PROJECT SPECIFICATIONS

TRUE VISION BAPTIST CHURCH

NEW MULTIPURPOSE FACILITY

RELEASE DATE _____

SET NUMBER _____

PROJECT LOCATION: 2826 ACKERMAN RD • KIRBY, TX • 78219

Project Directory:

Owner:	True Vision Church 5814 Rittiman Plaza San Antonio, TX 78218-5231 (210) 590-4460
Designer/General Contractor:	Timbercon Construction, Inc. 1241 Universal City Blvd. Universal City, Texas 78148 (210) 590-2544 Fax: 590-2352
Civil Engineer:	John B. Luce, P.E. P.O. Box 405 Bulverde, TX 78163 (830) 980-7878 Fax: (830) 980-7842
Structural Engineer:	J.M. Nunn, P.E. Hill Country Structural 1204 N. Llano, Suite D Fredricksburg, TX 78624 (830) 990-4700 Fax: 990-4718 Contact: J. M. Nunn P.E.
Plumbing Designer:	David Vasquez 7221 Lamb Rd San Antonio, TX 78240 (210) 865-2294
Electrical Designer:	Triple R Electric 19892 FM 2252 Garden Ridge, TX 78266 (210) 946-5522 Fax: 946-9042 Contact: Randy Amescua
HVAC Designer:	Potter Air Conditioning 9327 Ranchero San Antonio, TX 78240 (210) 690-5826 Contact: Phil Potter

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Section 01010-Summary of Work

PART 1 – GENERAL

I. SUMMARY

A. Description of Work: Unless otherwise specified, the Contractors shall supply all labor, transportation, materials, apparatus, fuel, light, water, scaffolding, and tools necessary for the entire proper and substantial completion of the work, entitled True Vision Church. He must maintain and remove all equipment of construction and other utensils, and be responsible for lawful construction and use of the same. He shall construct, complete, in an excellent and workmanlike manner, ready for occupancy and use, the building and all appurtenances, inclusive of all items incidental thereto, as shown on the drawings, stated in the specifications, or reasonably implied by either, in strict accordance with the contract documents.

B. Permits: Apply for, obtain, and pay for permits required to perform the work. Submit copies to Timbercon Construction, Inc.

C. Codes: Comply with applicable codes and regulations of authorities having jurisdiction. Submit copies of inspection reports, notices and similar communications to Timbercon Construction.

D. Testing: An independent testing firm will be hired to provide structural testing as specified for concrete, structural fill and structural steel. Refer to structural notes for testing schedule. Additional testing required when test results indicate specified structural characteristics have not been attained will be at subcontractor's expense. Coordinate with Timbercon Construction and testing service.

E. Dimensions: Verify dimensions indicated on drawings with actual field dimensions before fabrication or ordering of materials. Do not scale drawings.

F. Existing Conditions: Notify Timbercon in writing of existing conditions differing from those indicated on the drawings prior to any work relating to differing conditions.

G. Definitions for terms used in the specifications:

1. Provide: Furnish and install, complete with all necessary accessories, ready for intended use. Pay for all related costs.

2. Approved: Acceptance of item submitted for approval. Not a limitation or release for compliance with the Contract Documents or regulatory requirements.

H. Intent: Drawings and specifications are intended to provide the basis for proper completion of the work suitable for the intended use of the Owner. Anything not expressly set forth but which is reasonably implied or necessary for proper performance of the project shall be included. In the event of conflict between the specifications and drawings, the drawings take precedence.

I. Application for payment: the Owner shall make payment for the work monthly. It shall be based on approved request for payment submitted to the Owner by Timbercon Construction on standard A.I.A. form 702 and G 702A. The request shall be for only material and labor properly incorporated in the work and material suitably stored on site. Materials and/or equipment stored off-site shall not be included in any request for payment unless documentation is submitted that verifies the item is insured and is assigned exclusively as property of the Owner. The request shall be submitted on the twenty-fifth day of each month for percentage of work completed up to the twenty-fifth day of the month. A certificate of substantial completion shall be issued to the contractors when the work is sufficiently complete for the Owner to use the facility for its intended purpose. Upon receipt of this certificate, 90% of the contract sum is due less the cost of the items remaining incomplete. The final payment including all retainage progressively withheld through out the term of the project, shall be made thirty (30) days after all work has been completed. This project is tax exempt.

J. Change Orders: Any changes in the work of the contract shall be documented and submitted in writing to Timbercon Construction for approval. Request must be signed by a corporate officer of Timbercon Construction to be valid. No change in work should commence until approval in writing has been received. No payment will be made on any changes or modifications of work that have not been properly approved and signed.

K. Lien waivers, releases, and receipts: The Owner reserves the right to demand and receive clear lien waivers, release of liens, and/or receipted bills from all parties who may have a lienable claim on the involved property of the Owner. If the contractor fails to furnish evidence of payment upon request, the Owner shall have no obligation to make further payments on that part of the work involving the lienable claim until the same is furnished.

PART 2 – PRODUCTS – Not applicable to this section

PART 3 – EXECUTION – Not applicable to this section.

END OF SECTION 01010

Section 01020-Allowances

PART 1 – GENERAL

I. SUMMARY

A. Allowance amounts below are for materials and installation.

B. Coordinate allowances with requirements for related and adjacent work.

C. Notify Owner of date when final decision on allowance items is required to avoid delays in the work.

D. Furnish certification that quantities of products purchased are the actual quantities needed with reasonable allowance for cutting or installation losses, tolerances, mixing waste and similar margins.

PART 2 – PRODUCTS – Not Applicable To This Section

PART 3 – EXECUTION

I. SCHEDULE

A. Allow a $4,000 allowance for testing.

B. Allow a $3,000 allowance for toilet accessories.

C. Allow a $2.00 per foot allowance for ceramic tile material.

D. Allow a $1,000 allowance for interior signage.

E. Allow a $25 per yard allowance for carpet installed.

END OF SECTION 01020

Section 01030-Alternates

PART 1 – GENERAL

I. SUMMARY

A. Owner will determine which alternates are selected for inclusion in the Contract.

B. Alternates are described briefly in this section. The Contract Documents define the requirements for the alternate(s).

C. Coordinate alternates with related work to ensure that work affected by each selected alternate is properly accomplished.

PART 2 – PRODUCTS – None applicable to this section

PART 3 – EXECUTION

I. SCHEDULE OF ALTERNATES

A. Alternate #1 – Balcony finish out in sanctuary

B. Alternate #2 – Construction of detached garage

C. Alternate #3 – Flush valve water closets in restrooms 128 and 129

Restrooms 128 and 129 to include flush valve water closets in lieu of flush tanks. Incoming domestic waterline shall be 3” in lieu of 2” for the alternate. Plumbing contractor shall be responsible for making the necessary changes to the pipe sizes.

END OF SECTION 01030

Section 01100-Project Coordination

PART 1 – GENERAL

I. SUMMARY

A. Coordination: Coordinate various elements of the work and entities engaged to perform work and coordinate the work with existing facilities/conditions, and with the work done by separate contractors.

B. Installer Inspections: Installer of each major unit of work to inspect substrate and conditions for installation and to report unsatisfactory conditions. Correct unsatisfactory conditions before proceeding. Inspect each product immediately before installation. Do not install damaged or defective products, materials or equipment.

C. Comply with Manufacturer's instructions and recommendations to extent printed information is more detailed or stringent than requirement contained directly in contract documents.

D. Timing: Install work during time and under conditions which will ensure best possible results, coordinated with required inspection and testing.

E. Anchor work securely in place, properly located by measured line and level, organized for best possible uniformity, visual effect, operational efficiency, durability, and similar benefit to Owner's use. Isolate non-compatible materials from contact, sufficiently to prevent deterioration.

F. Cleaning and Protection: Clean each element of work at time of installation. Provide sufficient maintenance and protection during construction to ensure freedom from damage and deterioration at time of substantial completion.

PART 2 – PRODUCTS – Not applicable to this section

PART 3 – EXECUTION – Not applicable to this section.

END OF SECTION 01100

Section 01300-Submittals

PART 1 – GENERAL

I. SUMMARY

A. Comply with project format for submittals.

B. Provide types of submittals listed in individual sections and number of copies required.

1. Shop drawings, reviewed and annotated by the Contractor – 6 blackline prints.
2. Product data – 6 copies
3. Samples – 2, plus extra samples as required to indicate range of color, finish, and texture to be expected.
4. Mock-ups – as required by the individual sections.
5. Inspection and test reports – 2 copies.
6. Warranties – 2 copies
7. Survey data – 2 copies
8. Close-out submittals (as-builts) and operation manuals – 2 copies.

