adversely affect the installation or subsequent utilization of the louvers. Do not proceed with installation until unsatisfactory conditions are corrected.



**3.2     INSTALLATION**

- A.    Install louvers at locations indicated on the drawings and in accordance with manufacturer's instructions.
- B.    Install louvers plumb, level, in plane of wall, and in alignment with adjacent work.
- C.    Install joint sealants as specified in Section 07920.

**3.3     CLEANING**

- A.    Clean louver surfaces in accordance with manufacturer's instructions.
- B.    Repair minor damaged surfaces as directed by Architect.

**END OF SECTION**

**SECTION 10430**  
**SIGNAGE/IDENTIFICATION DEVICES**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification sections, apply to work of this section.

**1.2 SECTION INCLUDES:**

- A. Handicap Signs required by code shall be included by the Contractor.
- B. Provide signs of the following types:
  - 1. Panel signs.
- C. Provide mounting devices to building walls or other vertical surfaces, to floors, or to overhead structural members, as applicable to each sign.
- D. Furnish and locate anchors and inserts to be built into concrete and masonry.

**1.3 REFERENCED STANDARDS:**

- A. Uniform Construction Code — State of New Jersey
  - 1. Barrier—Free Subcode of the N.J.A.C. 5:23-7.
- B. National Association of Architectural Metal Manufacturers
  - 1. Metal Finishes Manual

**1.4 SUBMITTALS:**

- A. Product Data: Submit manufacturer's technical data and installation instructions for each type of sign required.
- B. Color Selection:
  - 1. For colors which are to be selected from manufacturer's standards, rather than matching specific colors, submit full range of colors for Selection
  - 2. Submit actual materials, not printed matter.
- C. Shop Drawings:
  - 1. Submit shop drawings for fabrication and erection of signs.
  - 2. Include plans, elevations, and large scale details of sign wording and lettering layout.
  - 3. Show anchorages and accessory items.
  - 4. Furnish location template drawings for items supported or anchored to permanent construction.
  - 5. Furnish full—size spacing templates for individual building— mounted letters and numbers.
  - 6. Furnish full—size rubbings for metal plaques.
- D. Samples:
  - 1. Submit samples of each sign form and material showing finishes, surface textures and qualities of manufacture and design of each sign component including graphics.
  - 2. Submit full-size sample units, if requested by the Architect/Engineer.
  - 3. Acceptable units not damaged as part of the evaluation process may be installed as part of the work.
  - 4. For colors which are specified to match Munsell, Pantone, or other standards other than the manufacturer's, submit color samples, not less than 4 inches square, on material to which color shall be applied in the work.

**1.5 DUALITY ASSURANCE:**

- A. Single Manufacturer: For each sign form and graphic image process required, furnish products of a single manufacturer.

**1.6 PRODUCT HANDLING:**

- A. Deliver, store and handle signage products to avoid any damage due to temperature, weather, or physical abuse.

1.7 MAINTENANCE:

- A. Furnish, delivered to Owner at the project site, wrapped and labeled for storage:
  - 1. For room identification signs, except toilet room signs, 5 percent of quantity installed, without room- specific graphics.

**PART 2 - PRODUCTS**

2.1 ACCEPTABLE MANUFACTURERS:

- A. List of Panel Signs Manufacturers:
  - 1. Adelphia Graphic Systems.
  - 2. Andco Industries Corp.
  - 3. Architectural Graphics Inc.
  - 4. ASI Sign Systems, Inc.
  - 5. Substitution: Make substitution under provisions of Section 01630

2.2 PRIMARY MATERIALS:

- A. Cast Acrylic Sheet:
  - 1. Provide cast (not extruded or continuous cast) methyl methacrylate monomer plastic sheet, minimum flexural strength 16,000 psi when tested in accordance with ASTM D790, minimum allowable continuous service temperature 176 deg.F (80 deg.C).
  - 2. Opaque Sheet: Colors and finishes indicated, or if not indicated, as selected from the manufacturer's standards.

2.3 ACCESSORY MATERIALS:

- A. Fasteners:
  - 1. Fabricated from metals that are non-corrosive to either the sign material or the mounting surface.
  - 2. Unless otherwise indicated, use concealed fasteners
- B. Anchors and Inserts:
  - 1. Non-ferrous metal or hot-dipped galvanized anchors and inserts for exterior installations and elsewhere as required for corrosion resistance.
  - 2. Toothed steel or lead expansion bolt devices for drilled-in-place anchors.
- C. Colored Coatings for Acrylic Sheet: Use inks and paints which are recommended by acrylic manufacturers for optimum adherence to acrylic surface and are non-fading for the application intended.

2.4 FABRICATION:

- A. Panel Signs:
  - 1. General
    - a. Fabricate panel signs to comply with the requirements indicated for materials, thicknesses, finishes, colors, designs, shapes, sizes and details of construction.
    - b. Produce smooth, even, level panel surfaces, constructed to remain flat under installed conditions within a tolerance of plus or minus 1/16 inch measured diagonally.
  - 2. Unframed Panel Signs:
    - a. Fabricate unframed panel signs with edges mechanically and smoothly finished.
    - b. Edge Condition: Square cut.
    - c. Corner Condition: Square, or rounded to radius as indicated or specified for each application.
- Permanently laminate face panels to backing sheets of material and thickness indicated; if material or thickness not indicated, comply with manufacturer' S standard practice for each application.
- B. Graphics Image Process
  - 1. Raised Copy:

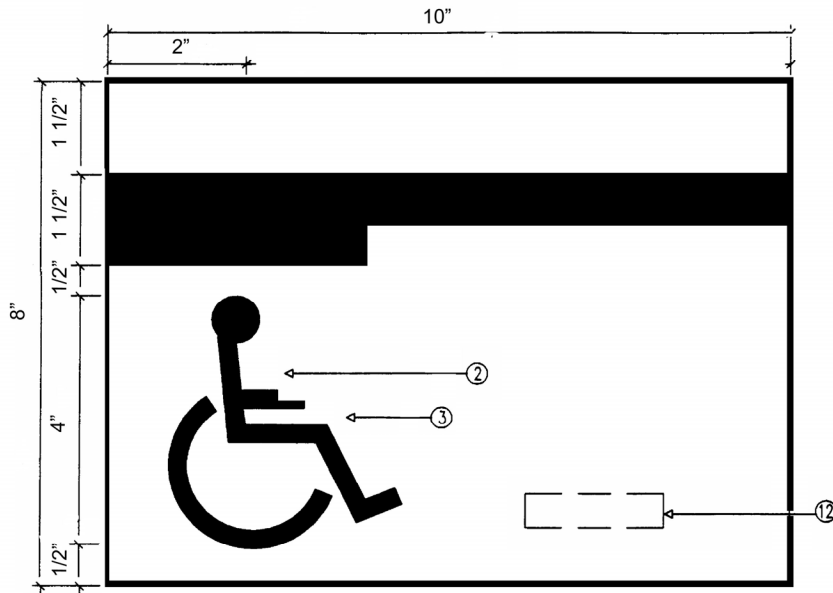
- a. Machine-cut characters from matte-finish opaque acrylic sheet. Produce precisely—formed characters with square cut edges free from burrs and cut marks.
      - b. Copy Thickness: 1/16 inch.
    - 2. Braille:
      - a. All symbols, messages and numbers shall be included in grade 2 Braille for all panel signs.
  - 2.7 ROOM IDENTIFICATION SIGNS:
    - A. Provide one sign for each toilet door opening. Refer to the sign type schedule at the end of this section.
    - B. Provide panel signs, frameless, laminated acrylic, rounded corners. Size as per schedule except 6 inches x 6 inches if size not shown.
    - C. Graphics:
      - 1. International graphics symbols for handicapped toilet rooms scheduled.
  - 2.8 OCCUPANCY SIGNS:
    - A. Provide individual signs for each toilet room as listed on the room finish schedule.
    - B. Provide panel signs, frameless, laminated acrylic, rounded corners,
    - C. Graphics:
      - 1. Graphics are to be in accordance with the types indicated at the end of this Section.
- PART 3 - EXECUTION**
- 3.1 PREPARATION:
    - A. Furnish inserts or other anchorage devices which must be built in by other trades, in accordance with project schedule.
  - 3.2 INSTALLATION:
    - A. General
      - 1. Locate sign units and accessories where shown or scheduled, using mounting methods scheduled for each type.
      - 2. Install sign units level, plumb and at the height indicated or scheduled , with sign surfaces free from distortion or other defects in appearance.
      - 3. Where details of individual sign mountings are not indicated, provide mounting or attachment similar to most nearly comparable type which is indicated, using member sizes as selected by sign manufacturer to provide strength, rigidity and durability equivalent to that of mountings which are indicated.
      - 4. For exterior signs, provide weatherproof mountings, using non—corroding fastenings which shall not stain signs or other surfaces as a result of exposure to weather.
      - 5. Examine signs immediately before installation.
      - 6. Damaged signs may be temporarily installed, if authorized by the Architect/Engineer, but shall be replaced with new, undamaged signs before final acceptance.
    - B. Wall Mounted Panel Signs:
      - 1. Silicone Adhesive Mounting:
        - a. Use liquid silicone adhesive recommended by the sign manufacturer to attach sign units to surfaces.
        - b. Use double-sided vinyl tape where recommended by the sign manufacturer to hold the sign in place until the adhesive has fully cured.
  - 3.3 CLEANING AND PROTECTION:
    - A. Clean soiled sign surfaces at completion of the installation, in accordance with the manufacturer's instructions.
    - B. Protect units from damage until substantial completion.

### 3.4 SCHEDULE

A. Sign types D, E, appear on the following pages

Provide sign panels types per paragraph 3.04.A as follows:

2. Type D: At all toilet rooms indicated to be handicapped accessible



### Sign Type **D** Handicapped Sign

2- Graphic Symbol, Color as selected by Architect

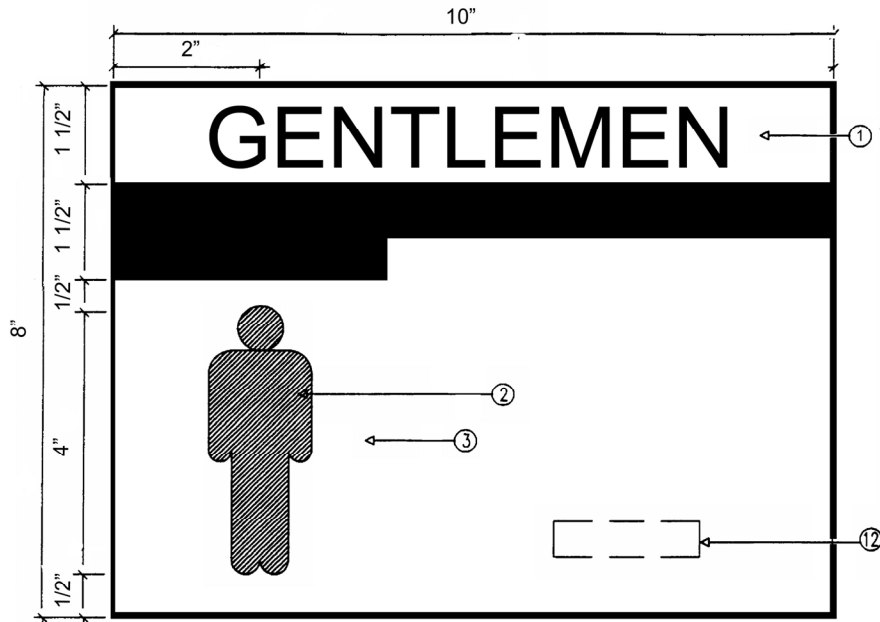
3- Background of contrasting color

12- Braille Message

Note: Provide sign type 'D' at each entrance of each floor and at each handicapped lift stations

**NOTE:**  
PROVIDE INTERNATIONAL SYMBOL OF ACCESS FOR HEARING LOSS AT ALL PUBLIC PHONES

3. Type E: At all male or female toilet rooms (lettering and graphics as appropriate)



### Sign Type **E** Text and graphics

1- Raised lettering (except message), color as selected by Architect

2- Graphic symbol - color as selected

3- Background in contrasting color

12- Braille message

4.

Qty (1) "LANDIS" 8'-6" H

- Fabricated Alum. Letters
- Painted finish of choice
- Built to match conceptual rendering

Dimensional Letters Installed  
Illuminated Installed

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Qty (1) "MARKETPLACE" 2'-6" H

Qty (1) "FARMER'S MARKET" 4'-0" H

- Fabricated Alum. letters
- Painted finish of choice
- Built to match conceptual rendering

END OF SECTION 10430

## **SECTION 10522 FIRE EXTINGUISHERS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and General provisions of Contract, including General and Supplementary Conditions and Division 01 Specification sections, apply to work of this section.
- B. Provide 5 (five) new extinguishers and cabinets to be located. Reinstall existing extinguishers and have recharged if already in work area.

#### **1.2 DESCRIPTION OF WORK**

- A. Provide portable fire extinguishers, cabinets and accessories, including:
  - 1. Fire extinguishers whether in cabinets or other mounting devices specified in this Section, or in cabinets or other mounting devices specified in other Sections.
  - 2. Fire extinguisher cabinets and mounting devices.
- B. Types and sizes of fire extinguishers, and types of cabinets, if not identified for the work, are in general indicated at each location or by schedule. If a fire extinguisher location is indicated, but type or size are not indicated, provide units of same type and size as indicated for comparable area of the work.
- C. Furnish, for work by trades constructing wells, locations, weights, and dimensions of work of this Section.
- D. Schedule – for this project,
  - a. All existing fire extinguishers in non work areas are to remain. Relocate to nearby locations if impacted by work.
  - b. For NEW fire extinguishers (FE) indicated (Brewery Work Area), provide wall mounted units (no cabinets required)

#### **1.3 RELATED SECTIONS**

- A. Section 09250 – Gypsum Drywall

#### **1.4 SUBMITTALS**

- A. Product Data: Submit product data for each type of product. For cabinets include roughing—in dimensions and details showing mounting methods, relationships of box and trim to surrounding construction, door hardware, cabinet type and materials, trim style and door construction, and panel style and materials.
- B. Color Selection: For initial selection, submit manufacturer's color chart showing full range of standard colors and finishes available.

