

PROJECT MANUAL

WIND BUFFALO RESTAURANT

**7566 TRANSIT ROAD
AMHERST, NY**

APRIL 3, 2020

SA PROJECT NO. 15108.03

ARCHITECT

**SILVESTRI ARCHITECTS, PC
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AMHERST, NY 14421**

INTERIOR DESIGNER

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MEPFP ENGINEER

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SUPPLEMENTARY GENERAL CONDITIONS

1. **PROTECTION OF PERSONS AND PROPERTY**

(Amend Article 10 of the General Conditions by the addition of the following):

All items of work required for the protection of public, workmen, site and construction operation as required by the General Conditions and/or laws or regulations shall be completed before the work is started on the project.

2. **EXECUTION, CORRELATION, INTENT OF DOCUMENTS**

Make no changes from Contract Documents without first receiving written permission from the Architect. Where detailed information is lacking, before proceeding with work, refer matter to Architect for information.

If work is required in manner to make it impossible to produce first class work, or should discrepancies appear among Contract Documents, request interpretation before proceeding with work. If Contractor fails to make such request, no excuse will thereafter be entertained for failure to carry out work in satisfactory manner. Should conflict occur in or between drawings and specifications, Contractor is deemed to have estimated on more expensive way of doing Work unless he shall have asked for and obtained written decision before submission of proposal as to which method or materials will be required.

Omissions from the drawings or specification, or the misdescription of details for work which are manifestly necessary to carry out the intent of the drawings and specifications, or which are customarily performed, shall not relieve the Contractor from performing such omitted or misdescribed details of the work; but they shall be performed to complete the work as it is intended, without any gaps between the various subdivision of work or between the work of the Contractor and all subcontractors, as if fully and correctly set forth and described in the drawings and specifications.

3. **SUBCONTRACTORS**

(Amend Article 5.2-1 of the General Conditions by the addition of the following):

Within 10 days after awarding of the contracts, the prime Contractors shall submit a list of suppliers and/or Subcontractors he or she proposes to employ in the construction of the project for approval to the architect.

4. **SUBSTANTIAL COMPLETION**

(Amend Article 9.8 of the General Conditions by the addition of the following):

Substantial completion is defined as the point of time when the owner is able to use the facility in its entirety.

5. PROGRESS PAYMENTS

(Amend Article 9.6 of the General Conditions by the addition of the following):

Payments will be made on the basis of progress and will be made once a month. Application for Payment Form shall be submitted in triplicate on AIA Standard Form Document G702 by the thirtieth of each month for payment by the thirtieth of the following month.

Progress payments shall be made upon monthly requisitions from the contractor in the amount of ninety per cent, (90%), of the contract sum allocated to labor and materials and equipment stored on or off site for that monthly period.

6. CONTRACT

The Form of Agreement Between the Construction Manager and Sub Contractor, (Stipulated Sum), AIA Document A401, Standard Form of the American Institute of Architects, 1987 edition, pages 1 through 4, shall be used as the contract and shall form a part of these bidding documents.

This document is kept on file in the architect's office and may be examined upon request by any of the bidders.

END OF SECTION

SECTION 01010 - SUMMARY OF WORK

1.0 GENERAL

- A. This project will include renovations to an existing 6,375 SF one story building formerly utilized as a restaurant, to accommodate Wind Buffalo Restaurant.

1.1 CONTRACTS

- A. This is a Multiple Contract project to be determined by the Construction Manager including:
 - 1. General Construction
 - 2. HVAC
 - 3. Sitework
 - 4. Plumbing
 - 5. Fire Protection
 - 6. Electrical
 - 7. The Construction Manager will be responsible for the construction of the entire project.
 - 8. The Construction Manager as prime Contractor is responsible for coordination between himself and all his subContractors.
 - 9. All Contractors, prime or sub are directed to cooperate and coordinate their work with each other, and the lack of such will not be an acceptable excuse for delays.
 - 10. Any conflicts between the Construction Manager and/or subContractors which will cause delay in construction, must be brought to the attention of the Construction Manager, in writing, within twenty-four (24) hours.
- B. All contracts shall include the General Conditions, and Supplementary Conditions, and General Requirements.
- C. Extent of Operation - The Contractors shall provide all items, articles, materials, operation or methods listed, indicated, mentioned, or scheduled on the drawings and/or in the specifications, including all labor, materials, equipment and incidentals, necessary and required for their completion and installation in the project.

1.2 EXAMINATION OF SITE, DOCUMENTS, ETC.

- A. Each bidder shall visit the site of the proposed work and fully acquaint himself with the conditions as they exist so that he may fully understand the facilities, difficulties, and restrictions attending the execution of the work under the Contract. Bidders shall also thoroughly examine and be familiar with the drawings and the specifications. The failure or omission of any Bidder to receive or examine any form, instrument, or document, or to visit the site or acquaint himself with conditions there existing shall in no way relieve the Bidder from any obligation with respect to his Bid.

1.3 PERMITS

- A. The prime Contractors are responsible for obtaining and paying for all necessary permits as required by laws and ordinances, for work required to construct the project.

1.4 REFERENCES

WIND BUFFALO RESTAURANT

SUMMARY OF WORK

- A. References to known standard specifications shall mean and intend latest edition of such specifications adopted and published at date of invitation to submit proposals.
- B. Reference to technical society, or organization or bodies is made in the specifications in accordance with the following abbreviations:

| | |
|-------|--|
| AIA | American Institute of Architects |
| ACI | American Concrete Institute |
| AISC | American Institute of Steel Construction |
| ASTM | American Society for Testing Materials |
| AWSC | American Welding Society Code |
| FS | Federal Specification |
| NBFU | National Board of Fire Underwriters |
| NBS | National Bureau of Standards |
| UL | Underwriters' Laboratories, Inc. |
| ASA | American Standard Association |
| SJI | Steel Joist Institute |
| AASHO | American Association of State Highway Official |
| CSI | Construction Specifications Institute |

1.5 CONSTRUCTION ASSOCIATION, CODES AND SPECIFICATIONS (option to substitute or add to references)

| | |
|--------|---|
| AA | Aluminum Association |
| AAMA | Architectural Aluminum Manufacturer's Association |
| AASHTO | American Association of State Highway and Transportation Officials |
| ACI | American Concrete Institute |
| AISC | American Institute of Steel Construction |
| AISI | American Iron and Steel Institute |
| ANSI | American National standard Institute |
| APA | American Plywood Association |
| ASHRAE | American Society of Heating, Refrigeration and Air-Conditioning Engineers |
| ASME | American Society of Mechanical Engineers |
| ASTM | American Society for Testing and Materials |
| AWI | American Woodwork Institute |
| AWPI | American Wood Preservers Institute |
| AWS | American Welding Society |
| BIA | Brick Institute of America |
| CRCI | Concrete Reinforcing Steel Institute |
| CS | Commercial Standards |
| FGMA | Flat Glass Marketing Association |
| FM | Factory Mutual System |
| IEEE | Institute of Electrical and Electronic Engineers |
| NBS | National Bureau of Standards |
| NEC | National Electric Code |
| NEMA | National Electrical Manufacturer's Association |
| NFPA | National Fire Protection Association |
| PCI | Precast Concrete Institute |
| PEI | Porcelain Enamel Institute |
| SAMA | Scientific Apparatus Makers Association |
| SDI | Steel Deck Institute |
| SMACNA | Sheet Metal and Air-Conditioning Contractor's National Association |

WIND BUFFALO RESTAURANT

SUMMARY OF WORK

SSPC Structural Steel Painting Council
UL Underwriter's Laboratories

1.6 ITEMS PROVIDED BY THIS CONTRACTOR

The Construction Manager shall provide and maintain all temporary facilities, such as water, electrical services, telephone and toilets. The Construction Manager is also to provide a temporary field office.

- A. Toilet facilities shall be provided and maintained by the Construction Manager.
- B. Temporary field office shall be provided and maintained by the Construction Manager.
- C. Telephones for the Contractors, workmen and Owners use for business purposes shall be provided by the Construction Manager - provide two (2) push-button phones with locks. Telephones must be capable of receiving incoming call and making outgoing local calls.
- D. Water is not available at the site and will be provided by the Construction Manager.
- D. Temporary Electrical Service shall be provided by the Construction Manager.
- E. Staging Area: To be determined by the Construction Manager.

1.7 STORAGE AND PARKING AREAS

- A. The Construction Manager shall provide and maintain a temporary area at the site suitable for vehicular parking and for the stockpiling and storage of equipment and materials. These facilities shall be for the use of personnel for all trades of the project.
- B. The Construction Manager shall keep such area free of debris, obstructions, standing water and provide necessary barricades.

1.8 GUARANTEES

- A. Whenever within one year of beneficial occupancy any of the prime Contractors is notified in writing by either the Architect or the Owner, that any item of equipment, material and/or workmanship has proved defective or is not in any way meeting the specification requirements, he shall immediately replace, repair or otherwise correct the defect or deficiency without cost to the Owner.
- B. The General Contractor's liability for defects in materials and labor shall not be limited to less than the legal limit of liability in accordance with the laws of the State of New York.
- C. The Contractor shall submit all guarantees, warranties, bonds and operating manuals to the Construction Manager and Architect prior to receipt of final payment, for all work, materials and equipment provided under their contract.

1.9 AVAILABILITY OF MATERIALS

- A. The Contractor shall review the availability of the materials specified and/or shown on drawings and must notify the Construction Manager or Architect of any materials that will cause any delays in the construction of the project.

- B. The delivery times, plus a list of alternate materials proposed, including additions or deductions in cost must be submitted in writing to the Construction Manager or Architect for his review within two weeks after the award of the contract.
- C. All materials must be provided as specified unless approved equal by the Architect.

1.10 PROTECTION OF MATERIALS

- A. The prime Contractor shall bear the sole responsibility for the care and protection of his respective materials and work installed in the building, and materials stored on the site for which payment has been made, and for the restoration of damaged or stolen materials, at no additional cost to the Owner.

1.11 REQUIRED INSURANCE

- A. Before commencing the work, the Construction Manager shall furnish to the Owner a certificate or certificates of insurance in form satisfactory to the Owner, showing that he has complied with the general conditions.
- B. The kinds and amounts of insurance are as follows:
 - 1. Workmens' Compensation Insurance a policy covering the obligations of the Contractor in accordance with the provisions of Chapter 41 as amended of the Workmens Compensation Law, covering all operations under the contract, whether performed by him or by his subContractors.
 - 2. Liability and Property Damage Insurance limits of not less than:

- \$ 500,000.00 Each Person
 - \$1,000,000.00 Each Accident
 - \$1,000,000.00 Aggregate

for all damages arising during the policy period, shall be furnished in the following types.

- a. Contractor's Liability Insurance: issued to and covering the liability for damage imposed by law upon each subContractor with respect to all work performed by said subContractor under the contract.
- b. Contractor Protective Liability Insurance: issued to and covering the liability for damages imposed by law upon the Contractor with respect to all work under the contract performed for the Contractor by subContractors.
- c. Protective Liability Insurance: issued to and covering the liability for damages imposed by law upon the Owner.
- d. Completed Operations Liability Insurance: issued to and covering the liability for damages imposed by law upon the Contractor between the date of final cessation of work and the date of final acceptance thereof.
- e. Automobile Liability Insurance: covering all vehicles owned and hired in the amount of \$500,000.00/\$1,000,000.00 bodily injury and \$1,000,000.00 property damage.
- f. All Risk-Builders Risk Insurance provided in the amount equal to the total amount of the Bid.

1.12 NON-ASSIGNABILITY OF CONTRACT

- A. Each Contractor is hereby prohibited from assigning, transferring, conveying, subletting or otherwise disposing of this contract, or of his right, title or interest therein, or his power to execute such contract to any other person, company, or corporation, without previous consent in writing of the Owner. If the Contractor shall, without previous written consent herein provided for, assign, transfer, convey, sublet, or otherwise dispose of same, or his right, title, or interest therein, or his power to execute such contract to any other person, company or other corporation, the Owner shall revoke and annul said contract, and the Owner shall thereupon be relieved and discharged from any and all liability and obligations, growing out of this contract to the Contractor and the person, company or other corporation to whom he shall assign, transfer, convey, sublet or otherwise dispose of same, and the Contractor and his assignees, transferees or sublessees, shall forfeit and lose all money theretofore earned under said contract, except so much as may be required to pay his employees; provided that nothing herein contained shall be construed to hinder, prevent, or affect an assignment by the Contractor for the benefit of his creditors made pursuant to the statutes of the State of New York.

1.13 LAYOUT OF THE WORK

- A. The prime Contractor shall verify all lines, levels and dimensions as shown on the drawings and he shall report any errors or inconsistencies to the Architect before commencing work.

1.14 INQUIRIES

- A. The Owner will not be responsible for any explanations or interpretations of the Construction Documents. All inquiries are to be directed to the office of **SILVESTRI ARCHITECTS PC**.

1.15 COMPLIANCE WITH FEDERAL, STATE AND MUNICIPAL ORDINANCES

- A. Each and every provision of law and clause required by law to be inserted in this contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included therein, and if through omission or otherwise any such provision is not inserted, or it is not correctly inserted, it shall be physically amended to make such insertion.
- B. These construction documents, and the joint and several phases of construction hereby contemplated are to be governed, at all time, by applicable provisions of the Federal law(s), including, but not limited to those statutes referred to elsewhere in this contract and the latest amendments thereto.

1.16 RESPONSIBILITY FOR DAMAGE

- A. The Subcontractors shall be responsible for all damages to life and property due to his operations. He shall be responsible for all parts of his work, both temporary and permanent, until the work under this contract is accepted by the Owner.
- B. He shall protect, indemnify, save harmless and defend the Owner from suits, actions, damages and costs of every name and description, resulting from the work under this contract, and the Owner may retain sufficient monies from the amount due or to become due the Subcontractor as may be necessary to satisfy any claim or damages filed against the Owner.

- C. He shall be responsible for damages to work of other Subcontractors which are the result of his operations. Should the Subcontractor believe that the work shown by the drawings or specifications is not calculated when executed to procure safe and substantial results, or if any discrepancy appears, it is his duty to immediately notify the Architect and the Construction Manager in writing, stop work on same and await the written instructions of the Architect.

1.17 DEFECTIVE WORK AND MATERIALS

- A. Any material or work found on inspection to be defective or not in strict conformance with requirements of drawings and specifications, or defaced or damaged through the acts of fire or elements or any other cause shall be removed immediately from the premises and satisfactory materials or work or both, substituted therefore without delay.
- B. If the Subcontractor does not remove such work or materials condemned by the Construction Manager or Architect within the time limit fixed by written notice, the Owner may cause the same to be done and may store all materials at the expense of the Subcontractor. If the Subcontractor does not pay the expense of such removal within ten (10) days written notice, sell such materials at auction, or at a private sale and shall account for the net proceeds thereof, after deducting all costs and expenses that should have been borne by the Subcontractor.
- C. No previous inspection or certificates of payment shall be held as an acceptance of defective work or materials, or to relieve the Subcontractor from the obligations to furnish sound materials and perform satisfactory work in accordance with contract requirements.

1.18 SHOP DRAWINGS

- 1. The prime Contractors shall provide the Architect with **THREE (3) PRINTS AND ONE (1) REPRODUCIBLE OR ONE (1) ELECTRONIC COPY** of all necessary shop drawings and information as may be required for the execution of the work. The manufacture or fabrication of any material or the performance of any work prior to approval of shop drawings will be entirely at the risk of the Contractor.
 - A. The Construction Manager shall submit to the Architect with such promptness as to cause no delay in his work or in that of any other Contractors employed on this work, copies of all shop or setting drawings required for the proper execution of the work herein specified.
 - B. Each shipment of drawings must be accompanied by a letter of transmittal, giving name of Subcontractor, list of drawings included, with each drawing marked with the name and location of project and each series of drawings numbered consecutively.
 - C. All shop drawings and samples be thoroughly checked by the Construction Manager for compliance with the Contract Documents before submitting them to the Architect for approval and all shop drawings shall bear the Construction Manager's stamp of approval certifying that they have so been checked. Any shop drawings submitted without this stamp of approval and certification, and shop drawings which, in the Architect's opinion, are incomplete contain numerous errors or have not been checked or only checked superficially will be returned unchecked by the Architect for resubmission by the Construction Manager. In checking shop drawings, the Construction Manager shall verify all dimensions and field conditions and shall check and coordinate the shop drawings of any section or trade with the

requirements of all other sections or trades whose work is related thereto, as required for proper and complete installation of the work.

- D. Shop drawings shall be submitted in the order and time required for construction. Shop drawings submitted ahead of time required for construction will be held by the Architect for checking in the order as above set forth.
- E. Under no condition will any claim for delay in the completion of contracts due to shop drawings being held by the Architect for the necessary and proper time for checking be recognized.
- F. If it is found necessary to make changes in shop drawings, one electronic file will be returned to the Construction Manager, who, after making correction indicated, shall furnish, without charge, a revised electronic copy. The Construction Manager shall continue to furnish drawings as above mentioned until all drawings are satisfactory to the Architect, who, however, will not be responsible for their accuracy.
- G. If, during the checking and return of checked prints, the Construction Manager makes any additional changes or corrections on the original shop drawings, he shall call attention to each marking on the prints by a letter written to the Architect.
- H. It is understood that the approval (NO EXCEPTION TAKEN) of any shop drawings by the Architect in no way relieves the Subcontractor from assuming the responsibility for the accuracy of same, nor does it relieve the Subcontractor from any of the required conditions as set forth in these specifications or accompanying drawings.
- I. Shop Drawings without the approved stamp of the Architect will not be permitted on the premises. Actual fabrication of the work will not proceed until these shop drawings have received the approved stamp of the Architect.
- J. Shop Drawings shall consist of, but not be limited to, fabrication, erection and setting drawings, schedule drawings, manufacturer's scale drawings, wiring and control diagrams, cuts or entire catalogs, pamphlets, descriptive literature and performance and test data. Prior to submission of shop drawings on mechanical and electrical work, the Contractor shall submit lists of such equipment as required, for approval. Where practical, drawings shall be submitted in the form of a reproducible print, along with one set of white prints.
- K. Reproductions of Contract Documents for use as shop drawings for materials specified and/or shown, WILL NOT be permitted.

1.19 RECORD DRAWINGS

- A. As Built Drawings
 - 1. All subcontracts shall have prepared and submit at the completion of the project "As Built" drawings for their work as follows:
 - a. One (1) set of mylar reproducibles.
 - b. One (1) set of white prints.
 - 2. The above will be at the Subcontractors expense.
- B. Record Drawings

1. Maintain a white-print set (blue-line or black line) of Contract Drawings and shop drawings in clean, undamaged condition, with mark-up of actual installations which vary substantially from the work as originally shown. Mark whichever drawing is most capable of showing "field" condition fully and accurately; however, where shop drawings are used for mark-up, record a cross-reference at corresponding location on other colors to distinguish between variations in separate categories of work. Mark-up new information which is recognized to be of importance to Owner, but was for some reason not shown on either Contract Drawings or shop drawings. Give particular attention to concealed work, which would be difficult to measure and record at a later date. Note related change-order numbers where applicable. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on cover of each set.

C. Maintenance Manuals

1. Organize maintenance and operating manual information into suitable sets of manageable size, and bind into individual binders properly identified and indexed (thumb-tabbed). Include emergency instructions, spare parts listing, copies of warranties, wiring diagrams, recommended "turn-around" cycles, inspection procedures, shop drawings, product data, and similar applicable information. Bind each manual of each set in a heavy-duty 2", 3-ring vinyl-covered binder, and include pocket folders for folded sheet information. Mark identification on both front and spine of each binder.

1.20 SUBSTANTIAL COMPLETION AND DATE OF COMPLETION

- A. A contract shall be deemed to be "substantially complete" when all work has been satisfactorily completed except for "punch list" items and those of a minor nature which may be, at the present time, beyond the Contractor's control, or delayed in completion with the concurrence of the Owner or Architect.
- B. Final certificate will be issued when punch list items of final inspection are complete, with the exception of items that cannot be completed at once through no fault of the Contractor, or when certain pieces of punch list work are held up at Owner's or Architects request. If such items are, in the opinion of the Architect, substantial in nature, an amount sufficient to cover the reasonable cost of their correction as determined by the Architect, may be withheld from payment due under the final certificate until they have been corrected and subsequently approved by the Architect.

1.21 FINAL CERTIFICATE OF OCCUPANCY

- A. The Construction Manager, prior to and before turning the building over to the Owner, shall apply for, and obtain a Certificate of Occupancy.
- B. All required inspections for Certification of Occupancy by governmental agency shall be the responsibility of the Construction Manager.

1.22 RIGHT OF OCCUPANCY

- A. The Owner shall have the right to take possession of any portion of the project after the Certificate of Substantial Completion and Certificate of Occupancy by the local building

officials have been issued.

1.23 CLEAN-UP

- A. Periodic Cleaning - The Subcontractor shall at all times, during construction, keep the site free from the accumulation of waste materials and rubbish, resulting from their respective work. Removal of waste materials and rubbish must be done at least once a week.
- B. Final Clean-Up
 - 1. Upon completion of the project the Subcontractors shall clean the interior and exterior of the building, so all areas are ready for occupancy by the Owner without need for further cleaning.
 - 2. Provide final cleaning of the work, at time indicated, consisting of cleaning each surface or unit of work to normal "clean" condition expected for a first-class building cleaning and maintenance program. Comply with manufacturer's instruction for cleaning operations. The following are examples, but not by way of limitation, of cleaning levels required:
 - a. Remove labels which are not required as permanent labels.
 - b. Clean transparent materials, including mirrors and window/door glass, to a polished condition, removing substances which are noticeable as vision-obscuring materials. Replace broken glass and damaged transparent materials.
 - c. Clean exposed exterior and interior hard-surfaced finished, to a dirt-free condition, free of dust, stains, films and similar noticeable distracting substances. Except as otherwise indicated, avoid disturbance of natural weathering of exterior surfaces. Restore reflective surfaces to original reflective condition.
 - d. Wipe surfaces of mechanical and electrical equipment clean.
 - e. Remove debris and surface dust from limited-access spaces.
 - f. Vacuum clean carpeted surfaces and similar soft surfaces.
 - g. Clean plumbing fixtures to a sanitary condition, free of stains including those resulting from water exposure.
 - 3. Clean kitchen equipment to a condition of sanitation ready and acceptable for intended food service use.
 - a. Clean light fixtures and lamps so as to function with full efficiency.
 - b. Clean project site (yard and grounds), including landscape development areas, of litter and foreign substances. Sweep paved areas to a broom-clean condition; remove stains, petrochemical spills and other foreign deposits. Rake grounds which are neither planted nor paved, to a smooth, even textured surface.
- C. Damaged Work - Any damages to building materials, finishes or equipment, shall be repaired or replaced by the Subcontractor to the satisfaction of the Architect without cost to the Owner.

1.24 UNLOADING AT SITE

- A. Materials shall be unloaded at the site at the expense of the Contractor furnishing such materials, unless otherwise specified.

1.25 OBLIGATION OF CONTRACTOR

- A. At the time of awarding contracts, each Contractor will be presumed to have inspected the site and to have read and to be thoroughly familiar with the Plans and Contract Documents (including all addenda). The failure or omission of any Contractor to receive or examine any form, instrument or document shall in no way relieve any Contractor from any obligation in respect of his contract.

1.26 ACCEPTANCE OF PRECEDING WORK

- A. Before starting any operation, the Prime Contractors shall examine work performed by others to which their work adjoins or is applied and shall report to the Architect any conditions that will prevent satisfactory accomplishment of their contract. Failure to notify the Architect in writing of deficiencies or fault in preceding work will constitute acceptance thereof and waive any claim of unsuitability.

END OF SECTION

SECTION 01045 - CUTTING AND PATCHING

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Cutting and patching covers adjustment to, and necessary reworking of, elements of construction. The following definitions for cutting and patching apply to this Contract.
 - 1. Cutting: Physical modification of construction work existing or removal of installed materials.
 - 2. Patching: Restoration or replacement and installation of construction material, including finishing and patching.
- B. Execute cutting (including excavating), fitting or patching of work, required to:
 - 1. Make several parts fit properly.
 - 2. Uncover work to provide for installation of ill-timed work.
 - 3. Remove and correct defective work.
 - 4. Remove and correct work not conforming to requirements of Contract Documents.
 - 5. Remove samples of installed work as specified for testing.
- C. Coordination
 - 1. Coordinate the installation for Work to avoid cutting and patching in new construction.
- D. In addition to contract requirements, upon written instructions of Architect/Engineer:
 - 1. Uncover work to provide for Architect/Engineer's observation of covered work.
 - 2. Remove samples of installed materials for testing.
 - 3. Remove work to provide for alterations of existing work.
- E. Do not endanger work by cutting or altering work or any part of it.

1.02 SUBMITTALS

- A. Prior cutting which affects structural safety of project, submit written notice to Architect/Engineer requesting consent to proceed with cutting, including:
 - 1. Identification of project.
 - 2. Description of affected work.
 - 3. Necessity for cutting.

4. Affect on other work, on structural integrity of project.
 5. Description of proposed work. Designate:
 - a. Scope of cutting and patching.
 - b. Contractor and trades to execute work.
 - c. Products proposed to be used.
 - d. Extent of refinishing.
 6. Alternatives to cutting and patching.
- B. Should conditions of work, or schedule, indicate change of materials or methods, submit written recommendation to Architect/Engineer, including:
1. Conditions indicating change.
 2. Recommendations for alternative materials or methods.
 3. Submittals as required for substitutions.
- C. Submit written notice to Architect/Engineer designating time work will be uncovered, to provide for observation.

1.03 CLOSEOUT SUBMITTALS

- A. Upon completion of the Work of this Section, Contractor shall submit to the Architect/Engineer, all required closeout documents.
- B. Contractor shall submit a marked-up set of drawings indicating any changes made during construction to the Architect/Engineer.
- C. Upon completion, submit to the Architect/Engineer, a Contractor's Affidavit of Payment of Debts and Claims, and Release of Liens.
- D. Refer to General Conditions for additional requirements.

PART 2 - PRODUCTS

2.01 MATERIALS FOR REPLACEMENT OF WORK REMOVED

- A. Comply with specifications for type of work to be done.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Inspect existing condition for work, including elements subject to movement or damage during removal of adjacent materials.
- B. After uncovering work, inspect conditions effecting installation of new products.

3.02 PREPARATION: PRIOR TO CUTTING

- A. Provide shoring, bracing and support as required to maintain structural integrity of project.

- B. Provide protection for materials on adjacent surfaces.
- C. Provide protection when work will be exposed to the elements.

3.03 PERFORMANCE

- A. Execute fitting and adjustment of products to provide finished installation to comply with specified tolerances and finishes.
- B. Restore work which has been cut or removed. Provide new products to complete work in accordance with requirements of Contract Documents.
- C. Refinish entire surfaces as necessary to provide an even finish:
 - 1. Continuous Surfaces: to nearest intersections.
 - 2. Assembly: entire refinishing.
- D. Fill and patch openings and holes in existing construction when bolts, piping, ducts, conduit and other penetrating items are removed.

END OF SECTION

SECTION 01300 - SUBMITTALS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Submit, to the Construction Manager for the Architect/Engineer's review, shop drawings, product data and samples required by the specification section.

1.02 SHOP DRAWINGS

- A. Original drawings, prepared by Contractor, Subcontractor, supplier or distributor, which illustrate some portion of the work showing fabrication, layout, setting or erection details.
 - 1. Identify details by reference to sheet and detail numbers shown on shop drawings.
 - 2. Sheet size, multiple for 8-1/2 by 11 inches, not to exceed size of contract drawings when unfolded.
 - 3. Reproduction for Submittals: Reproducible transparency with one opaque diazo print.
 - 4. Photographic reproductions of contract drawings will not be accepted as shop drawings and will be rejected.

1.03 PRODUCT DATA

- A. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts and other standard descriptive data.
 - 1. Modify product data to delete information which is not applicable to project.
 - 2. Supplement standard to provide additional information applicable to project.
 - 3. Clearly mark each copy to identify applicable materials, products or models.
 - 4. Show dimensions and clearances required.
 - 5. Show performance characteristics and capacities.
 - 6. Show wiring or piping diagrams and controls.

1.04 SAMPLES

- A. Physical examples to illustrate materials, equipment or workmanship, and to establish standards by which completed work is judged.
 - 1. Office samples to be of sufficient size and quantity to clearly illustrate:
 - a. Functional characteristics of product or material, with related parts and method of attachment.

- b. Full range of color samples.
- 2. Field Samples and Mock-Ups
 - a. Erect at project site at location acceptable to Construction Manager.
 - b. Construct samples or mock-up complete, including work of all trades required in finish work.

1.05 CONTRACTOR RESPONSIBILITIES

- A. Do not start, fabricate or install work requiring submittals until submittals meeting Contract Requirements have been returned to the Contractor.
- B. Review, approve, stamp and sign shop drawings, product data and samples prior to submission.
- C. Verify
 - 1. Field measurements.
 - 2. Field construction criteria.
 - 3. Catalog numbers and other data.
- D. Coordinate each submittal with requirements of Work and Contract Documents.
- E. Contractor's responsibility for errors and omissions in submittals is not relieved by Construction Manager's or Architect/Engineer's review of submittals.
- F. Contractor's responsibility for deviations in submittals from requirements of Contract Documents is not relieved by Construction Manager's or Architect/Engineer's review of submittals unless Architect/Engineer gives written acceptance of the specific deviations.
- G. Notify Construction Manager and Architect/Engineer in writing, at time of submission of deviations in submittals from requirements of Contract Documents.
- H. After Construction Manager and Architect/Engineer's review, Contractor is to distribute copies of submittals to parties requiring same for coordination of work.
- I. Make required copies for distribution of shop drawings and product data that have been stamped and signed by the Architect/Engineer.

1.06 SUBMISSION REQUIREMENTS

- A. Schedule submissions to allow 10 working days for review.
- B. Submit one reproducible transparency and one diazo print of shop drawings.
- C. Submit number of copies of product data that will be required for distribution plus two copies that will be retained by Construction Manager and Architect/Engineer.

- D. Submit number of samples specified in each technical section.
- E. Accompany submittal with transmittal letter, containing:
 - 1. Date.
 - 2. Construction Manager's project title and number.
 - 3. Architect/Engineer's project title and number.
 - 4. Contractor's name and address.
 - 5. Notification of deviations from Contract Documents.
 - 6. Additional pertinent data.
- F. Submittals shall include:
 - 1. Date and revision dates.
 - 2. Construction Manager's project title and number.
 - 3. Architect/Engineer's project title and number.
 - 4. The names of:
 - a. Architect/Engineer.
 - b. Contractor.
 - c. Subcontractor.
 - d. Supplier
 - 5. Identification of product.
 - 6. Relation to adjacent structure or materials.
 - 7. Field dimensions, clearly identified as such.
 - 8. Technical Specification section number.
 - 9. Applicable standards.
 - 10. Two blank spaces, 4 x 4 inches, for the Construction Manager's and Architect/Engineer stamp.
 - 11. Identification of deviations from Contract Documents.
 - 12. Contractor's stamp, initialed or signed, certifying to review of submittal, verification of field measurements and compliance with Contract Documents.
 - a. Submittals without Contractor's stamp will be returned without being reviewed.
- G. Shop Drawing Submittal Cover Sheet
 - 1. Attach submittal cover sheet, with all blanks filled in for each shop drawing, product data and sample.

1.07 RESUBMISSION REQUIREMENTS

- A. Shop Drawings
 - 1. Revise initial drawings as required and resubmit as specified for initial submittal.
 - 2. Indicate on drawings changes which have been made other than those requested by the Architect/Engineer.
- B. Product Data and Samples: Submit new data and samples as required for initial submittal.

1.08 CONTRACTOR'S DISTRIBUTION OF SUBMITTALS

- A. Distribute copies of shop drawings and product data which carry the Construction Manager and Architect/Engineer stamp to:
 - 1. Contractor's file.
 - 2. Job site file.
 - 3. Record Document file.
 - 4. Other Contractors, as required for coordination.
 - 5. Subcontractors, as required for coordination.
 - 6. Supplier.
 - 7. Fabricator.

- B. Distribute samples as directed by Architect/Engineer.

1.09 ARCHITECT/ENGINEER

- A. Review design concept of Project.

- B. Review of separate items does not constitute review of an assembly in which item functions.

- C. Stamp and initial or sign certifying to review of submittal.

- D. Explanation of Architect/Engineer's Stamp
 - 1. NO EXCEPTION TAKEN: No corrections, no marks.
 - 2. MAKE CORRECTIONS NOTED: Minor amount of corrections; all items can be fabricated at Contractor's risk without further correction; checking is complete and all corrections are obvious without ambiguity.
 - 3. REVISE AND RESUBMIT: Minor amount of corrections; noted items must not be fabricated without further correction; checking is not complete; details of items noted by checker are to be further clarified; items not noted to be corrected can be fabricated at Contractor's risk under this stamp.
 - 4. REJECTED: Drawings are rejected as not in accordance with the Contract, too many corrections, or other justifiable reason. The drawing must be corrected and resubmitted. No items are to be fabricated under this stamp.
 - 5. SUBMIT SPECIFIED ITEM: Item is not as specified. Submit named manufacturer.

- E. Return submittals to Construction Manager for distribution.

1.10 SUBMITTALS REQUIRED FOR REVIEW

- A. Contractor is responsible for reviewing each section to determine required submittals.

1.11 CLOSEOUT SUBMITTALS

- A. Upon completion of the Work of this Section, Contractor shall submit to the Construction Manager, all required closeout documents.

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SUBMITTALS

- B. Contractor shall submit a marked-up set of drawings indicating any changes made during construction to the Construction Manager.
- C. Upon completion, submit to the Construction Manager, a Contractor's Affidavit of Payment of Debts and Claims, and Release of Liens.
- D. Refer to General Conditions for additional requirements.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01650 - MISC. REMOVALS, ALTERATIONS AND REHABILITATION WORK

1.0 GENERAL

1.1 REMOVALS REQUIRED

- a. The existing work required to be removed shall be in general as indicated, but shall also include any and all other existing materials or work necessary to install the new work as shown and specified; to connect same with the existing work in an approved manner, leaving the work in finished, neat and substantial condition, matching all existing surfaces where new work abuts or joins existing work.
- b. Removals shall be conducted in a timely manner so as to facilitate construction.
- c. All material removed becomes the property of the Contractor unless otherwise indicated and shall be promptly removed from the site.
- d. Should any damage occur during the progress of the work to any buildings or fixtures, equipment or appurtenances therein, said damage must be properly repaired without extra cost.
- e. Removal shall be conducted in strict accordance with all laws, ordinances and codes having jurisdiction.
- f. During removal operations, provide dust partitions, etc. to protect adjacent areas and occupants from rising dirt and dust.

1.2 ALTERATIONS

- a. The Contractor shall make alterations to existing construction and finishes as required for the execution of the contract work. The Contractor shall do all cutting, patching, repairing, and refinishing so as to leave such construction and finishes complete and in a condition satisfactory to the Architect.
- b. Cutting, patching and repairing shall be neatly and carefully done, and new materials and methods shall match existing corresponding work unless otherwise shown or specified. Exposed patches and repairs shall be as inconspicuous as possible.
- c. Existing construction, finishes, equipment, etc., that are to remain and which are damaged or defaced by reason of work done under this contract shall be restored by the Contractor to a condition satisfactory to the Architect, or replaced with new, at no additional cost to the Owner.
- d. Existing surfaces and work shall be prepared as necessary to receive the new construction and finishes. Such preparatory work shall be as required by the conditions, and in each case shall be subject to approval by the Architect.
- e. Newly exposed work or surfaces which are presently concealed shall be made to match existing corresponding or adjoining new surfaces as directed, and the materials and methods to be employed shall be subject to approval by the Architect.

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MISC. REMOVALS, ALTERATIONS AND REHABILITATION WORK

- f. All new, altered, or restored work shall match existing corresponding work in material, construction, finish, etc., unless otherwise specified or required by the drawings.

1.3 VERIFICATION OF MEASUREMENTS

- a. Before ordering any material or doing any work, this Contractor shall verify all measurements at building and shall be responsible for the correctness of same. No extra charge or compensation will be allowed on account of difference between actual dimensions and the measurements indicated on the drawings, any difference which may be found shall be submitted to the Architect for consideration before proceeding with the work.

1.4 MAINTAINING TRAFFIC

- a. Do not close or obstruct streets, roads, drives or store material on sidewalks, passageways or right-of-ways. Maintain access to and from adjacent buildings.
- b. Conduct operations with minimum interference with roads, streets, driveways, sidewalks, etc.
- c. Provide, erect, and maintain lights, barriers, etc., as may be required to maintain traffic.

1.5 PROTECTION

- a. Protect adjacent property against damages which might occur from falling debris or other cause. Take Precautions to guard against movement or settlement of adjacent building. Provide and place bracing and shoring as required. If at any time safety of adjacent structures appear to be endangered, cease operations and notify the Architect. If additional shoring or bracing is required in the opinion of the Architect, it shall be furnished without additional cost.
- b. No materials or debris shall be burned on the premises.

1.6 DISPOSAL

- a. All debris shall be disposed of off-site in a legal manner.

1.7 SALVAGEABLE ITEMS

- a. The owner has the right to all salvageable items. Verify with owner all items to be removed and relocated per Owner's directions. All removed items not wanted by owner shall be disposed of off-site.

2.0 PRODUCTS

- a. Not Applicable.

3.0 EXECUTION

3.1 DEMOLITION PROCEDURE

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AND REHABILITATION WORK**

- a. Material and debris resulting from demolition shall be removed from the premises as rapidly as possible.

3.2 SHORING AND BRACING

- a. All work to remain shall be adequately shored and braced as required, to prevent damage or injury.

END OF SECTION

SECTION 01700 - PROJECT CLOSEOUT

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Related Requirements Specified Elsewhere
 - 1. Project Record Documents: Section 01720.
 - 2. Closeout Submittals Required of Trades: The respective sections of specifications.

1.02 SUBSTANTIAL COMPLETION

- A. Contractor
 - 1. Submit written notice to the Architect that Project, or designated portion of Project, is Substantially Complete.
 - 2. Submit list of major items to be completed or corrected.

1.03 INSPECTION

- A. Contractor shall submit written certification that:
 - 1. Contract Documents have been reviewed.
 - 2. Project is completed and is in compliance with Contract Documents.
 - 3. Equipment and systems have been tested in presence of Owner's Representative and are operational.
- B. General Contractor will make final inspection within seven days after receipt of certification.
- C. Should General Contractor consider that Work is finally complete in accordance with requirements of Contract Documents, he shall request Contractor to make Project Closeout submittals.

1.04 CLOSEOUT SUBMITTALS

- A. Upon completion of the Work of this Section, Contractor shall submit to the General Contractor, all required closeout documents.
- B. Contractor shall submit a marked-up set of drawings indicating any changes made during construction to the General Contractor.
- C. Upon completion, submit to the General Contractor, a Contractor's Affidavit of Payment of Debts and Claims, and Release of Liens.
- D. Refer to General Conditions for additional requirements.

1.05 INSTRUCTION OF OWNER'S REPRESENTATIVE

- A. Before final acceptance, thoroughly instruct a designated representative of the Owner in the proper operation of all systems and apparatus installed under this contract.

- B. The Contractor shall prepare and forward to the General Contractor at the completion of the job three brochures, each neatly bound, of the following items.
 - 1. Typed or printed instructions covering the care and operation of mechanical and electrical equipment furnished and installed under this Contract.
 - 2. Manufacturer's instruction books, diagrams, and spare parts lists covering all equipment.
 - 3. All approved shop drawings.
 - 4. Air and water systems balancing reports.
 - 5. Certificates of compliance and inspection.

- C. Each brochure shall be a hard cover, three-ring binder or binders.

1.06 EVIDENCE OF PAYMENTS AND RELEASE OF LIENS

- A. Contractor's Affidavit of Payment of Debts and Claims: AIA G706.

- B. Contractor's Affidavit of Release of Liens: AIA G706A, with:
 - 1. Consent of Surety to Final Payment: AIA G707.
 - 2. Separate written releases of waivers of liens for subcontractors, suppliers, and others with lien rights against property of Owner, together with list of those parties.
 - 3. Contractor's written release or waiver of lien upon payment to the Contractor pursuant to New York State Lien Law.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01720 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Related Requirements Specified Elsewhere
 - 1. Shop Drawings, Product Data and Samples: Section 01300.

1.02 MAINTENANCE OF DOCUMENTS

- A. Maintain, at job site, one copy of:
 - 1. Contract Drawings
 - 2. Project Manual
 - 3. Addenda
 - 4. Approved Shop Drawings, Product Data, and Samples
 - 5. Supplemental Instructions
 - 6. Other Modifications to Contract
 - 7. Field Test Records
 - 8. Correspondence File
- B. Store documents in approved locations, apart from documents used for construction.
- C. Provide files and racks for storage of documents.
- D. Maintain documents in clean, dry, legible conditions.
- E. Do not use record documents for construction purposes.
- F. Make documents available at all times for inspection by Construction Manager, Architect/Engineer, and Owner.
- G. File documents in accordance with Table of Contents of Project Manual.

1.03 MARKING DEVICES

- A. Provide felt marking pen for marking, conforming to following color code:
 - 1. Red for general construction work.
 - 2. Blue for plumbing work.
 - 3. Green for heating, ventilating work.
 - 4. Brown for electrical work.
 - 5. Black for other written notations.
 - 6. Orange for sitework.

1.04 RECORDING

- A. Label each document "PROJECT RECORD" in 2 inch high printed letters.

- B. Keep record documents current.
- C. Do not permanently conceal any work until required information has been recorded.
- D. Contract Drawings
 - 1. Legibly mark to record actual construction:
 - a. Depths of various elements of foundation in relation to the finish floor.
 - b. Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.
 - c. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
 - d. Field changes of dimension and detail.
 - e. Changes made by Supplemental Instructions or Change Order.
 - f. Details not on original Contract Drawings as directed by the Construction Manager.
- E. Specifications and Addenda
 - 1. Legibly mark-up each section to record:
 - a. Manufacturer, trade name, catalog number and supplier of each product and item of equipment actually installed.
 - b. Changes made by Supplemental Instructions or Change Order.
 - c. Other matters not originally specified.
- F. Shop Drawings, Product Data and Samples: Maintain as record documents. Legibly mark-up approved submittals to show changes made after review.

1.05 SUBMITTAL

- A. At completion of project or your portion of work, deliver record documents to Construction Manager.
- 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. Certification that each document as submitted is complete and accurate
 - 6. Signature of Contractor, or his authorized representative.

1.06 CLOSEOUT SUBMITTALS

- A. Upon completion of the Work of this Section, Contractor shall submit to the Construction Manager, all required closeout documents.
- B. Contractor shall submit a marked-up set of drawings indicating any changes made during construction to the Construction Manager.
- C. Upon completion, submit to the Construction Manager, a Contractor's Affidavit of Payment of Debts and Claims, and Release of Liens.
- D. Refer to General Conditions for additional requirements.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01730 - OPERATIONS AND MAINTENANCE DATA1.0 GENERAL

1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Shop Drawings, Product Data and Samples: Section 01300.
- B. Maintenance Manuals for mechanical and electrical work: Division 15 and 16.

1.2 DESCRIPTION

- A. Manuals: Purpose
 - 1. Operation and maintenance manuals will be used for training of, and use by, Owner's personnel in operation and maintenance of mechanical and electrical systems and equipment. A separate manual or chapter within a manual shall be prepared for each class of equipment or system.
 - 2. For additional requirements refer to various specification sections.
- B. Required: Manuals are required for all systems and equipment.
- C. Contents: Each manual or chapter shall include:
 - 1. Table of contents.
 - 2. Description of system or equipment.
 - 3. Operating sequence and procedures
 - 4. Safety instructions
 - 5. Maintenance instructions and requirements, including preventative and corrective maintenance.
 - 6. Spare parts list.
- D. Shop Drawings: Each manual shall be accompanied by shop drawings of the system or equipment as installed.
- E. Copies
 - 1. Submit three (3) copies of manuals to Architect for review.
 - 2. After Architect's review, he will submit two (2) copies of manuals to Owner for review and acceptance prior to final payment.
- F. Instructions of Owner's Personnel
 - 1. Fully instruct Owner's designated operating and maintenance personnel in operating, adjustments and maintenance of all mechanical and electrical systems and equipment as required by respective and pertinent sections, after all final inspection, tests and repairs have been completed.
 - 2. Operating and maintenance manuals shall constitute the basis of instructions. Contents of manual shall be reviewed in full detail, explaining all aspects of

operations and maintenance.

3. Prepare and include additional data when need for such data becomes apparent during instruction and training sessions.
4. Training sessions shall be jointly arranged with Owner during Contractor's normal week and daily hours. The Owner shall have the responsibility of scheduling its shift work personnel accordingly.
5. Owner and Contractor shall coordinate and cooperate to keep training sessions to a reasonable minimum.

1.3 INSTRUCTIONS FOR MAINTENANCE OF SURFACES

- A. Purpose: To instruct Owner's maintenance personnel in proper methods and materials to use in the proper care of all exposed surfaces.
- B. Content
 1. Recommended cleaning materials.
 2. Recommended preventative maintenance.
 3. Recommended methods and procedures.
- C. Copies
 1. Submit three (3) copies of Instructions for Maintenance to Architect for review.
 2. After Architect's review, he will submit two (2) copies of Instructions for Maintenance to Owner for review and acceptance prior to final payment.

2.0 PRODUCTS - NOT USED

3.0 EXECUTION - NOT USED

END OF SECTION

SECTION 01750 - WARRANTIES

1.0 GENERAL

1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

A. Operation and Maintenance Data: Section 01730

1.2 DESCRIPTION

A. Warranties shall include

1. One (1) year warranty as required by General Conditions.

2. Extended warranties required by various specification sections.

B. Submit warranties to Architect for his review.

C. After Architect's review, he will submit warranties to Owner for review and acceptance, prior to final payment.

2.0 PRODUCTS - NOT USED

3.0 EXECUTION - NOT USED

END OF SECTION

SECTION 03300 - CAST-IN-PLACE CONCRETE

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 cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:
 - 1. Footings.
 - 2. Foundation walls.
 - 3. Slabs-on-grade.
 - 4. Suspended slabs.
 - 5. Concrete toppings.
- B. Related Sections:
 - 1. Section 31 2000 "Earth Moving" for drainage fill under slabs-on-grade.

1.3 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume; subject to compliance with requirements.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
 - 1. Indicate amounts of mixing water to be withheld for later addition at Project site.
- C. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar

diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Welding certificates.
- C. Material Certificates: For each of the following, signed by manufacturers:
 - 1. Cementitious materials.
 - 2. Admixtures.
 - 3. Form materials and form-release agents.
 - 4. Steel reinforcement and accessories.
 - 5. Waterstops.
 - 6. Curing compounds.
 - 7. Floor and slab treatments.
 - 8. Bonding agents.
 - 9. Adhesives.
 - 10. Joint-filler strips.
 - 11. Repair materials.
- D. Material Test Reports: For the following, from a qualified testing agency, indicating compliance with requirements:
 - 1. Aggregates. Include service record data indicating absence of deleterious expansion of concrete due to alkali aggregate reactivity.
- E. Floor surface flatness and levelness measurements indicating compliance with specified tolerances.
- F. Field quality-control reports.
- G. Minutes of preinstallation conference.

1.6 QUALITY ASSURANCE

- A. **Manufacturer Qualifications:** A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94 requirements for production facilities and equipment.
- B. **Source Limitations:** Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.
- C. **Welding Qualifications:** Qualify procedures and personnel according to AWS D1.4, "Structural Welding Code - Reinforcing Steel."
- D. **ACI Publications:** Comply with the following unless modified by requirements in the Contract Documents:
 - 1. ACI 301, "Specifications for Structural Concrete," Sections 1 through 5.
 - 2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
- E. **Concrete Testing Service:** Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.
- F. **Preinstallation Conference:** Conduct conference at Project site.
 - 1. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:
 - a. Contractor's superintendent.
 - b. Independent testing agency responsible for concrete design mixtures.
 - c. Ready-mix concrete manufacturer.
 - d. Concrete subcontractor.
 - 2. Review special inspection and testing and inspecting agency procedures for field quality control, concrete finishes and finishing, cold- and hot-weather concreting procedures, curing procedures, construction contraction and isolation joints, and joint-filler strips, forms and form removal limitations, shoring and reshoring procedures, vapor-retarder installation, anchor rod and anchorage device installation tolerances, steel reinforcement installation, floor and slab flatness and levelness measurement, concrete repair procedures, and concrete protection.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. **Steel Reinforcement:** Deliver, store, and handle steel reinforcement to prevent bending and damage.

- B. Waterstops: Store waterstops under cover to protect from moisture, sunlight, dirt, oil, and other contaminants.

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

- A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
 - 1. Metal or other approved panel materials.
 - 2. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
 - a. High-density overlay, Class 1 or better.
 - b. Medium-density overlay, Class 1 or better; mill-release agent treated and edge sealed.
 - c. B-B (Concrete Form), Class 1 or better; mill oiled and edge sealed.
- B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.
- C. Forms for Cylindrical Columns, Pedestals, and Supports: Metal, glass-fiber-reinforced plastic, paper, or fiber tubes that will produce surfaces with gradual or abrupt irregularities not exceeding specified formwork surface class. Provide units with sufficient wall thickness to resist plastic concrete loads without detrimental deformation.
- D. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.
- E. Rustication Strips: Wood, metal, PVC, or rubber strips, kerfed for ease of form removal.
- F. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
 - 1. Formulate form-release agent with rust inhibitor for steel form-facing materials.
- G. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
 - 1. Furnish units that will leave no corrodible metal closer than 1 inch to the plane of exposed concrete surface.
 - 2. Furnish ties that, when removed, will leave holes no larger than 1 inch in diameter in concrete surface.

3. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

2.2 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615, Grade 60, deformed.
- B. Plain-Steel Wire: ASTM A 82, as drawn.
- C. Plain-Steel Welded Wire Reinforcement: ASTM A 185, plain, fabricated from as-drawn steel wire into flat sheets.

2.3 REINFORCEMENT ACCESSORIES

- A. Joint Dowel Bars: ASTM A 615, Grade 60, plain-steel bars, cut true to length with ends square and free of burrs.
- B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:
 1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.

2.4 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
 1. Portland Cement: ASTM C 150, Type I/II. Supplement with the following:
 - a. Fly Ash: ASTM C 618, Class F.
- B. Normal-Weight Aggregates: ASTM C 33, Class 3S coarse aggregate or better, graded. Provide aggregates from a single source with documented service record data of at least 10 years' satisfactory service in similar applications and service conditions using similar aggregates and cementitious materials.
 1. Maximum Coarse-Aggregate Size: As indicated in design mixes.
 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- C. Water: ASTM C 94 and potable.

2.5 ADMIXTURES

- A. Air-Entraining Admixture: ASTM C 260.

- B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
 - 1. Water-Reducing Admixture: ASTM C 494, Type A.
 - 2. Retarding Admixture: ASTM C 494, Type B.
 - 3. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.
 - 4. High-Range, Water-Reducing Admixture: ASTM C 494, Type F.
 - 5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494, Type G.
 - 6. Plasticizing and Retarding Admixture: ASTM C 1017, Type II.

- C. Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete and complying with ASTM C 494, Type C.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Euclid Chemical Company (The), an RPM company; EUCON CIA.
 - b. Grace Construction Products, W. R. Grace & Co.; DCI.
 - c. Sika Corporation; Sika CNL.

2.6 WATERSTOPS

- A. Flexible PVC Waterstops: CE CRD-C 572, for embedding in concrete to prevent passage of fluids through joints. Factory fabricate corners, intersections, and directional changes.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. BoMetals, Inc.
 - b. Greenstreak.
 - c. Vinylex Corp.
 - 2. Profile: Ribbed with center bulb.
 - 3. Dimensions: As applicable to location; nontapered.

- B. Self-Expanding Butyl Strip Waterstops: Manufactured rectangular or trapezoidal strip, butyl rubber with sodium bentonite or other hydrophilic polymers, for adhesive bonding to concrete, 3/4 by 1 inch.
1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Concrete Sealants Inc.; Conseal CS-231.
 - b. Greenstreak; Swellstop.
 - c. Henry Company, Sealants Division; Hydro-Flex.
 - d. JP Specialties, Inc.; Earth Shield Type 20.
- C. Self-Expanding Rubber Strip Waterstops: Manufactured rectangular or trapezoidal strip, bentonite-free hydrophilic polymer modified chloroprene rubber, for adhesive bonding to concrete, 3/8 by 3/4 inch.
1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Adeka Ultra Seal/OCM, Inc.; Adeka Ultra Seal.
 - b. Greenstreak; Hydrotite.
 - c. Vinylex Corp.; Swellseal.

2.7 LIQUID FLOOR TREATMENTS

- A. Penetrating Liquid Floor Treatment: Clear, chemically reactive, waterborne solution of inorganic silicate or silicate materials and proprietary components; odorless; that penetrates, hardens, and densifies concrete surfaces.
1. Products: Subject to compliance with requirements, provide one of the following:
 - a. ChemMasters; Chemisil Plus.
 - b. ChemTec Int'l; ChemTec One.
 - c. Conspec by Dayton Superior; Intraseal.
 - d. Edoco by Dayton Superior; Titan Hard.
 - e. Euclid Chemical Company (The), an RPM company; Euco Diamond Hard.
 - f. Meadows, W. R., Inc.; LIQUI-HARD.
 - g. Symons by Dayton Superior; Buff Hard.

2.8 CURING MATERIALS

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
1. Products: Subject to compliance with requirements, provide one of the following:
 - a. ChemMasters; SprayFilm.

- b. Conspec by Dayton Superior; Aquafilm.
 - c. Edoco by Dayton Superior; BurkeFilm.
 - d. Euclid Chemical Company (The), an RPM company; Eucobar.
 - e. L&M Construction Chemicals, Inc.; E-CON.
 - f. Meadows, W. R., Inc.; EVAPRE.
 - g. Sika Corporation; SikaFilm.
 - h. Symons by Dayton Superior; Finishing Aid.
- B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.
- C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- D. Water: Potable.
- E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, 18 to 25 percent solids, nondissipating, certified by curing compound manufacturer to not interfere with bonding of floor covering.
- 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. BASF Construction Chemicals - Building Systems; Kure-N-Seal W.
 - b. ChemMasters; Safe-Cure Clear.
 - c. Conspec by Dayton Superior; High Seal.
 - d. Euclid Chemical Company (The), an RPM company; Diamond Clear VOX; Clearseal WB STD.
 - e. L&M Construction Chemicals, Inc.; Dress & Seal WB.
 - f. Meadows, W. R., Inc.; Vocomp-20.
 - g. Symons by Dayton Superior; Cure & Seal 18 Percent E.
- F. Clear, Solvent-Borne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.
- 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. BASF Construction Chemicals - Building Systems; Kure-N-Seal 25 LV.
 - b. ChemMasters; Spray-Cure & Seal Plus.
 - c. Conspec by Dayton Superior; Sealcure 1315.
 - d. Edoco by Dayton Superior; Cureseal 1315.

- e. Euclid Chemical Company (The), an RPM company; Super Diamond Clear; LusterSeal 300.
- f. L&M Construction Chemicals, Inc.; Lumiseal Plus.
- g. Meadows, W. R., Inc.; CS-309/30.

2.9 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.
- B. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.
- C. Reglets: Fabricate reglets of not less than 0.022-inch- thick, galvanized-steel sheet. Temporarily fill or cover face opening of reglet to prevent intrusion of concrete or debris.
- D. Dovetail Anchor Slots: Hot-dip galvanized-steel sheet, not less than 0.034 inch thick, with bent tab anchors. Temporarily fill or cover face opening of slots to prevent intrusion of concrete or debris.

2.10 REPAIR MATERIALS

- A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.
 - 1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
 - 2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
 - 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by underlayment manufacturer.
 - 4. Compressive Strength: Not less than 4100 psi at 28 days when tested according to ASTM C 109.
- B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch and that can be filled in over a scarified surface to match adjacent floor elevations.
 - 1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
 - 2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
 - 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by topping manufacturer.

4. Compressive Strength: Not less than 5000 psi at 28 days when tested according to ASTM C 109.

2.11 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.
 1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.
- B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
 1. Fly Ash: 25 percent.
- C. Limit water-soluble, chloride-ion content in hardened concrete to 0.06 percent by weight of cement.
- D. Admixtures: Use admixtures according to manufacturer's written instructions.
 1. Use water-reducing, high-range water-reducing or plasticizing admixture in concrete, as required, for placement and workability.
 2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
 3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.
 4. Use corrosion-inhibiting admixture in concrete mixtures where indicated.

2.12 CONCRETE MIXTURES FOR BUILDING ELEMENTS

- A. Footings and Non-Retaining Walls: Proportion normal-weight concrete mixture as follows:
 1. Minimum Compressive Strength: 3000 psi at 28 days.
 2. Maximum Water-Cementitious Materials Ratio by Weight: 0.50.
 3. Minimum Cementitious Materials Content: 475 lb/cu. yd.
 4. Maximum Nominal Aggregate Size: 1 inch.
 5. Maximum Slump Limit: 3-1/2 inches, plus 1 inch.
 6. Air Content: 4 to 6 percent.
- B. Slabs-on-Grade (Interior): Proportion normal-weight concrete mixture as follows:
 1. Minimum Compressive Strength: 3000 psi at 28 days.

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2. Maximum Water-Cementitious Materials Ratio by Weight: 0.45.
3. Minimum Cementitious Materials Content: 540 lb/cu. yd.
4. Maximum Nominal Aggregate Size: 1 inch.
5. Maximum Slump Limit: 3-1/2 inches, plus 1 inch.

C. Foundation and Retaining Walls: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 4000 psi at 28 days.
2. Maximum Water-Cementitious Materials Ratio by Weight: 0.45.
3. Minimum Cementitious Materials Content: 590 lb./cu.yd.
4. Maximum Nominal Aggregate Size: 1-1/2 inches.
5. Maximum Slump Limit: 3-1/2 inches, plus 1 inch.
6. Air Content: 4 to 6 percent.

D. Concrete Toppings: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 4000 psi at 28 days.
2. Maximum Water-Cementitious Materials Ratio by Weight: 0.45.
3. Minimum Cementitious Materials Content: 590 lb./cu.yd.
4. Maximum Nominal Aggregate Size: 3/8 inch.
5. Maximum Slump Limit: 3-1/2 inches, plus 1 inch.
6. Air Content: 4 to 6 percent.

E. Suspended Slabs: Proportion structural lightweight concrete mixture as follows:

1. Minimum Compressive Strength: 3500 psi at 28 days.
2. Minimum Cementitious Materials Content: 660 lb./cu.yd.
3. Maximum Nominal Aggregate Size: 3/4 inch.
4. Maximum Slump Limit: 2-1/2 inches, plus 1 inch.
5. Air Content: 4 to 8 percent.

2.13 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.14 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94, and furnish batch ticket information.
 - 1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- C. Limit concrete surface irregularities, designated by ACI 347 as abrupt or gradual, as follows:
 - 1. Class A, 1/8 inch for smooth-formed finished surfaces.
 - 2. Class C, 1/2 inch for rough-formed finished surfaces.
- D. Construct forms tight enough to prevent loss of concrete mortar.
- E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
 - 1. Install keyways, reglets, recesses, and the like, for easy removal.
 - 2. Do not use rust-stained steel form-facing material.
- F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
- G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- H. Chamfer exterior corners and edges of permanently exposed concrete.

- I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
- J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.2 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."
 - 2. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.
 - 3. Install dovetail anchor slots in concrete structures as indicated.

3.3 REMOVING AND REUSING FORMS

- A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations and curing and protection operations need to be maintained.
 - 1. Leave formwork for beam soffits, joists, slabs, and other structural elements that supports weight of concrete in place until concrete has achieved at least 70 percent of its 28-day design compressive strength.
 - 2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.
- B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.

- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.4 SHORES AND RESHORES

- A. Comply with ACI 318 and ACI 301 for design, installation, and removal of shoring and reshoring.
 - 1. Do not remove shoring or reshoring until measurement of slab tolerances is complete.
- B. In multistory construction, extend shoring or reshoring over a sufficient number of stories to distribute loads in such a manner that no floor or member will be excessively loaded or will induce tensile stress in concrete members without sufficient steel reinforcement.
- C. Plan sequence of removal of shores and reshore to avoid damage to concrete. Locate and provide adequate reshoring to support construction without excessive stress or deflection.

3.5 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
 - 1. Do not cut or puncture underslab waterproofing. Repair damage and reseal underslab waterproofing before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
 - 1. Weld reinforcing bars according to AWS D1.4, where indicated.
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

3.6 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
 2. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.
 3. Locate joints for beams, slabs, joists, and girders in the middle third of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
 4. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
 5. Space vertical joints in walls as indicated. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.
 6. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth Insert depth of concrete thickness as follows:
1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
 2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
- D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated.
 2. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface where joint sealants, specified in Section 07 9200 "Joint Sealants," are indicated.
 3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.
- E. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

3.7 WATERSTOPS

- A. Flexible Waterstops: Install in construction joints and at other joints indicated to form a continuous diaphragm. Install in longest lengths practicable. Support and protect exposed waterstops during progress of the Work. Field fabricate joints in waterstops according to manufacturer's written instructions.
- B. Self-Expanding Strip Waterstops: Install in construction joints and at other locations indicated, according to manufacturer's written instructions, adhesive bonding, mechanically fastening, and firmly pressing into place. Install in longest lengths practicable.

3.8 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, embedded items and underslab waterproofing is complete and that required inspections have been performed.
- B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.
- C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.
 - 1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
 - 1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
 - 2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
 - 3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
 - 1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 - 2. Maintain reinforcement in position on chairs during concrete placement.

3. Screed slab surfaces with a straightedge and strike off to correct elevations.
 4. Slope surfaces uniformly to drains where required.
 5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.
- F. Cold-Weather Placement: Comply with ACI 306.1 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 average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
 2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.
- G. Hot-Weather Placement: Comply with ACI 301 and as follows:
1. Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water 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. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

3.9 FINISHING FORMED SURFACES

- A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
1. Apply to concrete surfaces not exposed to public view.
- B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
1. Apply to concrete surfaces exposed to public view, to receive a rubbed finish, or to be covered with a coating or covering material applied directly to concrete.
- C. Rubbed Finish: Apply the following to smooth-formed finished as-cast concrete where indicated:

1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
 2. Grout-Cleaned Finish: Wet concrete surfaces and apply grout of a consistency of thick paint to coat surfaces and fill small holes. Mix one part portland cement to one and one-half parts fine sand with a 1:1 mixture of bonding admixture and water. Add white portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap and keep surface damp by fog spray for at least 36 hours.
 3. Cork-Floated Finish: Wet concrete surfaces and apply a stiff grout. Mix one part portland cement and one part fine sand with a 1:1 mixture of bonding agent and water. Add white portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Compress grout into voids by grinding surface. In a swirling motion, finish surface with a cork float.
- D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.10 FINISHING FLOORS AND SLABS

- A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes to produce a profile amplitude of 1/4 inch in one direction.
1. Apply scratch finish to surfaces to receive concrete floor toppings or to receive mortar setting beds for bonded cementitious floor finishes.
- C. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.
1. Apply float finish to surfaces to receive trowel finish or to be covered with fluid-applied or sheet waterproofing, built-up or membrane roofing, or sand-bed terrazzo.
- D. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

1. Apply a trowel finish to surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system.
 2. Finish surfaces to the following tolerances, according to ASTM E 1155, for a randomly trafficked floor surface:
 3. Finish and measure surface so gap at any point between concrete surface and an unlevelled, freestanding, 10-ft.- long straightedge resting on two high spots and placed anywhere on the surface does not exceed 1/4 inch.
- E. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces where ceramic or quarry tile is to be installed by either thickset or thin-set method. While concrete is still plastic, slightly scarify surface with a fine broom.
1. Comply with flatness and levelness tolerances for trowel-finished floor surfaces.
- F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and elsewhere as indicated.
1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

3.11 MISCELLANEOUS CONCRETE ITEMS

- A. Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.
- B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.
- C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates from manufacturer furnishing machines and equipment.

3.12 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing

operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

- C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.
- D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.
- E. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven 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 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. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
 - a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
 - b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
 - c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies will not interfere with bonding of floor covering used on Project.
 - 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
 - a. Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound will not interfere with bonding of floor covering used on Project.
 - 4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.13 LIQUID FLOOR TREATMENTS

- A. Penetrating Liquid Floor Treatment: Prepare, apply, and finish penetrating liquid floor treatment according to manufacturer's written instructions.
1. Remove curing compounds, sealers, oil, dirt, laitance, and other contaminants and complete surface repairs.
 2. Apply liquid until surface is saturated, scrubbing into surface until a gel forms; rewet; and repeat brooming or scrubbing. Rinse with water; remove excess material until surface is dry. Apply a second coat in a similar manner if surface is rough or porous.

3.14 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension to solid concrete. Limit cut depth to 3/4 inch. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
 2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
 3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.
- D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
 2. After concrete has cured at least 14 days, correct high areas by grinding.

3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
 4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
 5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
 6. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
 7. Repair random cracks and single holes 1 inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.
- E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.
- F. Repair materials and installation not specified above may be used, subject to Architect's approval.

3.15 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner will engage a special inspector and qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Inspections:
1. Steel reinforcement placement.
 2. Steel reinforcement welding.
 3. Headed bolts and studs.
 4. Verification of use of required design mixture.
 5. Concrete placement, including conveying and depositing.
 6. Curing procedures and maintenance of curing temperature.

7. Verification of concrete strength before removal of shores and forms from beams and slabs.
- C. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.
 2. Slump: ASTM C 143; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
 3. Air Content: ASTM C 231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 4. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.
 5. Compressive-Strength Tests: ASTM C 39; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.
 - a. Test one set of two field-cured specimens at 7 days and one set of two specimens at 28 days.
 - b. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
 6. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
 7. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
 8. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
 9. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
 10. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42 or by other methods as directed by Architect.

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CAST-IN-PLACE CONCRETE

11. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
 12. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.
- D. Measure floor and slab flatness and levelness according to ASTM E 1155 within 24 hours of finishing.

3.16 PROTECTION OF LIQUID FLOOR TREATMENTS

- A. Protect liquid floor treatment from damage and wear during the remainder of construction period. Use protective methods and materials, including temporary covering, recommended in writing by liquid floor treatments installer.

END OF SECTION

SECTION - THIN BRICK

1.0 GENERAL

1.1 PRODUCT NAME –Thin Brick

- A. Type: Modular Size
- B. Color: Red – Submit sample for approval
- C. Pattern: Running Bond

1.2 MANUFACTURER

- A. The Belden Brick Company
PO Box 20910
Canton, OH 44701
(330) 451-2031

1.3 DESCRIPTION OF WORK

- A. Provide Flexi-Brick brick veneer as specified on drawings and as needed for complete, proper installation.

1.4 SUBMITTALS

- A. Submit sufficient samples of brick veneer (sizes, colors, textures). Brick (delivered or installed) not falling within accepted range will be removed and replaced promptly with acceptable material.

1.5 COMPOSITION OF MATERIAL

- A. Thin Brick veneer produced from 92% quartz sand acrylic binder and additives which will meet or exceed the following:

- Calculated Flame Spread: 18
 - Flame Spread Index: 20 as per ASTM E 84.
 - Class A building Material
 - Smoke Developed Index: 105 with Mortar adhesive

1.6 PACKAGING/HANDLING

- A. Brick Veneer packaged in corrugated containers with set amount of sq. ft. per container, not to exceed 85 lbs. Containers are palletized with varying pallet weight up to 800 lbs. A wrapper box or waterproof cover is required to protect containers from weather deterioration. Handling can be by pallet or individual box.

2.0 INSTALLATION

2.1 MATERIALS

- A. All thin brick setting materials and equipment will be clean and free of salts, oils or chemicals which may cause improper bond.

2.2 BONDING AND GROUTING MORTAR

- A. Use only thin brick manufacturer's Mortar/Adhesive. All other mortars or adhesives will void any and all warranties.
- B. Colors. Provide samples of all colors to the architect for approval.
- C. All joints are to be shaped to shed water and raked to depth acceptable to the architect.

2.3 OTHER MATERIALS

- A. Provide other materials, not specifically described, but required for a complete and proper installation, as selected by the contractor subject to the approval of the architect and local codes.

3.0 EXECUTION

3.1 SURFACE CONDITIONS

- A. Examine areas and conditions under which work will be performed. Correct conditions detrimental to timely and proper completion. Do not proceed until unsatisfactory conditions are corrected.
- B. Coordinate with other trades as needed to assure proper substrates are provided.
- C. Verify that grounds, anchors, plugs, recess frames, bucks, electrical work, mechanical work and similar items in or behind the brick have been installed prior to installation of brick veneer.

3.2 INSTALLATION OF STONE VENEER

- A. Maintain minimum temperature limits on job site and follow installation practices recommended by materials manufacturers.
- B. Prepare surfaces prime and clean in strict accordance with the manufacturer's recommendations.
- C. Spread mortar on substrate using a minimum of 3/16" notched trowel.
- D. Press and set Brick in place using a "wiggling" motion to obtain 100% coverage mortar on the back of each brick. Work in an approximate 3 sq. ft. area so mortar does not cure. Keep a 3/8" spacing between each brick.
- E. Smooth joint with a 3/8" paint brush. Dip brush in water to remove excess mortar.

3.2 CLEANING

- A. After setting and grouting are complete, thoroughly clean brick face by brushing lightly.

WIND BUFFALO RESTAURANT

THIN BRICK

Surface may also be cleaned with hose. Do not use acid or acid base cleaners.

END OF SECTION

SECTION 05400 - COLD-FORMED METAL FRAMING

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:

1. Load-bearing wall framing.
2. Exterior non-load-bearing wall framing.
3. Floor joist framing.
4. Roof rafter framing.
5. Ceiling joist framing.
6. Soffit framing.

B. Related Requirements:

1. Section 05 50 00 "Metal Fabrications" for masonry shelf angles and connections.
2. Section 09 22 16 "Non-Structural Metal Framing" for interior non-load-bearing, metal-stud framing and ceiling-suspension assemblies.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct meeting at Project site between GC and Sub-Contractor.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of cold-formed steel framing product and accessory.