C. Provide required resubmittals if original submittals are not approved. Provide distribution of approved copies including modifications after submittals have been approved.

D. Samples and shop drawings shall be prepared specifically for this project. Shop drawings shall include dimensions and details, including adjacent construction and related work. Note special coordination required. Note any deviations from requirements of the Contract Documents.

E. Provide warranties as specified; warranties shall not limit length of time for remedy of damages, Owner may have by legal statute. Warranties shall be signed by the Contractor, supplier or installer responsible for performance of the warranty.

PART 2 – PRODUCTS – Not applicable to this section

PART 3 – EXECUTION – Not applicable to this section

END OF SECTION 01300

Section 01500 – Temporary Facilities

PART 1 – GENERAL

I. SUMMARY

A. Provide temporary services and utilities, including utility costs:

1. Water
2. Lighting and power
3. Metering
4. Telephone or other means of communication at the job site.
5. Portable toilet facilities
6. Materials Storage

B. Provide construction facilities, including utility costs:

1. Construction equipment
2. Dewatering and pumping, as required.
3. Access.

C. Provide security and protections requirements:

1. Fire extinguishers
2. All items intended for installation on the project.
3. Environmental protection.

D. Provide personnel support facilities:

1. Contractor's field office
2. Sanitary facilities
3. Cleaning and trash removal

PART 2 – PRODUCTS – Not applicable to this section

PART 3 – EXECUTION – Not applicable to this section

END OF SECTION 01500

Section 01600-Products and Substitutions

PART 1 – GENERAL

I. SUMMARY

A. Provide products from one manufacturer for each type or kind as applicable. Provide secondary materials as recommended by manufacturers of primary materials.

B. Provide products selected or approved equal. Products submitted for substitution shall be submitted with acceptable documentation, and include costs of substitution including related work. All substitutions shall be documented and submitted in writing.

C. Conditions for substitution include:

1. An “or equal” phrase in the specifications.
2. Specified material cannot be coordinated with other work.
3. Specified material is not acceptable to authorities having jurisdiction.
4. Substantial advantage is offered Owner in terms of cost, time, or other valuable consideration.

D. Substitutions shall be submitted prior to award of contract, unless otherwise acceptable. Approval of shop drawings, product data, or samples is not a substitution approval unless clearly presented as a substitution at the time of submittal.

PART 2 – PRODUCTS – Not applicable to this section

PART 3 – EXECUTION – Not applicable to this section

END OF SECTION 01600

Section 01700- Contract Close-out

PART 1 – GENERAL

I. SUMMARY

A. The following are prerequisites to substantial completion. Provide the following:

1. Punch list
2. Supporting documentation
3. Warranties
4. Certifications
5. Occupancy permit
6. Start-up and testing of building systems
7. Change over of locks

B. Provide the following prerequisites to final acceptance:

1. Final payment request with supporting affidavits
2. Completed punch list

C. Provide a marked-up set of Record Drawings and Project Manual including changes which occurred during construction (as-builts).

D. Provide the following close-out procedures:

1. Submission of record documents
2. Submission of maintenance manuals
3. Review of systems and operating instruction with Owner prior to turnover to Owner
4. Final cleaning and touch-up
5. Removal of temporary facilities

PART 2 – PRODUCTS – Not applicable to this section

PART 3 – EXECUTION – Not applicable to this section

END OF SECTION 01700

Section 01800- Insurance Requirements

PART 1 – GENERAL

I. SUMMARY

A. Subcontractors are required to show Timbercon Construction, Inc. as additional insured on insurance.

END OF SECTION 01800

Section 02110-Site Clearing

PART 1 – GENERAL

I. SUMMARY

A. Clear and grub any remaining trees, stumps, vegetation, debris, rubbish, and designated improvements from the site. Coordinate with Timbercon Construction at final project stake-out to determine exact extents of vegetation to be removed and vegetation to remain.

B. Protect existing trees to remain as per landscaping plan and other items not scheduled for clearing, or that might be damaged by construction activities.

C. Strip any remaining topsoil and stockpile at approved location on-site.

D. Provide temporary erosion and dust control

E. Do not disturb benchmarks or monuments.

PART 2 – PRODUCTS – Not applicable to this section

PART 3 – EXECUTION

I. CLEARING

A. Prevent damage to existing improvements indicated to remain, including improvements on and off site. Protect existing trees and vegetation indicated to remain. Do not stockpile materials and restrict traffic within drip line of trees. Provide and maintain temporary guards to encircle trees or groups of trees as per the Landscape Plans and City requirements. Obtain approval from Timbercon Construction before beginning work.

B. Water vegetation as required to maintain health. Cover temporarily exposed roots with wet burlap and backfill as soon as possible. Coat cut plant surfaces with approved emulsified asphalt plant coating.

C. Repair or replace vegetation which has been damaged or pay damages. Remove heavy growths of grass before stripping. Stockpile satisfactory topsoil without stones, foreign matter and weeds in locations as directed.

D. Control erosion and siltration as required by authorities having jurisdiction. Control windblown dust. Remove waste materials and unsatisfactory topsoil from site and dispose of in a legal manner.

END OF SECTION 02110

Section 02200-Earthwork

PART 1 – GENERAL

I. SUMMARY

A. Perform excavation, filling, compacting and grading operations both inside and outside building limits as required for below-grade improvements and to achieve contours and elevations indicated. Provide trenching and backfill for mechanical and electrical work and utilities.

B. Provide base materials, drainage fill, and common fill materials for slabs and improvements.

C. Provide suitable fill from off-site if on-site quantities are insufficient or unacceptable, and legally dispose of excess fill off-site.

II. SUBMITTALS

A. Submit for approval test reports, list of materials and gradations proposed for use.

III. QUALITY ASSURANCE

A. Comply with governing codes and regulations. Use experienced installers. Deliver, handle and store materials in accordance with manufacturer's instructions.

B. Testing and inspection service: The Owner will employ a qualified independent geotechnical engineering testing agency to classify proposed on-site and borrow soils to verify that soils comply with specified requirements and to perform required field and laboratory testing.

IV. GEOTECHNICAL INVESTIGATION

END OF SECTION 02200

Section 02510-Asphaltic Concrete Pavement

PART 1 – GENERAL

I. DESCRIPTION

A. This item shall consist of a surface course as shown on the plans, to be composed of a compacted mixture of mineral aggregate and asphaltic material. The pavement shall be constructed on the approved base as herein specified and in accordance with the details shown on the plans.

PART 2 – PRODUCTS

I. MATERIALS

A. Materials used in Hot Mix Asphaltic Concrete Pavement shall meet the requirements as set forth in Item 340 “Hot Mix Asphaltic Concrete Pavement (Class A)” of the Texas Department of Transportation (TX DOT) Standard Specification.

II. PAVING MIXTURES

A. Paving mixtures used shall be Type D. These mixtures shall conform to the requirements of “Hot Mix Asphaltic Concrete Pavement (Class A)” of the Standard Specifications of TX DOT.

III. EQUIPMENT

A. Equipment used in mixing, weighing, heating, spreading and compacting Hot Mix Asphaltic Concrete Pavement shall meet the requirements of “Hot Mix Asphaltic Concrete Pavement (Class A)” of the TX DOT Standard Specifications.

PART 3 – EXECUTION

I. CONSTRUCTION METHODS

A. Construction methods used in laying Hot Mix Asphaltic Concrete Pavement shall meet the requirements as set forth in “Hot Asphaltic Concrete Pavement (Class A)” of TX DOT Standard Specifications, with the following exception:

1. Application of Hot Mix Asphaltic Concrete Pavement shall not begin unless the air temperature is at least fifty degrees (50°) Fahrenheit in the shade and rising.

2. The surface upon completion shall be smooth and in conformity with typical sections and to the established lines and grades. Any deviation in excess of ¼" in cross section and length of 16 feet measured longitudinally shall be corrected. All irregularities, depressions, or weak spots which develop shall be corrected.

II. FIELD QUALITY CONTROL

A. A flood test will be performed to assure of proper drainage and to check for bird baths. Bird baths are not acceptable and will require remedial action.