#### **1.5 QUALITY ASSURANCE**

- A. Single Source Responsibility: Obtain products in this Section from one manufacturer.
- B. UL-Listed Products: Provide new portable fire extinguishers which are UL-listed and bear UL "Listing Mark" for type, rating, and classification of extinguisher indicated.

### **PART 2 – PRODUCTS**

#### **2.1 ACCEPTABLE MANUFACTURERS**

- A. Subject to compliance with requirements, offering products which may be incorporated include, but are not limited to, the following: manufacturers in the work
  - 1. J.L. Industries.
  - 2. Larsen's Mfg. Co.
  - 3. Potter-Roemer.

2.2 Products by Larsen's Manufacturing Co. are used herein to establish minimum level of quality and features required.

### 2.3 FIRE EXTINGUISHERS

- A. General: Provide requirements of finishes selected which comply with fire extinguishers which comply with governing authorities, in colors and by Architect from manufacturer's standard requirements of governing authorities.
- B. Fill and service extinguishers to comply with requirements of governing authorities and manufacturer's requirements.
- C. Types of Extinguishers are listed by UL classification and rating system.
  - 1. FE1: Multi-Purpose Dry Chemical Type: UL-rated 4-A:60-B:C, 10 lb. nominal capacity, in enameled steel container, for Class A, Class B and Class C fires. 5" Diameter and 20" Height.
    - a. Design Product: Model MP-10
    - b. Standard Model, provide except for units specified below.
  - 2. FE2: Dry Chemical Type: UL-rated 40-B:C, 10 lb. nominal capacity, in enameled steel container, for Class B and Class C fires. 5" Diameter and 16" Height.
    - a. Design Product: Model DC-6.
    - b. Provide two locations to be determined.
  - 3. TYPE "K" – not required for brewery.

### 2.4 MOUNTING BRACKETS

- A. Provide manufacturer's standard brackets designed to prevent accidental dislodgement of extinguisher, of sizes required for type and capacity of each extinguisher, in manufacturer's standard plated finish.
- B. Provide brackets for extinguishers not located in cabinets and for those located in lockers or cabinets, where required by cabinet type.
  - 1. Design Product: "B" Series.

### 2.5 FIRE EXTINGUISHER CABINETS

- A. General: Provide fire extinguisher cabinets of suitable size for housing fire extinguishers of types and capacities indicated.
- B. Construction: Manufacturer's standard enameled steel box, with trim, frame, door and hardware. Weld joints and grind smooth. Miter and weld perimeter door frames.
- C. Cabinet Types:
  - 1. Provide semi-recessed cabinet, with 2-1/2 inch rolled edge.
    - a. Inside Size: 24" Height x 9-1/2 Width x 6" Depth.
    - b. Design Product: Architectural Series No. 2409-6R.
- D. Trim for semi—recessed cabinets: Same metal as door, in one piece with corners mitered, welded and ground smooth; exposed style, one—piece combination trim and perimeter door frame overlapping surrounding wall surface with exposed trim face and wall return at outer edge (backbend). Provide square edged trim, except rolled-edge for semi-recessed where backbend depth exceeds manufacturer's standard depth for square-edge trim.
- E. Door: Manufacturer's standard hollow steel door construction with tubular stiles and rails. Tempered glass vision door without lock.
  - 1. Reference Door Design: "Vertical Duo" by Larsen.
- F. Door Hardware: Provide manufacturer's standard hardware for cabinet type, trim style, and door material and style specified or indicated. Provide either lever handle with cam action latch, or door pull, exposed or concealed, and friction latch. Provide concealed or continuous type hinge permitting door to open 180 degrees.



## 2.6 FACTORY FINISHING OF CABINETS

- A. General: Comply with NAAMM “Metal Finishes Manual” for finish designations and application recommendations. Apply finishes in factory after products are assembled. Protect cabinets with plastic or paper covering, prior to shipment.
- B. Painted Finishes: Apply manufacturer’s standard baked enamel finish to concealed and exposed surfaces of cabinet components except plated hardware.
  - 1. Door Colors: White. Finish trim in custom color as selected by Architect; other surfaces in manufacturer’s standard color.
  - 2. Application: Clean surfaces of dirt, grease, and loose rust or mill scale. Immediately after cleaning and pretreatment, apply baked enamel finish system.

## **PART 3 - EXECUTION**

### 3.1 INSTALLATION

- A. Install units in locations and at mounting heights indicated, or if not indicated, at heights to comply with applicable regulations of governing authorities. Where exact location of cabinet extinguishers is not indicated, locate as direct recessed or semi—recessed units, confirm location prior to construction of work in which unit shall be installed.
- B. Confirm that required recesses are correctly located and constructed.
- C. Securely fasten mounting brackets and cabinets to structure, square and plumb, to comply with manufacturer’s instructions.

### 3.2 IDENTIFICATION

- A. Identify existence of fire extinguisher or fire hose in cabinet with red lettering spelling “FIRE EXTINGUISHER” applied to door by silkscreen process. Provide lettering to comply with requirements indicated for letter style, color, size, spacing and location or, if not otherwise indicated, as selected by Architect from manufacturer’s standard arrangements.
- B. Identify bracket-mounted extinguishers with red letter decals spelling “FIRE EXTINGUISHER” applied to wall surface. Letter size, style and location as selected by Architect.

**END OF SECTION 10522**

**SECTION 10800**  
**TOILET AND BATH ACCESSORIES**

**PART 1 – GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 01 Specification sections, apply to work of this section.
- B. Closely-related work specified in other sections:
  - 1. Section 06100: Rough Carpentry
  - 2. Section 10160: Toilet Partitions

**1.2 DESCRIPTION OF WORK**

- A. Provide and install toilet accessories as scheduled on the Drawings and/or as here specified
- B. Furnish and locate anchorage devices to be built in by other trades.

**1.3 SUBMITTALS**

- A. Make submittal under provisions of Section 01340.
- B. Product Data:
  - 1. Submit manufacturer's technical data and installation instructions for each accessory.
  - 2. Provide setting drawings, templates, instructions, and directions for installation of anchorage devices and cut-out requirements in other work.

**1.4 QUALITY ASSURANCE**

- A. Products: Except for surface-mounted or deck-mounted soap dispensers, provide products of same manufacturer for each type of accessory unit and for units exposed in same areas, unless otherwise approved.
- B. Coordinate accessory locations with other work to avoid interference and to assure proper operation and servicing of accessory units.
- C. Verify that required space shall be provided for each unit, including depth for recessed units, and promptly advise of any apparent conflicts.

**1.5 REFERENCED STANDARDS:** Comply with the applicable provisions of codes, standards and specifications referenced in this section, including but not limited to the following:

- A. ANSI A 117.1 Specifications for Making Buildings and Facilities Accessible to and Usable by the Physically Handicapped.
- B. ASTM and ANSI Standards, and Federal Specifications, as referenced in Parts 2 and 3.
- C. Barrier Free Subcode of NJAC 5:23-7.

**1.6 WARRANTIES**

- A. Furnish manufacturer's standard warranties.

**PART 2 – PRODUCTS**

**2.1 ACCEPTABLE MANUFACTURERS**

- A. Subject to compliance with level of quality and features required, provide toilet accessories by one or more of the following:
  - 1. American Specialties, Inc.
  - 2. Bobrick Washroom Equipment, Inc.
  - 3. Bradley Corporation
- B. Products by American Specialties, Inc. are used herein to establish minimum levels of quality and features required.
- C. Substitution: Make substitutions under the provisions of section 01630.

## 2.2 MATERIALS

- A. General: Comply with the provisions of this article for materials specified for accessories.
- B. Stainless Steel: AISI Type 302/304, with polished No. 4 finish, 22 gage (0.034 inch) minimum, owner supplied, general contractor installed.
- C. Sheet Steel: Cold-rolled, commercial quality ASTM A366, 20-gage (0.040 inch) minimum, unless heavier gage indicated or specified. Surface preparation and metal pretreatment as required for applied finish.
- D. Galvanized Steel Sheet: ASTM A527, G60.
- E. Chromium Plating: Nickel and chromium electro-deposited on base metal, ASTM B456, Type SC2.
- F. Mirror Tempered Glass: FS DD-G-451, Type I, Class 1, Quality q2, 1/4 inch thick, with silver coating, copper protective coating, and non-metallic paint coating complying with FS DD-M-411.
- G. Galvanized Steel Mounting Devices: ASTM A153, hot-dip galvanized after fabrication.
- H. Fasteners: Screws, bolts, and other devices of same material as accessory unit, except galvanized steel permitted where concealed. Exposed fasteners: tamperproof.

## 2.3 SCHEDULED ACCESSORIES

- A. Grab Bars: As shown on the drawings and as required by code. Refer to Drawings for quantities if not noted below and locations.
- B.
- C.
- D. Toilet Tissue Dispensers: (Kimberly-Clark Professional Series IN-Sight JRT Jumbo Roll Toilet Dispenser with see through face in smoke grey high-impact plastic). One per toilet stall.
- E. Roll-Towel Dispensers: (Kimberly-Clark Professional Series IN-Sight Lev-R-Matic Model # 09900 Roll Towel Dispenser or approved equal. Surface Mounted Smoke). Minimum of one per toilet room. See drawings for quantity.
- F. Mirrors: Size as shown on the drawings. Bobrick B165. One per each toilet room lavatory.
- G. Soap Dispensers: (Kimberly-Clark Professional Series Every Day Best Value OnePak Soap Dispenser, Model #91139). Minimum of one per toilet room lavatory and one per handwash sink.
- H. Sanitary Dispensing Vendors: (not utilized) Hospeco Maxithins Dual No. 1 Stainless Steel Enamel Metal surface-mounted dispenser or approved equal. One per each women's toilet stall.
- I. Coat Hooks: One per toilet stall. See toilet partition section.
- J. Trash Receptacles Furnished and installed by the owner (not mounted)

## 2.4 GRAB BARS

- A. Stainless Steel Bars, 1-1/2 inches outside diameter, with wall thickness not less than 18 gage, 1-1/2 inches clearance between wall surface and inside face of bar. All joints and supports contour cut and welded.
- B. Gripping Surfaces: Smooth, satin finish, except non-slip texture in showers, and in other locations indicated.
- C. 3 inch diameter flange 1/2 inch deep, 11 gage. Concealed mounting plate of 13 gage Type 304 stainless steel with slotted screw holes for concealed anchors. Mounting plate secured by 4 stainless steel, vandal resistant set screws.
- D. Grab bars, fasteners, and mounting devices shall meet specifications of ANSI A117.1, paragraph 4.24.3 regarding structural strength.

## 2.5 FABRICATION

- A. General: No names or labels are permitted on exposed faces of units. On interior surface that is not exposed to view or on back surface, provide identification of each accessory item by either a printed waterproof label or a stamped nameplate indicating manufacturer's name and product model number.
- B. Surface-Mounted Accessories: Fabricate units with tight seams and joints, exposed edges rolled. Hang doors or access panels with continuous stainless steel piano hinge. Provide concealed anchorage wherever possible.
- C. Recessed Accessories: Fabricate units of all-welded construction, without mitered corners. Hang doors or access panels with full-length stainless steel piano hinge. Provide anchorage which is fully concealed when unit is closed.

## PART 3 – EXECUTION

### 3.1 INSTALLATION

- A. Install units in accordance with manufacturer's instructions, using fasteners appropriate to substrate and recommended by manufacturer of unit. Install units plumb and level, firmly anchored in locations and at heights indicated. Provide tamperproof fastenings.
- B. As part of carpentry work, provide solid, secure blocking at all walls to receive mounted hardware.

### 3.2 ADJUSTING AND CLEANING

- A. Adjust accessories for proper operation and verify that mechanisms function smoothly. Replace damaged or defective items.
- B. Clean and polish exposed surfaces after removing temporary labels and protective coatings.

END OF SECTION 10800

## **SECTION 13010**

### **COLD STORAGE DOOR - HORIZONTAL SLIDING**

#### **PART 1 - GENERAL**

##### **1.1 SCOPE**

- A. Work required under this section shall include the furnishing of all labor, materials, tools and equipment necessary to complete Insulated Sliding Cold Storage Doors and the items associated with them as detailed on the drawings and/or as specified herein.

##### **1.2 DESIGN**

- A. All doors, door casings and track supports shall be fully metal clad with 26 ga. G-90 galvanized steel.
- B. All hardware and mechanisms shall be protected against corrosion by galvanizing or other approved method.
- C. Doors shall be UL approved and shall be complete with all components required for complete installation.
- D. Doors with provisions for locking shall have safety release hardware on opposite side.

##### **1.3 SUBSTITUTIONS**

- A. This specification is written with Hercules Insulated Doors as the basis of acceptable performance.

##### **1.4 SUBMITTALS**

- A. In compliance with the specification requirements, submit detailed shop drawings for each door, showing in clear detail all mounting requirements and accessories.

##### **1.5 QUALITY ASSURANCE**

- A. Doors shall be installed in accordance with the Architect's plans and specifications and the door manufacturer's written instructions, drawings and recommendations.
- B. Doors shall be guaranteed against defective materials and workmanship for not less than 7 years.