B. Shop Drawings:

1. Include layout, spacings, sizes, thicknesses, and types of cold-formed steel framing; fabrication; and fastening and anchorage details, including mechanical fasteners.
2. Indicate reinforcing channels, opening framing, supplemental framing, strapping, bracing, bridging, splices, accessories, connection details, and attachment to adjoining work.

- C. Delegated-Design Submittal: For cold-formed steel framing.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For testing agency.
- B. Welding certificates.

- C. Product Test Reports: For each listed product, for tests performed by a qualified testing agency.
 - 1. Steel sheet.
 - 2. Expansion anchors.
 - 3. Power-actuated anchors.
 - 4. Mechanical fasteners.
 - 5. Vertical deflection clips.
 - 6. Horizontal drift deflection clips
 - 7. Miscellaneous structural clips and accessories.

- D. Research Reports: For non-standard cold-formed steel framing, from ICC-ES.

1.6 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Qualified according to ASTM E 329 for testing indicated.

- B. Product Tests: Mill certificates or data from a qualified independent testing agency indicating steel sheet complies with requirements, including base-metal thickness, yield strength, tensile strength, total elongation, chemical requirements, and metallic-coating thickness.

- C. Welding Qualifications: Qualify procedures and personnel according to the following:
 - 1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
 - 2. AWS D1.3/D1.3M, "Structural Welding Code - Sheet Steel."

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Protect cold-formed steel framing from corrosion, moisture staining, deformation, and other damage during delivery, storage, and handling.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. AllSteel & Gypsum Products, Inc.
 - 2. California Expanded Metal Products Company.
 - 3. ClarkWestern Building Systems, Inc.
 - 4. Consolidated Fabricators Corp.; Building Products Division.
 - 5. Craco Mfg., Inc.
 - 6. Custom Stud Inc.
 - 7. Design Shapes in Steel.
 - 8. Dietrich Metal Framing; a Worthington Industries company.
 - 9. Formetal Co. Inc. (The).
 - 10. MarinoWARE.
 - 11. MBA Building Supplies, Inc.
 - 12. Nuconsteel; a Nucor Company.
 - 13. Olmar Supply, Inc.
 - 14. Quail Run Building Materials, Inc.

15. SCAFCO Corporation.
16. Southeastern Stud & Components, Inc.
17. State Building Products, Inc.
18. Steel Construction Systems.
19. Steel Network, Inc. (The).
20. Steel Structural Systems.
21. Steeler, Inc.
22. Super Stud Building Products, Inc.
23. Telling Industries, LLC.
24. United Metal Products, Inc.
25. United Steel Manufacturing.

2.2 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design cold-formed steel framing.
- B. Structural Performance: Provide cold-formed steel framing capable of withstanding design loads within limits and under conditions indicated.
 1. Design Loads: As indicated.
 2. Deflection Limits: Design framing systems to withstand design loads without deflections greater than the following:
 - a. Interior Load-Bearing Wall Framing: Horizontal deflection of $[1/240]$ of the wall height under a horizontal load of 5 lbf/sq. ft.
 - b. Exterior Non-Load-Bearing Framing: Horizontal deflection of $[1/240]$ of the wall height.
 3. Design framing systems to provide for movement of framing members located outside the insulated building envelope without damage or overstressing, sheathing failure, connection failure, undue strain on fasteners and anchors, or other detrimental effects when subject to a maximum ambient temperature change of 120 deg F.
 4. Design framing system to maintain clearances at openings, to allow for construction tolerances, and to accommodate live load deflection of primary building structure as follows:
 - a. Upward and downward movement of 3/4 inch.
 5. Design exterior non-load-bearing wall framing to accommodate horizontal deflection without regard for contribution of sheathing materials.
- C. Cold-Formed Steel Framing Design Standards:
 1. Floor and Roof Systems: AISI S210.
 2. Wall Studs: AISI S211.
 3. Headers: AISI S212.
 4. Lateral Design: AISI S213.
- D. AISI Specifications and Standards: Unless more stringent requirements are indicated, comply with AISI S100 and AISI S200.
- E. Fire-Resistance Ratings: Comply with ASTM E 119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Indicate design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.

2.3 COLD-FORMED STEEL FRAMING, GENERAL

- A. Steel Sheet: ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated, of grade and coating weight as follows:
 1. Grade: As required by structural performance.
 2. Coating: G90 or equivalent.
- B. Steel Sheet for Vertical Deflection Clips: ASTM A 653/A 653M, structural steel, zinc coated, of grade and coating as follows:
 1. Grade: As required by structural performance.
 2. Coating: [G60 (Z180)].

2.4 FRAMING ACCESSORIES

- A. Fabricate steel-framing accessories from steel sheet, ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated, of same grade and coating weight used for framing members.
- B. Provide accessories of manufacturer's standard thickness and configuration, unless otherwise indicated, as follows:
 1. Supplementary framing.
 2. Bracing, bridging, and solid blocking.
 3. Web stiffeners.
 4. Anchor clips.
 5. End clips.
 6. Foundation clips.
 7. Gusset plates.
 8. Stud kickers and knee braces.
 9. Joist hangers and end closures.
 10. Hole reinforcing plates.
 11. Backer plates.

2.5 ANCHORS, CLIPS, AND FASTENERS

- A. Steel Shapes and Clips: ASTM A 36/A 36M, zinc coated by hot-dip process according to ASTM A 123/A 123M.
- B. Anchor Bolts: ASTM F 1554, [Grade 36], threaded carbon-steel hex-headed bolts and carbon-steel nuts; and flat, hardened-steel washers; zinc coated by hot-dip process according to ASTM A 153/A 153M, Class C.
- C. Expansion Anchors: Fabricated from corrosion-resistant materials, with allowable load or strength design capacities calculated according to ICC-ES AC193 and ACI 318 greater than or equal to the design load, as determined by testing per ASTM E 488 conducted by a qualified testing agency.
- D. Power-Actuated Anchors: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with allowable load capacities calculated according to ICC-ES AC70,

greater than or equal to the design load, as determined by testing per ASTM E 1190 conducted by a qualified testing agency.

- E. Mechanical Fasteners: ASTM C 1513, corrosion-resistant-coated, self-drilling, self-tapping, steel drill screws.
 - 1. Head Type: Low-profile head beneath sheathing, manufacturer's standard elsewhere.
- F. Welding Electrodes: Comply with AWS standards.

2.6 MISCELLANEOUS MATERIALS

- A. Galvanizing Repair Paint: ASTM A 780.
- B. Cement Grout: Portland cement, ASTM C 150, Type I; and clean, natural sand, ASTM C 404. Mix at ratio of 1 part cement to 2-1/2 parts sand, by volume, with minimum water required for placement and hydration.
- C. Nonmetallic, Nonshrink Grout: Premixed, nonmetallic, noncorrosive, nonstaining grout containing selected silica sands, portland cement, shrinkage-compensating agents, and plasticizing and water-reducing agents, complying with ASTM C 1107/C 1107M, with fluid consistency and 30-minute working time.
- D. Shims: Load bearing, high-density multimonomer plastic, and nonleaching; or of cold-formed steel of same grade and coating as framing members supported by shims.
- E. Sealer Gaskets: Closed-cell neoprene foam, 1/4 inch (6.4 mm) thick, selected from manufacturer's standard widths to match width of bottom track or rim track members.

2.7 FABRICATION

- A. Fabricate cold-formed steel framing and accessories plumb, square, and true to line, and with connections securely fastened, according to referenced AISI's specifications and standards, manufacturer's written instructions, and requirements in this Section.
 - 1. Fabricate framing assemblies using jigs or templates.
 - 2. Cut framing members by sawing or shearing; do not torch cut.
 - 3. Fasten cold-formed steel framing members by welding, screw fastening, clinch fastening, pneumatic pin fastening, or riveting as standard with fabricator. Wire tying of framing members is not permitted.
 - a. Comply with AWS D1.3/D1.3M requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
 - b. Locate mechanical fasteners and install according to Shop Drawings, with screw penetrating joined members by no fewer than three exposed screw threads.
 - 4. Fasten other materials to cold-formed steel framing by welding, bolting, pneumatic pin fastening, or screw fastening, according to Shop Drawings.
- B. Reinforce, stiffen, and brace framing assemblies to withstand handling, delivery, and erection stresses. Lift fabricated assemblies to prevent damage or permanent distortion.

- C. Fabrication Tolerances: Fabricate assemblies level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet (1:960) and as follows:
 - 1. Spacing: Space individual framing members no more than plus or minus 1/8 inch (3 mm) from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.
 - 2. Squareness: Fabricate each cold-formed steel framing assembly to a maximum out-of-square tolerance of 1/8 inch (3 mm).

PART 3 - EXECUTION**3.1 EXAMINATION**

- A. Examine supporting substrates and abutting structural framing for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Install load bearing shims or grout between the underside of load-bearing wall bottom track and the top of foundation wall or slab at locations with a gap larger than 1/4 inch (6 mm) to ensure a uniform bearing surface on supporting concrete or masonry construction.
- B. Install sealer gaskets at the underside of wall bottom track or rim track and at the top of foundation wall or slab at stud or joist locations.

3.3 INSTALLATION, GENERAL

- A. Cold-formed steel framing may be shop or field fabricated for installation, or it may be field assembled.
- B. Install cold-formed steel framing according to AISI S200 and to manufacturer's written instructions unless more stringent requirements are indicated.
- C. Install shop- or field-fabricated, cold-formed framing and securely anchor to supporting structure.
 - 1. Screw, bolt, or weld wall panels at horizontal and vertical junctures to produce flush, even, true-to-line joints with maximum variation in plane and true position between fabricated panels not exceeding 1/16 inch.
- D. Install cold-formed steel framing and accessories plumb, square, and true to line, and with connections securely fastened.
 - 1. Cut framing members by sawing or shearing; do not torch cut.
 - 2. Fasten cold-formed steel framing members by welding, screw fastening, clinch fastening, or riveting. Wire tying of framing members is not permitted.
 - a. Comply with AWS D1.3/D1.3M requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
 - b. Locate mechanical fasteners and install according to Shop Drawings, and complying with requirements for spacing, edge distances, and screw penetration.

- E. Install framing members in one-piece lengths unless splice connections are indicated for track or tension members.
- F. Install temporary bracing and supports to secure framing and support loads comparable in intensity to those for which structure was designed. Maintain braces and supports in place, undisturbed, until entire integrated supporting structure has been completed and permanent connections to framing are secured.
- G. Do not bridge building expansion joints with cold-formed steel framing. Independently frame both sides of joints.
- H. Install insulation, specified in Section 072100 "Thermal Insulation," in built-up exterior framing members, such as headers, sills, boxed joists, and multiple studs at openings, that are inaccessible on completion of framing work.
- I. Fasten hole reinforcing plate over web penetrations that exceed size of manufacturer's approved or standard punched openings.
- J. Erection Tolerances: Install cold-formed steel framing level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet (1:960) and as follows:
 - 1. Space individual framing members no more than plus or minus 1/8 inch from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.

3.4 LOAD-BEARING WALL INSTALLATION

- A. Install continuous top and bottom tracks sized to match studs. Align tracks accurately and securely anchor at corners and ends, and at spacings as follows:
 - 1. Anchor Spacing: To match stud spacing.
- B. Squarely seat studs against top and bottom tracks with gap not exceeding of 1/8 inch between the end of wall framing member and the web of track. Fasten both flanges of studs to top and bottom tracks. Space studs as follows:
 - 1. Stud Spacing: As indicated.
- C. Set studs plumb, except as needed for diagonal bracing or required for nonplumb walls or warped surfaces and similar configurations.
- D. Align studs vertically where floor framing interrupts wall-framing continuity. Where studs cannot be aligned, continuously reinforce track to transfer loads.
- E. Align floor and roof framing over studs according to AISI S200, Section C1. Where framing cannot be aligned, continuously reinforce track to transfer loads.
- F. Anchor studs abutting structural columns or walls, including masonry walls, to supporting structure as indicated.
- G. Install headers over wall openings wider than stud spacing. Locate headers above openings as indicated. Fabricate headers of compound shapes indicated or required to transfer load to supporting studs, complete with clip-angle connectors, web stiffeners, or gusset plates.

1. Frame wall openings with not less than a double stud at each jamb of frame as indicated on Shop Drawings. Fasten jamb members together to uniformly distribute loads.
 2. Install runner tracks and jack studs above and below wall openings. Anchor tracks to jamb studs with clip angles or by welding, and space jack studs same as full-height wall studs.
- H. Install supplementary framing, blocking, and bracing in stud framing indicated to support fixtures, equipment, services, casework, heavy trim, furnishings, and similar work requiring attachment to framing.
1. If type of supplementary support is not indicated, comply with stud manufacturer's written recommendations and industry standards in each case, considering weight or load resulting from item supported.
- I. Install horizontal bridging in stud system, spaced vertically as indicated on Shop Drawings. Fasten at each stud intersection.
1. Bridging: Cold-rolled steel channel, welded or mechanically fastened to webs of punched studs with a minimum of two screws into each flange of the clip angle for framing members up to 6 inches deep.
- J. Install steel sheet diagonal bracing straps to both stud flanges, terminate at and fasten to reinforced top and bottom tracks. Fasten clip-angle connectors to multiple studs at ends of bracing and anchor to structure.
- K. Install miscellaneous framing and connections, including supplementary framing, web stiffeners, clip angles, continuous angles, anchors, and fasteners, to provide a complete and stable wall-framing system.

3.5 EXTERIOR NON-LOAD-BEARING WALL INSTALLATION

- A. Install continuous tracks sized to match studs. Align tracks accurately and securely anchor to supporting structure as indicated.
- B. Fasten both flanges of studs to top and bottom track unless otherwise indicated. Space studs as follows:
1. Stud Spacing: As indicated.
- C. Set studs plumb, except as needed for diagonal bracing or required for nonplumb walls or warped surfaces and similar requirements.
- D. Isolate non-load-bearing steel framing from building structure to prevent transfer of vertical loads while providing lateral support.
1. Install single deep-leg deflection tracks and anchor to building structure.
 2. Connect vertical deflection clips to studs and anchor to building structure.
- E. Install horizontal bridging in wall studs, spaced vertically in rows indicated on Shop Drawings but not more than 48 inches apart. Fasten at each stud intersection.
1. Top Bridging for Single Deflection Track: Install row of horizontal bridging within 18 inches of single deflection track. Install a combination of bridging and stud or stud-track solid blocking of width and thickness matching studs, secured to stud webs or flanges.
 - a. Install solid blocking at centers indicated on Shop Drawings.

- 2. Bridging: Cold-rolled steel channel, welded or mechanically fastened to webs of punched studs.
- F. Install miscellaneous framing and connections, including stud kickers, web stiffeners, clip angles, continuous angles, anchors, and fasteners, to provide a complete and stable wall-framing system.

3.6 REPAIRS AND PROTECTION

- A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on fabricated and installed cold-formed steel framing with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.
- B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure that cold-formed steel framing is without damage or deterioration at time of Substantial Completion.

END OF SECTION 05400

SECTION 05500 - METAL FABRICATION1.0 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. This section includes the following metal fabrications:
1. Rough hardware.
 2. Loose steel lintels.
 3. Miscellaneous framing and supports for the following:
 - a. Applications where framing and supports are not specified in other sections.
- B. Related Sections: The following sections contain requirements that relate to this section:
1. Division 5 Section "Structural Steel" for structural steel framing systems components.

1.3 DEFINITIONS

- A. Definitions in ASTM E 985 for railing-related terms apply to this section.

1.4 SYSTEM PERFORMANCE REQUIREMENTS

- A. Structural Performance of Handrails and Railing Systems: Design, engineer, fabricate and install handrails and railing systems to comply with requirements of ASTM E 985 for structural performance based on testing performed in accordance with ASTM E 894 and E 935.

1.5 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data for products used in miscellaneous metal fabrications, including paint products and grout.
- C. Shop drawings detailing fabrication and erection of each metal fabrication indicated. Include plans, elevations, sections and details of metal fabrications and their connections. Show anchorage and accessory items. Provide templates for anchors and bolts specified for installation under other sections.
- D. Samples representative of materials and finished projects as may be requested by Architect.
- E. Welder certificates signed by Contractor certifying that welders comply with requirements

specified under "Quality Assurance" article.

- F. Qualification data for firms and persons specified in "Quality Assurance" article to demonstrate their capabilities and experience. Include list of completed projects with project name, addresses, names of Architects and Owners, and other information specified.

1.6 QUALITY ASSURANCE

- A. Fabricator Qualifications: Firm experienced in successfully producing metal fabrications similar to that indicated for this Project, with sufficient production capacity to produce required units without causing delay in the Work.
- B. Installer Qualifications: Arrange for installation of metal fabrications specified in this section by same firm that fabricated them.
- C. Qualify welding processes and welding operators in accordance with AWS D1.1 "Structural Welding Code - Steel," D1.3 "Structural Welding Code - Sheet Steel", and D1.2 "Structural Welding Code - Aluminum."
 - 1. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.

1.7 CLOSEOUT SUBMITTALS

- A. Upon completion of the Work of this Section, Contractor shall submit to the Architect/Engineer, all required closeout documents.
- B. Contractor shall submit a marked-up set of drawings indicating any changes made during construction to the Architect/Engineer.
- C. Upon completion, submit to the Architect/Engineer, a Contractor's Affidavit of Payment of Debts and Claims, and Release of Liens.
- D. Refer to General Conditions for additional requirements.

1.8 PROJECT CONDITIONS

- A. Field Measurements: Check actual locations of walls and other construction to which metal fabrications must fit, by accurate field measurements before fabrication; show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delay of Work.
 - 1. Where field measurements cannot be made without delaying the Work, guarantee dimensions and proceed with fabrication of products without field measurements. Coordinate construction to ensure that actual opening dimensions correspond to guaranteed dimensions. Allow for trimming and fitting.

1.9 SEQUENCING AND SCHEDULING

- A. Sequence and coordinate installation of wall handrails as follows:

1. Mount handrails only on completed walls. Do not support handrails temporarily by any means not satisfying structural performance requirements.
2. Mount handrails only on gypsum board assemblies reinforced to receive anchors, and where the location of concealed anchor plates has been clearly marked for benefit of Installer.

2.0 PRODUCTS

2.1 FERROUS METALS

- A. Metal Surfaces, General: For metal fabrications exposed to view upon completion of the Work, provide materials selected for their surface flatness, smoothness, and freedom from surface blemishes. Do not use materials whose exposed surfaces exhibit pitting, seam marks, roller marks, rolled trade names, roughness, and, for steel sheet, variations in flatness exceeding those permitted by reference standards for stretcher-leveled sheet.
- B. Steel Plates, Shapes, and Bars: ASTM A 36.
- C. Uncoated Structural Steel Sheet: Product type (manufacturing method), quality, and grade, as follows:
 1. Cold-Rolled Structural Steel Sheet: ASTM A 611, grade as follows:
 - a. Grade A, unless otherwise indicated or required by design loading.
- D. Steel Pipe: ASTM A 53; finish, type, and weight class as follows:
 1. Black finish, unless otherwise indicated.
 2. Galvanized finish for exterior installations and where indicated.
 3. Type F, standard weight (schedule 40), unless otherwise indicated, or another weight, type and grade required by structural loads.
- E. Malleable Iron Castings: ASTM A 47, grade 32510.
- F. Brackets, Flanges and Anchors: Cast or formed metal of the same type material and finish as supported rails, unless otherwise indicated.
- G. Concrete Inserts: Threaded or wedge type; galvanized ferrous castings, either malleable iron, ASTM A 47, or cast steel, ASTM A 27. Provide bolts, washers, and shims as required, hot-dip galvanized per ASTM A 153.
- H. Welding Rods and Bare Electrodes: Select in accordance with AWS specifications of the metal alloy to be welded.

2.2 GROUT AND ANCHORING CEMENT

- A. Nonshrink Nonmetallic Grout: Premixed, factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with CE CRD - C 621. Provide grout specifically recommended by manufacturer for interior and exterior applications of type specified in this section.

- B. Interior Anchoring Cement: Factory-prepackaged, nonshrink, nonstaining, hydraulic controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching and grouting compound. Use for interior applications only.
- C. Erosion-Resistant Anchoring Cement: Factory-prepackaged, nonshrink, nonstaining, hydraulic controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching and grouting compound. Provide formulation that is resistant to erosion from water exposure without need for protection by a sealer or waterproof coating and is recommended for exterior use by manufacturer.
- D. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include but are not limited to the following:
- E. Products: Subject to compliance with requirements, provide one of the following:
 - 1. Nonshrink Nonmetallic Grouts:
 - a. "Bonsal Construction Grout"; W.R. Bonsal Co.
 - b. "Masterflow 713"; Master Builders.
 - c. "Sealtight 588 Grout"; W.R. Meadows, Inc.
 - d. "SonogROUT"; Sonneborn Building Products Div., Rexnord Chemical Products, Inc.
 - e. "Stoncrete NM1"; Stonhard, Inc.
 - 2. Interior Anchoring Cement:
 - a. "Bonsal Anchor Cement"; W.R. Bonsal Co.
 - b. "Por-Rok"; Minwax Construction Products Division

2.3 FASTENERS

- A. General: Provide zinc-coated fasteners for exterior use or where built into exterior walls. Select fasteners for the type, grade and class required.
- B. Bolts and nuts: Regular hexagon head type, ASTM A 307, Grade A.
- C. Lag Bolts: Square head type, FS FF-B-561.
- D. Machine Screws: Cadmium plated steel, FS FF-S-92.
- E. Wood Screws: Flat head carbon steel, FS FF-S-111.
- F. Plain Washers: Round, carbon steel, FS FF-W-92.
- G. Drilled-In Expansion Anchors: Expansion anchors complying with FS FF-S-325, Group VIII (anchors, expansion, [non-drilling]), Type I (internally threaded tubular expansion anchor); and machine bolts complying with FS FF-B-575, Grade 5.
- H. Toggle Bolts: Tumble-wing type, FS FF-B-588, type, class, and style as required.

- I. Lock Washers: Helical spring type carbon steel, FS FF-W-84.

2.4 PAINT

- A. Shop Primer for Ferrous Metal: Manufacturer's or fabricator's standard, fast-curing, lead-free, universal modified alkyd primer selected for good resistance to normal atmospheric corrosion, for compatibility with finish paint systems indicated, and for capability to provide a sound foundation for field-applied topcoats despite prolonged exposure complying with performance requirements of FS TT-P-645.

2.5 CONCRETE FILL AND REINFORCING MATERIALS

- A. Concrete Materials and Properties: Comply with requirements of Division 3 section "Concrete Work" for normal weight, ready-mix concrete with minimum 28-day compressive strength of 2,500 psi, 440 lb cement per cu. ft. minimum, and W/C ratio of 0.65 maximum, unless higher strengths indicated.

2.6 FABRICATION, GENERAL

- A. Form metal fabrications from materials of size, thickness, and shapes indicated but not less than that needed to comply with performance requirements indicated. Work to dimensions indicated or accepted on shop drawings, using proven details of fabrication and support. Use type of materials indicated or specified for various components of each metal fabrication.
- B. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges.
- C. Allow for thermal movement resulting from the following maximum change (range) in ambient temperature in the design, fabrication and installation of installed metal assemblies to prevent buckling, opening up of joints, and overstressing of welds and fasteners. Base design calculations on actual surface temperatures of metals due to both solar heat gain and nighttime sky heat loss.
 1. Temperature Change (Range): 100°F (55.5°C).
- D. Shear and punch metals cleanly and accurately. Remove burrs.
- E. Ease exposed edges to a radius of approximately 1/32 inch, unless otherwise indicated. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- F. Remove sharp or rough areas on exposed traffic surfaces.
- G. Weld corners and seams continuously to comply with AWS recommendations and the following:
 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 2. Obtain fusion without undercut or overlap.
 3. Remove welding flux immediately.
 4. At exposed connections, finish exposed welds and surfaces smooth and blended so

that no roughness shows after finishing and contour of welded surface matches those adjacent.

- H. 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. Locate joints where least conspicuous.
- I. Provide for anchorage of type indicated; coordinate with supporting structure. Fabricate and space anchoring devices to provide adequate support for intended use.
- J. 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 limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- K. Cut, reinforce, drill and tap miscellaneous metal work as indicated to receive finish hardware, screws and similar items.
- L. Fabricate joints that will be exposed to weather in a manner to exclude water or provide weep holes where water may accumulate.

2.7 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 6 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.

2.8 LOOSE BEARING AND LEVELING PLATES

- A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction, made flat, free from warps or twists, and of required thickness and bearing area. Drill plates to receive anchor bolts and fro grouting as required. Galvanize after fabrication.

2.9 LOOSE STEEL LINTELS

- A. Fabricate loose structural steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated.
- B. Weld adjoining members together to form a single unit where indicated.
- C. Size loose lintels for equal bearing of one inch per foot of clear span but not less than 8 inches bearing at each side of openings, unless otherwise indicated.
- D. Galvanize loose steel lintels located in exterior walls.

2.10 MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Provide steel framing and supports for applications indicated or which are not a part of structural steel framework, as required to complete work.
- B. Fabricate units to sizes, shapes and profiles indicated and required to receive adjacent other construction retained by framing and supports. Fabricate from structural steel shapes, plates and steel bars of welded construction using mitered joints for field connection. Cut, drill and tap units to receive hardware, hangers and similar items.
 - 1. 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.
 - a. Except as otherwise indicated, space anchors 24 inches o.c. and provide minimum anchor units in the form of steel straps 1¼" W x ¼" x 8" long.
- C. Galvanize miscellaneous framing and supports in the following locations:
 - 1. Exterior locations.
 - 2. Interior locations where indicated.

2.11 MISCELLANEOUS STEEL TRIM

- A. Provide shapes and sizes indicated for profiles shown. Unless otherwise indicated, fabricate units 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 framing and supports in the following locations:
 - 1. Exterior locations.
 - 2. Interior locations where indicated.

2.12 FINISHES, GENERAL

- A. Comply with NAAMM "Metal Finishes Manual" for recommendations relative to application and designations of finishes.
- B. Finish metal fabrications after assembly.

2.13 STEEL AND IRON FINISHES

- A. Preparation for Shop Priming: Prepare uncoated ferrous metal surfaces to comply with minimum requirements indicated below for SSPC surface preparation specifications and environmental exposure conditions of installed metal fabrications:
 - 1. Exteriors (SSPC Zone 1B): SSPC-SP6 "Commercial Blast Cleaning."
 - 2. Interiors (SSPC Zone 1A): SSPC-SP3 "Power Tool Cleaning."
- B. Apply shop primer to uncoated surfaces of metal fabrications, except those with galvanized finish or to be embedded in concrete, sprayed-on fireproofing, or masonry, unless otherwise

indicated. Comply with requirements of SSPC-PA1 "Paint Application Specification No. 1" for shop painting.

1. Stripe paint all edges, corners, crevices, bolts, welds and sharp edges.

3.0 EXECUTION

3.1 PREPARATION

- A. Coordinate and furnish anchorages, setting drawings, diagrams, templates, instructions and directions for installation of anchorages, including concrete inserts, sleeves, anchor bolts, and miscellaneous items having integral anchors that are to be embedded in concrete or masonry construction. Coordinate delivery of such items to project site.

3.2 INSTALLATION, GENERAL

- A. **Fastening to In-Place Construction:** Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction; include threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws and other connectors as required.
- B. **Cutting, Fitting and Placement:** Perform cutting, drilling and fitting required for installation of miscellaneous metal fabrications. Set metal fabrication accurately in location, alignment and elevation; with edges and surfaces level, plumb, true and free of rack; and measured from established lines and levels.
- C. Provide temporary bracing or anchors in formwork for items that are to be build into concrete masonry or similar construction.
- D. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations. Do not weld, cut or abrade the surfaces of exterior units which have been hot-dip galvanized after fabrication and are intended for bolted or screwed field connections.
- E. **Field Welding:** Comply with AWS Code for procedures of manual shielded metal-arc welding, appearance and quality of welds made, methods used in correcting welding work, and the following:
 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 2. Obtain fusion without undercut or overlap.
 3. Remove welding flux immediately.
 4. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing and contour of welded surface matches those adjacent.
- F. **Corrosion Protection:** Coat concealed surfaces of aluminum that will come into contact with grout, concrete, masonry, wood or dissimilar metals with a heavy coat of bituminous paint or zinc chromate primer.

3.3 SETTING LOOSE PLATES

- A. Clean concrete and masonry bearing surfaces of any bond-reducing materials and roughen to improve bond to surfaces. Clean bottom surface of bearing plates.
- B. Set loose leveling and bearing plates on wedges or other adjustable devices. After the bearing members have been positioned and plumbed, tighten the anchor bolts. Do not remove wedges or shims, but if protruding, cut off flush with the edge of the bearing plate before packing with grout.
 - 1. Use metallic nonshrink grout in concealed locations where not exposed to moisture; use nonmetallic nonshrink grout in exposed locations, unless otherwise indicated.
 - 2. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

3.4 ADJUSTING AND CLEANING

- A. Touch-Up Painting: Immediately after erection, clean field welds, bolted connections and abraded areas of shop paint and paint exposed areas with same material as used for shop painting to comply with SSPC-PA 1 requirements for touch-up of field painted surfaces.
 - 1. Apply by brush or spray to provide a minimum dry film thickness of 2.0 mils.
- B. Touch-Up Painting: Cleaning and touch-up painting of field welds, bolted connections and abraded areas of the shop paint on miscellaneous metal is specified in Division 9 Section "Painting" of these specifications.

END OF SECTION

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 this section.

1.2 SUMMARY:

- A. Types of work in this section include rough carpentry:
 - 1. Preservative treated wood blocking/nailers for roofing.
 - 2. Wood grounds, nailers and blocking.

1.3 SUBMITTALS:

- A. 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.

1.4 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. For lumber and plywood pressure treated with waterborne chemicals, sticker between each course to provide air circulation.

1.5 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. NLGA - National Lumber Grades Authority (Canadian).
 - 2. SPIB - Southern Pine Inspection Bureau.

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3. WCLIB - West Coast Lumber Inspection Bureau.
 4. 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.
- 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 inches or less in nominal thickness, unless otherwise indicated.
 3. Provide lumber with 15 percent maximum moisture content at time of dressing and shipment for sizes 2 inches or less in nominal thickness, unless otherwise indicated.

2.2 DIMENSION LUMBER:

- A. Light lumber framing, wood blocking and grounds, including wood blocking for wall attached shelving, cabinets, and toilet accessories:
1. Dimensions:
 - a. Where indicated and/or specified, lumber dimensions are nominal.
 - b. Actual dimensions to conform to PS20 for structural framing.
 2. Surfacing: Surface four sides (S4S) unless specified otherwise.
 3. Grades shall conform to the grading rules of manufacturer's association for the kinds of wood. Lumber shall bear the grade and trademark of the association under whose rule it is produced and shipped and a mark of the mill identification.
 4. Species: Douglas fir-larch, hem-fir or southern pine graded under SPIB, WCLIB or WWPA Rules.
 5. Grade: SPF No. 2 or better.
 6. Moisture content: 19% or less.
 7. Sizes: As indicated on drawings and/or as required to suit conditions encountered.
- B. Shoring Lumber: Dimensions, species and adequate stress characteristics as required to suit conditions encountered.

2.3 WOOD TREATMENT BY PRESSURE PROCESS:

- A. Preservative Treatment: Where lumber or plywood is indicated as "Trt-Wd" or "Treated", or "PT" is specified herein to be treated, comply with applicable requirements of AWPB Standards C2 (Lumber) and C9 (Plywood) and of AWPB Standards listed below. Mark each treated item with the AWPB Quality Mark Requirements.

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1. Pressure-treat aboveground 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:
 - a. Wood nailers, curbs, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers and waterproofing.
 - b. Blocking, furring, stripping and similar concealed members in contact with masonry or concrete.
2. Treat coated cut surfaces with heavy brush coat of same chemical used for treatment and to comply with AWPA M4.

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.
 1. Where rough carpentry work is exposed to weather, used with preservative treated wood, or in area of high relative humidity, provide fasteners and anchorages with a hot-dip zinc coating (ASTM A-153).

2.6 FIRE RETARDANT LUMBER

- A. Provide fire retardant lumber as required by the applicable authorities where called for on the drawings and as required by Code.

PART 3 - EXECUTION

3.1 INSPECTION:

- A. Verify that surfaces to receive rough carpentry materials are prepared to required grades and dimensions and that they are reasonably clean, smooth, level and/or plumb.
- B. Assure that anchor bolts required to secure blocking and nailers are properly located and installed.
- C. Assure that preservative treatment used on blocking and nailers is compatible with roof deck insulation and membrane roofing materials.

3.2 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. Set carpentry work to required levels and lines, with members plumb and true and cut and fitted.
- C. Securely attach carpentry work to substrate by anchoring and fastening as shown and as required by recognized standards.

3.3 INSTALLATION:

- A. Wood Blocking and Nailers: Used in conjunction with roof deck insulation, membrane roofing, fascia, copings and flashings:
 - 1. Coordinate wood blocking and nailer requirements with appropriate applicators and approved shop drawings.
 - 2. In general, install preservative treated wood nailers at perimeter of each roof level, curb flashing, roof hatch, similar penetrations and as required for fascia, copings, and at other locations as indicated on drawings and/or as required.
 - 3. Firmly anchor all roof nailers to meet FM Loss Prevention Data Bulletin 1-49.
 - 4. Unless otherwise indicated, thickness of nailers used in conjunction with roofing membrane shall be such that top of nailer is flush with surface to which roofing membrane is applied and/or attached (top of roof deck insulation) at horizontal plane.
 - 5. Coordinate installation of vertical nailers, where required, with work of roofing material applicator.
 - 6. Provide and install solid blocking at all wall door bumper locations.
 - B. Properly frame, closely fit, accurately set all framing, blocking, grounds, nailers, furring and other rough woodwork to required lines and levels and rigidly secure in place.
 - C. Install all woodwork level, plumb, square and true to details.
 - D. Expansion Joints: Worked to permit section to expand or contract without buckling.
 - E. Furnish and set all grounds, bucks and nailing clips required throughout building, including blocking required in Division 9, for attachment of all finished carpentry and millwork or for work of other trades requiring same. Provide grounds or blocking for all finished wood trim, grounds being ample to take nailing and securely anchored to studs.
 - F. Shoring Timber: Install all shoring and miscellaneous timber required to complete work properly.
- 3.4 Patch or repair any work of this section that may be cut or damaged by other trades.
- 3.5 Supervise all cutting for work by others and be responsible for any damage. Furnish means for proper access to different portions of work to Architect or his representative.
- 3.6 Details showing intent of design and construction are indicated on drawings and should be followed as closely as possible in keeping with best construction practices of trade involved. Work shall meet with approval of Architect.
- 3.7 Take and verify all measurements required for proper execution and fit of work. Check Architect's dimensions against field conditions. Report to Architect any discrepancies which will involve corrections. Adjust before fabrication. Be responsible for proper connections to adjoining work.

END OF SECTION

SECTION 062000 - FINISH CARPENTRY AND MILLWORK**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. Extent of finish carpentry and millwork is indicated on drawings and provisions of this section.
- B. Work Shall Include, But Not Be Limited To:
 - 1. Plastic laminate tops, aprons, panels, shelves, except as otherwise specified in casework sections.
 - a. Cut openings in countertops for sinks where indicated on drawings from templates furnished by P.C.
 - 2. Solid Surface countertops.
 - 3. Quartz Countertops.
 - 4. Finish carpentry and millwork to carry out intent of drawings and specifications.
 - 5. Screws, fasteners and anchors required for fabrication and installation.

1.3 **RELATED WORK SPECIFIED ELSEWHERE:**

- A. Carpentry is specified in another Division 6 section.
- B. Painting as specified in Division 9.
- C. Mechanical as specified in Division 23.
- D. Plumbing as specified in Division 22.

1.4 **QUALITY ASSURANCE:**

**Exact material selections to be followed as shown in architectural drawings.*

- A. Job Conditions: Prior to delivery and installation of finish carpentry and millwork materials, assure that following conditions exist -
 - 1. Temperature and humidity conditions closely approximate those which will exist when building is occupied.
 - 2. Building is not damp and cold or dry and hot.
 - 3. Concrete flooring, plastering and other wet work has been allowed to dry properly.
 - 4. Windows and doors are in place and glazed.
 - 5. Heating system is installed and operating where necessary to maintain proper conditions before, during and after finish carpentry and millwork is in progress.

- B. Fabricate materials to conform with details and design indicated on drawings in accordance with best millwork practices. Work must meet approval of Architect. Remove and build over, any mediocre work disapproved by Architect.
- C. Coordination:
 - 1. Take and verify all measurements required for proper execution and fit of work.
 - 2. Verify dimensions on Architect's drawings with field conditions.
 - 3. Report discrepancies and conflicts involving changes, including those between different installations, to Architect for correction prior to fabrication of materials.
 - 4. Coordinate work with various other trades providing adjoining work.

1.5 SUBMITTALS:

- A. Shop Drawings: Submit shop drawings of millwork, indicating:
 - 1. Elevations and sections.
 - 2. Details of joinery and fastening.
 - 3. Material species and grade.
 - a. Plastic Laminate
 - b. Core material to receive plastic laminate application
 - c. Solid Surface
 - d. Core material to receive solid surface material
 - e. Solid Wood
 - f. Wood Veneer on Substrate
 - 4. Surfaces to receive plastic laminate finish and solid surface finish.
 - 5. Adhesives types and grades.
 - a. Plastic laminate adhesive
 - b. Solid surface adhesive
 - c. Quartz adhesive
 - 6. Actual field verified dimensions.
- B. Samples:
 - 1. Samples of specified plastic laminate for Architect's approval.
 - 2. Samples of specified solid surface for Architect's approval.

1.6 PRODUCT DELIVERY, HANDLING AND STORAGE:

- A. Provide necessary protection for delivery, handling, and storage of materials to prevent damage.
- B. Store materials in an enclosed space protected from weather and with environmental conditions specified for job conditions.
- C. Provide manufacturer's 10-year warranty against defects in materials. Warranty shall provide material and labor to repair or replace defective materials. Damage caused by physical or chemical abuse or damage from excessive heat not warranted.

PART 2 - PRODUCTS

2.1 MATERIALS:

A. Plastic Laminate:

1. Conform to National Electric Manufacturer's Association (NEMA) LD3-2005, GP50, standard grade, minimum 0.050 inch thick.

** Refer to drawings for exact finish selections.*

2. Backing sheet: LD3-2005, BK20, 0.020 inch thick.

3. Plastic Laminate Core:

- a. Particleboard: 47 pound density, conforming to ANSI A208-1, Grade 1-M-3 "Mat Formed Wood Particleboard".

- (1) Vertical applications: Minimum 1/2 inch thick.
- (2) Horizontal applications: Minimum 3/4 inch thick.

B. Solid Woods: Hardwood, clear and free from defects. Kiln dry to insure moisture content of 6 to 8 %. After kiln drying, temper all solid woods to moisture content of 7 to 10 %. Confirm all species with architectural drawings and contact Architect if information differs.

1. Hardwood for exposed edges of plywood:
 - a. Walnut (See drawings to verify species and locations)
2. Hardwood:
 - a. Grade No. 2 or better, for natural finish.
3. Wood moldings, trim and solid wood for natural finish: Walnut
4. All corner ends to be tapered or mitered as selected in architectural drawings or contact Architect if information differs.
5. Finish stain to be selected by Architect

C. Solid Surface:

1. Conform to all manufacturers recommended installation requirements.
** Refer to drawings for exact finish selections.*
2. Characteristics:
 - a. Non-porous homogeneous blend of polyester/acrylic alloys and fillers.
 1. Superficial damage to a depth of 0.10" shall be repairable by sanding or polishing.
 2. Stain and chemical resistance: NEMA LD 3-3.9. tested to 29 common agents.
 - b. Thickness: Provide materials of thickness as shown on the drawings.

D. Quartz:

1. Conform to all manufacturers recommended installation requirements.
** Refer to drawings for exact finish selections.*

2. Characteristics:
 - a. Cast, filled, acrylic; not coated, laminated or of composite construction, meeting ANSE Z124-1980, Type Six, and Fed. Spec. WW-P-541E/GEN dated August 1, 1980.
 1. Superficial damage to a depth of 0.10" shall be repairable by sanding or polishing.
 - b. Thickness: Provide materials of thickness as shown on the drawings.

E. Adhesives:

1. Millwork: As recommended by millwork fabricator for conditions encountered.
2. Plastic laminate: Natural-setting hybrid P.V.A. Type III water resistant adhesives that cure through chemical reaction, containing no health or environmentally hazardous ingredients.
3. Solid Surface:
 - A. Joint Adhesive: Manufacturer's standard two part adhesive kit to create inconspicuous, non-porous joints.

F. Screws and Fastenings:

1. Stainless Steel for Plastic Laminate.
2. Millwork Assembly: Rustproof type as required for conditions encountered.

2.2 WARRANTY:

- A. Provide manufacturer's 10-year warranty against defects in materials. Warranty shall provide material and labor to repair or replace defective materials. Damage caused by physical or chemical abuse or damage from excessive heat not warranted.

2.3 CASEWORK

A. Countertops with high pressure laminate finish.

** Refer to drawings for exact finish selections.*

1. Construction: See Details.
2. Exposed surfaces (Acceptable Manufacturers, others acceptable if specified in architectural drawings)
 - a. Formica Corporation
 - b. Wilsonart
 - c. Pionite
 - d. Nevamar
 - e. Laminart
3. Colors and patterns: See architectural drawings for exact selections.
4. Backing sheet: Clear.
5. Thickness: Horizontal surfaces 1/16" vertical surfaces 1/32"
6. Adhesive: Contact type as recommended by the laminated plastic manufacturer.
7. Semi-exposed surfaces: As required by AWI quality grade.

B. Particleboard Core:

1. Medium density conforming to CS236, type 1-B2.
2. Particleboard shall not be used for shelves.

C. Solid Surface Counters:

** Refer to drawings for exact finish selections.*

1. Provide sizes and configuration as shown on drawings and specified.
2. Provide all necessary blocking and brackets for support.
3. Solid Polymer surface shall be applied to ¾" particleboard in strict accordance with manufacturer's instructions and recommendations.
4. Exposed surfaces (acceptable manufacturers)
 - a. Manufacturer: Dupont/Corian/Cambria
 - b. Location: As indicated on finish schedule.

2.4 MILLWORK

Shall include the following:

A. All Counters:

1. Provide sizes and configuration as shown on drawings and specified herein (field measure and scribe to walls).
2. Provide all hardware required. Hardware for millwork is not included in hardware Section 8.
3. Provide all necessary blocking and brackets for support and attachment to walls.
4. Solid Polymer surface shall be applied to ¾" particle board in strict accordance with manufacturer's instructions and recommendation.
5. Solid Polymer surface shall be fabricated and installed per manufacturer's recommended instructions.

B. Coat Rod & Shelf, and all other millwork specified in drawings to receive plastic laminate:

1. Provide sizes and configuration as shown on drawings and specified herein (field measure and scribe to walls). All shelves to receive plastic laminate finish as per drawing details.
2. Provide all hardware required. Hardware for millwork is not included in hardware Section 8.
3. Provide all necessary blocking and brackets for support and attachment to walls.
4. Plastic laminate shall be applied to ¾" particle board in strict accordance with laminate manufacturers instructions and recommendation.

2.5 FABRICATION, GENERAL:

- A. Fabrications to dimensions, profiles, and details indicated on drawings, with openings and mortises precut, where required, to receive hardware and other items and work.
- B. Complete fabrication, assembly, finishing, hardware application, and other work before shipment to project site to maximum extent possible. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.

- C. Pre-cut Openings: Fabricate with pre-cut openings, where required, to receive hardware, appliances, plumbing fixtures, electrical work and similar items. Locate openings accurately and use templates or roughing-in diagrams for proper size and shape. Smooth edges of cutoffs.
- D. Measurements: Before proceeding with fabrication of solid polymer fabrications required to be fitted to other construction, obtain field measurements and verify dimensions and shop drawing details as required for accurate fit.
- E. Millwork:
 - 1. Assemble millwork items neatly and carefully.
 - 2. Glue shop assembled surfaces where possible and block at concealed locations.
 - 3. Cope intersecting moldings where possible.
 - 4. Join mill assemblies with concealed nails and screws where practical.
 - 5. Glue, mortise and tenon joints.
 - 6. Install splines at mitered corners.
 - 7. Make all jointing over solid bearing.
 - 8. Where drawers are required, fabricate heads, sides and backs from solid hardwood material. Particleboard, not acceptable.
- F. Plastic Laminate Application:
 - 1. Apply plastic laminate over solid backing of thickness indicated on drawings and/or specified herein.
 - 2. Use adhesive specified in accordance with manufacturer's recommendations.
 - 3. Adhere plastic laminate to backing under pressure as recommended by laminated plastic manufacturer.
 - 4. Apply plastic laminate to exposed faces, ends and edges of core material.
 - 5. Where possible, apply plastic laminate without seams.
 - 6. Apply backing sheets on rear face of core material in all cases where rear face is not exposed to view.
 - 7. Seal all exposed core edges at cutouts with approved waterproof sealer.
 - 8. Prepare plastic laminate tops and panels for fastening with concealed screws and anchors.
- G. Solid Surface:
 - 1. Fabrications to dimensions, profiles, and details indicated on drawings, with openings and mortises precut, where required, to receive hardware and other items and work.

2. Complete fabrication, assembly, finishing, hardware application, and other work before shipment to project site to maximum extent possible. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
3. Pre-cut Openings: Fabricate with pre-cut openings, where required, to receive hardware, appliances, plumbing fixtures, electrical work and similar items. Locate openings accurately and use templates or roughing-in diagrams for proper size and shape. Smooth edges of cutoffs.
4. Measurements: Before proceeding with fabrication of solid polymer fabrications required to be fitted to other construction obtain field measurements and verify dimension and shop drawing details as required for accurate fit.

2.6 BLOCKING, GROUNDS AND FRAMING

Shall be of thickness required for intended purpose.

- A. Framing: Frame, fit closely, set framing accurately to required lines, levels, secure rigidly in place. Provide special framing or construction not indicated or specified, as required to complete work in best workmanlike manner. Do nailing, and fastening in a thorough manner; use nails and fasteners of ample size: 16d spikes where practicable.
- B. Provide dressed wood grounds and furring where required and herein described.
- C. Set grounds rigidly, in perfect alignment, true up with long straight edge.
- D. Fastening: To concrete and solid masonry with expansion bolts. Fasten to hollow masonry with toggle bolts or with nails in metal wall plugs. Fasten to metal with stove bolts and fasten to metal lath with wire. The use of wood plugs will not be permitted.
- E. Install rough wood blocking, rough hardware metal fastenings for proper installation of finish work and accessories.
- F. Install furring as indicated.

2.7 FINISH HARDWARE

Shall be delivered from Division 8 for installation after painting.

- A. Install hardware in accordance with manufacturer's instructions. Fit accurately, apply securely and adjust carefully.

PART 3 - EXECUTION

3.1 INTERIOR FINISH:

- A. General character and intent as indicated on drawings.
- B. Perform all cutting and fitting neatly and, in general, make fastenings with finishing nails.
- C. Set exposed nails for putty stopping.

- D. Space splice joints in wood trim not less than 12 feet on center. Miter and glue splices. Where transparent finish is scheduled, match grain at splices as closely as possible.
- E. Finish Work: Free from open joints and tool marks.

3.2 INSTALLATION:

- A. Install work level, plumb, true to detail.
- B. Fasten work securely in place.
- C. Back prime all interior woodwork with one liberal coat of approved sealer.
- D. Unless otherwise indicated, provide concealed fastenings and anchors to secure plastic laminated tops and panels to blocking or other materials indicated.
- E. Form field joints using manufacturer's recommended adhesive, with joints inconspicuous in finished work. Keep components and hands clean when making joints.
- F. Provide backsplashes and end splashes as indicated on the drawings.
- G. Install sinks in countertops using manufacturers/installers recommended product installation details.
- H. Keep components and hands clean during installation. Remove adhesives, sealants and other stains. Components shall be clean on date of substantial completion.
- I. Clean and prepare finish carpentry and millwork to receive scheduled finish.
- J. Allowable tolerances: Fabricate to the following tolerances:
 - 1. Variation in component size: $\pm 1/8"$.
 - 2. Location of openings: $\pm 1/8"$ from indicated location.
 - 3. Anchors: Select material, type, size and finish required.

3.3 PROTECTION:

- A. Provide protection for finish carpentry and millwork against damage by construction work until completion of project.
- B. Repair or replace damaged work as directed by Architect, at no additional cost to Owner.

END OF SECTION

SECTION 07200 - INSULATION1.0 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 DESCRIPTION OF WORK

- A. Extent of insulation work is shown on drawings and indicated by provisions of this section.
- B. Applications of insulation specified in this section include the following:
 - 1. Foundation wall insulation (supporting backfill).
 - 2. Safing insulation.
 - 3. Blanket-type building insulation.
 - 4. Acoustical Insulation
 - 5. Korfil
- C. Roof insulation is specified in the Division-7 section in which other roofing products, including roofing membrane is covered.

1.3 QUALITY ASSURANCE

- A. Thermal Resistivity: Where thermal resistivity properties of insulation materials are designated by r-values they represent the rate of heat flow through a homogenous material exactly 1" thick, measured by test method included in referenced material standard or otherwise indicated. They are expressed by the 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 indicated.
- B. Fire Performance Characteristics: Provide insulation materials which are identical to those whose fire performance characteristics, as listed for each material or assembly of which insulation is a part, have been determined by testing, per methods indicated below, by UL or other testing and inspecting agency acceptable to authorities having jurisdiction.
 - 1. Surface Burning Characteristics: ASTM E84.
 - 2. Fire Resistance Ratings: ASTM E119.

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's product literature and installation instructions for each type of insulation and air infiltration material required.
- B. Certified Test Reports: With product data, submit copies of certified test reports showing compliance with specified performance values, including r-values (aged values for plastic insulations), densities, compression strengths, fire performance characteristics, perm ratings, water absorption ratings and similar properties.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. General Protection: Protect insulations from physical damage and from becoming wet, soiled, or covered with ice or snow. Comply with manufacturer's recommendations for handling, storage and protection during installation.

1.6 CLOSEOUT SUBMITTALS

- A. Upon completion of the Work of this Section, Contractor shall submit to the Construction Manager, all required closeout documents.
- B. Contractor shall submit a marked-up set of drawings indicating any changes made during construction to the Construction Manager.
- C. Upon completion, submit to the General Contractor, a Contractor's Affidavit of Payment of Debts and Claims, and Release of Liens.
- D. Refer to General Conditions for additional requirements.

2.0 PRODUCTS

2.1 ACCEPTABLE 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:
 - 1. Manufacturers of Glass Fiber Insulation:
 - a. CertainTeed Corp.
 - b. Manville Corp.
 - c. Owens-Corning Fiberglas Corp.
 - 2. Manufacturers of Semi-Refractory Fiber Insulation:
 - a. Manville Corp.
 - b. United States Gypsum Co.
 - 3. Manufacturers for Foamed in Place Insulation
 - a. Foam – Tech
 - b. Architect approval equal.

2.2 INSULATING MATERIALS

- A. General: Provide insulating materials which comply with requirements indicated for materials, compliance with referenced standards, and other characteristics.
- B. Foundation Insulation Extruded Polystyrene Board Insulation: Rigid, cellular thermal insulation with closed-cells and integral high density skin, formed by the expansion of polystyrene base resin in an extrusion process to comply with ASTM C 578 for Type indicated; with 5-year aged r-values of 5.4 and 5 at 40 and 75 deg.F (4.4 and 23.9 deg.C), respectively; and as follows:
 - 1. Type IV, 1.6 lb./cu. ft. min. density, unless otherwise indicated.

- C. Faced Mineral Fiber Blanket/Batt Insulation: Thermal insulation produced by combining mineral fibers of type described below with thermosetting resins to comply with ASTM C 665 Type III, Class A (blankets with reflective vapor-retarder membrane facing with flame spread of 25 or less); foil vapor-retarder membrane on one face, respectively; and as follows:
1. Mineral Fiber Type: Fibers manufactured from glass.
 2. Surface Burning Characteristics: Maximum flame spread and smoke developed values of 25 and 50 respectively. R Value of R-21.
- D. Fire Stop Material 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 mineral fiber manufactured from slag with thermosetting resin binders to comply with ASTM C612, Class 1 and 2; nominal density of 4.0 lbs. per cu. ft.; passing ASTM E136 for combustion characteristics; r-value of 4.0 at 75 deg.F (23.9 deg.C).
- E. Acoustical Insulation: Thermafiber sound attenuation blankets by USG.
1. Mineral Fiber Type: Fibers manufactured from glass.
 2. Surface Burning Characteristics: Maximum flame spread and smoke developed values of 25 and 50 respectively.

3.0 EXECUTION

3.1 INSPECTION AND PREPARATION

- A. Require Installer to examine substrates and conditions under which insulation work is to be performed. A satisfactory substrate is one that complies with requirements of the section in which substrate and related work is specified. Obtain Installer's written report listing conditions detrimental to performance of work in this section. Do not proceed with installation of insulation until unsatisfactory conditions have been corrected.
- B. Clean substrates of substances harmful to insulations or air infiltration materials, including removal of projections which might puncture air infiltration materials.

3.2 INSTALLATION, GENERAL

- A. Comply with manufacturer's instructions for particular conditions of installation in each case. If printed instructions are not available or do not apply to project conditions, consult manufacturer's technical representative for specific recommendations before proceeding with work.
- B. Extend insulation full thickness as shown over entire area to be insulated. Cut and fit tightly around obstructions, and fill voids with insulation. Remove projections which interfere with placement.
- C. Apply a single layer of insulation of required thickness, unless otherwise shown or required to make up total thickness.

3.3 INSTALLATION OF PERIMETER AND UNDER-SLAB INSULATION

- A. On vertical surfaces, set units in adhesive applied in accordance with manufacturer's instructions. Use type of adhesive recommended by manufacturer of insulation.
- B. Extend insulation as shown on the drawings. Set in adhesive in accordance with recommendations of manufacturer of insulation. Score and snap off excess insulation ½" below finished concrete floor elevation.

3.4 INSTALLATION OF GENERAL BUILDING INSULATION

- A. Apply insulation units to substrate by method indicated, complying with manufacturer's recommendations. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.
- B. Seal joints between closed-cell (non-breathing) insulation units by applying mastic or sealant to edges of each unit to form a tight seal as units are shoved into place. Fill voids in completed installation with mastic or sealant.
- C. At all exterior walls, set air infiltration faced units with air infiltration to warm side of construction, except as otherwise indicated. Do not obstruct ventilation spaces, except for firestopping.
- D. Stuff fiberglass insulation into miscellaneous voids and cavity spaces where shown. Compact to approximately 40% of normal maximum volume (to a density of approximately 2.5 lbs. per cu. ft.).

END OF SECTION

SECTION 07535 - FULLY ADHERED EPDM1.0 GENERAL

The drawings, Instructions to Bidders, Form of Proposal, General Conditions, Supplementary General Conditions, and Division 1 are included herein and govern work under this section.

1.1 SCOPE

- A. Furnish all labor, materials and equipment necessary and incidentals to execute the complete installation of the Fully Adhered Roofing System as indicated on the drawings and specified herein.
- B. Furnish and install membrane roofing system in strict accordance with drawings, specifications, manufacturer recommendations and instructions. This specification is written around the membrane roofing system as manufactured by Firestone Building Products Company for the purpose of establishing standards of quality of materials construction and workmanship.
- C. Furnish roof insulation related to Fully Adhered Roof System as specified in this section.

1.2 RELATED WORK SPECIFIED ELSEWHERE:

- A. Wood Nailers: Section 06100
- B. Flashing and Sheet Metal: Section 07600

1.3 QUALITY ASSURANCE

- A. Applicator:
 - 1. Applicator must be licensed to install roof system by Firestone Building Products Company.
 - 2. Applicator must have a minimum of three (3) successive years experience.
- B. Store materials on clean raised platforms under weather protective coverings when store outside. Store adhesives, caulking, primers, etc. at room temperature (60-80 degrees F). If stored at lower temperature, restore to proper temperature before using.
- C. Damaged materials shall be replaced at roofing contractor's expense.

1.4 JOB CONDITIONS

- A. Proceed with roofing work when existing and forecasted weather conditions permit work to be performed in accordance with manufacturer's recommendations and warranty requirements.
- B. Do not allow oil based products (petroleum, grease, oil, solvents, etc.), mineral oil, animal fat or direct steam vents to come in direct contact with EPDM membrane.
- C. Coordinate roofing work with other trades.

- D. All surfaces to receive roofing shall be thoroughly dry and free of dew or frost.

1.5 WARRANTY

- A. The contractor shall guarantee the roof for a period of two years from date of acceptance and provide a 10 year Manufacturer's Warranty against defective workmanship and manufacturers 20 year warranty against defective materials.
 - 1. The contractor guarantees that the total roof installation together with all related composition flashing, metal flashing, roof insulation, blocking, and adhesives installed in connection with the roof, will be watertight and free of defects of material and workmanship for a period of two (2) years from final acceptance of the completed roof.
 - 2. During this two year period, the roofing contractor agrees that within 48 hours of being notified, he will inspect and make all repairs necessary at no cost to the owner with exception of natural disaster.
- B. Firestone Building Products Company shall issue a ten (10) year warranty against material workmanship and labor not limited to the dollar value of the original contract and a 20 year warranty against defective material.
 - 1. The Firestone agrees to make all repairs necessary within 72 hours of notification.
 - 2. Two copies of the properly executed warranty shall be delivered to the owners representative before final payment will be made.

1.6 PRE-ROOFING CONFERENCE

- A. Prior to the beginning of work, a pre-roofing conference is to be held, attended by the Architect, the Roofing Contractor, a representative of Firestone and the owners representative if required. The purpose of this conference is to review the specifications, details, application, storage areas, protection and safety precautions and establish lines of communications with other subcontractors of this project.

2.0 PRODUCTS

- A. The components of this roof system are to be products of the Firestone Building Products Company or as approved by Firestone in writing.

2.1 MEMBRANE MATERIAL

- A. The membrane shall be free to streaks, particles of foreign matter, pinholes, cracks, tears and must be uniform in thickness. When unrolled in the relaxed position, the membrane must be free of wrinkles, distortions and blisters.
- B. Membrane shall be Unreinforced .060 "FR" EPDM (Ethylene Propylene Diene Terpolymer)
 - 1. Tensile Strength: 1305 psi minimum ASTM-D-412
 - 2. Elongation: 300% minimum ASTM-D-412
 - 3. Tear Resistance: 150 lbs/in minimum ASTM-D-624

4. Ozone Resistance: No cracks ASTM-D-1149
5. Heat Aging: Tensile minimum 1205 psi, minimum elongation 200% ASTM-D-573
6. Brittle Temperature: -49F (-45C) ASTM-D-746
7. Water Vapor Permeability Maximum Per Mil: 2.0 ASTM-E-96
8. Thickness: 0.060"

C. Flashing shall be uncured EPDM or cured EPDM.

1. Tensile Strength: 1306 psi minimum ASTM-D-412
2. Elongation: 300% minimum ASTM-D-412
3. Brittleness Temperature: -49F (-45C) ASTM-D-746
4. Tear Resistance: 150 lbs/in minimum ASTM-D-624
5. Thickness: 0.060"

D. Related Materials

1. Bonding Adhesive: Compatible with materials to which the membrane is to be bonded, furnished by Firestone.
2. Cleaner/Primer: A wash supplied by Firestone clean mica or talc on the surface of membrane and to prepare surface for splicing, bonding or tapes.
3. Splice Adhesive: Furnished by Firestone.
4. Lap Sealant: Compatible with material with which it is used and supplied by Firestone.
5. Water-Block Seal: Compatible with materials with which it is used and supplied by Firestone.
6. Molded Pipe Boots: Furnished with a stainless steel clamping ring and supplied by Firestone.
7. Pourable Sealer: Two part polybutadine/polyethylene formula compatible with material with which it is to be used and supplied by Firestone.
8. Termination Bar, Batten Strip, Reinforced Strip: Furnished by Firestone.
9. Walkway Pads: 30" x 30" x .300 thick supplied by Firestone.
10. Sponge Tubing and Compressible Filler: As recommended by Firestone.

E. Other Related Materials

1. Wood Nailers: Pressure treated for rot resistance (Womanzed or Osiose K-33) #2 or better lumber. Asphaltic or creosote treated lumber is not acceptable.

2.2 INSULATION

A. Insulation shall be flat or tapered Firestone ISO 95+ Polyisocyanurate with a black glass fiber mat facer.

1. To meet Federal Spec #HH-I-1972/2 Class 1
2. Flame Spread: 25 maximum ASTM-E-84
3. Density: Nom. 2pcf ASTM-D-1622
4. Compressive Strength: 20 psi ASTM-D-1621
5. Factory Mutual Approved for Class 1 insulated steel roof deck construction and concrete roof slab construction.
6. Underwriters Laboratory classified as a roof deck material with resistance to internal fire exposure for construction #120 and 123. UL-1256.

- B. Minimum Aged R Value shall be 5.83 inch as determined in accordance with the PIMA conditioning procedure as outlined in PIMA Tech. Bulletin 101. (Minimum R value R29)
- C. Provide tapered insulation where shown on roof plan.

2.3 INSULATION FASTENERS

- A. Fasteners specifically designed to be used in roofing applications for the attachment of roof insulation (with metal insulation plates), batten bars, termination bars, and other accessories to steel, wood and structural concrete surfaces by Firestone (AP or HD fasteners type.)
 - 1. Determine length as follows:
 - a. Steel Deck: Penetrate deck minimum 1/2"
 - 2. Corrosion Coating: Fluorocarbon Polymer.
- B. Metal Plates: Specifically designed for insulation attachment and having a Factory Mutual approval.

2.4 VAPOR RETARDER

- A. A six (6) mil poly vapor retarder shall be provided on the deck below the first layer of insulation. Seams shall be lapped a minimum of 4" and sealed with a pressure sensitive tape, a minimum of 2" wide.

3.0 EXECUTION

Comply with manufacturer's recommendations, except where more stringent requirements are indicated by architect.

3.1 SUBSTRATE PREPARATION

- A. Substrate shall be structurally sound, clean, smooth free of fins, sharp edges, oil, grease, water and roof cement.

3.2 EXAMINATION

- A. Verify proper placement of all roof openings, pipes, curbs, sleeves ducts, vents and drains.

3.3 VAPOR RETARDER

- A. Install vapor retarder directly over roof deck lapping edges a minimum of 4" and seal joints with pressure sensitive tape. Do not apply more than can be covered and sealed in one day.

3.4 INSULATION INSTALLATION

- A. Extend insulation over entire area to be insulated, neatly cutting and fitting around obstructions. Install in layers no more than 2" thick. Joints shall be 1/4" or less. Cover crickets, saddles, and tapered areas with material as required for proper drainage of membrane. Install only dry insulation and only as much as can be covered the same day with membrane and completed.

1. Secure insulation to the deck with Firestone fasteners at the rate of 1 every 2 square feet of surface area or as recommended by Firestone to meet an RMI-90 wind uplift.
2. A minimum of 300 lbs pull-out is required on all decks.

3.5 ELASTOMERIC SHEET ROOFING INSULATION

A. Install membrane to Firestone's printed instructions.

1. Loosely lay EPDM membrane over roof insulation. Allow membrane to relax 30 minutes minimum.
2. After making sure the sheet is placed in its final position, fold it back onto itself so as to expose the underside.
3. Remove excess dusting agent, or other contaminants from the mating surfaces.
4. Apply bonding adhesive at about the same time to both the underside of the membrane and the substrate to which it is to be bonded to with heavy napped roller or spray equipment. Do not allow globs or puddles to form. Note coverage rate as recommended by the manufacturer.
5. Care must be taken not to apply bonding adhesive over the area that is to be later cleaned and spliced to another sheet.
6. Allow bonding adhesive to flash off until slightly tacky to the touch with a clean dry finger and does not string. Also push forward to ensure that the adhesive is ready throughout its thickness. Flash off time will vary depending on ambient air conditions.
7. Starting at the fold, roll the previously coated portion of the sheet into the coated substrate slowly and evenly to minimize wrinkles.
8. To ensure proper contact, compress the bonded membrane to the substrate with a stiff push broom.
9. Repeat procedure on second half of sheet.

B. Membrane Splicing

1. Position membrane to overlap a minimum of 3" along the entire length of the splice.
2. Clean and dry mating surfaces using clean cotton cloths with splice cleaner or splice primer to remove all contaminants that will affect the finished seam strength. Allow to dry. Additional cleaning may be required. Discard cotton cloth as it becomes dirty and replace with clean one to assure proper cleaning.
3. Thoroughly stir splice adhesive before and during use. Apply splice adhesive using a 3" or 4" wide by 1/2" thick solvent resistant paint brush in a thick, even, smooth coat with long painting type strokes, yielding a smooth glossy adhesive surface. Apply splice adhesive to both mating surfaces at about the same time to allow approximately the same drying time. **(DO NOT USE CIRCULAR MOTIONS**

WITH BRUSH OR ROLLERS TO APPLY SPLICE ADHESIVE.)

4. Apply splice adhesive at specified coverage rate as recommended by the manufacturer.
5. Allow adhesive to flash off. Touch with clean dry finger to be certain that the adhesive does not stick or string. Roll top sheet into the bottom allowing to fall freely as not to stretch or wrinkle the membrane.
6. Apply hand pressure along the entire lap. Then using a steel 2" or 3" wide steel roller, roll the entire splice applying pressure toward the outside edge of the lap.
7. Wait a minimum of 4 hours before applying lap sealant, weather permitting. Clean lap edge and apply a continuous bead of lap sealant approximately 3/8" x 1/4" centered over the lap edge. Feather lap sealant immediately using special lap sealant tool.

3.6 MEMBRANE SECUREMENT

- A. Provide membrane securement (base tie-in) where the membrane ends or goes through an angle change greater than 2" in 12" (i.e. roof edge, curbs, walls). Round pipes 18" or smaller in diameter and square penetrations less than 4" do not require a base tie-in, but must be flashed to Firestone's details and specifications.
- B. Install Firestone metal batter strip, polymer batten strip or reinforced perimeter fastening strips as required using standard printed manufacturer's details.

3.7 FLASHING - CURBS, WALLS, ETC.

- A. Using longest pieces practical flash all walls, curbs, etc. to the height specified by project designer.
- B. The following substrates require an overlayment of 5/8" exterior grade plywood.
 1. Gypsum board
 2. Stucco
 3. Textured masonry
 4. Corrugated metal panels
 5. Other uneven substrates
- C. Install all flashing to current Firestone specifications and details.

3.8 PENETRATIONS

- A. Pipes: Flash using pre-molded EPDM pipe flashing where practical.
- B. Roof Drains: (For cast iron drains only. Contact Firestone Technical Department for all other types.) Remove existing flashing, lead and roofing from existing drain bowl. Taper insulation around drain to 4" in 12" or less to provide a smooth transition. Position membrane over drain and cut hole allowing 1/2" minimum inside clamping ring. Cut round holes for clamping bolts. (Do not cut membrane back to bolts.) Place water block seal on the clamping ring seat below membrane using a minimum of 1/2 tube per drain. Install roof

drain clamping ring and bolts. Tighten clamping ring bolts to achieve constant compression.

- C. Pipe Clusters: Fabricate metal penetration pocket with a minimum of 1" clearance on all sides. Secure penetration pocket to deck as required. Fill with Pourable Sealer to shed water. A 2" minimum depth is required.
- D. Hot Pipes: Protect rubber components from direct contact with steam or heat sources when in-service temperature exceed 180 degrees F.
- E. Flexible Penetrations: Provide a weathertight gooseneck set in water block seal and secured to the deck. Flash in accordance with "Pipes" as listed above 3.9A).
- F. Expansion Joints: Flash as detailed and in accordance with manufacturer's specifications.

END OF SECTION

SECTION 07600 - FLASHING AND SHEET METAL1.0 GENERAL

The drawings, Instructions to Bidders, Form of Proposal, General Conditions, Supplementary General Conditions, and Division 1 are included herein and govern work under this section.

1.1 SCOPE

- A. Provide labor and materials and everything necessary for, and incidental to the execution and completion of the Flashing and Sheet Metal work indicated on the drawings and specified herein.
- B. The following items are specifically included without limiting the generality implied by these specifications and the drawings:
 - 1. Flashing for mechanical pipes and fixtures
 - 2. Metal sump pans at roof drains
 - 3. Coping System
 - 4. Metal Cap Flashing
 - 5. Reglet and Counterflashing

1.2 COOPERATION

Examine drawings and specifications to determine nature of construction. Provide items in advance of use that are to be built into work by other trades, or may interfere with the normal installation or quality of their work.

2.0 PRODUCTS

2.1 MATERIALS

- A. Cap Flashing - Aluminum pre-finished sheet or strip of Alloy and temper recommended by the aluminum producer for the use intended. Thickness shall be 24 gauge. Finish shall be Kynar, color as selected by Architect. Cap flashing shall be shaped to profiles shown on drawings; workmanship shall follow SMACNA standards. Field work shall provide sharp clean profiles and properly fitted joints to exclude weather.
- B. Coping System

Furnish and install snap-lok coping system as manufactured by MM Systems. Coping shall be .063 aluminum with smooth finish. Gutter/splice plate shall be aluminum finished to match coping. Anchor plate shall be galvanized steel. Finish shall be custom Kynar, as selected by Architect.
- C. Reglet & Counterflashing

Furnish and install SNAP-TITE reglet and counterflashing system by MM Systems Corporation (RC-3).

3.0 EXECUTION

3.1 INSTALLATION

- A. Flashing shall be installed where shown on drawings. Provide cements as recommended by the manufacturer and install with laps and cemented joints as recommended by the manufacturer.

3.2 VERIFICATION OF ROOF GUARANTY

- A. The General Contractor shall verify and coordinate with the Cap Flashing Contractor and Roofing Contractor compatibility, acceptance and written roof guaranty.

END OF SECTION

SECTION 07900 - CAULKING AND SEALANTS1.0 GENERAL

The drawings, Instructions to Bidders, Form of Proposal, General Conditions, Supplementary General Conditions and Division 1 are included herein and govern work under this section.