END OF SECTION 02510

02577-Pavement Markings

PART 1 – GENERAL

I. SUMMARY

A. Apply pavement marking on surface of asphalt pavement that has been freshly sealcoated.

II. SUBMITTALS

A. Submit manufacturer's product specification and installation instruction for marking paint.

III. JOB CONDITIONS

A. Do not apply marking paint when weather is foggy or rainy, or when ambient or pavement temperature is below 40ºF. or when such conditions are anticipated during eight (8) hours after application.

IV. REGULATORY REQUIREMENTS

A. Handicap parking space markings shall conform to the State of Texas requirements.

PART 2 – PRODUCTS

I. MATERIALS

A. Marking Paint: Use chlorinated rubber type traffic-lane marking paint (FS TT-P-115, Type III). Colors as required for parking striping and fire lanes, etc.

B. Equipment: Pressurized, self-contained paint machine capable of applying a strait line from 2" to 6" wide, with consistent coverage of a minimum of 100 square feet per gallon.

PART 3 – EXECUTION

I. SURFACE PREPARATION

A. Make sure that pavement area to be marked is complete dry and free of all debris and foreign material.

II. LAYOUTS AND ALIGNMENT

A. Suitable layouts and lines of proposed stripes shall be spotted in advance of the paint application. Space Control points at such intervals as will ensure accurate location of marking

B. Provide experienced technician to supervise the location, alignment, layout, dimensions, and application of the paint.

III. APPLICATION

A. Rate of application: paint shall be applied evenly to the pavement surface to be coated at a rate recommended by the paint manufacturer.

B. Paint shall be applied to clean, dry surfaces and unless otherwise approved, only when air and pavement temperatures are above 40ºF and less than 95ºF. Paint temperature shall be maintained within these limits. The contractor shall provide guidelines and templates as necessary to control paint application. Special precautions shall be taken in marking numbers, letters and symbols. All edges of markings shall be sharply outlined. The maximum drying time requirements of the paint specifications will be strictly enforced. If there is a deficiency in drying of the markings, painting operations shall be discontinued until the cause of the slow drying is determined and corrected.

C. Suitable warning signs shall be placed near the work site to alert approaching traffic from all directions. Contractor shall be responsible for preventing damage to newly painted surfaces.

IV. DEFECTIVE WORKMANSHIP OR MATERIAL

A. When any material not conforming to the requirements of the specifications or plans has been delivered, contractor shall be responsible for correcting the defective and/or unsatisfactory results.

END OF SECTION 02577

03100-Formwork

PART 1 – GENERAL

I. SCOPE

A. Form all cast-in-place concrete indicated on the drawings and subsequently remove all such forms.

II. RELATED WORK SPECIFIED ELSEWHERE

A. Foundation Reinforcement Section 03200

B. Cast-in-place Concrete Section 03300

C. Concrete formwork included in other sections of these specifications that is not specifically described shall meet the requirements of this section.

D. Metal sleeves, base plates, anchors, hangers, dovetail anchor slots, and all embedments: Furnish and locate by respective trade or by Timbercon Construction. Secure approval of Engineer for installation of all sleeves and conduits in structural members.

III. QUALITY ASSURANCE

A. Qualification of Workmen: Provide at least one person who shall be present at all times during the execution of this portion of the work, who shall be thoroughly familiar with the type of materials being installed, the referenced standards, and the requirements of this work, and who shall direct all work performed under this section.

B. Codes and Standards: Comply with all pertinent codes and regulations for foundation formwork that have jurisdiction. When provisions of pertinent codes and standards conflict with the requirements of this section of these specifications, the more stringent provisions shall govern.

C. Provide a one (1) year written warranty to begin from date of substantial completion of the entire project.

IV. PRODUCT HANDLING

A. Protection: Use all means necessary to protect formwork materials before, during, and after installation and to protect work and materials of all other trades.

B. Replacements: In the event of damage, immediately make all repairs to the approval of the Engineer and Timbercon Construction.

PART 2 – PRODUCTS

I. FORM MATERIALS

A. Wood Forms: Capable of meeting all requirements described in FORM CONSTRUCTION paragraph in this section.

B. Unexposed surfaces: #2 common or better, plywood.

C. Exposed surfaces: New or like-new moisture resistant fir form plywood. Surface must be smooth, completely free from scratches, indentations, unsound surface knots, ripples, etching, prominent grain, depressions, warps or breaks. "Exposed surfaces" include concrete surfaces which are to be painted or dash coated.

II. MISCELLANEOUS MATERIALS

A. Vapor Barrier: At fill supported slabs, unless detailed otherwise, install 6 mil. Polyethylene plastic vapor barrier with minimum laps of 12".

B. Tie and Spreaders: All form ties shall be a type which does not leave an opening through the concrete (regular snap ties) and which permits neat and solid patching of every hole.

PART 3 – EXECUTION

I. FORM CONSTRUCTION:

All aspects of formwork, including the design, construction, upkeep, maintenance and removal, is the contractor's responsibility. The contractor shall provide formwork that is safe and properly designed for the specific method of concrete placement, type of vibration and construction loads which he will employ.

II. SURFACES TO BE FORMED

Form outside face of all grade beams above existing grade and 8" below finish grade unless shown otherwise on plans, and remove all such form work prior to backfilling.

III. FORMING DETAILS

Conform to shape, lines, grade and dimensions required by drawings; use plywood sheets as large as practical; all surfaces straight, plumb and properly braced; joints accurately matched and mortar-tight. Maintain sufficiently rigid to prevent deformation under load. Clean and oil forms before reuse. Forms shall be readily removable without hammering or prying against concrete.

IV. CONDUIT IN SLABS

Individual conduits in slabs shall not exceed 1" diameter. Groups of conduits or conduits larger than 1" diameter will require slab to be thickened to maintain full scheduled thickness.

V. FORM TIES

Use regular snap ties. No metal shall be within one inch of finished surface when forms are removed. Wire ties not permitted.

VI. CHAMFER STRIPS

Use at all angles of concrete which are exposed to view, unless shown otherwise.

VII. EXPANSION JOINTS

Unless noted otherwise, place preformed asphaltic expansion joint material in forms where indicated on plans.

VIII. SLAB AND BEAMS ON FILL

A. See structural plans for details. Form outside face of all perimeter beams, slabs, turndowns, and any other concrete exposed to view with wood forming to a depth of 8" below finished grade unless shown otherwise on plans, and remove all such formwork prior to backfilling. Form masonry lugs, floor drops and recesses as indicated on plans.

B. Except for wood forming specified above, form beams and slabs with carefully shaped fill material as specified on plans. Excavation of beam trenches shall be done with either a smooth-mouthed bucket or with hand labor to produce a firm undisturbed soffit. Failure to do so may require compaction of the bottom of the trenches according to recommendations of the geotechnical engineer.

C. Support reinforcing steel on concrete blocks or bricks spaced approximately 4'-0" o.c. in each direction.

D. Vapor barrier shall extend down sides of beams and under beam soffits.

IX. CONSTRUCTION JOINTS

A. Provide and locate as necessary in cast-in-place concrete.

B. Form keyways as required in cast-in-place concrete for transfer of shear and other forces through the joint.

X. OILING OF FORMS

A. Lightly coat with non-staining form oil for exposed surfaces. Before placing reinforcing, remove surplus oil.

B. Forms for unexposed surfaces may be thoroughly wetted with water in lieu of oiling immediately before placing concrete.

XI. REMOVAL OF FORMS

Side forms of beams may be removed after cumulatively curing at not less than 50ºF for 24 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form removal operations, and provided curing and protection operations are maintained.

END OF SECTION 03100

03200-Reinforcing Steel

PART 1 – GENERAL

I. SCOPE: Furnish and install all reinforcement and associated items required and/or indicated on the drawings for all cast-in-place concrete.

II. RELATED WORK SPECIFIED ELSEWHERE

A.	Foundation Formwork	Section 03100
B.	Cast-in-place Concrete	Section 03300

III. QUALITY ASSURANCE

A. Qualifications of Workmen: Provide at least one person who shall be present at all times during execution of this portion of the work and who shall be thoroughly familiar with the type of materials being installed and the best methods for their installation and who shall direct all work performed under this section.

B. Codes and Standards: Comply with all pertinent codes and regulations for concrete reinforcement that have jurisdiction. Where provisions of pertinent codes and standards conflict with this specification, the more stringent provisions shall govern.

IV. SUBMITTALS

A. Shop Drawings

1. The contractor shall obtain completely detailed shop drawings showing placement plans, bar bending lists, etc. Include the specific location and size of all accessories, chairs and bar supports. The contractor shall carefully check these drawings, then submit them to Timbercon Construction/Engineer. Timbercon Construction/Engineer may conduct limited spot checks aimed solely at determining general comprehension of the design intent, then return them to the contractor. The contractor shall then carefully recheck the shop drawings and approve them prior to fabrication. Provide a minimum of 6 sets of drawings.