#### **PART 2 - PRODUCTS**

##### **2.01 MANUFACTURER**

- A. Provide products of Hercules Controlled Environment Door Systems or approved equal

##### **2.02 OPERATION**

- A. Provide Single Slide Manually Operated Doors including one door panel

##### **2.03 MATERIALS**

- A. Vertical casings and header covered with 26 ga. Imperial White stucco embossed galvanized steel,
- B. Core – Class 1, 4" foamed-in-place modified polyisocyanurate core.
- C. Door Cladding 24 ga. Prepainted steel, white
- D. View Window - 12" x 12" acrylic vision panels are standard on industrial doors.
- E. All exposed seams sealed, heavy duty hardware and tracks with corrosion resistant coating,

- F. Adjustable bulb type neoprene vertical casing seal and header seals, double neoprene bumper gaskets on joining edge of door panels, wiper gasket on bottom of door panels,
- G. Door track angled down and in for tight sealing,
- H. Two 4 wheel ball bearing trolleys on each door panel, and floor mounted stay rollers.
- I. Hardware - Stainless steel
- J. Locking Devices -. Padlocks
- K. Kick Plates For doors with metal cladding, steel kick plates may be added to protect against traffic abuse. 12" high stainless steel each side x width of door – 5"

### **PART 3 – EXECUTION**

#### **3.1 INSTALLATION**

- A. Doors shall be mounted in full accord with the detailed instruction of the door manufacturer and contract documents.
- B. When mounting the door and track framing, the mounting surfaces shall be set true and level without distortion and shall be shimmed and caulked to assure tightness and true fitting, and shall be securely lagged.
- C. After the doors are hung, they shall be checked for mechanical and electrical operation, and tight and uniform gasket sealing.
- D. Installation of pull switches, power connections to power operated doors and gasket heaters are the responsibility of the electrical contractor.

#### **3.2 PRODUCT DELIVERY, STORAGE AND HANDLING**

- A. Each cold storage door shall be securely crated so as to protect the door from damage during shipment and handling.
- B. Door identification number shall be clearly marked on the outside of each crate.

#### **3.3 CLEANING AND ADJUSTMENT**

- A. Clean all doors of excess sealant, grease, stain, fingerprints and construction dust prior to final inspection to the satisfaction of the architect/owner.
- B. Adjust all doors to smooth, proper operating condition, including proper sealing prior to turnover of facility to owner.

END OF SECTION 13010

SECTION 13038  
INSULATED PANEL WALLS, CEILINGS AND ROOM – IP (IMP)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

- a. Insulated metal wall (interior and exterior) and ceiling panels (interior and exterior) - IP
- b. Insulated metal partition, wall, ceiling and soffit panels at production rooms, cleaning rooms, corridors and other locations as indicated on the drawings.
- c. Insulated metal ceiling panels (non-walkable)
- d. Flashing and trim integral to insulated panels.
- e. Various Rooms and spaces
  - 1) Coolers.
  - 2) Insulated Panel Rooms and Spaces
- f. Panel joint sealants.
- g. Clips, anchoring devices, fasteners, and accessories for installation of panel system.
- h. All necessary trims, sealants, foams, fasteners, accessories, etc. for a complete vapor tight, air tight, water tight and sanitary installation.
- i. Engineering and supply of certain items as required for a complete and secure installation.

B. Related Sections include the following:

- 1. Concrete Work: Refer to drawings
- 2. Section 07210: Building Insulation - wall insulation.
- 3. Section 07900 - Joint Sealers
- 4. Structural and Miscellaneous Steel – support and bracing of panels.
- 5. Cold Storage Doors- Horizontal Sliding 13010
- 6. Division 15 and 16 – Electrical, Plumbing, Mechanical, Refrigeration, Fire Suppression, etc. - Refer to drawings for penetrations thru and mounting of devices on panels.

1.3 REFERENCES

- A. AAMA 501.1 - Standard Test Method for Exterior Windows, Curtain Walls and Doors for Water Penetration Using Dynamic Pressure.
- B. AAMA 1503.1 - Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections.
- C. ANSI/FM Approvals 4880 - Evaluating Insulated Wall or Wall and Roof/Ceiling Assemblies, Plastic Interior Finish Materials, Plastic Exterior Building Panels, Wall/Ceiling Coating Systems, and Interior or Exterior Finish Systems.
- D. ASTM A 653/A 653M-01a - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-iron Alloy Coated (Galvannealed) by the Hot-Dip Process.
- E. ASTM C 177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus.
- F. ASTM C 518 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.

- G. ASTM E 72 - Standard Test Methods of Conducting Strength Tests of Panels for Building Construction.
- H. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- I. ASTM E 119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
- J. ASTM E 136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 degrees C (1382 degrees F).
- K. ASTM E 283 - Standard Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
- L. CAN 4-S101 - Standard Methods of Fire Endurance Tests of Building Construction and Materials.
- M. CAN/ULC S102 - Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.
- N. CAN/ULC S127 - Standard Corner Wall Method of Test for Flammability Characteristics of Non-Melting Building Materials.

#### 1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
  - 1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, metal wall panel Installer, metal wall panel manufacturer's representative, structural-support Installer, and installers whose work interfaces with or affects metal wall panels including installers of doors, windows, and louvers.
  - 2. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
  - 3. Review methods and procedures related to metal wall panel installation, including manufacturer's written instruction.
  - 4. Examine support conditions for compliance with requirements, including alignment between and attachment to structural members.
  - 5. Review flashings, special details, wall penetrations, openings, and condition of other construction that will affect metal wall panels.
  - 6. Review governing regulations and requirements for insurance, certificates, and testing and inspecting if applicable.
  - 7. Review temporary protection requirements for metal wall panel assembly during and after installation.
  - 8. Review wall panel observation and repair procedures after metal wall panel installation.
  - 9. Document proceedings, including corrective measures and actions required and furnish copy of record to each participant.

#### 1.5 Design Responsibility

- A. For the following items the Insulated Panel installer is to provide design for and shop drawings
  - 1. Suspended Ceiling Areas submit Shop Drawings showing panels system and suspension system – including connections to structure, T Bar sizing, rod sizing and spacing, interface with building steel, standard loads per anchor, later stability etc.



- a. Non walkable ceiling areas that are moderately accessible shall be strong enough to support (1) 250 lb person)
- b. Include for all elements and connections to structure allowance for deflection of the building structure.

#### 1.6 SUBMITTALS

- A. Product Data: For each insulated metal panel.
  - 1. Performance parameters for room, and internal and external load conditions upon which performance is predicated.
  - 2. Schedules of major equipment items indicating mechanical and electrical requirements and capacity or performance.
  - 3. Preparation instructions and recommendations.
  - 4. Storage and handling requirements and recommendations.
  - 5. Material type, metal thickness and finish.
  - 6. Installation methods.
- B. Shop Drawings:
  - 1. Shop Drawings: Show layouts of metal panels. Include details of each condition of installation, panel profiles, and attachment to building. Provide details at a minimum scale 1-1/2-inch per foot of edge conditions, joints, fastener and sealant placement, flashings, openings, penetrations, and special details. Make distinctions between factory and field assembled work.
    - a. Include data indicating compliance with performance requirements.
    - b. Indicate points of supporting structure that must coordinate with metal panel system installation.
    - c. Include structural data indicating compliance with performance requirements and requirements of local authorities having jurisdiction.
    - d. For suspended ceiling Areas (above cooler) submit Shop Drawings showing panels system and suspension system - including connections to structure.
    - e. Other ceiling areas that are moderately accessible shall be strong enough to support (1) 250 lb person).
  - 2. Include details of items built in, attached to and penetrating Insulated panels. Include necessary reinforcements and hardware attachments. Items include but are not limited to:
    - a. Doors - cold storage doors.
    - b. Refrigeration items
    - c. Box penetration details (sprinkler, electric, refrigeration, etc.
- C. Samples for Initial Selection: For each exposed product specified including sealants. Provide representative color charts of manufacturer's full range of colors.
- D. Delegated-Design Submittal: For insulated metal panel systems.
- E. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

#### 1.7 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing factory insulated metal panels with a minimum documented experience of ten years.
- B. Installer Qualifications: Company specializing in installation of the products specified for projects of similar size and scope with minimum five years documented experience.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver components, sheets, metal wall panels, and other manufactured items so as not to be damaged or deformed. Package metal wall panels for protection during transportation and handling.
- B. Unload, store, and erect metal wall panels in a manner to prevent bending, warping, twisting, and surface damage.
- C. Stack metal wall panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal wall panels to ensure dryness, with positive slope for drainage of water. Do not store metal wall panels in contact with other materials that might cause staining, denting, or other surface damage.
- D. Protect strippable protective covering on metal wall panels from exposure to sunlight and high humidity, except to extent necessary for period of metal wall panel installation.

1.9 PROJECT CONDITIONS

- A. Field Measurements: Verify locations of structural members and wall opening dimensions by field measurements before metal wall panel fabrication and indicate measurements on Shop Drawings
  - 1. Established Dimensions: Where field measurements cannot be made without delaying the Work, either establish framing and opening dimensions and proceed with fabricating metal wall panels without field measurements, or allow for field trimming of panels. Coordinate wall construction to ensure that actual building dimensions, locations of structural members, and openings correspond to established dimensions.

1.10 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal wall panel assemblies that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Structural failures, including rupturing, cracking, or puncturing.
    - b. Horseshoe curving or oil canning of metal panel skins.
    - c. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
  - 2. Warranty Period: Two years from date of Substantial Completion.
- B. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal wall panels that show evidence of deterioration of factory-applied finishes within specified warranty period.
  - 1. Siliconized Polyester Finish and Plastisol: Deterioration includes, but is not limited to, the following:
    - a. Color fading more than 15 Hunter units when tested according to ASTM D 2244.
    - b. Chalking in excess of a No.2 rating when tested according to ASTM D 4214.
    - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
  - 2. Finish Warranty Period: 20 years from date of Substantial Completion.
- C. Vapor-Tight Warranty
  - 1. Contractor shall guarantee in writing a perfect vapor barrier continuity for a period of two years after acceptance. Any frost or dripping water in a refrigerated space is evidence that such continuity does not exist and must be repaired to the architect's satisfaction at no cost to the Owner.

2. Insulated panels shall be guaranteed free from delamination for a period of one year whether or not the cause of delamination is from:
  - a. Temperature-caused compressive buckling.
  - b. Defective manufacture.
  - c. Damage in handling during erection.
3. Any delaminated panels for above reasons will require complete panel replacement.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. General: Provide insulated metal panels assemblies that comply with performance requirements specified as determined by testing manufacturers' standard assemblies similar to those indicated for this Project, by a qualified testing and inspecting agency.
- B. Delegated Design: Engage a qualified professional engineer, as defined in Division 1, to design insulated metal panel system.
- C. Fire Performance Characteristics: Provide metal panel systems with the following fire-test characteristics determined by indicated test standard as applied by testing and inspection agency acceptable to authorities having jurisdiction.
  1. Surface-Burning Characteristics: The insulating core shall have been tested per ASTM E 84. The core shall have:
    - a. Flame spread index: 25 or less.
    - b. Smoke developed index: 450 or less.
  2. Room Test Performance: FM Global 4880: The panel assembly shall not support a self-propagating fire which reaches any limits of the 50' high corner test structure as evidenced by flaming or material damage of the ceiling of the assembly.
  3. Fire Propagation: The fire assembly shall meet the requirements of the standard for NFPA 285
  4. Fire Growth: The fire assembly shall meet the requirements of the standard for NFPA 286
  5. Potential Heat: Determined in accordance with NFPA 259.
- D. Air Infiltration: Air leakage through assembly of not more than 0.0002 cfm/sq. ft. of wall area when tested according to ASTM E 283 at a static-air-pressure difference of 20 lbf/sq.ft.,
- E. Structural Performance: Provide metal panel assemblies capable of withstanding the effects of indicated loads and stresses within limits and under conditions indicated, as determined by ASTM E 72.
  1. Maximum Deflection: 1/180 of the span
- F. Thermal Movements: Provide metal wall panel assemblies that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
  1. Thermal Performance: Provide insulated metal wall panel assemblies with thermal-resistance value (R-value) indicated when tested according to ASTM C 518.

### 2.2 MANUFACTURERS

- A. Basis of Design Manufacturer(s)/Product(s): Subject to compliance provide products as manufactured and specified by Kingspan Insulated Panels Inc. – Quadcore –striations and embossing are acceptable on faces.

1. Products of Kingspan. Insulated Panels, Inc. are a basis of design and substitutions will be accepted subject to provisions of section 01630 products and substitutions.
2. Metlspan
3. MBCI
- B. Provide all required materials and work for a complete and functional rooms. Include continuous vapor barrier, adhesives, sealants, thermal isolation, special equipment, venting, electric, etc.
- C. Product Description:
  1. Concealed Fastener, Insulated Metal Wall Panels with foam core: Structural metal panels consisting of exterior metal sheet and interior metal sheet with matching 4 by 1/8 inch o.c. profile. Factory foamed-in-place polyurethane core in thermally-separated profile, with tongue-and-groove panel edges, attached to supports using concealed fasteners.
    - a. Include manufacturer's load charts and connection details at base for walls and ceiling panels.

## 2.3 MATERIALS

- A. Metallic-Coated Steel Sheet Prepainted with Coil Coating: Steel sheet metallic coated by the hot-dip process and prepainted by the coil-coating process to comply with ASTM A 755/A 755M.
- B. Panel Face
  1. Interior Faces (towards all processing and storage spaces: ASTM A 653/A 653M, minimum Grade 33, G90 galvanized sheet steel, unless otherwise indicated.
    - a. Face Sheet: 24 gauge thickness.
    - b. Striations, ribbing or embossing are acceptable
    - c. Finish:
      - 1) STANDARD UNLESS NOTED OTHERWISE – Modified silicone-polyester two-coat system. Imperial White
  2. Non Interior Face
    - a. Face Sheet: 26 gauge thickness, striations, and ribbing are acceptable.
    - b. Finish:
      - 1) Modified silicone-polyester two-coat system.
    - c. Interior Finish and Color: As selected by Architect from manufacturer's standard colors; USDA compliant.
  3. Panel Width: Manufacturer Standard.
  4. Panel Thickness (walls and ceilings):
    - a. Cooler and production spaces - typical: 4 inches. NOTE thickness to be verified by IP Panel engineering. Taller panels may require additional thickness or support.
  5. Insulating Core: Polyurethane with zero ozone depletion potential blowing agent.
    - a. Kingspan Quadcore Insulation Core.
    - b. Density: Based on specified panel thickness.
    - c. Compressive Strength: Tested according to ASTM D 1621.

## 2.4 PANEL ACCESSORIES

- A. General: Provide complete metal panel assemblies incorporating trim, required fasteners, closure strips, and sealants as indicated in manufacturer's written instructions.
- B. Flashing and Trim: Brake-formed sheet metal in the same thickness and finish to match the panels.
- C. Panel Fasteners: Self-drilling or Self-tapping screws and other acceptable fasteners recommended by metal panel manufacturer. Where exposed fasteners cannot be avoided,

supply corrosion-resistant fasteners with heads matching color of metal panels by means of factory-applied coating, with weathertight resilient washers.