1.1 DESCRIPTION OF WORK

A. The work covered by this section of the specifications consists of providing all equipment, materials and labor, and performing all the work as required for the complete execution of caulking and sealing as indicated. Included, but not necessarily limited to, are the following:

- 1 Sealing all joints between precast concrete panels and aluminum and hollow metal frames and other items built into wall.
2. Sealing all joints between masonry and steel and aluminum frames.
- 3 Sealing all around all exterior door frames, louvers and other items built into exterior walls.
- 4 Sealing all joints between exterior architectural metal work and other materials.
5. Caulking all exterior door saddles.
6. Caulking all joints between flashing and other work beneath flashings.
7. Sealing at control and expansion joints.
8. Sealing or caulking at all other locations where sealant or caulking is indicated.

B. The following work is specified under other divisions and/or sections of the specifications:

1. Premolded expansion joint filler at concrete slabs - Division 3.
2. Glass and Glazing - Division 8.
3. Joint filler and sealer for sidewalks - Division 2.

1.2 GENERAL PERFORMANCE

Except as otherwise indicated, joint sealers are required to establish and maintain airtight and waterproof continuous seals on a permanent basis, within recognized limitations of wear and aging as indicated for each application. Failures of installed sealers to comply with this requirement will be recognized as failures of materials and workmanship.

1.3 SUBMITTALS

A. Product Data

Submit manufacturer's product specifications, handling, installation, curing instructions, and performance tested data sheets for each elastomeric product required.

B. Certified Tests

With product data submit test reports for elastomeric sealants on aged performances as specified, including hardness, stain resistance, adhesion, cohesion or tensile strength, elongation, low-temperature flexibility, compression set, modulus of elasticity, water absorption, and resistance (aging, weight loss, deterioration) to heat and exposures to ozone and ultraviolet.

1.4 JOB CONDITIONS**A. Weather Conditions**

Do not proceed with installation of liquid sealants under unfavorable weather conditions. Install elastomeric sealants when temperature is in lower third of temperature range recommended by manufacturer for installation.

1.5 SAMPLES

A. Submit in duplicate, samples of all material specified herein, for approval of Architect.

B. Approved samples shall be the standard for comparison of all installed work.

2.0 PRODUCTS**2.1 PLAIN CAULKING COMPOUND**

A. Use plain caulking compound under door saddles, at metal flashing and for interior caulking.

B. Plain caulking compound shall be the best grade manufactured by one of the following companies and shall comply with specification requirements:

1. A.C. Horn Company
2. Tremco Manufacturing Company
3. Pecora, Inc.
4. Minwax Company, Inc.
5. Martin Marietta Company
6. DAP, Inc.

C. It shall be furnished in proper consistency for gun or knife application as required.

D. Color shall be approved by the Architect.

2.2 ELASTOMER SEALANT COMPOUND

A. Except as otherwise specified, all sealant and caulking work shall be done with elastomer sealant compound.

B. All elastomer sealing compound shall be a 2-part polyurethane liquid polymer base. Primer shall be used in accordance with manufacturer's recommendations.

C. It shall have a Shore Hardness Durometer reading of 25 to 35 as recommended by manufacturer for specific conditions and shall withstand temperature extremes from minus degrees F. to plus 260 degrees F.

D. It shall absorb movement not to exceed 100% of its applied width after ten (10) years exposure without loss of adhesion or cohesion.

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- E. It must be non-staining and non-blushing after contact with masonry terra cotta, mortar or metal of any kind.
- F. Color shall be selected by the Architect.
- G. All polyurethane compound furnished under this section shall be of the same brand unless otherwise approved by the Architect in writing.
- H. Elastomeric sealant shall be of a brand and as manufactured by a firm listed below:
 - 1. Dynatrol II as manufactured by Pecora, Inc.
 - 2. Sonolastic as manufactured by Sonneborn Building Products Division of Contech, Inc.
 - 3. Dymeric as manufactured by the Tremco Manufacturing Company.

2.3 JOINT BACKUP

- A. Joint backup material shall be compatible with sealant used.
- B. Size of backup material shall be determined by the condition and as recommended by the manufacturer.
- C. One of the following brands and manufacturers shall be used providing they are compatible with sealant used:
 - 1. Aerocor PL-336 fiberglass as manufactured by Owens Corning Fiberglass Corp.
 - 2. Ethafoam as manufactured by Dow Corning Corp.
 - 3. Foam Polyethylene as manufactured by the Tremco Manufacturing Co.
 - 4. Sonofoam Backer Rod as manufactured by Sonneborn, Inc.

3.0 EXECUTION

3.1 INSPECTION

Installer must examine substrates, (joint surfaces) and conditions under which joint sealer work is to be performed, and must notify Contractor in writing of unsatisfactory conditions. Do not proceed with joint sealer work until unsatisfactory conditions have been corrected in a manner acceptable to Installer.

3.2 JOINT PREPARATION

- A. Clean joint surfaces immediately before installation of gaskets, sealants or caulking compounds. Remove dirt, insecure coatings, moisture and other substrate which could interfere with seal of gasket or bond of sealant or caulking compound. Etch concrete and masonry joint surfaces as recommended by sealant manufacturer. Roughen vitreous and glazed joint surfaces as recommended by sealant manufacturer.
- B. Prime or seal joint surfaces where recommended by sealant manufacturer. Confine primer/sealer to areas of sealant bond; do not allow spillage or migration onto adjoining surfaces.

3.3 INSTALLATION

- A. Comply with manufacturer's printed instructions except where more stringent requirements are shown or specified, and except where manufacturer's technical representative directs otherwise.
- B. Rake out, clean out thoroughly all joints and recesses to be caulked or sealed so as to be free of all loose or foreign material, just prior to sealing.
- C. Remove all foreign matter including methacrylate lacquer that would prohibit bond adhering to metal with a solvent recommended by manufacturer of compound.
- D. Pack all joints deeper than 3/8" with joint filler to 3/8" from face of as detailed on drawings.
- E. Apply manufacturer's recommended primer to concrete, masonry and stone surfaces before sealing if recommended by manufacturer.
- F. Apply compound only to dry surfaces, preferably only when temperature is above 40 degrees F.
- G. Fill all joints and recesses completely. Finish all compounds against stop where this is provided. Elsewhere finish to a neat uniform bevel. Finish all joints with beading tool.
- H. Consistency of compound shall be such as to prevent sagging.
- I. Use all possible precautions to avoid smearing any compound on finished work.
- J. Remove immediately all compound smeared on any adjacent surfaces, using a non-staining solvent recommended by manufacturer of compound.

3.4 CURE AND PROTECTION

- A. Cure sealants and caulking compounds in compliance with manufacturer's instructions and recommendations, to obtain high early bond strength, internal cohesive strength and surface durability. Advise Contractor of procedures required for cure and protection of joint sealers during construction period, so that they will be without deterioration or damage (other than normal wear and weathering) at time of substantial completion.
- B. All existing work shall be adequately protected from damage and staining during all caulking and sealing operations.

END OF SECTION

SECTION 08110 STEEL DOORS AND FRAMES

Part 1 - GENERAL

1:01 Work Included

1. The work under this section shall include the furnishing of all items of steel doors and frames as listed hereinafter except items which are specifically excluded from this section.
2. Steel Doors, 18 ga, A60 galvanized at exterior locations, cold rolled steel at interior locations. Factory primed.
3. Steel Door Frames, 16 ga., welded, A60 galvanized at exterior locations. Factory primed.
4. Steel Sidelite Door Frames
5. Steel Borrowed Lite Frames
6. Louvers installed in Steel Doors
7. Glass Lites installed in Steel Doors
8. Job site Delivery
9. Field Measuring
10. Job site Service
11. Project close out information for owner.

1:02 Related Work

1. Items not included in this section but listed elsewhere
2. Finish Hardware section 08710
3. Finish painting see Section 09900 Painting & Finishing.

1:03 Quality Assurance

1. Provide Steel Doors and Frames manufactured by a single firm specializing in the production of this type of work.
2. Provide Steel Doors and Frames complying with the Steel Door Institute recommended specifications for Standard Steel Doors and Frames (ANSI/SDI 100-91), and as herein specified.
3. Compliance with all standards listed under paragraph 1:04 "References" is required.
4. Compliance with all building, fire and life safety codes as listed by State and local codes along with those listed under paragraph 1:04 "References" is required.

5. Insulation properties: Polyurethane core doors shall have a U factor of 0.67. Honeycomb core doors shall have a U factor of 0.41. Tests must be performed in accordance with SDI-113.

1:04 References

1. Steel Doors and Frames in this section must meet all standards as established by the following listing:
 - a. Door and Hardware Preparation ANSI 115.1.
 - b. Life Safety Codes NFPA101 (Latest edition).
 - c. Fire Doors and Windows NFPA80 (Latest edition).
 - d. Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors and Hardware Reinforcing ANSI A151.1.
 - e. ANSI/SDI-100-91

1:05 SUBMITTALS

1. The steel door and frame supplier shall furnish to the architect (6) complete copies of the proposed steel door and frames schedule and/or shop drawings. Using the same reference number for details and openings as those on the contract drawings. This is to be done within (10) days of acceptance of the General Contractor's purchase order. After receipt of the approved door schedule the steel door frame supplier shall make any corrections to the door schedule and submit to the architect (4) sets of corrected schedules for file and field use.
2. All door openings including wood, aluminum, overhead etc. must be listed on the door schedule. If any opening is not by the steel door manufacturer only the door opening number should be shown along with the type of door (wood etc.) and a "not by steel manufacturer." Include details of each frame type, elevations of door designs, types, conditions at openings, details of construction, location and installation requirements for finish hardware on all reinforcements, and details of joints and connections, show anchorage and accessory items.
3. Each floor of the building is to be detailed separately.
4. Coordinate approved shop drawings with all other trades and manufacturers whose products are used in conjunction with the Steel Doors and Frames as listed under section 08100.
5. Templates: Finish hardware supplier is to furnish templates, template reference number and/or physical hardware to the steel supplier in order to cut, reinforce or otherwise prepare the doors and frames to receive the finish hardware items.

1:06 Delivery, Storage and Handling

1. All steel doors and frames being supplied under section 08100 of this specification must be properly marked with door opening mark number to correspond with the door schedule.
2. Steel doors and frames shall be delivered to the General Contractor according to the contractors, Architect's, or construction manager's request to insure the proper and timely completion of the

work.

3. Deliver all steel doors and KD frames cartoned and/or palletized to provide protection during transit and job storage. Welded frames will not be palletized.
4. Inspect doors and frames upon delivery for damage. Minor damage may be repaired, provided the finish items are equal in all respects to new work and acceptable to the architect, otherwise, remove and replace damaged items as directed.
5. Store doors and frames at the building site under cover. Place units on at least 4 inch high wood sills or on the floor in a manner that will prevent rust and damage. Avoid the use of non-vented plastic or canvas shelters which could create a humidity chamber. If the cardboard wrapper on the door becomes wet, remove the carton immediately. Provide a 1/4 inch space between stacked doors to promote air circulation.

1:07 Job Conditions

1. Installer must examine the substrate and conditions under which steel doors and frames are to be installed and notify the contractor in writing of any condition 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.

1:08 Alternates

2. Alternates may affect the scope of the work in this section. See Division 1 for alternates that affect the project.

PART 2 PRODUCTS

2:01 Acceptable Manufacturers

1. Ceco Door Products
2. Pioneer Industries
3. Steelcraft Manufacturing Company
4. Curries Company
5. Republic Builder's Products
6. Amweld Building Products, Inc.

2:02 Hardware Locations

1. Location of hardware on doors and frames shall be the steel and frame manufacturers standard published locations.
2. Prepare steel units to receive mortised and concealed hardware, including cutouts, reinforcing, drilling and tapping in accordance with final Finish Hardware Schedule and templates provided by hardware supplier. Comply with applicable requirements of American National Standards

Institute (ANSI) A115 "Specifications for Door and Frame Preparations for Hardware"

- a. For concealed overhead door closers or holders, provide space, cutouts, reinforcing and provisions for fastening in tops of doors or in frame heads as applicable.
 - b. Reinforce steel units to receive surface applied hardware. Drilling and tapping for surface applied finish hardware shall be done at the project site.
3. Locate finish hardware at door frame manufacturer's standard published locations in accordance with "Recommended Locations for Builder's Hardware", published by the Door and Hardware Institute.
 4. When steel frames only are specified, for use with doors to be furnished by others, hardware preparation on the doors is normally governed by its location on the frames. If the doors are to be factory mortised, the door supplier is responsible for coordinating hardware locations. If they are to be mortised at the site, proper hardware location is the responsibility of the trade doing the work.

2:03 Clearances

1. Edge clearances shall be as follows:
 - a. Between doors and frames, at head and jambs - 1/8 inch
2. At door sills where no threshold is used - 3/4 inch standard except if otherwise shown on architectural drawings.
3. At door sills where a threshold is used, 1/4 inch maximum between door and threshold.
4. At door sills when carpet is used, 1/4 inch higher than the thickness of the carpet.
5. Between meeting edges of pairs of doors 1/8 inch.
6. Doors with vertical rod exit devices as required by the exit device template.

2:04 Steel Doors

1. Materials
 - a. Doors shall be made of commercial quality, level, cold rolled steel conforming to ASTM A-366 or A-620 and ASTM A568 and free of scale, pitting or other surface defects. Face sheets shall not be less than 18 gauge.
 - b. Hot dipped zinc coated steel shall comply with ASTM designations A526 or A642 and A525. The coating weights shall meet or exceed the minimum requirements shown for A60 in the case of alloyed coatings and G60 for spangled coatings.
2. Fabrication
 - a. General Design and Construction

- i. All doors shall be of the types and sizes shown on Architect's drawings. Door thickness shall be 1 3/4". Exterior doors to be hot dipped galvanized. Interior doors to be cold rolled steel.
- ii. All doors shall be strong, rigid and neat in appearance, free from warpage or buckle.
- iii. All doors shall be constructed with smooth, flush surfaces, without visible joints or seams or exposed faces, except around glass lite trim or louvered panel inserts.
- iv. Seamless vertical edges: Not required.
 1. Join door faces at their vertical edges by a continuous weld extending the full height of the door. Grind, fill and dress smooth all welds to make them invisible and provide a smooth flush surface.
- v. Hardware Reinforcements
 1. Minimum gauges for reinforcing doors for required finish hardware is as follows:
 - a. Hinges and pivots steel plate - 7 gauge thick x 1 1/4 inches wide X 9 inches secured by not less than 6 spot welds.
 - b. Mortise locksets (Govt # 86 Series) and deadlocks 16 gauge steel, secured with not less than 4 spot welds.
 - c. Cylindrical locksets (Govt #160 and 161 Series) 16 gauge steel, secured with not less than 4 spot welds.
 - d. Flush bolts 12 gauge steel, secured with not less than 4 spot welds.
 - e. Surface - applied closers - 12 gauge steel.
 - f. Surface - applied exit devices - 14 gauge steel.
 - g. Automatic door bottoms - 16 gauge steel for mortise type.
 2. Doors shall be mortised, reinforced drilled and tapped at the factory for fully templated hardware only, in accordance with the approved hardware schedule and templates provided by the hardware supplier. Where surface-mounted hardware is to be applied, doors shall have reinforcing only, drilling and tapping shall be done by others.
- vi. Top and Bottom Channels
 1. Reinforce tops and bottoms of all doors with a continuous steel, channel not less than 16 gauge, extending the full width of the door and spot welded to the face sheet. Top channel to be flush steel. Plastic fillers not acceptable.

vii. Door Cores

1. The following are acceptable cores for doors
 - a. Exterior doors: polyurethane core.

viii. Finish:

1. Factory Prime Finish
 - a. Doors and frames are to be thoroughly cleaned, and chemically treated to insure maximum paint adhesion. All surfaces of the door and frame exposed to view shall receive a factory applied coat of rust inhibiting primer, either air-dried or baked-on. The finish shall meet the requirements for acceptance stated in ANSI A224.1 "Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces." The prime finish is not intended to be the final layer of protection from the outside elements. Field painting shall be performed in accordance with the recommendations of the door and frame manufacturer. For specialty types of finished coatings, the paint supplier should also be consulted.

2:05 Steel Panels

1. Steel panels shall be made of the same materials, constructed and finished in the same way as specified for steel doors.

2:06 Steel Frames 16 ga.

1. Materials
 - a. Frames shall be either cold rolled steel conforming to ASTM A366- 68 or commercial grade hot rolled and pickled steel conforming to ASTM A569-66T, or not less than 16 gauge, unless otherwise specified.
 - b. Hot dipped zinc coated steel shall comply with ASTM designations A526 or A642 and A525. The coating weights shall meet or exceed the minimum requirements shown for A40 in the case of alloyed coatings and G60 for spangled coatings.
2. Fabrication
 - a. General design and construction
 - i. Provide steel frames for doors, transoms, sidelites, borrowed lites, and other openings to the size and design as shown on the architectural drawings. Exterior frames to be hot dipped galvanized. Interior frames to be cold rolled steel.
 - ii. All finished work shall be strong and rigid, neat in appearance square, true and free of defects, warp or buckle.

- iii. Jamb depths, trim, profile and backbends shall be as scheduled by the Architect and shown on approved shop drawings.
- iv. Minimum depth of stops shall be 5/8 inches, cut off (sanitary or hospital type) stops, where scheduled, shall be capped 45 degrees at heights shown on approved shop drawings, and all jamb joints below cut-off stops shall be ground and filled smooth.
- v. When shipping limitations so dictate, frames for large openings shall be fabricated in sections designed for splicing in the field by others.
- vi. Hardware reinforcements
 - 1. Frames shall be mortised, reinforced, drilled and tapped at the factory for fully templated mortised hardware only, in accordance with approved hardware schedule and templates provided by the hardware contractor. Where surface-mounted hardware is to be applied, frames shall have reinforcing plates only; all drilling and tapping shall be done by others.
- b. Reinforce frames for finish hardware as follows:
 - i. Hinge reinforcements for 1 3/4 inches thick doors steel plate 7 gauge thick x 1 1/4 inches wide x 9" inches long. Reinforcement shall be attached to the door frames by not less than 6 spot welds.
 - ii. Strike reinforcements - steel plate 12 gauge x 1 1/2 inches wide.
 - iii. Flush bolts - steel plate 12 gauge.
 - iv. Surface applied closers - 14 gauge steel.
 - v. Concealed closers - not used
 - vi. Reinforcements for - Surface mounted hardware 14 gauge steel. Hold open arms 14 gauge steel Surface mounted exit devices 14 gauge steel
 - vii. Floor Anchors
 - 1. Floor anchors shall be securely welded or screwed inside each jamb, with two holes provided at each jamb for floor anchorage.
 - 2. Where so scheduled or specified adjustable floor anchors providing not less than 1" height adjustment.
 - 3. Minimum thickness of floor anchors shall be 16 gauge.
 - viii. Jamb Anchors
 - 1. Frames for installation in masonry walls shall be provided with adjustable jamb anchors of the wire type. Anchors shall be not less than

0.156 inch diameter steel wire. The number of anchors provided on each jamb shall be as follows:

- a. Frames up to 90" height 3 anchors
 - b. Frames 90" to 96" height 4 anchors
 - c. Frames over 96" height 1 anchor for each 2' or fraction there of over 96"
2. Frames for installation in stud partitions shall be provided with steel anchors of suitable design, not less than 18 gauge thickness, securely welded inside each jamb or insert type with notched clip to engage stud inserted to back of the frame as follows:
 - a. Frames up to 90" height 4 anchors
 - b. Frames 90" to 96" height 5 anchors
 - c. Frames over 96" height 5 anchors
 - d. plus one additional anchor for every 24 inches or fraction there of over 96"
 3. Frames to be anchored to previously placed concrete, masonry or structural steel shall be provided with anchors of suitable design as shown on approved shop drawings. Fasteners for such anchors shall be provided by others.
- ix. Dust cover boxes (or mortar guards) of not thinner than 26 gauge steel shall be provided at all hardware mortises on frames to be set in masonry or plaster partitions.
 - x. All frames that are to be welded shall be provided with 2 steel spreaders temporarily attached to the feet of both jambs to serve as a brace during shipping and handling. Spreader bars are for bracing only and shall not be used to size the frame.
 - xi. Except on weatherstripped doors, drill stop to receive 3 silencers on single-door frames and 2 silencers on double-door frames. Drill for 2 silencers on heads of double-swing frames.
 - xii. Welded Frames
 1. Assemble frame, bend the tabs after assuring that the face miter seam is "closed and tight". Weld the entire face miter seam. Grind the exterior face and dress the face miter seam (exterior) and spot paint, inside and out.
 - xiii. Finish:
 1. Factory Prime Finish
 - a. See 2.04 – 2.a.vii.

PART 3: EXECUTION

3:01 Inspection

1. Examine the substrate and conditions under which steelwork is to be installed and remedy 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.
2. It is the responsibility of the General Contractor to make sure that all dimensions for existing opening or existing frames (strike height, hinge spacing, hinge backset, etc.) given to the steel manufacturer are accurate.
3. It is the responsibility of the General Contractor to see that any scratches or disfigurements caused in shipping or handling are properly cleaned and touched up with a rust inhibitive primer.

3:03 Installation:

1. Door Frames
 - a. Prior to installation, all frames must be checked for rack, twist and out of square.
 - b. Except for frames located at in-place concrete or masonry and at drywall installation, place frames prior to construction of enclosing 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.
 - c. Fill frames in masonry walls with mortar as the wall is laid up. Frames in solid plaster or steel stud walls may be completely filled with plaster except when drywall is used.
 - d. When temperature conditions necessitate an additive to be used in the plaster or mortar to prevent freezing, the contractor installing the frames shall coat the inside of the frames in the field with corrosion inhibiting bituminous material.
 - e. SDI-105, "Recommended Erection Instructions for Steel Frames" and SDI-110 "Standard Steel Doors and Frames for Modular Masonry Construction" shall indicate the proper installation procedures.
 - f. Install fire-rated frames in accordance with NFPA Standard No. 80.
 - g. Anchors
 - i. In masonry construction, locate wall anchors in jambs at hinge and strike levels.
 - ii. At in-place concrete or masonry construction, set frame and secure to adjacent construction with machine screws and masonry anchorage devices.
 - iii. In metal stud partitions, install wall anchors in jambs at hinge and strike levels. In open steel stud partitions, place studs in wall anchor notches and wire tie. In closed steel stud partitions, attach studs to wall anchors with self-drilling screws.

- h. Make field splices in frames as detailed on final shop drawings.
- 2. Doors
 - a. Install doors plumb and in true alignment in a prepared opening and fasten them to achieve the maximum operational effectiveness and appearance of the unit.
 - b. Proper door clearance must be maintained in accordance with Part 2, Section 2.03, except for special conditions otherwise noted.
 - c. Where necessary, metal hinge shims are acceptable to maintain clearances.
 - d. "The Installation of Commercial Steel Doors and Steel Frames, Insulated Steel Doors in Wood Frames, and Builders Hardware" published by DHI is recommended for further details.
 - 3. Hardware must be applied in accordance with hardware manufacturer's templates and instructions. Also comply with installation instructions as specified under the "Finish Hardware Section of Division 8".

3.03 Adjust and Clean

- 1. Final adjustments
 - a. Check and re-adjust operating finish hardware items in hollow metal work just prior to final inspection. Leave work in complete and proper condition. Remove and replace defective work, including doors or frames which are warped, bowed or otherwise unacceptable.
- 2. Prime Coat Touch-Up
 - a. Immediately after erection, sand smooth any rusted or damaged areas of prime coat and apply touch-up of compatible air-drying primer.

3:04 Schedules and Close Out Documents

- 1. Follow Architect's instructions to provide project close out documents. These documents will include, but are not limited to:
 - a. Copies of hollow metal schedule "as built"
 - b. Warranty
 - c. Care and maintenance instructions to owner.
 - d. Manufacturer's painting recommendations.
 - e. Other documents required Division 1 of the specifications.

END OF SECTION

SECTION 08211 - WOOD DOORS

1.0 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. Extent and location of each type of wood door is indicated on drawings and in schedules.
- B. Types of doors required include the following:
 - 1. Solid core wood doors with pre-finished wood veneer faces
- C. Metal door frames for flush wood doors are specified in another Division-8 section.

1.3 SUBMITTALS

- A. Product Data: Door manufacturer's technical data for each type of door, including details of core and edge construction, trim for openings and louvers, and factory-finishing specifications.
- B. Shop Drawings: Submit shop drawings indicating location and size of each door, elevation of each kind of door, details of construction, location and extent of hardware blocking, fire ratings, requirements for factory finishing and other pertinent data.
- C. Samples: Submit samples, 1'-0" square
 - 1. Doors for transparent finish: Door faces with solid wood edging representing typical range of color and grain for each species of veneer and solid lumber required.
 - 2. Factory Finished Doors: Each type of factory finish required.

1.4 CLOSEOUT SUBMITTALS

- A. Upon completion of the Work of this Section, Contractor shall submit to the Architect/Engineer, all required closeout documents.
- B. Contractor shall submit a marked-up set of drawings indicating any changes made during construction to the Architect/Engineer.
- C. Upon completion, submit to the Architect/Engineer, a Contractor's Affidavit of Payment of Debts and Claims, and Release of Liens.
- D. Refer to General Conditions for additional requirements.

1.5 QUALITY ASSURANCE

- A. Quality Standards: Comply with the following standards:
 - 1. NWWDA Quality Standard: I.S.1 "Industry Standard for Wood Flush Doors", of National Wood Window and Door Association (NWWDA).
- B. NWWMA Quality Marking: Mark each wood door with NWWDA Wood Flush Door Certification Hallmark certifying compliance with applicable requirements of NWWDA I.S. 1 Series.
 - 1. For manufacturers not participating in NWWDA Hallmark Program, a certification of compliance may be substituted for marking of individual doors.
- C. Fire-Rated Wood Doors: Provide wood doors which are identical in materials and construction to units tested in door and frame assemblies per ASTM E 152 and which are labeled and listed for ratings indicated by UL, Warnock Hersey or other testing and inspection agency acceptable to authorities having jurisdiction.
- D. Manufacturer: Obtain doors from a single manufacturer.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Protect doors during transit, storage and handling to prevent damage, soiling and deterioration. Comply with requirements of referenced standards and recommendations of NWWDA pamphlet "How to Store, Handle, Finish, Install, and Maintain Wood Doors", as well as with manufacturer's instructions.
- B. Identify each door with individual opening numbers which correlate with designation system used on shop drawings for door, frames, and hardware, using temporary, removable or concealed markings.

1.7 PROJECT CONDITIONS

- A. Conditioning: Do not deliver or install doors until conditions for temperature and relative humidity have been stabilized and will be maintained in storage and installation areas during remainder of construction period to comply with the following requirements applicable to project's geographical location:
 - 1. Referenced AWI quality standard including Section 100-S-3 "Moisture Content".

1.8 WARRANTY

- A. General: Warranties shall be in addition to, and not a limitation of, other rights the Owner may have under the Contract Documents.
- B. Door Manufacturer's Warranty: Submit written agreement in door manufacturer's standard form signed by Manufacturer, Installer and Contractor, agreeing to repair or replace defective doors that have warped (bow, cup or twist) or that show telegraphing of core construction in face veneers, or do not conform to tolerance limitations of referenced quality standards.
 - 1. Warranty shall also include reinstallation which may be required due to repair or

replacement of defective doors where defect was not apparent prior to hanging.

2. Warranty shall be in effect during following period of time after date of Substantial Completion.
 3. Solid Core Interior Doors:
 - a. Life of installation.
- C. Contractor's Responsibilities: Replace or refinish doors where Contractor's work contributed to rejection or to voiding of manufacturer's warranty.

2.0 PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering doors 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. Solid Core Doors with Wood Veneer Faces (Select White Rotary Maple or Birch Doors):
 - a. Masonite Architectural Doors
Color: To match other wood applications.
- C. Fire-Rated Solid Core Doors: Comply with the following requirements.
- D. Faces and AWI Grade: Provide faces and grade to match non-rated doors in same area of building, unless otherwise indicated.
 1. Construction: Manufacturer's standard core construction as required to provide fire-resistance rating indicated.
 2. Edge Construction: Provide manufacturer's standard laminated edge construction for improved screw-holding capability and split resistance as compared to edges composed of a single layer of treated lumber.
 2. Pairs: Furnished formed steel edges and astragals for pairs of fire-rated doors, unless otherwise indicated.
 - a. Provide fire-rated pairs with fire-retardant stiles which are labeled and listed for kinds of applications indicated without formed steel edges and astragals.

2.2 LOUVERS AND LIGHT FRAMES

- A. Metal Frames for Light Openings in Fire Doors: Manufacturer's standard frame formed of 18-gage cold-rolled steel, factory-primed, and approved for use in door of fire-rating indicated.

2.3 FABRICATION

- A. Fabricate flush wood doors to produce doors complying with following requirements:
 - 1. In sizes indicated for job-site fitting.
 - 2. Factory-prefit and premachine doors to fit frame opening sizes indicated with the following uniform clearances and bevels:
 - a. Comply with tolerance requirements of AWI for prefitting. Comply with final hardware schedules and door frame shop drawings and with hardware templates.
 - b. Coordinate measurements of hardware mortises in metal frames to verify dimensions and alignment before proceeding with factory premachining.
- B. Metal Astragals: Premachine astragals and formed steel edges for hardware where required for pairs of fire-rated doors.
- C. Transom and Side Panels: Fabricate matching panels with same construction, exposed surfaces and finish as specified for associated doors.
 - 1. Fixed Transom Panels: Fabricate fixed panels with solid lumber transom bottom rail and door top rail, both rabbeted as indicated, and factory-installed springbolts for concealed attachment into jambs of metal door frames.
- D. Openings: Cut and trim openings through doors to comply with applicable requirements of referenced standards for kind(s) of doors required.
 - 1. Light Openings: Trim openings with moldings of material and profile indicated.

3.0 EXECUTION

3.1 EXAMINATION

- A. Examine installed door frames prior to hanging door:
 - 1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with plumb jambs and level heads.
 - 2. Reject doors with defects.
- B. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Hardware: For installation see Division-8 "Finish Hardware" section of these specifications.
- B. Manufacturer's Instructions: Install wood doors to comply with manufacturer's instructions and of referenced AWI standard and as indicated.

1. Install fire-rated doors in corresponding fire-rated frames in accordance with requirements of NFPA No. 80.
- C. Job-Fit Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer or permitted with fire-rated doors. Machine doors for hardware. Seal cut surfaces after fitting and machining.
1. Fitting Clearances for Non-Rated Doors: Provide 1/8" at jambs and heads; 1/16" per leaf at meeting stiles for pairs of doors; and 1/8" from bottom of door to top of decorative floor finish or covering. Where threshold is shown or scheduled, provide 1/4" clearance from bottom of door to top of threshold.
 2. Fitting Clearances for Fire-Rated Doors: Complying with NFPA 80.
 3. Bevel non-rated doors 1/8" in 2" at lock and hinge edges.
 4. Bevel fire-rated doors 1/8" in 2" at lock edge; trim stiles and rails only to extent permitted by labeling agency.
- D. Prefit Doors: Fit to frames for uniform clearance at each edge.
- E. Field-Finished Doors: Refer to the following for finishing requirements:
1. Division-9 section "Painting".

3.3 ADJUSTING AND PROTECTION

- A. Operation: Rehang or replace doors which do not swing or operate freely.
- B. Finished Doors: Refinish or replace doors damaged during installation.
- C. Protect doors as recommended by door manufacturer to ensure that wood doors will be without damage or deterioration at time of Substantial Completion.

END OF SECTION

SECTION 08710 – DOOR HARDWARE

PART I – GENERAL

1.01 SUMMARY

A. SECTION INCLUDES

1. The work in this section includes furnishing all items of finish hardware as hereinafter specified or obviously necessary for all swinging, sliding, folding and other doors. Except items, which are specifically excluded from this section of the specification or of unique hardware, specified in the same sections as the doors and frames on which they are installed.

B. RELATED DOCUMENTS

1. Related documents, drawings and general provisions of contract, including General and Supplementary Conditions and Division 1 specification sections apply to this section.

C. RELATED SECTIONS

1. 06200 – Finish Carpentry
2. 08110 – Metal Doors and Frames
3. 08210 – Wood Doors
4. 08410 – Entrances and Storefronts
5. Division 16 – Access Control

1.02 REFERENCES

A. STANDARDS

1. ANSI A156.1 – Butts and Hinges
2. ANSI A156.2 – Bored and Pre-Assembled Locks and Latches
3. ANSI A156.3 – Exit Devices
4. ANSI A156.4 – Door Controls – Door Closers
5. ANSI A156.5 – Auxiliary Locks and Associated Products
6. ANSI A156.6 – Architectural Door Trim
7. ANSI A156.7 – Template Hinge Dimensions
8. ANSI A156.8 – Door Controls – Overhead Stops and Holders
9. ANSI A156.13 – Mortise Locks and Latches
10. ANSI A156.16 – Auxiliary Hardware
11. ANSI A156.18 – Recommended Practices for Materials and Finishes
12. ANSI A156.21 – Thresholds
13. ANSI A156.22 – Door Gasketing and Edge Seal Systems
14. ANSI A156.26 – Continuous Hinges
15. ANSI A156.28 – Recommended Practices for Keying Systems
16. NFPA 80 – Fire Doors and Windows
17. UL10C – Positive Pressure Fire Tests of Door Assemblies
18. AIA A201 1997 – General Conditions of the Contract

B. CODES

1. NFPA 101 – Life Safety Code
2. IBC 2015 – International Building Code
3. ANSI A117.1 – Accessible and Usable Buildings and Facilities
4. ADA – Americans with Disabilities Act

1.03 SUBMITTALS

A. GENERAL REQUIREMENTS

1. Submit copies of finish hardware schedule in accordance with Division 1, General Requirements.

B. SCHEDULES AND PRODUCT DATA

1. Schedules to be in vertical format, listing each door opening, and organized into “hardware sets” indicating complete designations of every item required for each door opening to function as intended. Hardware schedule shall be submitted within two (2) weeks from date the purchase order is received by the finish hardware supplier. Furnish four (4) copies of revised schedules after approval for field and file use. Note any special mounting instructions or requirements with the hardware schedule. Schedules to include the following information:
 - a. Location of each hardware set cross-referenced to indications on drawings, both on floor plans and in door and frame schedule.
 - b. Handing and degree of swing of each door.
 - c. Door and frame sizes and materials.
 - d. Keying information.
 - e. Type, style, function, size, and finish of each hardware item.
 - f. Elevation drawings and operational descriptions for all electronic openings.
 - g. Name and manufacturer of each hardware item.
 - h. Fastenings and other pertinent information.
 - i. Explanation of all abbreviations, symbols and codes contained in schedule
 - j. Mounting locations for hardware when varies from standard.
2. Submit catalog cuts and/or product data sheets for all scheduled finish hardware.
3. Submit separate detailed keying schedule for approval indicating clearly how the owner’s final instructions on keying of locks has been fulfilled.

C. SAMPLES

1. Upon request, samples of each type of hardware in finish indicated shall be submitted. Samples are to remain undamaged and in working condition through submittal and review process. Items will be returned to the supplier or incorporated into the work within limitations of keying coordination requirements.

D. TEMPLATES

1. Furnish a complete list and suitable templates, together with finish hardware schedule to contractor, for distribution to necessary trades supplying materials to be prepped for finish hardware.

E. OPERATIONS AND MAINTENANCE MANUALS

1. Upon completion of construction and building turnover, furnish two (2) complete maintenance manuals to the owner. Manuals to include the following items:
 - a. Approved hardware schedule, catalog cuts and keying schedule.
 - b. Hardware installation and adjustment instructions.
 - c. Manufacturer's written warranty information.

1.04 QUALITY ASSURANCE**A. SUBSTITUTIONS**

1. All substitution requests must be submitted before bidding and within the procedures and time frame as outlined in Division 1, General Requirements. Approval of products is at the discretion of the architect and his hardware consultant.

B. SUPPLIER QUALIFICATIONS

1. A recognized architectural door hardware supplier who has maintained an office and has been furnishing hardware in the project's vicinity for a period of at least two (2) years.
2. Hardware supplier shall have office and warehouse facilities to accommodate this project.
3. Hardware supplier shall have in his employment at least one (1) Architectural Hardware Consultant (AHC) who is available at reasonable times during business hours for consultation about the project's hardware and requirements to the owner, architect and contractor.
4. Hardware supplier must be an authorized factory distributor of all products specified herein.

1.05 FIRE-RATED OPENINGS

1. Provide door hardware for fire-rated openings that comply with NFPA 80 and requirements of authorities having jurisdiction. Provide only items of door hardware that are listed by Underwriter's Laboratories (UL) or Warnock Hersey (WH) for use on types and sizes of doors indicated.
2. Project requires door assemblies and components that are compliant with positive pressure and S-label requirements. Specifications must be cross-referenced and coordinated with door manufacturers to ensure that total opening engineering is compatible with UL10C Standard for Positive Pressure Fire Tests of Door Assemblies.
 - a. Hardware required for fire doors shall be listed with Underwriters Laboratories for ratings specified.
 - b. Certification(s) of compliance shall be made available upon request by the Authority Having Jurisdiction.

1.06 DELIVERY, STORAGE AND HANDLING**A. MARKING AND PACKAGING**

1. Properly package and mark items according to the approved hardware schedule, complete with necessary screws and accessories, instructions and installation templates for spotting mortising tools. Contractor shall check deliveries against accepted list and provide receipt for them, after which he is responsible for storage and care. Any shortage or damaged good shall be made without cost to the owner.
2. Packaging of door hardware is the responsibility of the supplier. As hardware supplier receives material from various manufacturers, sort and repackage in containers clearly marked with appropriate hardware set and door numbers to match the approved hardware schedule. Two or more identical sets may be packed in same container.

B. DELIVERY

1. The supplier shall deliver all hardware to the project site; direct factory shipments are not allowed unless agreed upon beforehand. Hardware supplier shall coordinate delivery times and schedules with the contractor. Inventory door hardware jointly with representatives of hardware supplier and hardware installer/contractor until each is satisfied that count is correct.
2. No keys, other than construction master keys and/or temporary keys are to be packed in boxes with the locks.
3. At time of hardware delivery, door openings supplier in conjunction with the contractor shall check in all hardware and set up a hardware storage room.

C. STORAGE

1. Provide secure lock-up for door hardware delivered to the Project, but not yet installed. Control handling and installation of hardware items that are not immediately replaceable so that completion of work will not be delayed by hardware losses both before and after installation.

1.07 WARRANTY

- A. All items, except as noted below, shall be warranted in writing by the manufacturer against failure due to defective materials and workmanship for a minimum period of one (1) year commencing on the date of final completion and acceptance. In the event of product failure, promptly repair or replace item with no additional cost to the owner.
 1. Cylindrical locksets – Standard Duty: One (1) Year
 2. Mortise locksets: Five (5) years
 3. Exit Devices: Five (5) years
 4. Door closers: Ten (10) years

PART II – PRODUCTS**2.01 MANUFACTURERS**

- A. Only manufacturers as listed below shall be accepted. Obtain each type of finish hardware (hinges, latch and locksets, exit devices, door closers, etc.) from a single manufacturer.

2.02 MATERIALS

A. SCREWS AND FASTENERS

1. All required screws shall be supplied as necessary for securing finish hardware in the appropriate manner. Thru-bolts shall be supplied for exit devices and door closers where required by code and the appropriate blocking or reinforcing is not present in the door to preclude their use.

B. HANGING DEVICES

1. HINGES

- a. Hinges shall conform to ANSI A156.1 and have the number of knuckles as specified, oil-impregnated bearings as specified with NRP (non-removable pin) feature, at all exterior reverse bevel doors. Unless otherwise scheduled, supply one (1) hinge for every 30" of door height. Hinges shall be a minimum of 4 1/2" high and 4" wide; heavy weight hinges (.180) shall be supplied at all doors where specified.

- 1) Specified Manufacturer: McKinney
- 2) Approved Substitutes: Bommer, Hager, Stanley

2. CONTINUOUS GEARED HINGES

- a. All hinges to be non-handed and completely reversible. Hinge line to be available in concealed flush mount with or without inset, full surface and half surface types as specified in the hardware sets. All hinges to be made of extruded 6060 T6 aluminum alloy with polyacetal thrust bearings, anodized after cutouts are made for bearings. All concealed hinges to be fire-rated for 20, 45 and 90 minutes when incorporated into proper door and frame labeled installations, without necessitating the use of fusible-link pins. All concealed hinges to be available in standard, heavy, and extra heavy duty weights; all full surface and half surface hinges in standard and heavy duty weights as specified in the hardware sets. All hinges to be factory cut for door size.

- 1) Specified Manufacturers: McKinney
- 2) Approved Manufacturers: Pemko, Select

3. PIVOTS

- a. All pivots shall conform to ANSI 156.4 Grade 1 and shall have oil impregnated bronze bearing in the top pivot and a radial roller and thrust bearing in the bottom pivot. The bottom pivot shall carry the full weight of the door.

- 1) Specified Manufacturer: Rixson
- 2) Approved Substitutes: NONE

C. FLUSH BOLTS AND ACCESSORIES

1. All manual and automatic flush bolts to be furnished as specified.
 - a. Specified Manufacturer: McKinney
 - b. Approved Substitutes: Rockwood, Trimco

D. CYLINDERS AND KEYING**1. CYLINDERS**

- a. Provide cylinders and keys protected from unauthorized manufacture and distribution by manufacturer's United States patents. The key design and tolerances shall permit the cutting of keys with standard code or duplicating machines. The requirement for a single-purpose or keyway-specific cutting or duplicating machine shall not be allowed. The key design and tolerances shall permit the use of keys and cylinders in existing key systems having similar keyways and sections.
 - 1) Specified Manufacturer: Schlage
 - 2) Approved Substitutes: None

2. KEYING

- a. All locks and cylinders shall be construction master-keyed. All locks and cylinders to be master-keyed or grandmaster-keyed as directed by the owner. The factory shall key all locks and cylinders. Furnish the following key amounts:
 - 1) Two (2) change keys per lock
 - 2) Three (3) grand master keys
 - 3) Six (6) master keys per master level
 - 4) Fifteen (15) construction/temporary keys
- b. Master keys and all high-security or restricted keyway blanks shall be sealed in tamper-proof packaged boxes when shipped from the factory. The boxes shall be shrink wrapped and imprinted to ensure the integrity of the packaging.

3. KEY CABINET

- a. Provide a key control system including envelopes, labels, and tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet. Key control cabinet shall expansion capacity of 150% of the number of locks required for the project.
 - 1) Specified Manufacturer: Telkee
 - 2) Approved Substitutes: Lund

E. LOCKING DEVICES**1. MORTISE LOCKSETS**

- a. All locksets shall be ANSI 156.13 Series 1000, Grade 1 Certified. All functions shall be manufactured in a single sized case formed from 12 gauge steel minimum. The lockset shall have a field-adjustable, beveled armored front, with a .125" minimum thickness and

shall be reversible without opening the lock body. The lockset shall be 2 3/4" backset with a one-piece 3/4" anti-friction stainless steel latchbolt. The deadbolt shall be a full 1" throw made of stainless steel and have 2 hardened steel roller inserts. All strikes shall be non-handed with a curved lip. To ensure proper alignment, all trim, shall be thru-bolted and fully interchangeable between rose and escutcheon designs.

- 1) Specified Manufacturer: Schlage
- 2) Approved Substitutes: None

2. CYLINDRICAL LOCKSETS – STANDARD DUTY

- a. All locksets shall be ANSI A156.2 Series 4000, Grade 2 Certified. Locksets shall have solid one-piece, cast levers without plastic inserts, and shall be a minimum of 4 5/8" in length. Levers shall operate independently, and shall have inside and outside lever return springs. Locks shall a minimum 1/2" throw constructed of brass or stainless steel.

- 1) Specified Manufacturer: Schlage
- 2) Approved Substitutes: None

3. LOCKSET STRIKES

- a. Strikes shall be non-handed and available with curved lip, full lip or ASA type strikes as required. Provide strikes with lip-length required to accommodate jamb and/or trim detail and projection.

F. EXIT DEVICES

1. CONVENTIONAL DEVICES – PUSH RAIL

- a. All exit devices shall be ANSI A156.3, Grade 1 Certified and shall be listed by Underwriters Laboratories and bear the UL label for life safety in full compliance with NFPA 80 and NFPA 101. Mounting rails shall be formed from a solid single piece of stainless steel, brass or bronze no less than 0.072" thick. Push rails shall be constructed of 0.062" thick material. Painted or anodized aluminum shall not be considered heavy duty and is not acceptable. Lever trim shall be available in finishes and designs to match that of the specified locksets.

- 1) Specified Manufacturer: Sargent 80 Series
- 2) Approved Substitutes: Corbin Russwin ED4000/ED5000 Series, Yale 7100/7200 Series

G. DOOR CLOSERS

1. SURFACE MOUNTED CLOSERS – HEAVY DUTY

- a. All door closers shall be ANSI 156.4, Grade 1 Certified. All closers shall have aluminum alloy bodies, forged steel arms, and separate valves for adjusting backcheck, closing and latching cycles and adjustable spring to provide up to 50% increase in spring power. Closers shall be furnished with parallel arms mounting on all doors opening into corridors or other public spaces and shall be mounted to permit 180 degrees door swing

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DOOR HARDWARE

wherever wall conditions permit. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.

- 1) Specified Manufacturer: Norton 7500 Series
- 2) Approved Substitutes: Corbin Russwin DC6000, Sargent 351 Series, Yale 4400 Series

2. SURFACE MOUNTED CLOSERS – STANDARD DUTY

- a. All door closers shall be ANSI 156.4, Grade 1 Certified. All closers shall have aluminum alloy bodies, forged steel arms, and separate valves for adjusting backcheck, closing and latching cycles and adjustable spring to provide up to 50% increase in spring power. Closers shall be furnished with parallel arms mounting on all doors opening into corridors or other public spaces and shall be mounted to permit 180 degrees door swing wherever wall conditions permit. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.

- 1) Specified Manufacturer: Norton 8500 Series
- 2) Approved Substitutes: Corbin Russwin DC3200, Sargent 1331 Series, Yale 3500 Series

H. DOOR TRIM AND PROTECTIVE PLATES

1. Kick plates shall be .050 gauges and two (2) inches less full width of door, or as specified. Push plates, pull plates, door pulls and miscellaneous door trim shall be as shown in the hardware schedule.

- a. Specified Manufacturer: McKinney
- b. Approved Substitutes: Rockwood, Trimco

I. DOOR STOPS AND HOLDERS

1. WALL MOUNTED DOOR STOPS

- a. Where a door is indicated on the plans to strike flush against a wall, wall bumpers shall be provided. Provide convex or concave design as indicated.

- 1) Specified Manufacturers: McKinney
- 2) Approved Substitutes: Rockwood, Trimco

2. OVERHEAD STOPS/HOLDERS

- a. Where specified, overhead stops/holders as shown in the hardware sets are to be provided. Track, slide, arm and jamb bracket shall be constructed of extruded bronze and shock absorber spring shall be of heavy tempered steel. Overhead stops shall be of non-handed design.

- 1) Specified Manufacturers: Rixson
- 2) Approved Substitutes: Sargent, Glynn Johnson

J. GASKETING AND THRESHOLDS

1. Provide continuous weatherseal on exterior doors and smoke, light, or sound seals on interior doors where indicated or scheduled. Provide intumescent seals as required to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies. Provide only those units where resilient or flexible seal strip is easily replaceable and readily available from stocks maintained by manufacturer.
2. Provide threshold units not less than 4” wide, formed to accommodate change in floor elevation where indicated, fabricated to accommodate door hardware and to fit door frames. All threshold units shall comply with the Americans with Disabilities Act (ADA).
 - a. Specified Manufacturers: McKinney
 - b. Approved Substitutes: Pemko, Reese, Zero

K. SILENCERS

1. Furnish rubber door silencers all hollow metal frames; two (2) per pair and three (3) per single door frame.

2.03 FINISHES

- A. The designations used in schedules and elsewhere to indicate hardware finishes are those listed in ANSI/BHMA A156.18 or traditional U.S. finishes shown by certain manufacturers for their products.
- B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware.

PART III – EXECUTION

3.01 EXAMINATION

- A. Contractor shall ensure that the building is secured and free from weather elements prior to installing interior door hardware. Examine hardware before installation to ensure it is free of defects.

3.02 INSTALLATION

- A. Mount hardware units at heights indicated in the following applicable publications, except as specifically indicated or required to comply with the governing regulations.
 1. “Recommended Locations for Builders Hardware for Standard Steel Doors and Frames” by the Door and Hardware Institute (DHI.)
 2. NWWDA Industry Standard I.S.1.7, “Hardware Locations for Wood Flush Doors.”
- B. All hardware shall be applied and installed in accordance with best trade practice by an experienced hardware installer. Care shall be exercised not to mar or damage adjacent work.

- C. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Where cutting and fitting is required to install hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation or application of surface protection with finishing work specified in the Division 9 Sections. Do not install surface-mounted items until finishes have been completed on the substrates involved.
- D. Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.03 FIELD QUALITY CONTROL

- A. The Contractor shall comply with AIA A201 1997 section 3.3.1 which reads as follows: "The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the contract Documents give other specific instructions concerning these matters."
- B. Prior to the installation of hardware, manufacturer's representatives for locksets, closers, and exit devices shall arrange and hold a jobsite meeting to instruct the installing contractor's personnel on the proper installation of their respective products. A letter of compliance, indicating when this meeting is held and who is in attendance, shall be sent to the Architect and Owner.
- C. The hardware supplier shall do a final inspection prior to building completion to ensure that all hardware was correctly installed and is in proper working order.

3.04 ADJUSTING, CLEANING, AND DEMONSTRATING

- A. Adjust and check each operating item of hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate freely and smoothly or as intended for the application made.
- B. Where door hardware is installed more than one month prior to acceptance or occupancy of a space or area, return to the installation during the week prior to acceptance or occupancy and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore to proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.
- C. Instruct owner's personnel in the proper adjustment and maintenance of door hardware and hardware finishes and usage of any electronic devices.

3.05 PROTECTION

- A. Contractor shall protect all hardware, as it is stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.

3.06 HARDWARE SCHEDULE

WIND BUFFALO RESTAURANT**DOOR HARDWARE**

A. The following schedule is furnished for whatever assistance it may afford the Contractor; do not consider it as entirely inclusive. Should any particular door or item be omitted in any scheduled hardware heading, provide door or item with hardware same as required for similar purposes. Hardware supplier is responsible for handing and sizing all products as listed in the hardware heading. Quantities listed are for each pair of doors, or for each single door.

B. Manufacturer's Abbreviations:

- | | |
|---------|-----------------------|
| 1. ADAM | Adams Rite |
| 2. MC | McKinney |
| 3. MW | McKinney Weatherstrip |
| 4. NO | Norton |
| 5. RX | Rixson |
| 6. SA | Sargent |

Hardware Sets**SEE DRAWINGS****END OF SECTION 08710**

SECTION 08800 - GLASS AND GLAZING1.0 GENERAL

The drawings, Instructions to Bidders, Form of Proposal, General Conditions, Supplementary General Conditions and Division 1 are included herein and govern work under this section.

1.1 DESCRIPTION OF WORK

- A. Definitions: "Glass" includes prime glass, processed glass, and fabricated glass products. "Glazing" includes glass installation and materials used to install glass.
- B. Included, but not necessarily limited to, are the following:
 - 1) Plate glass
 - 2) Tempered glass
 - 3) Insulating Glass
 - 4) Glazing of windows, doors, transoms, side lights, and all other glazed openings as indicated.
 - 5) Spandrel glass

1.2 QUALITY ASSURANCE

- A. Prime Glass Manufacturer: One of the following for each type of glass:
 - 1. ASG Industries, Inc.
 - 2. C-E Glass Division
 - 3. Ford Glass Company
 - 4. Libbey-Owens-Ford Company
 - 5. PPG Industries, Inc.
- B. SUBMITTALS
 - 1. Samples: Furnish duplicate samples, for approval, of the various types of glass specified herein. Samples shall be 12" x 12" and shall include an assembled 12" x 12" insulating glass sample. Samples of other glazing materials shall be submitted in duplicate if requested by Architect.
 - 2. Approved samples shall become the standard for comparison for all installed work.
 - 3. Shop Drawings: Submit shop drawings and descriptive literature for all products for use. Shop drawings shall include full scale glazing details of window wall. Shop drawings shall be submitted in accordance with Division 1.
- C. JOB CONDITIONS
 - 1. Pre-installation: Meet with Glazier and other trades affected by glass installation, prior to beginning of installation. Do not perform work under adverse weather or job conditions. Install liquid sealants when temperatures are within lower or middle third of temperature range by manufacturer.

D. Specified Product Warrantee

1. Warrantee on Hermetic Seals: Provide insulating glass manufacturer's written warrantee, agreeing to, within specified period, furnish FOB project site, replacement units for insulating glass units which have defective hermetic seals (excluding that due to glass breakage); defined to include intrusion of moisture or dirt, internal condensation at temperatures above -20 degrees F (-31 degrees C), deterioration of internal glass coatings, and other visual evidence of seal failure or performance failure, provided manufacturer's instructions for handling, installation, protection and maintenance have been adhered to during warrantee period.

2.0 PRODUCTS

2.1 GLASS PRODUCTS

A. Polished Plate Glass

1. All polished plate glass shall be 1/4" thick, unless otherwise indicated, glazing quality. Equal quality float glass will be acceptable. "U" factor for glass shall be 1.13 or better. Provide clear glass at all exterior windows.

B. Tempered Plate Glass

1. Tempered plate glass shall be heat tempered of sizes indicated. Thickness shall be 1/4" unless otherwise indicated or unless a thicker glass is recommended by manufacturer for size of opening in which used.
2. Tempered glass shall be "Tuf-Flex" as manufactured by Libbey-Owens-Ford Glass Co. or equal product of PPG Industries or ASG Industries. Glass shall conform to federal Specification DD-G-1403B. "U" factor for glass shall be 1.13 or better.
3. Provide clear glass at all exterior doors.

C. Insulating Glass

1. Insulating glass shall be DualPane as manufactured by DualPane, Inc. or equal product of Libbey-Owens-Ford of PPD Industries.
2. Where indicated "1" Insulating Glass", provide the following:
Units shall consist of 1/4" clear polished plate glass outer pane, a 1/2" air space and a 1/4" clear polished plate glass inner pane. At tempered insulated glass provide:
Units shall consist of clear tempered glass outer panes, a 1/2" air space and a 1/4" clear tempered glass inner pane.
3. Panes shall be hermetically sealed with a metal to glass bond and separated with a dehydrated air space.
4. Separators between glass panes shall be hot dipped galvanized with welded corners. Glass to be metal shall be sealed with a primary seal of polyisobutylene and two-part polysulphide for the secondary seal. Unit shall be bonded with a continuous metal band and sealed with a two-part polysulphide between metal and glass. "U"

factor for glass assembly shall be 0.69 or better. Shading coefficient shall be at least 0.54. Separator to be black finish.

2.2 GLAZING SEALANTS AND COMPONENTS

- A. General: provide color of exposed sealant/compound as selected by Architect from manufacturer's standard colors. Comply with manufacturer's recommendation for selection of hardness, depending upon the location of each application of each application, conditions at the time of installation, and performance requirements as indicated. Select materials, and variations or modifications, carefully for compatibility with surfaces contacted in the installation.
- B. Silicone Glazing Compound
 - 1. Silicone sealant 1200 as manufactured by general Electric Company or equal product of Dow Corning shall be used to set all joints as shown on drawings. Color shall be as selected by Architect from stock.
- C. Elastomeric Glazing Compound
 - 1. All channel glazing shall be with a one part, 100% liquid polymer, acrylic base sealant. Product shall be "Mono-Lasto-Metric" as manufactured by the Tremco Manufacturing Company or equal product of Pecora, Inc. or Toch Brothers, and shall be used in strict conformance with manufacturer's instructions. Color as selected by Architect.
 - 2. Primers shall be used if and as recommended by manufacturer.
- D. Elastomeric Glazing Compound
 - 1. Elastic glazing compound shall be oleo-resinous, knife consistency sealant, for use on non-porous surfaces under compression. It shall be non-corrosive on metal.
 - 2. Color shall be approximately the same as adjacent surfaces and shall be approved by Architect.
 - 3. This compound shall be as manufactured by Tremco Manufacturing Company, Pecora, Incorporated, or Presstite Division of Martin Marietta Corp.
 - 4. All elastic glazing compound shall be formulated from selected processed oils and pigments which will remain plastic and resilient over a long period of time. Comply with latest revision of the Aluminum Window Manufacturer's Association, dated July 15, 1967.

2.3 MISCELLANEOUS GLAZING MATERIALS

- A. Cleaners, Primers and Sealers: Type recommended by sealant or gasket manufacturer.
- B. Glazing Tape
 - 1. Glazing tape shall be a polyisobutylene-butyl base with an integral shim equal to Tremco 440 Shimmed Tape, as manufactured by the Tremco Manufacturing

- Company. Tape and elastomeric sealing compound shall be by same manufacturer.
2. Verify thickness of tape required by glazing a sample window on the job. Sample shall be inspected and approved by Architect before proceeding with glazing work.

C. Spacer Shims and Setting Blocks:

1. All spacer shims shall be of 40 to 50 durometer neoprene.
2. All setting blocks shall be lead or 80 durometer neoprene as recommended by glass manufacturer based on weight of glass.
3. All spacer shims and setting blocks shall be at least 1/4" thick by 3" long by width of recess.

3.0 EXECUTION

3.1 STANDARDS AND PERFORMANCE

- A. Watertight and airtight installation of each glass product is required, except as otherwise shown. Each installation must withstand normal temperature changes, wind loading, impact loading (for operating sash and doors), without failure including loss or breakage of glass, failure of sealants or gaskets to remain watertight and air tight, deterioration of glazing materials and other defects in the work.
- B. Protect glass from edge damage during handling and installation, and subsequent operation of glazed components of the work. During installation, discard units with significant edge damage or other imperfections.
- C. Labels
 1. Deliver all glass on the job carefully paper packed and protected, each pane bearing manufacturer's identifying label, giving name, quality and grade of glass.
- D. Glazing channel dimensions as shown are intended to provide for necessary bite on glass, minimum edge clearance, and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by job conditions at time of installation.
- E. Comply with combined recommendations and technical reports by manufacturers of glass and glazing products as used in each glazing channel, and with recommendations of Flat Glass Marketing Association "Glazing Manual", except where more stringent requirements are indicated.
- F. Install insulating glass units to comply with recommendations by Sealed Insulating Glass Manufacturers Association, except as otherwise specifically indicated or recommended by glass and sealant manufacturers.

3.2 PREPARATION FOR GLAZING

- A. Clean glazing channel and other framing members to receive glass, immediately before glazing. Remove lacquer from metal surfaces where elastomeric sealants are used.
- B. Remove all coatings in glazing rebate area with a solvent that will not etch or mar surface of metal, recommended by manufacturer of glazing compound.

- C. All surfaces to be glazed shall be free of moisture.
- D. Avoid glazing at temperature below 40 degrees F. If glazing schedule requires work during cold periods, warm the glass and rabbeted surfaces to avoid condensation.
- E. Remove manufacturer's instruction tags from windows.
- F. Cover metal surfaces liable to be damaged by smear of sealing compound with tape. Remove tape after glazing.
- G. Prepare all glazing compounds in strict accordance with manufacturer's instructions. Compounds shall not be cut or thinned.
- H. Apply primer or sealant to joint surfaces where recommended by sealant manufacturer.

3.3 GLAZING

- A. Install setting blocks of proper size in still rabbet, located 1/4th of glass width from each corner. Set blocks in thin course of heel-bead compound, if any.
- B. Provide spacers inside and out, of proper size and spacing, for glass sizes larger the 50 united inches, except where gaskets or preshimmed tapes are used for glazing. Provide 1/8" minimum bite of spacers on glass and use thickness equal to sealant width, except with sealant tape use thickness slightly less than final compresses thickness of tape.
- C. Set units of glass in each series with uniformity of pattern, draw, bow and similar characteristics.
- D. Voids and Filler Rods: Prevent exudation of sealant or compound by reforming voids or installing filler rods in channel at heel of jamb and head (do not leave voids in sill channels), except as otherwise indicated and depending on light size, thickness and type of glass, and complying with manufacturer's recommendations.
- E. Force sealants into channel to eliminate voids and to ensure complete "wetting" or bond of sealant to glass and channel surfaces.
- F. Tool exposed surfaces of glazing liquids and compounds to provide a substantial "wash" away from glass. Install pressurized tapes and gaskets to protrude slightly out of channel, so as to eliminate dirt and moisture pockets.
- G. Clean and trim excess glazing materials from glass and stops or frames promptly after installation, and eliminate stains and discolorations.
- H. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage to ensure that gasket will not "walk" out when installation is subjected to movement. Anchor gasket to stop with matching ribs, or by proven adhesives, including embedment of gasket tail in cured heel bead.
- I. Gasket Glazing: Miter cut and bond ends together at corners where gaskets are used for channel glazing, so that gaskets will no pull away from corners and result in voids or leaks in

glazing system.

3.4 CURE, PROTECTION AND CLEANING

- A. Protect exterior 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. Cure sealants for high early strength and durability.
- B. Remove and replace glass which is broken, chipped, cracked, abraded or damaged in other ways during construction period, including natural causes, accidents and vandalism.
- C. Wash and polish 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. Comply with glass product manufacturer's recommendations for final cleaning.

END OF SECTION

SECTION 09250 - METAL STUDS, GYPSUM WALLBOARD & GYPSUM SHEATHING

1.0 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. Extent of each type of gypsum drywall construction required is indicated on Drawings.
- B. This Section includes the following types of gypsum board construction
 - 1. Interior Gypsum Board
 - 2. Exterior Gypsum Sheathing

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 CLOSEOUT SUBMITTALS

- A. Upon completion of the Work of this Section, Contractor shall submit to the Construction Manager, all required closeout documents.
- B. Contractor shall submit a marked-up set of drawings indicating any changes made during construction to the Construction Manager.
- C. Upon completion, submit to the Construction Manager, a Contractor's Affidavit of Payment of Debts and Claims, and Release of Liens.
- D. Refer to General Conditions for additional requirements.

1.6 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

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METAL STUDS, GYPSUM WALLBOARD & GYPSUM SHEATHING

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.

1.7 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.

1.8 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 nonadhesive 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.

2.0 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. Steel Framing and Furring:
 - a. Gold Bond Building Products Div., National Gypsum Co.
 - b. Marino Industries Corp.
 - c. United States Gypsum Co.
 - 2. 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 STEEL FRAMING COMPONENTS FOR SUSPENDED AND FURRED CEILINGS

- A. General: Provide components which comply with ASTM C 754 for materials and sizes, unless otherwise indicated.
- B. Concrete Inserts: Inserts designed for attachment to concrete forms and for embedment in concrete, fabricated from corrosion-resistant materials, with holes or loops for attachment of hanger wires and capability to sustain, without failure, a load equal to 3 times that imposed by ceiling construction, as determined from testing per ASTM E 488, conducted by an independent testing laboratory.
- C. Wire for Hangers and Ties: ASTM A 641, Class 1 zinc coating, soft temper.
- D. Hanger Rods: Mild steel, zinc coated or protected with rust-inhibitive paint.
- E. Flat Hangers: Mild steel, zinc coated or protected with rust-inhibitive paint.
- F. Channels: Cold-rolled steel, 0.0598 inch minimum thickness of base (uncoated) metal and 7/16 inch wide flanges, protected with rust-inhibitive paint, and as follows:
 1. Carrying Channels: 1-1/2 inch deep, 475 lbs per 1000 ft., unless otherwise indicated.
 2. Furring Channels: 3/4 inch deep, 300 lbs per 1000 ft., unless otherwise indicated.

2.3 STEEL FRAMING FOR WALLS AND PARTITIONS

- A. Steel Studs and Runners: ASTM C 645, with flange edges of studs bent back 90 deg and doubled over to form 3/16" minimum lip (return) and complying with the following requirements for minimum thickness of base (uncoated) metal and for depth:
 1. Thickness: As indicated.
 2. Depth: 3-5/8 inches, unless otherwise indicated.
 3. All metal studs extending to underside of metal roof deck and over 12'-0" in height shall be 20 gauge. Partitions under 12'-0" in height shall be 25 gauge. All studs shall be rolled formed from galvanized steel with matching sill and plate runners. Studs shall be 16" o.c. in sizes as shown on drawings.
- B. Steel Rigid Furring Channels: ASTM C 645, hat-shaped, depth and minimum thickness of base (uncoated) metal as follows:
 1. Depth: 7/8 inch.
 2. Thickness: 0.0329 inch, unless otherwise indicated.
- C. Z-Furring Members: Manufacturer's standard zee-shaped furring members with slotted or nonslotted web, fabricated from hot-dip galvanized steel sheet complying with ASTM A

525, Coating Designation G60; with a minimum base metal (uncoated) thickness of 0.0179 inch, face flange of 1-1/4 inch, wall-attachment flange of 7/8 inch, and of depth required to fit insulation thickness indicated.

- D. Fasteners: Provide fasteners of type, material, size, corrosion resistance, holding power and other properties required to fasten steel framing and furring members securely to substrates involved; complying with the recommendations of gypsum drywall manufacturers for applications indicated.

2.4 GYPSUM BOARD

- A. General: Provide gypsum board of types indicated in maximum lengths available to minimize end-to-end joints.
1. Thickness: Provide gypsum board in thicknesses indicated, or if not otherwise indicated, in either 1/2 inch or 5/8 inch thicknesses to comply with ASTM C 840 for application system and support spacing indicated.
- B. Gypsum Wallboard: ASTM C 36, and as follows:
1. Type: Regular, unless otherwise indicated.
 2. Type: Type X for fire-resistance-rated assemblies.
 3. Edges: Tapered.
 4. Thickness: 5/8 inch, unless otherwise indicated.
- C. Products: Subject to compliance with requirements, provide one of the following products where Type X gypsum wallboard is indicated:
1. "Gyprock Fireguard 'C' Gypsum Board"; Domtar Gypsum Co.
 2. "Fire-Shield G"; Gold Bond Building Products Div., National Gypsum Co.
 3. "SHEETROCK Brand FIRECODE 'C' Gypsum Panels"; United States Gypsum Co.
- D. Water-Resistant Gypsum Backing Board: ASTM C 630, and as follows:
1. Type: Regular, unless otherwise indicated.
 2. Type: Type X for fire-resistance-rated assemblies.
 3. Thickness: 5/8 inch where indicated.
- E. Exterior Gypsum Sheathing
1. Thickness: 5/8 inch where indicated.
 2. "Gyproc" sheathing ASTM C79.
 3. Jumbo Sheathing; Gold Bond National Gypsum Co.

2.5 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, 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:
 - a. "LC" Bead, unless otherwise indicated.
 - b. "L" 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.

2.6 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, unless otherwise indicated.
 1. Use pressure sensitive or staple-attached open-weave glass fiber reinforcing tape with compatible joint compound where recommended by manufacturer of gypsum board and joint treatment materials for application indicated.
 2. Setting-Type Joint Compounds: Factory-prepackaged, job-mixed, chemical-hardening powder products formulated for uses indicated.
 - a. 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.
 - b. For prefilling gypsum board joints, use formulation recommended by gypsum board manufacturer for this purpose.
 - c. 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.
- D. Drying-Type Joint Compounds: Factory-prepackaged vinyl-based products complying with the following requirements for formulation and intended use.
 1. Job-Mixed Formulation: Powder product for mixing with water at Project site.
 2. Taping compound formulated for embedding tape and for first coat over fasteners and flanges of corner beads and edge trim.
 3. Topping compound formulated for fill (second) and finish (third) coats.
 4. All-purpose compound formulated for use as both taping and topping compound.

2.7 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. Concealed Acoustical Sealant: Nondrying, nonhardening, nonskinning, nonstaining, nonbleeding, gunnable sealant complying with requirement specified in Division-7 section "Joint Sealers."
- F. Sound Attenuation Blankets: Unfaced mineral fiber blanket insulation produced by combining mineral fibers of type described below with thermosetting resins to comply with ASTM C 665 for Type I (blankets without membrane facing); and as follows:
 - 1. Mineral Fiber Type: Fibers manufactured from glass.

3.0 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 PREPARATION

- A. Ceiling Anchorages: Coordinate installation of ceiling suspension system with installation of overhead structural systems to ensure that inserts and other structural anchorage provisions have been installed to receive ceiling anchors in a manner that will develop their full strength and at spacing required to support ceiling.
 - 1. Furnish concrete inserts and other devices indicated, to other trades for installation well in advance of time needed for coordination with other construction.
- B. After sprayed-on fireproofing has been applied, remove only as much fireproofing as needed to complete installation of drywall construction. Protect fireproofing that remains from damage.

3.3 INSTALLATION OF STEEL FRAMING, GENERAL

- A. Steel Framing Installation Standard: Install steel framing to comply with ASTM C 754 and with ASTM C 840 requirements that apply to framing installation.

- B. Install supplementary framing, blocking and bracing at terminations in the work and for support of fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, and similar construction to comply with details indicated and with recommendations of gypsum board manufacturer, or if none available, with "Gypsum Construction Handbook" published by United States Gypsum Co.
- C. Isolate steel framing from building structure to prevent transfer of loading imposed by structural movement, at locations indicated below to comply with details shown on Drawings:
 - 1. Where edges of suspended ceilings abut building structure horizontally at ceiling perimeters or penetration of structural elements.
 - 2. Where partition and wall framing abuts overhead structure.
 - a. Provide slip or cushioned type joints as detailed to attain lateral support and avoid axial loading.
- D. Do not bridge building expansion and control joints with steel framing or furring members; independently frame both sides of joints with framing or furring members or as indicated.

3.4 INSTALLATION OF STEEL FRAMING FOR SUSPENDED AND FURRED CEILINGS

- A. Secure hangers to structural support by connecting directly to structure where possible, otherwise connect to anchorage devices or fasteners as indicated.
 - 1. Do not attach hangers to metal deck tabs.
 - 2. Do not attach hangers to metal roof deck.
 - 3. Do not attach hangers to underside of concrete slabs with powder-actuated fasteners.
- B. Do not connect or suspend steel framing from ducts, pipes or conduit.
- C. Keep hangers and braces 2 inches clear of ducts, pipes and conduits.
- D. Sway-brace suspended steel framing with hangers used for support.
- E. Install suspended steel framing components in sizes and at spacings indicated but not less than that required by referenced steel framing installation standard.
 - 1. Wire Hangers: 0.1620 inch diameter (8 gage), 4 ft. on center.
 - 2. Carrying Channels (Main Runners): 1-1/2 inch, 4 ft. on center.
 - 3. Rigid Furring Channels (Furring Members): 16 inches on center.
- F. Installation Tolerances: Install steel framing components for suspended ceilings so that cross furring members or grid suspension members are level to within 1/8 inch in 12 ft. as measured both lengthwise on each member and transversely between parallel members.
- G. Wire-tie or clip furring members to main runners and to other structural supports as indicated.