2. The Engineer’s spot check shall not relieve the contractor from correcting, at his own expense, any items that may thereafter be found not to comply with the plans and specifications.

B. Certificates: When requested by the Engineer, supplier of reinforcing steel and other embedded materials shall furnish certified evidence that all materials delivered to the project meet the requirements of this section of the specification.

V. PRODUCT HANDLING

A. Protection:

1. Use all means necessary to protect concrete reinforcement before, during and after installation and to protect the installed work and materials of all other trades.
2. Store in a manner to prevent excessive rusting and fouling with dirt, grease and other bond-breaking coatings.
3. Use all necessary precautions to maintain identification after the bundles are broken.
4. Concrete reinforcement included in other sections of these specifications that is not specifically described shall meet the requirements of this section.
5. Mechanical and electrical equipment, conduit, etc.: Provide adequate reinforcing steel as approved by Engineer for all required mechanical equipment and all required openings through beams, slabs, etc., and for distribution of equipment loads to structural members.

PART 2 – PRODUCTS: SEE DRAWINGS

PART 3 – EXECUTION: SEE DRAWINGS

I. FABRICATION

A. The contractor shall be responsible for obtaining properly fabricated reinforcement and placing it properly.

B. Reinforcing steel, at the time concrete is placed, shall be free from rust, scale, dried concrete, or other coatings that will destroy or reduce bond.

C. Reinforcing steel shall be accurately bent and placed in position, securely tied or supported to prevent movement during placing of concrete. Field bends will not be permitted without prior approval from Engineer. Spacer bars, supports and accessories are not scheduled but are to be furnished and placed as needed.

END OF SECTION 03200

Section 03300-Cast-In-place Concrete

PART 1 – GENERAL

I. SEE DRAWINGS AND GENERAL NOTES.

PART 2 – PRODUCTS

I. SEE DRAWINGS AND GENERAL NOTES.

PART 3 – EXECUTION

I. SEE DRAWINGS AND GENERAL NOTES.

END OF SECTION 03300

Section 03355-Stained Concrete

PART 1 – General

I. SCOPE

A. Furnish all labor and material for complete installation of all stained concrete as shown in Drawings.

II. SUBMITTALS

A. Submit manufacturer's product data and color chart of at minimum 8 basic colors of acid stain. Colors to be selected by Owner.

B. New concrete to be stained: Provide 36" x 36" sample panels, poured from the same concrete batch as is being poured for those areas to be stained.

C. Provide sample panels of stained and finished concrete for approval by Building Designer and Owner. If this sample is not satisfactory, additional samples will be provided until approval by Building Designer and Owner. Retain all samples until final work is complete.

III. QUALITY ASSURANCE

A. Use only trained installers for this portion of the work who have experienced working with specified materials. Installers are to have successful completed at least five installations of these materials in the last two years.

PART 2 – PRODUCTS

I. MATERIALS

A. Concrete Stain: Equal to “Kemiko Stone Tone Stain.”
Color to be selected by owner.

B. Concrete Sealer: Two part polyurethane sealer – submit for approval.

PART 3 – EXECUTION

I. EXAMINATION

A. Examine substrates and conditions, with installer present, for compliance with requirements for installation tolerances and other conditions affecting application of special concrete finishes. Do not proceed with application until unsatisfactory conditions have been corrected.

II. FINISH CONCRETE

A. All new concrete to cure for a minimum of 30 days.

B. Prior to application of stain, thoroughly clean concrete and leave in dry, dust-free condition. Refer to manufacturer’s recommendations for removal of any deleterious materials.

C. On all new and existing concrete scheduled to be stained, provide plywood protection boards to keep concrete from becoming permanently soiled during construction.

D. Thoroughly cover and seal off any finished materials, including walls and bases, which could become damaged by the application of the material. (Note: This material is acidic and may cause damage to unprotected finishes and materials.)

E. Apply stain according to manufacturer's specifications, taking care to work stain well into surface while avoiding pooling. After this coat has dried, apply second in same manner as the first. After second coat has dried, scrub with water to remove all residue and salts. Refer to manufacture's application instructions for additional requirements.

F. After concrete has thoroughly dried, apply concrete sealer and final coat, according to manufacture's recommendations.

III. REPAIRS AND CLEANING

A. Repair damaged special concrete-finished surfaces to match color, texture, and uniformity of surrounding surfaces and to match repairs to approved mockups.

B. Clean surfaces given special concrete finishes after treatment to remove stains, markings, dust, and debris.

C. Wash and rinse surfaces according to special concrete finish applicator's recommendations. Protect other work from staining or damage due to cleaning operations.

1. Do not use cleaning materials or processes that could change the appearance of concrete finishes.

IV. PROTECTION AND CLEANING

A. Protect all finished stained concrete floors for duration of construction with non-staining covering.

B. Thoroughly clean all adjacent materials which may have become soiled during the staining of the concrete. Any materials which become permanently damaged by this work shall be replaced at no additional cost to the owner.

END OF SECTION 03355

Section 04100-Mortar

PART 1 – GENERAL

I. RELATED SECTIONS

A. Section 04410-Stone Masonry Veneer

II. QUALITY ASSSURANCE

A. Design Criteria: The compressive strength of the mortar Type M, S, or N as set forth in ASTM C-270 and C 91.

B. Provide type M mortar against earth up to 4" above grade. Type II Portland Cement, lime and sand.

C. Provide Type S mortar above grade; Type I Portland Cement, lime and sand.

D. Use of masonry cement will not be permitted.

III. SUBMITTALS

A. Test Report: Submit certified test reports showing compliance with compressive strength (2500 PSI-Type M, 1800 PSI-Type S, 750 PSI-Type N) meeting property or proportion standards set forth in ASTM Designation C 270, using test procedures in accordance with ASTM C 270.

B. Stone Samples: Sets for each color, grade, finish and variety of stone required showing the full range of variations expected.

C. Colored Pointing Samples: For each color required

D. Submit manufactures installation instructions under provisions of section 01300.

PART 2 – PRODUCTS

I. MATERIALS

A. Mortar shall consist of a blend of Portland Cement ASTM C 150 Type I or Type I/II, hydrated lime ASTM C 207 Type S and ASTM C 144 sand.

II. PRODUCT DELIVERY, STORAGE & HANDLING

A. Deliver mortar mix to job site in sealed unit bags. Identify each bag with material name and type.

III. MIXES

A. Water is to be clean and free of deleterious acids, alkalis or organic materials.

B. Mortar color is to be 99% pure synthetic oxide without fillers, factory blended with mortar mix.

1. Color is to be selected by Timbercon.

C. Admixtures are not allowed.

1. Antifreeze compounds: Calcium chlorides or other antifreeze agents are not allowed.

2. Use of accelerators are not allowed.

IV. MORTAR MATERIALS AND PROPORTIONS

A. A mortar mix Specification ASTM Designation C 270 M, S, or N.

B. Tempering Mortars: Mortars that have stiffened shall be re-tempered by adding water as frequently as needed to restore the required consistency. No mortars shall be used beyond 2 ½ hours after mixing.

V. MOCK-UP

A. Provide mock-up of masonry under provisions of Section 01300.

B. Erect stone to 3x4 feet minimum panel size; include specified mortar and accessories.

C. When accepted, mock-up will demonstrate minimum standard for the work. Mock-up may not remain as part of the work.

PART 3 – FIELD QUALITY CONTROL

A. Cleaning: Never use acid. Use a proprietary cleaner in accordance with the manufacturer's directions.

B. Protection: To inhibit efflorescence, keep masonry work covered and protected during construction.

END OF SECTION 04100

Section 04410-Stone Masonry Veneer

PART 1 – GENERAL

I. SCOPE

A. Provide stone work for exterior veneer wall panels.

II. SUBMITTALS

A. Stone Samples: Sets for each color, grade, finish, and variety of stone required showing the full range of variations expected.

B. Colored Pointing Mortar Samples: For each color required.

C. Mockups: Before installing stone masonry veneer, construct sample wall panels, in location and of size indicated, to verify selections made under sample submittals and to demonstrate aesthetic effects and qualities of materials and execution.

III. QUALITY ASSURANCE

A. Installer: An experienced installer who has successfully completed stone masonry veneer similar to that indicated for this project.