- D. Joint Sealers:
    - 1. Sealants: Provide Tape Mastic Sealants, Non-skinning sealants, and Urethane Sealants in accordance with manufacturers standards.
  - E. Joint Gasket: Manufacturers standard EPDM or Butyl gasket.
    - 1. Color: Black unless indicated otherwise.
  - F. Reinforcement: Provide wall and ceiling reinforcement as required by loads at door, mechanical and other openings.
- SUPPORTS - For typical ceiling suspension utilized concealed T bar for joining. Concealed joint hanging may be utilized at mid span locations only if loading capacity of system is met.

## 2.5 FINISHES

- A. Finishes, General: Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturer's written instructions.
  - 1. Non Food facing panel faces -Coil-Coated Finish System
    - a. Silicone-Polyester Two-Coat System: 0.20 – 0.25 mil primer with 0.7 – 0.8 mil color coat.
      - 1) Basis of Design: Silicone Polyester and Plastisol., Igloo white.
  - 2. Exterior, Storage or Processing facing panels - Interior Face Sheet Coil-Coated Finish System
    - a. Standard unless noted otherwise - USDA compliant - Silicone-Polyester Two-Coat System: 0.20 – 0.25 mil primer with 0.7 – 0.8 mil color coat
      - 1) Basis of Design: USDA Imperial White

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances, metal wall panel supports, and other conditions affecting performance of work.
  - 1. Examine primary and secondary wall framing to verify that girts, angles, channels, studs, and other structural panel support members and anchorage have been installed within alignment tolerances required by metal wall panel manufacturer.
  - 2. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of work.
- B. Examine roughing-in for components and systems penetrating metal wall panels to verify actual locations of penetrations relative to seam locations of metal wall panels before metal wall panel installation.
- C. Verify under slab vapor retarder is installed prior to the installation of insulated metal wall panels. Coordinate the installation of insulated metal wall panels and floor assembly for vapor barrier continuity at freezers.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Clean substrates of substances harmful to insulation, including removing projections capable of interfering with insulation attachment.
- B. Install flashings and other sheet metal material.

### 3.3 INSTALLATION

- A. General: Comply with panel manufacturer's written instructions and recommendations for installation, as applicable to project conditions and supporting substrates. Anchor panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Field cutting panels by torch is not permitted.
  2. Install panels with concealed fasteners installed from the exterior.
  3. Install panels with exposed interior fasteners.
  4. Locate and space exposed fasteners in true vertical and horizontal alignment. Use proper tools to obtain controlled, uniform compression for positive seal.
- B. Accessories: Install components required for a complete panel assembly including trim, copings, fascia, sills, corner units, clips, flashings, sealants, fillers, closure strips, and similar items.
- C. Joint Sealers: Install vapor-barrier flashings and sealants where indicated and where required for vapor-proof performance of wall panel assemblies. Provide types of flashings and sealants indicated.
1. Install sealants to prevent air and vapor penetration. Flash and seal panels at ends and intersections with rubber vapor-barrier flashings as detailed.
- D. Wall Panels: Apply elastomeric sealant tape continuously between metal base channel or angle and concrete, and elsewhere as necessary for waterproofing. Handle and apply sealant and back-up according to sealant manufacturer's written instructions.
1. Align bottom of wall panels and fasten with self-tapping screws. Fasten flashings and trim around openings and similar elements with self-tapping screws.
  2. Install screw fasteners with power tools having controlled torque adjusted to prevent damage to screw threads or panels. Install screws in predrilled holes.
  3. Provide vapor-barrier flashings around all pipe and conduit penetrating walls.
- E. Separate treated wood blocking from bare metals and separate dissimilar metals by painting each metal surface in area of contact with a bituminous coating; or by other permanent separation as recommended by manufacturers of dissimilar metals.
- F. Installation Tolerances: Shim and align panel units within installed tolerance of 1/4 inch in 20 feet on level, plumb, and location lines as indicated and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.
- 3.4 FOAM-IN-PLACE
- A. Wall Penetrations shall be reinsulated by filling ALL voids around pipe, conduits, steel framing members and others. The cutting of the opening for pipe or conduit is the responsibility of the Contractor installing the pipe. The foaming of the void in the wall panel and resealing the vapor barrier is the responsibility of this Contractor.
- B. Wall, floor and ceiling corners and intersections shall be foamed to provide insulation to insulation contact and continuity around the entire insulation envelope.
- 3.5 CLEANING AND PROTECTING
- A. Damaged Units: Replace panels and other components of the Work that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.
- B. Cleaning: Remove temporary protective coverings and strippable films, after each panel is installed. On completion of panel installation, clean finished surfaces as recommended by panel manufacturer and maintain in a clean condition during construction.
- 3.6 CLEANING
- A. Replace damaged panels and other components of work, which cannot be repaired by finish touch-up or similar minor repair.
- B. Wipe finished surfaces clean of any filings caused by drilling or cutting to prevent rust staining.
- 3.7 PROTECTION
- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION 13038

## SECTION 14420 WHEELCHAIR LIFT

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Providing and installing a code compliant handicap accessible commercial wheelchair lift including
  1. **Construction coordination**
  2. Lift permit application
  3. Labor,
  4. Material

#### 1.2 RELATED SECTIONS

- A. Cast-In-Place Concrete: Anchor placement in concrete. See structural drawings
- B. Assemblies: Anchor placement in masonry. See structural drawings
- C. Division 06 - Rough Carpentry: Blocking in framed construction for lift attachment.
- D. Division 09 - Gypsum Board Assemblies: Walls.
- E. Division 13 - **Fire Alarm System: Building Fire Alarm Integration system to connect the lift control system with the building fire alarm system.**
- F. Division 16 - Electrical: Electrical power service and wiring connections.
- G. Division 16 - Electrical: Concealed low voltage control wiring.
- H. **Division 16 - Electrical: Intercom and wiring.**

#### 1.3 REFERENCES

- A. ASME A17.5 - Elevator and Escalator Electrical Equipment.
- B. ASME A18.1 - Safety Standard for Platform Lifts and Stairway Chairlifts.
- C. ASME A18.1 - Section 6, Private Residence Inclined Platforms.
- D. ICC/ANSI A117.1 - Accessible and Usable Buildings and Facilities.
- E. ADDAG – American with Disabilities Act & Architectural Barriers Act
- F. New Jersey Elevator Code
- G. NFPA 70 - National Electric Code.

#### 1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
  1. Submit manufacturer's installation instructions, including preparation, storage and handling requirements.
  2. Include complete description of performance and operating characteristics.
  3. Show maximum and average power demands.
- C. Shop Drawings:
  1. Show typical details of assembly, erection and anchorage.
  2. Include wiring diagrams for power, control, and signal systems.
  3. **Show complete layout and location of equipment, including required clearances and approaches.**
- D. Selection Samples: For each finished product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
- E. Verification Samples: For each finished product specified, two samples, representing actual



product, color, and patterns.

#### 1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Firm with minimum 5 years documented experience in manufacturing of inclined wheelchair platform lifts.
- B. Installer Qualifications: Firm licensed to install equipment of this scope, with evidence of experience with specified equipment. Installer shall maintain an adequate stock of replacement parts and have qualified people available to ensure timely maintenance and call back service at the project site.

#### 1.6 REGULATORY REQUIREMENTS

- A. Provide platform lifts in compliance with:
  - 1. ASME A18.1 - Safety Standard for Platform Lifts and Stairway Chairlifts.
  - 2. ASME A17.5 - Elevator and Escalator Electrical Equipment.
  - 3. NFPA 70 - National Electric Code.
- B. Provide platform lifts in compliance with:
  - 1. CSA B355 - Lifts for Persons with Physical Disabilities.
  - 2. CSA B44.1/ASME A17.5 - Elevator and Escalator Electrical Equipment.
  - 3. CSA - National Electric Code

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store components off the ground in a dry covered area, protected from adverse weather conditions.

#### 1.8 PROJECT CONDITIONS

- A. Do not use wheelchair lift for hoisting materials or personnel during construction period.

#### 1.9 WARRANTY

- A. Warranty: Provide a three (3) year limited warranty covering replacement of defective parts and excluding labor. Preventive maintenance agreement required.

#### 1.10 MAINTENANCE SERVICE

- A. Furnish service and maintenance for elevator system and components for the following period from Date of Substantial Completion.
  - 1. Two years.
- B. Include systematic examination, adjustment, and lubrication of elevator equipment. Repair or replace parts whenever required. Use parts produced by manufacturer of original equipment. Replace wire ropes when necessary to maintain required factor of safety.
- C. Provide emergency call back service for this maintenance period.
- D. Perform maintenance work using competent and qualified personnel approved by elevator manufacturer or original installer.

### **PART 2 PRODUCTS**

#### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Savaria Inc as Represented by Mobility 123 of Absecon NJ or approved equal.
- B. Requests for substitutions will be considered in accordance with provisions of Section 01600.

#### 2.2 COMMERCIAL WHEEL CHAIR LIFT

- A. Savaria SAV-V1504-48 Machine Roomless,
  - 1. Black Grey powder coated steel,
  - 2. 42"x60" clear platform width,
  - 3. 90 degree configuration as indicated on the drawings.
    - a. NOTE configuration indicated may be adjusted if required.
  - 4. Lower landing 80" low profile door
  - 5. 42" Upper automatic landing gate w/electric strike interlock
  - 6. Automatic gate and door operators for both upper and lower landing.
    - a. Remote door controls as required.
- B. Hydraulic Vertical Platform Lift, roped hydraulic drive with lifting platform.
- C. Provide equipment, incidental material and labor required for complete, operable rope hydraulic wheelchair lift installation. Erected, installed, adjusted, tested and place in operation by lift system manufacturer or their authorized representative.
  - 1. Standards Compliance:
    - a. ASME A18.1, and A117.1 compliant
    - b. State of NJ Elevator Subcode NJAC 5:23-12
- D. Specification
  - 1. Classification Enclosed vertical wheelchair platform lift
  - 2. Applied Code ASME 18.1-2023
  - 3. Model Savaria V-1504
  - 4. Capacity 750 lbs
  - 5. Nom. Speed 20 fpm
  - 6. Travel Refer to drawings. Contractor to Verify exact height in field
  - 7. Pit depth 4"
  - 8. Platform Size 42"X60"
  - 9. Power Supply 120V, 20A, single phase
  - 10. Battery back up Down direction only

### **PART 3 EXECUTION**

#### **3.1 EXAMINATION**

- A. Do not begin installation until substrates have been properly prepared.
- B. Verify required supports are correct.
- C. Verify electrical rough-in is at correct locations.

#### **3.2 PREPARATION**

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

#### **3.3 INSTALLATION**

- A. Install units in accordance with in compliance with regulatory requirements specified and the manufacturer's instructions.
- B. Install system components and connect to building utilities.
- C. Accommodate equipment in space indicated.
- D. Startup equipment in accordance with manufacturer's instructions.
- E. Adjust for smooth operation.

#### **3.4 FIELD QUALITY CONTROL**

- A. Perform tests in compliance with regulatory requirements specified and as required by

- authorities having jurisdiction.
  - B. Schedule tests with agencies and Architect, Owner, and Contractor present.
- 3.5 PROTECTION
  - A. Protect installed products until completion of project.
  - B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION 14423

**SECTION 21100**  
**FIRE PROTECTION SYSTEM – PERFORMANCE SPECIFICATION**

**PART 1 - GENERAL**

**1.1 SUMMARY**

**A. Section Includes:**

1. Renovation and modification of an existing Fire Protection System (FPS) as required by the indicated proposed new construction work and uses.
2. All work must comply with all the requirements of the AHJ (authorities having jurisdiction)
3. System work includes all work necessary for a complete, code compliant system. The work of the Fire Protection Subcontractor shall include but not be limited to
  - a. Reviewing and evaluating the existing FPS as it relates to the proposed work system and project requirements including hazard classifications, etc.
  - b. Developing and providing a new hydraulic based design indicating the required work.
  - c. Submitting and obtaining approval from the AHJ on the proposed renovation work.
  - d. Providing all coordination, demolition, temporary work, new work etc. as required.

**B. Related Requirements:**

1. Refer to drawings for additional information.

**1.2 DESIGN STATEMENT**

**A. General**

1. The new and/or modified fire protection systems shall have the following characteristics
  - a. Occupant and building safety.
  - b. No adverse effect on public water supply and existing infrastructure. If any renovation, addition, or system modification creates demands beyond the capacity of existing supply or system infrastructure, the FP designer shall immediately bring this information to the attention of the owner's project manager, in writing, for further direction.
  - c. Flexibility for future changes.
  - d. Durability.
  - e. Ease of maintenance.
  - f. Reliability and redundancy

**B. Brewery Area**

1. In the brewery area systems in general shall be modified and arranged to be as high as possible. Relocate existing items as required.
2. Properly terminate any unused pipe branches.
3. As indicated pipe support connections are to be sealed.
4. Wall and ceiling penetrations are to be sealed
5. Head types shall be suitable for the brewery environments.
6. Exposed FP elements within the brewery space and/or those items subject to corrosion shall be of non corroding materials and/or are to be painted.

**C. Combustible Construction**

1. The roof and floors of the building contain exposed wood construction.

2. It is the intent in the brewery area to conceal and protect the wood floor structure with gwb.
  3. In other areas the wood structure will be exposed above the ceilings.
  4. Provide above ceiling fire protection as required.
- D. Every effort will be made to design, layout and install equipment in locations which will tend to encourage routine preventive maintenance by providing easy access for maintenance personnel. Manual isolation valves will be provided to enable servicing, expansion of, renovation or construction of any part of the existing facility without unscheduled interruption of services in adjacent areas
- E. All systems and equipment shall be designed in accordance with New Jersey IBC, the National Fire Protection Association (NFPA), National Electrical Code (NEC) and the Owner's insurance underwriter
- F. The FP designer shall provide design documents which direct all involved contractors to provide fire protection systems, and all associated equipment and components which achieve the standards contained in this document.