3.5 INSTALLATION OF STEEL FRAMING FOR WALLS AND PARTITIONS

- A. Install runners (tracks) at floors, ceilings and structural walls and columns where gypsum drywall stud system abuts other construction.
- B. Installation Tolerances: Install each steel framing and furring member so that fastening surface do not vary more than 1/8 inch from plane of faces of adjacent framing.
- C. Extend partition framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing over frames for doors and openings and frame around ducts penetrating partitions above ceiling to provide support for gypsum board. See drawings for extent of partition types and installation techniques.
- D. Terminate partition framing at suspended ceilings where indicated.
- E. Install steel studs and furring in sizes and at spacings indicated but not less than that required by referenced steel framing installation standard.
 - 1. For single layer construction: 16 inches on center.
- F. Install steel studs so that flanges point in the same direction and gypsum boards can be installed in the direction opposite to that of the flange.
- G. Frame door openings to comply with details indicated, with GA-219 and with applicable published recommendations of gypsum board manufacturer. Attach vertical studs at jambs with screws either directly to frames or to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
 - 1. Extend vertical jamb studs through suspended ceilings and attach to underside of floor or roof structure above as detailed on drawings.
- H. Frame openings other than door openings to comply with details indicated, or if none indicated, in same manner as required for door openings; and install framing below sills of openings to match framing required above door heads.

3.6 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.
 - 1. Except where concealed application is indicated or required for sound, fire, air or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. area, and may be limited to not less than 75 percent of full coverage.
 - 2. Fit gypsum board around ducts, pipes, and conduits.
- 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. Space fasteners in gypsum boards in accordance with referenced gypsum board application and finishing standard and manufacturer's recommendations.

3.7 METHODS OF GYPSUM BOARD APPLICATION

- A. Single-Layer Application: Install gypsum wallboard as follows:
 - 1. On ceilings apply gypsum board prior to wall/partition board application to the greatest extent possible.

2. On partitions/walls apply gypsum board vertically (parallel to framing), unless otherwise indicated, and provide sheet lengths which will minimize end joints.
- B. Wall Tile Base: Where drywall is base for thin-set ceramic tile and similar rigid applied wall finishes, install gypsum backing board.
1. In "dry" areas install gypsum backing board or wallboard with tapered edges taped and finished to produce a flat surface.
 2. At showers, tubs and similar "wet" areas, install water-resistant gypsum backing board to comply with ASTM C 840 and recommendations of gypsum board manufacturer.
- C. Single-Layer Fastening Methods: Apply gypsum boards to supports as follows:
1. Fasten with screws.

3.8 INSTALLATION OF DRYWALL TRIM ACCESSORIES

- A. 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.
- B. Install corner beads at external corners.
- C. 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.
1. Install "L" bead where edge trim can only be installed after gypsum board is installed.
 2. Install U-type trim where edge is exposed, revealed, gasketed, or sealant-filled (including expansion joints).
- D. Install U-bead where indicated, and where exterior gypsum board edges are not covered by applied moldings or indicated to receive edge trim with face flanges covered with joint compound.
- E. 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.

3.9 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:
 - 1. Embedding and First Coat: Ready-mix drying-type all-purpose or taping compound.
 - 2. Fill (Second) Coat: Ready-mix drying-type all-purpose or topping compound.
 - 3. Finish (Third) Coat: Ready-mix drying-type all-purpose or topping compound.
- 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.

3.10 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

SECTION 09300 - TILE (CERAMIC)**1.0 GENERAL**

The drawings, Instructions to Bidders, Form of Proposal, General Conditions, Supplementary General Conditions and Division 1 are included herein and govern work under this section.

1.1 DESCRIPTION OF WORK

A. Definitions: Tile includes ceramic surfacing units made from clay or other ceramic materials. The types of work of this section include:

1. Tile, floors/walls
2. Tile base, treads and trim
3. Special shapes as required or indicated
4. Setting beds as required or indicated
5. Grout and setting materials
6. Cutting and setting materials
7. Cutting, drilling and fitting tile work in connection with work by others
8. Waterproofing, uncoupling and drainage membranes
9. Edge protection and control joints

1.2 RELATED SECTIONS

- A. Section 03300- Cast In Place Concrete
- B. Section 03350- Concrete Finishing: concrete floor finishing
- C. Section 05510- Metal Stairs: tread reinforcing
- D. Section 06100- Rough Carpentry: plywood subfloor and underlayment
- E. Section 07900- Joint Sealers
- F. Section 09250- Gypsum Board
- G. Section 15400- Plumbing Fixtures and Equipment

1.3 REFERENCES

- A. ANSI A108.1-1999: Installation of Ceramic Tile
- B. ANSI A137.1-1998: Ceramic Tile
- C. ANSI C144-99: Standard Specification for Masonry Aggregates
- D. ANSI C150-90: Standard Specification for Portland Cement
- E. ASTM C207-91 (1992): Standard Specification for Hydrated Lime
- F. ASTM C503-99: Standard Specification for marble Dimension Stone
- G. ASTM C568-99: Standard Specification for Limestone Dimension Stone
- H. ASTM C615-99: Standard Specification for Granite Dimension Stone
- I. ASTM C629-99: Standard Specification for Slate Dimension Stone
- J. ASTM C847-95: Standard Specification for Reinforcing Metal lath

1.4 QUALITY ASSURANCE

A. Manufacturer: Provide products by the following for type of tile:

1. Tile
 - a. Daltile

- b. Best Tile
 - c. Stonepeak
 - d. Or any other manufacturer specified in drawings
- 2. Grout
 - a. Mapei– All floor tile to have epoxy grout.
- B. Tile Manufacturing Standard: TCA 137.1 Furnish tile complying with Standard Grade requirements unless indicated otherwise.
- C. Proprietary Materials: Handle, store, mix and apply proprietary setting and grouting materials in compliance with manufacturer's instructions.
 - 1. Provide materials obtained from one source for each type and color of tile, grout, and setting materials.
- D. Certificates:
 - 1. Master Grade Certificates:
 - a. Conform to ANSI A 137.1, standard grade

1.5 SUBMITTALS

- A. Product Data: Submit manufacturer's technical information and installation instructions for materials required, except bulk materials. Include certifications and other data to show compliance with these specifications.
- B. Submit Manufacturer's maintenance guides for Owner's use in maintaining all ceramic tile work included for project.
- C. Submit shop drawings for architect's review showing location of expansion joints based on building control joints, cold joints, sawed joints and recommended expansion joints based on TCA Specifications.

1.6 SAMPLES

- A. Submit samples in duplicate for approval showing quality, color, texture and finish for each kind of tile. Submit 12" x 12" panels of floor tile patterns and all custom patterns.
 - 1. Wall and Floor Tile:
 - a. Panel for each color, pattern and type
 - b. Approximate panel size: 12" x 12", mounted to 3/4" plywood backer
- B. No work for which such samples are required shall proceed until samples have been approved by the Architect, and all tile work shall be executed in strict accordance with the approved samples.

1.7 DELIVERY AND STORAGE OF TILE

- A. All tile shall be graded, sealed and delivered in accordance with Department of Commerce Simplified Practice Recommendation R-61, latest issue, and this specification.

- B. Deliver all tile in unbroken packages bearing the brand and manufacturer's name and store them on platforms, properly covered to protect them from moisture, damage and contamination.
- C. Keep all containers in which tiles are packed, dry until tiles are removed. Take every precaution to see that tiles are not stained.
- D. Manufacture mortars and grouts to contain hallmarks certifying compliance with referenced standards and be types recommended by the tile manufacturer for application.

1.8 CERTIFICATION

- A. The Contractor shall furnish a master grade certificate bearing the certification mark of the Tile Council of America, signed by the manufacturer of the tile and the tile applicator. Certificates shall state the type and quality of the material furnished.

1.9 MAINTENANCE INSTRUCTIONS

- A. Furnish in triplicate (3) copies of instructions for the care, cleaning, and maintenance of ceramic tile.

1.10 EXTRA TILE

- A. Upon completion of work, deliver to Owner, tile of same size, color, pattern and type as used on the project for use in future repair and maintenance work.
 - 1. 2% if resultant quantity exceeds 5 sq. ft.
 - 2. Minimum, 5 sq. ft.
 - 3. Include each trim shape, inside/outside corners, and any other special pieces in quantities in keeping with the conditions encountered.
 - 4. Clearly mark extra stock to identify:
 - i. Manufacturer's name
 - ii. Product name
 - iii. Product color and pattern
- B. Provide extra tile in above noted quantities for each color, tile, pattern and type employed on project.
- C. Package tile products neatly in original containers, to prevent damage.

1.11 JOB CONDITIONS

- A. Environmental:
 - 1. Maintain temperature no lower than 50 degrees F and no higher than 100 degrees F during tile work and for seven (7) days after completion.
 - 2. Vent temporary heaters to outside to avoid carbon dioxide damage to new tile work.

- 3. Provide adequate lighting for good grouting and clean up.
- B. Protection: Protect adjoining work surfaces before tile work begins.

2.0 PRODUCTS

2.1 KINDS OF TILE

- A. All tile shall be of domestic manufacture, standard grade, meeting the requirements of recommended standard Specification for Ceramic Tile TCA 137.1-1980. All packages shall bear quality triangle of Tile Council of America, Inc.
- B. All porcelain and slate as specified in Finish Schedule by Architect. Edges shall be plain or cushion as selected.
- C. All base shall match floor tile.
- D. Include all special shapes required such as bullnose, cove, trim, caps, etc. These shall be of the same kind and finish as adjacent tile.

2.2 COLOR, PATTERNS, SIZES OF TILE AND GROUT SELECTIONS

- 1. All colors of tile shall be as selected by the Architect from manufacturer's standard colors and listed as follows in schedule. Refer to finish plans for location.
- 2. TILES:

**Exact material selections to be followed as shown in architectural drawings.*

2.3 TERMINAL EDGES AND WATERPROOFING

- A. Furnish and install bullnose tiles at terminal edges of porcelain tile (tile base and wall tile wainscot).
- B. If bullnose is unavailable use Schluter Systems, Inc. L-Channel Top cap, sized appropriately to depth of tile. Color and finish to be selected by architect.
- C. Tile Edge Protection: Provide appropriate Schluter Systems, Inc. edge protection to transition between floor types when applicable. Submit samples for approval by Architect.
- D. Tile Expansion and Control Joints: Provide appropriate Schluter Systems, Inc., tile expansion and control joint profile when applicable. Submit samples for approval by Architect.
- E. Waterproofing Membrane System: Provide Schluter Systems, Inc or approved equal waterproof membrane in shower areas or other wet locations. Install per manufacturer's recommended instructions.
- F. Waterproofing & Crack Isolation Membrane: Provide Flextile Ltd, WP-980 waterproof membrane system in areas where large expanses of tile are installed. Install per manufacturer's recommended instructions.

2.4 MORTAR AND GROUTING MATERIALS

- A. All cement shall be Portland Cement conforming to ASTM Specifications C150, latest edition, type 1.
- B. All hydrated lime shall comply with ASTM Specifications C206 and C207, type S.
- C. All sand shall be clean, sharp, durable, fine natural aggregate, free from salt, loam, clay, soluble salts organic impurities, conforming to ASTM C144.
 - 1. Sand for floor setting beds shall be well graded, passing #8 sieve, not over 5% passing #100 mesh screen.
 - 2. Sand for grout shall pass #30 mesh sieve, not over 5% passing #100 mesh screen.
- D. Water shall be clean, free from injurious amount of oil, acid, soluble salts, organic impurities.
- E. Dry-set mortar - conform with ANSI A118.1, and be prepared under Tile Council Formula. Package shall bear quality triangle of Tile Council of American, Inc.
- F. Latex-Portland Cement Mortars to conform to ANSI A118.4.
- G. Organic adhesives to conform to ANSI A136.1.
- H. Epoxies:
 - 1. Floor and wall adhesive: Equivalent to Mapei Corp. Kerapoxy adhesive.
 - 2. Heavy duty floor mortar:
 - a. Equivalent to Mapei Corp. Kerapoxy epoxy mortar.
 - b. Conform to ANSI A118.3
- I. All materials shall be measured accurately by volume thoroughly mixed and placed within a reasonable time after mixing. Do not re-temper.

3.0 EXECUTION**3.1 EXAMINATION**

- A. Verify existing condition are ready to receive work.
- B. Ensure substrates are clean, dimensionally stable, cured and free of contamination such as oil, sealers and curing compounds.
- C. Ensure concrete has been allowed to cure for a minimum of 28 days.
- D. Ensure that floor substrate is trowelled to a fine broom finish.
- E. Notify Architect in writing of unacceptable substrate conditions.

3.1 SETTING METHODS

- A. All ceramic tile installation work shall be in accordance with latest recommendations of the Tile Council of America, Inc. and as indicated on drawings and specified herein. In case of conflict, the more stringent shall apply.
- B. Porcelain tile floors and walls shall be applied direct, using dry set mortar (thin set method).
- C. Average thickness of thin set mortar bed shall be 1/8" and shall not exceed 1/4".
- D. Coordinate with concrete work for recess at area of tile.
- E. Verify size and field dimensions for Entry Mat at Vestibules

3.2 STANDARD FOR TILE WORK

- A. Except as otherwise specified, all details of tile setting and workmanship shall conform with the requirements of the "2003-2004 Handbook for Ceramic Tile Installation" of the Tile Council of America, Inc.

3.3 TILE SETTING PROCEDURE

- A. A detailed inspection of all surfaces on which tile is to be placed shall be made. A report, in writing, of any defects found as a result of this inspection, shall be made to the Contractor, who shall immediately remedy such defects before the placing of the tile.
- B. All rooms or spaces in which tile floors are being laid, shall be closed to traffic or other work, and kept closed until the floors are completed and the tile firmly set.
- C. No tile shall be set on surfaces where other work is specified or shown to be embedded in the tile work until such work has been installed and approved.
- D. Tile work shall be laid out so as to avoid small cuts. All cuts shall be rubbed smooth and even.
- E. Replace All tile misfits with properly cut tile.
- F. No tile shall be placed or allowed to set in temperatures below 40 degrees F.

3.4 SETTING TILE

- A. Installation of the tile shall comply with standards previously specified and with ANSI 108.5.
- B. Clean surface of all dust, deleterious film and non-compatible matter, moisten well with water, allow no free water to remain on surface. Do not saturate.
- C. Spread specified setting mortar, screen to true plane at proper height, sloped to drains or level as indicated.
- D. Do not spread more setting mortar at one time than can be covered during same working period.
- E. Lay all tiles to straight edge, maintain uniform joint between tiles. All joints shall align in all directions.

- F. Press tile into still plastic mortar and beat to true surface, using approved tools.
- G. Provide expansion joints in locations and as required by recommendations of Tile Council of America, Inc.

3.5 GROUTING

- A. After removal of paper, grout all tile joints. Fill by screening or brushing specified grout until joints are full, avoiding air traps or voids.
- B. Pre-seal tiles requiring protection from grout staining.
- C. Tool all cushion edge joints to depth of cushion.
- D. Remove all surplus grout from tile, using diagonal strokes across joints. Check for gaps or air holes, filling same.

3.6 PROTECTION

- A. Immediately after initial set of grout, apply a coat of non-corrosive soap to all wall tile or cover it completely with heavy gauge plastic sheets, properly secured and joints well taped.
- B. Cover all tile floors with building paper with taped joints. Where necessary to truck over tile floors, General Contractor shall provide planking.
- C. Close all rooms to traffic for ten (10) days after grouting tile.
- D. Protect all finished work until the Architect authorizes the removal of protection.

3.7 CLEANING

- A. After grout has set, wash and rinse all tile work with sponge and clean water. Polish with dry cloth.
- B. Avoid the use of acid if possible. If absolutely necessary, obtain approval of Architect and use 10% muriatic solution and rinse thoroughly with clean water.
- C. All cleaning shall be done in such a manner as not to adversely affect mortar joints and finish of tile.

3.8 REPAIR AND REPLACEMENT

- A. Remove all broken tiles and replace with new tile. Provide adequate "back up" in base coat to prevent further cracking tile. Provide protection to replaced floor tile as specified.

END OF SECTION

SECTION 09510 - ACOUSTICAL CEILING TREATMENT1.0 GENERAL

The drawings, Instructions to Bidders, Form of Proposal, General Conditions, Supplementary General Conditions and Division 1 are included herein and govern work under this section.

1.1 DESCRIPTION OF WORK

- A. Extent of each type of acoustical ceiling is shown and scheduled on drawings.
 - 1. Refer to Room Finish Schedule, reflected ceiling plans and other pertinent details as indicated on drawings.
- B. Types of acoustical ceilings specified in this section include the following:
 - 1. 4' x 4' Acoustical panel ceilings, exposed suspension.
 - 2. Suspension Trim System for suspended ceiling system.

1.2 SEISMIC REQUIREMENTS

- A. Suspended ceiling grid systems shall provide all necessary components to comply with the New York State Seismic Design Criteria as dictated by the specific Seismic Design Category. This requirement includes suspension of all HVAC, lighting and any other ceiling installed items

1.3 QUALITY ASSURANCE

- A. Installer: Firm with not less than three years of successful experience in installation of acoustical ceilings similar to requirements for this project and which is acceptable to manufacturer of acoustical units, as shown by current written statement from manufacturer.
- B. All acoustical tile panels specified herein, shall have a flame spread rating of 25 or less when tested by an independent Testing Laboratory in accordance with ASTM E84-70.
- C. Manufacturer shall submit substantiating data as evidence of compliance.
- D. Changes from system: system performance following any substitution of materials or change in assembly design must be certified by the manufacturer.

1.4 SUBMITTALS

- A. Product Data: Manufacturer's product specifications and installation instructions for each acoustical ceiling material required, and for each suspension system, including certified laboratory test reports and other data as required to show compliance with these specifications. Include manufacturer's recommendations for cleaning and refinishing acoustical units, including precautions against materials and methods which may be detrimental to finishes and acoustical performances.
- B. Shop drawings:
 - 1. Reflected ceiling plans: Indicate layout arrangement of ceiling design, dimensions,

and locations of related integrated lighting and air distribution.

- C. Samples: Set of 12" square samples for each acoustical unit required showing full range of exposed color and texture to be expected in completed work. Set of 12" long samples of each exposed runner and molding.
- D. Maintenance Stock: At time of completing installation, deliver stock of maintenance material to Owner. Furnish full size units matching units installed, packaged with protective covering for storage, and identified with appropriate labels. Furnish amount equal to 2.0% of acoustical units and exposed suspension installed.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Delivery of materials: Deliver materials in original, unopened packages clearly labeled with the manufacturer's name and identification numbers.
- B. Inspection: Promptly inspect delivered materials, file freight claims for damage during shipment, and order replacement materials, as required.
- C. Storage: Store in manner that will prevent warpage, scratches, or damage of any kind.
- D. Handling: Handle in such a manner as to ensure against racking, distortion, or physical damage of any kind.

1.6 JOB CONDITIONS

Recommendations of the Acoustical Materials Association in their latest bulletin shall apply. Acoustical materials shall be installed under temperature and humidity conditions closely approximating those which will exist when the building is occupied. They should not be installed when buildings are damp and cold or dry and hot. Plastering, concrete and flooring shall be completed and then allowed to dry before the installation of acoustical tiles. All windows and doors shall be in place and glazed. Heating system should be installed and operating where necessary to maintain proper conditions before, during and after the acoustical ceiling installation. Concrete should be thoroughly dry.

2.0 PRODUCTS

**Exact material selections to be followed as shown in architectural drawings.*

2.2 CEILING SUSPENSION MATERIALS

- A. Exposed Tee Suspension System
 - 1. System shall include all hangers, wire, carrying tees, cross tees, edge angles, clips and all other components to complete installation. Provide proper amount and proper type of "hold down" clips as required to prevent "uplift" and "shifting" of tiles.
 - 2. Suspension system for type A ceiling tile shall be as manufactured by Armstrong, USG, or approved equal.

3. All lights in exposed grid suspension system shall be supported by the suspension system. Diffusers, grilles, etc. shall be independently supported.
4. Main tees shall be sufficiently supported to carry load imposed, which shall include weight of lights. A minimum of four hangers per light shall be used and for lights over 4'-0" long, and additional two hangers for each additional 2'-0" of length shall be used.
5. Main tees and cross tees shall be made of fully zinc coated steel of gauges as previously noted. All connections of main tees, cross tee, perimeter mouldings, etc., shall be mechanically interlocked. All work shall be level, square and at proper height. Provide perimeter mouldings where ceiling abuts walls or partitions.
6. Hanger wire shall be No. 12 annealed galvanized wire, spaced not to exceed 4" o.c.
7. All ceiling suspension shall be supported from floor and roof construction above. Provide all supplementary framing as required to adequately support the suspended ceiling.

B. Suspension Trim system

1. **Exact material selections to be followed as shown in architectural drawings.*
2. Provide trim pans, splice plates, mounting clips and all other fasteners recommended by the manufacturer for installation.
3. Install suspension system in accordance with manufacturer's recommended requirements.

3.0 EXECUTION

3.1 INSPECTION

Installer must examine conditions under which acoustical ceiling work is to be performed and must notify Contractor in writing of unsatisfactory conditions. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

3.2 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.
- C. Field verify dimensions prior to installation.

3.3 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 industry standards applicable to work.
- B. Install suspension system and panels in accordance with the manufacturer's instructions, and in compliance with ASTM C 636 and with the authorities having jurisdiction.
- C. Suspend main beam from overhead construction with hanger wires spaced 4'-0" on center along the length of the main runner. Install hanger wires plumb and straight.
- D. Install wall moldings at intersection of suspended ceiling and vertical surfaces. Miter corners where wall moldings intersect or install corner caps.
- E. For reveal edge panels: Cut and reveal or rabbet edges of ceiling panels at border areas and vertical surfaces.
- F. Install acoustical panels in coordination with suspended system, with edges resting on flanges of main runner and cross tees. Cut and fit panels neatly against abutting surfaces. Support edges by wall moldings

3.4 ADJUST AND CLEAN

- A. Replace damaged and broken panels.
- B. Upon completion, all exposed surfaces of factory finished acoustical work shall be cleaned and left in a condition entirely satisfactory to the Architect. Remove all debris, equipment and material from premises.

END OF SECTION

SECTION 09650 –RESILIENT FLOORING

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 DESCRIPTION OF WORK:

- A. Extent of luxury vinyl tile flooring is indicated on drawings, schedules and in provisions of this section.

1.3 RELATED WORK:

- A. Cast-In-Place Concrete as specified in Division 3.
- B. Ceramic Tile is specified in another Division 9 section.
- C. Carpet as specified in Division 9

1.4 QUALITY ASSURANCE:

- A. All resilient flooring covered by this specification shall establish minimum standards for materials, finish, construction, design, function, and workmanship.

- B. Installer Qualifications:

- 1. Minimum 3 years experience installing resilient floor covering materials.
- 2. Demonstrated quality of workmanship:
 - a. Minimum number of installations - 5.
 - b. Age of installations: Maximum - 3 yrs.; minimum - 1 yr.

1.5 SUBMITTALS:

- A. Samples:

- 1. Submit minimum of 3 samples of each type and color or pattern of resilient flooring and base materials as follows:
 - a. luxury vinyl tile: 3" x 3".
 - b. Rubber base: 2" length.
- 2. Mark samples with name of Contractor, project identification, and area where materials are to be used.

- B. Maintenance Data and Instructions: Upon completion and prior to acceptance of work, furnish three (3) copies of a list of recommended maintenance products and recommended maintenance methods and procedures for each product specified.

- C. Maintenance Materials:

- 1. Furnish additional floor covering materials for replacement and maintenance.

- 2. Furnish materials of each size, color, pattern, and type of material included in work.
 - a. LVT/ Luxury vinyl tile: 4% overage.
 - b. Rubber base: 20 linear feet where installed quantity is 200 linear feet or more.
10 linear feet where installed quantity is less than 200 linear feet.
- 3. Furnish Owner with manufacturer's maintenance and warranty information.

1.6 PRODUCT DELIVERY AND STORAGE:

- A. Deliver materials to project site in manufacturer's original, unopened containers with labels indicating brand names, colors and patterns, and quality designations legible and intact.
- B. Do not open containers or remove markings until materials are inspected and accepted.
- C. Store and protect accepted materials in accordance with manufacturer's directions and recommendations.
- D. Unless otherwise directed or recommended by manufacturer, store materials in original containers at not less than 70° F (21° C) for not less than 24 hours immediately before installation.

1.7 ENVIRONMENTAL REQUIREMENTS:

- A. Maintain a minimum temperature of 65° F in space to receive flooring and accessories for at least 48 hours before, during, and for not less than 48 hours after, installation.
- B. Maintain minimum temperature of 55° F after flooring is installed except as specified in Paragraph 1.7 A.
- C. Ventilation:
 - 1. Provide ventilation during and following adhesives applications.
 - 2. Use temporary air circulators in enclosed areas lacking natural ventilation.

1.8 **WARRANTY**

- A. Luxury vinyl tile and vinyl plank flooring: 10 year limited warranty

PART 2 - PRODUCTS

2.1 MANUFACTURER: Products of the following manufacturers, subject to compliance with requirements, will be acceptable:

** See drawings for all specified product information and coordinating base material.*

- A. Luxury Vinyl Tile:
Acceptable Manufacturers: Tarkett
Armstrong
Mannington
Interface
Or equal
- B. Rubber Base:

Acceptable Manufacturers: Johnsonite
 Roppe
 Or equal

C. Refer to finish schedule for exact products, styles, colors, and sizes.

D. Architect to select from manufacturer's full line of styles and colors.

2.2 FLOOR COVERING MATERIALS:

A. General:

1. Uniform in thickness and size.
2. Edges cut accurately and square.
3. Uniform color with variations in variegated patterns kept to a minimum.
4. Colors and/or patterns selected by Architect from manufacturer's standard.

B. Luxury Vinyl Tile:

1. see drawings for exact product
2. Fire hazard classification:
 - a. Smoke developed (ASTM E-662): 450 or less.
 - b. Critical radiant flux (ASTM E-648): 0.45 watts/sq. cm. or more, Class I.

C. Tile Reducers and Feature Strips:

1. Transition between vinyl composition tile and dissimilar materials: 1/8" thick x 1" wide, tile reducer as manufactured by Johnsonite Corporation or approved equivalent.
2. Feature strips: 1/8" x 1" feature strips as manufactured by Johnsonite Corporation or approved equivalent.

2.3 BASE MATERIALS:

A. General:

1. Uniform in thickness.
2. As long lengths as practicable to suit conditions of installation.
3. Colors as selected by Architect from manufacturer's full range of styles and colors.

B. Rubber Base:

1. Cove base: 4 inch high, or height to match existing, 1/8 inch thickness, with 5/8 inch standard toe base.
2. Toeless flat base (at carpeted areas): 4 inch high, or height to match existing, 1/8 inch thickness, with no-toe base.

3. Factory premolded inside and outside corners: Match base materials.
4. Equivalent to extruded ASTM F-1861 - Type TP, thermoplastic rubber base.
5. Fire Hazard Classification:
 - a. Smoke developed (ASTM E-662): 450 or less.
 - b. Critical radiant flux (ASTM E-648): 0.45 watts/sq. cm. or more, Class I.

2.5 APPLICATION MATERIALS:

- A. Adhesive: Provide waterproof type and brands of adhesive as recommended by manufacturer of covering materials for conditions of installation.
- B. Cleaner: As recommended by floor covering manufacturer for particular type of flooring material.

2.6 FLOOR PATCH AND LEVELING MATERIALS:

- A. Floor Patch: Equivalent to Armstrong S-175 floor patch.
- B. Fill and Leveling: Equivalent to Armstrong S-180 latex underlayment, Ardex V-800.
- C. Liquid Underlayment: Equivalent to Crossfield Products Corp., A-81 underlayment. Use where fill or leveling exceeds more than 1/8 inch.

PART 3 - EXECUTION

3.1 INSPECTION OF SURFACES:

- A. Examine substrate for excessive moisture content and unevenness which would prevent execution and quality of resilient flooring as specified. Notify Architect in writing of any defect in subfloor.
- B. Do not proceed with installation of flooring until defects have been corrected except where correction is indicated under "Preparation" in this section.

3.2 PREPARATION:

- A. Remove dirt, oil, grease, or other foreign matter from surfaces to receive floor covering materials.
- B. Fill cracks, as required, in subfloor with approved nonshrinking crack filler.
- C. Fill subfloor cracks, etc. Clean subfloor of grease or other dirt. Do not begin until work of other trades, including painting, has been completed.
- D. Subfloors must be dry, smooth and free of dust, solvents, paint, wax, grease, oil, asphalt sealing compounds and other extraneous materials. The surface must be hard and dense, and free from powder and flaking.
- E. New concrete slabs must be thoroughly dry (at least 6 weeks) and completely cured. Check moisture content before installing material.

- F. Construction contractor: Maintain rooms and subfloors at 70 degrees F. minimum for at least 48 hours before, during, and 48 hours after flooring operations.
- G. Use only experienced workmen. Lay tiles with even joints and with finished surfaces in true plane, smooth. Lay tiles square and symmetrical with room axis. Cut, fit, scribe to wall.
- H. Install protective edgings where flooring edges are exposed and where required to saddle difference of finished floor elevation between ceramic tile and resilient tile.
- I. Cement base firmly to walls using proper adhesive for surface to which it is to be applied. Scribe base accurately to trim.
- J. The floor shall be installed using manufacturers' recommended adhesives and in strict compliance with written installation specification.

3.3 APPLICATION OF ADHESIVES:

- A. Mix and apply adhesives in accordance with manufacturer's instructions. Provide manufacturer's recommended adhesive for each flooring material specified.
- B. Provide safety precautions during mixing and applications as recommended by adhesive manufacturer.
- C. Apply uniformly over surfaces.
 - 1. Cover only that amount of area which can be covered by flooring material within recommended working time of adhesive.
 - 2. Remove any adhesive which dries or films over.
 - 3. Do not soil walls, bases, or adjacent areas with adhesives.
 - 4. Promptly remove any spillage.
 - 5. Use waterproof adhesive at all areas.
- D. Apply adhesives with notched trowel or other suitable tool.
- E. Clean trowel and rework notches as necessary to insure proper application of adhesive.
- F. Seam and seal sheet vinyl per manufacturer's recommended instructions.

3.4 INSTALLATION OF TILE AND RUBBER BASE:

** Install each flooring material specified as recommended by the flooring manufacturer.*

- A. Lay tile starting on longest wall.
- B. Do not lay tile less than 1/2 width of field tile except where accepted by Architect for irregularly shaped rooms or spaces.
- C. Cut border tile neatly and accurately to fit within 1/64 inch of abutting surfaces.

- D. Fit flooring material neatly and tightly into breaks and recesses, against bases, around pipes and penetrations, under saddles or thresholds, and around permanent cabinets and equipment.
- E. Lay tile parallel to room axis in straight courses with cross joints as directed; lay tile with grain or pattern running in direction between adjacent tile as directed.
- F. Roll tile thoroughly in both directions with a 100-lb. or heavier roller.
- G. Tile Reducers and Feature Strips: Install tile reducers or feature strips at all doorways or in areas where tile meets dissimilar materials. Set tile reducers or feature strips in mastic recommended by manufacturer with top of edging flush with top of tile.
- H. Provide patterns in arrangements as determined by Architect.

3.5 INSTALLATION OF BASE:**A. General:**

- 1. Install base around perimeter of rooms or space where scheduled or indicated on drawings.
- 2. Include furnishing and installing rubber base on exposed sub-base surfaces of cabinets and/or casework installed as part of work on project.
- 3. Match edges at all seams.
- 4. Install with tight butt joints with no joint widths greater than 1/64 inch.

B. Top-Set Base:

- 1. Apply adhesive and firmly adhere to wall surfaces.
- 2. Press down so that bottom cove edge follows floor profile.
- 3. Form internal corners by using premolded corners.
- 4. Form external corners by using premolded corners.
- 5. Scribe base accurately to abutting materials.
- 6. Provide flat toeless base where carpeting is scheduled.

3.6 FINISHING AND CLEANING:

- A. Upon completion of installation of floor covering, adjacent work, and after materials have set, clean surfaces with a neutral cleaner as recommended by manufacturer for type of floor covering material installed.
- B. Leave surfaces clean, ready to receive wax application by Owner.
- C. Protect completed work from traffic and damage until acceptance by Owner.

END OF SECTION

SECTION 09720 -WALL COVERINGS

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 DESCRIPTION OF WORK:

- A. Extent of wall coverings is indicated on drawings, schedules and in provisions of this section.
 - 1. Include necessary preparatory work as required for conditions encountered.
 - 2. Cooperate with all trades during installation of vinyl wall covering.

1.3 RELATED WORK:

- A. Gypsum Board is specified in another Division 9 section.
 - 1. Sealing of all drywall before installation of wall covering as per manufacturer's recommendations.
- B. Painting is specified in another Division 9 section.

1.4 QUALITY ASSURANCE:

- A. All wall covering covered by this specification shall establish minimum standards for materials, finish, function, and workmanship.
- B. Guarantee all work for one (1) year against bucking, curling, cracking, raising, or disintegrating. Repair or replace any defective work without additional cost to the Owner.
- C. Applicators:
 - 1. Experienced personnel, regularly engaged in type of work encountered.
 - 2. Acceptable to wall covering manufacturer.
- D. Reference Standards:
 - 1. American Society for Testing and Materials (ASTM): As specified.
 - 2. Underwriter's Laboratories (U.L.): As specified.
- E. Certification: Furnish in writing, manufacturer's certification that materials furnished comply with specification requirements.

1.5 SUBMITTALS:

- A. Samples:
 - 1. Furnish samples of manufacturer's standard patterns and/or colors for Architect's selection.
 - 2. Furnish three (3) samples 12" x 12" of each pattern and/or color selected.

3. Final acceptance of wall coverings shall be contingent upon Architect's review of samples.
- B. Installation Instructions:
1. Provide manufacturer's written instructions for installation of wall coverings on surfaces encountered.
 - a. Include instructions for required preparation of new and existing surfaces.
- C. Maintenance Instructions:
1. Provide manufacturer's written maintenance instructions for materials furnished on project.
 - a. Include manufacturer's recommended cleaning materials and application methods.
 - b. Include precautions in use of cleaning materials which may be detrimental to vinyl wall covering surfaces if improperly applied.
- D. Extra Material: Provide 24 lineal feet of full width material for each pattern and/or color.
- 1.6 PRODUCT DELIVERY, HANDLING AND STORAGE:
- A. Exercise care to prevent damage during delivery and handling. Deliver wall coverings to project site in unbroken and undamaged original factory wrappings and clearly labeled with manufacturer identification label, quality grade and lot number.
 - B. Store wall coverings in undamaged condition as packaged by manufacturer with manufacturer's seals and labels intact.
 - C. Store all materials in a clean, dry area.
 - D. Do not store wall covering in an upright position. Do not cross stack material. Support material off the floor in a manner to prevent sagging and warping.
 - E. Maintain storage area temperature above 55 degrees F. with normal humidity.
- 1.7 ENVIRONMENTAL CONDITIONS:
- A. Install vinyl wall covering when normal temperature and humidity conditions approximate conditions that will exist when building is occupied.
 - B. Maintain constant temperature of 70 degrees F. at base elevation in areas to receive wall covering.
 - C. Maintain temperature for 72 hours before, during and conditions shall be maintained until the time of substantial completion.
 - D. Remove wall covering from its packaging and allow to acclimatize to area of installation 24 hours before application.
- 1.8 WARRANTY:

- A. Submit manufacturers limited 5 year warranty against manufacturing defects for wall talkers writing surface.

PART 2 - PRODUCTS

2.1 MANUFACTURER: Products of the following manufacturers, subject to compliance with requirements, will be acceptable:

- A. J Josephson, Inc.
- B. JM Lynn
- C. Wolf Gordon
- D. Bolta
- E. Source One
- F. Colour & Design
- G. York Contract
- H. Or approved manufacturer

2.2 VINYL WALL COVERING:

A. GENERAL:

- 1. Conform to or exceed requirements of Federal specification CCC-W-408A-D, Type II, Class 2.
- 2. All vinyl wall covering:
 - a. Mildew resistant.
 - b. Weight; 20 oz.

B. PHYSICAL PROPERTIES:

U.L. Rating
Flame Spread: Class "A" Rating
Smoke Developed
Meets Federal Spec CCC-W-408A-D

C. Wall Covering Adhesive:

- 1. As recommended by vinyl wall covering manufacturer for conditions encountered.
- 2. Adhesive shall contain mildew inhibitors.
- 3. Primers: As recommended by vinyl wall covering manufacturer for conditions encountered.

PART 3 - EXECUTION

3.1 INSPECTION:

- A. Prior to starting work, examine surfaces to receive wall covering to assure that they are smooth, level, true and properly prepared to receive wall covering application.

WIND BUFFALO RESTAURANT

WALL COVERINGS

- B. Correct defects that could affect quality of finished work.
- C. Where gypsum board surfaces are encountered, assure that:
 - 1. All nails and screws are recessed.
 - 2. All joints and nail/screw depressions have been properly taped, spackled and sanded. Seal gypsum drywall. Apply vinyl wall covering before installation of rubber base.
 - 3. All surfaces shall be free from cracks, dirt, dust, irregularities, rough spots and indentations.
- D. Notify contractor and architect in writing of any conditions detrimental to the proper and timely completion of the installation.
- E. Starting wall covering work shall be construed as evidence of acceptance of conditions under which work will be done.

3.2 PREPARATION OF SURFACES:

- A. When surfaces scheduled to receive wall covering have been properly prepared to provide a smooth, flat surface without projections, hollows, voids, or any other impairment; apply primer as recommended by manufacturer of wall covering.
- B. Apply wall covering manufacturer's recommended primer/sealer to gypsum wallboard surfaces to ease future removal of wall covering.
- C. Apply vinyl wall covering before installation of rubber base.

3.3 INSTALLATION:

- A. Before cutting, examine pattern and color and determine that they match approved samples. Examine patterned material for repeat in design.
 - 1. All work shall be done in a workmanlike manner by skilled mechanics. All materials shall be properly applied and shall be free from sags, air bubbles, and lumps. Hang material in strict accordance with manufacturer's written instructions.
 - 2. Remove vinyl-coated fabrics from its package and allow to acclimatize to the area of installation 24 hours before application.
- B. Acclimate wall covering in the area of installation a minimum of 24 hours before installation.
- C. Application of Adhesive:
 - 1. Follow manufacturer's directions for mixing and applying adhesive.
 - 2. Mix adhesive thoroughly. Apply adhesive with brush or roller in accordance with manufacturer's recommendations.
- D. Use panels in exact order as they are cut from roll.

- E. Fill in over doors and windows as encountered, with panels cut in consecutive order from roll.
- F. Smooth fabric to hanging surface with stiff bristled sweep brush or a flexible broad-knife to eliminate air bubbles and insure adhesion.
- F. Vertical joints shall not occur less than 6 inches from outside or inside corners. Horizontal seals will not be accepted.
- H. Where applicable, install wall covering before installation of plumbing, casings, bases, cabinets, or any other similar item.
- I. Remove and replace hardware, accessories, plates and similar items to allow fabric to be installed.
- J. Remove excess paste from seam before making next seam. Use a sponge or cloth dampened with warm water, wipe clean with a dry towel, as work progresses.
- K. If any variations in color and/or pattern match are encountered, immediately notify manufacturer's representative and wait for his inspection, in presence of Architect or his authorized representative, before proceeding further with installation.
- L. Wall coverings shall not be applied directly over ballpoint or felt-tip pen markings.
- M. Remove excess adhesive immediately. Clean entire surface with warm, mild soap solution, a natural sponge and clean towels. Rinse thoroughly and let dry before using.

3.4 PROTECTION:

- A. During installation of wall coverings, protect the work of other trades against soilage and damage. Repair or replace any work so damaged and spoiled.

3.5 CLEAN UP:

- A. Upon completion of work, remove surplus materials, rubbish and debris resulting from operations under this section including equipment and implements of service.
- B. Leave entire structure and site insofar as work of this section is concerned in a neat, clean and acceptable condition.

END OF SECTION

SECTION 09770 – SPECIAL WALL SURFACES (FIBERGLASS REINFORCED PLASTIC PANELS):

PART 1 – GENERAL

1.01 SUMMARY

- A. Section Includes: Special wall surfaces, including fiberglass reinforced plastic panels.

1.02 SYSTEM DESCRIPTION

- A. Performance Requirements: Provide fiberglass reinforced plastic (FRP) panels which have been manufactured and installed to maintain performance criteria stated by manufacturer without defects, damage or failure.

1.03 SUBMITTALS

- A. General: Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedures Section.
- B. Product Data: Submit product data, including manufacturer's SPEC-DATA product sheet, for specified products.
- C. Shop Drawings: Submit shop drawings showing layout, profiles and product components, including anchorage, accessories, finish colors, patterns and textures. Indicate location and dimension of joints and fastener attachment.
- D. Samples: Submit selection and verification samples for finishes, colors and textures. Submit 2 samples of each type of panel, trim and fastener.
- E. Quality Assurance Submittals: Submit the following:
 - 1. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
 - 2. Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics, criteria and physical requirements.
 - 3. Manufacturer's Instructions: Manufacturer's installation instructions. Submit manufacturer's *Installation Guide #6211*.
- F. Closeout Submittals: Submit the following:
 - 1. Operation and Maintenance Data: Operation and maintenance data for installed products in accordance with Division 1 Closeout Submittals (Maintenance Data and Operation Date) Section. Include methods for maintaining installed products and precautions against cleaning materials and methods detrimental to finishes and performance.
 - 2. Warranty: Warranty documents specified herein.

1.04 QUALITY ASSURANCE**A. Qualifications:**

1. Installer Qualifications: Installer should be experienced in performing work of this section and should have specialized in installation of work similar to that required for this project.
2. Installer must have a minimum of three (3) years experience.
3. Manufacturer Qualifications: Manufacturer should be capable of providing field service representation during construction and should be capable of approving application method.

1.05 DELIVERY, STORAGE & HANDLING

- A. General: Comply with Division 1 Product Requirements Sections.
- B. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.
- C. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact. Package sheets on skids or pallets for shipment to project site.
- D. Storage and Protection: Store materials protected from exposure to harmful weather conditions and at temperature and humidity conditions recommended by manufacturer. Store panels indoors in a dry place at the project site.
- E. Handling: Remove foreign matter from face of panel by using a soft bristle brush, avoiding abrasive action.

1.06 PROJECT CONDITIONS**A. Environmental Requirements:**

1. Installation shall not begin until building is enclosed, permanent heating and cooling equipment is in operation, and residual moisture from plaster, concrete or terrazzo work has dissipated.
2. During installation, and for not less than 48 hours before, maintain an ambient temperature and relative humidity within limits required by type of adhesive used and recommendation of adhesive manufacturer.
3. Provide ventilation to disperse fumes during application of adhesive as recommended by adhesive manufacturer.

- B. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field

measurements and fabrication schedule with construction progress to avoid construction delays.

1.07 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 authorized company official. Manufacturer’s warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents.
 - 1. Warranty Period: Ten (10) years commencing on Date of Substantial Completion.

1.08 MAINTENANCE

- A. Extra Materials: Deliver to Owner extra materials from same production run as products installed. Package products with protective covering and identify with descriptive labels. Comply with Division 1 Closeout Submittals (Maintenance Materials) Section.
 - 1. Quantity: Furnish quantity of Glasbord –FSI Panel units equal to 3% of amount installed.
 - 2. Delivery, Storage and Protection: Comply with Owner’s requirements for delivery, storage and protection of extra materials.

PART 2 PRODUCTS

2.01 FIBERGLASS REINFORCED PLASTIC (FRP) PANELS

- A. Manufacturer: Kemlite Company, Inc.
 - 1. Contact:

P. O. Box 2429
Joilet, IL 60434
Telephone: (800) 435-0080
(815) 467-8600
FAX: (815) 467-8666
e-mail: kemlitesales@kemlite.com
website: www.glasbord.com
- B. Proprietary Product(s) / System(s): Kemlite Fiberglass Reinforced Plastic (FRP) Panels.
 - 1. Glasbord Panels:
 - a. Glasbord FSI-Smooth
 - b. Color: 85 White
 - c. Finish: Smooth Gloss
 - d. Size: Indicated on drawings

- e. Moldings: Provide harmonizing PVC (polyvinyl chloride) moldings:
Color: 85 White
 - f. Rivets: use in areas where there are large fluctuations in temperature and/or humidity, where the substrate is unusually uneven, and in all low temperature or cold storage applications. Refer to *Illustration Guide #6211* for rivet pattern and installation instructions.).
- C. Surfaseal Surface Protection: Provide manufacturer's proprietary Surfaseal surface protection for fiberglass reinforced plastic (FRP) panels.
- D. Division Bars, Corner Trim: Panel manufacturer's standard length extruded vinyl pieces; longest length possible to eliminate end joints.
- E. Fasteners: Noncorrosive drive rivets.

2.02 PRODUCT SUBSTITUTIONS

- A. Substitutions: No substitutions permitted.

2.03 MANUFACTURED UNITS

- A. Kemilte Glasbord Fiberglass Panels with Surfaseal Surface Protection:
- 1. Rating:
 - a. Fire-X Glasbord Underwriters Laboratories, Inc. (UL) classified, Class (A) Interior Finish Material.
 - 2. Wall Panels: Finish, thickness and color shall be:
 - a. Smooth 0.75" (1.9mm) Glasbord FSI with Surfaseal Color: 85 White.
 - b. Class A flamespread of less than 25, smoke developed less than 450 per ASTM E84 latest version.
 - c. Barcol Hardness (scratch resistance) of 52 as per ASTM D2583.
 - d. Panels will exhibit no more than a 0.038% weight loss after a 25 cycle Taber Abrasion Test using CS-17 abrasive wheels with 1000 g weight.
 - e. Gardner Impact Strength of 30 in-lb (3.4 J) showing no visible damage on front side per ASTM D3029.
 - f. Meets USDA/FSIS requirements.
 - g. Complies with ICBO report Number4583.

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.

3.02 EXAMINATION

- A. Site Verification of Conditions: Verify that substrate conditions, which have been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instructions.
 - 1. Examine backup surfaces to determine that corners are plumb and straight, surfaces are smooth, uniform, clean and free from foreign matter, nails are countersunk and joints and cracks are filled flush and smooth with the adjoining surface.
 - 2. Do not begin installation until backup surfaces are in satisfactory condition.

3.03 PREPARATION

- A. Surface Preparation: Per manufacturer's instructions.

3.04 INSTALLATION

- A. Fiberglass Reinforced Panel (FRP) Installation:
 - 1. Cut and frill panels with carbide tipped saw blades or drill bits, or cut with snips.
 - 2. Install panels with manufacturer's recommended gap for panel field and corner joints.
 - 3. Pre-drill fastener holes in panels with 1/8" (3.2mm) oversize.
 - 4. For trowel type and application of adhesive, follow adhesive manufacturer's recommendations.
 - 5. Use products acceptable to panel manufacturer and install FRP system in accordance with panel manufacturer's printed instructions. Comply with panel manufacturer's Installation Guide #6211.

3.05 CLEANING

- A. Cleaning: Remove temporary coverings and protection of adjacent work areas. Repair or replace products that have been installed and are damaged. Clean installed products in accordance with manufacturer's instructions prior to Owner's acceptance. Remove construction debris from project site and legally dispose of debris.
 - 1. Remove any adhesive or excessive sealant from panel face using solvent or cleaner recommended by panel manufacturer.

3.06 PROTECTION

- A. Protection: Protect installed product and finish surfaces from damage during construction.

END OF SECTION

SECTION 09900 - PAINTING1.0 GENERAL

The drawings, Instructions to Bidders, Form of Proposal, General Conditions, Supplementary General Conditions and Division 1 are included herein and govern work under this section.

1.1 DESCRIPTION OF WORK

- A. Extent of painting work is shown on drawings and schedules, and as herein specified.
- B. The work includes painting and finishing of interior exposed items and surfaces throughout the project, except as otherwise indicated.
 - 1. Exposed exterior items and surfaces.
 - 2. Exposed interior items and surfaces.
 - 3. Surface preparation, priming and finish coats of paint specified in this Section are in addition to shop-priming and surface treatment specified under other sections of work.
- C. "Paint" as used herein means all coating systems materials, including primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate or finish coats.
- D. Paint exposed surfaces whether or not colors are designated in "schedules", except where natural finish of material is specifically mentioned, paint same as adjacent similar materials or areas. If color or finish is not designated, Architect will select these from colors available for materials systems specified.
 - 1. Painting includes field painting of exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and ironwork, and primed metal surfaces of mechanical and electrical equipment.
- E. Paint in accordance with Room Finish Schedule, all drywall, wood trim and base.
- F. Paint all exposed surfaces that are shop or job primed under other sections of the specifications. Touch-up all primed surfaces where prime coat has been marred or damaged.
- G. Finish all architectural woodwork, millwork, including counters, and all other millwork items that cannot be completely prefinished at the factory.
- H. Paint all hollow metal doors, frames, and other hollow metal work of a ferrous material.
- I. Back prime all wood trim.

1.2 FOLLOWING CATEGORIES OF WORK ARE NOT INCLUDED AS PART OF FIELD-APPLIED FINISH WORK, OR ARE INCLUDED IN OTHER SECTIONS OF THE SPECIFICATIONS.

- A. Shop Priming: Unless otherwise specified, shop priming of ferrous metal items is included under various sections for structural steel, miscellaneous metal, hollow metal work, and

similar items. Also, for fabricated components such as architectural work, and similar items. Also, for fabricated or factory-built mechanical and electrical equipment or accessories.

- B. Pre-Finished Items: Unless otherwise indicated, do not include painting when factory-finishing or installer finishing is specified for such items as (but not limited to) architectural woodwork and casework, finished mechanical and electrical equipment, including light fixtures, distribution cabinets, doors, and equipment.
- C. Concealed Surfaces: Unless otherwise indicated, painting is not required on surfaces such as walls or ceilings in concealed areas and generally inaccessible areas.
- D. Finished Metal Surfaces: Metal surfaces of anodized aluminum, stainless steel, chromium plate, copper, bronze, and similar finished materials will not require finish painting, unless otherwise indicated.
- E. Operating Parts and Labels: Moving parts of operating units, mechanical and electrical parts, such as valve and damper operators, linkages, sinkages, sensing devices, motor and fan shafts will not require finish painting, unless otherwise indicated.
- F. Do not paint over any code-required labels, such as underwriters' Laboratories and Factory Mutual, or any equipment identification, performance rating, name or nomenclature plates.

1.3 RELATED WORK

- A. Shop Painting:
 - 1. Structural Steel as specified in Division 5.
 - 2. Steel Joists as specified in Division 5.
 - 3. Metal Fabrications as specified in Division 5.
 - 4. Hollow Metal Doors as specified in Division 8.
 - 5. Hollow Metal Frames as specified in Division 8.
 - 6. Hydraulic Passenger Elevator as specified in Division 14.
- B. Sealants and Caulking as specified in Division 7.
- C. Wood Doors as specified in Division 8.
- D. Factory prefinished items as specified.

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's technical information including paint label analysis and application instructions for each material proposed for use.
- B. Samples: Submit samples for Consulting Officer's review of color and texture only. Provide a listing of material and application for each coat of each finished sample.
 - 1. Gypsum Wall board: Provide a 12" x 12" hardboard, provide two samples of each color and materials, with texture to simulate actual conditions. Resubmit samples as requested by the Architect until acceptable sheen, color, and texture is achieved.

2. Natural and Stained Wood: Provide actual wood surfaces, provide two 4" x 8" samples of natural and stained wood finish. Label and identify each as to location and application.
3. Multi-Color Coatings – Provide two (2) samples of each color (5" x 8"), submit a sprayout with each batch of finish coat to match approved samples.
4. Concrete Masonry: Provide two 4" x 8" samples of masonry, with mortar joint in the center, for each finish and color.
5. Ferrous metal: Provide two 4" square samples of flat metal and two 8" long samples of solid metal for each color and finish.

1.5 QUALITY ASSURANCE

- A. Applicator Qualifications: Engage an experienced applicator who has completed painting system applications similar in material and extent to that indicated for the Project with a record of successful in-service performance.
- B. Source Limitations: Obtain block fillers, primers, and undercoat materials for each coating from the same manufacturer as the finish colors.
- C. Benchmark Samples (Mockups): Provide a full-coat benchmark finish sample of each type of coating and substrate required on the Project. Comply with procedures specified in PDCA P5. duplicate finish of approved prepared samples.
 1. The Architect will select on room pf surface to represent surfaces and conditions for each type of coating and substrate to be painted.
 - a. Wall Surfaces: provide samples pm at east 100sf. of wall surface.
 - b. Small Areas and Items: The Architect will designate and item or area as required.
 2. After permanent lighting and other environmental services have been activated, apply coatings in this room or to each surface according to the Schedule or as specified. Provide required sheen, color, and texture on each surface.
 - a. After finishes are accepted, the Architect will use the room or surface to evaluate coating systems of a similar nature.

1.6 DELIVERY AND STORAGE

- A. Deliver materials to job site in original, new and unopened packages and containers, bearing manufacturer's name and label, and following information:
 1. Name or title of material
 2. Manufacturer's stock number and date of manufacturer
 3. Manufacturer's name
 4. Contents of volume, for major pigment and vehicle constituents.

5. Thinning instructions
 6. Application instructions
 7. Color name and number
- B. Storage of materials: Store and mix all materials only in such rooms as may be assigned for this purpose. Take all necessary precautions in storage of painting materials and implements to prevent fire.
1. Provide galvanized iron pans of suitable size in which all mixing pails must be placed. No mixing shall be done outside of these pans. Pay for repairs for all damage caused by mixing or spillage.
 2. Remove all oily rags and waste each night after being placed in a covered metal receptacle during the day.

1.7 JOB CONDITIONS

- A. Before commencing painting, make certain that surfaces to be coated are in perfect condition to receive the coating by being clean, dry, smooth, and at the proper temperature. No materials shall be applied if and when unfavorable atmospheric conditions prevail which could adversely affect the drying, appearance, color, or adhesion of the materials. If surface, atmospheric, or other conditions to be improper for paint or finishing are found, report such conditions to the Architect at once and do not proceed until the situation is corrected. Commencement of work in any given areas shall be construed to mean acceptance of such areas by the Contractor.
- B. Apply solvent-thinned paints only when temperature of surfaces to be painted and surrounding air temperatures are between 45 degrees F (7 degrees C) and 95 degrees F (35 degrees C), unless otherwise permitted by paint manufacturer's printed instructions.
- C. Do not apply paint in snow, rain, fog or mist; or when relative humidity exceeds 85%; or damp or wet surfaces; unless otherwise permitted by paint manufacturer's printed instructions.
- D. Painting may be continued during inclement weather if areas and surfaces to be painted are enclosed and heated within temperature limits specified by paint manufacturer during application and drying periods.
- E. Material List and Maintenance Instructions: Furnish triplicate (3) copies of a complete list of materials being used, including type, brand and color used for painting and finishing each room and portion of building, interior and exterior. Include instructions for proper maintenance.

1.8 EXTRA MATERIALS

- A. furnish extra paint materials from the same production run as the materials applied in the quantities described below. Package paint materials in unopened, factory-sealed containers for storage and identify with labels describing contents. Deliver extra materials to the Owner.
1. Quantity: Furnish the Owner with extra paint materials in the quantities indicated below:
 - a. 2 gal. of each type and color applied.

2. Quantity: Furnish the Owner with an additional 5 percent, but not less than 1 gal. or 1 case, as appropriate, of each material and color applied.

2.0 PRODUCTS

2.1 COLORS AND FINISHES

- A. Prior to beginning work, Architect will select colors for surfaces to be painted.
 - 1. Use representative colors when preparing samples for review.
 - 2. Final acceptance of colors will be from samples applied on the job.
- B. Color Pigments: Pure, non-fading, applicable types to suit substrates and service indicated.
 - 1. Lead content in pigment, if any, is limited to contain not more than 0.5% lead, as lead metal based on the total non-volatile (dry-film) of paint by weight.
- C. Paint Coordination: provide finish coats which are compatible with prime paints used. Review other sections of these specifications in which prime paints are to be provided to ensure compatibility of total coatings system for various substrates. Upon request from other trades, furnish information on characteristics of finish materials proposed for use, to ensure compatible prime coats are used. Provide barrier coats over incompatible primers or remove and reprime as required. Notify Architect in writing of any anticipated problems using specified coating systems with substrates primed by others.

2.2 MATERIAL QUALITY

- A. Provide best quality grade of various types of coating as regularly manufactured by acceptable paint materials manufacturers. Materials not displaying manufacturer's identification as a standard, best-grade product will not be acceptable.

2.3 MANUFACTURERS

- A. Use the same brand of each respective material throughout the job.
- B. Primers and undercoats shall be those made by manufacturers of respective finish coats.
- C. The following manufacturer's first line products are approved for use on this project:
 - 1. Benjamin Moore
 - 2. Sherwin Williams
- D. Galvanized surface pre-treatment shall be manufactured by American Chemical Paint Company of Nielson Chemical Company.

2.4 STANDARD MATERIALS

- A. Comply with requirements of latest editions of these standard specifications for the following materials, whether used directly or as ingredients of factory prepared products:
 - 1. Raw Linseed Oil - ASTM A-234

2. Boiled Linseed Oil - ASTM D-260
3. Liquid Drier - Federal Spec. TT-D-651
4. White Shellac - Federal Spec. TT-V-91a
5. Turpentine - ASTM D-13
2. Mineral Spirits - ASTM D-235
3. Interior Wood Filler - Federal Spec. TT-F-336
4. Pigments-in-Oil - Federal Spec. FF-P-381

2.5 PAINTING MATERIALS

- A. All basic materials entering into the compounding and manufacture of paints and other finishing materials specified, shall be of the best quality products of recognized manufacturers, subject to approval of the Architect. Reference to ASTM or Federal Specifications ID for the purpose of establishing a testing basis for requirements of quality.
- B. Coloring materials shall be pure tint colors, and of the highest grade of tinting strength and fineness obtainable. Coloring materials shall be composed of ingredients that will mix with the various coatings specified without impairing the ultimate result for which coatings are selected.
- C. All materials shall be delivered in original unopened containers, each container bearing the brand and maker's name, completely identifying the contents, including formula, and given directions for its proper use.
- D. All materials shall be used without thinning, unless otherwise specified or approved by the Architect. If any material is thus thinned, use only the thinner recommended by paint manufacturer.

2.6 TYPES OF FINISHES

- A. Provide the following systems for various substrates, as indicated. Unless otherwise noted, all materials specified are the products of Benjamin Moore. The specifying of the products of one manufacturer is intended to indicate the type of product desired and equivalent products of approved manufacturers such as Sherwin Williams will be accepted, subject to conformance with specifications.
 1. Gypsum Drywall Systems
 - a. Interior Drywall Walls
 1. Primer – Fresh Start 100% Acrylic Primer (023)
2nd Coat – Benjamin Moore Latex Regal Aqua Pearl
3rd Coat – Benjamin Moore Latex Regal Aqua Pearl
 - or
 2. Primer – Fresh Start 100% Acrylic Primer (023)
2nd Coat – Benjamin Moore Regal Semi-Gloss
3rd Coat - Benjamin Moore Regal Semi-Gloss
 3. See Finish Schedule for locations.
 4. Add deep base tinted color to primer where medium to deep paint hues are used.

- b. Drywall Ceilings
 - 1. Primer - Fresh Start 100% Acrylic Primer (023)
 - 2nd Coat – Benjamin Moore Latex Flat Ceiling White
 - 3rd Coat – Benjamin Moore Latex Flat Ceiling White
- c. Interior Metal, Wood or Unfinished Ceilings
 - 1. 1st coat – Benjamin Moore M53 Sweep Up Spray Latex Flat White
 - 2nd coat – Benjamin Moore M53 Sweep Up Spray Latex Flat White
- B. Paint **all** unprimed and pre-primed Metal as follows:
Includes: Metal Doors and Frames and Other Factory Primed Metal Work
 - a. One (1) coat oil primer undercoat
 - b. 2nd Coat- Benjamin Moore Latex Semi- Gloss
 - c. 3rd Coat- Benjamin Moore Latex Semi-Gloss
- C. Natural Finish Woodwork & Stained Wood
 - a. Patch, sand and prepare wood for Wood Finish and/or Wood Stain
 - b. Match stain sample
 - c. Varnish Surface with 1 coat clear gloss polyurethane
 - d. Two (2) coats clear satin polyurethaneSee finish schedule for locations.
- D. Interior Wood (Painted)
 - a. Primer - Wall and Wood Primer B49W2
 - b. 2nd Coat – Benjamin Moore Latex Semi-gloss
 - d. 3rd Coat – Benjamin Moore Latex Semi-gloss
- E. Masonite Doors (Painted)/MDF Doors (Painted)
 - a. Primer - Wall and Wood Primer B49W2
 - b. 2nd Coat – Benjamin Moore Latex Semi-gloss
 - c. 3rd Coat – Benjamin Moore Latex Semi-gloss
- F. Interior Concrete Block Walls
 - a. Primer - Interior Exterior Block Filler B25W25
 - b. 2nd Coat - Promar 400 Latex Eggshell B20W401
 - c. 3rd Coat - Promar 400 Latex Eggshell B20W401
- G. Exterior Masonry Block
 - a. Primer – Pittsburgh Seal Grip, item # 17-921.
 - b. 1st Coat – Moor Gard Low Lustre paint, item #103.
 - c. 2nd Coat – Moor Gard Low Lustre paint, item #103.

3.0 EXECUTION

3.1 INSPECTION

- A. Applicator must examine areas and conditions under which painting work is to be applied and notify Contractor in writing of conditions detrimental to proper and timely completion of work. Do not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable to Applicator.
- B. Starting of paint work will be construed as Applicator's acceptance of surfaces and conditions within any particular area.
- C. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions otherwise detrimental to formation of a durable paint film.

3.2 SURFACE PREPARATION

- A. General: Perform preparation and cleaning procedures in accordance with paint manufacturer's instructions and as herein specified, for each particular substrate condition.
 - 1. Remove hardware, hardware accessories, machine surfaces, plates, lighting fixtures, and similar items in place and not to be finish-painted, or provide surface applied protection prior to surface preparation and painting operations. Remove, if necessary, for complete painting of items and adjacent surfaces. Following completion of paint of each space or area, reinstall removed items.
 - 2. Clean surfaces to be painted before applying paint or surface treatments. Remove oil and grease prior to mechanical cleaning. Program cleaning and painting so the contaminants from cleaning process will not fall onto wet, newly-painted surfaces.
 - 3. Remove all blistered and loose paint
- B. Cementitious materials: Prepare cement plaster to be painted by removing efflorescence, chalk, dust, dirt, grease, oils and by roughening as required to remove glaze.
- C. Wood: Clean wood surfaces to be painted of dirt, oil or other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sandpaper smooth those finish surfaces exposed to view, and dust off. Scrape and clean small, dry, seasoned knots and apply a thin coat of white shellac or other recommended knot sealer, before application of priming coat. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood-filler. Sandpaper smooth when dried.
 - 1. Prime, stain, or seal wood required to be job-painted immediately upon delivery to job. Prime edges, ends, faces, undersides and backsides of wood, including cabinets, counters, cases, paneling.

When transparent finish is required, use spar varnish for backpriming.

- D. Ferrous Metals: Clean ferrous surfaces, which are not galvanized or shop-coated, of oil, grease, dirt, loose mill scale and other foreign substances by solvent or mechanical cleaning.
 - 1. Touch up shop-applied prime coats wherever damaged or bare, where required by

other sections of these specifications. Clean and touch up with same type shop primer.

- E. Galvanized Surfaces: Clean free of oil and surface contaminants with nonpetroleum based solvent.

3.3 MATERIALS PREPARATION

- A. Mix and prepare painting materials in accordance with manufacturer's directions.
- B. Store materials not in actual use in tightly covered containers. Maintain containers used in storage, mixing, and application of paint in a clean condition, free of foreign materials and residue.
- C. Stir materials before application to produce a mixture of uniform density, and stir as required during application. Do not stir surface film into material. Remove film and, if necessary, strain material before using.
- D. Use only thinners approved by paint manufacturer and only within recommended limits.

3.4 APPLICATION

- A. General: Apply paint in accordance with manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied.
 - 1. 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.
 - 2. Paint colors, surface treatments, and finishes indicated in the schedules.
 - 3. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formations of a durable paint film.
 - 4. Provide finish coats that are compatible with primers used.
 - 5. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, convactor covers, covers for finned- tube radiation, grilles, and similar components are place. Extend coatings in these areas, as required, to maintain the system integrity and provide desired protection.
 - 6. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Paint surfaces behind permanently-fixed equipment or furniture with prime coat only before final installation of equipment.
 - 7. Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, non-specular black paint.
 - 8. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.

9. Finish exterior and interior doors on tops, bottoms and side edges same as exterior or interior faces, unless otherwise indicated.
- B. Scheduling Painting: Apply first-coat material to surfaces that have been cleaned, pretreated or otherwise prepared for paint as soon as practicable after preparation and before subsequent surface deterioration.
1. Allow sufficient time between successive coatings to permit proper drying. Do not recoat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.
- C. Minimum Coating Thickness: Apply materials at not less than manufacturer's recommended spreading rate, to establish a total dry film thickness as indicated or, if not indicated, as recommended by coating manufacturer.
- D. All Masonite/ MDF doors must be delivered primed on all edges and also must be painted on all sides and edges. Wherever a door is cut or planed, the surfaces affected must be immediately primed with a primer sealer.
- E. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.
1. Brushes: Use brushes best suited of the type of material applied. Use brush of appropriate size for the surface or item painted.
 2. Rollers: Use roller of carpet, velvet back, or high-pile sheep's wool as recommended by the manufacturer for the material and texture required.
 3. Spray Equipment: Use airless spray equipment with orifice size as recommended by the manufacturer for the material and texture required.
- F. Mechanical Electrical Work: Painting of mechanical and electrical work is limited to items exposed in equipment rooms and in occupied spaces.
- G. Mechanical items to be painted include, but are not limited to, the following:
1. Piping, pipe hangers, and supports
 2. Tanks
 3. Ductwork
 4. Insulation
 5. Motors and mechanical equipment
 6. Accessory items
- H. Electrical items to be painted include, but not limited to, the following:
1. Conduit and fittings
 2. Exposed faces of Panel boards.
- I. Block Fillers: Apply block fillers to concrete masonry block at a rate to ensure complete coverage with pores filled.

- J. Prime Coats: Before applying finish coats, apply a prime coat of material, as recommended by the manufacturer, to material that is required to be painted and finished and that has been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with not burn through or other defects to insufficient sealing.
- K. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, and ropiness, or other surface imperfections will not be acceptable.
- L. Transparent (Clear) Finishes: Use multiple coats to produce a glass-smooth surface film of even luster. Provide a finish free of laps, runs, cloudiness, color irregularity, brush marks, orange peel, nail holes, or other surface imperfections.
 - 1. Provide satin finish for final coats.
- M. Completed Work: match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.

3.4 FIELD QUALITY CONTROL

- A. The Owner reserves the right to test any application at any time and as often as the Owner deems necessary during the period when paint is being applied:
 - 1. The Owner may direct the Contractor to stop painting if test results show material being used does not comply with specified requirements. The Contractor shall remove non-complying paint from the site, pay for testing, and repaint surfaces previously coated with the rejected paint. If necessary, the Contractor may be required to remove rejected paint from previously painted surfaces if, on repainting with specified paint, the 2 coats are incompatible.

3.5 CLEAN-UP AND PROTECTION

- A. Clean-Up: During progress of work, remove from site discarded paint materials, rubbish, cans and rags at end of each work day.
 - 1. Upon completion of painting work, clean window glass and other paint-spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.
- B. Protection: Protect work of other trades, whether to be painted or not, against damage by painting and finishing work. Correct any damage by cleaning, repairing or replacing, and repainting, as acceptable to Architect.
 - 1. Provide "Wet Paint" signs as required to protect newly-painted finishes. Remove temporary protective wrappings provided by others for protection of their work, after completion of painting operations.
 - 2. At the completion of the work of other trades, touch up and restore all damaged or

defaced painted surfaces.

- C. Provide five gallons of each color and type of paint to the owner upon completion of all work.

3.6 GUARANTEE

- A. This subcontractor shall guarantee all work under this Section of the Contract for one year after the date of acceptance against blistering, checking, and other defects attributing to faulty surface preparation, materials or workmanship. Re-finish all defective areas as directed.

END OF SECTION

TECHNICAL SPECIFICATIONS, SECTION 10155-TOILET COMPARTMENTS

PART I – 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 manufactured toilet compartments.

- B. Types of toilet compartments include:

- 1. High Pressure Plastic Laminate (HPDL)

- C. Construction styles of toilet compartments include:

- 1. Floor Mounted (XLF)

- A. Construction styles of entrance and urinal screens include:

- 1. Wall Hung (WH)

1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification sections.
- B. Product data for materials, fabrication, and installation including catalog cuts of anchors, hardware, fastenings, and accessories.
- C. Shop drawings for fabrication and installation of compartment assemblies that are not fully described by architectural drawings. Provide template layouts and installation instructions for anchorage devices built into other work.
- D. Samples of full color range for each required unit type. Submit Tex-Lam's standard color selections.

1.4 QUALITY ASSURANCE

- A. Field Measurements: Take field measurements prior to component fabrication to ensure proper fitting of work.
- B. Coordination: Furnish inserts and anchorages that must be built into other work for installation of toilet compartments and related items.

PART 2 – PRODUCTS

2.1 MANUFACTURERS:

- A. Tex-Lam Manufacturing, Inc., Houston, Texas 77091 (713) 695-5975.