B. Stain Prevention: Immediately remove mortar and soil to prevent them from staining the face of stone masonry veneer.

C. Cold-Weather Requirements: Do not build on frozen subgrade or setting beds. Remove and replace stone masonry veneer damaged by frost or freezing conditions.

D. Hot-Weather Requirements: Protect stone masonry veneer from excessive evaporation of water from mortar. Do not apply mortar to substrates with temperatures of 100º F (38º C) and above.

PART 2 – PRODUCTS

I. MATERIALS

A. Limestone: Local limestone. Owner to select cut style from industry standard.

B. Corrugated-Metal Ties: Provide ties of metal indicated, not less than 0.0299 inch (.75 mm) thick by 7/8 inch (22 mm) wide by 7 inches (178 mm) long.

1. Galvanized Carbon-Steel Sheet: ASTM A 366 (ASTM A 366M), cold-rolled, carbon-steel sheet hot-dip galvanized after fabrication to comply with ASTM A 153, Class B-2 or B-3, as applicable.

C. Embedded Flashing Materials: As follows:

1. Copper-Fabric Laminate: Copper sheet weighing 7 oz./sq. ft. (2 kg/sq. m), bonded with asphalt between 2 layers of glass-fiber cloth.

D. Miscellaneous Masonry Accessories: As follows:

1. Dampproofing for Limestone: Cementitious or bituminous formulations recommended by ILI.

2. Weep Holes: Provide the following:

a. Wicking Material: Cotton sash cord, in length required to produce 2-inch (50-mm) exposure on exterior and 18 inches (450 mm) in cavity behind stone masonry veneer.

E. Masonry Cleaners: As follows:

1. Acidic Cleaner: Manufacturer's standard-strength masonry cleaner designed for removing mortar/grout stains, efflorescence, and other stains from stone masonry surfaces of type indicated without discoloring or damaging masonry surfaces; expressly approved for intended use by stone producer.

PART 3 – EXECUTION

I. INSTALLATION

A. Preparation: Accurately mark stud centerlines on face of asphalt-saturated felt before beginning stone installation.

B. Setting Stone Masonry Veneer, General: Execute stone masonry veneer by skilled masons experienced with the kind and form of stone and installation method indicated.

1. Arrange stones for uniformity of appearance, with color and size variations uniformly dispersed for an evenly blended appearance.

2. Install concealed flashing and weep holes at shelf angles, lintels, ledges, and similar obstructions to downward flow of water to divert water to exterior.

    a. At wood and metal frame walls, extend flashing from exterior face of veneer, through the veneer, up face of sheathing at least 8 inches (200 mm), and behind asphalt-saturated felt.

    b. At lintels and shelf angles, extend flashing a minimum of 4 inches (100 mm) into masonry at each end. At heads and sills, extend flashing 4 inches (100 mm) at ends and turn up not less than 2 inches (50 mm) to form a pan.

    c. Trim wicking material used in weep holes flush with outside face of wall after mortar has set. Weep holes to be at 24 inches on center maximum.

C. Construction Tolerances: As follows:

1. Variation from Plumb: For vertical lines and surfaces, do not exceed ¼ inch in 10 feet (6mm in 3 m) or ¼ inch in 40 feet (12mm in 12m) or more. For external corners, expansion joints, control joints, and other conspicuous lines, do not exceed ¼ inch in 20 feet (6mm in 6m) or ½ inch in 40 feet (12mm in 12m) or more.

2. Variation from Level: For bed joints and lines of exposed lintels, sills, parapets, horizontal grooves, and other conspicuous lines, do not exceed ¼ inch in 20 feet (6mm in 6m) or ½ inch in 40 feet (12mm in 12m) or more.

3. Variation of Linear Building Line: For position shown in plan and related portion of walls, and partitions, do not exceed ½ inch in 20 feet (12mm in 6m) or ¾ inch in 40 feet (19mm in 12m) or more.

D. Install Anchored Stone Masonry Veneer: As follows:

1. Anchor masonry veneer to framing with adjustable masonry-veneer anchors to comply with the following requirements:

    a. Fasten each anchor section through sheathing to framing with 2 fasteners of type indicated.

    b. Embed tie section in mortar joints to within 1-1/2 inches (38mm) of face.

c. Space anchors as indicated, but not more than 18 inches (457mm) o.c. vertically and 24 inches (600mm) o.c. horizontally, with not less than 1 anchor for each 2 sq. ft. (0.2 sq. m.) of wall area. Install additional anchors within 12 inches (305mm) of openings and at intervals around perimeter not exceeding 12 inches (305mm).

2. Set stone in full bed of mortar with full head joints, unless otherwise indicated. Build anchors and ties into mortar joints as stone is set.

3. Provide 1-inch (25mm) air space between stone masonry veneer and back-up construction, unless otherwise indicated. Keep air space free of mortar droppings and debris.

E. In-progress cleaning: Clean stone masonry veneer as work progresses. Remove mortar fins and smears before tooling joints.

F. Final Cleaning: After mortar is thoroughly set and cured, remove large mortar particles with wooden paddles and nonmetallic scrape hoes or chisels and clean stone masonry veneer as follows:

1. Test cleaning methods on mock-up; leave one-half of panel uncleaned for comparison purposes.

2. Protect adjacent stone and nonmasonry surfaces from contact with cleaner.

3. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing thoroughly with clear water.

4. Clean stone by bucket and brush hand-cleaning method described in BIA Technical Note No. 20 Revised II.

5. Clean limestone to comply with recommendations in ILI's "Indiana Limestone Handbook."

G. Waste Disposal as Fill Material: Dispose of clean masonry waste, including unusable stone, waste mortar, and excess or soil-contaminated sand, by crushing and mixing with fill material as fill is placed.

1. Do not dispose of masonry waste as fill within 18 inches (450mm) of finished grade.

END OF SECTION 04410

Section 05100-Structural Steel

PART 1 – GENERAL

I. SEE DRAWINGS AND GENERAL NOTES.

PART 2 – PRODUCTS

I. SEE DRAWINGS AND GENERAL NOTES.

PART 3 – EXECUTION

I. SEE DRAWINGS AND GENERAL NOTES.

END OF SECTION 05100

Section 05520–Handrails

PART 1 – GENERAL

I. SECTION INCLUDES: HAND RAILING

II. SYSTEM DESCRIPTION

A. Design steel assemblies by licensed professional engineer, according to requirements of building code in force, for work to provide secure assemblies.

B. Verify conditions and details in which assemblies are to fit and design accordingly.

III. SUBMITTALS

A. Shop drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations and details.

PART 2 – PRODUCTS

I. MATERIALS

A. Steel sections: ASTM A36

B. Steel Plate: ASTM A283

C. Steel tubing: ASTM A500, Grade B.

D. Pipe: ASTM A53, Grade B Schedule 40.

E. Bolts, nuts, and washers: ASTM A325 galvanized to ASTM A153 for galvanized members.

F. Handrail fittings: Elbows, T-shapes, wall brackets, escutcheons; cast steel.

G. Welding materials: E60 Electrodes per AWS D1.1.

H. Shop and touch-up primer: SSPC 15, Type 1, red oxide.

I. Touch up primer for galvanized surfaces: Zinc rich type.

II. FABRICATION

A. Fit and shop assemble in largest practical sections for delivery to site.

B. Continuously seal joined members by continuous penetration welds.

C. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush and hairline. Ease exposed edges to small uniform radius.

D. Exposed mechanical fastenings: flush countersunk screws or bolts, consistent with design component.

E. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication.

F. Accurately form components required for anchorage of stair and railings to each other and to building structure.

III. FINISHES

A. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.

B. Shop prime items with one coat. Do not prime surfaces in direct contact with concrete or where field welding is required.

PART 3 – EXECUTION

I. EXAMINATION AND PREPARATION

A. Verify that field conditions are acceptable and are ready to receive work.

B. Make provisions for erection loads with temporary bracing, Keep work in alignment.

C. Supply items required to be cast into concrete or embedded in masonry with setting templates, to appropriate sections.

II. INSTALLATION

A. Install items plumb and level, accurately fitted, free from distortion or defects.

B. Allow for erection loads and provide temporary bracing to maintain true alignment until completion of erection and installation is permanent attachments.