### 1.3 CODES, STANDARDS AND REFERENCES

1. All materials and workmanship shall comply with all applicable Codes, Specifications, Local and State Ordinances, Industry Standards and Utility Company Regulations, latest editions.
2. In case of difference between Building Codes, State Laws, Local Ordinances, Industry Standards and Utility Company Regulations and the Contract Documents, the Fire Protection Contractor, as applicable, shall promptly notify the Owner's Project Manager in writing of any such difference.
3. In case of conflict between the Contract Documents and the requirements of any Code or Authorities having jurisdiction, the most stringent requirements of the aforementioned shall govern for budgetary purposes. However, no work will proceed until the Architect determines the correct method of installation.
4. Applicable Codes and Standards shall include all State Laws, Local Ordinances, Utility Company Regulations and the applicable requirements of the following accepted Codes and Standards, without limiting the number, as follows:
  - a. Verify with the AHJ
    - 1) National Fire Protection Association (NFPA) Standards Nos: 13, 14, 20, 24, 25, 45, 70, 72 and NFPA 101, Life Safety Code . V
    - 2) Other

### 1.4 DESIGN CRITERIA

- A. Sprinkler systems and all components, piping, valves and head location, ratings, etc., shall be designed in accordance with NFPA 13, 14, 20, 24, State Building Code and Owner's Insurance Company and other applicable NFPA standards governing the installation of fire mains, alarm valves, system drains, fire pump, etc.
- B. Hydraulic calculations for sprinkler systems shall be designed to include a 10 PSIG safety margin.
- C. Sprinkler system design shall be based on code requirements, building space usage, and in accordance with the Owner's Insurance Company requirements. Sprinkler systems shall be provided throughout the building or renovated area, as applicable to the project scope, designed in accordance with the following NFPA 13 hazard classifications, and shall be hydraulically calculated to provide the required densities.

### 1.5 HYDRAULIC CALCULATIONS

- A. The FP designer shall provide a hydraulically designed system in complete accordance with and as defined in applicable National Fire Protection Standards.
- B. Verification of Hydraulic Information:
  - 1. The FP designer shall obtain current hydrant flow test or existing fire pump flow test information as required. Provide hydrant flow tests, to establish water supply availability.
  - 2. Water supply information shall be provided on in design documentation. The FP designer shall confirm that hazard classifications/density requirements conform with the owner's insurance underwriter's requirements and those of other authorities having jurisdiction.
  - 3. Fire Pumps – the existing system does not have a fire pump.
  - 4. The FP designer shall make necessary field measurements of the existing fire protection system if applicable.
- C. Design drawings and hydraulic calculations shall clearly describe and graph all water supply information.
- D. All calculations shall assume a safety margin to allow for deterioration in static and residual pressures in the hydrant flow test and fire pump flow test results.
- E. Calculations and Design shall be prepare utilizing methods acceptable to the AHJ>

### 1.6 EARTHQUAKE PROTECTION AND SEISMIC RESTRAINTS - IF REQUIRED

- A. The FP contractor must provide all necessary design and materials for seismic restraint and protection of piping and devices against damage where subject to earthquake as required by applicable code and NFPA 13, for the renovation area. All isolation and seismic devices shall be the product of a single manufacturer. Isolation materials and seismic restraints shall be as manufactured by Mason Industries, Tolco or approved equal

### 1.7 TEMPORARY PROTECTION, IMPAIRMENTS AND SAFEGUARDING

- A. The FP Contractor shall coordinate with the AHJ, the GC, the CM to provide:
  - 1. Safeguards of the building during demolition, alteration and construction
    - a. This shall be a joint cooperative effort involving the entire project team, and primarily the fire protection contractor, the fire alarm contractor, the general contractor/construction manager, owner and all authorities having jurisdiction.
    - b. The fire protection contractor and fire alarm contractor shall coordinate with any and all parties as appropriate in order to achieve proper safeguarding as described in the project documents.
    - c. The contractors shall ensure proper building protection and safeguarding at all times during demolition, alteration, and construction in complete compliance with all applicable codes, regulations and standards.
  - 2. During times when the existing building fire protection systems are impaired, the contractors shall provide appropriate safeguarding of the renovation work area, and temporary heat detection or adequate alternate protection throughout the space, as coordinated with, and approved by, the tenant's and owner's fire prevention program manager, building manager, construction manager, insurance underwriters, and all authorities having jurisdiction.
  - 3. Safeguarding shall also apply to all related phasing, shut-downs, swing spaces, temporary services and facilities, relocations, etc. Alternative safeguarding such as, but not limited to, fire watch personnel, or temporary fire protection systems, may be considered if acceptable to the tenant/owner and authorities having jurisdiction. Refer to, and

coordinate with, fire alarm systems documents, and any associated safeguarding and impairments notes and specifications. Coordinate with fire alarm system contractor and all other trades.

4. Provide and include as shop drawings submittals a demolition, alteration, construction, phasing and impairment plan to include the safeguarding information above, a schedule of project milestones and related work, and an anticipated schedule for installation, impairments, programming and all phases of final testing and completion of the work. This plan shall be coordinated with all authorities having jurisdiction, the tenant's/owner's fire prevention program manager, construction manager, and shall include any and all information, drawings, and graphics to meet the approval of the authorities having jurisdiction.
  5. The owner(s) may provide additional Firewatch personnel or temporary protection as required by any authorities having jurisdiction, the tenant/owner, or the tenant's/owner's insurance underwriters.
  6. The above impairment plan shall be approved by all authorities, tenant/owner insurance underwriters, etc., prior to any shutdowns or impairments.
  7. Costs associated with the above safeguarding during demolition, alteration, construction, phasing, shutdowns, etc. with regard to fire protection systems shall be included in the fire protection contractor's base bid.
- Provide (and

#### 1.8 COMMISSIONING

- A. The FP contractor shall provide fully integrated design documents to ensure all required Contractors are fully responsible for supporting the Commissioning activities for the proposed systems to be commissioned. All required labor hours and materials shall be included for, at a minimum but not limited to, meetings, supporting documentation, field testing activities, ancillary testing equipment, off-season testing, data storage, support for 10 month warranty verification (if required), etc.

## PART 2 - PRODUCTS

### 2.1 PIPING, FITTINGS AND JOINTS

- A. Piping shall meet applicable ANSI or ASTM standards requirements and shall have manufacturer's name and standard marked on each length. Joints shall meet applicable ANSI and ASTM standards requirements. Where ANSI and ASTM standard does not exist, joints and fittings shall bear UL listing symbol.
- B. Underground fire protection service piping shall be ductile-iron thickness Class 53 or Class 52, ANSI A21-51 with cement-mortar lining per ANSI A21.4. Fittings shall be ductile-iron 250 PSIG rating per ANSI A21.10 with cement-mortar lining per ANSI A21.4. Pipe Joints shall be AWWA C606 grooved end with Victaulic Style 31 couplings or push on ANSI A21.11 with retainer glands and thrust blocks as required. All materials and installation shall conform to NFPA 24 as a minimum. Furnish and install two (2) Dresser Style 38 Couplings and retainer clamps on the incoming water service. Connect to cement lined ductile iron site water main 10'-0" outside building foundation wall.
- C. Piping for sprinkler systems and standpipe systems shall be Schedule 40 black steel conforming to ASTM A53. If seamless piping is not used, then the seam shall be installed on the top of the pipe. Seamless piping shall be used wherever possible.
- D. Piping for use with hole-cut fittings shall have shop fabricated machine cut holes per Manufacturer requirements at predetermined positions, on the centerline of the pipe, of a size to

receive the housing locating collar. Hole cutting machine shall be supplied by the fitting manufacturer. Torch cutting of the piping shall not be permitted.

- E. Piping for use with grooved end fittings shall be roll grooved without metal removal or as per manufacture requirements. Cut grooved piping shall not be accepted
- F. Fittings for Grooved End Steel Pipe shall be cast of ductile iron conforming to ASTM A536 or forged steel conforming to ASTM A-234 (A-106, Gr. B), with grooved or shouldered ends for direct connection into grooved piping systems with steel pipe and shall be UL listed and FMG approved, rated for a minimum 300 psi maximum working pressure (MWP) and shall be of one manufacturer
- G. Standard black cast iron screwed fittings shall be used on piping 2" and smaller and may be used on larger sizes.
- H. Dry and Pre-action sprinkler piping and fittings shall be Schedule 40 galvanized steel. Dry and pre-action system piping shall be provided with corrosion monitoring devices similar to AGF CORRINSITE, Potter PCMPK Series, or Potter PCMS-RM.
- I. Wet sprinkler system piping shall be provided with automatic air relief vents, at high points of the system and at floor control valve assemblies. Air relief vents shall be similar to Potter Model PAV, with strainer and a ball valve in-line immediately upstream to facilitate servicing or replacing the strainer or vent without disabling the sprinkler system.
- J. At the ends of all sprinkler system branch lines, provide 1" ball valves, and ¾" capped male hose threaded ends, to allow for periodic flushing.

## 2.2 PIPE HANGERS AND SUPPORTS

- A. Acceptable products: Hanger materials shall match piping material as required for dielectric isolation. All support systems shall be UL listed and FMG approved and shall meet ASTM B633, SC1 and SC3.
- B. Support all piping included in the Work of this Section with hangers and rods attached to the building structure. Hang piping in compliance with NFPA Standards and the requirements of these standards. In Brewery area seal pipe supports penetrations of VR envelope.
  - 1. Piping 2-1/2" and smaller: Carbon steel, adjustable swivel.
  - 2. Piping 3" and larger: Carbon steel, adjustable clevis.
  - 3. Beam Clamps: Carbon steel hanger with lock nut and retaining strap or approved equal.
- C. Expansion Shields: Hilti HDI or approved equal.
- D. Inserts: Malleable iron case of galvanized steel shell and expander plug for threaded connection with lateral adjustment, top slot for reinforcing rods, lugs for attaching to forms; size inserts to suit threaded hanger rods. Hilti HKD or approved equal.
- E. Space hangers and supports for all fire protection system piping according to applicable NFPA standards. Provide steel angle supports attached to the building structure to support piping below ductwork.
- F. Riser Clamps: Carbon steel riser clamp, black or galvanized finish.
- G. Floor Supports: Schedule 40 black steel adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
- H. All vertical drops and run-out pipes shall be supported by split ring extension type hangers.
- I. Hanger Rods: Mild steel threaded both ends, threaded one end, or continuous threaded. Provide hanger rods sized according to NFPA standards.
- J. Hangers, structure and associated components shall support the weight of five times the weight of the water filled pipe plus 250 pounds at the point of attachment.

## 2.3 VALVES

- A. All valves shall be installed in locations and orientations which are readily accessible for system service, maintenance, modifications, etc. Valves shall not be obstructed by, nor located above



piping racks, cable trays, ducts, or other equipment. All system main shut-off / isolation valves shall be located in areas that are easily accessible without having to enter a locked room or program space

- B. Provide access panels for valves where located above finished hard ceilings
- C. Pressure Reducing Valves
  - i. Pressure reducing valves shall be sized and located on the drawings and shall be field adjustable, pilot-operated, pressure reducing valve with pressure relief valve piped to drain riser. Spilling the pressure relief discharge piping to a floor drain within the room is not acceptable.
- D. Shut-off and/or control valves shall be Outside screw and yoke valve. Ductile iron or cast iron body, bronze mounted, flanged or grooved ends, solid wedge, 2-1/2" in size and up. All bronze, solid wedge, threaded ends, 2" and under in size both to be electrically supervised, or hand wheel.
  - 1. All equipment must be installed with isolation valves for service shut-off. The shut-off valves shall be screwed, grooved or flanged. If screwed ends are provided, a union or a coupling between equipment and valve shall be provided. OS&Y Gate Valves shall be installed on all fire pump suction piping in accordance with NFPA 20.
  - 2. If required provide supervised ball valves on sprinkler branch lines to all electric rooms and closets provided with wet sprinkler systems.
- E. Check valves shall be:
  - 1. Iron body, bronze mounted swing check with flanged ends, 2-1/2" in size up to 8" size; or
  - 2. Iron body, spring actuated, wafer check, sizes 4" through 8"; or
  - 3. Grooved end, ductile iron body, spring activated, sizes 2-1/2" through 12", suitable for vertical or horizontal installation
  - 4. All check valves up to 2" in size shall be all bronze with screwed ends.
- F. Backflow Preventers
  - 1. Double check valve assembly shall be ductile iron body, bronze mounted, flanged end with electrically supervised OS&Y, resilient wedge gate valves. Backflow prevention device and installation shall conform to requirements of local authorities and all Cross Connection Control Regulations

## 2.4 SPRINKLERS

- A. All sprinklers shall be listed or approved as specified requirements. In finished renovated areas, match existing head types.
- B. See Table 2, below.
- C. All sprinklers shall be of a single manufacturer, unless noted otherwise. Sprinklers shall be as manufactured by Tyco, Reliable, Viking, or Victaulic. Models noted in Table 2 below pertain to Tyco sprinklers for general reference information only, and specified sprinklers shall be similar. Sprinklers shall match existing manufacturer in the specific buildings or areas undergoing renovation.
- D. Sprinklers shall be furnished and installed to conform to manufacturer's listing.
- E. All sprinklers shall be coordinated with a final reflected ceiling plan to arrive at a suitable pattern consistent with proper sprinkler protection.
- F. All sprinklers within 8'-0" of the floor in areas without finished ceilings, in environmental rooms, and in mechanical rooms where damage is likely shall have sprinkler guards, wire gauge type that is listed to be used with the specified sprinkler.
- G. Sprinklers shall be located in center of tiles.
- H. Spare Sprinklers: If one does not exist, provide a 20-gauge steel sprinkler cabinet with red enamel finish. Furnish the quantities of spare sprinklers for each type installed as required by NFPA 13. Furnish sprinkler wrench for each type of sprinkler installed. Mount cabinet in mechanical room or