2.2 MATERIALS

- A. General: Provide material that has been selected for surface flatness and smoothness. Exposed surfaces that exhibit seam marks, roller marks, discoloration, telegraphing of core, or other imperfections on finished units are not acceptable.
- B. Select from the following:
 - 1. High Pressure Plastic Laminate: Laminate shall be a minimum thickness of .050-inch, meeting NEMA LD3-2005 standards. Specifier shall select color and pattern from all outside manufacturer's color selections. Core material shall be Industrial Grade 45-pound density particleboard. Laminate edges shall be applied before face laminate and bonded with thermo-setting resin glue under heat and pressure. All face laminate shall be bonded with an approved adhesive. Pilasters shall be 1-1/4-inch thick, doors; panels and screens shall be 7/8-inch thick.
- C. Pilaster shoes: Shall be 18 gage Type 304 stainless steel, not less than 4-inch high, Number 4 Satin (brushed) finish.
- D. Brackets: Tex-Lam's standard design for attaching panels to walls, pilasters to walls, and panels to pilasters shall be cast chrome plated non-ferrous Zamak hardware.
- E. Overhead Bracing: Continuous extruded aluminum, anti-grip profile, with clear commercial anodized finish. Head rail returns as shown on shop drawings.
- F. Anchorages and Fasteners: Standard chromium-plated exposed fasteners are finished to match hardware. All concealed steel fasteners shall have a zinc-plated, rust-resistant, coating.

2.3 FABRICATION

- A. General: Furnish standard doors, panels, screens and pilasters fabricated for compartment system. Furnish units with cutouts as required to receive accessories as indicated.
- B. Door Dimensions: Unless otherwise indicated, furnish 24-inch wide in-swing doors for ordinary toilet compartments and minimum 34-inch wide out-swing doors for compartments that meet the requirements of the Americans with Disabilities Act (ADA).
- C. Restroom Compartments, Entrance and Urinal Screens:
 - 1. High Pressure Plastic Laminate: One-piece seamless face sheets shall be bonded under pressure with approved adhesive to a solid core 45 lb. density industrial grade particleboard. All edges and faces shall be of the same grade plastic laminate. Edges shall be applied prior to face sheets. Woodgrain panels over 60-inch in width require a seam in the panel.
- D. Construction Types of Toilet Compartments, Entrance Screens and Urinal Screens:

1. Floor Mounted (XLF): Furnish aluminum anchorage devices complete with threaded rod and leveling adjustment nuts at pilasters to permit structural connection at floor. Provide 4-inch height shoe at each pilaster.
- E. Hardware: Furnish hardware to comply with ANSI A117.1 and Title III of the Americans with Disabilities Act (ADA) as follows:
1. Hinges: Supply cast chrome plated non-ferrous (Zamac). Top hinge shall consist of a steel top pin with a nylon bearing. Lower hinge shall consist of a pintle and opposing nylon gravity-acting cam allowing all doors to be set at various positions.
 2. Latch and Keeper: Cast chrome plated non-ferrous slide latch and combination strike/keeper.
 3. Coat Hook: Cast chrome plated non-ferrous coat hook and/or combination coat hook and bumper.
 4. Door Pull: Cast chrome plated non-ferrous metal.

PART 3 – EXECUTION

3.1 INSTALLATION

- A. General: Comply with manufacturer's recommended procedures and installation sequence. Install compartment units rigid, straight, plumb and level. Provide clearance of not more than 1/2-inch between pilasters and panels and not more than 1-inch between panels and walls. Secure panels to walls with not less than two 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 brackets located to align with brackets at wall. Secure panels in position with manufacturer's recommended anchoring devices.
- B. Floor Mounted Compartments (XLF): Set pilaster units with anchorages having not less than 2-inch penetration into structural floor. Level, plumb and tighten installation with devices furnished. Hang doors and adjust so that tops of doors are level with tops of pilasters when doors are in closed position.
- C. Screens: Attach with anchoring devices as recommended by manufacturer to suit supporting structure. Set unit 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 in-swing doors to hold open approximately 30 degrees from closed position when unlatched. Set hinges on out-swing doors to return to a fully closed position.
- B. Clean and Protect: Clean exposed surfaces of compartment systems using materials and methods recommended by manufacturer, and provide protection as necessary to prevent damage during remainder of construction period.

END OF SECTION

SECTION 10155 TOILET COMPARTMENTS

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. Extent of toilet compartments is indicated on drawings and in provisions of this section.

1.3 QUALITY ASSURANCE:

- A. All toilet compartments covered by this specification shall establish minimum standards for materials, hardware, finish, construction, design, function, and workmanship.
- B. Installer Qualifications:
 - 1. Experienced personnel regularly engaged in type of work encountered.
 - 2. Approved by and acceptable to product manufacturer.

1.4 SUBMITTALS:

- A. Shop Drawings:
 - 1. Detail layout of work, fabrication, erection, anchoring, jointing, reinforcing, panel thickness, core construction and finish for review.
- B. Data Sheets:
 - 1. Show details of partition construction and fabrication.
 - 2. Provide plan layout.
 - 3. Include all manufacturers' recommendations for review of Architect.
- C. Colors: Submit two copies of manufacturer's standard color chart for color selection.
- D. Certificate of compliance attesting that all materials conform to specifications.

1.5 PRODUCT DELIVERY, STORAGE AND HANDLING:

- A. Delivery:
 - 1. Deliver material in manufacturer's original unopened and undamaged packages.
 - 2. Clearly identify manufacturer, brand name, contents, color, stock number, and order number of each package.
 - 3. Packages showing indications of damage that may affect condition of contents are not acceptable.
- B. Storage:

1. Store in original packaging under protective cover and protect from damage.
 2. Stack containers in accordance with manufacturer's recommendations.
- C. Handling: Handle materials in such manner as to prevent damage to products or finishes.

PART 2 - PRODUCTS

- 2.1 MANUFACTURER: Toilet partitions specified herein are a product of General Partition Mfg. Corp.
- 2.2 METAL TOILET PARTITIONS: Series 40 Floor Mounted Type With Rigid Overhead Bracing.
- A. Doors:
1. Thickness: 1 inch.
 2. Material: TBD
 3. Core: TBD
- B. Panels:
1. Thickness: 1 inch.
 2. Material: TBD
 3. Core: TBD
- C. Pilasters:
1. Thickness: 1 1/4 inches.
 2. Material: 2 sheets Stainless Steel, bonded together with stainless steel molding on all four sides.
Same construction as panels.
 3. Core: TBD.
- D. Hardware and Accessories:
1. No. 2000D Concealed Hinges.
 2. No. No. 1250D Hinge Brackets.
 3. No. 1000D Concealed Latch with emergency slot for screwdriver or coin for outside access.
 4. No. 2060D Door Stop and Keeper
 5. Equip each door with No, 6200 D Coat Hook
 6. Equip each handicapped door with stainless steel door pull.
 7. Wall brackets for panel and pilasters to be high strength heavy chrome plated. .
 8. Pilaster floor anchor: Heavy gauge single piece floor stirrup with leveling bolt and covered with a 3 inch high stainless steel shoe. Shoe finish shall be No. 4.

8. Headrails to be 1 7/8" x 1 5/32" x 1/16" with integral crown loafer rail, extruded aluminum heat treated and anodized with necessary fittings.

9. All exposed screws and bolts tamper-resistant type.

E. Finish:

1. To Match Other Wood Applications

2.3 URINAL SCREENS:

A. Thickness: 1 inch.

B. Size: Refer to Drawings for locations and dimensions.

C. Manufacturer: General Partitions

D. Material: Same construction, finish and performance standards as toilet partition doors.

E. Fittings:

1. Attach screen to wall with three (3) brackets fabricated of heat-treated, polished and anodized, extruded aluminum alloy.

F. Finish:

1. Colors as selected by Architect from manufacturer's standard colors.

2.4 Provide screws, anchors and fasteners compatible with conditions encountered, as required for complete installation.

A. All exposed fasteners and screw heads shall be finished type, chrome plated, with no visible recessed or projecting screw threads.

PART 3 - EXECUTION

3.1 INSPECTION:

A. Check areas to receive toilet partitions and urinal screens for existing conditions and correct spacing of new support structures and plumbing fixtures that may affect quality and execution of work.

B. Start of work constitutes acceptance of job conditions.

3.2 INSTALLATION:

A. Pilasters:

1. Securely anchor pilaster at floor with bolts recommended by toilet partition manufacturer to suit conditions encountered.

2. Level top and plumb edges and faces of pilasters.

3. Conceal bottom mechanism with stainless steel trim.

WIND BUFFALO RESTAURANT

TOILET COMPARTMENTS

4. Adjust pilaster shoes to fit flush with finish at floor.

B. Install panels, doors, hardware and fittings in accordance with manufacturer's instructions.

3.3 ADJUST AND CLEAN:

A. Adjust Brackets to Provide Uniform Clearances Not Exceeding:

1. Panels and walls: 1 inch.
2. Pilasters and panels: 1/2 inch.

B. Adjust hardware for proper operation.

C. Set hinges to hold doors ajar when not latched.

D. After completion of installation, clean and polish exposed compartment and urinal screen surfaces.

END OF SECTION

SECTION 10522 - FIRE EXTINGUISHERS, CABINETS AND ACCESSORIES

1.0 GENERAL

1.0 RELATED DOCUMENTS

The drawings, Instructions to Bidders, Form of Proposal, General Conditions, Supplementary General Conditions and Division 1 are included herein and govern work under this section.

1.1 DESCRIPTION OF WORK

- A. Extent of fire extinguishers, cabinets and accessories is indicated on drawings.
- B. Definition: "Fire extinguishers" as used in this section refers to units which can be hand-carried as opposed to those which are equipped with wheels or to fixed fire extinguishing systems.
- C. Types of products required include:
 - 1. Fire extinguishers
 - 2. Fire extinguisher cabinets
 - 3. Mounting brackets

1.2 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 listed and bear UL "Listing Mark" for type, rating, and classification of extinguisher indicated.
- C. FM Listed Products: Provide new portable fire extinguishers which are approved by Factory Mutual Research Corporation for type, rating, and classification of extinguisher indicated and carry appropriate FM marking.

1.3 SUBMITTALS

- A. Product Data: Submit product data for each type of product included in this section. For fire extinguisher 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.

1.4 CLOSEOUT SUBMITTALS

- A. Upon completion of the Work of this Section, Contractor shall submit to the Architect/Engineer, all required closeout documents.
- B. Contractor shall submit a marked-up set of drawings indicating any changes made during construction to the Architect/Engineer.

- C. Upon completion, submit to the Architect/Engineer, a Contractor's Affidavit of Payment of Debts and Claims, and Release of Liens.
- D. Refer to General Conditions for additional requirements.

1.5 **SAMPLES**

- A. Submit for verification purposes, samples of each required finish. Prepare samples on metal of same gage as used for actual production run. Where normal color variations are to be expected, include two (2) or more units in each sample set showing limits of variation.
 - 1. For initial selection of colors and finishes, submit manufacturer's color cards showing full range of standard colors available.

2.0 **PRODUCTS**

2.1 **ACCEPTABLE MANUFACTURERS**

Manufacturer: Subject to compliance with requirement, provide products of one of the following:

- A. J.L. Industries
- B. Larsen's Manufacturing Company

2.2 **FIRE EXTINGUISHERS**

- A. General: Provide fire extinguishers for each extinguisher cabinet and other locations indicated, in colors and finishes selected by Architect from manufacturer's standard which comply with requirements of governing authorities.
 - 1. Fill and service extinguishers to comply with requirements of governing authorities and manufacturer's requirement.
 - 2. Abbreviations indicated below to identify extinguisher types related to UL classification and rating system and not, necessarily to type and amount of extinguishing material contained in extinguisher.
- B. 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.

2.3 **MOUNTING BRACKETS**

- A. Provide manufacturer's standard brackets designed to prevent accidental dislodgement of extinguisher, of sizes required for type and capacity of extinguisher indicated, in manufacturer's standard plated finish.
 - 1. Provide brackets for extinguishers not located in cabinets.

2. B-2 wall bracket by Larsen's to be used as a standard.

2.4 FIRE EXTINGUISHER CABINETS

- A. General: Provide fire extinguisher cabinets where indicated, 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 to suit cabinet type, trim style, and door style indicated. Weld all joints and grind smooth. Miter and weld perimeter door frames.
- C. Cabinet Type: Suitable for mounting conditions indicated, of the following types:
 1. Recessed: Cabinet box (tub) fully recessed in walls of sufficient depth to suit style of trim indicated.
 2. Model 2409-R2-V-Duo Door by Larsen's to be used as a standard.
- D. Trim Style: Fabricate trim in one piece with corners mitered, welded and ground smooth.
- E. Exposed Trim: One-piece combination trim and perimeter door frame overlapping surrounding wall surface with exposed trim face and wall return at outer edge (backbend).
 1. Square-Edge Trim: Square edges with backbend depths as follows: 1/4" to 5/16".
 2. Trim Metal: Enameled steel.
- F. Door Material and Construction: Manufacturer's standard door construction of material indicated, coordinated with cabinet types and trim styles selected.
 1. Enameled Steel: Manufacturer's standard finish, hollow steel door construction with tubular stiles and rails.
- G. Door Style: Manufacturer's standard design as indicated below and on drawing.
 1. Vertical Duo Panel: DSA Glass with catch.
- H. Door Hardware: Provide manufacturer's standard door operating hardware of proper type for cabinet type, trim style and door material and style indicated. Provide either level 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.

2.5 FACTORY FINISHING OF FIRE EXTINGUISHER CABINETS

- A. General: Comply with NAAMM "Metal Finishes Manual" for finish designations and application recommendations except as otherwise indicated. Apply finishes in factory after products are assembled. Protect cabinets with plastic or paper covering, prior to shipment.
- B. Painted Finishes: Provide painted finish to comply with requirements indicated below for extent, preparation and type:

1. Extent of Painted Finish: Apply painted finish to both concealed and exposed surfaces to cabinet components except where other than a painted finish is indicated.
2. Color: Provide color as selected by Architect from Manufacturer's standard colors.
3. Preparation: Clean surfaces of dirt, grease and loose rust or mill scale.
4. Baked Enamel Finish: Immediately after cleaning and pretreatment, apply Cabinet Manufacturer's standard baked enamel finish system to the following surfaces:
 - a. Interior of cabinet.
 - b. Exterior of cabinet.

3.0 EXECUTION

3.1 INSTALLATION

- A. Install items included in this section in locations and at mounting heights indicated, or if not indicated, at heights to comply with applicable regulations of governing authorities.
 1. Prepare recesses in walls for fire extinguisher cabinets as required by type and size of cabinet and style of trim and to comply with manufacturer's instructions.
 2. Securely fasten mounting brackets and fire extinguisher cabinets to structure, square and plumb, to comply with manufacturer's instructions.
 3. Install fire extinguishers 3'-6" from finish floor to top of extinguisher.
 4. Top of cabinet shall be 3'-6" from finish floor.

3.2 IDENTIFICATION

- A. Identify existence of fire extinguisher in cabinet with lettering spelling "FIRE EXTINGUISHER" applied to door by process indicated below. 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.
 1. Application Process: Silk screen.
- 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

SECTION 10540 - SPECIALTY SIGNS

1.0 GENERAL

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work in this section.

1.1 DESCRIPTION OF WORK

- A. Extent of specialty signs is shown on drawings or as provided by Owner.
 - 1. Furnish all material and labor necessary to fabricate and install signage.
- B. Specialty signs include the following:
 - 1. Room identification system.
 - 2. All necessary signage to receive Certificate of Occupancy.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data and installation instructions for each type of sign required.
- B. Submit signage schedule in manufacturer's format for verification of text/copy.
- C. Samples: Submit samples of each color and finish of exposed materials and accessories required for specialty signs. Architect's review of samples will be for color and texture only. When requested, furnish full-size samples of specialty sign materials.
- D. Shop Drawings: Submit shop drawings for fabrication and erection of specialty signs. Include plans, elevations and large scale details of sign wording and lettering layout. Show anchorages and accessory items. Furnish location template drawings for items supported or anchored to permanent construction.

1.3 QUALIFICATIONS

- A. Manufacturer specializing in fabricating the products specified with a minimum of 5 years experience. Obtain signs from one source and a single manufacturer.

2.0 PRODUCTS

2.1 IDENTIFICATION SYSTEMS

- A. Manufacturer: Provide interior signs as manufactured by one of the following:
 - 1. Architectural Graphics
 - 2. Lynn Sign Co.
 - 3. Mid-Michigan Stamps and Signs, Inc.
 - 4. Adapt Take Form Graphics

2.2 SIGN STANDARDS

- A. Type Style: As selected by Owner. Copy shall be true, clean, accurate reproduction of typeface(s). Upper and lower case as indicated by Owner. Letter spacing to be normal and interline spacing shall be set by manufacturer.
- B. Arrows, symbols and logo art: To be provided as in style, sizes colors, and spacing as requested by Owner and/or shown on drawings.
- C. Braille: Grade II perfectly round, clear Braille beads. Tactile requirements in adherence to ADA Specifications.
- D. Color and Finishes:
 - 1. Submit complete color samples to Architect for approval
 - 2. Finishes to meet current federal ADA and state requirements.
- E. Room Identification: Surface mount signs of type indicated, adjacent to doors on latch side.
- F. Plastic Sign Plates: Plastic signs consist of 1/16" matte acrylic that is engraved through the exposed ply of the plastic laminate sheet to expose the contrasting core ply laminated to a base of 1/8" opaque acrylic.
- G. Mounting of Signs: per manufacturer's installation instructions. Installation locations shall be in accordance with ADA specifications.
- H. Room numbering to be coordinated between signage provider and owner.
- I. All signs, including work station and room ID's shall have a matching appearance and constructed utilizing the same manufacturing process to assure a consistent look throughout.

3.0 EXECUTION

3.1 INSTALLATION

- A. Installer shall examine signs with Contractor for defects, damage and compliance with specifications. Installation shall not proceed until unsatisfactory conditions are corrected.
- B. Install sign units and components at locations shown securely mounted with concealed theft-resistant fasteners, unless otherwise indicated. Attach signs to substrates in accordance with manufacturer's instructions.
- C. Install level, plumb, and at proper height. Cooperate with other trades for installation of sign units to finish surfaces. Repair or replace damaged units as directed by Architect.
- D. Installation locations shall be in accordance with ADA specifications.
- E. Location of Signs

1. All Doors and Rooms - Names to be provided by Owner.

3.3 DELIVERY AND STORAGE

- A. Package and prevent damage or deterioration during shipment, handling, storage and installation. Products should remain in original packaging until removal is necessary.

3.4 WARRANTY

- A. Provide manufacturer's warranty against defect in materials or workmanship for a minimum of one (1) year.

END OF SECTION

SECTION 10800 - TOILET ACCESSORIES1.0 GENERAL

The drawings, Instructions to Bidders, Form of Proposal, General Conditions, Supplementary General Conditions and Division 1 are included herein and govern work under this section.

1.1 DESCRIPTION OF WORK

- A. Extent of each type of toilet accessory is shown on drawings.
- B. Types of toilet accessories required include but are not necessarily limited to the following:
 - 1. Paper Towel Dispenser
 - 2. Feminine napkin waste receptacle
 - 4. Toilet tissue dispensers
 - 5. Surface mounted soap dispensers
 - 6. Grab bars
 - 7. Mirrors
 - 8. Waste Receptacle
 - 9. Baby changing station
- C. Some types of toilet accessories are included as part of toilet partitions elsewhere in Division 10.

1.2 QUALITY ASSURANCE

- A. Inserts and Anchorage: Furnish inserts and anchoring devices which must be set in concrete or built into masonry; coordinate delivery with other work to avoid delay.
- B. Accessory Locations: Coordinate accessory locations with other work to avoid interference and to assure proper operation and servicing of accessory units.
- C. Products: Provide products of same manufacturer for each type of accessory unit and for units exposed in same areas, unless otherwise acceptable to Architect.
- D. Manufacturer: Provide toilet accessories as manufactured by one of the following:
 - 1. American Specialties, Inc. (Use as a standard)
 - 2. Bradley Corp.
 - 3. Bobrick Washroom Equipment, Inc.
 - 4. Georgia Pacific
 - 5. Triple S
 - 6. Kohler

1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data for each toilet accessory.
- B. Shop Drawings: Furnish for Architect's approval in accordance with Division 1, copies each of brochures, schedules and other pertinent information relative to toilet room accessories

and building accessories.

- C. Maintenance Manual: Furnish a schedule of all toilet room accessories, indicating the model, finish, manufacturer and location installed, together with descriptive brochures of all installed equipment specified herein. This information shall be included in the maintenance manual specified in Division 1.
- D. Setting Drawings: Provide setting drawings, templates, instructions, and directions for installation of anchorage devices in other work.

2.0 PRODUCTS

2.1 * See accessory schedule on A-400's for all specified product information.

- A. Units shall meet ANSI 117.1 2009 requirements for use by person in a wheelchair.

3.0 EXECUTION

3.1 INSPECTION

Installer must examine substrates, previously installed inserts and anchorages necessary for mounting of toilet accessories, and other conditions under which installation is to occur, and must notify Contractor in writing of condition detrimental to proper and timely completion of work. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

3.2 INSTALLATION

Install toilet accessory units in accordance with manufacturer's instructions, using fasteners which are appropriate to substrate and recommended by manufacturer of unit. Install units plumb and level, firmly anchored in locations indicated.

3.3 ADJUST AND CLEAN

- A. Adjust toilet accessories for proper operation and verify that mechanisms function smoothly.
- B. Clean and polish all exposed surfaces after removing protective coatings.

END OF SECTION

SECTION 10999 -MISCELLANEOUS SPECIALTIES

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. Extent of miscellaneous specialties is indicated on drawings and in provisions of this section.
- B. Provide necessary fastenings, accessories required to make installation complete.

1.3 QUALITY ASSURANCE:

- A. All miscellaneous specialties covered by this specification shall establish minimum standards for materials, hardware, finish, construction, design, function, and workmanship.
- B. Manufacturer's Qualifications: Regularly engaged in manufacture of materials and products encountered.
- C. Installer Qualifications:
 - 1. Experienced personnel actively engaged in type of work encountered.
 - 2. Approved by and acceptable to product manufacturer.

1.4 SUBMITTALS:

- A. Shop Drawings
- B. Manufacturer's Literature: Recommended installation and maintenance procedures.
- C. Certificates:
 - 1. Manufacturer's certificate that materials meet specification requirements.
 - 2. Manufacturer's care instructions for each curtain.

1.5 PRODUCT DELIVERY, HANDLING AND STORAGE:

- A. Deliver materials in unopened factory packing to the job-site.
- B. Inspect materials at delivery to assure that specified products have been received.
- C. Protect materials against damage and defacement in handling and storage. Conform to manufacturer's instructions for handling and storing materials.
- D. Store materials so as to prevent damage from construction operations and equipment.
- E. Remove damaged and/or defaced materials from project site, replace with acceptable materials.

1.6 COORDINATION:

- A. Coordinate installation with work of other trades.
- B. Advise appropriate trade pertaining to blocking required to properly anchor and support materials included herein.
 - 1. It is required that required blocking be installed prior to installation of gypsum wallboard walls.

PART 2 - PRODUCTS

2.1 Stainless Steel Shelving/Mop Holder:

- A. Provide janitorial utility shelf with hooks, mop holders, and drying rod at Janitor's Closets as shown on drawings. Provide No. 998 as manufactured by Bradley Corporation or equal product of Bobrick Washroom Equipment, Inc., or American Dispenser Co.

PART 3 - EXECUTION

3.1 INSPECTION:

- A. Assure That:
 - 1. Work of other trades has been completed.
 - 2. Application of final finishes on work of other trades has been completed.
 - 3. Do not start work until all conditions are acceptable.

3.2 INSTALLATION:

- A. Install materials in accordance with approved shop drawings and manufacturer's instructions.
 - 1. Install in locations as indicated on drawings or as directed by Architect.
 - 2. Locate cubicle curtain track as indicated on approved detail drawing and in compliance with manufacturer's installation instructions.
 - 3. Install cubicle track system according to manufacturer's recommended instructions to ensure smooth operation of carriers.

3.3 CLEANING:

- A. Remove debris caused by reason of work required herein and legally dispose of away from site.

3.4 WARRANTY:

- A. Provide manufacturer's warranty to Owner upon completion.

END OF SECTION

SECTION 12400 - LAMINATE CASEWORK1.0 GENERAL

1.1 RELATED DOCUMENTS

The drawings, Instructions to Bidders, Form of Proposal, General Conditions, Supplementary General Conditions and Division 1 are included herein and govern work under this section.

1.2 WORK INCLUDED

1. Furnish, deliver and install to owner and architect's satisfaction, all custom prefabricated plastic laminate casework as shown on drawings.
2. Furnish and install all fillers, scribes, finished ends, finished backs, work surfaces/backsplashes, and cutouts required to provide a complete and finished project. Plastic laminate worksurfaces shall include backer sheet.
3. Provide locks where specified on drawings.

1.3 WORK IN OTHER SECTIONS

1. All sinks and fittings, couplings and connectors, piping, traps, supplies, shutoffs and special plumbing fixtures.

1.5 SUBMITTALS

1. Shop drawings shall be submitted for approval within thirty (30) days after formal notification of award of contract. Drawings shall consist of floor plans indicating arrangement and relation to adjacent work and equipment, and complete elevations of casework. Centerline of service requirements shall be noted for use by other trades. A schedule of all sinks, fittings, and accessories that are part of this contract shall be provided.
2. Color samples shall be submitted for selection and coordination at time of contract award. Samples of actual material and color shall be available as required.

1.6 CLOSEOUT SUBMITTALS

1. Upon completion of the Work of this Section, Contractor shall submit to the Architect/Engineer, all required closeout documents.
2. Contractor shall submit a marked-up set of drawings indicating any changes made during construction to the Architect/Engineer.
3. Upon completion, submit to the Architect, a Contractor's Affidavit of Payment of Debts and Claims, and Release of Liens.
4. Refer to General Conditions for additional requirement.

1.7 COLOR SELECTION

1. Color shall be chosen from manufacturers standard patterns as described in color selector. A minimum of thirty-five (35) colors and patterns shall be available as standard selections.
2. Exposed cabinet body edges and door/drawer front horizontal edges shall be color matched with cabinet sides. Color matched edgings shall be available in all standard color selections.
3. Casework of substitute brands with lesser amounts or more restrictive selection requirements will not be considered equal and shall be rejected.

1.8 PRODUCT DELIVERY/STORAGE AND INSTALLATION

1. Protect cabinets and countertops during transit, delivery, storage and handling to prevent damage, soiling and deterioration.
2. Store cabinets and countertops at project site in installation and storage areas with similar ambient conditions as final installation, storage areas must be kept dry, heated with low relative humidity, and away from construction work as painting, wet work, grinding and similar operations.
3. Installation shall be done in a craftsman like manner. Casework shall be installed, securely attached to building structure with anchorage devices of appropriate type, size and quantity to meet prevailing codes, specifications and safety conditions.

Inspect and properly adjust all casework and related hardware. Repair damages, remove and dispose of all packing materials, debris, and dirt resulting from casework installation leaving area broom clean.
4. Work surface, cutouts, and joint edges shall be sealed during installation, with a water resistant sealer or adhesive.

1.9 WARRANTY

1. Casework manufacturer warrants for a period of three (3) years the product manufactured by it to be free from defects in material and workmanship when properly installed under normal use.

2.0 PRODUCTS

2.1 CORE MATERIAL

1. Cabinet components having particleboard core materials shall be minimum 45 lb. density industrial grade. The particleboard used shall have been tested under ANSI A 208.1 and or ASTM D-1037-87A standards.
2. Medium density fiberboard (MDF) used in high stress areas as drawer members and hanging frame rails shall be minimum 48 lb. density and shall have been tested under ANSI A 208.2 standards.

2.2 SURFACE MATERIALS

1. Exposed exterior cabinet components, door/drawer fronts, and interior surface solid colors shall meet or exceed .040thick high pressure laminate NEMA LD 3 - 2005 GP - 20 and ALA 1992 specification standards. Surfaces shall be permanently thermofused plastic laminate, fused to core using a minimum average high pressure of 360 PSI and average 300°F temperature. Interiors shall be laminate, color as specified on drawings.
2. Door and drawer fronts shall be surfaced with vertical grade post-forming .040 thick plastic laminate meeting NEMA Test LD3 - 2005. Door shall have laminate post formed around radius shaped vertical edge. Shape shall have minimum radius of 8 MM and shall be continuous without edge joints or lines showing from front face.
3. Unexposed cabinet ends shall have balanced construction with thermofused melamine plastic laminate surfaces. Interior backs shall be almond color surfaces.

2.3 HARDWARE

1. Hinges shall be fully concealed from view when door is in closed position and permit 176 degree door swing. Hinge crank shall be heavy duty steel with a concealed integral self-closing spring mechanism and hinge boss shall be heavy duty diecast steel. Nylon expansion inserts shall be provided in door for positive screw attachment. Hinge attachment to sides shall employ special 5 mm thread fasteners for maximum strength. Hinges shall incorporate mounting features providing three dimensional adjustment and have life-time guarantee as warranted by the manufacturer. Doors less than 48" in height shall have two (2) hinges per door, doors, 40" to 63" in height shall have three (3) hinges per door and all doors over 63" in height shall have four (4) hinges per door. Concealed hinge equal to: Knappe & Vogt #2661FNP170 full overlay **or** #2661HNP170 half overlay.
2. Pulls: Equal to: Richelieu 2211 Stainless Steel.
3. Hanger rods shall be heavy duty plated tubing. Rod shall be securely affixed to cabinet shelves or cabinet sides.
4. Drawers and slide out shelves shall be suspended on nylon roller, almond epoxy coated steel slides to insure quiet, smooth operation. Slides shall have 100 lb. load rating with built in drawer stop and self close feature in the last 1" of travel, and includes a closed side to side alignment.
5. Locks shall be cylinder type, die-cast, with five (5) disc tumbler mechanism. Each lock shall be provided with a milled brass key. Master keying shall be available.
6. Locks shall be provided where shown on drawings or cabinet descriptions. Provide locks on all doors.

2.4 ADJUSTABLE SHELF SUPPORT SYSTEM

1. Shelf support clips for adjustable shelves 3/4" and 1" thick shall be injection molded nylon. Support clips shall incorporate integrally molded lock tabs to retain shelf from tipping or inadvertently being lifted out. Support clips shall have double twin pin

engagement into precision bored hole pattern in cabinet vertical members.

2. Clips shall have a molded ridge which shall provide pressure against edge of shelving and maintain positive pin engagement. Clips shall be designed in such a manner to provide means for permanent attachment to shelf. Static test shear load must exceed 200 lb. per clip.
3. Dividers that are 1/4" thick shall be fully adjustable and retained with injection molded nylon clip. Clip shall trap divider to prevent lift out.
4. All adjustable shelves and dividers shall be adjustable on 32mm (1-1/4") centers.

2.5 WORK SURFACES

1. Plastic laminate countertops shall be surfaced with general purpose .040 thick plastic laminate meeting NEMA spec. LD3-2005. Countertop cores shall be 1-1/8" full thickness 45 lb. density industrial grade particleboard. Exposed edges shall be covered with same laminate as top surface. Tops shall include backing sheet on underside.
2. Backsplashes and endsplashes shall be provided as indicated on drawings and shall be surfaced with same laminate as top.
3. Continuous tops shall be joined with minimum number of splice joints and aligned with tight joint fasteners as required to provide a uniform and gapless joint.

2.6 COMPONENT DETAILS

1. Drawers shall be full box design with a separate front. Drawer sides and ends shall be constructed of 5/8" medium density fiberboard with solid color melamine laminate and matching top edges as selected by Architect.
2. Adjustable shelves less than 36" in length shall be 5/8" thick.

3.0 EXECUTION

3.1 BASE, WALL, AND TALL CASEWORK

1. Cabinets corners shall be joined with dowel pin construction. Cabinets shall be assembled under controlled case clamp conditions assuring final cabinet squareness and proper joint compressions.
2. Cabinet ends shall be 3/4" thick panels of balanced construction and precision bored for dowel pins installed in horizontal cabinet members. Base and tall units shall have one piece end panels continuous to floor for added load capabilities. Unexposed ends shall have laminate backing sheet.
3. Cabinet bottoms and tops shall be 3/4" thick panels of balanced construction for base and tall units. Base cabinets shall include a full depth 3/4" thick top panel.
4. Panels shall be precision bored to receive fluted dowel pins, which shall be inserted with

glue. Dowel pins shall extend from the panel ends for joining into mating hole pattern of cabinet ends.

5. Wall cabinets bottom and tops shall be full 1" thick panels of balanced construction. These panels must feature the same fluted dowel pin and glue joint construction as the base and tall cabinets.
6. Toe kick panels shall be set back from cabinet front and back edges, doweled into cabinet ends. This integral twin toe kick construction shall be part of all base and tall cabinet structures for additional load support.
7. Back panels shall be 1/4" thick, inset 5/8" from rear of cabinet. Backs shall be continuously trapped in grooves in cabinet top, bottom and ends. Backs shall be hot melt glued or mechanically fastened.
8. Mounting rails shall be fully concealed behind backs. Rails shall be 5/8" thick and integrated into cabinet ends with dowel pin joints.
9. Wall and tall cabinet shall incorporate two mounting rails. Wall cabinets shall have rails positioned at top and bottom. Tall cabinets shall have rails positioned at top and intermediate location. Base units shall have rail positioned in the upper back area.

3.2 INSPECTION

- A. Verify dimensions of spaces to receive casework.
- B. Verify all field conditions at adjacent surfaces.
- C. Assure that mechanical and electrical services have been installed in location where required.
- D. Do not install equipment until satisfactory conditions have been corrected.
- E. Verify all field conditions for mechanical and electrical equipment.

3.3 INSTALLATION

- A. Install equipment in accordance with manufacturer's instruction and approved submissions.
- B. Securely attach cabinets to walls in an approved manner.
- C. Set equipment plumb and level.

3.4 ADJUSTMENT AND CLEANING

- A. Upon completion of installation assure that:
 1. Doors and drawers operate freely without bind.
 2. Catches have been adjusted to operate properly.
 3. Locks function properly.

4. All shelves and accessories have been properly installed.
- B. Clean inside and outside surfaces of all equipment and accessories installed for this project to be free of dirt, oil, grease and any other foreign matter.
- C. Remove debris, not caused by other trades, and legally dispose of away from site.

END OF SECTION

SECTION 12500 - WINDOW TREATMENT

1.0 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provision of Contract, including General and Supplementary Conditions and Division I Specification Sections, apply to this section.

1.2 SUMMARY

- A. This Section includes basic window treatment as follows:
 - 1. Horizontal blinds

1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data and installation instructions for each type of window treatment unit required. Include methods of installation for each kind of opening and supporting structure.
- C. Samples for initial selection of colors, in form of manufacturers' color charts consisting of sections of exposed components with integral or applied finishes showing full range of colors and materials.
- D. Samples for verification purposes, in full-size units of each component, material, and finish to be exposed to view, for each type of window treatment required. Prepare samples from same materials to be used for fabricating units.
 - 1. In addition, submit one complete small operating unit for each type of window treatment required.

1.4 QUALITY ASSURANCE

- A. General: Provide units produced by one manufacturer for each type required, with complete standard assemblies including hardware accessory items, mounting brackets, and fastenings.
- B. Furnish materials in colors and patterns selected by Architect from manufacturers' standard colors/patterns.

1.5 EXTRA MATERIALS

- A. Maintenance Stock: Furnish extra materials matching products installed, packaged with protective covering for storage and identified with labels clearly describing contents.
 - 1. Typical Window Treatment Units: Furnish quantity of full-size typical window treatment units equal to 5 percent of amount installed.

2.0 PRODUCTS

2.1 HORIZONTAL BLINDS - ALUMINUM

- A. Headrail: Channel-shaped section complete with tilting mechanism, top and end braces, top cradles, cord lock, and accessory items required for type of blind and installation.
- B. Bottom Rail: Tubular steel bottom rail, designed to withstand twisting or sagging. Contour top surface to match slat curvature, with flat or slightly curved bottom. Close ends with metal or plastic end caps of same color as rail. Finish rail in same color as slats.
- C. Slats: Spring-tempered vinyl (louver blades), round corners with forming burrs removed, as follows:
 - 1. Slat Width: 1 inch (15mm) nominal slats, with other components sized to suit.
- D. Ladders: Designed to support and maintain slats at proper spacing and alignment in open and closed positions, as follows:
 - 1. Braided polyester cord design consisting of vertical components of not less than 0,043-inch more than 0.068-inch in diameter and integrally braided ladder rungs of not less than 4 threads; space ladders not further than 23 inches apart and 7 inches from ends of slats.
- E. Tilting Mechanism: Assembly including disengaging worm and gear mechanism to eliminate overdrive, low-friction gear tilter, drum and cradle at each ladder, tilt rod, tape clips, and grommet guides to prevent wear on ladder and cords; designed to hold slats at any angle and prevent movement of slats due to vibration; operated as follows:
 - 1. Wand Operator: Detachable clear plastic wand, of proper length to suit blind installation, detachable without tools by raising locking sleeve.
 - 2. Cord Operation: Cord of sufficient length for blind operation, matching lift cord in material, size, and appearance, fitted with tassels.
- F. Lifting Mechanism: Crashproof cord locks with cord separators and braided polyester or nylon lift cords with tassels at ends. Size cord to suit blind type. Include self-aligning cord equalizers designed to maintain horizontal blind position.]
- G. Installation Brackets: Designed to facilitate removal of head channels. Provide intermediate brackets at spacing recommended by blind manufacturer. Include hardware necessary for secure attachment of brackets to adjoining construction and to headrails. Design brackets to support safely the weight of blind assemblies plus forces applied to operate blinds.
- H. Finish: Provide finishes indicated below. Finish exposed accessories and hardware to match rail color. Provide corrosion-resistant finish to concealed items of hardware.

- I. Manufacturers: Subject to compliance with requirements, provide products of one of the following:
 - 1. Acceptable Manufacturers
 - a.. Levolor
 - b. Hunter Douglas
 - c. Bali
 - 2. Style:1” slat
 - 3.Color:To be selected by Architect for manufacturer’s full color line.

3.0 EXECUTION

3.1 INSTALLATION

- A. General: Install window treatment units to comply with manufacturer's instructions. Position units level, plumb, secure, and at proper height and location relative to adjoining window units and other related work. Securely anchor units with clips, brackets, and anchorages suited to type of substrate.
- B. Provide clearance between sash and blinds to permit unencumbered operation of sash hardware.
- C. Isolate metal parts from concrete and mortar to prevent galvanic action. Use thick coating or other means recommended by manufacturer to effect separation.
- D. Protect installed units to ensure their being in operating condition, without damage, blemishes, or indication of use at substantial completion of project. Correct nonconforming damaged units. Replace units that cannot be field corrected.

END OF SECTION

FINISHES

1953 WIND


BUFFALO, USA

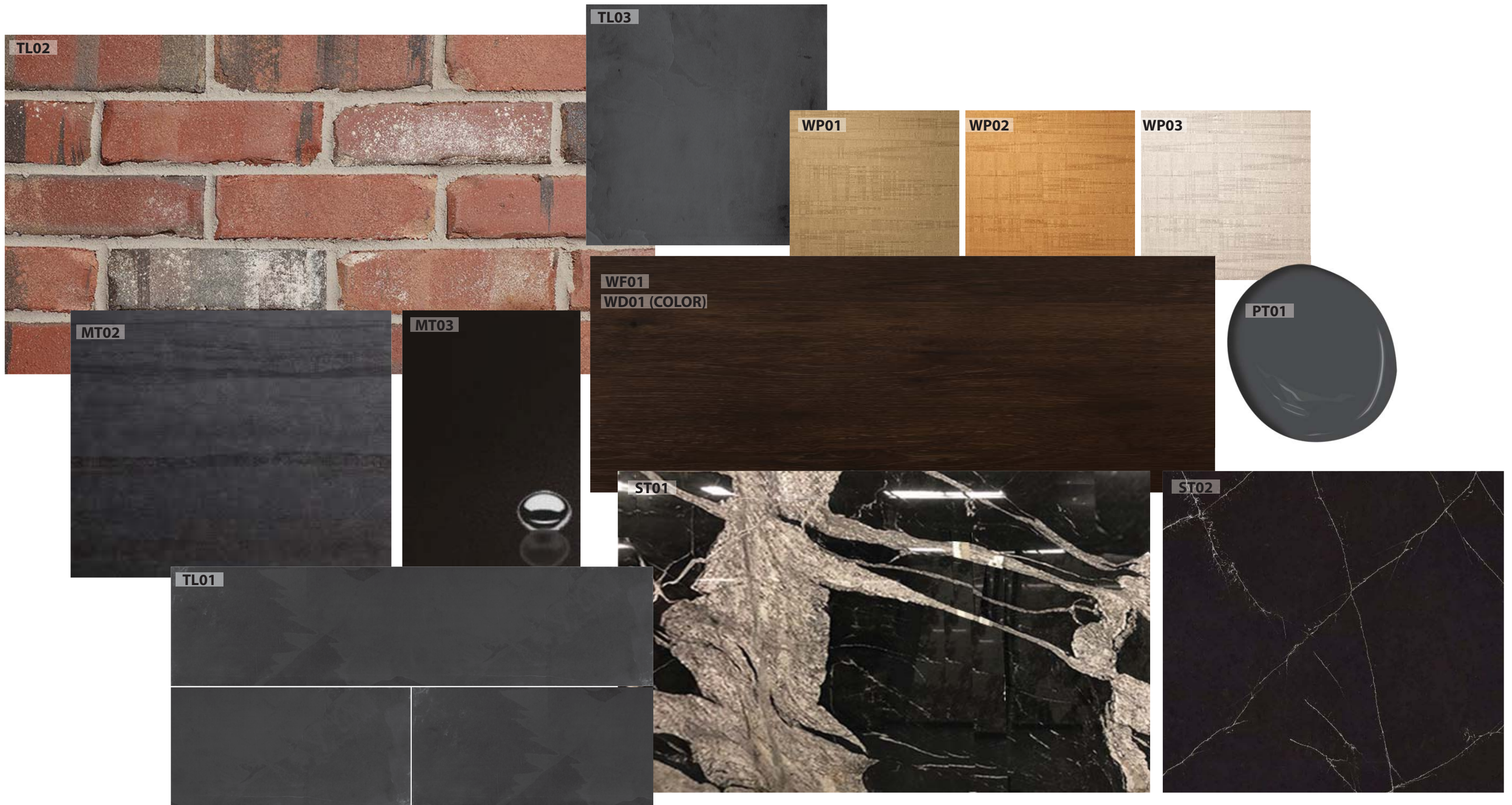
ISSUED DATE : 2020.03.23

1953 WIND BUFFALO | FINISHES SPECIFICATION

ISSUED FOR TENDER

ISSUED DATE : 2020.03.23

| CODE | DESCRIPTION/ LOCATION | MANUFACTURER / PRODUCT CODE | FINISH | SIZE | | | CONTACT | REMARKS | | |
|-------|--|---|-------------------------|---------|----------|------------|---|---|---|---------|
| | | | | W | L | THK. | | | | |
| TL01 | PORCELAIN TILE / FLOOR, DINING AREA2 WALL | OLYMPIA TILE / SLATE TILES Montauk Black Brushed PLANK STYLE GM.SL.MTK.BLK.0624BD | STRAIGHT EDGE & BRUSHED | 6" | 24" | 3/8" | RITA O'HARA 416 785-9555 ext. 373. r.ohara@olympiatile.com | https://www.olympiatile.com/product/series/342/slate#3139-montauk_black_brushed | BRICK PATTERN | |
| TL02 | BRICK VENEER | BELDEN / Red Bricks: Rosewood Blend | - | 2-1/4" | 7-5/8" | Thin Brick | BELDEN BRICK | http://www.beldenbrick.com/online-catalog/brick-colors/red-bricks/0000740/rosewood-blend | BRICK PATTERN | - |
| TL03 | PORCELAIN TILE / WASHROOM WALL | OLYMPIA TILE / SLATE BLACK GM.SL.BLK.1212 | NATURAL | 12" | 12" | 3/8" | RITA O'HARA 416 785-9555 ext. 373. r.ohara@olympiatile.com | https://www.olympiatile.com/product/series/342/slate | BRICK PATTERN | |
| TL04 | PORCELAIN TILE / BOH FLOOR | OLYMPIA TILE / METROPOLITAN SERIES : QUARRY MT.PTN.GREY.6X6 | MATTE | 8" | 8" | - | RITA O'HARA 416 785-9555 ext. 373. r.ohara@olympiatile.com | https://www.olympiatile.com/product/series/337/metropolitan#6890-puritan_grey | GRID PATTERN | - |
| WF01 | VINYL FLOORING | STONE TILE WOOD / KRAFT VINYL : CALIFORNIA COMMON 83002 | DURALOX ANTI-SCRATCH | 7.1" | 48" | 1/4" | JULIEN ABSEDRIS 416 515 9000 ext.271. jabesdris@stone-tile.com | http://www.stone-tile.com/collection/wood/vinyl-kraft-collection | | |
| WD01 | WOOD VENEER | BROOKSIDE VENEERS / FSC-607/00/Y12 - POLYFLEX | CLEAR COAT | 48" | 120" | | DAVID THOMSSON 609 409-1312 | OR STAIN OAK WOOD TO MATCH T WF01' COLOR. | | |
| PL01 | PLASTIC LAMINATE - RESERVED / MILLWORK | | | | | | | | | - |
| PL02 | PLASTIC LAMINTE (ANTI-FINGER PRINT) / INSIDE OF CABINETS | OCTOLAM / AFP Z105 BLACK | MATTE | - | - | - | KEVIN COBURN 416 531-5051 | https://www.octopusproducts.com/octolam-afp-anti-finger-print-laminite/ | | - |
| PL03 | PLASTIC LAMINTE / WASHROOM PARTITION | EGGER / NATURAL CARINI WALNUT H3710 ST12 | OMNIPORE MATT | 81 1/2" | 110 1/4" | 3/4" | KEVIN COBURN 416 531-5051 | https://www.octopusproducts.com/octolam-afp-anti-finger-print-laminite/ | | - |
| ST01 | QUARTZ / BAR COUNTER | OLYMPIA SLAB / GRANITE BLACK PHOENIX POLISHED SLAB | POLISHED | 70" | 128" | | RITA O'HARA 416 785-9555 ext. 373. r.ohara@olympiatile.com |  | LOCAL SUPPLIER TO MATCH- PLS ALLOCATE MATERIAL AT \$20 SQ FT FOR TENDER PRICING | \$20.00 |
| ST02 | QUARTZ / Bar and WC COUNTERTOP | WILSONART QUARTZ / ENCHANTED ROCK Q4041 | | | | | WILSONART QUARTZ | https://www.wilsonart.com/quartz/design-library/enchanted-rock-q4041 | | |
| WP01 | WALLPAPER / BAR | METRO WALLCOVERINGS /BRIO A119-592 SEPIA | - | - | - | - | JOANNE PRINGLE 905 738 7456. jpringle@metrowallcoverings.com | - | | - |
| WP02 | WALLPAPER / VIP ROOM | METRO WALLCOVERINGS /BRIO A119-452 PEKOE | - | - | - | - | JOANNE PRINGLE 905 738 7456. jpringle@metrowallcoverings.com | - | | - |
| WP03 | WALLPAPER / DINING AREA2 | METRO WALLCOVERINGS /BRIO A119-872 TRAVERTINO | - | - | - | - | JOANNE PRINGLE 905 738 7456. jpringle@metrowallcoverings.com | - | | - |
| MT01 | POWDER COATED METAL /MILLWORK | CUSTOM | CLEAR MATTE SEALER | - | - | 16 GAUGE | - | - | | - |
| MT02 | METAL VENEER / MILLWORK | CHEMETAL 606 Blackened Aluminum. Metal Only: .025" | - | - | - | - | CHEMETAL | https://www.chemetal.com/designs/606-blackened-aluminum/ | | - |
| MT03 | ALUMINIUM /BASEBOARD | OCTOLUX / 18 MATT BLACK | MATTE | - | - | - | KEVIN COBURN / 416 531 5051 | - | | - |
| PT01 | DARK GREY PAINT / CEILING + EXTERIOR | BENJAMIN MOORE /WROUGHT IRON 2124-10 | EGGSHELL | - | - | - | - | - | | - |
| PT02 | PAINT | BENJAMIN MOORE/ | EGGSHELL | - | - | - | - | - | | - |
| FRP01 | FRP CLASS 'A' FIRE RATED PANELS (BOH AREAS)/ BOH | MARLITE - WHITE | FLAT | 48" | 96" | - | - | MARLITE | | - |
| SS01 | STAINLESS STEEL /BOH WALL | Local Supplier | - | 48" | 96" | 20 GAUGE | - | Local Supplier | | - |
| ACT01 | ACOUSTICAL CEILING TILE | PREMIER HI-LITE | - | 24" | 24" | 5/8" | - | CGTC INC. | | - |



WIND BUFFALO - MATERIAL BOARD

Stock Sizes - Nominal



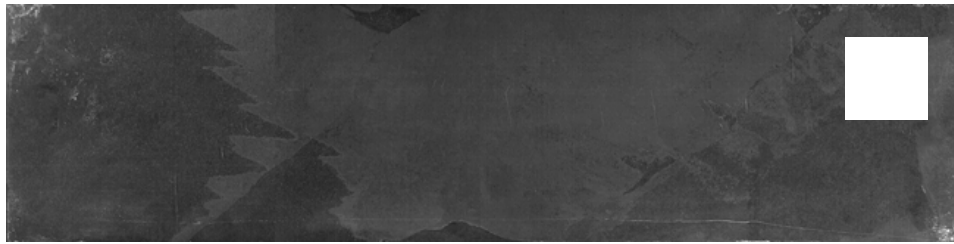
15.2cm x 61cm x 1cm
(6" x 24" x 3/8")
PLANK STYLE
GM.SL.MTK.BLK.0624BD

Special Order

For information regarding other sizes, colours and finishes please contact us

*Series: Slate Colour: Montauk Black Brushed
Finish: Straight Edge & Brushed*

Additional Options



COLOUR RANGE



Montauk Black Brushed

Description

Black/charcoal.
Brushed finish. New Plank Style- Montauk Black in both natural and brushed finishes. SLABS ALSO AVAILABLE in a brushed finish.

Usage

Floors
Walls
Residential
Commercial

Generally, Slates are rated for medium-high traffic floors. For further information regarding usage, please contact our showroom manager or staff.

Other Information

Colour and shading differ from one tile to another, as created by nature. Some Slates are more variegated than others, so we recommend viewing a number of full-size tiles to appreciate the range, pattern and colour variegation. Natural Stones should be SEALED WITH A PENETRATING SEALER before grouting. We stock a wide range of high quality sealers.

Red Bricks: Rosewood Blend

SPL ID: 00000740

TL02



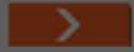
| PLANT 3 MOLDED | STANDARDS (Meets grade SW for all) | TYPE | TEXTURE | COMP. CW IRA | | | TEST REPORT |
|-------------------|---|---|---|--------------|-----|------|-------------|
| | FACE BRICK C216 THIN BRICK C1088 | | | | | | |
| | | FBA TBA | Antique Colonial / Handmade Appearance (14) | 9,970 psi | 5.2 | 15.4 | |
| | Cleaning Recommendation | Belden Brick recommends using 600 Detergent® to clean this product. Alternatively, EaCo Chem NMD 80® can be used to clean any of our brick. | | | | | |



| SIZES | WIDTH | HEIGHT | LENGTH | THIN FLAT BACK | THIN DOVETAIL | UNITS / SQ. FT. |
|------------------------------------|-------------------|-------------------|--------------------|----------------|---------------|-----------------|
| Jumbo Standard 2-5/8 | 3 5/8 " / 92mm | 2 5/8 " / 67mm | 8 " / 203mm | 3/4" / 19mm | X | 5.73 |
| Modular | 3 5/8 " / 92mm | 2 1/4 " / 57mm | 7 5/8 " / 194mm | 3/4" / 19mm | X | 6.86 |
| Any size not listed is unavailable | | | | | | |



Use filter to search for products.



PRODUCTS ▾ NATURAL STONES TYPES ▾ TILES ▾

TL03

Series: Slate Colour: Black Finish: Natural

Additional Options ▾

Stock Sizes - Nominal



30cm x 60cm x 1cm
(12" x 24" x 3/8")
GM.SL.BLK.1224



30cm x 30cm x 1cm
(12" x 12" x 3/8")
GM.SL.BLK.1212

Special Order

For information regarding other sizes, colours and finishes please contact us



Description

A classic black/charcoal slate.

Usage

Floors
Walls
Residential
Commercial

Other Information

Colour and shading differ from one tile to another, as created by nature. Some Slates are more variegated than others, so we

COLOUR RANGE



Black



California Gold



Copper



Montauk Black



Montauk Blue



TL04

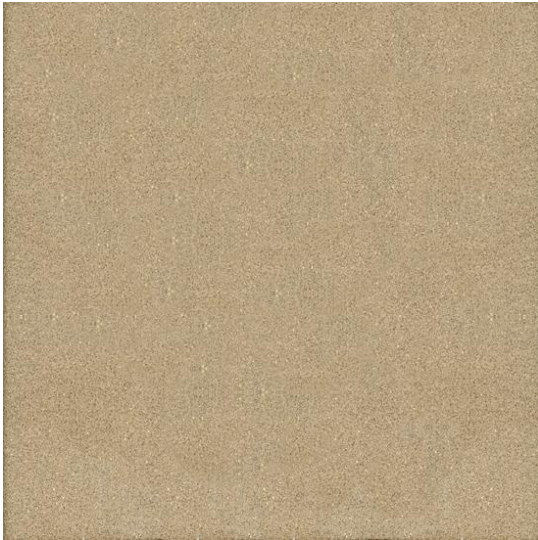
METROPOLITAN Series

QUARRY

olympiatile+stone®

Metropolitan Series - Quarry (Matte)

BUCKSKIN (Beige)



19.37 x 19.37 cm (8 x 8)
MT.BUCKSKIN.8X8
Matte Finish

BOULEVARD (Taupe)



19.37 x 19.37 cm (8 x 8)
MT.BOULEVARD.8X8
Matte Finish

PLAZA (Grey)



19.37 x 19.37 cm (8 x 8)
MT.PLAZA.GREY.8X8
Matte Finish

PURITAN (Grey)



19.37 x 19.37 cm (8 x 8)
MT.PTN.GREY.6X6
Matte Finish

All items shown in this document are part of Olympia's stocking program. For special orders, please contact your Olympia Tile Sales Representative.

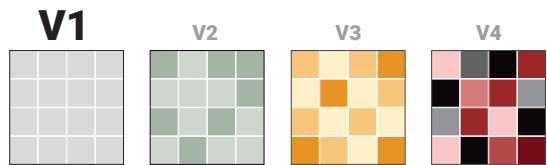
METROPOLITAN SERIES

Tests Performed -- Results Conform

| Test | Standard Used | Min. Requirements | Results |
|---------------------------|------------------|-----------------------|----------|
| Water Absorption | ASTM C373 & C67 | > 0.5 - < 3% | Conforms |
| Dynamic C.O.F. | ANSI A137.1-2012 | ≥ 0.42 | Conforms |
| Bending/Breaking Strength | ASTM-C648 | > 250 lbs | Conforms |
| Deep Abrasion Resistance | ASTM C-1243 | ≤ 275 mm ³ | Conforms |
| Scratch Hardness | MOHs Scale | MOHs 5 | Conforms |
| Chemical Resistance | ASTM C-650 | min. UB | Conforms |
| Frost Resistance | ASTM C-1026 | Required | Conforms |

Technical data is supplied by the manufacturer and is subject to change at any time. Olympia does not provide warranties as to the specifications of any product.

Colour Variation



Member



Member of Canada
Green Building
Council



Member of U.S.
Green Building
Council



Ceramic Tile
Distributors of
America (CTDA)



Marble Institute
of America

For information concerning LEED, please contact our Sales Representative

Examples of Recommended Applications



Packing Details

| TILE SIZE | PC/BOX | SF/BOX | LB/BOX | BOX/PAL |
|-----------|--------|--------|--------|---------|
| 8" x 8" | 16 | 6.45 | 36.96 | 80 |
| 6" x 6" | 28 | 7 | 40.60 | 70 |

Recommended FLEX TILE Installation Systems

For other suitable options & complete installation details, visit www.flextile.net

| PRODUCT | WALL APPLICATION | | FLOOR APPLICATION | |
|-----------------------|--|---|--|---|
| | Interior | Exterior | Interior | Exterior |
| TILE BOND COAT | <ul style="list-style-type: none"> • 66 FlexLite • 5400 MaxiFlex | <ul style="list-style-type: none"> • 5400 Maxi-Flex • 51/44 Latex Mortar System | <ul style="list-style-type: none"> • 52 Versatile • 5400 Maxi-Flex | <ul style="list-style-type: none"> • 5400 Maxi-Flex • 51/44 Latex Mortar System |
| GROUT | <ul style="list-style-type: none"> • 600 PM Sanded • ColourMax Plus Quartz | <ul style="list-style-type: none"> • 600 PM Sanded • 1600 RSG Fast Setting | <ul style="list-style-type: none"> • 600 PM Sanded • FlexEpoxy 100 Epoxy | <ul style="list-style-type: none"> • 600 PM Sanded • 1600 RSG Fast Set |
| CAULKING | Ultra Performance (colour-matched to grout) | Ultra Performance (colour-matched to grout) | Ultra Performance (colour-matched to grout) | Ultra Performance (colour-matched to grout) |

SURFACE PREPARATION (If Required)

- Floor levelling: 59 Flex Flo / 5900 Flex Flo Plus Self Levelling Underlayment
- Waterproofing: WP900 Waterproof Membrane
- Crack Isolation/Uncoupling: Flexilastic 1000 Crack Isolation Membrane / FlexMat Uncoupling Membrane

* For a complete listing of FLEX TILE products and accessories including Sound Control, In-Floor Heating, and further setting options, please visit www.flextile.net



"MORE" Surface Care Product Guide

| Task | Product Recommendation | Dilution with Water | Frequency |
|-------------------------------|---|---------------------|---|
| Grout Sealing | MORE™ Grout, Ceramic & Porcelain Sealer | Ready to use | Commercial: 1-3 Years Residential: 5-8 Years |
| Daily Maintenance | MORE™ Stone and Tile Cleaner | 1 : 128 Ratio | Daily |
| Deep Cleaning | MORE™ Alkaline Cleaner | 1 : 4 Ratio | As Needed |
| Grout Haze- Cementitious | MORE™ Acidic Cleaner | 1 : 4 Ratio | As Needed |
| Grout Haze - Epoxy / Urethane | MORE™ Coating Stripper* | Ready to use | As Needed |

*Always test in an inconspicuous area to make sure the product is achieving the desired results and is not damaging the finish of the surface.





PLAZA (Grey) & PURITAN (Grey)

METROPOLITAN SERIES: Folder FL-799 / Board MEF-101



Colour may vary slightly from images shown. It is highly recommended to view physical samples of tile prior to purchase. Note that shade variations between tiles is characteristic and adds to the inherent beauty of the product. Please visit a showroom near you or request a sample from your Olympia Tile Sales Representative.

It is Olympia Tile's policy to stock all items for sale. Should you require additional sizes, finishes or colours, Olympia has a Special Order Department to help find exactly what you are looking for. Please contact your Olympia Tile Sales Representative for more details. Note that minimum order quantities and longer lead times apply to all special order items.

OLYMPIA TILE + STONE INTERNATIONAL INC.

| | | | | | | |
|---|--|---|--|--|--|--|
| CORPORATE OFFICE AND SHOWROOM TORONTO 1000 Lawrence Ave. West Ontario M6A 1C6 T: 416 785 6666 Toll Free: 1 800 268 1613 F: 416 785 9682 | VANCOUVER 2350 Willingdon Ave. Burnaby British Columbia V5C 5J6 T: 604 294 2244 Toll Free: 1 800 663 9441 F: 604 294 0528 | EDMONTON 11540 - 163rd Street Alberta T5M 3T3 T: 780 452 5050 Toll Free: 1 800 619 4438 F: 780 451 4391 | WINDSOR 4145 7th Concession Rd Ontario N9A 6J3 T: 519 966 2500 Toll Free: 1 877 410 5953 F: 519 969 2407 | HAMILTON 75 Milburn Road Ontario L8E 3A3 T: 905 560 5520 Toll Free: 1 800 263 1370 F: 905 578 3593 | MONTREAL 555 rue Locke Ville St-Laurent, Quebec H4T 1X7 T: 514 345 8666 Toll Free: 1 800 361 1954 F: 514 345 8825 | HALIFAX 55 Akerley Boulevard Dartmouth, Nova Scotia B3B 1M3 T: 902 468 9260 Toll Free: 1 800 565 7790 F: 902 468 0011 |
| VAUGHAN 100A Royal Group Crescent Ontario L4H 1X9 T: 905 266 0420 F: 905 266 0423 | CALGARY 3308 - 11th Street S.E. Alberta T2G 3G8 T: 403 287 1070 Toll Free: 1 800 322 8182 F: 403 243 1888 | WINNIPEG 560 Sheppard Street Manitoba R2X 2P8 T: 204 633 5736 Toll Free: 1 800 665 8017 F: 204 632 4644 | LONDON 234 Exeter Road Ontario N6L 1A3 T: 519 652 5011 Toll Free: 1 800 265 4690 F: 519 652 5021 | OTTAWA 2480 Don Reid Drive Ontario K1H 1E1 T: 613 736 9570 Toll Free: 1 800 267 1864 F: 613 736 9563 | QUEBEC 2405 rue Watt Quebec G1P 3X2 T: 418 657 5557 Toll Free: 1 800 463 5516 F: 418 657 6708 | |

SLAB DIVISION

TORONTO

22 Dufflaw Road | Toronto | Ontario | M6A 2W1
 T: 416 785 9555 ext 320 | F: 416 781 4521

VAUGHAN

100A Royal Group Crescent | Vaughan | Ontario | L4H 1X9
 T: 905 266 0420 | F: 905 266 0423

OLYMPIA TILE (USA), INC.

| | | | | | | |
|--|---|--|--|--|---|--|
| CORPORATE OFFICE 701 Berkshire Lane North Minneapolis (Plymouth) Minnesota 55441 T: 763 545 5455 F: 763 542 9830 | IOWA KATE-LO TILE & STONE 4251 N.W. Urbandale Dr. Des Moines (Urbandale) Iowa 50322 T: 515 270 4920 Toll Free: 1 800 320 1387 F: 515 270 7035 | 2780 Enterprise Ct. Saginaw, Michigan 48603 T: 989 790 5851 Toll Free: 1 800 797 0897 F: 989 790 0311 | 3201 West County Rd. 42 Suite 110 Burnsville, Minnesota 55306 T: 952 890 4324 Toll Free: 1 800 288 3026 F: 952 890 4402 | NEW JERSEY NEW JERSEY TILE & STONE 70 Newfield Avenue Raritan Center, Edison New Jersey 08837 T: 732 512 1818 Toll Free: 1 800 513 8453 F: 732 512 1881 | OREGON THOMPSON TILE & STONE 4472 NW Yeon Avenue Portland Oregon 97210 T: 971 803 7552 Toll Free: 1 800 827 4092 F: 503 222 0731 | 711 S. Fidalgo Street Seattle Washington 98108 T: 206 900 7331 Toll Free: 1 800 827 4093 F: 206 294 5933 |
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| 10898-A Metro Parkway Fort Myers, Florida 33966 T: 239 275 8288 Toll Free: 1 800 785 8288 F: 239 275 0116 | MICHIGAN BEAVER TILE & STONE 24700 Drake Rd. Detroit West (Farmington Hills) Michigan 48335 T: 248 476 2333 Toll Free: 1 800 825 0551 F: 248 476 4636 | 1694 Gezon Parkway Grand Rapids, (Wyoming) Michigan 49509 T: 616 534 2883 Toll Free: 1 800 797 0727 F: 616 534 4784 | 171 Cheshire Lane N Suite 100 Plymouth Minnesota 55441 T: 763 450 3636 F: 763 450 3637 | 48 Railroad Avenue Albany (Colonie) New York 12205 T: 518 489 6803 Toll Free: 1 800 678 5769 F: 518 489 6806 | WASHINGTON THOMPSON TILE & STONE 3900 East Alki Spokane Washington 99208 T: 509 535 2925 Toll Free: 1 800 827 2555 F: 509 534 5218 | |
| 2603 Ace Road Orlando, Florida 32804 T: 407 293 3993 Toll Free: 1 800 785 3993 F: 407 293 1779 | 1700 Stutz Dr., Suite 101 Detroit North (Troy) Michigan 48084 T: 248 649 5552 F: 248 649 0741 | MINNESOTA KATE-LO TILE & STONE 701 Berkshire Lane North Minneapolis (Plymouth) Minnesota 55441 T: 763 545 5455 Toll Free: 1 800 288 3026 F: 763 542 9830 | NEBRASKA KATE-LO TILE & STONE 13211 Chandler Road Suite 400 Omaha (La Vista) Nebraska 68138 T: 402 614 9010 Toll Free: 1 877 687 6636 F: 402 614 0989 | | | |

FLEXTILE LTD.
MANUFACTURING PLANTS
www.flextile.net

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 Ontario | M8W 3C1
 T: 416 255-1111 | Toll Free: 1 800 699 3623
 F: 416 255-1729

MONTREAL

555 rue Locke | Ville St-Laurent
 Quebec | H4T 1X7
 T: 514 788-3120 | Toll Free: 1 800 361 1954
 F: 514 345-8825

VANCOUVER

2829 Lake City Way | Burnaby
 British Columbia | V5A 2Z6
 T: 604 420-4914 | Toll Free: 1 888 236 4486
 F: 604 420-0936

All sales and transactions are subject to our terms and conditions of sale, available on our website.

olympiatile+stone



WOOD: KRAFT VINYL COLLECTION



EMAIL

ST REP

POST

TWEET

PIN

KRAFT VINYL COLLECTION



SIZES /



* 5" X 30" X 1/4"



7.25" X 48" X 1/4"

DETAILS /

* IN STOCK



AMERICAN STOUT



* BAVARIAN BOCK



* BELGIUM CREAM



* BLACK & TAN



CALIFORNIA COMMON



- 1. Brand new to the Canadian market This is the vinyl 2.0!2. Composition: Virgin PVC plus calcium carbonate (Limestone)3. Zero VOC's3. Waterproof and flame resistant4. Scuff and scratch resistant2 coats of DurAlox finish5. Rigid planks allow for an easier installationLVT are flexible and sometimes more difficult when clicking together6. Will not be affected by sun exposureWill not bend, curl or come apart like LVT7. 51" image pattern on 48" planksNo 2 boards will look the same8. Drop lock on the ends to ensure a stronger hold5G Valinge click9. Standard 1mm pad backing * thicker pad available upon requestSounds transmission and thermal properties for concrete installationWebbed pad10. Standard size 7 1/4" x 1/4" x 48", additional sizes available upon request11. Ideal for condos, commercial spaces, restaurants, bathroomsWet areas should caulked around the perimeter12. Ok to install over radiant heat13. Embossing allows for slip resistance14. No telegraphing

Kraft Collection®

XRP DESIGNER LUXURY PLANK (VINYL)
PLANCHE EXTRA RIGIDE DE LUXE (VINYLE)

XTRA RIGID PLANK™

Delivers exceptional features and benefits

THE KRAFT COLLECTION is your ultimate choice for spectacular waterproof floors that are as tough and durable as they are beautiful. Planks install quickly and easily in areas of up to 40 x 60 feet without transition moldings and can even be interconnected for seamless transitions between planks.

THE KRAFT COLLECTION is exceptionally dent and wear resistant and will even resist damages from playful children and big dogs! Planks may be installed virtually anywhere in your home or commerce, including areas with full sun exposure and even in areas of high humidity thanks to their exceptional stability and waterproof properties.



TECHNICAL SPECIFICATIONS

| | |
|--------------------------|-------------------------------|
| Wear resistance: | EN16511:2014 7800 revolutions |
| 100% virgin content: | Yes |
| Surface bonding: | Class 3, commercial |
| Dimensional stability: | Class 4, heavy commercial |
| Thickness swelling: | Class 4, heavy commercial |
| Impact resistance: | Class 4, heavy commercial |
| Castor chair resistance: | Class 3, commercial |
| Formaldehyde emissions: | <0.0005 PPM |
| Anti-slip resistance: | EN13893:2003 - DS U=0.44 |
| Stain resistance: | Excellent |
| Light fast décors: | Class 5 |

LET US CUSTOMIZE YOUR XRP PROGRAM TO FIT YOUR NEEDS TODAY!

THE KRAFT COLLECTION XRP is available in an exciting range of widths, lengths and thicknesses as follows:

| | |
|---------------------|----------------------|
| Plank Lengths: | 48", 60" & 72" |
| Plank Widths: | 6", 7" & 9" |
| Thickness: | 3.2mm, 4.0mm & 5.0mm |
| Wear Layer Options: | 12 mil & 20 mil |

LIFETIME RESIDENTIAL WARRANTY

10 YR LIMITED LIGHT COMMERCIAL WARRANTY

PERFECT FOR CONDOS

WATERPROOF

PLANET-FREINDLY CARB-2 COMPLIANT

MULTI-CLIMATE

UV STABLE

SCRATCH RESISTANT

INSTALL ANYWHERE IN YOUR HOME

WATER BASED RADIANT HEAT FRIENDLY

CLICK FLOATING LOCKING SYSTEM

EMBOSSSED TEXTURE

Kraft Collection®

XRP DESIGNER LUXURY PLANK (VINYL)
PLANCHE EXTRA RIGIDE DE LUXE (VINYLE)

XTRA RIGID PLANK™

Delivers exceptional features and benefits

KRAFT COLLECTION - XRP VINYL FEATURES & INFORMATION YOU SHOULD KNOW

1. Brand new to the Canadian market
This is the vinyl 2.0!
2. Composition: Virgin PVC plus calcium carbonate (Limestone)
Zero VOC's
3. Waterproof and flame resistant
4. Scuff and scratch resistant
2 coats of DurAlox finish
5. Rigid planks allow for an easier installation
LVT are flexible and sometimes more difficult when clicking together
6. Will not be affected by sun exposure
Will not bend, curl or come apart like LVT
7. 51" image pattern on 48" planks
No 2 boards will look the same
8. Drop lock on the ends to ensure a stronger hold
5G Valinge click
9. Standard 1mm pad backing * thicker pad available upon request
Sounds transmission and thermal properties for concrete installation
Webbed pad
10. Standard size 7 ¼" x ¼" x 48", additional sizes available upon request
11. Ideal for condos, commercial spaces, restaurants, bathrooms
Wet areas should caulked around the perimeter
12. Ok to install over radiant heat
13. Embossing allows for slip resistance
14. No telegraphing

Kraft Collection®

XRP DESIGNER LUXURY PLANK (VINYL)
PLANCHE EXTRA RIGIDE DE LUXE (VINYLE)

PLANCHE EXTRA RIGIDE XRP™

Aux caractéristiques et avantages exceptionnels

La COLLECTION KRAFT est le choix évident si vous recherchez un couvre-plancher imperméable exceptionnel, qui est à la fois solide, résistant et élégant. Les planches se posent facilement et rapidement dans les pièces de moins de 40 x 60 pi2 ne nécessitant aucune moulure de transition. De plus, certains modèles de planches s'imbriquent pour une surface sans couture.