C. Field weld components as indicated. Perform field welding in accordance with AWS D1.1.

D. Obtain General Contractor's approval prior to site cutting.

E. After final erection, grind all field welds smooth.

F. Prime field welds, abrasions, and surfaces not shop primed, except surfaces to be in contact with concrete.

END OF SECTION 05520

Section 06100-Rough Carpentry

PART 1 – GENERAL

I. SUMMARY

A. Provide rough carpentry work:

1. Wood framing
2. Wood decking
3. Sheathing
4. Subflooring
5. Backing panels for utilities
6. Nailers, blocking, furring, and sleepers

II. SUBMITTALS

A. Submit for approval product data.

III. QUALITY ASSURANCE

A. Comply with governing codes and regulations. Provide products of acceptable manufacturers which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle and store materials in accordance with manufacturer's instructions.

PART 2 – PRODUCTS

I. MATERIALS

A. Lumber, finished 4 sides, 19% maximum moisture content:

1. Concealed framing: #2 or better Southern Pine or Hem-fir. #1 or better where required by height and as noted.
2. Exposed framing: #1 Southern Pine
3. Wood for nailers, blocking, furring and sleepers: Construction grade.
4. Pressure preservative treat items in contact with roofing, flashing, waterproofing, masonry, concrete or the ground.
5. Provide blocking for all mounted items, including but not limited to:
   a. Casework and shelving
   b. Handrails and railings
   c. Toilet accessories and partitions

B. Plywood, APA rated for use and exposure

C. Subflooring: APA sheathing

D. Roof Sheathing: 5/8" plywood or OSB

E. Wall sheathing: 7/16" plywood or OSB

F. Backing panels: APA C-D plugged, interior with exterior glue, fire retardant treated, ¾" thick.

G. Moisture barrier: 30 pound felt

H. Wood treatment:

1. Preservative treatment: Pressure-treated with waterborne preservatives, to comply with AWPB LP-2 for above ground items, LP-22 for ground contact items. Kiln dry after treatment to 19% maximum moisture content for lumber and 15% for plywood. Treat above ground wood exposed to deterioration by moisture and all wood in contact with the ground or fresh water.
2. Fire-retardant treatment: Pressure impregnated, to comply with AWPA C20 for lumber and AWPA C27 for plywood; provide where indicated and where required by code. Do not use fire-retardant treatment containing ammonium phosphates.

PART 3 – EXECUTION

I. INSTALLATION

A. Wood framing: Comply with recommendations of NFPA Manual for House Framing, NFPA Recommended Nailing Schedule, and NFPA National Design Specifications for Wood Construction.

B. Plywood: Comply with recommendations of APA Design and Construction Guide-Residential and Commercial.

C. Provide nailers, blocking and grounds where required. Set work plumb, level and accurately cut.

D. Install materials and systems in accordance with manufacturer's instructions and approved submittals. Install materials and systems in proper relation with adjacent construction. Coordinate with other work.

E. Comply with manufacturer's requirements for cutting, handling, fastening and working treated materials.

F. Restore damaged components. Protect work from damage.

END OF SECTION 06100

Section 06192-Fabricated Wood Trusses

PART 1 – GENERAL

I. SUMMARY

A. Fabricate, supply and erect wood trusses as shown on the drawings and as specified. Work to include anchorage, blocking, curbing, miscellaneous framing and bracing.

II. DEFINITIONS

A. Truss: The terms "truss" and "wood truss component" refer to open web load-carrying assemblies suitable for support of roof decks.

B. Manufacturer: A manufacturer who is regularly engaged in design and fabrication of wood trusses.

C. Erector: Builder, contractor or sub-contractor who is responsible for field storage, handling and erection of trusses.

III. DESIGN

A. Trusses shall be designed in accordance with these specifications and where any applicable design feature is not specifically covered herein, the design shall be in accordance with applicable provisions of the latest edition of the National Design Specification for Wood Truss Construction (NDS), American Forest & Paper Association (AFPA), and the National Design Standard for Metal Plate Connected Wood Truss Construction (NDSMPCWTC), Truss Plate Institute (TPI), and the Uniform Building Code – 1997 (UBC-1997).

B. Manufacturer shall furnish design drawings bearing seal and registration number of structural engineer licensed in the state where trusses are to be installed. Drawings shall be approved by Timbercon Construction/Engineer prior to fabrication.

C. Truss design drawings shall include as minimum information:

1. Span, depth or slope and spacing of truss
2. Minimum bearing width as controlled by $F_{c\ (perpendicular)}$ of lumber in truss that contacts bearing
3. Design dead and live uniform loads and any concentrated loads and their point of application.
4. Adjustment to allowable values of lumber and plates for condition of use.

5. Reactive forces and their points of occurrences
6. Plate type, thickness or gage, size and location of plate on each joint.
7. Lumber size, species and grade for each member
8. Location of any required continuous lateral bracing

PART 2 – PRODUCTS

I. MATERIALS

A. Lumber used for truss members shall be in accordance with published values of lumber rules writing agencies approved by board of review of American Lumber Standards Committee. Lumber shall be identified by the grade mark of a lumber inspection bureau or agency approved by that board.

B. Adjustment of values for duration of load shall be made in accordance with the NDS.

C. Where not less than three trusses are positioned side by side, are spaced no more than 24 inches on center and are joined by decking, flooring or other load distributing elements attached to the chords, the allowable F_b may be increased 15%, or if repetitive member design values are listed in NDS, those values may be used.

D. Moisture content of lumber shall be within proper limits, but shall in no case be less than 7% nor greater than 19% at time of fabrication.

E. Connector plates shall be manufactured by a WTCA member plate manufacturer and shall not be less than .036 inches in coated thickness (20 gage) and shall meet or exceed ASTM A446 grade A or higher, and shall be hot dipped galvanized according to ASTM A525, coating designation G60. Minimum steel values shall include: Yield Point F_y=33,000 psi; Ultimate Strength F_u=45,000 psi. Working stresses in steel are to be applied to effective ratios for plates as determined by test in accordance with Appendix E and F of NDSMPCWTC, TIP and shall be: Basic Allowable Tensile Stress $F_{st}=.60F_y$ and Basic Allowable Shear Stress $F_s=.40F_y$.

F. At the request of Timbercon Construction, the truss manufacturer shall furnish a certified record that materials comply with steel specifications.

II. FABRICATION

A. Trusses shall be fabricated in a properly equipped manufacturing facility of a permanent nature. Trusses shall be manufactured by experienced workmen, using precision cutting, jigging, and pressing equipment under the requirements in NDSMPCWTC. Truss members shall be accurately cut to length, angle and true to line to ensure proper fitting joints within tolerances set forth in NDSMPCWTC and proper fit with other work.

PART 3 – EXECUTION

I. HANDLING AND ERECTION

A. Trusses shall be handled during fabrication, delivery and at jobsite so as not to be subjected to excessive lateral bending.

B. Trusses shall be unloaded on smooth ground to avoid lateral strain. Erector shall provide protection for trusses from damage that might result from on-site activities and environmental conditions. Care shall be taken when banding is removed to prevent toppling.

C. Handling during erection shall be in accordance with recommended practices set forth in Commentary and Recommendations for Handling, Installing and Bracing Metal Plate Connected Wood Trusses, HIB-91. Field erection shall be consistent with good workmanship and good building practices and shall be the responsibility of the erector. Erector shall advise manufacturer of any apparent damage prior to erection of trusses.

D. Trusses must be set and secured level and plumb, and in correct location. Plumb of each truss shall be held in correct alignment until specified permanent bracing is installed. Cutting and altering of trusses is not permitted.

E. Concentrated loads shall not be placed atop trusses until all specified bracing has been installed and decking is permanently nailed in place. Specifically avoid stacking full bundles of plywood or other materials atop unsheathed trusses.

F. Erector should seek professional advice in regards to erection bracing, which is always required to prevent toppling or dominoing of trusses during erection.

G. Fastening of the deck to the trusses and permanent structural cross-bracing and anchorage to ensure over-all rigidity of the roof system to resist lateral wind or seismic forces shall be in accordance with the architectural/engineering plans for the building structure. (See truss design drawings for any additional special bracing requirements)

H. Materials used in bracing are to be furnished by the erection contractor unless otherwise noted in these specifications. Safe erection of trusses is the responsibility of the building contractor.