I. Sprinklers shall be similar to those specified in Table 2, below:

LOCATION OR HAZARD TYPE	MFR. (Note 1)	MODEL (Note 1)	RESPONSE TYPE	SPRINKLER TYPE	K-FACTOR	FINISH TYPE	TEMPERATURE RATING (°F)	NOTES
Light Hazard areas with Ceilings	Tyco	Series RFI	Quick	Concealed Pendent	5.6	Pure White Cover Plate	139°F cover & 155°F	None
Light Hazard areas with ceilings	Tyco	Series TY-FRB	Quick	Recessed Pendent or Pendent	5.6	Chrome Plated	155°F	None
Light Hazard areas without ceilings	Tyco	Series TY-FRB	Quick	Upright	5.6	Natural Brass	155°F	None
Light Hazard areas with ceilings	Tyco	Series TY-FRL	Quick	Horizontal Sidewall	5.6	Chrome Plated	165°F	None
Labs, Storage Rooms and other Ordinary Hazard areas with ceilings	Tyco	Series TY-FRB	Quick	Recessed Pendent or Pendent	5.6	Chrome Plated	155°F	None
Ordinary Hazard areas without ceilings	Tyco	Series TY-FRB	Quick	Upright	5.6	Natural Brass	155°F	None
Cold rooms, loading docks and other cold areas with ceilings	Tyco	Series DS-1 & DSB-2	Quick	Dry Pendent with Dry Sprinkler Boot	5.6	Chrome Plated	155°F	Provide dry sprinkler boot at each sprinkler
Animal Holding Rooms or Vivarium areas with ceilings	Tyco	RAVEN Institutional	Quick	Institutional Pendent	5.6	Chrome Plated	165°F	Provide caulking around escutcheon
Glazing Requiring 2-hour protection	Tyco	Model WS	Quick	Pendent Vertical Sidewall or Horizontal Sidewall	5.6	Chrome Plated	155°F	Horizontal window mullions shall not be installed. Install per mfr's specifications.
Glasswash, cage and rack washers, autoclaves, and above kitchen cooking equipment	Tyco	Series TY-FRL	Quick	Pendent Or Upright	5.6	Chrome Plated	286°F	UL Glass bulb sprinklers shall not be used in food prep areas

J. ALARM VALVES (IF / AS REQUIRED)

1. Wet Pipe Alarm

- a. Wet alarm valve shall be UL listed and FMG approved for a wet pipe sprinkler system, complete with ductile iron body, flanged or grooved outlet, main drain valve, pressure gauges, alarm port, external bypass, hand hole with cover, hinged clapper assembly and other required trimmings. Valve shall be equal to Reliable Model E3, Viking Model, J-1, Victaulic Series 751 or Tyco Model AV-1300. ii. Valve trim shall include pressure activated electric alarm switches, flow switch, and electric alarm bell mounted to exterior of building.

2. Dry Pipe Alarm Valve (if /as required)

- a. Dry pipe alarm valve shall be UL listed and FMG approved for a dry pipe sprinkler system, complete with ductile iron body, flanged or grooved outlet, drain valve, primary water valve, ball drip valve, alarm test valve, priming chamber, fill line attachment, pressure gauges and air control valve assembly, similar to Tyco Model DPV-1. Provide AGF CORRinSITE Model 7700, Schedule 40 galvanized, In-Line Spool and Mechanical Tee fittings throughout dry sprinkler distribution piping system. InLine Spool and Mechanical Tee fittings shall be installed in accordance with AGF recommendations shall be installed so that each viewing window can easily be viewed and is not obstructed by other MEP/FP components or equipment, and shall be in an accessible location. Furnish and install listed air compressor to maintain air pressure in the dry pipe system, automatically. Compressor shall be sized as required for system in accordance with NFPA 13. For a tank-mounted air compressor, provide Flex Hose made of stainless steel to reduce vibration and noise transmitted through the piping system from the air compressor. iv. To accelerate operation of the dry valve, furnish and install Tyco VIZOR Electronic Dry Pipe Accelerator (EDPA) with 120V power supply. Accelerator shall be monitored for high/ low pressure and trouble by the building's fire alarm system.

3. Pre-Action Sprinkler System (not required)
  - a. Provide complete addressable UL-listed/FMG-approved, positive-supervised, single-interlocked cross-zoned, electrically actuated pre-action sprinkler system.

## 2.5 FIRE DEPARTMENT INLET CONNECTIONS

1. Existing

## 2.6 ALARM DEVICES

1. Coordinate with GC and Fire Alarm contractor.
2. Water Flow Switches
  - a. Vane type switch for mounting horizontal or vertical, with two contacts rated 10 Amp at 120 volt AC, with adjustable 60 second time delay mechanism.
  - b. Pressure type switch with two sets of double throw, single pole contacts with adequate pressure differential to prevent false operation, and 60 second time delay mechanism. Provide bleeder valve and pressure gauge, as necessary, to allow all pressure switches to be properly tested.
3. Supervisory Tamper Switches
  - a. OS&Y Gate Valves: Tamper switch with two contacts rated 10 Amp at 120 volts AC.

## 2.7 PENETRATIONS:

1. Whether pre-existing or created for new mechanical, electrical, plumbing or ventilation purposes, each penetration – whether or not required by code - should be sealed by an appropriate method that not only preserves the fire / smoke rating of the penetrated structure but also sustainably prevents the entry and passage of insect and rodent pests and moisture. Escutcheon plates are acceptable only if the penetration behind is first sealed.
2. To exclude rodent and insect pests, penetrations in masonry may be packed with cement or grout. If firestopping compounds are used in masonry, wall board or other partitions, the openings might first be tightly packed, as practical, with non-oxidizing metal meshes such as stainless steel mesh pads (e.g. 'Xcluder' brand blocks or fabric) or copper mesh (e.g. 'Stuf-Fit' brand).

END OF SECTION 21100

**SECTION 23000**  
**REFRIGERATION – BEER COOLER**

**PART 1 - GENERAL**

**1.1 SUMMARY**

**A. Section Includes:**

1. Refrigeration system for new cooler. System includes all labor, material and accessories for a complete installation

**B. Related Requirements:**

1. Section 13 Special Construction – Metal Panels
2. Electrical
3. Concrete
4. Glazing – wall penetrations

**1.2 REFERENCES**

**A. Abbreviations and Acronyms:**

1. ASME American Society of Mechanical Engineers
2. ASTM American Society of Testing Materials
3. ANSI American National Standards Institute
4. MSS Manufacturers Standardization Society of the Valve and Fitting Industry
5. ASHRAE – American Society of Heating, Refrigerating and Air Conditioning Engineers.

**1.3 ACTION SUBMITTALS**

**A. Provide the following**

1. Product Data: For each piece of equipment and accessory.
2. Piping layout
3. Operating Sequences
4. Vibration Isolation and supports

**1.4 INFORMATIONAL SUBMITTALS**

**A. Qualification Data:**

1. Individual Refrigeration Contractor – statement of qualifications

**B. Maintenance Manual including required service schedule.**

**1.5 QUALITY ASSURANCE**

**A. Installer Qualifications:**

1. Refrigeration System manufacturer and installer shall have a minimum of (5) five years of experience in the successful installation of similar systems.

**1.6 WARRANTY**

1. Compressor(s) – Provide (4) Four year parts and labor warranty
2. Refrigeration – Provide (2) Two year parts and labor warranty on System. Include start up and response to trouble service calls.

## PART 2 - PRODUCTS

### 2.1 GENERAL

- A. Refer to following specification section for additional information

### 2.2 REFRIGERATION SYSTEM

#### A. Condenser and Evaporators

1. Provide products of KeepRite Refrigeration as indicated in the following Refrigeration Section.
  - a. Substitutions – Provide substitution requests as per section 01630. For these products any Substitution Request must include a statement from the supplier that assures the substituted products and installation will meet all the specified performance requirements.

#### B. General Notes and Accessories

1. REFER TO FOLLOWING KEEPRITE Refrigeration Information for additional requirements and accessories.
2. NOTE project product purchase requirements.
3. System must meet current DOE Energy Requirements
4. Coordinate interconnection of units, control wiring and defrost wiring (if/as required) with electrical contractor. Provide single point power connection with integral fusing for evaporator electric feeds.
5. Provide
  - a. Core Suction Filter – Replaceable
  - b. Liquid Solenoid – provide loose for field installation
  - c. Defrost – provide electric defrost kit if/as required.
  - d. Disconnects – to provided and installed by Electric Contractor
  - e. Suction accumulator with heat exchanger
  - f. Oil separator and system to activate flow
  - g. Pressure fan cycling
  - h. Phase monitor
  - i. Evaporator Efficiency Temperature Controller including:
    - 1) Temperature sensor
    - 2) Pressure transducer
    - 3) Evap EVV
    - 4) Evap Transducer
    - 5) Evap OEM board
    - 6) Remote display
  - j. Heated and insulated receiver
  - k. Electric defrost control option
  - l. 115 volt control circuit with transformer
  - m. Condenser access doors
  - n. Cylinder unloading
  - o. Pump down toggle switch
6. Vibration Isolation
  - a. Provide isolation for equipment.
  - b. Acceptable manufacturers
    - 1) Mason Industries
    - 2) Vibration Eliminator Co.
    - 3) Korfund Dynamics Corp.
  - c. For overhead hung Fans and Equipment

- 1) Provide spring hanger rod isolators. Steel compression spring and neoprene sound pad within a steel retainer similar to mason type PCHS
- 2) 1" min. static deflection. ½" min reserve deflection. Factory preloaded.

C. Refrigerant Piping

1. Sizing – provide per manufacturer's recommendations and requirements.
2. Pressure – less than 535 PSIG
3. Temperature – less than 275d F
4. Size – 3" and smaller
5. Pipe – hard copper tube, type ACR to ASTM B 280
6. Jointing – ASME SFA A5.8, compliant BCYP-5 or BCUP-6 without flux with melting range of 1190 to 1480 d F
7. Fittings – Wrought Copper and Copper alloy Braze-Joint pressure fittings to ASME B16.50
8. Service Valves – forged brass body with copper stubs, brass caps, removable valve core with flared or soldered ends, with 500 PSIG working pressure
9. Filter Driers – ARI-710 UL listed brass with removable caps and 500 PSIG working pressure.
10. Moisture Indicators – UL listed with brass or copper body, soldered ends, color coded. Moisture indicator with removal cartridge. 500 PSIG working pressure at 200 d F.
11. Insulation –
  - a. Interior 1" Elastomeric
  - b. Exterior 2"Elastomeric
12. Insulation Jacketing
  - a. Interior Process, Refrigerated Boxes, Common Areas
    - 1) Solvent Sealed, 30 mil. PVC Jacketing
  - b. Outside
    - 1) 16 ga. Aluminum Jacket
    - 2) Provide vaporseal on all outside lines and fittings subject to condensation.
  - c. Non Process Interstitial Spaces
    - 1) Adhesive or solvent sealed 30 mil PVC Jacketing.
13. Supports
  - a. Provide supports along the length of each line and within 12 inches of each change in direction.
  - b. Provide continuous 0.4 % pipe slop in direction of flow.
  - c. Arrange pipe to return oil to compressor using traps, loos and double risers as necessary.
  - d. Insulate liquid line and suction line.
  - e. If manufacturer supplied lineset is utilized, provide pipe and fittings per manufacturer recommendations.
14. Refrigeration Service Access ports – if located outside shall be fitted with locking type tamper resistant caps per IMC.

D. Condensate Piping

1. Type L copper. 95-5 tin antimony solder
2. Insulation 1 inch fiberglass with white PVC jacket.

E. Valves and Specialties

1. Check Valves, straight thru or angle pattern with solder end connections

- a. Cast bronze or gorged brass bolted bonnet, floating piston with mechanically retained polytetrafluorethylene seat disc.
2. Service Valves 500 PSIG rating, forged brass body with copper stubs, brass caps, removable valve core, integral ball check valve with solder end connections.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Verify that substrates are clean, dry, and free of dust, debris, oil, solvents, and other materials that may adversely affect SPF adhesion.

#### 3.2 COORDINATION AND PREPARATION

- A. Drawings are diagrammatic. Provide additional offsets, transitions, etc. as required to avoid interferences encountered. Mount items in a neat and tight manner so as to not reduce storage space in the cooler or exterior to the cooler.
- B. Do not begin installation until work area is ready for work.
- C. Clearances – provide all manufacturer’s recommended clearances and access to equipment. Coordinate locations with other trades to avoid conflicts
- D. Supports – support evaporators from structure above cooler.
- E. All exterior envelope and cooler box penetrations are to be insulated and sealed.

#### 3.3 INSTALLATION

- A. System
  1. Install all work in a professional and complete manner in accordance with industry standards including but not limited to ASHRAE
- B. Condensate Piping
  1. 1-1/2” diameter
  2. Slope in direction of flow min of ¼” per foot.
  3. Provide P trap at each unit
  4. Seal and insulate cooler wall and/ceiling penetrations.
  5. Run tight to walls
- C. Refrigerant Piping
  1. Install in accordance with ASHRAE 15
  2. Install piping as short and direct as possible with a minimum number of joints and elbows.
  3. Install piping with adequate clearance between pipe and adjacent walls and hangers or between pipes for insulation installation. Use sleeves through floors, walls or ceilings sized to permit installation of full thickness of insulation.
  4. Exposed piping is to be neat, tight, secure.
  5. Slope
    - a. Install horizontal hot gas discharge piping with a uniform slope downward away from compressor.
    - b. Install horizontal suction lines with a uniform slope downward to compressor.
    - c. Install traps and double risers to entrain oil in vertical runs.
    - d. Liquid lines may be level.
    - e. Install unions to allow removal of solenoid valves, pressure regulating valves and at connections to compressors and evaporators.

### 3.4 TESTING

#### A. Piping

1. Test piping using requirements of local or state code.
2. As a minimum pressure test the system at 300 PSI for 2 hours with no drop in pressure.
3. Test pipe in accordance with ASME B31.5 with dry nitrogen

#### B. Other

1. Provide as required

### 3.5 START UP AND TRAINING

1. Complete installation and start up checks according to the manufacturer's written instructions. Perform the following
  - a. Inspect for physical damage
  - b. Verify access doors move freely and are weather tight
  - c. Clean units and inspect for construction debris.
  - d. Verify that all bolts and screws are tight.
  - e. Adjust vibration isolation and flexible connections
  - f. Verify that controls are connected and operational.
  - g. Test and adjust controls and safeties. Verify proper operation of control devices. Replace damaged and malfunctioning controls and equipment.
2. Training
  - a. Train owner and tenant personally on how to adjust, operate and maintain refrigeration equipment.