La COLLECTION KRAFT offre une résistance exceptionnelle aux marques et à l'usure et résistera même aux enfants actifs et aux gros chiens! Grâce à leur stabilité et imperméabilité remarquables, les planches conviennent à presque toutes les pièces résidentielles ou commerciales, y compris les pièces très ensoleillées ou humides.



CARACTÉRISTIQUES TECHNIQUES

| | |
|--|-----------------------------|
| Résistance à l'usure : | EN 16511 : 2014 7800 tours |
| Matière vierge à 100% : | Oui |
| Adhérence à la surface : | Classe 3, commercial |
| Stabilité dimensionnelle : | Classe 4, commercial élevé |
| Gonflement en épaisseur : | Classe 4, commercial élevé |
| Résistance aux chocs : | Classe 4, commercial élevé |
| Résistance aux fauteuils sur roulettes : | Classe 3, commercial |
| Émanation de formaldéhyde : | <0.0005 PPM |
| Propriété d'antidérapance : | EN 13893 : 2003 - DS U=0.44 |
| Résistance aux taches : | Excellente |
| Solidité à la lumière : | Classe 5 |

PERMETTEZ-NOUS DE PERSONNALISER VOTRE PROJET DÈS AUJOURD'HUI!

La COLLECTION KRAFT XRP offre un choix formidable de largeurs, de longueurs et d'épaisseurs :

| | |
|-------------------------|---------------------|
| Longueur des planches : | 48 po, 60 po, 72 po |
| Largeur des planches : | 6 po, 7 po, 9 po |
| Épaisseur : | 3,2 mm, 4 mm, 5 mm |
| Couche d'usure : | 12 mil, 20 mil |



USAGE RÉSIDENTIEL
GARANTI À VIE



GARANTIE LIMITÉE
D'USAGE COMMERCIAL LÉGER
DE 10 ANS



IDÉAL POUR
LES CONDOS



IMPERMÉABLE



RESPECTE LA NORME
VERTE CARB 2



CONVIENT À
TOUS LES CLIMATS



STABLE AUX UV



RÉSISTE AUX
ÉGRATIGNURES



SE POSE PARTOUT
DANS LA MAISON



CONVIENT AUX PLANCHERS
CHAUFFÉS À L'EAU



SYSTÈME DE POSE
FLOTTANTE « CLIC »



SURFACE ESTAMPÉE

Kraft Collection®

XRP DESIGNER LUXURY PLANK (VINYL)
PLANCHE EXTRA RIGIDE DE LUXE (VINYLE)

XTRA RIGID PLANK™

Delivers exceptional features and benefits

COLLECTION KRAFT - CARACTÉRISTIQUES DU VINYLE XRP ET INFORMATIONS À CONNAÎTRE

1. Tout nouveau sur le marché canadien
Voici le vinyle 2.0!
2. Composition : PVC vierge et carbonate de calcium (pierre calcaire)
Aucun COV
3. Imperméable et ininflammable
4. Résistant à l'abrasion et aux égratignures
2 couches de fini DurAlox
5. Pose facile grâce à la rigidité des planches
Les carreaux de luxe sont flexibles et parfois plus difficile à installer
6. Ne sera pas affecté par une exposition au soleil
Aucune courbature, ondulation ou séparation, contrairement aux carreaux de luxe
7. Motif de 51 po sur les planches de 48 po
Toutes les planches sont différentes
8. Système de blocage aux extrémités pour une pose solide maximale
Système de blocage 5G de Valinge
9. Endos de planche standard de 1mm (ou plus large sur demande)
Propriétés acoustiques et thermiques pour les surfaces de pose en béton
Endos tissé
10. Format standard de 7¼ x ¼ x 48 po (autres formats sur demande)
11. Idéal pour condos, locaux commerciaux, restaurants et salles de bain
Le calfeutrage du périmètre des pièces humides est recommandé
12. Se pose sur les planchers munis de chauffage radiant
13. Antidérapant en raison de sa surface estampée
14. Aucun défaut de transparence



- Octolam Plastic Laminates
 - New Wood Grains 2019
 - Abstracts
 - AFP - Anti-fingerprint
 - Custom Laminates
 - Metallic Effects
 - Rustic Collection
 - Solid Color Texture
 - Solid Colors
 - Woodgrains
- Project Installations
- LEED Information
- MSDS Sheet
- Technical Information
- View All Products

Octolam AFP Plastic Laminate

Anti-Fingerprint Plastic Laminates

This laminate product has an ultra-matt finish that is repairable!

Anti Fingerprint - has unique surface characteristics that repel moisture residue from fingers and resists finger-prints!

High Scratch and Abrasion Resistance - the surface is resistant to scratches (caused by sharp edges) and against micro scratches (caused by abrasive materials)

Chemical Resistance - suitable for surface cleaning with all household cleaners and resistant to many industrial chemicals (hard acids / hard bases / organic solvents / inorganic salts)

Z108 is a solid white core so there is no exposed black edge.

Z105 is also stocked in a 10mm compact version.

Other colors, thicknesses are available by special order. Contact us for details.



Octolam AFP Z105 Black

Octolam AFP Z106 Gray

Octolam AFP Z108 White



Water Repellent



Anti-Fingerprint



Heat Resistance



Fade Resistance



Scratch Resistant



Warm Soft Touch



Low Reflectivity



Anti-Static



Cold Resistant



Easy Clean



Intense Color



Thermal Healing



Abrasion Resistant



Food Safe



Impact Resistant



Chemical Resistant



MORE FROM WOOD.

PL03

Natural Carini Walnut

H3710 ST9



Note: All decors shown and mentioned are reproductions. Colour-matching decor selection only possible on the original sample.

Download decor data

Colour and character

The decor series Carini Walnut is a classic walnut with a modern edge. Thanks to the mild but lively plank image, it is suitable both for small accent pieces and for large surfaces. The natural colour tone looks particularly modern thanks to its grey content, and works well

ST01





Colors on screen may vary from actual product.

[DOWNLOAD IMAGES](#)[Description](#)[Pattern Availability](#)[Specifications](#)

ENCHANTED ROCK Q4041

[Features](#)

WHERE TO BUY

FIND YOUR NEAREST LOCATIONS

Homeowners Commercial Buyers

[FIND](#)

ORDER A SAMPLE

[Add to Cart](#)

Pattern

WP01

PRODUCTS

ALL PRODUCTS

GALLERY

CART

BRIO



Specifications

- Color Number - A119-592
- Color Name - Sepia
- Width - 52/54 in (132/137 cm)
- Backing - Osnaburg
- Installation - Reverse hang / Straight Across Match
- Weight - 20 oz/ly (452 gr/m²)
- Pattern Repeat - V: 18 in H: 13 in
- Complete Specifications - [download](#)
- Hanging Instructions - [download](#)
- Warranty - [download](#)

Environmental Attributes

- EPD
- Low VOC meets CA01350
- Meets LEED criteria for EQc2
- Meets NSF/ANSI 342 certification; check with distributor for actual level
- Recyclable
- Second-Look Recycled Content

Hover to zoom
[download sku photo](#)

Check the boxes below and add a product to your cart with the button above.

[ADD TO CART](#)



Install



A119-038



A119-136



A119-198



A119-200



A119-231



A119-295



A119-310



A119-332



A119-364



A119-388



A119-452



A119-524



A119-557



A119-592



A119-823



A119-844



A119-872



A119-897

Pattern

WP02

PRODUCTS

ALL PRODUCTS

GALLERY

CART

BRIO



Specifications

Color Number - A119-452

Color Name - Pekoe

Width - 52/54 in (132/137 cm)

Backing - Osnaburg

Installation - Reverse hang / Straight Across Match

Weight - 20 oz/ly (452 gr/m²)

Pattern Repeat - V: 18 in H: 13 in

Complete Specifications - [download](#)

Hanging Instructions - [download](#)

Warranty - [download](#)

Environmental Attributes

EPD

Low VOC meets CA01350

Meets LEED criteria for EQc2

Meets NSF/ANSI 342 certification; check with distributor for actual level

Recyclable

Second-Look Recycled Content

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Check the boxes below and add a product to your cart with the button above.

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Install



A119-038



A119-136



A119-198



A119-200



A119-231



A119-295



A119-310



A119-332



A119-364



A119-388



A119-452



A119-524



A119-557



A119-592



A119-823



A119-844



A119-872



A119-897

Pattern

WP03

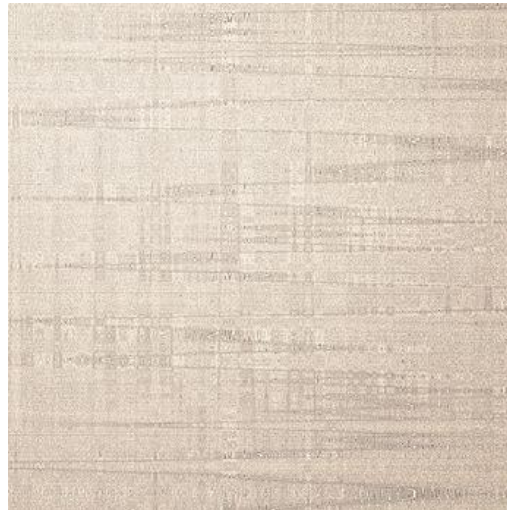
[PRODUCTS](#)

[ALL PRODUCTS](#)

[GALLERY](#)

[CART](#)

BRIO



[Hover to zoom](#)
[download sku photo](#)

Specifications

Color Number – A119-872

Color Name – Travertino

Width – 52/54 in (132/137 cm)

Backing – Osnaburg

Installation – Reverse hang / Straight Across Match

Weight – 20 oz/ly (452 gr/m²)

Pattern Repeat – V: 18 in H: 13 in

[Complete Specifications – download](#)

[Hanging Instructions – download](#)

[Warranty – download](#)

Environmental Attributes

EPD

Low VOC meets CA01350

Meets LEED criteria for EQc2

Meets NSF/ANSI 342 certification; check with distributor for actual level

Recyclable

Second-Look Recycled Content

Check the boxes below and add a product to your cart with the button above.

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Install



A119-038



A119-136



A119-198



A119-200



A119-231



A119-295



A119-310



A119-332



A119-364



A119-388



A119-452



A119-524



A119-557



A119-592



A119-823



A119-844



A119-872



A119-897

HOME » DESIGNS » 606 BLACKENED ALUMINUM

606 Blackened Aluminum

600 Series - Architectural Metals, Trending Metal Designs,
Black, Aged Metal, Patina

To order samples contact us. 800 807-7341 |
samples@chemetal.com

SIZE: 4' x 8'

BASE METAL: Aluminum

WEIGHT: .359 lb /sq ft

THICKNESS: Metal Only: .025"
*Laminate Backer: .055"

DOWNLOADS: [HI RES](#) [4 x 8](#) ⓘ

SUSTAINABILITY: [mindful MATERIALS](#) ⓘ
[Living Building Challenge Compliant](#) ⓘ



- Octolam Metal Laminates
 - Aluminum
 - Copper
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- Octolux Solid Metals
- Technical Information & MSDS
- View All Products

Octolux Solid Metals

MT03

Interior and Exterior Decorative Metal Sheets

Octolux is an extensive selection of high quality anodized aluminum sheets, available in polished, brushed and satin finishes. Octolux sheets can be glued using contact cement, and worked like plastic laminates with standard routers and table saws.

The standard thickness is .025" - however, colors 80, 81, 82 and 84 can also be offered in thicknesses of .020" and .032". **These four colors are also available in an exterior grade quality which is ideal for outdoor signage or building cladding.**



1B Chrome Mirror / Brilliant



1BR Brushed Aluminum



2B Gold Mirror



2BR Brushed Gold



3 Brass Antique Mirror



5 Brushed Bronze



6BR Brushed Copper



6 Copper Mirror



11 Mirror Black



15 Stainless Aluminum



16 Brushed Stainless Aluminum



17 Satin Gunmetal



18BR Black Brushed



18 Matte Black



19 Zinc



20 Oiled Brass



21 Champagne Gold



22 Bronze Mirror

LIGHTING

1953 WIND

BUFFALO, USA

ISSUED DATE : 2020.03.20

1953 WIND BUFFALO | LIGHTING SPECIFICATION

ISSUED FOR TENDER

ISSUED DATE : 2020.03.20

| CODE | DESCRIPTION/ PRODUCT CODE | MANUFACTURER | COLOUR | FINISH | REMARKS | SAMPLE REQ'D |
|------|---|-------------------|--------|--------|---------|--------------|
| LT01 | LED STRIP LIGHT/ 3528 | VYVYD LIGHTING | 2700K | - | - | √ |
| LT02 | RECESSED POT LIGHT/ R1005 | VYVYD LIGHTING | 2700K | BLACK | - | √ |
| LT03 | SUSPENDED PENDANT LIGHT FIXTURE C/W CUSTOM SHADE + ADJUSTABLE PENDANT CORD ASSEMBLY. LED BULB W/ REGULAR SCREW SOCKET | VYVYD LIGHTING | 2700K | - | - | √ |
| LT04 | TRACK LIGHT | VYVYD LIGHTING | 2700K | BLACK | - | √ |
| LT05 | WET LOCATION TROFFER | LITHONIA LIGHTING | - | - | - | √ |
| LT06 | EXTERIOR LIGHT | JUNO | 2700K | BLACK | - | √ |

NOTES:

1. THIS SCHEDULE SHALL BE READ IN CONJUNCTION WITH ALL OTHER DESIGN DRAWINGS AND SCHEDULES.
2. COLOUR OF ALL ELECTRICAL OUTLETS AND SWITCHES TO MATCH WALL/ CEILING COLOUR.
3. COLOUR OF ALL LIGHT FIXTURES TO MATCH WALL/ CEILING COLOUR.
4. SHOP DRAWINGS TO BE SUBMITTED FOR REVIEW AND APPROVAL PRIOR TO ORDER/PURCHASE.
5. ALL FRONT OF HOUSE LIGHTING TO BE ON DIMMER SWITCH.
6. FINALIZE SWITCH LOCATION WITH CLIENT.
7. LIGHTING CIRCUIT TO BE DISCUSSED WITH CLIENT AND DESIGNERS.



Specification Sheet

24V Constant Voltage Drivers

Integrated Junction Box

TRIAC Dimmable

| |
|---------------|
| Project Name: |
| Location: |
| Quantity: |
| Notes: |

Product Description

The “J” Series drivers provide smooth, stable, and flicker free dimming. These drivers are enclosed in a junction box providing convenient connection to the line power and the LED fixtures.

Specifications

- Dimming: Compatible with most TRIAC, ELV and MLV dimmers.
- Input: 110 - 270 VAC, 1.3A max., 50/60Hz,
- Efficiency at Max. Load: >90%
- THD at Max. Load: <20%
- Power Factor at Max. Load: >90%
- Working Temperature: -40° to +60°
- Certification : c UL us Listed E495346
- Comply with FCC, ROHs,
- Environment: IP24, Dry and damp locations



Options

| Model | Output Power | Output Current | Output Voltage | Dimensions | Weight | Class II |
|-----------|--------------|----------------|----------------|--------------------|---------|----------|
| JCV24-60 | 60W | 1 X 2.5A | 24VDC | 7.4" X 3.6" X 1" | 2.4 lbs | Y |
| JCV24-196 | 96W | 1 X 4A | 24VDC | 8.7" X 3.7" X 1.6" | 2.9 lbs | Y |
| JCV24-296 | 2 X 96W | 2 X 4A | 24VDC | 10.3" X 4" X 1.8" | 4.0 lbs | N |
| JCV24-396 | 3 X 96W | 3 X 4A | 24VDC | 10.3" X 4" X 1.8" | 4.4 lbs | N |

VYVYD

LIGHTING

Specification Sheet

3528 LED Strip Light (24V)

Aluminum Channels

| |
|---|
| Project Name: |
| Location: |
| Quantity: Strip Light Aluminum Profiles |
| Notes: |

Product Description

High performance 3528 flexible LED strip is the ideal light source for accent lighting, such as cove lighting or under kitchen cabinets and counter tops, The LED tape light can be easily cut into separate 6-LED segments and installed with its peel-and-stick 3M™ adhesive backing.

Options

Example: 3528-24V-180-30-IP20

| Series | Voltage | LED Density | Light Colour | IP20 |
|--------------------------|--------------|---|--|--------------|
| 3528 | 24V | <div style="border: 1px solid black; width: 60px; height: 20px; margin: 0 auto;"></div> | <div style="border: 1px solid black; width: 60px; height: 20px; margin: 0 auto;"></div> | IP20 |
| Flexible LED Strip Light | 24VDC Output | 60 - 60 LED/m 96 - 96LED/m <div style="border: 2px solid red; padding: 2px;">120 - 120 LED/m</div> 180 - 180 LED/m | 24 - 2500K, CRI>90 <div style="border: 2px solid red; padding: 2px;">27 - 2700K, CRI>90</div> 30 - 3000K, CRI>90 35 - 3500K, CRI>90 40 - 4000K, CRI>90 50 - 5000K, CRI>90 | Dry Location |

Specifications

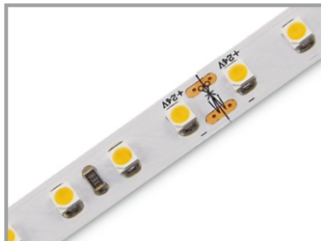
| | 60 LED/m | 96 LED/m | 120 LED/m | 180 LED/m |
|--------------------|---|---|---|---|
| LED Density: | 60 LED/m (18.3 LED/ft) | 96 LED/m (29 LED/ft) | 120 LED/m (36.6 LED/ft) | 180 LED/m (55 LED/ft) |
| LED Type: | 3528 | 3528 | 3528 | 3528 |
| FPC Material: | Copper | Copper | Copper | Copper |
| Strip Width: | 8 mm (5/16 inch) | 8 mm (5/16 inch) | 8 mm (5/16 inch) | 8 mm (5/16 inch) |
| Length Per Roll: | 5m (16.4ft) | 5m (16.4ft) | 5m (16.4ft) | 5m (16.4ft) |
| Input Power: | 24VDC | 24VDC | 24VDC | 24VDC |
| Rated Power: | 4.8W/m (1.5W/ft) | 7.7W/m (2.3W/ft) | 9.6W/m (2.9W/ft) | 14.5W/m (4.4W/ft) |
| Wattage Total: | 24W | 38W | 48W | 73W |
| Dimmable: | Yes | Yes | Yes | Yes |
| Luminous Flux: | 100 lm/ft @ 3000K 105 lm/ft @ 3500K 110 lm/ft @ 4000K | 120 lm/ft @ 3000K 123 lm/ft @ 3500K 130 lm/ft @ 4000K | 202 lm/ft @ 3000K 212 lm/ft @ 3500K 223 lm/ft @ 4000K | 290 lm/ft @ 3000K 300 lm/ft @ 3500K 309 lm/ft @ 4000K |
| Cutting Interval: | 100mm, 6 LED | 62.5mm, 6 LED | 50mm, 6 LED | 33.3mm, 6 LED |
| Lumen Maintenance: | 70% @ 60,000 Hrs | 70% @ 60,000 Hrs | 70% @ 60,000 Hrs | 70% @ 60,000 Hrs |
| Beam Angle: | LED Beam Angle: 120° | Beam Angle: 120° | Beam Angle: 120° | Beam Angle: 120° |
| Max Run: | Max Run: 10m (33ft) | Max Run: 10m (33ft) | Max Run: 10m (33ft) | Max Run: 10m (33ft) |
| Certification: | c UL us | c UL us | c UL us | c UL us |



60LED/M



96LED/M

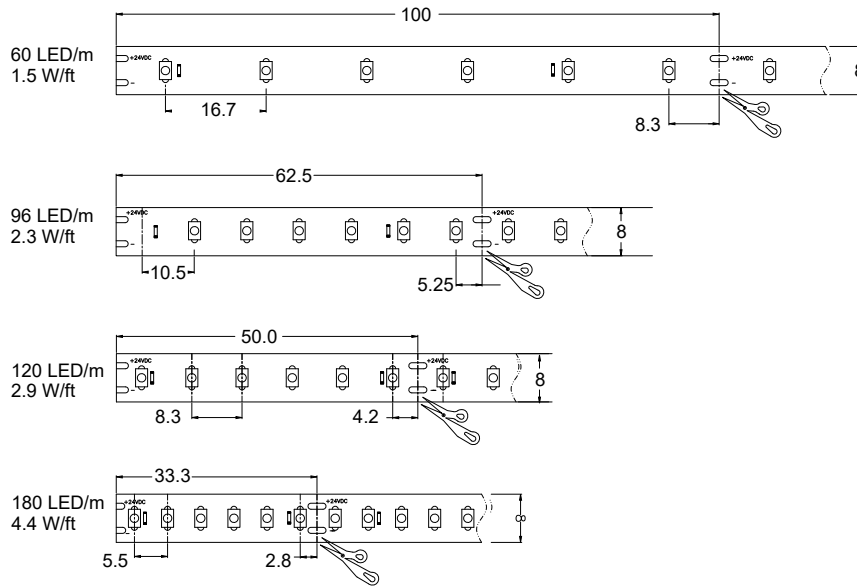


120LED/M



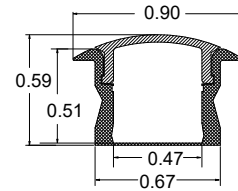
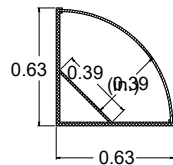
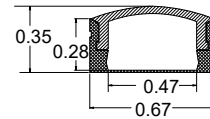
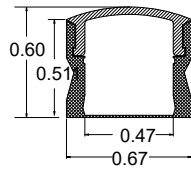
180LED/M

Dimensions (mm.)



Aluminum Profiles and Diffusers

Standard Length: 46 inches



VYVYD

LIGHTING

Specification Sheet

R1005 Recessed Light

Eyeball Trim

Integrated LED Lighting Fixture

| |
|---------------|
| Project Name: |
| Location: |
| Quantity: |
| Notes: |

Product Description

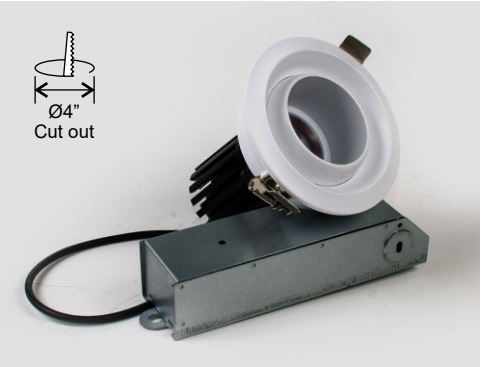
R1005 low glare recessed LED lighting fixture can be tilted 30° and rotated 360°, thus the beam spot can be accurately and conveniently aimed to any direction. The combination M3 high power light engine, the stylish die-cast trim and the reliable driver makes this recessed lighting fixture an ideal choice to meet all functional and aesthetic requirements of residential and commercial applications.

Options

Example: R1005-12-30C-17-B

| Series | Power | COB (Colour Quality) | Beam Angle | Trim Colour |
|--|----------------------|---|--|------------------------|
| R1005 | | | | |
| Integrated recessed LED lighting fixture | 12 - 12W 20 - 20W | 25T - 2500K, CRI>95 27T - 2700K, CRI>95 30T - 3000K, CRI>95 30C - 3000K, CRI>90 35C - 3500K, CRI>90 40C - 4000K, CRI>90 DW - Dim Warming CRI>80 SO - Special Order | 10 - 10° * 14 - 14° 22 - 22° 33 - 33° 43 - 43° 63 - 63° 80 - 80° | B - Black W - White |

* 10° is available only in 9W



Features

Light Source:

“C” Series COB LED is available in 3000K and 4000K. They emit colour boosting light that makes white appear whiter and colours more brilliant.

“T” Series COB LED is available in 2500K, 2700K and 3000K. They mimic the full spectrum light characteristics of incandescent lamps having CRI>95.

Optics: Total Internal Reflection (TIR) lenses provides highly precise beam shapes. They have minimal glare and spill, reducing the occurrence of scallops when aiming on vertical surfaces .

Driver: The ELV dimmable driver, available in 12W and 20W, is housed in a steel junction box.

Heat Sink is made of cold forged aluminum, which effectively dissipates heat generated by the LED to optimize the lifespan for a minimum 50,000 hr lifetime. The pin fin construction and the high purity aluminum provides very high heat dissipation efficiency, three times of conventional die-cast heat sinks.

Housing: Install with Eurofase VHG-4101-00 housing for new construction insulated ceilings.

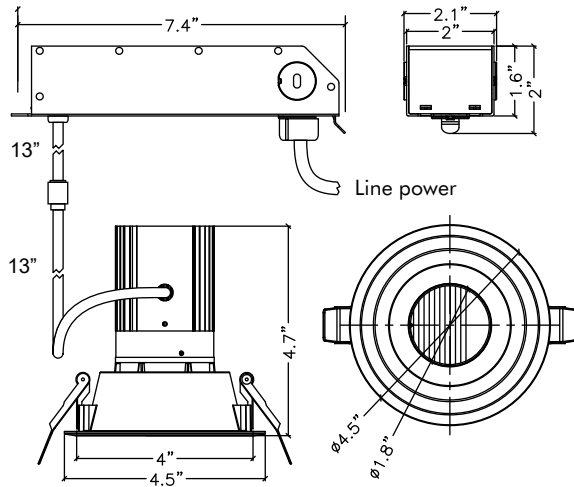
Specifications

- CCT: 2500K / 2700K / 3000K / 4000K
- CRI: >90 / >95
- Tilt: None, Fixed
- Dimming: ELV
- Total lumen output: 2200 lm @ 20W
- Delivered lumen: 1300 lm @ 20W
- Cut out diameter : 4 inch
- Power consumption: 9W / 12W
- Power Factor: >0.9
- Power Driver Type: Constant Current
- Input Voltage: 120V, 60Hz
- Approved Location: IP20, Dry
- Lumen Maintenance: 70% @ 60,000 Hrs
- THD <20%
- Certification: cETLus



R1005 Integrated LED Recessed Light

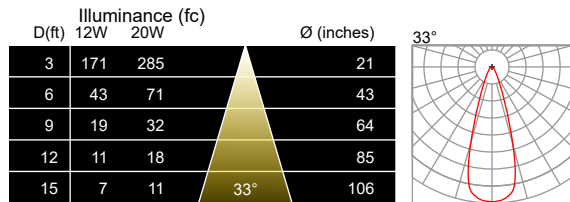
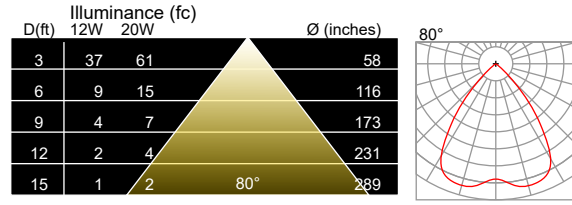
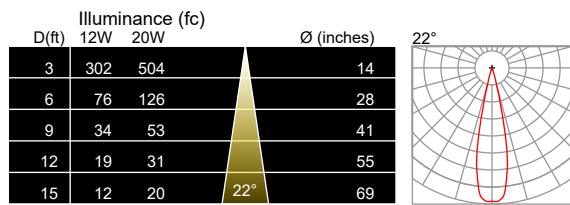
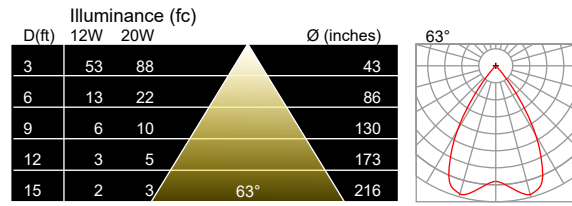
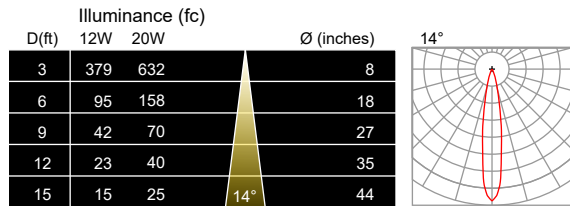
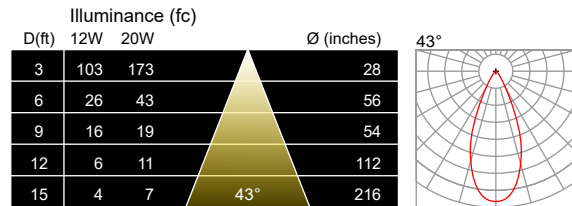
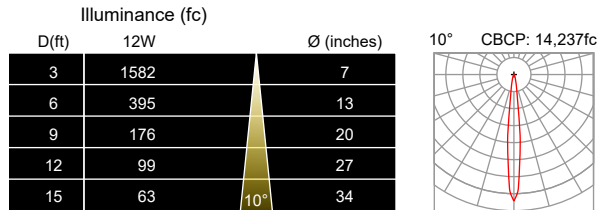
Dimensions



Compatible Dimmers

| | |
|-----------------|---------|
| LUTRON | LEVITON |
| SkyLark SF-103P | 6674 |
| DVPDC-203P | 6633-P |
| NTLV-600 | Ip106 |
| DVCL-153P | 6684 |
| SkyLark S600P | 6613-P |
| DVEL-300P | Rp106 |
| | IPL06 |
| | IPE04 |
| | 6615-P |

Photometric Data for 30C COB



Data shown is for COB 30C, 3000K, 90CRI. Multiply fc by the following adjustment factors for other COBs

| COB Type | 25C | 27T | 30T | 30C | 40C |
|--------------------|------|------|------|------|------|
| Adjustment factors | 0.88 | 0.92 | 0.96 | 1.00 | 1.07 |

VYVYD

LIGHTING

T386 Track Light

ELV DIMMABLE

Integrated LED Lighting Fixture

| |
|---------------|
| Project Name: |
| Location: |
| Quantity: |
| Notes: |

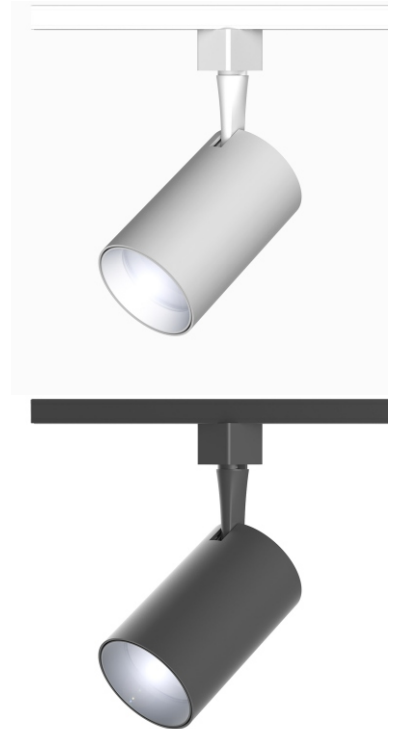
Product Description

T386 features a classic canister design to meet the functional and the aesthetic requirements for display, accent and task lighting. The fixtures feature integral COB LED light source and TIR lenses that provides a wide choices of beam angles and shapes. The compact size is unobtrusive and can be easily concealed in recessed channels and coves.

Options

Example: T386-20-30C-16-H-B-62SN

| Series | Power | COB (Colour Quality) | Beam Angle | Adaptor | Finish |
|------------------------------------|----------------------|--|---|--|--------------------------------------|
| T386 | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| Integrated LED track light fixture | 10 - 10W 20 - 20W | 25T - 2500K, CRI>95 27T - 2700K, CRI>95 30T - 3000K, CRI>95 30C - 3000K, CRI>90 40C - 4000K, CRI>90 DW - Dim Warming CRI>80 | 8 - 8° (10W only) 16 - 16° 22 - 22° 35 - 35° | H - Halo J - Juno L - Lightolier G - Global | B - Black W - White S - Silver |



Features

Light Source:

Impressionist, "C" Series COB LED, emits colour boosting light that makes white appear whiter and colours more brilliant. It is has a CRI value of >90 and available in 3000K and 4000K.

Realist, "T" Series COB LED, mimics the full spectrum light characteristics of incandescent lamps having CRI>95. It is available in 2500K, 2700K and 3000K.

Optics: Total Internal Reflection (TIR) lenses provides highly precise beam shapes. They have minimal glare and spill, reducing the occurrence of scallops when aiming on vertical surfaces .

Heat Sink is made of cold forged aluminum, which effectively dissipates heat generated by the LED to optimize the lifespan. The pin fin construction and the high purity aluminum provides very high heat dissipation efficiency, three times of conventional die-cast heat sinks.

Driver: The ELV dimmable driver, available in 350ma (12W) and 550ma(20W), is housed in an extruded aluminum housing. The drivers is positioned remotely from the light engine to optimize its efficiency and lifespan.

Mounting: Allows for 350° rotation and 90° tilt.

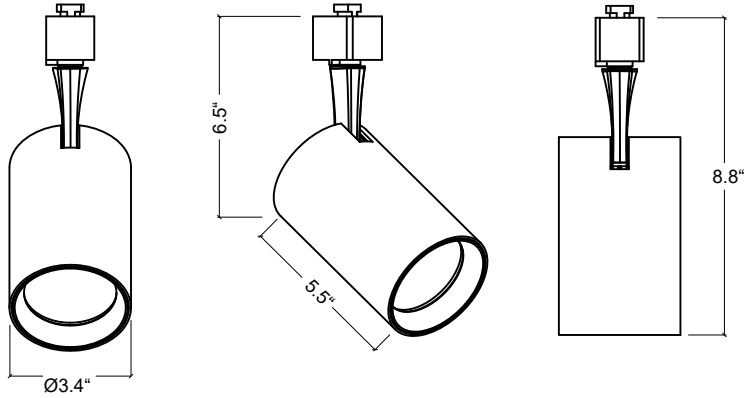
Specifications

- CCT: 2500K/2700K/3000K/4000K
- CRI: >90/>95
- Dimming: ELV
- Total lumen output max: 2200 lm @ 20W
- Delivered lumen max: 1650 lm @ 20W
- Track connector: "H"/ "J"/ "L"/ "G"
- Power consumption: 10W/20W
- Power Factor: >0.9
- Input Voltage: 120V, 60Hz
- Approved Location: IP20, Dry
- Lumen Maintenance: 70% @ 60,000 Hrs
- Approved location: IP20. Dry
- Tilt : 90°
- Rotate: 350°
- THD <20%
- Certification: cETLus

T386

Integrated LED Track Light

Dimensions

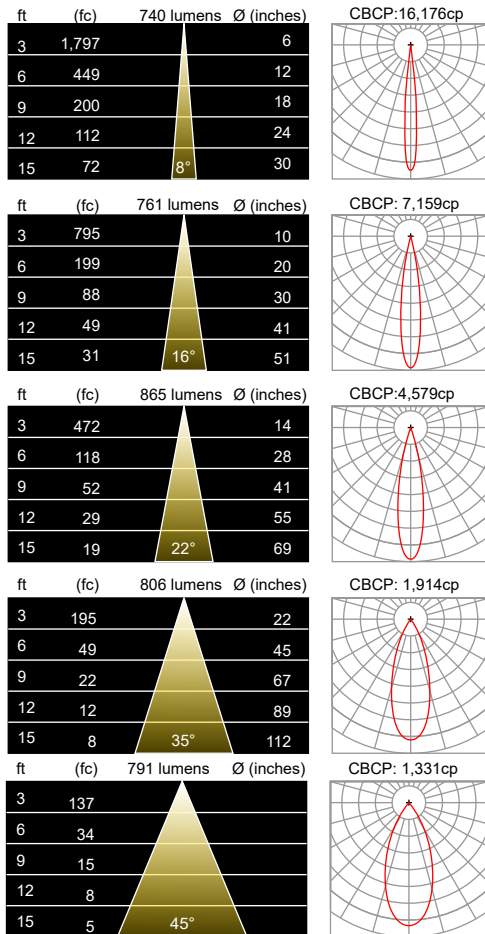


Compatible Dimmers

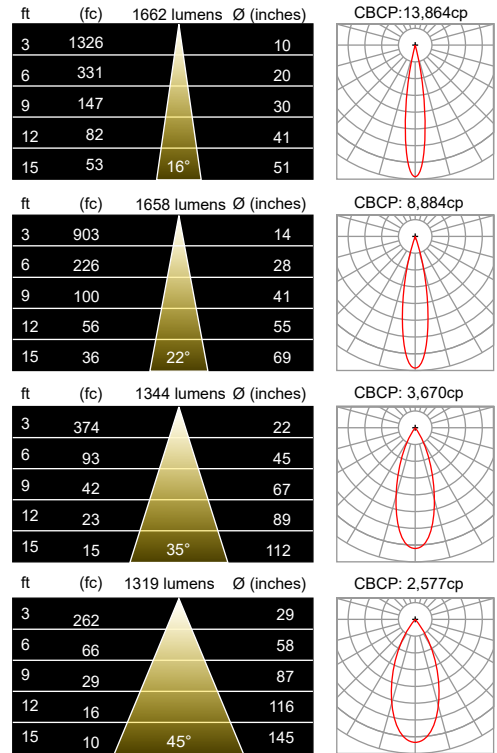
| | | | |
|--------|--------------|---------|-------------|
| LUTRON | CN-503P | LEVITON | IPE04-LA |
| LUTRON | AYLV-600P-LA | LEVITON | IPL06 |
| LUTRON | DV-603P | LEVITON | NO.6631 |
| LUTRON | DV-600P | LEVITON | MDI06-1LW |
| LUTRON | CTCL-153PD | LEVITON | C20-6681-IW |
| LUTRON | DVCL-153P | | |
| LUTRON | LG-600P | | |
| LUTRON | GL-603P | | |
| LUTRON | NT603 WH | | |
| LUTRON | MACL-153M | | |
| LUTRON | SCL-153P | | |
| LUTRON | AYCL-153P | | |
| LUTRON | GLS05-C2036 | | |
| LUTRON | LISTED 6B38 | | |
| LUTRON | CN600P | | |

Photometric Data for 30C COB

10W



20W



Data shown is for 30C COB (3000K, 90CRI). Multiply fc by the following adjustment factors for other COBs

| COB Type | 25C | 27T | 30T | 30C | 40C |
|--------------------|------|------|------|------|------|
| Adjustment factors | 0.88 | 0.92 | 0.96 | 1.00 | 1.07 |



FEATURES & SPECIFICATIONS

INTENDED USE — General illumination for indoor and outdoor, covered ceiling locations. Ideal for showers, locker rooms, recreational facilities and other applications calling for a wet location listing. **Certain airborne contaminants can diminish integrity of acrylic.** [Click here for Acrylic Environmental Compatibility table for suitable uses.](#)

CONSTRUCTION — Available for lay-in grid ceilings or with mitered flanged trim with swing-out hangers. Code gauge steel housing formed from cold rolled steel. Closed-cell neoprene gasketing between the lens, doorframe, housing and mounting surface. Extruded aluminum doorframe features mitered corners. Cam latches on doorframe ensure a positive seal. Lenses available to meet a variety of lighting needs and features 100% UV stabilized acrylic. Lenses feature optional internal prisms to maintain a smooth, easy-to-clean outer surface.

Finish: All metal parts are finished with electrostatically deposited, thermally set, polyester powder paint after fabrication.

ELECTRICAL — Thermally protected, resetting, Class P, HPF, non-PCB, UL listed, CSA certified ballast is standard. Energy saving and electronic ballasts are sound rated A. Standard combinations conform to UL 935. Tested in compliance with Federal Standard 209E by independent lab.

LISTINGS — UL Listed (standard). CSA Certified or NOM Certified (see Options). UL Listed for wet locations.

WARRANTY — 1-year limited warranty. Complete warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

Note: Actual performance may differ as a result of end-user environment and application.

Specifications subject to change without notice.

| |
|----------------|
| Catalog Number |
| Notes |
| Type |

Recessed Wet Location Troffer

WRT 2' X 2'



2, 3 OR 4 LAMPS

Specifications

Length: 24 (61.0)

Width: 24 (61.0)

Depth: 3-3/4 (9.5)

Weight: 15 lbs (6.8 kg)



All dimensions are inches (centimeters) unless otherwise specified.

ORDERING INFORMATION

For shortest lead times, configure products using **standard options (shown in bold)**.

Example: 2WRT G 2 U31 A12125 MVOLT GEB10IS

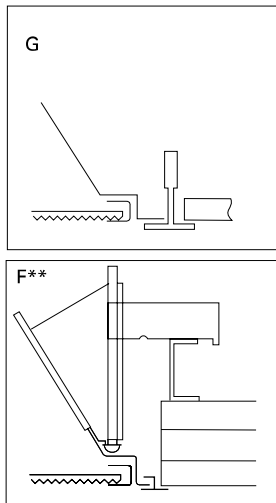
| 2WRT Series | Trim type | Lamps ¹ | Lamp type | Door frame | Diffuser type ⁴ | Voltage | Options |
|---|----------------------------|--------------------|---|--------------------------------|---|--------------------------|---|
| 2WRT Recessed wet location troffer, 2' wide | G Lay-in grid trim | 2 | 14 Nominal 14W T5 (22") | (blank) Flush aluminum, white | A12125 #12 pattern acrylic, .125" thick | 120 | Shipped installed in fixture |
| | | 3 | 17 Nominal 17W T8 (24") | FN Flush aluminum, natural | A15 #15 pattern acrylic, .2" thick | 277 | GEB Electronic ballast(s) ≤20% THD |
| | F Overlapping flanged trim | 4 ² | U31 Nominal 31W T8 U-lamp (24") | FM Flush aluminum, matte black | A19 #19 pattern acrylic, .156" thick | 347 | GEB10IS Electronic ballast(s) ≤10% THD, instant start |
| | | | U316 31W T8 U-lamp (24", 6" leg spacing) ³ | | | MVOLT⁵ | GEB10PS Electronic ballast(s) ≤10% THD, program rapid start |
| | | | CF40 40W T5 (24") | | | | EL6DW Emergency battery pack (nominal 600 lumens) ^{7,8} |
| | | | | | | | EL14DW Emergency battery pack (nominal 1400 lumens) ^{7,9} |
| | | | | | | | GLR Internal fast-blow fuse ⁶ |
| | | | | | | | GMF Internal slow-blow fuse ⁶ |
| | | | | | | | PWS1836 Pre-wire system, 18-gauge, three-wire (one circuit), 6' length (others available) |
| | | | | | | | SW Palletized and stretch-wrapped |
| | | | | | | | CSA CSA Certified |
| | | | | | | | NOM NOM Certified |

Notes

- Lamps not included.
- Straight lamps with standard ballasts or compact lamps with electronic ballasts only.
- Not available with 3- or 4-lamp fixtures; use U31.
- Add the suffix V for inverted prisms. Example: A15V
- Electronic ballast 120-277V only. Must specify GEB10IS or GEB10PS.
- Must specify voltage 120 or 277 only, not available with MVOLT.
- Must specify voltage; 120 or 277 volt only. See [PS600DW](#) or [PS1400DW](#) spec sheet for more information.
- Not available to ship into California, does not meet CEC Title 20 compliance. Replace with EL14DW.
- Not available with U31 lamps.

WRT 2 x 2 Recessed Wet Location Troffer

MOUNTING DATA



**Recommended rough-in dimensions for F trim fixtures: 24" x 24" (Tolerance is + 1/4" or -0").
Swing-gate range: 11/16" — 3-1/4", span 22" — 26-3/4".

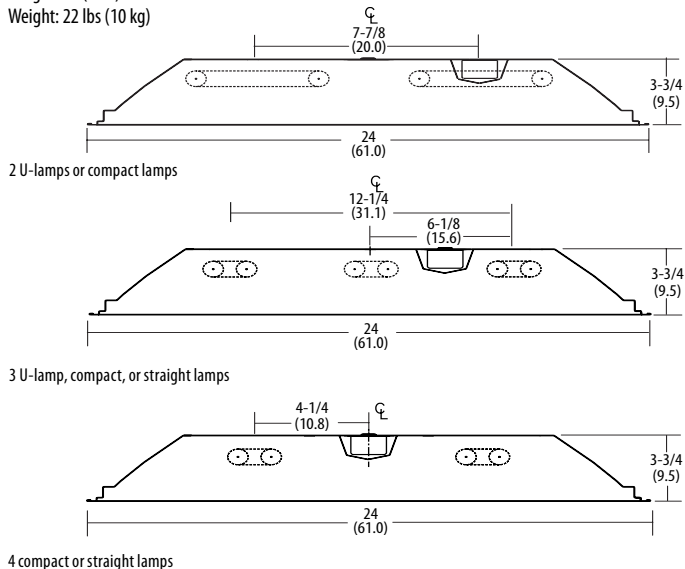
DIMENSIONS

All dimensions are inches (centimeters) unless otherwise specified. Specifications subject to change without notice.

Example: **2WRT F 2 U31 FW A12123 120 GEB**

Length: 24 (61.0)

Weight: 22 lbs (10 kg)



PHOTOMETRICS

Calculated using the zonal cavity method in accordance with IESNA LM41 procedure. Floor reflectances are 20%. Lamp configurations shown are typical. Full photometric data on these and other configurations available upon request.

2WRT3 17 A12125

Test No. LTL 9799

COEFFICIENT OF UTILIZATION

| r ^f | 20% | | | | | | | |
|----------------|-----|-----|-----|-----|-----|-----|-----|----|
| | 80% | | | | 50% | | | |
| r ^c | 70% | 50% | 30% | 10% | 50% | 30% | 10% | 0% |
| r ^w | 79 | 79 | 79 | 79 | 74 | 74 | 74 | 66 |
| 0 | 79 | 79 | 79 | 79 | 74 | 74 | 74 | 66 |
| 1 | 73 | 70 | 68 | 65 | 66 | 64 | 62 | 57 |
| 2 | 67 | 62 | 58 | 55 | 59 | 56 | 53 | 49 |
| 3 | 62 | 55 | 50 | 47 | 52 | 49 | 45 | 42 |
| 4 | 57 | 50 | 44 | 40 | 47 | 43 | 39 | 37 |
| 5 | 53 | 45 | 39 | 35 | 43 | 38 | 35 | 32 |
| 6 | 49 | 40 | 35 | 31 | 39 | 34 | 31 | 29 |
| 7 | 45 | 37 | 31 | 28 | 35 | 31 | 27 | 26 |
| 8 | 42 | 34 | 28 | 25 | 32 | 28 | 25 | 23 |
| 9 | 40 | 31 | 26 | 22 | 30 | 25 | 22 | 21 |
| 10 | 37 | 29 | 24 | 20 | 28 | 23 | 20 | 19 |

ZONAL LUMENS SUMMARY

| Zone | Lumens | % lamp |
|----------|--------|--------|
| 0°-30° | 881 | 21.8 |
| 0°-40° | 1448 | 35.8 |
| 0°-60° | 2345 | 57.9 |
| 0°-90° | 2684 | 66.3 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 2684 | *66.3 |

*Fixture efficiency

2WRT 3 U31 A12125

Test No. LTL 9802

COEFFICIENT OF UTILIZATION

| r ^f | 20% | | | | | | | |
|----------------|-----|-----|-----|-----|-----|-----|-----|----|
| | 80% | | | | 50% | | | |
| r ^c | 70% | 50% | 30% | 10% | 50% | 30% | 10% | 0% |
| r ^w | 74 | 74 | 74 | 74 | 69 | 69 | 69 | 62 |
| 0 | 74 | 74 | 74 | 74 | 69 | 69 | 69 | 62 |
| 1 | 69 | 66 | 64 | 62 | 62 | 60 | 59 | 54 |
| 2 | 63 | 59 | 55 | 52 | 55 | 53 | 50 | 47 |
| 3 | 58 | 52 | 48 | 44 | 50 | 46 | 43 | 40 |
| 4 | 54 | 47 | 42 | 38 | 45 | 41 | 37 | 35 |
| 5 | 50 | 42 | 37 | 33 | 40 | 36 | 33 | 31 |
| 6 | 46 | 38 | 33 | 29 | 37 | 32 | 29 | 27 |
| 7 | 43 | 35 | 30 | 26 | 34 | 29 | 26 | 24 |
| 8 | 40 | 32 | 27 | 24 | 31 | 26 | 23 | 22 |
| 9 | 37 | 29 | 25 | 21 | 28 | 24 | 21 | 20 |
| 10 | 35 | 27 | 23 | 19 | 26 | 22 | 19 | 18 |

ZONAL LUMENS SUMMARY

| Zone | Lumens | % lamp |
|----------|--------|--------|
| 0°-30° | 1745 | 20.8 |
| 0°-40° | 2872 | 34.2 |
| 0°-60° | 4632 | 55.1 |
| 0°-90° | 5237 | 62.3 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 5237 | *62.3 |

*Fixture efficiency

Energy Data: 2WRT 3 17 A1215 Instant Start T8

Energy (Calculated in accordance with NEMA Standards LE-5)

| LER.FL | Annual* Energy Cost | Lamp Description | Lamp Lumens | Ballast Factor | Input Watts |
|--------|---------------------|------------------|-------------|----------------|-------------|
| 47 | \$5.08 | F017T8 | 1,350 | 0.95 | 54 |

*Based on 3000 hrs./year at .08/kwh



MINI LED DOWNLIGHT

OUTDOOR/WET LOCATION

MD1LG2 (RD,WL) RECESSED HOUSING AND TRIM

LOW VOLTAGE

Project: _____

Fixture Type: _____

Location: _____

Contact/Phone: _____



PRODUCT DESCRIPTION

The round MD1LG2 (WL) mini LED recessed downlight is for use in wet locations and is IC rated for insulated or non-insulated applications • Sleek, compact form factor provides direct accent lighting with low glare optic system that approximates the light output and distribution of 20W halogen lamps • Ideal for both residential and commercial wet location applications including bathrooms and eave lighting • Remote mount Class 2 120V to 12V AC electronic or magnetic transformer required • Designed to provide 50,000 hours of life • 5 year limited warranty on LED components.

ENVIRONMENTALLY FRIENDLY, ENERGY EFFICIENT

- No harmful ultraviolet or infrared wavelengths
- No lead or mercury
- Comparable light output to 20W MR11 halogen lamps while consuming 5W

PRODUCT SPECIFICATIONS

LED Light Engine High performance, low power LEDs provide outstanding reliability, performance and color quality/consistency • 2700K, 3000K, 3500K or 4000K color temperatures available • 80 or 90 CRI minimum.

Optical System Fixtures are offered with a choice of spot, narrow flood or flood beam patterns • LED source concealed with lensed optic is deeply recessed into an internal reflector to produce a low glare system • Reflectors finished to match trim ring color for uniform appearance • Field replacement of optical lenses is NOT recommended.

Transformer Requires remote mount Class 2, 120V to 12V AC electronic or magnetic transformer for operation • Juno [TL602E](#) electronic transformer and [MAGXFMR](#) magnetic transformer are designed specifically for use with these fixtures.

Dimming May be dimmed with dimmers tested and qualified by Juno for use with [TL602E](#) and [MAGXFMR](#) – see transformer specifications for compatible dimmers • Color temperature remains constant over dimming range • Consult factory for additional information.

Life Rated for 50,000 hours at 70% lumen maintenance.

Labels UL Listed for wet locations and daisy chaining • Union made • UL and cUL listed • RoHS compliant.

Testing All reports are based on published industry procedures; field performance may differ from laboratory performance. Specifications subject to change without notice.

HOUSING FEATURES

Housing Designed for use in IC (insulated ceiling) or non-IC construction • Die cast aluminum housing • Finished with either corrosion resistant painted finishes or E-coat for decorative plated finishes.

Wiring Compartment Provided with removable access plate • Four pole terminal block allows for quick, secure connection • UL /cUL listed for daisy chaining • Easy to wire with commonly available low voltage cable (Type CL2 or NEC equivalent, 18-12 AWG). Consult local codes for compliant wiring methods.

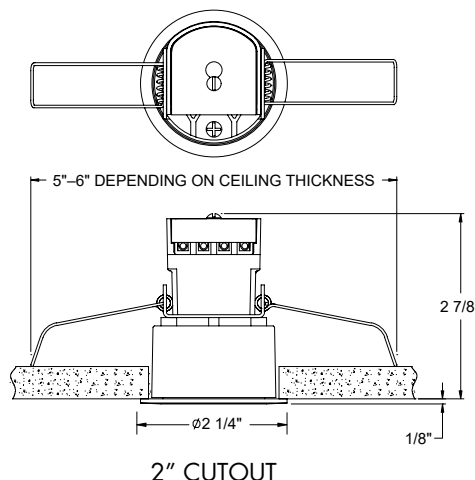
Mounting Zinc plated torsion clips are provided fully assembled to housing • Springs allow for fast, secure installation or removal in mounting surfaces from 1/8" to 1" thick material • 2" Cutout dimension corresponds to common hole saw size.

ELECTRICAL DATA

| | |
|---------------|-------------------------|
| Input Voltage | 12VAC |
| Input Power | 4.8W |
| Input Current | 0.42A |
| Frequency | Varies with Transformer |



DIMENSIONS



ORDERING INFORMATION

Example: MD1LG2 RD 03LM 27K 80CRI FL WL WH

| Series | Fixture Form | Lumens | Color Temperature |
|--------|--------------|-------------------------|-------------------|
| MD1LG2 | RD Round | 03LM 300 Nominal Lumens | 27K 2700K |
| | | | 30K 3000K |
| | | | 35K 3500K |
| | | | 40K 4000K |

| CRI | Distribution | Environment | Trim Finish |
|---------------|------------------|-----------------|-----------------|
| 80CRI 80+ CRI | FL Flood | WL Wet Location | BL Black |
| 90CRI 90+ CRI | NFL Narrow Flood | | BZ Bronze |
| | SP Spot | | SN Satin Nickel |
| | | | WH White |

Transformers

| Catalog Number | Finish | Description |
|-----------------------------------|--------|-----------------------------------|
| TL602E 10W 120 12AC WH | White | 10W 12V AC Electronic Transformer |
| TL602E 25W 120 12AC WH | White | 25W 12V AC Electronic Transformer |
| TL602E 60W 120 12AC WH | White | 60W 12V AC Electronic Transformer |
| MAGXFMR 1C 10W 120 12AC BL | Black | 10W 12V AC Magnetic Transformer |
| MAGXFMR 1C 25W 120 12AC BL | Black | 25W 12V AC Magnetic Transformer |
| MAGXFMR 1C 60W 120 12AC BL | Black | 60W 12V AC Magnetic Transformer |

To order, specify catalog number.

MINI LED DOWNLIGHT

OUTDOOR/WET LOCATION

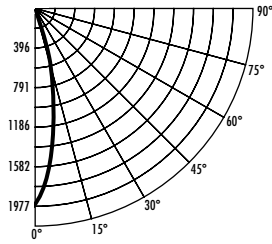
MD1LG2 (RD,WL) RECESSED HOUSING AND TRIM

LOW VOLTAGE

PHOTOMETRICS

PHOTOMETRIC REPORT

Test Report #: PT10130702R
 Catalog No: MD1LG2 RD 03LM 35K
 80CRI SP WL WH
 Luminaire Spacing Criterion: 0.34
 Luminaire LPW: 64



CANDLEPOWER DISTRIBUTION (Candelas)

| Degrees Vertical | 0° |
|------------------|------|
| 0 | 1977 |
| 5 | 1648 |
| 15 | 421 |
| 25 | 80 |
| 35 | 17 |
| 45 | 6 |
| 55 | 3 |
| 65 | 1 |
| 75 | 1 |
| 85 | 0 |
| 90 | 0 |

Multiplier: 80CRI 90CRI
 27K - 0.91 27K - 0.67
 30K - 0.95 27K - 0.72
 35K - 1.00 35K - 0.77
 40K - 1.01 40K - 0.80

AVERAGE INITIAL FOOTCANDLES
 Multiple Units (Square Array, 60' x 60' room)

Ceiling 80%, Wall 50%, Floor 20%

| Spacing | RCR1 | RCR4 | RCR8 |
|---------|------|------|------|
| 4' | 23 | 21 | 19 |
| 5' | 14 | 13 | 12 |
| 6' | 10 | 9 | 9 |
| 7' | 8 | 7 | 7 |
| 8' | 6 | 6 | 5 |
| 9' | 5 | 4 | 4 |
| 10' | 4 | 3 | 3 |

INITIAL FOOTCANDLES
 One Unit, 5W, 19.4° Beam

| Distance to Illuminated Plane (Feet) | Footcandles Beam Center | Beam Diameter |
|--------------------------------------|-------------------------|---------------|
| 4 | 123.6 | 1.4' |
| 6 | 54.9 | 2.1' |
| 8 | 30.9 | 2.7' |
| 10 | 19.8 | 3.4' |

LUMINANCE (Average cd/m²)

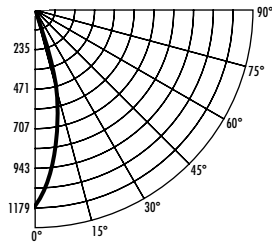
| Degrees | Average 0° Luminance |
|---------|----------------------|
| 45 | 12095 |
| 55 | 6710 |
| 65 | 4720 |
| 75 | 4407 |
| 85 | 1634 |

ZONAL LUMEN SUMMARY

| Zone | Lumens | %Lamp | %Fixture |
|---------|--------|-------|----------|
| 0 - 30° | 297 | N/A | 93.3 |
| 0 - 40° | 309 | N/A | 96.9 |
| 0 - 60° | 316 | N/A | 99.2 |
| 0 - 90° | 319 | N/A | 100.0 |

PHOTOMETRIC REPORT

Test Report #: PT10130703R
 Catalog No: MD1LG2 RD 03LM 35K
 80CRI NFL WL WH
 Luminaire Spacing Criterion: 0.42
 Luminaire LPW: 61



CANDLEPOWER DISTRIBUTION (Candelas)

| Degrees Vertical | 0° |
|------------------|------|
| 0 | 1179 |
| 5 | 1044 |
| 15 | 436 |
| 25 | 122 |
| 35 | 30 |
| 45 | 9 |
| 55 | 3 |
| 65 | 2 |
| 75 | 1 |
| 85 | 0 |
| 90 | 0 |

Multiplier: 80CRI 90CRI
 27K - 0.91 27K - 0.67
 30K - 0.95 30K - 0.72
 35K - 1.00 35K - 0.77
 40K - 1.01 40K - 0.80

AVERAGE INITIAL FOOTCANDLES
 Multiple Units (Square Array, 60' x 60' room)

Ceiling 80%, Wall 50%, Floor 20%

| Spacing | RCR1 | RCR4 | RCR8 |
|---------|------|------|------|
| 4' | 21 | 19 | 17 |
| 5' | 14 | 12 | 11 |
| 6' | 9 | 9 | 8 |
| 7' | 8 | 7 | 6 |
| 8' | 6 | 5 | 5 |
| 9' | 5 | 4 | 4 |
| 10' | 3 | 3 | 3 |

INITIAL FOOTCANDLES
 One Unit, 5W, 24.6° Beam

| Distance to Illuminated Plane (Feet) | Footcandles Beam Center | Beam Diameter |
|--------------------------------------|-------------------------|---------------|
| 4 | 73.7 | 1.7' |
| 6 | 32.8 | 2.6' |
| 8 | 18.4 | 3.5' |
| 10 | 11.8 | 4.4' |

LUMINANCE (Average cd/m²)

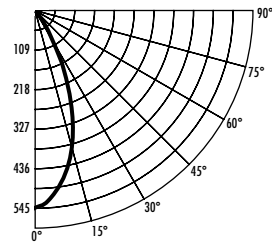
| Degrees | Average 0° Luminance |
|---------|----------------------|
| 45 | 17336 |
| 55 | 7952 |
| 65 | 6071 |
| 75 | 5507 |
| 85 | 3268 |

ZONAL LUMEN SUMMARY

| Zone | Lumens | %Lamp | %Fixture |
|---------|--------|-------|----------|
| 0 - 30° | 270 | N/A | 88.9 |
| 0 - 40° | 290 | N/A | 95.5 |
| 0 - 60° | 300 | N/A | 98.9 |
| 0 - 90° | 304 | N/A | 100.0 |

PHOTOMETRIC REPORT

Test Report #: PT10130704R
 Catalog No: MD1LG2 RD 03LM 35K
 80CRI FL WL WH
 Luminaire Spacing Criterion: 0.64
 Luminaire LPW: 55



CANDLEPOWER DISTRIBUTION (Candelas)

| Degrees Vertical | 0° |
|------------------|-----|
| 0 | 545 |
| 5 | 527 |
| 15 | 366 |
| 25 | 158 |
| 35 | 44 |
| 45 | 14 |
| 55 | 6 |
| 65 | 3 |
| 75 | 2 |
| 85 | 0 |
| 90 | 0 |

Multiplier: 80CRI 90CRI
 27K - 0.91 27K - 0.67
 30K - 0.95 30K - 0.72
 35K - 1.00 35K - 0.77
 40K - 1.01 40K - 0.80

AVERAGE INITIAL FOOTCANDLES
 Multiple Units (Square Array, 60' x 60' room)

Ceiling 80%, Wall 50%, Floor 20%

| Spacing | RCR1 | RCR4 | RCR8 |
|---------|------|------|------|
| 4' | 19 | 17 | 15 |
| 5' | 12 | 11 | 10 |
| 6' | 8 | 7 | 7 |
| 7' | 7 | 6 | 5 |
| 8' | 5 | 5 | 4 |
| 9' | 4 | 4 | 3 |
| 10' | 3 | 3 | 2 |

INITIAL FOOTCANDLES
 One Unit, 5W, 38.3° Beam

| Distance to Illuminated Plane (Feet) | Footcandles Beam Center | Beam Diameter |
|--------------------------------------|-------------------------|---------------|
| 4 | 34.1 | 2.8' |
| 6 | 15.1 | 4.2' |
| 8 | 8.5 | 5.6' |
| 10 | 5.5 | 6.9' |

LUMINANCE (Average cd/m²)

| Degrees | Average 0° Luminance |
|---------|----------------------|
| 45 | 26205 |
| 55 | 13917 |
| 65 | 10455 |
| 75 | 9364 |
| 85 | 4902 |

ZONAL LUMEN SUMMARY

| Zone | Lumens | %Lamp | %Fixture |
|---------|--------|-------|----------|
| 0 - 30° | 221 | N/A | 81.2 |
| 0 - 40° | 251 | N/A | 91.9 |
| 0 - 60° | 267 | N/A | 98.0 |
| 0 - 90° | 273 | N/A | 100.0 |

Fixtures tested to IES recommended standard for solid state lighting per LM-79-08. Photometric performance on a single unit at 12VAC in a 25°C ambient represents a baseline of performance for the fixture. Results may vary in the field and when multiple fixtures are used in a system.

WC FIXTURES + ACCESSORIES

1953 WIND

BUFFALO, USA

ISSUED DATE : 2020.03.20

1953 WIND BUFFALO | WC FIXTURES /ACCESSORIES SPECIFICATION

ISSUED FOR TENDER

ISSUED DATE : 2020.03.20

| CODE | DESCRIPTION | PRODUCT CODE | FINISH | MANUFACTURER | REMARKS | PROVIDE CUT SHEETS FOR APPROVAL |
|------|--------------------------------------|---|-----------------|------------------|---------|---------------------------------|
| W01 | FLOOR MOUNTED TOILET | MS626124CEF(G) | 01 COTTON | TOTO | - | √ |
| W02 | WALL MOUNTED UNIRNAL | UT105U(V)(G) | 01 COTTON | TOTO | - | √ |
| W03 | VESSEL SINK | RECTANGLE VESSEL WITHOUT FAUCET DECK / K-5373 | WHITE | KOHLER | - | √ |
| W04 | MATTE BLACK ROUND VESSEL SINK FAUCET | L 10 L XL US NL | MATTE BLACK | REMER BY NAMEEKS | - | √ |
| W05 | SOAP DISPENSER | TBD | | | - | √ |
| W06 | PAPER TOWEL DISPENSER | TBD | | | - | √ |
| W07 | TRASH BIN | TBD | | | - | √ |
| W08 | GRAB BAR | GRABBAR CONFIG | - | ASI | - | √ |
| W09 | TOILET PAPER HOLDER | 04-32548BLK | - | TAYMOR | - | √ |
| W10 | BABY CHANGING STATION | 200-EH-02 | BLACK | FOUNDATIONS | - | √ |
| W11 | ACCUPIED INDICATOR | B500 Series w/ B571;61-509 | 622 matte black | FOUNDATIONS | - | √ |
| | | | | | | |
| | | | | | | |
| | | | | | | |

TOTO®**MS626124CEF(G)****Aimes® One-Piece High-Efficiency Toilet, 1.28 GPF****FEATURES**

- Tornado Flush® system, high-efficiency (1.28 GPF/4.8 LPF)
- CeFiONtect® ceramic glaze prevents debris and mold from sticking to ceramic surfaces
- Specially designed to accommodate a WASHLET®+
- Skirted design
- Universal Height
- Elongated front bowl and seat
- 12" Rough-in
- Chrome plated trip lever

MODELS

- **MS626124CEFG** (#01, #03, #11, #12)
With CeFiONtect ceramic glaze & includes seat SS124
- **MS626124CEF** (#51)
Without CeFiONtect ceramic glaze & includes seat SS124

OPTIONAL COMPONENTS

- **SS234**
SoftClose Seat
- **TSU03W.10R**
10" Unifit Rough-In
- **TSU03W.10R**
14" Unifit Rough-In

COLORS/FINISHES

- | | |
|----------------------|----------------------|
| • #01 Cotton | Made to Order |
| • #12 Sedona Beige | |
| • #03 Bone | |
| • #11 Colonial White | |
| • #51 Ebony | (Without CeFiONtect) |

PRODUCT SPECIFICATION

The one-piece high-efficiency Tornado Flush system toilet shall be 1.28 GPF/4.8 LPF. Toilet shall be 12" Unifit rough-in. Toilet shall have optional CeFiONtect ceramic glaze and be at Universal Height. Toilet shall have elongated front bowl with SoftClose seat and Polished Chrome trip lever. Toilet shall be TOTO Model MS626124CEF ____.

**Tornado Flush****Skirted Design****CeFiONtect****CODES/STANDARDS**

- Meets or exceeds ASME A112.19.2/CSA B45.1
- Certifications: IAPMO(cUPC), EPA Watersense, State of Massachusetts, City of Los Angeles, and others
- Code compliance: UPC, IPC, NSPC, NPC Canada, and others
- Legislative Compliance: California AB715, California Green Building Code, City of Los Angeles Water Efficiency Ordinance
- ADA compliant (when installed with trip lever located on the approach side)



MS626124CEF(G)

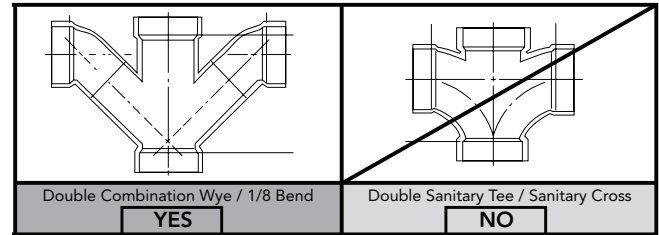
Aimes® One-Piece High-Efficiency Toilet, 1.28 GPF

SPECIFICATIONS

| | |
|----------------------------|---|
| Water Use | 1.28 GPF (4.8 LPF) |
| Flush System | Tornado Flush® |
| Min. Water Pressure | 8 psi (Flowing) |
| Water Surface | 7-3/4" x 9-3/8" |
| Trap Diameter | 2-1/8" |
| Rough-in | 12" (10" & 14" Optional) |
| Trap Seal | 2-1/8" |
| Warranty | One Year Limited Warranty |
| Material | Vitreous China |
| Shipping Weight | 119 lbs |
| Shipping Dimensions | 32" L x 20" W x 17-3/4" H ¹ x 28-3/4" H ² |

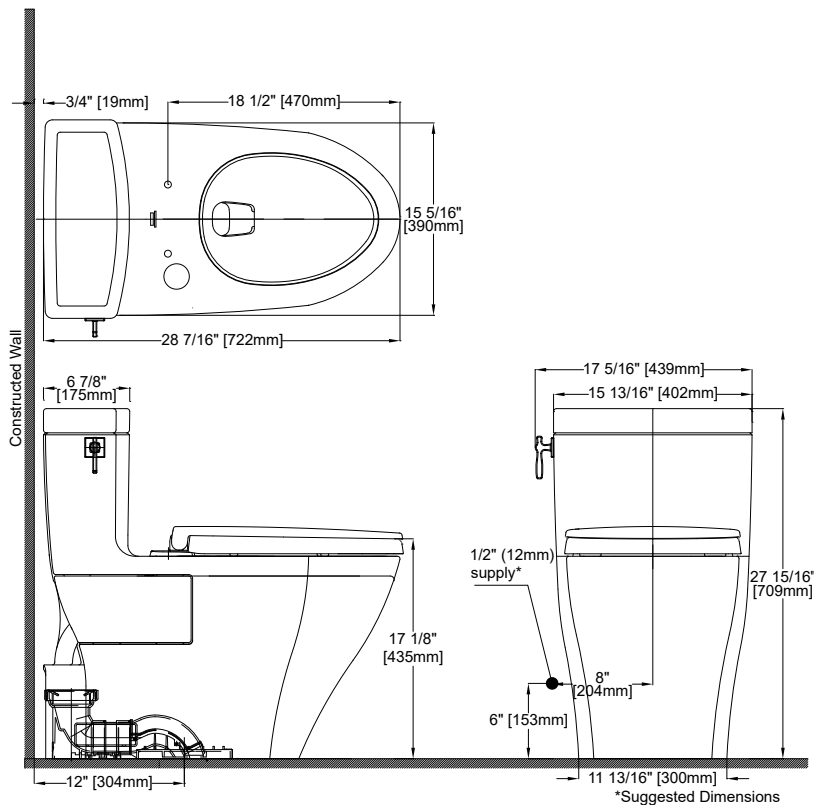
INSTALLATION NOTES

Back-to-Back Toilet Installations:
 TOTO recommends the use of a nationally listed, double sanitary tee-wye only, in vertical waste stacks, in accordance with the stipulations noted in the majority of nationally recognized plumbing codes.