END OF SECTION 06192

Section 06200-Finish Carpentry and Millwork

PART 1 – GENERAL

I. SUMMARY

A. Provide finish carpentry for exterior items exposed to view:

1. Running and standing trim and moldings
2. Door frames

B. Provide finish carpentry for interior items exposed to view:

1. Running and standing trim and moldings
2. Door and window casings
3. Wood shelving and closet accessories as noted on drawings
4. Wood stair treads and risers

C. Provide custom millwork:

1. Wood casework and cabinets to be field finished
2. Countertops to be shop finished

II. SUBMITTALS

A. Submit for approval samples, shop drawings, product data, mock-ups of typical trim and moldings.

III. QUALITY ASSURANCE

A. Comply with governing codes and regulations. Provide products of acceptable manufacturer which have been in satisfactory use in similar service for three years. Use experience installers. Deliver, handle and store materials in accordance with manufacturer's instructions.

PART 2 – PRODUCTS

I. MATERIALS

A. Quality standard for fabrication and products: Architectural Woodwork Institute Quality Standards, Premium grade unless noted otherwise:

B. Exterior finish carpentry:

1. Trim and boards for transparent finish: #1 cedar with 19% maximum moisture content.

2. Trim and boards for painted finish: Fiber Cement Trim Planks

3. Soffit panels for painted finish: Fiber Cement Soffit Panels

C. Interior finish carpentry and millwork:

1. Trim and Millwork for transparent finish: as selected for cabinetry, other built-ins and trim.
2. Trim and Millwork for opaque finish: Closed-grain hardwood suitable for exposure and use.

D. Millwork finishes:

1. See section 09900 – Painting

E. Interior cabinets:

1. Cabinets
2. Cabinet shelving: minimum ¾" plywood shelving.
3. Open storage and bookshelves: ¾" or 1-1/2" thick, as shown on drawings.
4. Millwork hardware:
   a. Standards: Knape & Vogt (KV255) or equal
   b. Clips: Knape & Vogt (KV256) or equal
   c. European Hinges:
      1. Clip plate: Blum (BL175H713) or equal
      2. Clip hinge: Blum (BL75M355) or equal
      3. Drawer guides: Knape & Vogt (KV8400) 100# full extension or equal.
5. Countertops: Post-formed laminated plastic countertops shall be ¾" thick particleboard post formed with radius front edge and one-piece rolled 4" height cove splash. Provide square end splashes where cabinet butts wall. Refer to drawings for drawings and details for countertop construction.
   a. Laminate: Standard Formica or Wilson-Art plastic laminate. Color to be selected by Owner from standard colors.

PART 3 – EXECUTION

I. INSTALLATION

A. Cabinets to be shop-built, 1/2" overlay.

B. Provide work to sizes, shapes, and profiles indicated. Install work to comply with quality standards referenced. Back prime work and install plumb, level and straight with tight joints; scribe work to fit.

C. Install materials and systems in accordance with manufacturer's instructions and approved submittals. Install materials and systems in proper relation with adjacent construction. Use non-corrosive fasteners for exterior work. Coordinate with work of other sections.

D. Comply with manufacturer's requirements for cutting, handling, fastening and working treated materials.

E. Repair minor damage, clean and protect.

END OF SECTION 06200

Section 07100-Dampproofing

PART 1 – GENERAL

I. SUMMARY

A. Install dampproofing materials as needed.

B. Delivery of Products: Deliver materials to job site in manufacturer's original unopened containers with manufacturer's name and brand clearly marked thereon.

PART 2 – PRODUCTS

I. MATERIALS

A. Acceptable Manufacturers: Products of the following manufacturers may be considered as acceptable for use on this project, provided that such products conform to the specification requirements as hereinafter set forth:

1. AFCO Products, Inc.
2. Rubber & Plastics Compound Company, Inc.
3. Wasco Products, Inc.
4. Or Equal

B. Flashing: Equal to Nevastral HD, 20-mil (.020"), nonreinforced, homogeneous, waterproof, impermeable sheeting compound of elastomeric substances which have been reduced to a thermoplastic state.

C. Vapor Barrier: 6-mil polyethylene sheet under building slab.

D. Mastic: Compatible with flashing material, of troweling consistency, suitable for cold application and approved by manufacturer of membrane material.

PART 3 – EXECUTION

I. GENERAL:

A. Provide flashing for exterior walls as detailed.

B. When membrane flashings are installed against vertical surfaces of any type of substrate, apply a full, troweled-on coating of mastic to the substrate. Carefully embed flashing membrane into mastic and roll out wrinkles, air pockets and bulges.

C. As far as available roll widths permit, install through wall flashing without longitudinal joints within walls. If required material is not available in sufficient roll widths to prevent longitudinal joints, make such joints by lapping material a minimum of 6 inches and sealing joints throughout its length with mastic.

D. Where the flashing is not continuous, such as over and under openings in walls, the ends of the flashing should be extended beyond the jamb lines on both sides and turned up into the head joint several inches of each end to form a dam.

E. All flashing should extend beyond the face of the wall to form a drip including the flashing at the corners.

F. As far as possible, avoid necessity for making end joints in flashing material. When end joints are necessary, lap flashing material a minimum of 3 inches and seal joints throughout its length with mastic.

G. Where anchors, pipes, inserts, etc., puncture fabric, make opening in fabric as small as possible so that fabric will fit tightly to protruding material. Seal opening tightly and thoroughly with mastic.

H. After fabric is in place, apply a full 1/8" thick, protective coating of troweled-on mastic to all face areas of fabric.

I. When necessary to protect other trades' work in vicinity of flashing operations, protect such work by masking covering, or other precautionary methods. Remove such coating, etc., after they have served their purpose.

J. When flashing around corners the flashing should be continuous. To achieve this continuity, pieces of flashing may need to be cut and lapped a minimum of 3" and sealed to conform to the shape of the structure.

K. At completion of operations, clean all work of other trades that has in any way been soiled by these operations. Remove all excess materials, containers, and refuse resultant from operations.

L. Provide 24 gauge Z flashing at all exterior window and door jamb assemblies.

END OF SECTION 07100

Section 07200-Batt Insulation

PART 1 – GENERAL

I. DEFINITIONS

A. R-value designation is the thermal resistance of insulation only, not including air space or other factors assumed to result in higher R-values.

II. PRODUCT DELIVERY AND STORAGE

A. Deliver material to project site in manufacturer's original packaging.

B. Clearly identify manufacturer, contents, brand name, applicable standard R-value.

C. Store materials off ground and protect against weather, condensation and damage. Remove damaged materials from site.

PART 2 – PRODUCTS

I. MATERIALS

A. Thermal Batt Insulation

1. Exterior Walls: Owens-Corning, R-19 insulation or equal.
2. Roof Deck: Owens-Corning R-30 insulation or equal.
3. See drawings for location and R-Value.

B. Acoustical Insulation: Owens-Corning Fiberglass-Sound attenuation batt insulation (full thickness) to be installed in all walls in restrooms and mechanical rooms. See drawings for additional locations.

PART 3 – EXECUTION

I. INSPECTION: Examine areas scheduled to receive insulation to insure protection against inclement weather and other hazards and work of preceding trades is completed. Proceed with installation when conditions are satisfactory.

II. INSTALLATION

A. General: Fit batt insulation snugly between framing. Maintain integrity of insulation over entire area to be insulated. Insulate small areas between closely spaced framing members and behind mechanical and electrical services within insulated cavities. Cut and fit insulation around pipes, conduits, and other obstructions.

B. Install insulation within stud system full height and width in such a manner that voids or opening do not occur. Insulation between studs should fill the full width.

C. Securely attach and support insulation to prevent sagging or tearing from its own weight.

D. Remove and replace insulation which has become wet or otherwise is damaged.

E. Check surfaces to receive insulation to assure that they are in uniform plane and free of mortar chips, debris, grease, oil and other items.

F. Restroom and Mechanical Rooms: Take particular care to see that acoustical insulation is carefully fitted around all plumbing, outlet boxes, etc. Fill wall completely with sound insulation.

G. Cleaning up: Remove and dispose of excess materials, litter and debris, leaving work areas in a clean condition.

END OF SECTION 07200

Section 07215-Metal Building Insulation

PART 1 – GENERAL

I. PROJECT INCLUDES

A. Concealed building fiberglass insulation with reinforced poly face sheet.

B. Exposed building fiberglass insulation with reinforced poly face sheet.

C. See plans for R-Values.

II. QUALITY ASSURANCE

A. Submittals
1. Product Data: For each type of product indicated.
2. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for insulation products.