### 3.6 PROTECTION

- #### A.
- Protect installed system and equipment from damage until Project completion.

END OF SECTION 07211



X



**EQUIPMENT SUMMARY**  
 Michal Lesniowski  
 S&S Refrigeration  
 733 Communipaw Ave  
 JERSEY CITY, New Jersey  
 07304 United States  
 Ph: 2014347266  
 Email: mlesniowski@ssrefrig.com

CUSTOMER			SHIP TO		
QUOTE DATE : 2025-01-24			PROJECT NAME : Wanderback Brewery		
QUOTE # : Q24AXMLA-A			EST SHIP WEIGHT : 520.5 Lbs ( Less Options )		
PROJECT : Q24AXMLA			FREIGHT TERMS : CHARGE		
CUSTOMER ORDER # :			REQ SHIP DATE : Lead Time 35 calendar days		
ITEM	PRODUCT NO	DESCRIPTION	QTY	DETAILS	
	SYSTEM 1	Beer Cooler Box Temp: 38 °F Evaporator TD: 11 °F Line Loss: 0.5°F Balanced Capacity: 37776 BTUH Refrigerant: R448A			
001	KEZA040H8-HT3D	<b>EZ-Line Scroll</b> <b>Suction Temp: 24.3 °F</b> <b>Ambient Temp: 95 °F</b> <b>Voltage: 208-230/3/60</b>	1		
	OPTION	Adjustable Pressure Controls, Johnson Dual with flex hose	1		
	OPTION	Extended Leg Kit	1		
	OPTION	Liquid Line Filter + Sight Glass, Replaceable	1		
	OPTION	Pump Down Toggle Switch	1		
	OPTION	Single Point Electrical	1		
	OPTION	Sub Cooling Circuit	1		
	OPTION	Suction Filter, Replaceable Core	1		
002	4YRWARR	Extended 4-Year Compressor Warranty, Copeland	1		
003	KLP317MA-S2D	<b>Low Profile</b> <b>Evap. Temp: 24.8 °F</b> <b>Box Temp: 38 °F</b> <b>Voltage: 208-230/1/60</b>	2		
	PACKAGE	Pre-assembled Evap, ESP+ Electronic Package	2		
	PACKAGE ITEM	Electronic Controller, ESP+ Control Board and Display (Factory Installed)	2		
	PACKAGE ITEM	Expansion Valve, EEV for ESP+	2		
	PACKAGE ITEM	Liquid Line Solenoid Valve, Sporlan (Factory Installed)	2		


**TERMS, CONDITIONS AND REMARKS**

Pricing shown includes all options listed on certified prints.  
ALL APPLICABLE TAXES EXTRA, UNLESS OTHERWISE SPECIFIED  
Freight terms FOB Brantford Ontario unless otherwise specified.  
Quotation valid for 30 days from Quote Date.  
Please quote FACTORY ORDER# on your Order.  
ANY LEAD-TIMES OR DELIVERY DATES INDICATED HEREIN ARE ESTIMATES ONLY AND ARE NOT GUARANTEED.

WARNING: These products can expose you to Lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. (For more information go to [www.p65warnings.ca.gov](http://www.p65warnings.ca.gov))

This equipment is prohibited for use in California with any refrigerants on the "List of Prohibited Substances" for that specific end-use, in accordance with California Code of Regulations, Title 17, section 95374. This disclosure statement has been reviewed and approved by National Refrigeration and Air Conditioning Canada Corp., and National Refrigeration and Air Conditioning Canada Corp. attests, under penalty or perjury, that this statement is true and accurate.

2024 March - LIST Price Book [241-2], M34

		<b>NATIONAL REFRIGERATION AND AIR CONDITIONING CANADA CORP.</b> 159 ROY BLVD. PO BOX 2020 BRANTFORD ON CANADA N3T 5Y6		<b>BEER COOLER</b>							
<b>COOLING REQUIREMENTS</b>											
<b>Application Title</b>		<b>Location</b>		<b>Interior Temperature</b>		<b>External Temperature</b>		<b>Internal RH</b>		<b>External RH</b>	
Beer Cooler		Indoor		38 °F		95 °F		75 %		55 %	
<b>Wall Load 39%</b>			<b>Infiltration Load 29%</b>			<b>Product Load 12%</b>			<b>Miscellaneous Load 20%</b>		
8232 BTUH			6117 BTUH			2585 BTUH			4114 BTUH		
<b>WALL, FLOOR AND CEILING LOADS</b>											
<b>Section</b>	<b>Construction</b>	<b>Thickness (BTUH)</b>	<b>K Factor</b>	<b>R Value</b>	<b>Ext Temp (°F)</b>	<b>Dim 1 (ft)</b>	<b>Dim 2 (ft)</b>	<b>Area (ft²)</b>	<b>Load (BTUH)</b>		
Rear	Urethane, Standard panels	4	0.14	28.57	95	22	14.5	319	636		
Right End	Urethane, Standard panels	4	0.14	28.57	95	20	14.5	290	579		
Front	Urethane, Standard panels	4	0.14	28.57	95	22	14.5	319	636		
Left End	Urethane, Standard panels	4	0.14	28.57	95	20	14.5	290	579		
Floor	Concrete slab, Medium weight Aggregate 100Lb/ft3	6	4.76	1.26		22	20	440	4925		
Ceiling	Urethane, Standard panels	4	0.14	28.57	95	22	20	440	878		
<b>Volume (ft³)</b>		<b>6380</b>	<b>TOTAL WALL, FLOOR AND CEILING LOAD</b>						<b>8232</b>		
<b>INFILTRATION LOAD : ESTIMATED BY VOLUME AND USAGE</b>											
<b>Box Usage</b>	<b>Internal Temperature (°F)</b>		<b>Internal RH (%)</b>		<b>External Temperature (°F)</b>		<b>External RH (%)</b>		<b>Ventilation (CFM)</b>		<b>Load (BTUH)</b>
Heavy Use	38		75		95		55				6117
<b>PRODUCT LOADS</b>											
<b>Type</b>		<b>Weight</b>	<b>Enter Temp (lb)</b>		<b>Final Temperature (°F)</b>		<b>Pull Down (hrs)</b>		<b>Load (BTUH)</b>		
Beverages, Beer, Kegs (170 Lbs/keg)		5058	48		38		18		2585		
<b>TOTAL PRODUCT WEIGHT (lb)</b>		<b>5058</b>	<b>Total Product Load</b>						<b>2585</b>		
<b>MISCELLANEOUS LOADS</b>											
<b>Quantity</b>	<b>Description</b>			<b>Power</b>		<b>Units</b>	<b>Run Time (hrs)</b>		<b>Load (BTUH)</b>		
	LIGHTING			1		W/ft²	24		1501		
2	EVAPORATOR MOTORS			320		W	24		2184		
1	PERSONNEL			Average Work.			12		429		
<b>TOTAL MISCELLANEOUS LOAD</b>									<b>4114</b>		
<b>SYSTEM DESIGN SUMMARY</b>											
<b>Design Load (BTUH)</b>	<b>Safety Factor</b>	<b>Safety Load (BTUH)</b>	<b>Run Time (Hours)</b>	<b>Capacity Required (BTUH)</b>		<b>Refrigerant</b>	<b>Line Frequency (Hz)</b>	<b>Design TD (°F)</b>	<b>Line Loss (°F)</b>		
21048	10 %	23153	16	34730		R448A	60	13.3	0.5		
<b>SYSTEM EQUIPMENT SELECTION</b>											
<b>Equipment Type</b>		<b>Quantity</b>	<b>Model Number</b>		<b>Description</b>		<b>Voltage</b>		<b>RATING (BTUH)</b>		
Condensing Units-Air		1	KEZA040H8-HT3D		EZ-Line Scroll   Condensing Units-Air		208-230/3/60		36190		
Evaporator		2	KLP317MA-S2D		Low Profile   Evaporator		208-230/1/60		22655		
<b>SYSTEM BALANCE</b>											
<b>Condenser Ambient (°F)</b>			<b>Suction Temp (°F)</b>			<b>Evaporator TD (°F)</b>			<b>System Capacity (BTUH)</b>		
95			26.5			11			37776		



NATIONAL REFRIGERATION AND  
AIR CONDITIONING CANADA CORP.  
159 ROY BLVD. PO BOX 2020  
BRANTFORD ON  
CANADA N3T 5Y6

KEZA040H8-HT3D

EZ-Line Scroll  
Condensing Units-Air

PURCHASER:

SUBMITTED BY: Michal Lesniowski

PROJECT NAME :: Wanderback Brewery

DATE: Friday, January 24, 2025

PROJECT #: Q24AXMLA

ITEM #: 001

QTY: 1

QUOTE #: Q24AXMLA-A

ID #:

PURCHASER'S PO # :

TAGGING:

#### STANDARD FEATURES

- 3/8" Tubing coil construction (reduces refrigerant operating charge)
- Adjustable pressure fan cycling control on 2 fan models only
- Anti-short cycle time delay
- Copper tubing secured with cushion clamps
- Crankcase heater
- Fan Guard
- Fan motors are inherently protected with internal overloads
- Pre-formed piping
- Receiver with fusible plug and liquid shut off valve
- Suction Service valve
- Adjustable flooded head pressure control (unless otherwise indicated)
- Units are shipped with Helium holding charge
- Weatherproof electrical control box with compressor contactor and fused control circuit
- Welded hermetic Scroll compressor
- Adjustable low pressure control with flex hose / fixed high pressure control
- High efficiency enhanced copper tube and aluminium fin coil design
- Compatible with Low GWP Refrigerants
- Outdoor weatherproof pre-painted steel cabinet
- AWEF = 7.6

#### MODEL OPTIONS

##### OPTION PACKAGES

- ☐ Small B (Good@Warm/Moderate)  
☐ Small N (Better@Warm/Moderate)  
☐ Small P (Best@Warm/Moderate)  
☐ Small D (Good@Moderate/Cold)  
☐ Small J (Better@Moderate/Cold)  
☐ Small Q (Best@Moderate/Cold)  
☐ Small K  
☐ Small H  
☐ 115V Control Circuit

##### ADJUSTABLE PRESSURE CONTROLS

- ☒ 1 Johnson Dual with flex hose  
☐ Separate High/Low  
☐ Separate High/Low: MAN Reset on HP

##### BALL VALVE

- ☐ Liquid Line (Shipped Loose)  
☐ Liquid Line (Factory Installed)  
☐ Suction Line (Shipped Loose)  
☐ Suction Line (Factory Installed)

##### CAPACITY CONTROL - HOT GAS BYPASS

- ☐ To Inlet of Evaporator  
☐ To Suction Line

##### Compressor Circuit Breaker

##### CONDENSING UNIT PRISON PACKAGE

- ☐ Tamper Proof Screws

##### Crankcase Pressure Regulator

##### CONTACTORS

- ☐ 30A Contactor  
☐ 40A Contactor  
☐ 60A Contactor

##### DEFROST KIT (USE W/KE2 EVAP EFF)

- ☐ Up to 30A per Evap  
☐ 35A to 50A per Evap  
☐ Over 50A per Evap

##### Discharge Air Hood

- ☐ Discharge Line Check Valve  
☐ Discharge Tee + Ball Valve

##### DISCONNECT SWITCH

- ☐ Fused  
☐ Non-Fused

##### EC FAN MOTORS + SPEED CONTROLLER

- ☐ All Motors Variable Speed - 230V Units  
☐ SmartSpeed

##### ELECTRONIC CONTROLLER

- ☐ KE2 Condensing Unit Control

##### ELECTRONIC PRESSURE CONTROL

- ☐ Low Pressure Control  
☐ High Pressure Control

##### Export Crating

##### EXTENDED 4-YEAR COMPRESSOR WARRANTY

- ☒ 1 Copeland  
☒ 1 Extended Leg Kit

##### COIL COATING

- ☐ Heresite Coating  
☐ E-Coat

##### FIN MATERIAL

- ☐ Gold Coat Fins  
☐ Copper Fins

##### Hail Guard for Condenser

- ☐ Heated and Insulated Receiver

##### HOUSING MATERIAL

- ☐ Stainless Steel

##### Insulated Suction Line

##### LIQUID LINE FILTER + SIGHT GLASS

- ☐ Sealed  
☒ 1 Replaceable

##### Liquid Line Lock-Out Relay

##### LIQUID LINE SOLENOID VALVE

- ☐ Standard 230V Coil (Shipped Loose)  
☐ Standard 115V Coil (Shipped Loose)

##### OIL SEPARATOR

- ☐ With Oil Filter and Solenoid  
☐ One Time Pump Down

##### Oversized Receiver

##### PHASE / VOLTAGE MONITOR

- ☐ 3-Lead  
☐ 6-Lead (MotorSaver455)

##### Pump Down Toggle Switch

##### QuickVac Valves

##### Receiver Inlet Ball Valve

- ☒ 1 Single Point Electrical

##### Sub Cooling Circuit

- ☒ 1

##### SUCTION ACCUMULATOR

- ☐ With Heat Exchanger

##### SUCTION FILTER

- ☐ Sealed Type  
☒ 1 Replaceable Core

##### TIME CLOCK

- ☐ Paragon 8145 Style (Factory Installed)  
☐ 230V Paragon 8145 Style (Shipped Loose)  
☐ 115V Paragon 8145 Style (Shipped Loose)  
☐ Wind Guard  
☐ Less Flooding Valve(s)

Notes : † MCA.. Minimum Circuit Ampacity, ‡ MOP.. Maximum Overcurrent Protection

MCA & MOP are for the condensing unit ONLY. Single point connections WILL show different on dataplate.