To maintain adequate wall gap between the back of the tank and wall, mount the floor flange at a nominal 12" rough-in distance.

DIMENSIONS



TOTO®

These dimensions and specifications are subject to change without notice

0.125GPF High-Efficiency Washout Urinal

FEATURES

- Compact urinal with concealed integral trap
- Washout flush action with 3/4" top or back spud inlet
- Complete with low profile dome strainer
- Optional CeFiONtect™ ceramic glaze - CeFiONtect glaze prevents debris and mold from sticking to ceramic surfaces, leading to fewer chemicals.

MODELS

- UT105U
Urinal with 3/4" top spud inlet
- UT105UG
Urinal with 3/4" top spud inlet and CeFiONtect
- UT105UV
Urinal with 3/4" back spud inlet
- UT105UVG
Urinal with 3/4" back spud inlet and CeFiONtect

ADDITIONAL ITEMS

- THU3017
Stainless Steel Urinal Drain Cover

| FLUSH VALVES EcoPower® | |
|---------------------------|----------|
| TEU1UA12#CP | 0.125GPF |
| TEU2UA11#SS | 0.125GPF |
| TEU3UA11#SS | 0.125GPF |

COLORS/FINISHES

- #01 Cotton (CeFiONtect optional)

PRODUCT SPECIFICATION

The wall-mounted, ADA compliant, high-efficiency washout urinal shall be 0.125GPF/0.47LPF when paired with a 0.125GPF flushometer valve. Urinal shall have optional CeFiONtect ceramic glaze. Urinal specified shall be model UT105U__.



 **CeFiONtect**

 **Dual-Max**

CODES/STANDARDS

- Meets and exceeds ASME A112.19.2/CSA B45.1,
- Certifications: IAPMO(cUPC), State of Massachusetts, City of Los Angeles
- Code compliance: UPC, IPC, NSPC, NPC Canada, and others
- Legislative Compliance: California AB715, CALGreen Title 24, California Energy Commission Standards
- ADA compliant



UT105U(V)(G)

0.125GPF High-Efficiency Washout Urinal

SPECIFICATIONS

| | |
|------------------------|---|
| • Water Use | 0.125GPF/0.47LPF |
| • Flush System | Washout flush action |
| • Warranty | One Year Limited Warranty |
| • Material | Vitreous china |
| • Min. Water Pressure | 15 psi (flowing) |
| • Height (Urinal Only) | 21-3/4" |
| • Width | 12-1/4" |
| • Rim | 14" |
| • Shipping Weight | UT105U(V)(G) - 37.5lbs |
| • Shipping Dimensions | UT105U(V)(G) 24" L x 13-3/4" W x 17" H |

INSTALLATION NOTES

Install this product according to the installation guide.

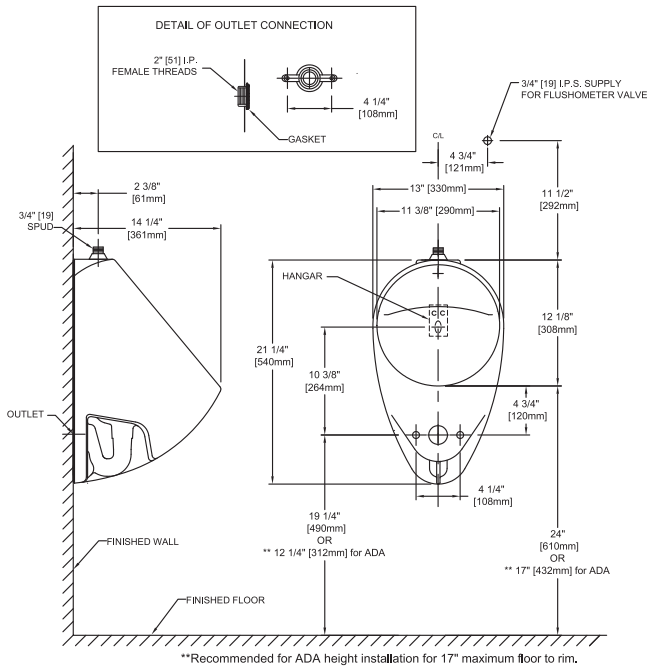
Refer to manufacturer's instructions and local codes for flushometer requirements.

Will comply with ADA when installed per Section 605 - Urinals of the ADA 2010 Accessible Design Standard with maximum rim height of 17" and minimum depth of 13-1/2".

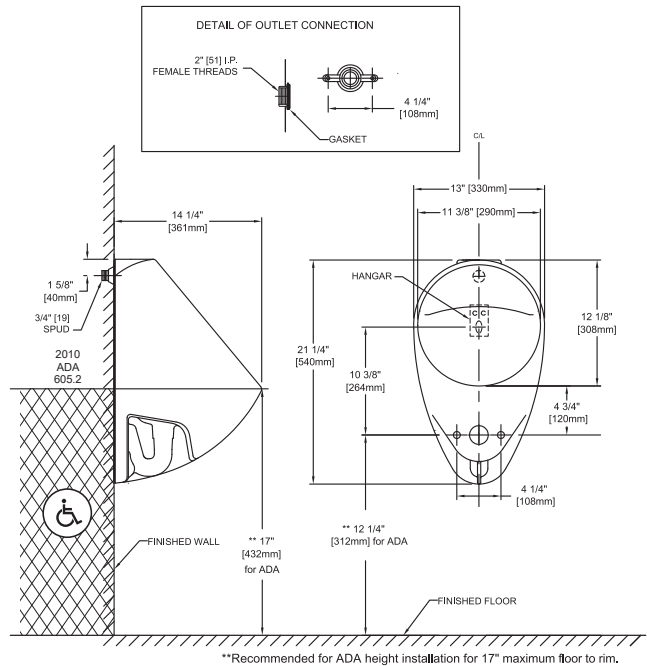
Will comply with CSA B651 when installed per Clause 6.2.8 Urinals of the CSA 2012 Accessible Design Standard with maximum rim height of 17" and minimum depth of 13-1/2".

Ultra-low high efficiency urinals require a system with a minimum 2% slope. Maximum drainage capacity rated at 6.6 gal/min (25 L/min). Adjust angle stop accordingly to prevent overflow. Confirm with local codes and standards for floor drain requirement.

Top Spud Installation



Back Spud Installation



KOHLER®

Vox® Rectangle

Rectangle Vessel Without Faucet Deck
K-5373

Features

- No faucet holes; requires wall- or counter-mount faucet.
- Overflow drain with included 1105685 Polished Chrome cap.

Material

- Vitreous china.

Installation

- Drop-in or vessel.



ADA

CSA B651

Codes/Standards

ASME A112.19.2/CSA B45.1
ADA
ICC/ANSI A117.1
CSA B651

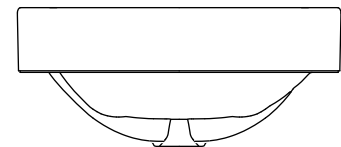
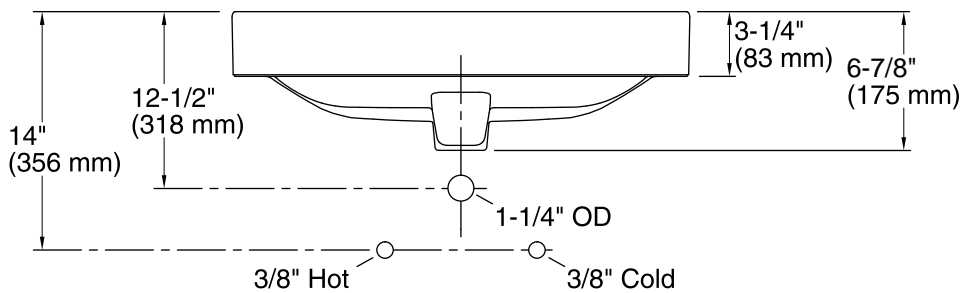
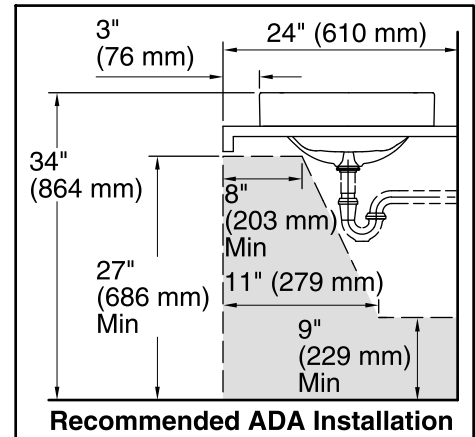
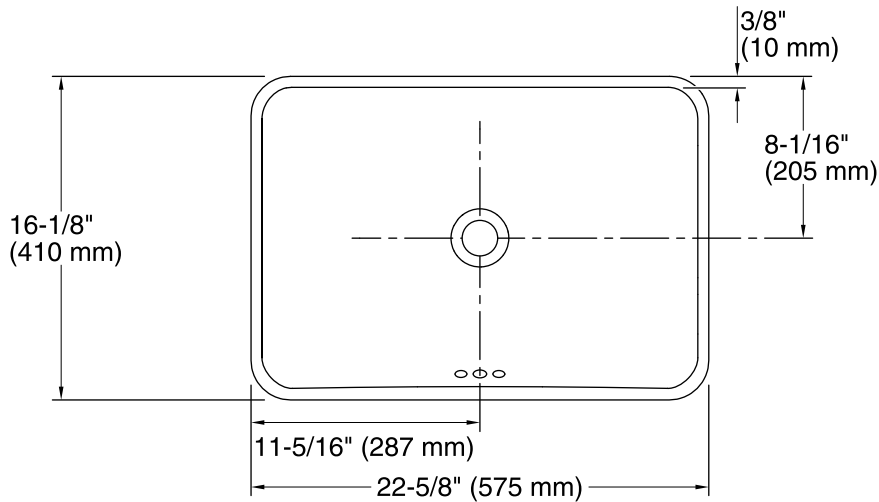
KOHLER® One-Year Limited Warranty

See website for detailed warranty information.

Available Colors/Finishes

Color tiles intended for reference only.

| Color | Code | Description |
|--|------|-------------|
|  | 0 | White |



Technical Information

All product dimensions are nominal.

- Bowl configuration: Single
- Installation: Vessel
- Bowl area (Only):
 - Length: 21-7/8" (556 mm)
 - Width: 15-3/8" (391 mm)
 - Bowl depth: 5" (127 mm)
 - Water depth: 3-1/4" (83 mm)
- Template: 1245920-7, required, included

Notes

Install this product according to the installation instructions.

NOTICE: Countertop manufacturer or cutter must use the cut-out template provided with the product, or a current one provided by Kohler Co. (call 1-800-4-KOHLER). Kohler Co. is not responsible for cutout errors when the incorrect cut-out template is used.

ADA, CSA B651 compliant when installed to the specific requirements of these regulations.



What are you shopping for?



MY CART (0)

Accessories

Sinks

Vanities

Showers

Faucets

Mirrors

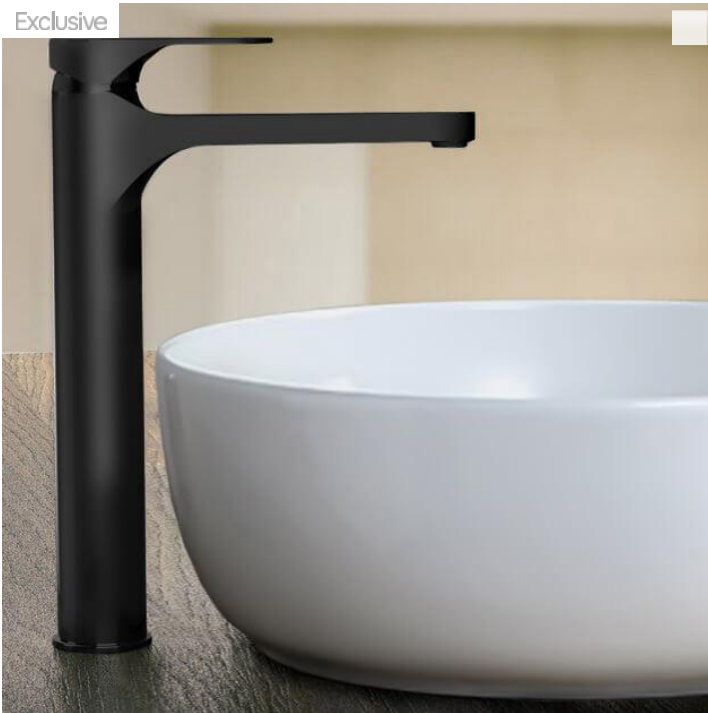
Toilets

Sale

Back | Bathroom Fixtures / Faucets / SKU: Remer L10LXLUSNL-NO

Matte Black Round Vessel Sink Faucet

Exclusive



\$641.00

List Price: ~~\$915.00~~

FREE Shipping!

Usually ships in 7 days.

(30-day [Return Policy](#))

Save \$15 on orders over \$300 with coupon **SAVE2020** Exclusions Apply

Color: **Matte Black**



Quantity:

Add to Cart

[Save to wish list](#)



Customers Also Bought



Click Clack Pop-up Waste Without...

\$102.00

[Add to Cart](#)



Durable Round Brass Sink P-Trap in Matte...

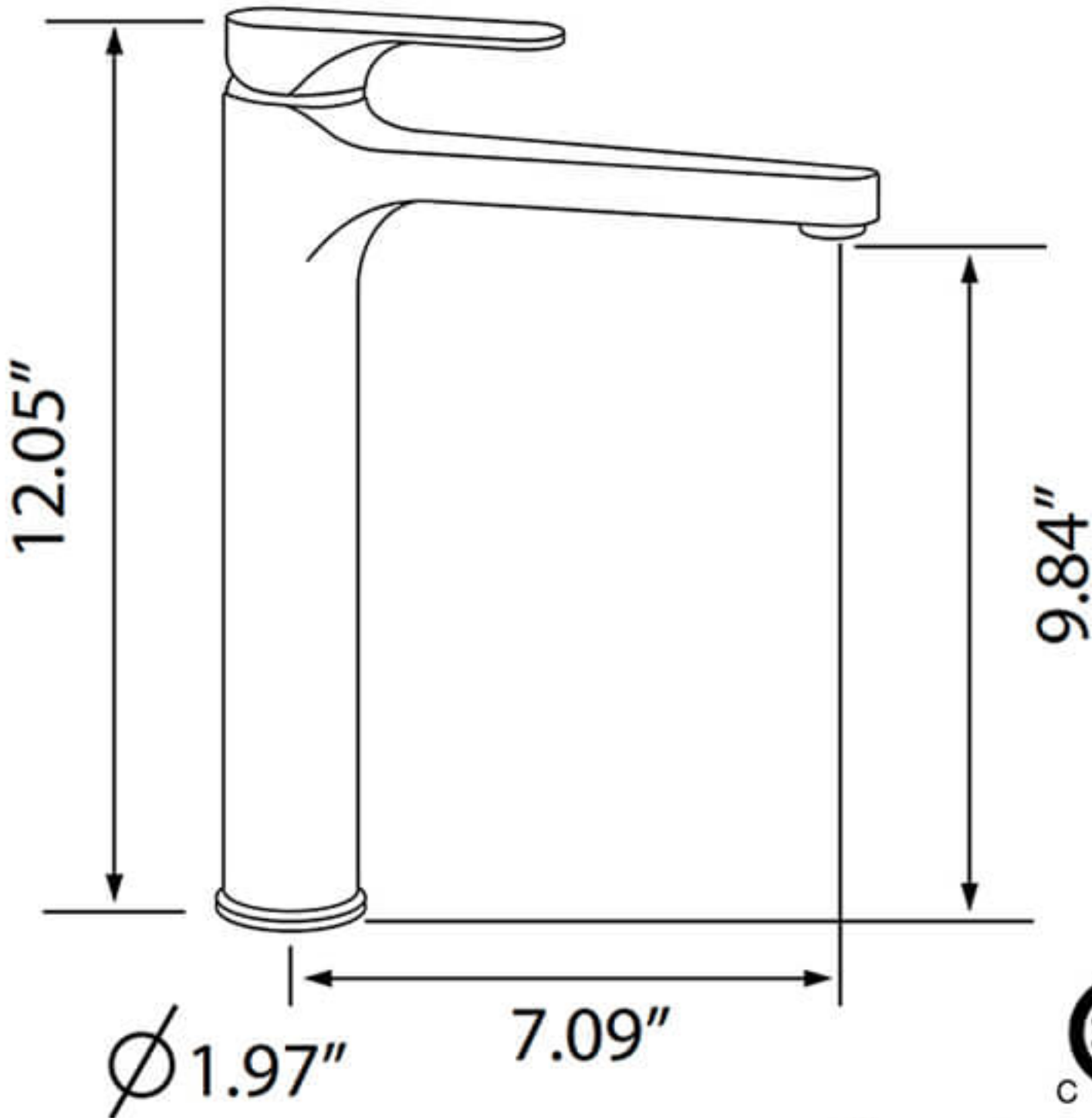
\$175.00

[Add to Cart](#)

3



L 10 L XL US NL



Flow rate: 1.2 gpm



Matte Black Pair Of
Angle Valves With...

\$196.00

Add to Cart

[Overview](#)

[Specifications](#)

[More Info](#)

[Reviews](#)

[Q/A's](#)

[Brand](#)

Overview

Only at TheBathOutlet

Description

The Remer Class Line matte black vessel sink faucet is a perfect addition to your bathroom sink. Constructed out of high-quality brass in a matte black finish, this single hole bathroom faucet features a modern sleek lever handle and has an overall height of 12 inches, spout height of 9.8 inches and a spout reach of 7 inches. This faucet is CSA approved and certified to NSF/ANSI 372 "lead free" plumbing products as defined by California, Vermont, Maryland and Louisiana state law and by section 1417 of US Safe Drinking Water Act.

Product Details

- Round vessel sink faucet
- Single hole installation
- Made from high quality brass
- Matte black finish
- Perfect for modern bathrooms
- Ceramic disc technology cartridge
- 1.2 GPM flow rate
- Meets standards set by ADA
- Made in Italy by Remer
- Part of the Class Line collection

Certifications & Listings

- CSA Certified
- US Standards Approved
- NSF/ANSI 372-2016 Standards
- ASME A112.18.1-2018/CSA B125.1-18

Technical Specifications

Download:


[Technical Specifications Picture](#)

Spout Reach:





 7.1 Inches

Spout Height:

 9.84 Inches

| | |
|-----------------|--|
| Overall Height: |  12.05 Inches |
| Weight: | 4.9 Lbs |

Features

| | |
|------------------------|--|
| Installation: | Single Hole |
| Material: | Brass |
| Style: | Modern |
| Finish: | Matte Black |
| Application: | Bathroom Sink |
| Water Flow Rate: | 1.2 GPM |
| Faucet Holes: |  1 Hole |
| Shape: | Round |
| Number of Handles: |  1 Handle |
| Handle Style: |  Lever |
| Type: |  Sink Faucets |
| Cartridge Type: | Ceramic |
| Pop-Up Drain Included: | No |
| Handle Included: | Yes |
| CA Drought Compliant: | Yes |
| Low Lead Compliant: | Yes |
| CSA Approved: | Yes |
| Hose Included: | Yes |
| ADA Compliant: | Yes |

More Information

| | |
|---------------------|---|
| Product Name: | Matte Black Round Vessel Sink Faucet |
| SKU: | Remer L10LXLUSNL-NO |
| Type: | Bathroom Faucets |
| Collection Name: | Class Line |
| Brand Name: | Remer by Nameeks |
| Country of Origin: | Italy |
| Categories: | Bathroom Fixtures > Faucets |
| California Prop 65: | Yes |

Availability & Shipping



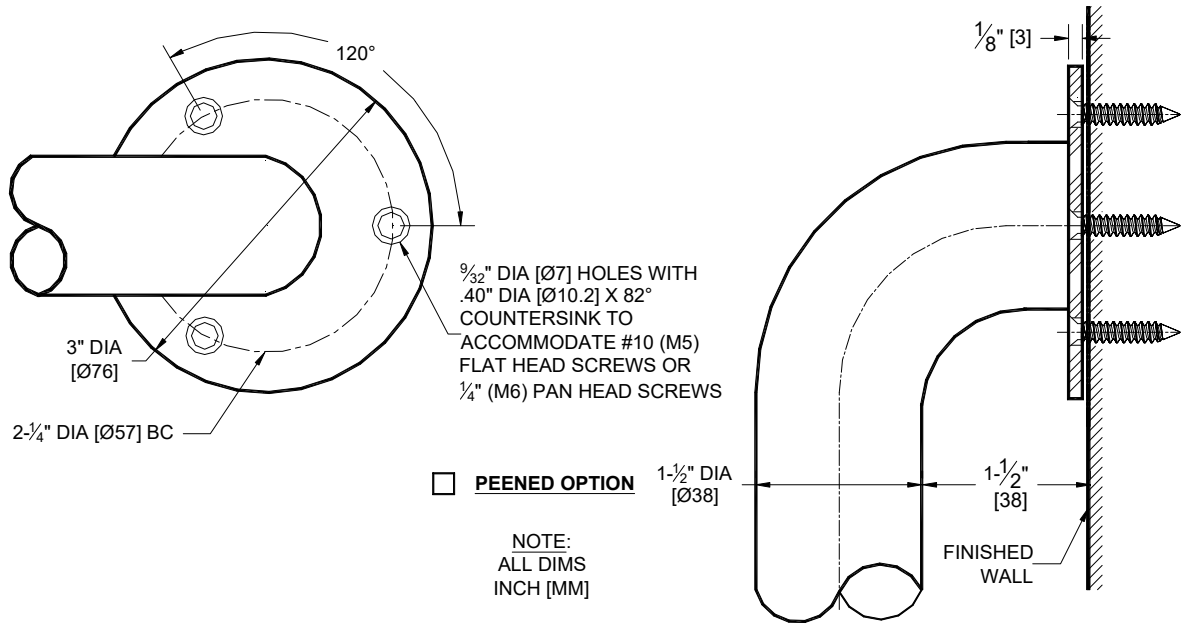
AMERICAN SPECIALTIES, INC.
 441 Saw Mill River Road, NY 10701
 (914) 476.9000 • (914) 476.0688
 www.americanspecialties.com

MODEL №: 3500

ISSUED: 01/87

REVISED: 09 Nov 2012

1-1/2" DIA (Ø38) GRAB BAR SERIES WITH FLANGES FOR EXPOSED MOUNTING



SPECIFICATION

Grab Bar with Flanges for Exposed Mounting shall be type 304 stainless steel alloy 18-8. Tubing shall be 1-1/2" diameter (Ø38) x 18 gauge [0.048"] (1.2). Flange shall be 11 gauge 1/8" (3) thick and shall be Heliarc welded to tubing with a continuous concealed bead. Flanges shall have three (3) countersunk 9/32" diameter (Ø7) holes to accommodate 1/4" [Ø6] pan head or № 10 self-tapping flat head or oval head mounting screws (not provided). All exposed surfaces shall have a satin finish and shall be protected during shipment with a plastic bag. For optional non-slip surface add suffix -P (peened).

1-1/2" Diameter (Ø38) Grab bar with Flanges for Exposed Mounting shall be Series № 3500 of American Specialties, Inc., 441 Saw Mill River Road, Yonkers, New York 10701- 4913

STRENGTH

ASI Grab Bars are designed to meet and exceed ADA requirements as published in CABO/ANSI A117.1 and 2010 ADA Accessibility Standards. Mounting to the wall is a critical part of the system to meet this requirement. To withstand the shear, tension or pullout, and torsion loads generated by the maximum loading, the fastener system must be adequately sized.

INSTALLATION

Use grab bar as template to mark mounting holes locations and pre-drill holes. Install bar using three (3) № 10 self-tapping flat head or oval head screws (by others) or other fastener system (by others) to suit conditions for each flange. Appropriate anchoring and backing must be provided in accordance with local building codes or as specified on Architects Plans prior to wall finishing. For compliance with 2010 ADA Accessibility Standards install unit so that the top of the grab bar is 33" (840) minimum above finished floor (AFF) to 36" (915) maximum AFF. Anchors are available from ASI and must be specified separately for each grab bar style scheduled (see 3900 series).



AMERICAN SPECIALTIES, INC.
 441 Saw Mill River Road, NY 10701
 (914) 476.9000 • (914) 476.0688
 www.americanspecialties.com

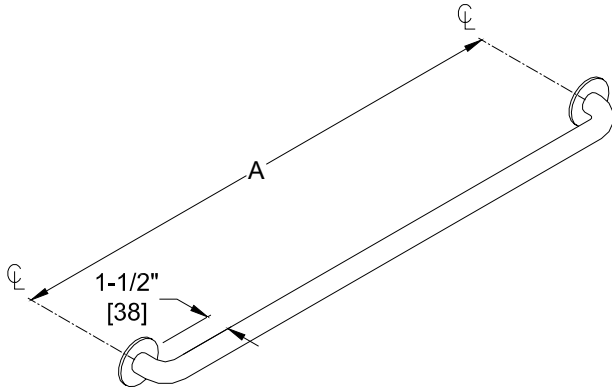
MODEL No: GRABBAR CONFIG

ISSUED: 09/96

REVISED: 23 FEB 2015

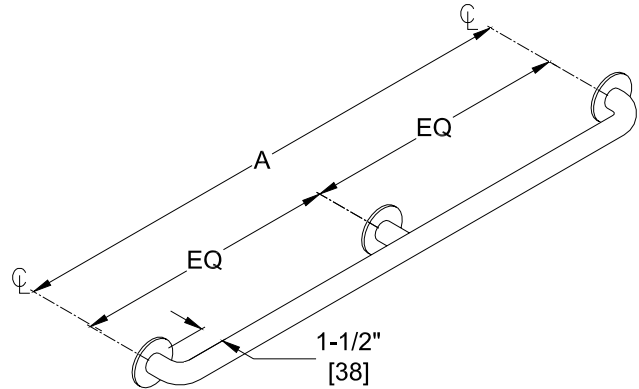
GRAB BAR CONFIGURATIONS (PG 1 OF 3)

TYPE -01



| SCHEDULE | | | |
|----------|-----------|------|------------|
| QTY. | DIM. A | QTY. | DIM. A |
| | 12" [305] | | 36" [914] |
| | 18" [457] | | 42" [1067] |
| | 24" [610] | | 48" [1219] |
| | 30" [762] | | |

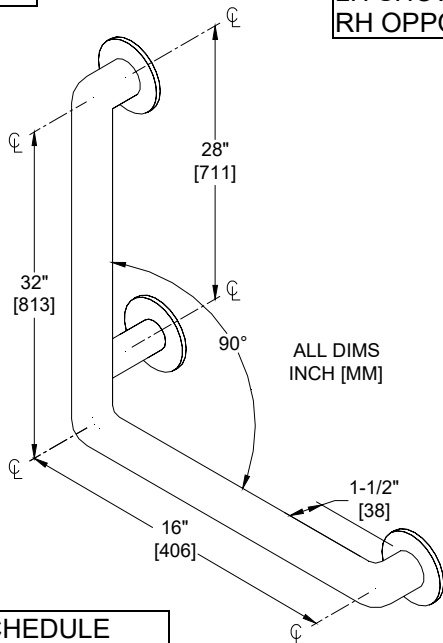
TYPE -02



| SCHEDULE | |
|----------|------------|
| QTY. | DIM. A |
| | 52" [1321] |
| | 54" [1372] |
| | 60" [1524] |
| | 72" [1829] |

TYPE -04

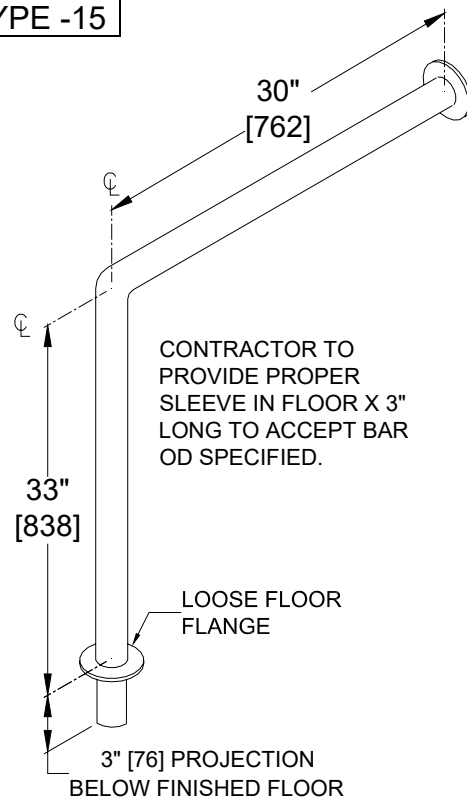
LH SHOWN
RH OPPOSITE



| SCHEDULE | |
|----------|------|
| QTY. | HAND |
| | LH |
| | RH |

MODEL No MUST SPECIFY
-LH OR -RH

TYPE -15



FEATURES

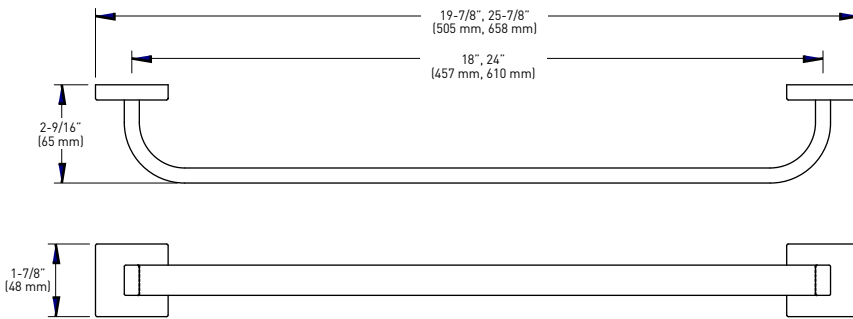
- › INCLUDES SOLID ZINC DIE CAST MOUNTING PLATES: 1-5/8" x 1-5/8" [40 mm x 40 mm]; NYLON ANCHORS AND STEEL PHILLIPS HEAD SCREWS: #8 x 1-1/4" [32 mm]
- › SOLID ZINC DIE-CAST CONSTRUCTION (POSTS)



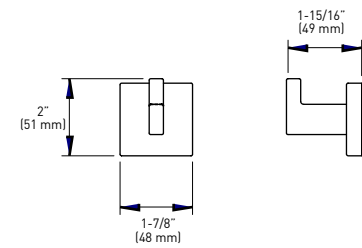
LIMITED LIFETIME WARRANTY



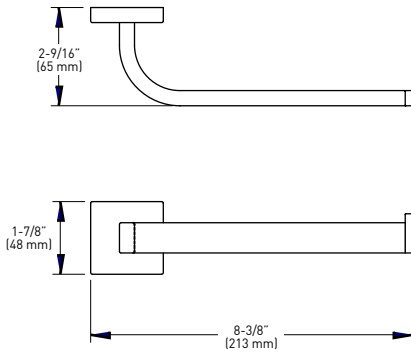
TOWEL BAR



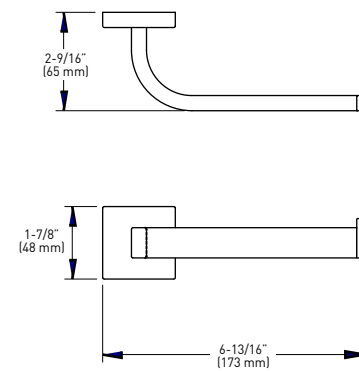
ROBE HOOK



HAND TOWEL BAR



PAPER HOLDER



| BUILDER PACK | MATTE BLACK 19 | POLISHED CHROME 26 | MATERIAL | CASE QTY |
|----------------|----------------|--------------------|----------------------|----------|
| 18" TOWEL BAR | 04-32518BLK | 04-32518 | ZINC/STAINLESS STEEL | 10 |
| 24" TOWEL BAR | 04-32524BLK | 04-32524 | ZINC/STAINLESS STEEL | 10 |
| ROBE HOOK | 04-32501BLK | 04-32501 | ZINC/STAINLESS STEEL | 10 |
| HAND TOWEL BAR | 04-32510BLK | 04-32510 | ZINC/STAINLESS STEEL | 10 |
| PAPER HOLDER | 04-32548BLK | 04-32548 | ZINC/STAINLESS STEEL | 10 |

MEASUREMENTS SUBJECT TO A 3% VARIANCE

MEASUREMENTS ARE FOR REFERENCE ONLY. TAYMOR RESERVES THE RIGHT TO CHANGE THE PRODUCT SPECS WITHOUT NOTICE. FOR PRODUCT WARRANTY, PLEASE VISIT TAYMOR WEBSITE FOR DETAILS





ULTRA[®]

THE ULTIMATE CHANGING STATION[™]

AVAILABLE IN 5 STYLISH COLORS



Stainless & Gray
200-EH-01



Stainless & Black
200-EH-02



Stainless & White Granite
200-EH-03



Black & Metallic
200-EH-04



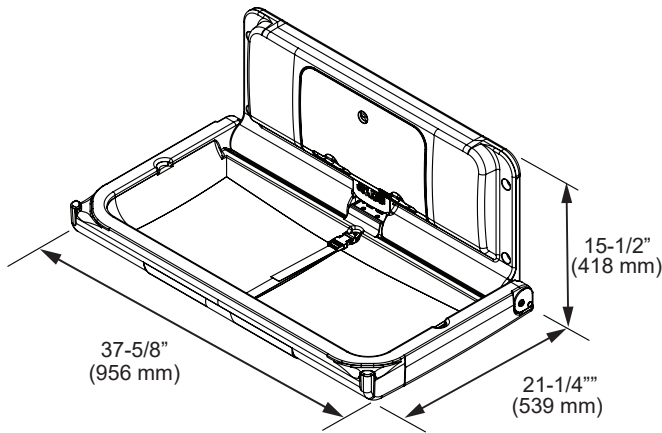
Stainless & Classic Cream
200-EH-08



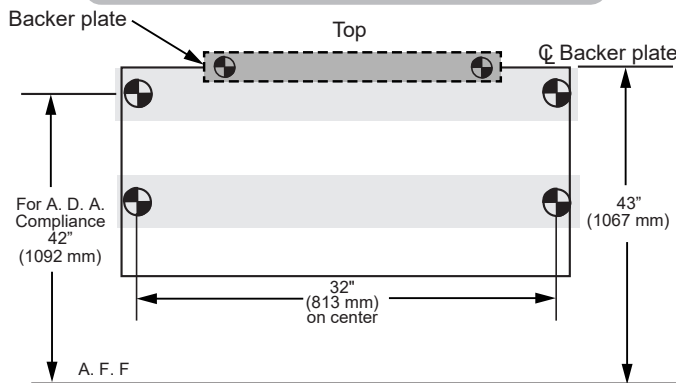
BABY CHANGERS MADE BY BABY EXPERTS.™

Submittal Sheet

Model 200-EH Horizontal Diaper Changing Station



Recommended Blocking



Short Specifications

Polyethylene Diaper Changing Stations:

1. Acceptable product: Foundations Worldwide, Inc.; Model 200-EH.
2. Characteristics:
 - a. Type: Molded FDA approved high-density polyethylene (HDPE) body.
 - b. Smooth nylon belt with Thermoplastic Polyurethane coating. Easy to sanitize and adjustable.
 - c. Warning labels printed in English, Spanish and French.
 - d. Meets ASTM F2285 requirements for weight bearing Commercial Changing Stations.
3. A.D.A. Compliance:

| | |
|-------|----------------------------|
| 306.3 | Knee Clearance |
| 307.2 | Maximum Protruding Objects |
| 308.2 | Forward Reach |
| 308.3 | Side Reach |
| 309.4 | Operation |
| 902.3 | Work Surface |

Compliant when properly installed.
4. ANSI compliant safety labels.
5. CPSIA compliant to applicable sections.
6. Meets or exceeds all requirements outlined by BS EN 12221:2008+A1:2013



- Easy to clean, high-density polyethylene which is naturally bacteria resistant.
- Standard with molded-in, key lockable dual liner dispensers.
- Each liner dispenser holds approximately 50 of the 036-LCR or 036-NWL liners.
- Smooth nylon belt with Thermoplastic Polyurethane coating. Easy to sanitize and adjustable.
- Convenient bag hooks on both sides.
- Easy to read ANSI compliant labels (ANSI Z535.3 and ANSI Z535.4), utilizing universal safety symbols.
- Compact, slim profile meets A.D.A when properly installed. Only protrudes 4 inches or 102 mm from wall.
- Includes universal changing station door sign.
- Pneumatic gas shock mechanism to ensure smooth, safe open and close motions.
- Steel-to-steel support hinges.
- Includes easy to install, step-by-step instructions plus all mounting hardware.
- ASTM G21 Anti-Bacterial: No measurable bacterial growth.
- Meets or exceeds ASTM F2285 Safety Specifications for Commercial Changing Stations.
- Standard pack: 1 unit.
- Limited Warranty: This product is warranted against manufacturing defects for a period of 5 years.
- Includes EZ mount backer plate which allows for mounting anywhere regardless of stud locations.
- Can be installed on any building code approved load bearing wall.

Installation Information

- Closed unit projects less than 4 inches (101 mm) from wall.
- Open changing surface projects 20-1/4 inches (539 mm) from wall during use.
- Overall closed dimensions are 37-5/8 inches (956 mm) wide and 15-1/2 inches (418 mm) tall.
- Hardware allows for mounting to current or new construction applications.

A close-up photograph of a Schlage B500 Series deadbolt and lever handle installed on a dark wood door. The deadbolt is at the top, and the lever handle is at the bottom. Both are finished in a brushed metal, likely 626 satin chrome. The background on the right side of the page is a blurred indoor scene with people sitting at tables, suggesting a restaurant or cafe setting.

B500 Series

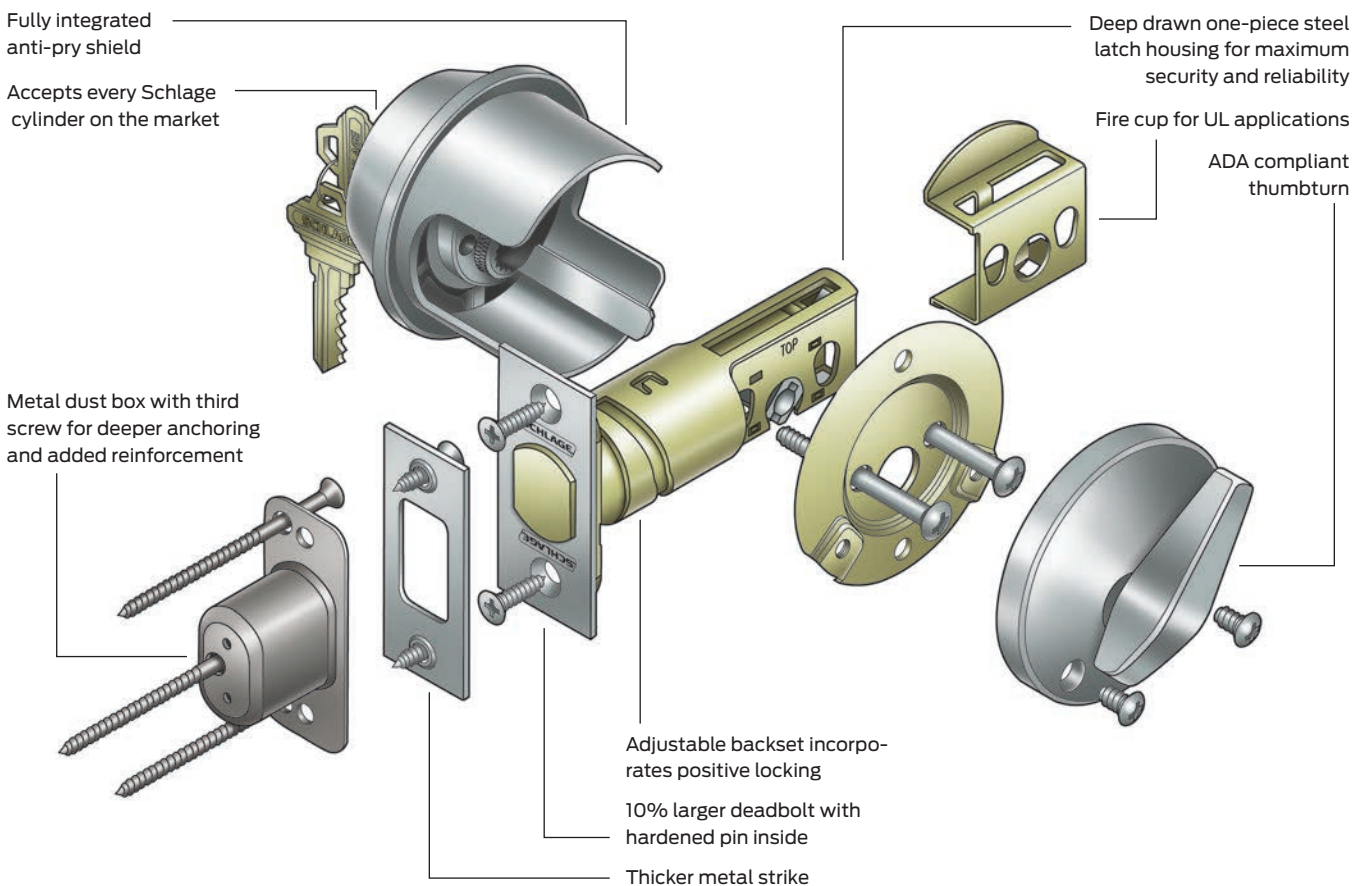
The B500 Series deadbolt is a revolutionary new deadbolt that delivers higher security, tougher performance and the ultimate in installation versatility.

Designed by locksmiths for locksmiths, the B500 Series deadbolt can be fitted with any Schlage cylinder, fits virtually every door you service, enhances lock strength on the jamb side of the door and will change forever the way you look at deadbolts.

Pictured here: B500 (Grade 2) deadbolt with ND Series Athens lever shown in 626 satin chrome

The best deadbolt ever designed by locksmiths

- Adjustable backset with lock-in-place helix design
- Integrated anti-pry shield protects latch
- Thicker metal security strike back-up on jamb side
- Security strike on jamb has third screw for stronger, deeper anchoring
- Added space inside strike box for true deadlatch
- Seamless steel latch construction along the entire length of the bolt housing
- 10% larger diameter deadbolt
- Zinc bolt with spinning hardened steel pin inside
- Tapered front housing that can't be unscrewed
- Integrated trim piece for fewer pieces out of the box
- Large, easy-to-use, ADA compliant thumbturn
- Meets UL 10B and UL 10C requirements



Deadbolt designs

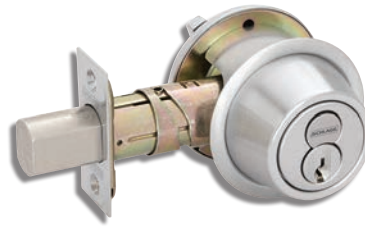
B500 Series

A versatile and economical Grade 2 deadbolt for medium duty commercial and heavy duty residential applications.

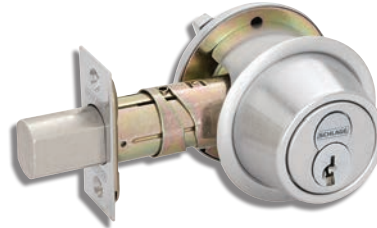
Furnished with conventional cylinder standard.

Available with Primus XP high security cylinder, Primus XP UL437 Listed high security cylinder, full size interchangeable core cylinder, Primus XP interchangeable core cylinder, or small format interchangeable core (SFIC) cylinder.

Fits 2 1/8" (54 mm) prep standard and anti-pry shield can be removed to fit 1 1/2" (38 mm) prep. See function charts for required cross bore dimensions.



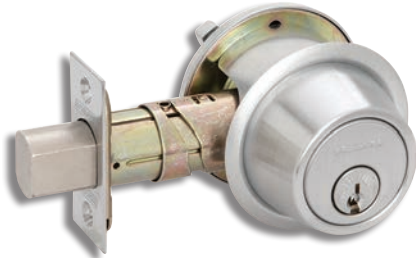
Full size interchangeable core



Small format interchangeable core



Thumbturn for B500














Design shown in 626 satin chrome plated



B500 Series with occupied indicator (B571); 61-509 Emergency key included

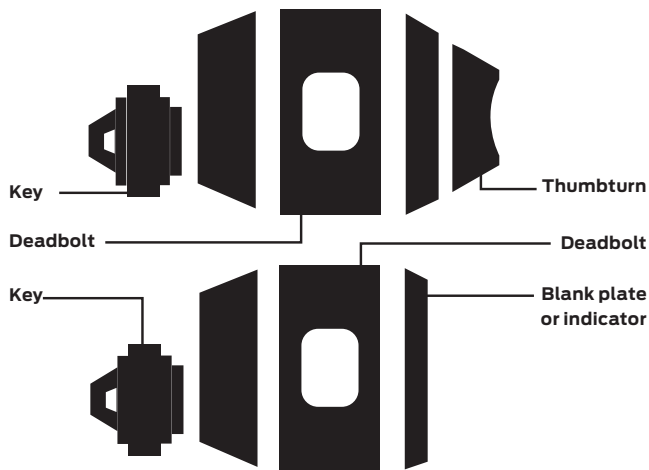
Deadbolt finishes





| |  |  |  |  |  |  |  |  |  |  |  |
|----------------|---|---|---|---|---|---|--|---|---|---|---|
| Product | | | | | | | | | | | |
| B500 | • | • | • | • | • | • | • | • | • | • | • |

e = an equivalent finish to the BHMA standard.

Deadbolt functions

ANSI A156.36 bored deadbolt locks



-  Standard cylinder.
-  FSIC - full size interchangeable core option.
-  SFIC - small format interchangeable core option.
-  Complies with ADA Accessibility Guidelines.

***Caution:**

Double cylinder locks on any door are a life safety hazard in times of emergency and their use is not recommended. Installation should be in accordance with existing codes only.

ADA compliant:

Schlage Lock Company offers a wide selection of locks designed to meet the Americans with Disabilities Act.

| | |
|---|--------------|
| Schlage | ANSI |
| B560P | E0152 |
| Single cylinder deadbolt | |
| <ul style="list-style-type: none"> ▪ Deadbolt thrown or retracted by key outside or thumbturn inside | |

Outside Inside



| | |
|---|--------------|
| Schlage | ANSI |
| B561 | E0162 |
| Cylinder only x blank plate deadbolt | |
| <ul style="list-style-type: none"> ▪ Deadbolt thrown or retracted by key outside ▪ Blank plate with exposed screws inside | |

Outside Inside



| | |
|---|--------------|
| Schlage | ANSI |
| B562P* | E0142 |
| Double cylinder deadbolt | |
| <ul style="list-style-type: none"> ▪ Deadbolt thrown or retracted by key either side ▪ Not UL rated | |

Outside Inside



| | |
|--|--------------|
| Schlage | ANSI |
| B563 | E0172 |
| Classroom deadbolt | |
| <ul style="list-style-type: none"> ▪ Deadbolt thrown or retracted by key outside ▪ Inside units retracts bolt only | |

Outside Inside



| | |
|---|------|
| Schlage | ANSI |
| B571 | - |
| Door bolt occupancy indicator | |
| <ul style="list-style-type: none"> ▪ Deadbolt thrown or retracted by thumbturn inside ▪ Outside indicator displays "In use" or "Vacant" ▪ Requires 1 1/2" cross bore prep ▪ Not UL rated ▪ 61-509 Emergency key included | |

Outside Inside



| | |
|---|--------------|
| Schlage | ANSI |
| B580 | E0192 |
| Door bolt | |
| <ul style="list-style-type: none"> ▪ Deadbolt thrown or retracted by trim unit only ▪ Requires 1 1/2" cross bore prep | |

Outside Inside



| | |
|--|---------------|
| Schlage | ANSI |
| B581 | E01112 |
| Door bolt with trim | |
| <ul style="list-style-type: none"> ▪ Deadbolt thrown or retracted by trim unit only ▪ Blank plate outside ▪ Requires 1 1/2" cross bore prep | |

Outside Inside



EQUIPMENT

1953 WIND

BUFFALO, USA

ISSUED DATE : 2020.03.20

1953 WIND BUFFALO | EQUIPMENT SPECIFICATION

ISSUED FOR TENDER

ISSUED DATE : 2020.03.20

| CODE | DESCRIPTION | REMARKS |
|------|---|--|
| E01 | FLAT TOP GRILL | |
| E02 | SIX OPEN BURNERS | |
| E03 | FRYER | |
| E04 | WOKS | |
| E05 | STOCK POT(DOUBLE RANGE) | |
| E06 | OVEN | |
| E07 | SALAD PREP COOLER | EQUIPMENT SUPPLIER TO CHECK PLAN AND CONFIRM ON SITE DIMENSIONS FOR CUSTOM UNIT |
| E08 | UNDER COUNTER COOLER | |
| E09 | BAR BACK COOLER | |
| E10 | DIRECT DRAW BEER DISPENSER | |
| E11 | CUSTOM STAINLESS STEEL COCKTAIL UNIT : INTEGRATED SINK W/ FAUCET, ICE BIN, AND POP DISPENSER | EQUIPMENT SUPPLIER TO CHECK PLAN AND CONFIRM ON SITE DIMENSIONS FOR CUSTOM UNIT |
| E12 | DISHWASHER | |
| E13 | CUSTOM S/S TABLE WITH INTEGRATED HAND SINK C/W FAUCET | EQUIPMENT SUPPLIER TO CHECK PLAN AND CONFIRM ON SITE DIMENSIONS FOR CUSTOM UNIT, C/W FAUCET: T&S BRASS AND BRONZE MODEL: B-1141 |
| E14 | CUSTOM STAINLESS STEEL WORK TABLE | EQUIPMENT SUPPLIER TO CHECK PLAN AND CONFIRM ON SITE DIMENSIONS FOR CUSTOM UNIT |
| | | |

* FINAL SPECIFICATION TO BE PROVIDED BY CLIENT.



Item: _____
 Quantity: _____
 Project: _____
 Approval: _____
 Date: _____

Heavy Duty Gas Griddles

Models:

- GTGG24-GT24M GTGG36-GT36M GTGG48-GT48M GTGG60-GT60M GTGG72-GT72M
- GTGG24-G24M GTGG36-G36M GTGG48-G48M GTGG60-G60M GTGG72-G72M



Model GTGG36-GT36M

Standard Features:

- Thermostat-controlled models feature precise control from LOW: 200°F, (90°C) to 550°F, (290°C), and 28,000 BTU/h input per burner, natural or propane. There is an on-off valve for every thermostat.
- Valve-controlled models feature hi-lo valve control with approximate plate temperature range: 320°F, (160°C) to 730°F, (388°C), and 27,000 BTU/h input per burner, natural or propane gas.

- One burner and control (hi-lo or thermostat control) for every 12" linear width of griddle surface.
- Piezo pilot ignition system
- 3/4" NPT gas regulator with "T" gas manifold connection for straight through rear or flush-mount gas connections.
- SS front, sides and back
- 4" SS adjustable legs
- SS front rail; 4" (102mm) deep overall with 3 1/2" (89mm) top work surface
- Models ordered with 4" (102mm) legs come with a deep 1.4 US gallon/5.3 litre capacity grease drawer(s) 20 1/2"(635mm) deep x 2 3/4"(70mm) high x 6"(152mm) wide.
- Models ordered with optional S/S skirt for dais counter surface mounting come with large capacity S/S grease tray(s)
- 1" thick polished steel griddle plate
- 23" depth with 4" wide grease trough.

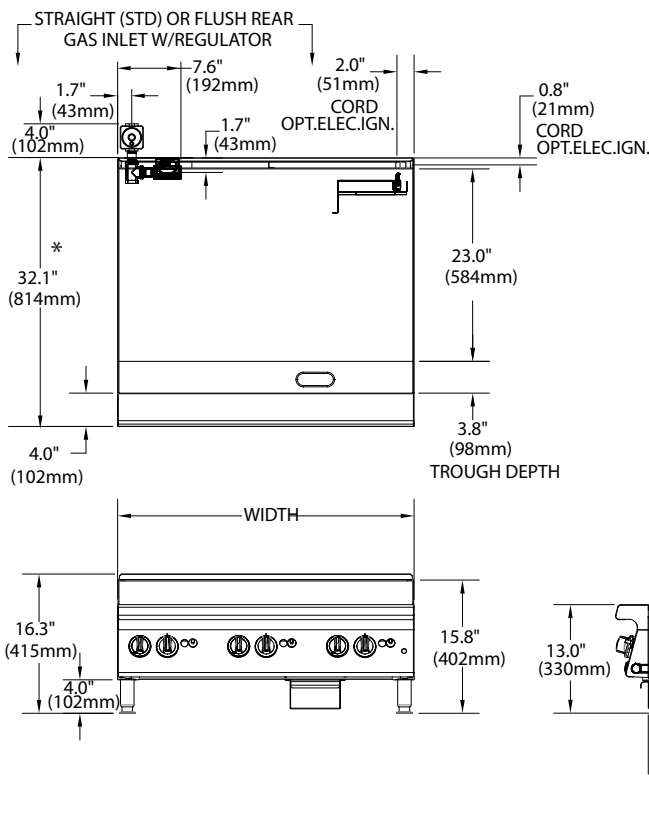
Optional Features:

- Chrome griddle plate
- Full or half-grooved griddle plate
- Stainless steel skirt for dais/counter surface mounting. The stainless steel skirt will reduce overall unit height by 1 3/4" (44.45mm).
- Electric spark ignition; 120V 60 Hz, sgl-phase 1 amp; includes cord and NEMA 5-15P plug.
- Electric spark ignition; 208/240V (50/60Hz) cord and plug is NOT supplied with this voltage option.
- Stainless stand with solid top holding shelves, adjustable feet and casters (locking front).
- Removable stainless steel attachment condiment rail with universal 1/9 or 1/3 food pan cut outs (pans supplied by others)

Specifications

Garland heavy duty gas counter production griddles designed for side-by-side matching with other models in the product line. Models are of nominal imperial widths from 24" (600mm) to 72"(1800mm), 13" (330mm) height, (w/std. legs), and 32" (814mm) depth. There is an even heat "U" shaped steel track burner for every 12" of linear griddle surface width. Each burner is individually controlled with a hi-lo valve or thermostat temperature control. Burner input is 27,000 BTU/h each on valve-controlled models, and 28,000 BTU/h each on thermostat controlled models. Thermostat control models are equipped with on-off valves for each control. Griddle plate is standard 1" thick polished steel with a 4" wide grease trough. Stainless steel front, sides and back with large capacity stainless steel grease tray(s).





For use with Natural or Propane gas only. Gas input ratings shown for installations up to 2000 ft., (610m), above sea level. Please specify altitudes over 2000 ft. and gas type required when ordering.

Garland/U.S. Range products are not approved or authorized for home or residential use, but are intended for commercial applications only. Garland / U.S. Range will not provide service, warranty, maintenance or support of any kind other than in commercial applications.

* Please add 7" (178mm) in overall depth with attachment condiment rail option.

| Model # | Width In (mm) | Height (w/std legs) | Depth In (mm) | Total Input (BTU) | Shipping Information | |
|--|----------------|---------------------|---------------|-------------------|----------------------|-------|
| | | | | | Lbs/Kg | Cu Ft |
| Thermostat Controlled Standard Griddle (1" steel plate) | | | | | | |
| GTGG24-GT24M | 23-5/8 (600) | 13 (330) | 32 (814) | 56,000 | 290/132 | 21 |
| GTGG36-GT36M | 35-7/16 (900) | | | 84,000 | 405/184 | 29 |
| GTGG48-GT48M | 47-1/4 (1200) | | | 112,000 | 595/270 | 37 |
| GTGG60-GT60M | 59-1/16 (1500) | | | 140,000 | 705/320 | 42 |
| GTGG72-GT72M | 70-7/8 (1800) | | | 168,000 | 810/368 | 50 |
| Manually Controlled Standard Griddle (1" steel plate) | | | | | | |
| GTGG24-G24M | 23-5/8 (600) | 13 (330) | 32 (814) | 54,000 | 280/127 | 21 |
| GTGG36-G36M | 35-7/16 (900) | | | 81,000 | 395/180 | 29 |
| GTGG48-G48M | 47-1/4 (1200) | | | 108,000 | 585/266 | 37 |
| GTGG60-G60M | 59-1/16 (1500) | | | 135,000 | 688/313 | 42 |
| GTGG72-G72M | 70-7/8 (1800) | | | 162,000 | 790/359 | 50 |

| SUPPLY OPERATING PRESSURE | | | | MANIFOLD OPERATING PRESSURE | | | | CLEARANCES | |
|---------------------------|------|---------|------|-----------------------------|------|---------|------|-----------------------------|------------|
| NATURAL GAS | | PROPANE | | NATURAL GAS | | PROPANE | | INSTALLATION TO COMBUSTIBLE | |
| "WC | MBar | "WC | Mbar | "WC | MBar | "WC | Mbar | Sides | Rear |
| 7 | 17.5 | 11 | 27.5 | 4.5 | 11 | 10 | 24.5 | 6" (152mm) | 6" (152mm) |

Form# GTGGM((03/01/13))

Garland

G Series 36" Gas Restaurant Range

Item: _____

Quantity: _____

Project: _____

Approval: _____

Date: _____

G Series 36" Gas Restaurant Range

Models:

- G36-6R G36-6S G36-6T G36-4G12R G36-2G24R G36-G36R
 G36-4G12S G36-2G24S G36-G36S G36-4G12T G36-2G24T G36-G36T



Model G36-6R

(shown with optional casters)

NOTE: Ranges supplied with casters must be installed with an approved restraining device.

Standard Features:

- Large 27" (686mm) work top surface
- Stainless steel front and sides
- Stainless steel 5" (127mm) plate rail
- Stainless steel backguard, w/removable stainless steel shelf
- 12" (305mm) section stamped drip trays w/ dimpled bottom
- 6" (152mm) adj. stainless steel legs
- Large easy-to-use control knobs
- Gas regulator

Standard on Applicable Models:

- Open storage in lieu of oven, suffix S
- Modular top (Suffix T) with stainless steel low profile backguard & 4" (102mm) adjustable metal legs
- Ergonomic split cast iron top ring grates
- 33,000 Btuh/9.67 kW 2 piece cast iron Starfire-Pro open top burner
- 5/8" (15mm) thick steel griddle plate w/ manual hi/lo valve control, 23" (584mm) working depth surface, Standard on right, optional on left
- 4-1/4" (108mm) wide grease trough
- 18,000 Btuh/5.27 kW cast iron "H" style griddle burner per 12"(305mm) width of griddle
- 38,000 Btuh/ 11.13 kW cast iron "H" style oven burner
- Snap action modulating oven thermostat low to 500° F
- Nickel plated oven rack and 3-position removable oven rack guide

- Large porcelain oven interior, fits standard sheet pans in both directions for standard ovens
- Strong, keep-cool oven door handle
- Convection oven w/3 nickel plated oven racks and removable rack guides in lieu of standard oven w/ 1/3HP 120v 60 Hz single phase fan motor; change suffix R to C

Optional Features:

- Convection oven motor 240v 50/60HZ single phase
- Snap action modulating griddle control 175° to 425° F
- Hot top 12" (305mm) plate in lieu of two open burners, manual valve controlled w/18,000 Btuh/5.27 kW cast iron "H" burner standard on left side
- Low profile 9-3/8" (238mm) backguard stainless steel front and sides
- Additional oven racks
- 6" (152mm) levelling swivel casters (4), w/front locking
- Flanged deck mount legs
- Celsius temperature dials
- Piezo spark ignition for pilots on griddles
- Range mount salamanders and cheesemelters are available for the oven and storage base models but not modular top (T) models

Specifications:

Gas restaurant series range with large capacity (standard) oven. 35 7/16" (900mm) wide, 27" (686mm) deep work top surfaces. Stainless steel front, sides and 5" wide front rail. 6" (152mm) legs with adjustable feet. Six Starfire-Pro 2 piece, 33,000 Btuh/ 9.67 kW (natural gas), cast open burners set in split cast iron ergonomic grates. Griddle or optional hot-top with cast iron "H" style burners, 18,000 Btuh/5.27 kW (natural gas), in lieu of open burners. One piece oven with porcelain interior and heavy duty, "keep cool" door handle. Heavy cast

iron "H" oven burner rated 38,000 Btuh/11.13 kW (natural gas) Oven controlled by even bake, fast recovery snap action modulating oven thermostat. Available with convection oven, storage base or modular top model in lieu of oven.



| Model Number | Description | Total BTU/Hr Natural | Shipping Information | |
|------------------------|---------------------------|----------------------|----------------------|--------------------|
| | | | Lbs/Kg | Cu Ft ² |
| G36-6R ¹ | Six OB w/26" Oven | 236,000 | 430/195 | 40 |
| G36-6S | Six OBs w/SB | 198,000 | 310/141 | 40 |
| G36-6T | Six OB MT | 198,000 | 190/86 | 22 |
| G36-4G12R ¹ | 12" G, Four OB w/26" Oven | 188,000 | 460/209 | 40 |
| G36-4G12S | 12" G Four OB w/SB | 150,000 | 340/154 | 40 |
| G36-4G12T | 12" G Four OB MT | 150,000 | 220/100 | 22 |
| G36-2G24R ¹ | 24" G, Two OB w/26" Oven | 140,000 | 495/225 | 40 |
| G36-2G24S | 24" G Two OB w/SB | 102,000 | 375/170 | 40 |
| G36-2G24T | 24" G Two OB MT | 102,000 | 255/116 | 22 |
| G36-G36R ¹ | 36" Gw/26" Oven | 92,000 | 530/240 | 40 |
| G36-G36S | 36" G w/SB | 54,000 | 410/186 | 40 |
| G36-G36T | 36" G MT | 54,000 | 290/132 | 22 |

| Burner Ratings (BTU/Hr/kW) | | |
|----------------------------|--------------|-------------|
| Burner | Natural | Propane |
| Open | 33,000/9.67 | 26,000/7.61 |
| Griddle/Hot Top | 18,000/5.27 | 18,000/5.27 |
| Oven | 38,000/11.13 | 32,000/9.38 |

| Manifold Operating Pressure | |
|-----------------------------|---------------------|
| Natural | Propane |
| 4.5" WC 11 mbar | 10.0" WC 25 mbar |

Gas input ratings shown for installations up to 2000 ft., (610m) above sea level. Please specify altitudes over 2000 ft.

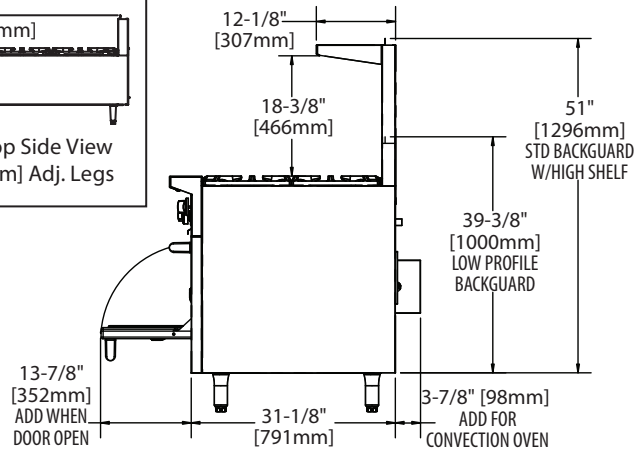
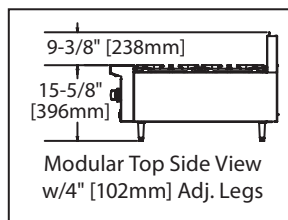
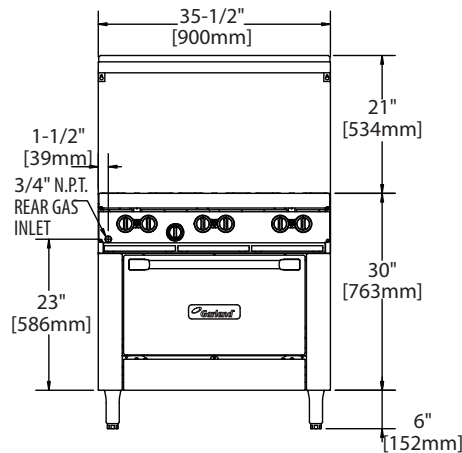
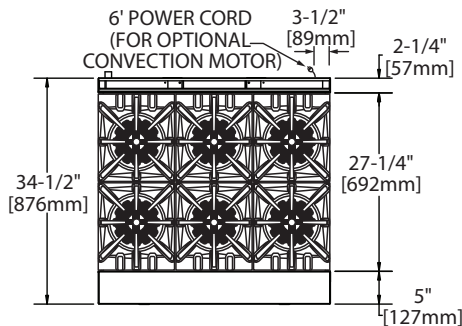
¹ Available with convection oven change R to C
² Ranges with Convention Ovens "C" are 57 Cu Ft
 OB = Open Burner, SS = Space Saver
 SB = Storage Base MT = Modular Top G = Griddle
 This product is not approved for residential use.
 Note: Installation clearance reductions are applicable only where local codes permit.

| Model Type | Width | Depth ³ | Height w/LPBG ⁴ | Oven Interior | | |
|-------------|-----------------|--------------------|----------------------------|---------------|--------------------|-----------------|
| | | | | Height | Depth ⁵ | Width |
| Range Base | 35-1/2" (900mm) | 34-1/2" (876mm) | 45-3/8" (1153mm) | 13" (330mm) | 26" (660mm) | 26-1/4" (667mm) |
| Modular Top | 35-1/2" (900mm) | 34-1/2" (876mm) | 25" (654mm) | N/A | N/A | N/A |

³ Convection oven base models add 3 7/8" (98mm) to the depth of the unit
⁴ LPBG = Low Profile Backguard ⁵ Convection oven depth 22" (559mm)

| Model Type | Combustible Wall Clearance | | Entry Clearances | |
|-------------|----------------------------|------------|------------------|-----------------|
| | Sides | Rear | Crated | Uncrated |
| Range Base | 14" (356mm) | 6" (152mm) | 37" (940mm) | 36-1/2" (927mm) |
| Modular Top | 14" (356mm) | 6" (152mm) | 16" (406mm) | 12" (305mm) |

Convection ovens with 120V, 60 Hz, 1 phase, 3.4 amps motors are supplied with 6'/1829mm cord and plug (NEMA 5-15P); 240V, 50/60 Hz, 1 phase motors are not supplied with cord and plug and must have direct connect.



Form# G36 (11/26/14)

FRYERS

VULCAN**LG SERIES**
FREE STANDING ENTRY LEVEL GAS FRYERS**E03**

Model LG300
Shown with caster accessories

**SPECIFICATIONS**

LG Series gas freestanding model fryers, Vulcan Model No. LG300, LG400, and LG500 available in 35-40, 45-50, and 65-70 lb. oil capacities with 90,000, 120,000, or 150,000 BTU's respectively. Stainless steel front top and reinforced door. Stainless steel fry tank with three, four or five heat exchanger tubes for maximum heat transfer. Large "V" shaped cold zone and 1¼" port ball valve. Includes twin fry baskets with plastic coated handles and drain extension. Behind the door snap action millivolt thermostat control adjust from 200° to 400°F

Overall Dimensions:

15½"w x 29¾"d x 34⅝"h working height – LG300, LG400

21"w x 29¾"d x 34⅝"h working height – LG500

CSA design certified. NSF listed.

SPECIFY TYPE OF GAS WHEN ORDERING

- Natural Gas
 Propane Gas

SPECIFY ALTITUDE

- Natural Gas for above 2,000 ft.
 Propane Gas for above 3,500 ft.

- LG300** 35-40 lb. Capacity
 LG400 45-50 lb. Capacity
 LG500 65-70 lb. Capacity

STANDARD FEATURES

- Stainless steel fry tank, 35-40, 45-50 and 65-70 lb. capacities.
- Large cold zone area.
- 1¼" full port ball type drain valve.
- Stainless steel reinforced door.
- G90 high grade galvanized non corrosive finish sides and back.
- Door liner for added stability.
- Set of four nickel plated adjustable legs.
- Twin fry baskets with plastic coated handles.
- 90,000, 120,000 and 150,000 BTU's/hr. input.
- Behind the door snap action millivolt thermostat control adjusts from 200° to 400°F with standing pilot.
- Millivolt System - Requires no electric hook-up.
- Hi-limit shut-off protector shuts off gas combination valve and standing pilot.
- Built in flue deflector.
- Nickel plated tube rack.
- Earth magnet to secure closed door.
- Easily removable stainless steel basket hanger for cleaning.
- Vulcan-Hart (Vulcan) warrants the LG Series gas fryer to be free of defects in materials and workmanship for a period of 1 year from the date of original installation.
- Stainless steel fry tank has a five (5) year limited tank warranty. If during the first year only, the tank is found to have a leak and is verified by an authorized service agency, the entire LG Series fryer will be replaced.

ACCESSORIES (Packaged & Sold Separately)

- Casters 6" adjustable – 2 locking, 2 non-locking.
- Stainless steel tank cover – doubles as a work surface top.
- Connecting kit(s) – connect two fryers together (banking strip, brackets, and hardware).
- Single large basket:
13"w x 13¼"d x 5½"h – LG300, LG400
18½"w x 13¼"d x 6"h – LG500
- Extra set of twin baskets:
6½"w x 13¼"d x 6"h – LG300, LG400
9½"w x 13¼"d x 6"h – LG500
- FRYMATE-VX15 add-on Frymate™ Dump Station.
- 10" high stainless steel removable splash guard.
- Flexible gas hose with quick disconnect.