AWEF = 7.6 for R404A/R507/R407A/R448A/R449A/R407C. Non-compliant DOE NRCAN model for all other refrigerants

APPROVALS



APPROVED BY :

DATE :

Approval of this drawing signifies that the equipment is acceptable under the provision of the job specifications. Any change made hereon by any person whomsoever subject to acceptance by NATIONAL REFRIGERATION at its home office.



**NATIONAL REFRIGERATION AND  
AIR CONDITIONING CANADA CORP.**

159 ROY BLVD. PO BOX 2020  
BRANTFORD ON  
CANADA N3T 5Y6

**KEZA040H8-HT3D**

**EZ-Line Scroll  
Condensing Units-Air**

PURCHASER:

SUBMITTED BY: **Michal Lesniowski**

PROJECT NAME :: **Wanderback Brewery**

DATE: **Friday, January 24, 2025**

PROJECT #: **Q24AXMLA**

ITEM #: **001**

QTY: **1**

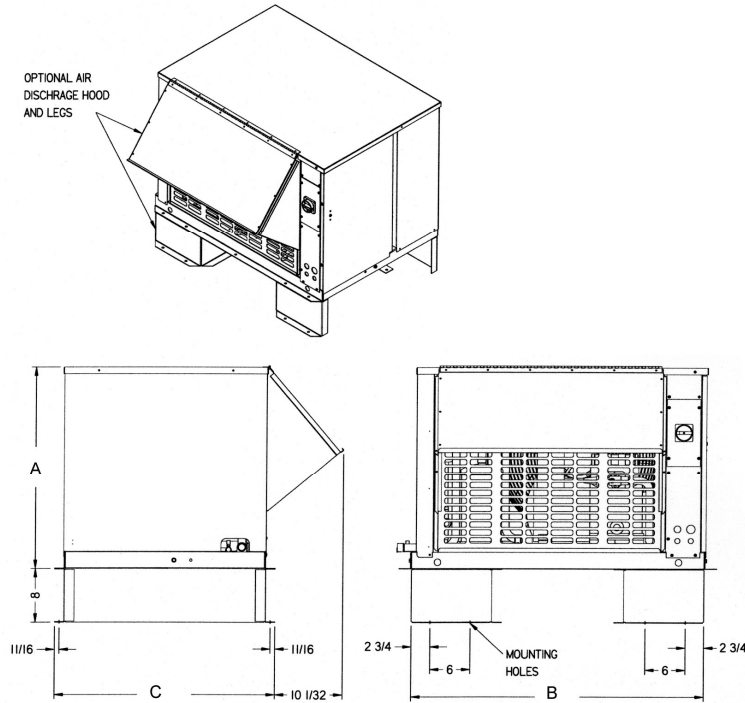
QUOTE #: **Q24AXMLA-A**

ID #:

PURCHASER'S PO # :

TAGGING:

Dimensions shown are for standard unit less options.



DIMENSIONS				FIELD CONNECTIONS				OTHER		
DIMENSION A	30 3/8 in	DIMENSION E		LIQUID	1/2 in	PAN LOOP		SHIPPING WEIGHT	420 lb	
DIMENSION B	43 7/8 in	DIMENSION F		SUCTION	1 1/8 in	HOT GAS SIDE PORT		REFRIGERANT CHARGE	9 lb	
DIMENSION C	32 7/8 in	DIMENSION G		DRAIN		HOT GAS INLET		RECEIVER CAPACITY	22 lb	
DIMENSION D	10 1/8 in	DIMENSION H		WATER		HOT GAS OUTLET		AWEF COMPLIANT	YES	
				DISCHARGE						
Voltage		SYSTEM REFRIGERANT		RATING		Suction Temp		Ambient Temp		CAPACITY
208-230/3/60		R448A		4Hp		24.3 °F		95 °F		36190 BTUH
Fans			COMPRESSOR					CIRCUIT TOTAL		
QTY	Power	FLA/FAN	Type	QTY	RLA	LRA	AMPS	WATTS	MCA†	MOP‡
1	400 W	2.1	ZS29KAE-TF5	1	20.5	114	22.6		27.7	45
LIQUID		1/2 in	SOUND		REC CAPACITY			22 lb	APPROVALS:	cULus
SUCTION		1 1/8 in	WEIGHT	420 lb	REF CHARGE			9 lb		

Notes : † MCA.. Minimum Circuit Ampacity, ‡ MOP.. Maximum Overcurrent Protection

MCA & MOP are for the condensing unit ONLY. Single point connections WILL show different on dataplate.

AWEF = 7.6 for R404A/R507/R407A/R448A/R449A/R407C. Non-compliant DOE NRCAN model for all other refrigerants

APPROVED BY :

DATE :

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NATIONAL REFRIGERATION AND  
AIR CONDITIONING CANADA CORP.  
159 ROY BLVD. PO BOX 2020  
BRANTFORD ON  
CANADA N3T 5Y6

KLP317MA-S2D

Low Profile  
Evaporator

PURCHASER:

SUBMITTED BY: Michal Lesniowski

PROJECT NAME :: Wanderback Brewery

DATE: Friday, January 24, 2025

PROJECT #: Q24AXMLA

ITEM #: 003

QTY: 2

QUOTE #: Q24AXMLA-A

ID #:

PURCHASER'S PO # :

TAGGING:

#### STANDARD FEATURES

- 3/8" Tubing coil construction (reduces refrigerant operating charge)
- Factory installed solenoid valve wire harness
- Heavy gauge textured aluminum cabinet construction resists scratches/corrosion
- Spacious piping end compartment allows for easy connection (3/4" drain)
- Front access to spacious electrical and header compartments
- Schrader connection on suction header
- Attractive and durable high density polyethylene fan guards
- Ultra efficient Electronically Commutated Motor (ECM)
- ECM with SmartSpeed Technology
- High efficiency enhanced copper tube and aluminium fin coil design
- 6 FPI
- AWEF = 9.0
- Unit Cooler is DOE/NRCAN compliant with R404A/R507/R448A/R449A/R407A/R407C assembly

#### MODEL OPTIONS

##### PRE-ASSEMBLED EVAP

- ☒ 1 ESP+ Electronic Package  
☐ Sporlan TXV, LLSV, T-stat  
☐ Copeland TXV, LLSV, T-stat  
☐ EEV Kit - Sporlan EEV + Kelvin II  
☐ KE2 Evap Efficiency w/Sporlan TXV (Factory Installed)  
☐ KE2 Evap Efficiency w/Sporlan EEV (Factory Installed)  
☐ KE2 Evap Efficiency w/Sporlan TXV (Shipped Loose)  
☐ KE2 Evap Efficiency w/Sporlan EEV (Shipped Loose)  
☐ KE2 Evap Efficiency w/KE2 EEV (Factory Installed)  
☐ KE2 Evap Efficiency w/KE2 EEV (Shipped Loose)  
☐ 115V Control Circuit  
☐ Aux Sideport Connector  
**CABINET FINISH**  
☐ Painted White  
☐ Painted Black  
☐ Stainless Steel  
**SENSORS FOR CPC BOARDS**  
☐ Coil Temp Sensor  
☐ Return Air Temp Sensor  
☐ Suction Pressure Transducer  
**DEMAND DEFROST ELECTRONIC CONTROLLER**  
☐ KE2 Therm Evaporator Efficiency (Factory Installed)  
☐ KE2 Therm Evaporator Efficiency (Shipped Loose)  
☐ Dual Circuit

##### ELECTRONIC CONTROLLER

- ☒ 1 ESP+ Control Board and Display (Factory Installed)  
☐ KE2 Temp+Defrost (Factory Installed)  
☐ KE2 Temp+Defrost (Shipped Loose)  
**EXPANSION VALVE**  
☐ Sporlan TXV  
☐ Copeland TXV  
☐ Sporlan EEV  
☐ Copeland EEV  
☒ 1 EEV for ESP+  
**SENSOR + TRANSDUCER FOR EEV**  
☐ for use with Copeland EEV  
☐ for use with KE2 Therm EEV  
☐ Other Brand - Specify in Notes  
**ELECTRONIC SH CONTROLLER FOR EEV**  
☐ Sporlan Kelvin II EEV Controller (Shipped Loose)  
☐ Copeland EEV Controller (Shipped Loose)  
☐ Other EEV Controller- Specify MFR Model in Notes (Shipped Loose)  
☐ Evaporator Disconnect Switch  
**EVAPORATOR PRISON PACKAGE**  
☐ Tamper Proof Screws  
☐ Export Crating  
**COIL COATING**  
☐ Heresite Coating  
☐ E-Coat  
**FIN MATERIAL**  
☐ Gold Coat Fins  
☐ Copper Fins  
☐ Insulated Drain Pan

##### KE2 THERM

- ☐ CAT5e Shielded Cable - 50ft w/connectors (Shipped Loose)  
☐ Temp Sensors for Shipped Loose Controller  
☐ Ethernet Adapter Kit  
☐ Remote Combo Display (Shipped Loose)  
**LIQUID / SUCTION HEAT EXCHANGER**  
☐ (Shipped Loose)  
**LIQUID LINE SOLENOID VALVE**  
☒ 1 Sporlan (Factory Installed)  
☐ Copeland (Factory Installed)  
☐ By Others Field Supplied  
☐ Dual Voltage Coil 120-230V Field Wired  
☐ Nitrogen Charged and Sealed  
**ROOM THERMOSTATS**  
☐ Johnson: A421ABD-412D (Shipped Loose)  
☐ Johnson A421ABD-412D (Factory Installed)  
☐ Ranco ETC-111000 (Factory Installed)  
☐ Ranco ETC-111000 (Shipped Loose)  
☐ Wire Fan Guards  
**REMOTE DEFROST PANEL**  
☐ 230V Control (Shipped Loose)  
☐ 115V Control (Shipped Loose)  
**CRN REGISTRATION**  
☐ For Evaporators  
**USED WITH MECHANICAL SUBCOOLER**  
☐ Circuit for sub-cooled Liquid - note temperature

Notes : † MCA.. Minimum Circuit Ampacity, ‡ MOP.. Maximum Overcurrent Protection

APPROVALS



APPROVED BY :

DATE :

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NATIONAL REFRIGERATION AND  
AIR CONDITIONING CANADA CORP.  
159 ROY BLVD. PO BOX 2020  
BRANTFORD ON  
CANADA N3T 5Y6

KLP317MA-S2D

Low Profile  
Evaporator

PURCHASER:

SUBMITTED BY: Michal Lesniowski

PROJECT NAME :: Wanderback Brewery

DATE: Friday, January 24, 2025

PROJECT #: Q24AXMLA

ITEM #: 003

QTY: 2

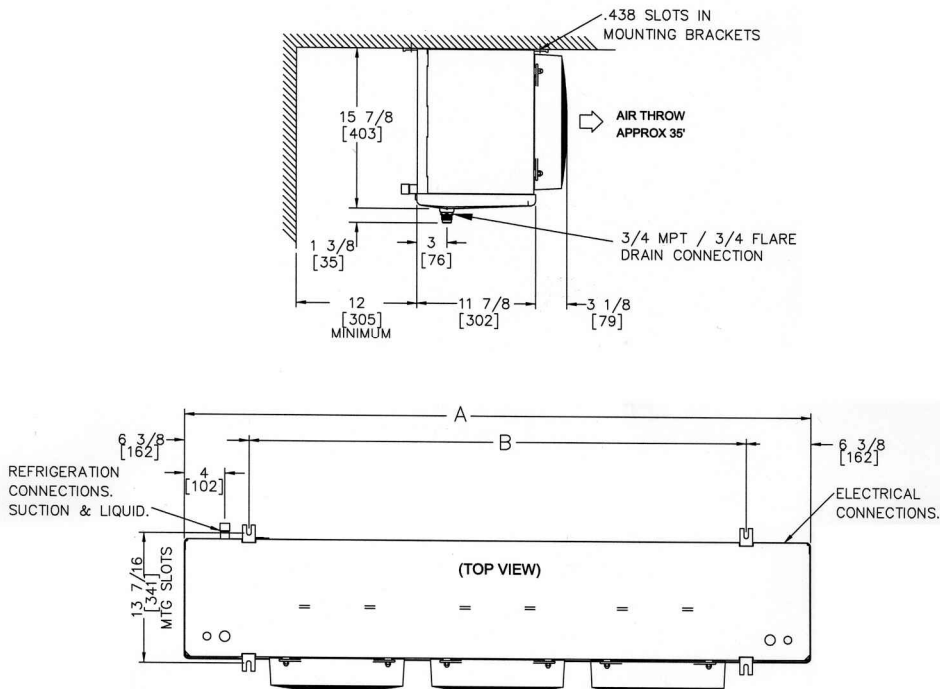
QUOTE #: Q24AXMLA-A

ID #:

PURCHASER'S PO # :

TAGGING:

Dimensions shown are for standard unit less options.



DIMENSIONS				FIELD CONNECTIONS				OTHER			
DIMENSION A	62 1/4 in	DIMENSION E		LIQUID	3/8 in	PAN LOOP		SHIPPING WEIGHT		101 lb	
DIMENSION B	49 1/4 in	DIMENSION F		SUCTION	7/8 in	HOT GAS SIDE PORT		REFRIGERANT CHARGE		3 lb	
DIMENSION C		DIMENSION G		DRAIN	3/4 in	HOT GAS INLET		RECEIVER CAPACITY			
DIMENSION D		DIMENSION H		WATER		HOT GAS OUTLET		AWEF COMPLIANT		YES	
				DISCHARGE							
Voltage		SYSTEM REFRIGERANT			AIR FLOW		Evap Temp		Box Temperature		CAPACITY
208-230/1/60		R448A			2115 CFM		24.8 °F		38 °F		22655 BTUH
Fans				HEATERS			CIRCUIT TOTAL				
QTY	Power	FLA/FAN		Type	QTY	AMPS	AMPS	WATTS	MCA†	MOP‡	
3	0.07 HP	0.6					1.8	180	2	15	
DISTRIBUTOR		3/8 in	SOUND		57	REC CAPACITY			APPROVALS:	cULus	NSF
SUCTION		7/8 in	WEIGHT		101 lb	REF CHARGE		3 lb			

Notes : † MCA.. Minimum Circuit Ampacity, ‡ MOP.. Maximum Overcurrent Protection

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