VULCAN

a division of ITW Food Equipment Group LLC

P.O. Box 696 ■ Louisville, KY 40201 ■ Toll-free: 1-800-814-2028 ■ Local: 502-778-2791 ■ Quote & Order Fax: 1-800-444-0602



LG SERIES
FREE STANDING ENTRY LEVEL GAS FRYERS

INSTALLATION INSTRUCTIONS

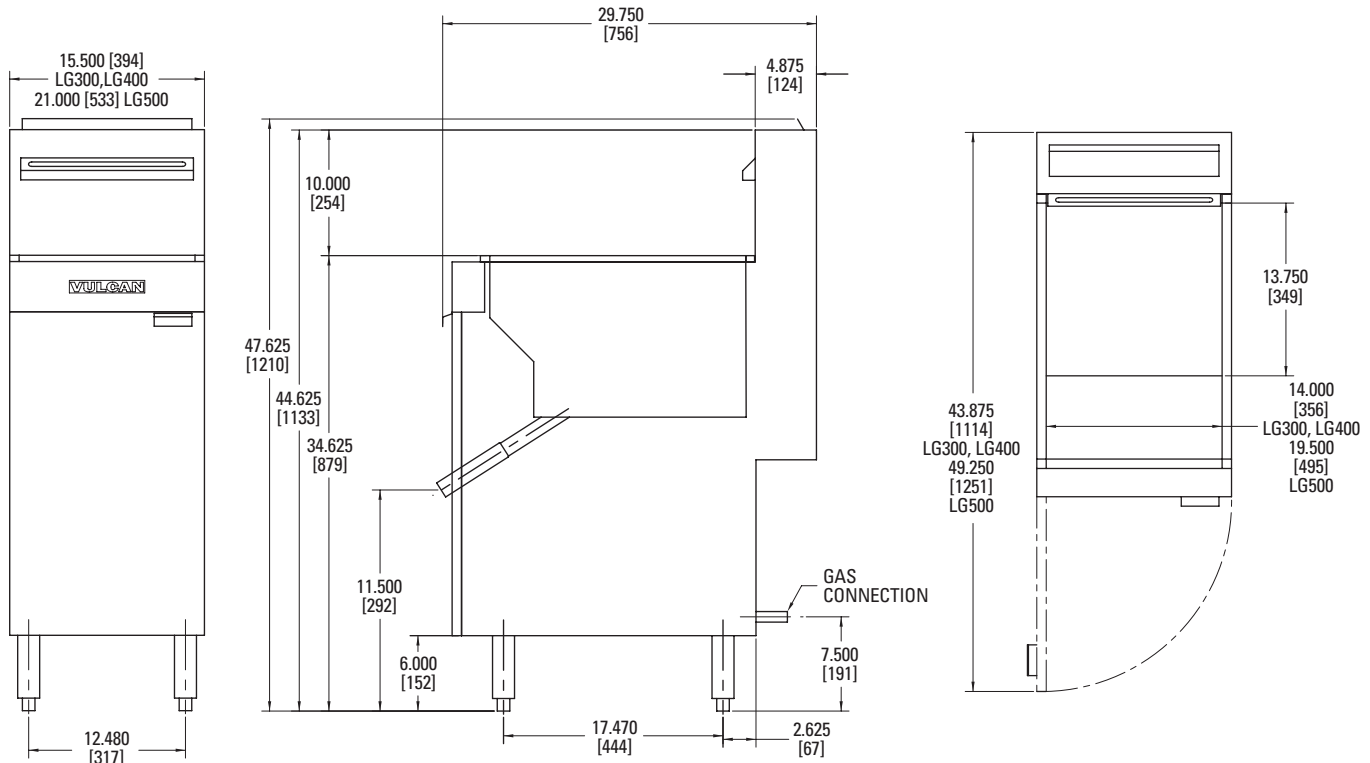
1. A combination valve with pressure regulator is provided with this unit.
 - Natural Gas
Operating pressure – 4.0" W.C.
Recommended supply pressure 7-9" W.C.
Not to exceed 14" W.C. (1/2 PSI)
 - Propane Gas
Operating pressure – 10.0" W.C.
Recommended supply pressure 11-12" W.C.
Not to exceed 14" W.C. (1/2 PSI)
2. An adequate ventilation system is required for Commercial Cooking Equipment. Information may be obtained by writing to the National Fire Protection Association, Batterymarch Park, Quincy, MA 02269. When writing refer to NFPA No. 96.

3. All models require a 6" (152 mm) clearance at both sides and rear adjacent to combustible construction.
4. All models require a 16" (407 mm) minimum clearance to adjacent open top burner units.
5. This appliance is manufactured for commercial installation only and is not intended for home use.

SERVICE CONNECTIONS:

Ⓟ Both 1/2" NPT and 3/4" NPT rear gas connections. You can remove the 3/4" NPT fitting to access the 1/2" NPT connection.

NOTE: In line with its policy to continually improve its product, Vulcan reserves the right to change materials and specifications without notice.



| Model | Width | Depth | Overall Height | Working Height | Tank Size | BTU/HR | Fry Comp. Capacity | Approx. Shipping Weight |
|-------|-------|-------|----------------|----------------|------------|---------|--------------------|-------------------------|
| LG300 | 15½" | 29¾" | 46⅝" | 34⅝" | 14" x 14" | 90,000 | 35 - 40 lbs. | 210 lbs. (95 kg) |
| LG400 | 15½" | 29¾" | 46⅝" | 34⅝" | 14" x 14" | 120,000 | 45 - 50 lbs. | 210 lbs. (95 kg) |
| LG500 | 21" | 29¾" | 46⅝" | 34⅝" | 19½" x 14" | 150,000 | 65 - 70 lbs. | 270 lbs. (122 kg) |

This appliance is manufactured for commercial use only and is not intended for home use.

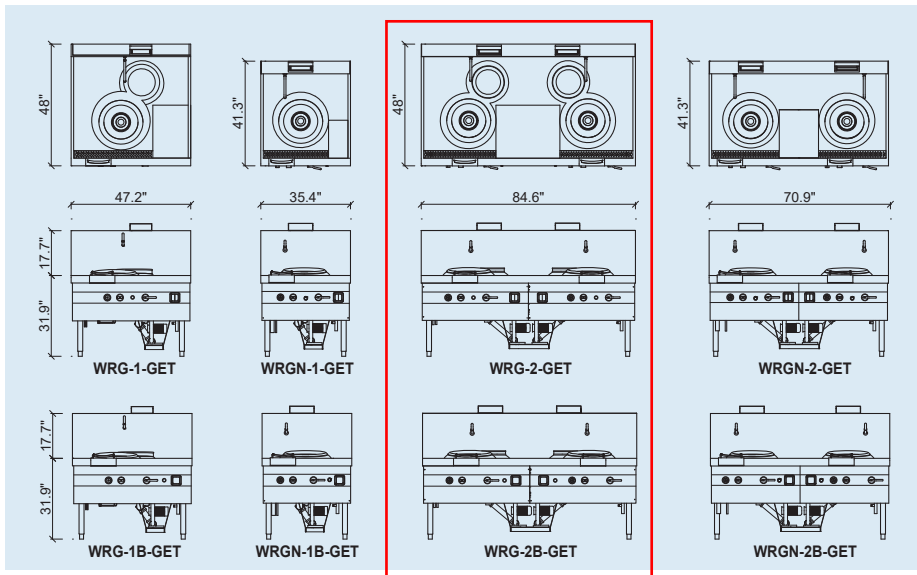


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Super Power Wok Range (Guangdong Style)



Features and Benefits

- Ideal for Back of House operation
- Smart modular design
- Top, sides, front panel with high quality stainless steel for hygiene and resistance to corrosion and oxidation
- Well-designed fire brick insulation
- Powerful Air Blast Burner
- Electronic Ignition Device
- European-made air blower with extra durability and stability

High Safety Standard

Series A: Each individual burner is equipped with the Electronic Ignition Device & Built-in Flame Failure Device to ensure easy and safe operation.

Series B: Each individual burner is equipped with the Electronic Ignition Device & Built-in Safety Surveillance System where the main flame will be cut off within 3 to 5 seconds if the pilot light or air blower goes out to ensure safe operation.



Ø4" Air blast burner assembly

Specifications of Super Power Wok Range (Guangdong Style)

| | Single Burner | | Double Burner | |
|-----------------|-----------------|------------------|------------------|------------------|
| | with 1 rear pot | without rear pot | with 2 rear pots | without rear pot |
| Model: Series A | WRG-1-GET | WRGN-1-GET | WRG-2-GET | WRGN-2-GET |
| Model: Series B | WRG-1B-GET | WRGN-1B-GET | WRG-2B-GET | WRGN-2B-GET |

Dimensions

| | | | | |
|-------------------------------|-------------------------|---------------------------|-------------------------|---------------------------|
| Width x Depth x Height (inch) | 47.2 x 48 x (31.9+17.7) | 35.4 x 41.3 x (31.9+17.7) | 84.6 x 48 x (31.9+17.7) | 70.9 x 41.3 x (31.9+17.7) |
| Width x Depth x Height (mm) | 1200 x 1220 x (810+450) | 900 x 1050 x (810+450) | 2150 x 1220 x (810+450) | 1800 x 1050 x (810+450) |

Air blower

| | | |
|--------------------------------|------------------------|----------------------------|
| Loading (kW) Voltage (V/Ph/Hz) | AE1 | 2 x AE1 |
| | 0.18 (110~220/1/50~60) | 2 x 0.18 (110~220/1/50~60) |

Heat input kW (BTU / hr.)

| | | |
|--------------------|-------------|--------------|
| Town Gas | 52 (177431) | 104 (354862) |
| Propane (L.P. Gas) | 55 (187660) | 110 (375335) |
| Natural Gas | 52 (177431) | 104 (354862) |

Operating Pressure (inches Water Column)

| | | |
|--------------------|----|----|
| Town Gas | 6 | 6 |
| Propane (L.P. Gas) | 11 | 11 |
| Natural Gas | 7 | 7 |

Fuel pipe connection (inch)

| | | |
|---|----|------|
| Town Gas / Propane (L.P. Gas) / Natural Gas | Ø1 | Ø1.5 |
|---|----|------|

Water inlet / Drainage pipe (inch)

| | | |
|---------------------|-------------|-------------|
| Water inlet / Drain | Ø0.5 / Ø1.5 | Ø0.5 / Ø1.5 |
|---------------------|-------------|-------------|

| | | | | |
|------------------------------|-----------|-----------|-----------|-----------|
| Net / Gross Wt. (kgs) | 320 / 410 | 220 / 295 | 590 / 770 | 490 / 660 |
|------------------------------|-----------|-----------|-----------|-----------|

| Remark | |
|---|---|
| Standard Components & Accessories: | <ul style="list-style-type: none"> • Electronic Ignition Device • Air Blower • Flame Failure Device (Series A) • Safety Surveillance System (Series B) • Condiment Board |
| Optional Accessories: | <ul style="list-style-type: none"> • Wok Stand • Wok Range Clip • Sieve Holder • Water Pan • Wok Supporter |
| Fuels available: | Town Gas, Natural Gas, Butane / Propane (L.P. Gas) (please specify gas type when ordering). |

GRIDDLES & BROILERS

VULCAN**VSP SERIES
STOCKPOT RANGES****E05**

Model VSP100

- VSP100** One section, 18" wide x 24.5" deep
- VSP200F** Two sections, 18" wide x 49" deep

STANDARD FEATURES

- Stainless steel front and sides.
- Heavy cast iron top grate(s).
- Two concentric 55,000 BTU/hr. ring-type burners per 18" section; 110,000 BTU/hr. input per section.
- Standing pilot ignition system.
- Two infinite heat control valves per section.
- Heat shield to protect control valves.
- 3/4" rear gas connection and gas pressure regulator.
- One year limited parts and labor warranty.

**SPECIFICATIONS****Exterior Dimensions:**

18" wide x _____" deep x 22½" to 24" working height on adjustable legs

CSA design certified. NSF listed.

SPECIFY TYPE OF GAS WHEN ORDERING.
SPECIFY ALTITUDE WHEN ABOVE 3,999 FT.

VULCAN

a division of ITW Food Equipment Group LLC

P.O. Box 696 ■ Louisville, KY 40201 ■ Toll-free: 1-800-814-2028 ■ Local: 502-778-2791 ■ Quote & Order Fax: 1-800-444-0602



VSP SERIES
STOCKPOT RANGES

INSTALLATION REQUIREMENTS:

1. A gas pressure regulator sized for this unit was included.
Natural Gas 5" W.C.
Propane Gas 10" W.C.
2. Gas line connecting to appliance must be 3/4" diameter or larger.
If flexible connectors are used, the inside diameter must be the same as the 3/4" pipe.
3. An adequate ventilation system is required for commercial cooking equipment. Information may be obtained by writing to the National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169, www.NFPA.org. When writing refer to NFPA No. 96.
4. These units are manufactured for installation in accordance with National Fuel Gas Code, ANSI-Z223.1/NFPA #54 (latest edition). Copies may be obtained from The American Gas Association,

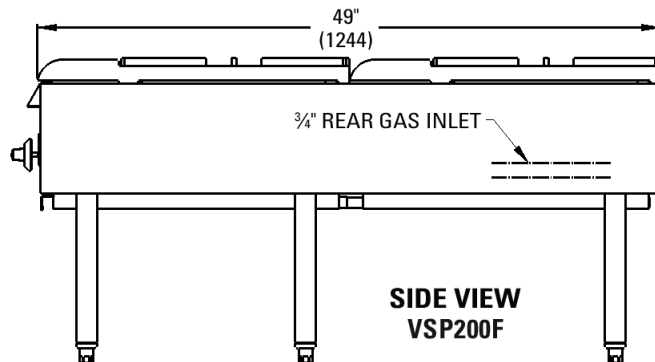
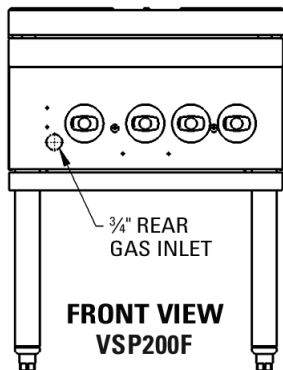
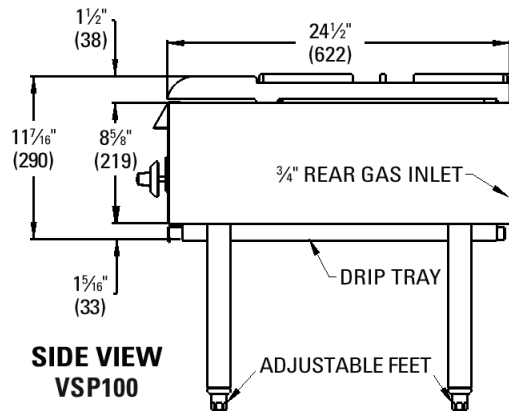
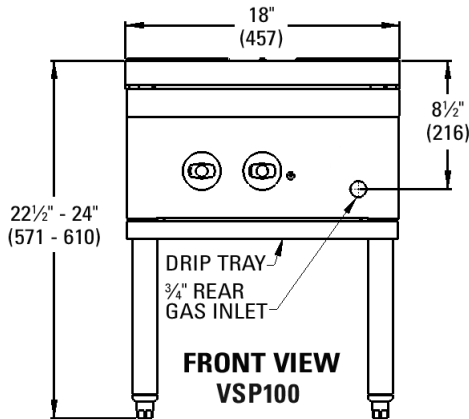
Accredited Standards Committee Z223 @ 400N. Capital St. NW, Washington, DC 20001, or the Secretary Standards Council, NFPA, 1 Batterymarch Park, Quincy, MA 02169-7471.

NOTE: In the Commonwealth of Massachusetts

All gas appliances vented through a ventilation hood or exhaust system equipped with a damper or with a power means of exhaust shall comply with 248 CMR.

5. Clearances:

| | Combustible | Non-Combustible |
|-------|-------------|-----------------|
| Rear | 24" | 4" |
| Sides | 18" | 0" |
6. This appliance is manufactured for commercial installation only and is not intended for home use.



| MODEL | TOTAL BTU/HR. | WIDTH | DEPTH | HEIGHT | APPROX. SHIP WT. (LB/KG) |
|---------|---------------|-------|---------|----------------|--------------------------|
| VSP100 | 110,000 | 18" | 24 1/2" | 22 1/2" to 24" | 145/66 |
| VSP200F | 220,000 | 18" | 49" | 22 1/2" to 24" | 290/131 |



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NOTE: In line with its policy to continually improve its products, Vulcan reserves the right to change materials and specifications without notice.



Combi steamer

Project _____
 Item _____
 Quantity _____
 FCSI section _____
 Approval _____
 Date _____

Model

Convotherm 4 easyTouch

- easyTouch
- 20 Shelves
- Gas
- Injection/Spritzer
- Right-hinged door



Key features

- ACS+ operating modes: Steam, combi-steam, hot air
- ACS+ extra functions:
 - Crisp&Tasty - 5 moisture-removal settings
 - BakePro - 5 levels of traditional baking
 - HumidityPro - 5 humidity settings
 - Controllable fan - 5 speed settings
- easyTouch 9" full-touch screen
- ConvoClean+ fully automatic cleaning system with eco, regular and express modes - with optional single-dose dispensing
- Ethernet interface (LAN)
- HygienicCare
- USB port integrated in the control panel
- TriColor indicator ring - indicates the current operating status
- Steam generated by injecting water into the cooking chamber
- Right-hinged door

Standard features

- ACS+ (Advanced Closed System +) operating modes:
 - Steam (86-266°F) with guaranteed steam saturation
 - Combi-steam (86-482°F) with automatic humidity adjustment
 - Hot air (86-482°F) with optimized heat transfer
- HygienicCare - food safety provided by antibacterial surfaces:
 - easyTouch control panel
 - Door handle and recoil hand shower
- easyTouch user interface:
 - 9" full-touch screen
 - Press&Go - automatic cooking with quick-select buttons
 - TrayTimer - oven-load management for different products at the same time
 - Regenerate+ - flexible multi-mode retherm function
 - ecoCooking - energy-save function
 - Low-temperature cooking / Delta-T cooking
 - Cook&Hold - cook and hold in one process
 - 399 cooking profiles each containing up to 20 steps
 - On-screen help with topic-based video function
 - Start-time preset
- Multi-point core temperature probe
- Door handle with safety latch
- Integral preheat bridge
- Data storage for HACCP and pasteurization figures
- Preheat and cool down function

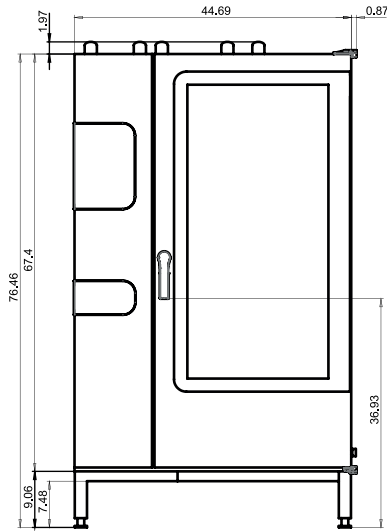
Options

- Steam and vapor removal - built-in condenser
- Disappearing door - more space and added safety (see separate data sheet)
- Grill version with grease management
- Available in various voltages
- Sous-vide probe, external connection
- Core temperature probe, external connection

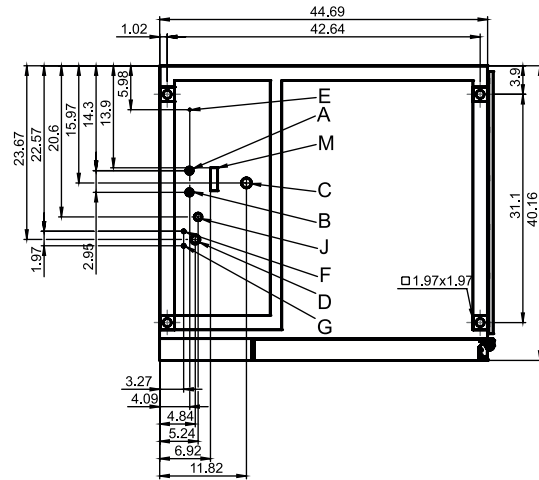
Accessories

- ConvoLink HACCP and cooking-profile management PC software
- Signal tower - indicates the operating status from a distance
- Banquet system (optionally as a package or individually): Plate loading trolley, loading trolley, thermal cover
- Cleaning products for the fully automatic ConvoClean+ cleaning system and the semi-automatic cleaning system

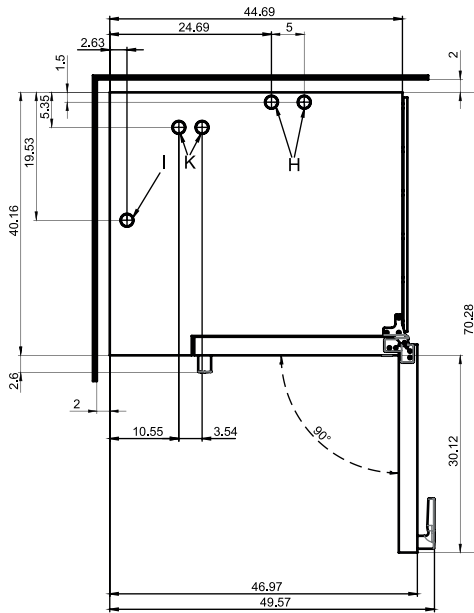
Front view



Connection positions



View from above with wall clearances



- A** Water connections (for water injection)
- B** Water connections (for cleaning, recoil hand shower)
- C** Drain connection (2" I. D.)
- D** Electrical connection
- E** Electrical ground
- F** Rinse-aid connection
- G** Cleaning-agent connection
- H** Air vent (2" I. D.)
- I** Ventilation port
- J** Gas connection
- K** Exhaust outlet (cooking compartment heating element)
- M** Safety overflow 3.2" x 1"

Dimensions and weights

Dimensions including packaging

Width x Height x Depth 55.5" x 84.7" x 46.1"

Weight

Net weight without options* / accessories 791 lbs

Packaging weight 106 lbs

Safety clearances**

Rear 2"

Right 2"

Left (18" clearance recommended for service) 2"

Top*** 39"

*Max. weight of options 22 lbs.

**Minimum clearance from heat sources: 20".

***Depends on the type of exhaust system and the ceiling's characteristics.

Installation requirements

Inclination

Max. absolute appliance inclination during operation* max. 2° (3.4%)

*Adjustable appliance feet as standard.

Loading capacity

Max. number of food containers

[Unit has 20 shelves, shelf spacing 2.68" max.]

| | |
|---------------------------------|----|
| Steam table pans (12"x20"x1") | 40 |
| Steam table pans (12"x20"x2.5") | 40 |
| Full size wire racks (20"x26") | 20 |
| Full size sheet pans (18"x26") | 20 |
| Half size sheet pans (13"x18") | 40 |
| Frying baskets (12"x20") | 40 |
| Plates (optional plate rack) | 98 |

Max. loading weight

| | |
|-------------------|---------|
| Per combi steamer | 397 lbs |
| Per shelf | 33 lbs |

Electrical supply

120V 1PH 60Hz *

| | |
|-----------------------------|--------|
| Rated power consumption | 1.0 kW |
| Rated current | 10.6 A |
| Power supply wire gauge | 14 AWG |
| Conductor insulation rating | 194°F |

*Prepared for connection to an energy optimizing system.

Water connections

Water supply

| | |
|---------------|--|
| Water supply | Two 3/4" I. D. GHT-M (garden hose adapter). The appliance is designed for a permanent hookup to the water supply that uses a connecting hose with a minimum diameter of 1/2" |
| Flow pressure | 22 - 87 PSI / 1.5 - 6 bar |

Drain

| | |
|---------------------|--|
| Drain version | Permanent hookup (recommended) or open pan or duct / channel |
| Type | 2" I. D. (comes elbow-shaped as standard) |
| Slope for drainpipe | min. 5% (3°) |

Water quality

Water connection A* for water injection

| | |
|----------------------|---|
| General requirements | Drinking water, typically treated water (install a water treatment system if necessary) |
| TDS | 70 - 125 ppm |
| Hardness | 70 - 125 ppm (4 - 7 gpg) |

Water connection B* for cleaning, recoil hand shower

| | |
|----------------------|---|
| General requirements | Drinking water, typically untreated water |
| TDS | 70 - 360 ppm |
| Hardness | 70 - 360 ppm (4 - 21 gpg) |

Water connections A, B*

| | |
|---|--------------|
| pH value | 6.5 - 8.5 |
| Cl ⁻ (chloride) | max. 60 ppm |
| Cl ₂ (free chlorine) | max. 0.2 ppm |
| SO ₄ ²⁻ (sulfate) | max. 150 ppm |
| Fe (iron) | max. 0.1 ppm |
| SiO ₂ (silica) | max. 13 ppm |
| NH ₂ Cl (monochloramine) | max. 0.2 ppm |
| Temperature | max. 104°F |

*See connection positions diagram, p. 2.

NOTICE: The owner/operator/purchaser must ensure that the water quality requirements are met. Otherwise the original equipment warranty is void.

Emissions

Heat emission

| | |
|--------------------------|-------------------|
| Latent | 11563 BTU/h |
| Sensitive | 14596 BTU/h |
| Drain temperature | max. 140°F / 60°C |
| Decibel rating | max. 70 dBA |

Water consumption

Water connection A*

| | |
|---------------------------------|----------|
| Average consumption for cooking | 3.12 gph |
| Required flow rate | 0.16 gpm |

Water connections A, B

| | |
|-----------------------------------|----------|
| Average consumption for cooking** | 4.68 gph |
| Required flow rate | 3.96 gpm |

*Values intended as guide for specifying the water treatment system.

**Incl. water required for cooling the wastewater.

NOTICE: See connection positions diagram, p. 2.

Gas specifications

| | |
|----------------|----------------------|
| Type of gas | Natural gas, propane |
| Gas connection | 3/4" NPT |

Flow pressure

| | |
|-------------|--------------|
| Natural gas | 5.5 - 14" WC |
| Propane | 11 - 14" WC |

| | |
|--------------------|--------------------------|
| Heat output | For Natural gas, propane |
| Convection burner | 218400 BTU/h |

Please note:

- Please refer to the Installation manual for further technical data and for instructions on installation and setup.
- Convotherm reserves the right of design improvement or modification, as warranted.
- There are numerous federal, national and local laws, regulations and standards. It is the responsibility of the owner and installer to observe these laws, regulations and standards (e.g. fire regulations and health and safety standards).
- Convotherm combi steamers are built to comply with the applicable standards for manufacturers.

9758274_01 ENG_USA 10/14. © 2014 Manitowoc. Please note that the product is being continuously improved and that, as a result, these specifications are subject to change without notice.



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Project Name: _____

Location: _____

Item #: _____ Qty: _____

Model #: _____

Model:
TSSU-48-12

Food Prep Table:
Solid Door Sandwich/Salad Unit



Scan code for video

TSSU-48-12

- ▶ True's salad/sandwich units are designed with enduring quality that protects your long term investment.
- ▶ Oversized, environmentally friendly (134A), patented forced-air refrigeration system holds 33°F to 41°F (.5°C to 5°C).
- ▶ Complies with and listed under ANSI/NSF-7.
- ▶ All stainless steel front, top and ends. Matching aluminum finished back.
- ▶ Stainless steel, patented, foam insulated lid and hood keep pan temperatures colder, lock in freshness and minimize condensation. Removable for easy cleaning.
- ▶ Interior - attractive, NSF approved, clear coated aluminum liner. Stainless steel floor with coved corners.
- ▶ 11 ¾" (299 mm) deep, ½" (13 mm) thick, full length removable cutting board included. Sanitary, high density, NSF approved white polyethylene provides tough preparation surface.
- ▶ Heavy duty PVC coated wire shelves.
- ▶ Foamed-in-place using Ecomate. A high density, polyurethane insulation that has zero ozone depletion potential (ODP) and zero global warming potential (GWP).

ROUGH-IN DATA

Specifications subject to change without notice.
 Chart dimensions rounded up to the nearest 1/8" (millimeters rounded up to next whole number).

| Model | Doors | Shelves | Pans (top) | Cabinet Dimensions (inches) (mm) | | | HP | Voltage | Amps | NEMA Config. | Cord Length (total ft.) (total m) | Crated Weight (lbs.) (kg) |
|------------|-------|---------|------------|----------------------------------|--------|--------|-----|--------------|------|--------------|-----------------------------------|---------------------------|
| | | | | L | D† | H* | | | | | | |
| TSSU-48-12 | 2 | 4 | 12 | 48 3/8 | 30 1/8 | 36 3/4 | 1/3 | 115/60/1 | 8.6 | 5-15P | 7 | 310 |
| | | | | 1229 | 766 | 934 | 1/3 | 230-240/50/1 | 4.2 | ▲ | 2.13 | 141 |

† Depth does not include 1" (26 mm) for rear bumpers.

* Height does not include 6 1/4" (159 mm) for castors or 6" (153 mm) for optional legs.

▲ Plug type varies by country.

| | | |
|-------------------------------|--------------------------|-----------------------------|
| | <p>APPROVALS:</p> | <p>AVAILABLE AT:</p> |
| <p>2/15 Printed in U.S.A.</p> | | |

Model:
TSSU-48-12

Food Prep Table: Solid Door Sandwich/Salad Unit



STANDARD FEATURES

DESIGN

- True's commitment to using the highest quality materials and oversized refrigeration systems provides the user with colder product temperatures, lower utility costs, exceptional food safety and the best value in today's food service marketplace.

REFRIGERATION SYSTEM

- Factory engineered, self-contained, capillary tube system using environmentally friendly (CFC free) 134A refrigerant.
- Oversized, factory balanced refrigeration system with guided airflow to provide uniform temperature in food pans and cabinet interior.
- Patented forced-air design holds 33°F to 41°F (5°C to 5°C) product temperature in food pans and cabinet interior. Complies with and listed under ANSI/NSF-7.
- Sealed, cast iron, self-lubricating evaporator fan motor and larger fan blades give True sandwich/salad units a more efficient, low velocity, high volume airflow design.
- Condensing unit access in back of cabinet, slides out for easy maintenance.

CABINET CONSTRUCTION

- Exterior - stainless steel front, top and ends. Matching aluminum finished back.
- Interior - attractive, NSF approved, clear coated aluminum liner. Stainless steel floor with coved corners.
- Insulation - entire cabinet structure and solid doors are foamed-in-place using Ecomate. A high density, polyurethane insulation that has zero ozone depletion potential (ODP) and zero global warming potential (GWP).
- 5" (127 mm) diameter stem castors - locks provided on front set. 36" (915 mm) work surface height.

DOORS

- Stainless steel exterior with white aluminum liner to match cabinet interior.
- Each door fitted with 12" (305 mm) long recessed handle that is foamed-in-place with a sheet metal interlock to ensure permanent attachment.

- Positive seal self-closing doors with 90° stay open feature. Doors swing within cabinet dimensions.
- Magnetic door gaskets of one piece construction, removable without tools for ease of cleaning.

SHELVING

- Four (4) adjustable, heavy duty PVC coated wire shelves 21 1/8" L x 16"D (548 mm x 407 mm). Four (4) chrome plated shelf clips included per shelf.
- Shelf support pilasters made of same material as cabinet interior; shelves are adjustable on 1/2" (13 mm) increments.

MODEL FEATURES

- Evaporator is epoxy coated to eliminate the potential of corrosion.
- 11 3/4" (299 mm) deep, 1/2" (13 mm) thick, full length removable cutting board. Sanitary, high-density, NSF approved white polyethylene provides tough preparation surface.
- Stainless steel, patented, foam insulated lid(s) and hood keep pan temperatures colder, lock in freshness and minimize condensation. Removable for easy cleaning.
- Comes standard with 12 (1/2 size) 6 7/8" L x 6 1/4" W x 4"D (175 mm x 159 mm x 102 mm) clear polycarbonate, NSF approved, food pans in countertop prep area. Also accommodates 6" (153 mm) deep food pans (supplied by others).
- Countertop pan opening designed to fit varying size pan configurations with available pan divider bars. Varying size pans supplied by others.
- NSF-7 compliant for open food product.

ELECTRICAL

- Unit completely pre-wired at factory and ready for final connection to a 115/60/1 phase, 15 amp dedicated outlet. Cord and plug set included.



115/60/1
NEMA-5-15R

OPTIONAL FEATURES/ACCESSORIES

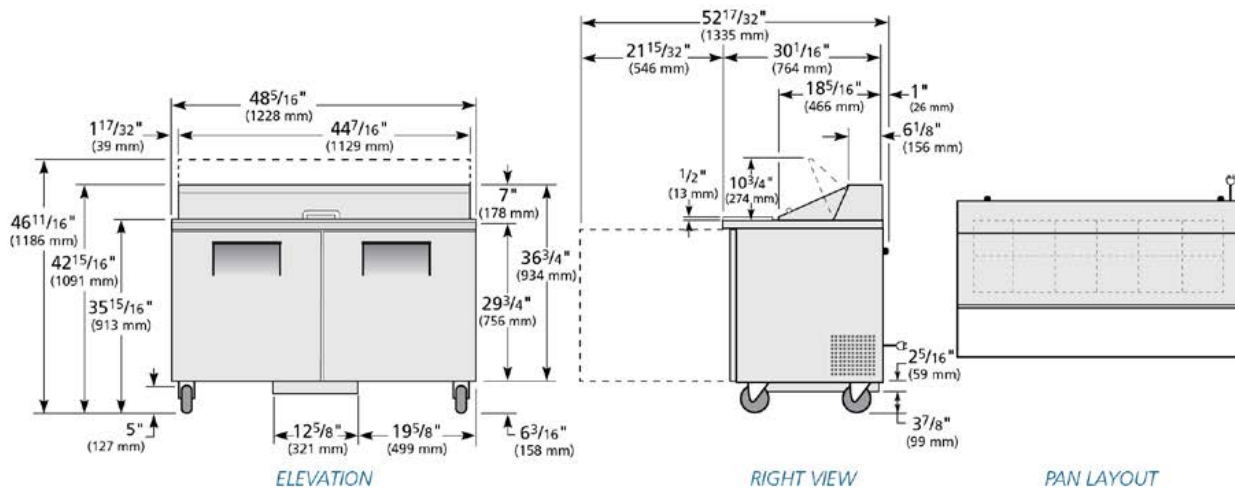
Upcharge and lead times may apply.

- 230 - 240V / 50 Hz.
- 6" (153 mm) standard legs.
- 6" (153 mm) seismic/flanged legs.
- 2 1/2" (64 mm) diameter castors.
- Barrel locks (factory installed). Requires one per door.
- Additional shelves.
- Single overshelf.
- Double overshelf.
- Flat lid.
- Sneezeguard.
- 19" (483 mm) deep, 1/2" (13 mm) thick, white polyethylene cutting board. Requires "L" brackets.
- 19" (483 mm) deep, 3/4" (20 mm) thick, white polyethylene cutting board. Requires "L" brackets.
- 11 3/4" (299 mm) deep, 1/2" (13 mm) thick, composite cutting board. Requires "L" brackets.
- 19" (483 mm) deep, 1/2" (13 mm) thick, composite cutting board. Requires "L" brackets.
- Crumb catcher. Requires crumb catcher cutting board for proper installation.
- Pan dividers.
- Exterior rectangular digital temperature display (factory installed).
- ADA compliant model with 34" (864 mm) work surface height.

*CABINET INTERIOR

Beginning in October of 2014, True Manufacturing began the process of changing the standard interior finishes on select products. The interior liners of these units have changed from the traditional NSF-approved white aluminum to an NSF-approved clear coated aluminum that is silver in color. In addition, the traditional white PVC coated shelves have been switched to a gray PVC coating. There are no functional differences created by any of these changes, the difference is only in the appearance. The following product lines are affected by this change: T-Series, TUC, TWT, TSSU, TFP, TPP, TMC, TRCB. A sticker will be placed on the outside packaging so that units with this change can be identified in inventory.

PLAN VIEW



WARRANTY*
Three year warranty on all parts and labor and an additional 2 year warranty on compressor.
(U.S.A. only)

METRIC DIMENSIONS ROUNDED UP TO THE NEAREST WHOLE MILLIMETER

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE



| Model | Elevation | Right | Plan | 3D | Back |
|------------|-----------|---------|---------|---------|------|
| TSSU-48-12 | TFNY04E | TFNY02S | TFNY04P | TFNY043 | |

*RESIDENTIAL APPLICATIONS: TRUE assumes no liability for parts or labor coverage for component failure or other damages resulting from installation in non-commercial or residential applications.

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Project Name: _____

Location: _____

Item #: _____ Qty: _____

Model #: _____

SIS #

Model:
TUC-48

Undercounter:
Solid Door Refrigerator



Scan code for video

TUC-48

- ▶ True's undercounter units are designed with enduring quality that protects your long term investment.
- ▶ Designed using the highest quality materials and components to provide the user with colder product temperatures, lower utility costs, exceptional food safety and the best value in today's food service marketplace.
- ▶ Oversized, environmentally friendly (134A) forced-air refrigeration system holds 33°F to 38°F (.5°C to 3.3°C).
- ▶ All stainless steel front, top and ends. Matching aluminum finished back.
- ▶ Interior - attractive, NSF approved, clear coated aluminum liner with stainless steel floor.
- ▶ Front breathing.
- ▶ Heavy duty PVC coated wire shelves.
- ▶ Foamed-in-place using Ecomate. A high density, polyurethane insulation that has zero ozone depletion potential (ODP) and zero global warming potential (GWP).

ROUGH-IN DATA

Specifications subject to change without notice. Chart dimensions rounded up to the nearest 1/8" (millimeters rounded up to next whole number).

| Model | Doors | Shelves | Cabinet Dimensions (inches) (mm) | | | HP | Voltage | Amps | NEMA Config. | Cord Length (total ft.) (total m) | Crated Weight (lbs.) (kg) |
|--------|-------|---------|----------------------------------|---------------|---------------|------------|--------------------------|------------|--------------|-----------------------------------|---------------------------|
| | | | L | D† | H* | | | | | | |
| TUC-48 | 2 | 4 | 48 3/8 1229 | 30 1/8 766 | 29 3/4 756 | 1/5 1/5 | 115/60/1 230-240/50/1 | 5.0 4.2 | 5-15P ▲ | 7 2.13 | 280 127 |

† Depth does not include 1" (26 mm) for rear bumpers.

* Height does not include 6 1/4" (159 mm) for castors or 6" (153 mm) for optional legs.

▲ Plug type varies by country.



APPROVALS:

AVAILABLE AT:

Model:
TUC-48

Undercounter:
Solid Door Refrigerator



STANDARD FEATURES

DESIGN

- True's commitment to using the highest quality materials and oversized refrigeration systems provides the user with colder product temperatures, lower utility costs, exceptional food safety and the best value in today's food service marketplace.

REFRIGERATION SYSTEM

- Factory engineered, self-contained, capillary tube system using environmentally friendly (CFC free) 134A refrigerant.
- Oversized, factory balanced refrigeration system with guided airflow to provide uniform product temperatures.
- Extra large evaporator coil balanced with higher horsepower compressor and large condenser; maintains cabinet temperatures of 33°F to 38°F (5°C to 3.3°C) for the best in food preservation.
- Sealed, cast iron, self-lubricating evaporator fan motor(s) and larger fan blades give True undercounter units a more efficient, low velocity, high volume airflow design. This unique design ensures faster temperature recovery and shorter run times in the busiest of food service environments.
- Condensing unit access in back of cabinet, slides out for easy maintenance.

CABINET CONSTRUCTION

- Exterior - stainless steel front, top and ends. Matching aluminum finished back.
- Interior - attractive, NSF approved, clear coated aluminum liner. Stainless steel floor with coved corners.
- Insulation - entire cabinet structure and solid doors are foamed-in-place using Ecomate. A high density, polyurethane insulation that has zero ozone depletion potential (ODP) and zero global warming potential (GWP).

- 5" (127 mm) diameter stem castors - locks provided on front set. 36" (915 mm) work surface height.

DOORS

- Stainless steel exterior with white aluminum liner to match cabinet interior.
- Each door fitted with 12" (305 mm) long recessed handle that is foamed-in-place with a sheet metal interlock to ensure permanent attachment.
- Positive seal self-closing doors with 90° stay open feature. Doors swing within cabinet dimensions.
- Magnetic door gaskets of one piece construction, removable without tools for ease of cleaning.

SHELVING

- Four (4) adjustable, heavy duty PVC coated wire shelves 21 5/16" L x 16" D (548 mm x 407 mm). Four (4) chrome plated shelf clips included per shelf.
- Shelf support pilasters made of same material as cabinet interior; shelves are adjustable on 1/2" (13 mm) increments.

MODEL FEATURES

- Evaporator is epoxy coated to eliminate the potential of corrosion.
- NSF-7 compliant for open food product.

ELECTRICAL

- Unit completely pre-wired at factory and ready for final connection to a 115/60/1 phase, 15 amp dedicated outlet. Cord and plug set included.



115/60/1
NEMA-5-15R

OPTIONAL FEATURES/ACCESSORIES

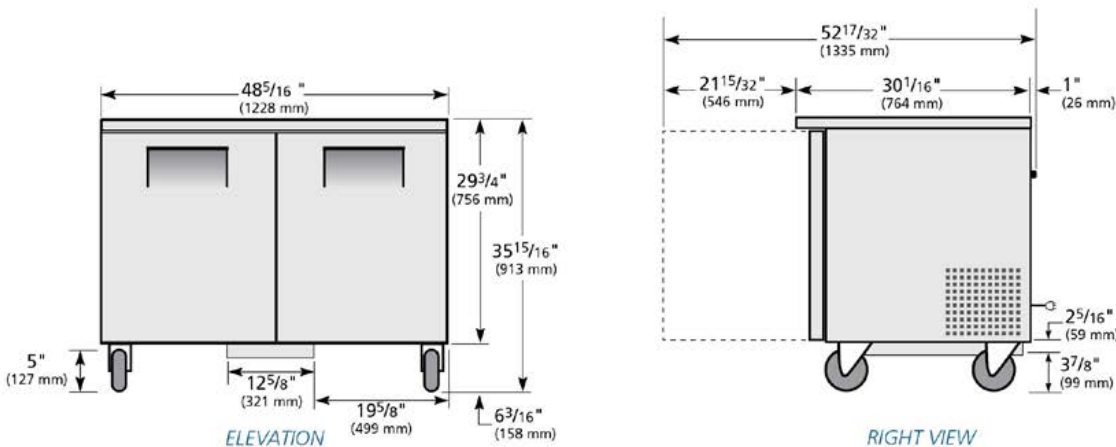
Upcharge and lead times may apply.

- 230 - 240V / 50 Hz.
- 6" (153 mm) standard legs.
- 6" (153 mm) seismic/flanged legs.
- 2 1/2" (64 mm) diameter castors.
- Barrel locks (factory installed). Requires one per door.
- Single overshef.
- Double overshef.
-
- 30" (762 mm) deep, 1/2" (13 mm) thick, white polyethylene cutting board. Requires "L" brackets.
- 30" (762 mm) deep, 1/2" (13 mm) thick, composite cutting board. Requires "L" brackets.
- Heavy duty, 16 gauge tops.
- Exterior rectangular digital temperature display (factory installed).
- ADA compliant models with 34" (864 mm) work surface height.
- Low profile models with 31 7/8" (810 mm) work surface height.

***CABINET INTERIOR**

Beginning in October of 2014, True Manufacturing began the process of changing the standard interior finishes on select products. The interior liners of these units have changed from the traditional NSF-approved white aluminum to an NSF-approved clear coated aluminum that is silver in color. In addition, the traditional white PVC coated shelves have been switched to a gray PVC coating. There are no functional differences created by any of these changes, the difference is only in the appearance. The following product lines are affected by this change: T-Series, TUC, TWT, TSSU, TFP, TPP, TMC, TRCB. A sticker will be placed on the outside packaging so that units with this change can be identified in inventory.

PLAN VIEW



WARRANTY*
Three year warranty on all parts and labor and an additional 2 year warranty on compressor. (U.S.A. only)

METRIC DIMENSIONS ROUNDED UP TO THE NEAREST WHOLE MILLIMETER

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE



| Model | Elevation | Right | Plan | 3D | Back |
|--------|-----------|---------|---------|---------|------|
| TUC-48 | TFQY02E | TFQY02S | TFQY02P | TFQY023 | |

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Project Name: _____

Location: _____

Item #: _____ Qty: _____

Model #: _____

SIS #

Model:
TBB-24GAL-72-HC

Underbar Refrigeration:

Solid Swing Door Galvanized Top 24" Back Bar Cooler with Hydrocarbon Refrigerant



TBB-24GAL-72-HC

- ▶ True's refrigerated back bar coolers are designed with enduring quality and value. Our commitment to using the highest quality materials and oversized refrigeration assures colder product temperatures and years of trouble free service.
- ▶ Oversized, factory balanced, refrigeration system holds 33°F to 38°F (.5°C to 3.3°C).
- ▶ Exterior - heavy duty, wear resistant laminated black vinyl front and sides. Matching black aluminum back. Galvanized steel top designed to slide under existing cabinetry.
- ▶ Interior - Stainless steel floor with ½" (13 mm) reinforced lip and heavy gauge galvanized steel walls.
- ▶ NSF/ANSI Standard 7 compliant for packaged and bottled product.
- ▶ Positive seal doors.
- ▶ Entire cabinet structure and solid doors are foamed-in-place using a high density, polyurethane insulation that has zero ozone depletion potential (ODP) and zero global warming potential (GWP).



Scan code for video

ROUGH-IN DATA

Specifications subject to change without notice.
 Chart dimensions rounded up to the nearest 1/8" (millimeters rounded up to next whole number).

| Model | Doors | Capacity | | Shelves | Cabinet Dimensions (inches) (mm) | | | HP | Voltage | Amps | NEMA Config. | Cord Length (total ft.) (total m) | Crated Weight (lbs.) (kg) |
|-----------------|-------|-------------|-----------|---------|----------------------------------|---------------|---------------|------------|----------|------------|--------------|-----------------------------------|---------------------------|
| | | 12 oz. Cans | ½ Barrels | | L | D† | H | | | | | | |
| TBB-24GAL-72-HC | 3 | 84 6-pks | 3** | 4 | 71 7/8 1826 | 23 3/4 604 | 34 1/4 870 | 1/4 N/A | 115/60/1 | 2.7 N/A | 5-15P | 7 2.13 | 415 189 |

† Depth does not include 1" (26 mm) for rear bumpers.
 note: Depending on tapping kit used, ½ barrels may not fit in "GAL" models.

| | | |
|------------------------|-------------------|----------------------|
| | APPROVALS: | AVAILABLE AT: |
| 3/17 Printed in U.S.A. | | |

Model:
TBB-24GAL-72-HC

Underbar Refrigeration: Solid Swing Door Galvanized Top 24" Back Bar Cooler with Hydrocarbon Refrigerant



STANDARD FEATURES

DESIGN

- True's refrigerated back bar coolers are designed with enduring quality and value. Our commitment to using the highest quality materials and oversized refrigeration assures colder product temperatures and years of trouble free service.

REFRIGERATION SYSTEM

- Factory engineered, self-contained, capillary tube system using environmentally friendly R290 hydrocarbon refrigerant that has zero (0) ozone depletion potential (ODP), & three (3) global warming potential (GWP).
- High capacity, factory balanced refrigeration system that maintains cabinet temperatures of 33°F to 38°F (.5°C to 3.3°C) for the best in food preservation.
- State of the art, electronically commutated evaporator and condenser fan motors. ECM motors operate at higher peak efficiencies and move a more consistent volume of air which produces less heat, reduces energy consumption and provides greater motor reliability.
- Condensing unit accessed from behind front grill, slides out for easy cleaning and maintenance.

CABINET CONSTRUCTION

- Exterior - heavy duty, wear resistant laminated black vinyl front and sides. Matching black aluminum back. Galvanized steel top designed to slide under existing cabinetry.

- Interior - Stainless steel floor with ½" (13 mm) reinforced lip and heavy gauge galvanized steel walls.
- Door threshold protector prevents damage to cabinet from routine loading of product.
- Insulation - entire cabinet structure and solid doors are foamed-in-place using a high density, polyurethane insulation that has zero ozone depletion potential (ODP) and zero global warming potential (GWP).
- Welded, heavy duty steel frame rail, black powder coated for corrosion protection.

DOORS

- Wear-resistant laminated black vinyl exterior with heavy gauge galvanized steel liner.
- Each door fitted with 12" (305 mm) long recessed handle that is foamed-in-place with a sheet metal interlock to ensure permanent attachment.
- Positive seal doors.
- Magnetic door gaskets of one piece construction, removable without tools for ease of cleaning.
- Door locks standard.

SHELVING

- Four (4) adjustable, heavy duty, black PVC coated wire shelves. Two (2) long shelves which span behind the left and center doors: 40"L x 18"D (1016 mm x 458 mm). Two (2) shelves behind right door: 19 ¾"L x 18"D (493 mm x 458 mm). Four (4) chrome plated shelf clips included per shelf.
- Aluminum shelf support pilasters. Shelves are adjustable on ½" (13 mm) increments.

LIGHTING

- LED interior lighting provides more even lighting throughout the cabinet. Safety shielded.

MODEL FEATURES

- Evaporator is epoxy coated to eliminate the potential of corrosion.
- Designed to accommodate a variety of beer kegs. Depending on tapping kit used, ½ barrels may not fit.
- NSF/ANSI Standard 7 compliant for the storage and/or display of packaged or bottled product.

ELECTRICAL

- Unit completely pre-wired at factory and ready for final connection to a 115/60/1 phase, 15 amp dedicated outlet. Cord and plug set included.



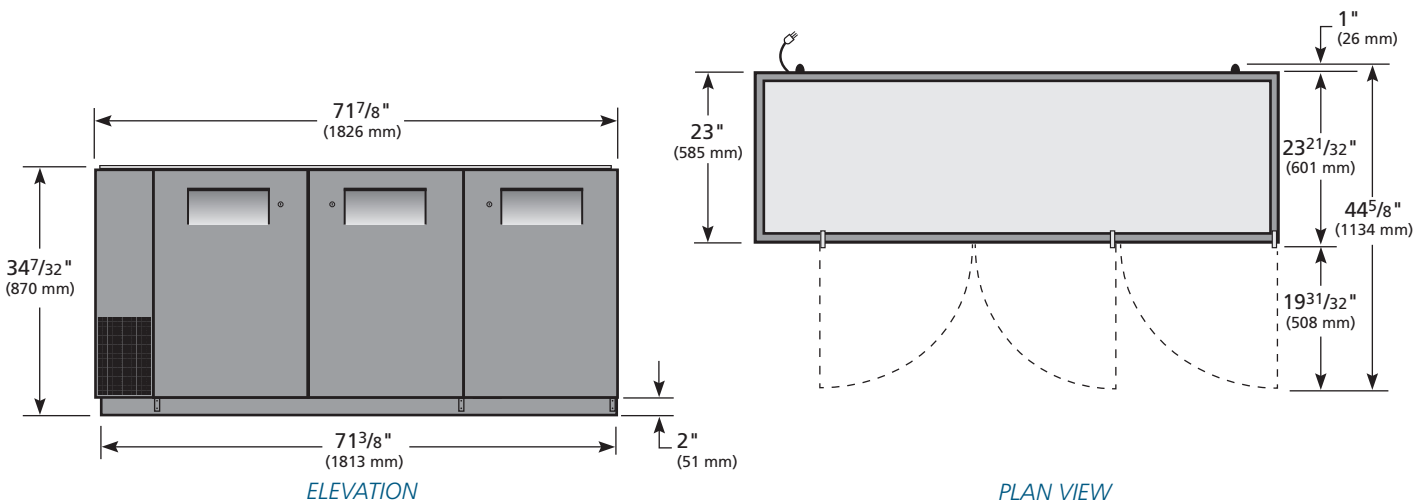
115/60/1
NEMA-5-15R

OPTIONAL FEATURES/ACCESSORIES

Upcharge and lead times may apply.

- 6" (153 mm) standard legs.
- 6" (153 mm) seismic/flanged legs.
- 2 ½" (64 mm) diameter castors.
- 4" (102 mm) diameter castors.
- Additional shelves.

PLAN VIEW



WARRANTY*
Three year warranty on all parts and labor and an additional 2 year warranty on compressor. (U.S.A. only)

METRIC DIMENSIONS ROUNDED UP TO THE NEAREST WHOLE MILLIMETER

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE



| Model | Elevation | Right | Plan | 3D | Back |
|-----------------|-----------|---------|---------|---------|------|
| TBB-24GAL-72-HC | TFJX65E | TFJX65S | TFJX65P | TFJX653 | |

*RESIDENTIAL APPLICATIONS: True assumes no liability for parts or labor coverage for component failure, factory defect or any other damages for units installed in non-commercial foodservice or residential applications.

TRUE FOOD SERVICE EQUIPMENT

True TRUE MANUFACTURING CO., INC.
 U.S.A. FOODSERVICE DIVISION
 2001 East Terra Lane • O'Fallon, Missouri 63366-4434 • (636)240-2400
 Fax (636)272-2408 • Toll Free (800)325-6152 • Intl Fax# (001)636-272-7546
 Parts Dept. (800)424-TRUE • Parts Dept. Fax# (636)272-9471 • www.truemfg.com

Project Name: _____
 Location: _____
 Item #: _____ Qty: _____
 Model #: _____

SIS # _____

Model:
TDD-1-HC

Underbar Refrigeration:
Solid Swing Door Direct Draw Beer Dispenser with Hydrocarbon Refrigerant



- TDD-1-HC**
- ▶ True's direct draw beer dispensers are designed with enduring quality and value. Our commitment to using the highest quality materials and oversized refrigeration assures colder product temperatures and years of trouble free service.
 - ▶ High capacity, factory balanced refrigeration system that maintains cabinet temperatures of 33°F to 38°F (.5°C to 3.3°C).
 - ▶ Exterior - heavy duty, wear resistant laminated black vinyl front and sides. Matching black aluminum back. All stainless steel counter top.
 - ▶ Interior - Stainless steel floor with ½" (13 mm) reinforced lip and heavy gauge galvanized steel walls. NSF/ANSI Standard 7 compliant for packaged or bottled product.
 - ▶ One (1) 3" (77 mm) diameter stainless steel insulated beer column. Cold air is directed into beer column to reduce foaming and maximize draft beer profits.
 - ▶ Anodized aluminum glass rail provides convenient storage for glasses on top.
 - ▶ Entire cabinet structure and solid door are foamed-in-place using a high density, polyurethane insulation that has zero ozone depletion potential (ODP) and zero global warming potential (GWP).

ROUGH-IN DATA

Specifications subject to change without notice.
 Chart dimensions rounded up to the nearest ¼" (millimeters rounded up to next whole number).

| Model | Doors | Capacity ½ Barrels | Cabinet Dimensions (inches) (mm) | | | HP | Voltage | Amps | NEMA Config. | Cord Length (total ft.) (total m) | Crated Weight (lbs.) (kg) |
|----------|-------|--------------------------|--|------------|-------------|----------|----------|------------|-----------------|--|------------------------------------|
| | | | L | D | H* | | | | | | |
| TDD-1-HC | 1 | 1 | 23½ 597 | 31¼ 794 | 39¾ 1010 | ¼ N/A | 115/60/1 | 1.4 N/A | 5-15P | 7 2.13 | 210 96 |

* Height does not include 14¾" (375 mm) for draft arm.

| | | |
|--|-------------------|----------------------|
| | APPROVALS: | AVAILABLE AT: |
| | 6/18-A | Printed in U.S.A. |

Model:
TDD-1-HC

Underbar Refrigeration:
*Solid Swing Door Direct Draw Beer Dispenser
with Hydrocarbon Refrigerant*



STANDARD FEATURES

DESIGN

- True's direct draw beer dispensers are designed with enduring quality and value. Our commitment to using the highest quality materials and oversized refrigeration assures colder product temperatures and years of trouble free service.

REFRIGERATION SYSTEM

- Factory engineered, self-contained, capillary tube system using environmentally friendly R290 hydrocarbon refrigerant that has zero (0) ozone depletion potential (ODP), & three (3) global warming potential (GWP).
- High capacity, factory balanced refrigeration system that maintains cabinet temperatures of 33°F to 38°F (.5°C to 3.3°C).
- State of the art, electronically commutated evaporator and condenser fan motors. ECM motors operate at higher peak efficiencies and move a more consistent volume of air which produces less heat, reduces energy consumption and provides greater motor reliability.
- Condensing unit accessed from rear of unit for easy cleaning and maintenance.

CABINET CONSTRUCTION

- Exterior - heavy duty, wear resistant laminated black vinyl front and sides. Matching black aluminum back. All stainless steel counter top.
- Interior - Stainless steel floor with ½" (13 mm) reinforced lip and heavy gauge galvanized steel walls.
- Door threshold protector prevents damage to cabinet from routine loading of product.
- Insulation - entire cabinet structure and solid door are foamed-in-place using a high density, polyurethane insulation that has zero ozone depletion potential (ODP) and zero global warming potential (GWP).
- Cabinet fitted with 4" (102 mm) diameter castors (legs not available).
- One (1) 3" (77 mm) diameter stainless steel insulated beer column. Cold air is directed into beer column(s) to reduce foaming and maximize draft beer profits.
- Anodized aluminum glass rail.

DOOR

- Wear-resistant laminated black vinyl exterior with heavy gauge galvanized steel liner.
- Each door fitted with 12" (305 mm) long recessed handle that is foamed-in-place with a sheet metal interlock to ensure permanent attachment.

- Positive seal doors.
- Magnetic door gasket(s) of one piece construction, removable without tools for ease of cleaning.
- Door lock standard.

LIGHTING

- LED interior lighting.

MODEL FEATURES

- Evaporator is epoxy coated to eliminate the potential of corrosion.
- Designed to accommodate all types of beer kegs.
- Listed under NSF/ANSI Standard 7 for the storage and/or display of packaged or bottled product.

ELECTRICAL

- Unit completely pre-wired at factory and ready for final connection to a 115/60/1 phase, 15 amp dedicated outlet. Cord and plug set included.



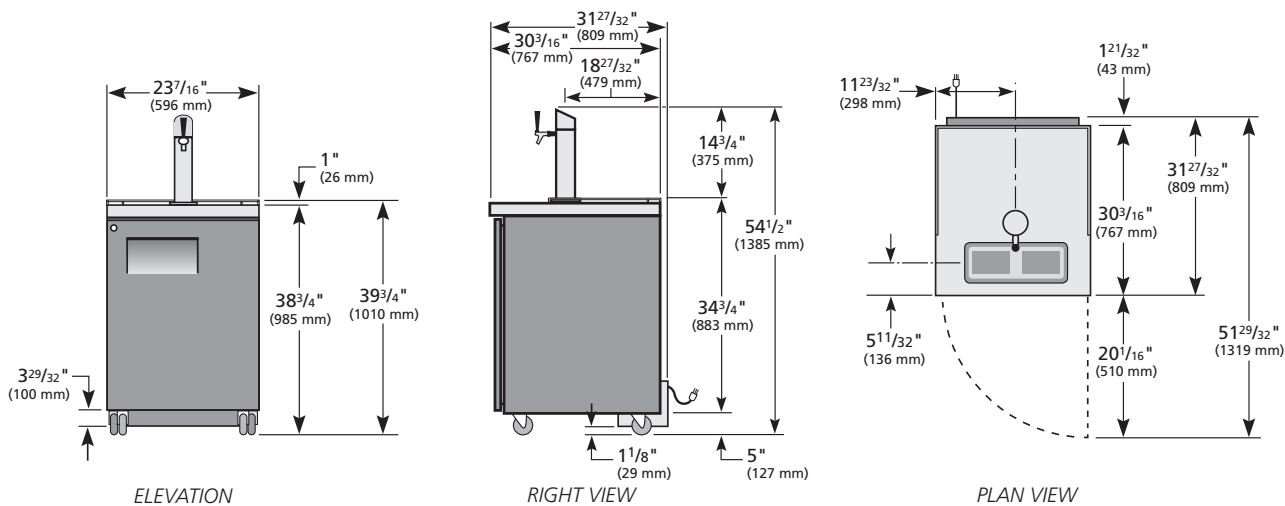
115/60/1
NEMA-5-15R

OPTIONAL FEATURES/ACCESSORIES

Upcharge and lead times may apply.

- Double headed draft column.
- Triple headed draft column.
- Two-way tapper manifold.
- Draft cap.

PLAN VIEW



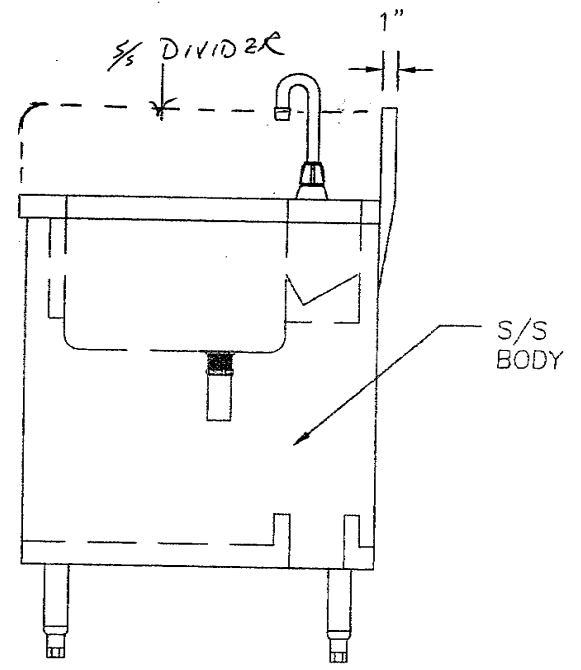
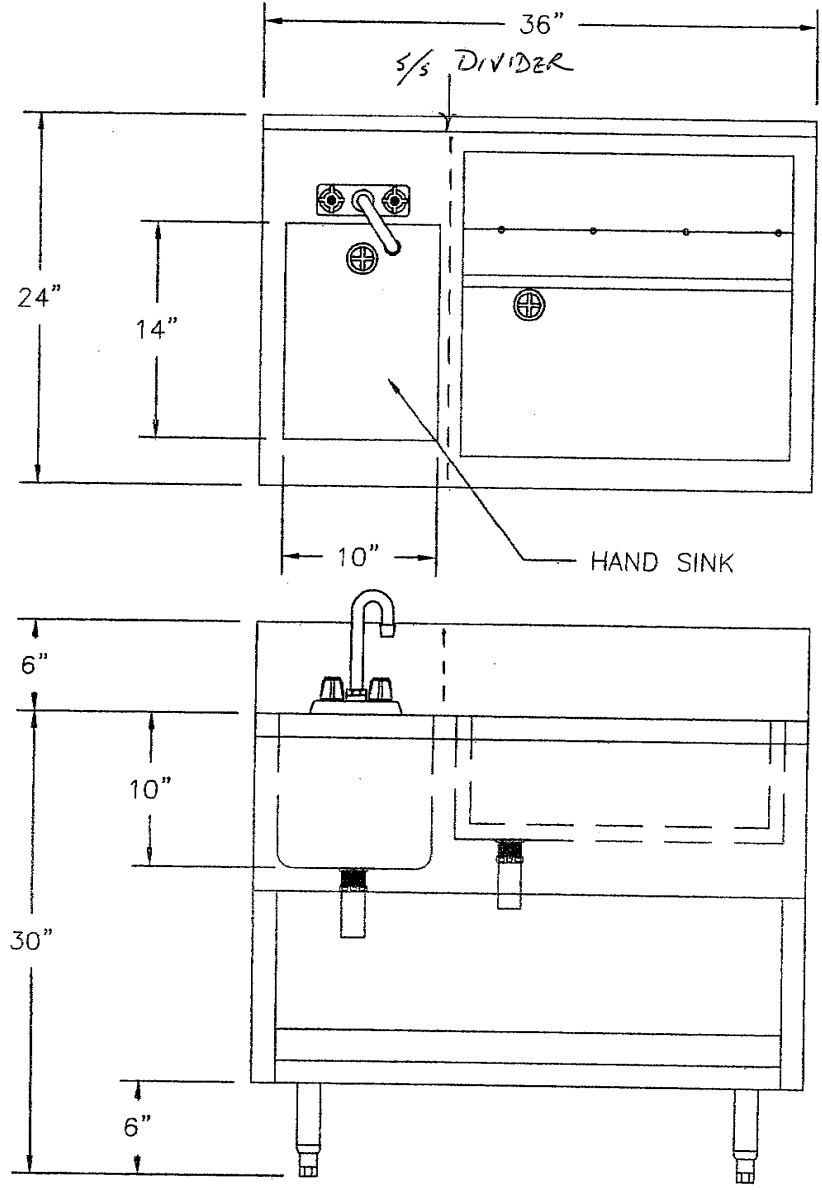
WARRANTY
 Three year warranty on all parts and labor and an additional 2 year warranty on compressor. (U.S.A. only)

METRIC DIMENSIONS ROUNDED UP TO THE NEAREST WHOLE MILLIMETER
 SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE



| Model | Elevation | Right | Plan | 3D | Back |
|----------|-----------|---------|---------|---------|------|
| TDD-1-HC | TFHY04E | TFHY04S | TFHY04P | TFHY043 | |

TRUE MANUFACTURING CO., INC.



Supreme
皇冠爐頭鋼具

| | |
|-----------|---------------------------|
| PROJECT: | — |
| TITLE: | ALL S/S COCKTAIL SINK. |
| DWG. NO: | DS2012185 |
| DATE: | JUNE 19, 12 |
| SCALE: | 1":1' |
| SALESMAN: | DY |

NOTE:

| | |
|----|----|
| 1. | 4. |
| 2. | 5. |
| 3. | 6. |



SUPERIOR. RELIABLE. EFFICIENT.

ES-2000HT VaporVent Dishmachine

- ▲ High-temperature machine design with onboard booster heater delivers superior results
- ▲ Patented Vapor Vent system saves thousands of dollars in construction costs since no vent hood is required*
- ▲ Unique design helps ensure uncontaminated water is used in every cycle

Vapor Vent technology delivers the benefits of high-temp warewashing without the costs of a hood vent.*



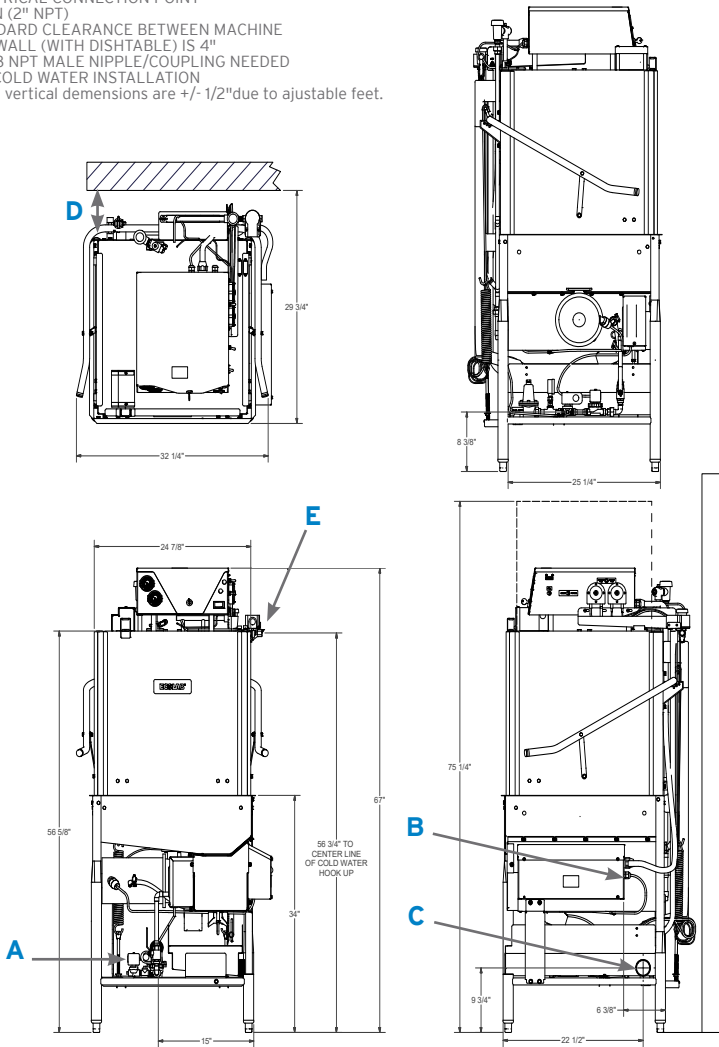
Superior Results, 24/7 Service and a Great Financial Option.

ES-2000HT VAPOR VENT SPECIFICATIONS

LEGEND

- A - WATER INLET (1/2" NPT)
- B - ELECTRICAL CONNECTION POINT
- C - DRAIN (2" NPT)
- D - STANDARD CLEARANCE BETWEEN MACHINE AND WALL (WITH DISHTABLE) IS 4"
- E - 3/8 -18 NPT MALE NIPPLE/COUPLING NEEDED FOR COLD WATER INSTALLATION

NOTE: All vertical dimensions are +/- 1/2" due to adjustable feet.



VaporVent

- No external ventilation system required - saves thousands of dollars in construction costs*
- Significant energy savings each month with less demand on heating and air conditioning system
- Vapor Vent system requires no additional space



Image shown represents Vapor Vent placement. Dishmachine shown is representative only.

SPECIFICATIONS

| OPERATING CAPACITY | |
|--|-----------|
| Racks Per Hour | 37 |
| OPERATING CYCLE NORMAL | |
| Wash Time | 41 |
| Dwell Time | 8 |
| Rinse Time | 11 |
| Load Time | 5 |
| Vent Time | 32 |
| Total Cycle Time | 97 |
| OPERATING TEMPERATURES | |
| Wash (minimum) | 150°F |
| Sanitizing Rinse (minimum) | 180°F |
| WATER CONSUMPTION | |
| Gallons Per Rack | 1.25 |
| ELECTRICAL RATINGS | |
| Wash Pump Motor, Horsepower | 3/4 hp |
| WASH CHAMBER | |
| Height | 17" |
| WEIGHT | |
| Machine Weight | 300 lb |
| UTILITY REQUIREMENTS, ELECTRICAL | |
| Voltage/Frequency/Phase: 230V/60Hz/3 Ph | |
| Total Amperage | 43 A |
| Minimum Electrical Circuit | 60 A |
| Voltage/Frequency/Phase: 230V/60Hz/1 Ph | |
| Total Amperage | 68.8 A |
| Minimum Electrical Circuit | 90 A |
| Voltage/Frequency/Phase: 208V/60Hz/3 Ph | |
| Total Amperage | 46.8 A |
| Minimum Electrical Circuit | 60 A |
| Voltage/Frequency/Phase: 208V/60Hz/1 Ph | |
| Total Amperage | 75.2 A |
| Minimum Electrical Circuit | 100 A |
| WATER | |
| Waterline Size (minimum) | 1/2" |
| Flow Pressure (required) | 15-25 psi |
| Incoming Temperature (minimum) | 110°F |
| Cold Waterline Size (minimum) | 3/8" |
| Cold Flow Pressure (required) | 20 psi |
| DRAIN | |
| Drainline Size (minimum) | 2" |

370 Wabasha Street N St. Paul, MN 55102
www.ecolab.com 1 800 35 CLEAN

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* Check with local building official to determine if an exhaust hood is required.