B. Surface-Burning Characteristics: ASTM E 84.

C. Fire-Resistance Ratings: ASTM E 119.

D. Combustion Characteristics: ASTM E 136.

III. PRODUCTS

A. Poly vapor barrier adhered to insulation.

END OF SECTION

Section 07500-Standing Seam Metal Roof

SEE PRE-ENGINEERED METAL STRUCTURE 13121

- (roofing as specified in section 13121 is to be used in all areas where metal roofing is shown on plans)

Section 07531 - EPDM Membrane Roofing

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:

1. Adhered EPDM membrane roofing system.
2. Roof walkway pads.
3. Roof insulation.

1.3 DEFINITIONS

A. Roofing Terminology: Refer to ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.

B. Factored Design Uplift Pressure: The uplift pressure, calculated according to procedures in SPRI's "Wind Load Design Guide for Fully Adhered and Mechanically Fastened Roofing Systems," after multiplication by a safety factor.

1.4 PERFORMANCE REQUIREMENTS

A. General: Provide installed roofing membrane and base flashings that remain watertight; do not permit the passage of water; and resist specified uplift pressures, thermally induced movement, and exposure to weather without failure.

B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing membrane manufacturer based on testing and field experience.

C. FMG Listing: Provide roofing membrane, base flashings, and component materials that comply with requirements in FMG 4450 and FMG 4470 as part of a membrane roofing system and that are listed in FMG's "Approval Guide" for Class 1 or noncombustible construction, as applicable. Identify materials with FMG markings.

1. Fire/Windstorm Classification: Class 1A-90, 72 MHP peak wind speed.

1.5 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other Work.

1. Base flashings and membrane terminations.
2. Tapered insulation, including slopes.

3. Insulation fastening patterns.

C. Installer Certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install roofing system.

D. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" Article.

1. Submit evidence of meeting performance requirements.

E. Qualification Data: For Installer and manufacturer.

F. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for components of roofing system.

G. Maintenance Data: For roofing system to include in maintenance manuals.

H. Warranties: Special warranties specified in this Section.

I. Inspection Report: Copy of roofing system manufacturer's inspection report of completed roofing installation.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's warranty.

1. Installer must have a minimum of three (3) years experience installing the roof system specified.

B. Manufacturer Qualifications: A qualified manufacturer that has UL listing and FMG approval for membrane roofing system identical to that used for this Project.

C. Testing Agency Qualifications: An independent testing agency with the experience and capability to conduct the testing indicated, as documented according to ASTM E 548.

D. Source Limitations: Obtain components for membrane roofing system approved by roofing membrane manufacturer.

E. Fire-Test-Response Characteristics: Provide membrane roofing materials with the fire-test-response characteristics indicated as determined by testing identical products per test method below by UL, FMG, or another testing and inspecting agency acceptable to authorities having jurisdiction. Materials shall be identified with appropriate markings of applicable testing and inspecting agency.

1. Exterior Fire-Test Exposure: Class A; ASTM E 108, for application and roof slopes indicated.
2. Fire-Resistance Ratings: ASTM E 119, for fire-resistance-rated roof assemblies of which roofing system is a part.

F. Preinstallation Conference: Conduct conference at Project site. Comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to roofing system including, but not limited to, the following:

1. Meet with Owner, Building Designer, roofing Installer, roofing system manufacturer's representative, deck Installer, and installers whose work interfaces with or affects roofing including installers of roof accessories and roof-mounted equipment.
2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
5. Review structural loading limitations of roof deck during and after roofing.
6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
7. Review governing regulations and requirements for insurance and certificates if applicable.
8. Review temporary protection requirements for roofing system during and after installation.
9. Review roof observation and repair procedures after roofing installation.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storing and mixing with other components.

B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.

1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.

C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.

D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.8 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

1.9 WARRANTY

A. Manufacturer's Warranty: Manufacturer's form, without monetary limitation, in which manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period. Failure includes roof leaks.

1. Special warranty includes roofing membrane, base flashings, roofing membrane accessories roof insulation fasteners cover boards walkway products and other components of roofing system.
2. Warranties that allow for arbitration are not acceptable.
3. Indicate by letter that "All roofing components exclusive of the deck are approved and compatible with the warranty requirements of the roof system as specified, and that the warranty specified will be issued at completion of the project if system is installed as designed."

B. Installers Warranty: Submit roofing Installer's warranty, including all components of roofing system such as roofing membrane, ply sheets, base sheets, base flashing, roof insulation, fasteners, cover boards, and walkway products, for the following warranty period:

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the products specified.
2. Products: Subject to compliance with requirements, provide one of the products specified.
3. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.
4. Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.

2.2 EPDM ROOFING MEMBRANE

A. EPDM Roofing Membrane: ASTM D 4637, Type I, nonreinforced uniform, flexible sheet made from EPDM, and as follows:

1. Manufacturers:

a. Carlisle SynTec Incorporated.
b. Firestone Building Products Company.
c. GenFlex Roofing Systems.
d. Johns Manville International, Inc.
e. Stafast Roofing Products.
f. Versico Inc.
g. Or approved equal

2. Thickness: 60 mils, nominal.
3. Exposed Face Color: As approved by Owner or Building Designer.

2.3 AUXILIARY MATERIALS

A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing.

1. Liquid-type auxiliary materials shall meet VOC limits of authorities having jurisdiction.

B. Sheet Flashing: 60-mil- (1.5-mm-) thick EPDM, partially cured or cured, according to application.

C. Bonding Adhesive: Manufacturer's standard bonding adhesive.

D. Seaming Material: Manufacturer's standard synthetic-rubber polymer primer and 3-inch- (75-mm-) wide minimum, butyl splice tape with release film.

E. Lap Sealant: Manufacturer's standard single-component sealant.

F. Water Cutoff Mastic: Manufacturer's standard butyl mastic sealant.

G. Metal Termination Bars: Manufacturer's standard predrilled stainless-steel or aluminum bars, approximately 1 by 1/8 inch (25 by 3 mm) thick; with anchors.

H. Metal Battens: Manufacturer's standard aluminum-zinc-alloy-coated or zinc-coated steel sheet, approximately 1 inch (25 mm) wide by 0.05 inch (1.3 mm) thick, prepunched.

I. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening membrane to substrate, and acceptable to membrane roofing system manufacturer.

J. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, in-seam sealants, termination reglets, cover strips, and other accessories.

K. Liquid coating, specifically formulated for coating EPDM roofing membrane, as follows:

1. Type: Hypalon.
2. Color: White.

2.4 ROOF INSULATION

A. General: Provide preformed roof insulation boards that comply with requirements and referenced standards, selected from manufacturer's standard sizes and of thicknesses indicated.

B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, felt or glass-fiber mat facer on both major surfaces.

1. Manufacturers:

a. Atlas Roofing Corporation

b. Carlisle SynTec Incorporated.
c. Celotex Corporation.
d. Firestone Building Products Company.
e. GAF Materials Corp.
f. GenFlex Roofing Systems.
g. Johns Manville International, Inc.
h. Or approved equal

C. Cellulosic-Fiber Board Insulation: ASTM C 208, Type II, Grade 2, fibrous-felted, rigid insulation boards of wood fiber or other cellulosic-fiber and water-resistant binders, asphalt impregnated, chemically treated for deterioration.

D. Tapered Insulation: Provide factory-tapered insulation boards fabricated to slope of 1/2 inch per 12 inches (1:48), unless otherwise indicated.

E. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated with min. slope of ½ inch per 12 inches, unless otherwise indicated.

2.5 INSULATION ACCESSORIES

A. General: Furnish roof insulation accessories recommended by insulation manufacturer for intended use and compatible with membrane roofing.

B. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening roof insulation to substrate, and acceptable to roofing system manufacturer.

C. Low-Rise Foam Adhesive: Manufacturer's standard adhesive formulated to adhere roof insulation to substrate.

D. Cover Board: ASTM C 208, Type II, Grade 2, cellulosic-fiber insulation board, 1/2 inch (13 mm) thick.

2.6 ASPHALT MATERIALS

A. Roofing Asphalt: ASTM D 312, Type III, only to be used as insulation attachment.

B. Asphalt Primer: ASTM D 41.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:

1. Verify that roof openings and penetrations are in place and set and braced and that roof drains are securely clamped in place.
2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.

3. Verify that surface plane flatness and fastening of steel roof deck complies with requirements in Division 5 Section "Steel Deck."
4. Verify that minimum concrete drying period recommended by roofing system manufacturer has passed.
5. Verify that concrete substrate is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D 4263.
6. Verify that concrete curing compounds that will impair adhesion of roofing components to roof deck have been removed.
7. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.

B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

C. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.

3.3 INSULATION INSTALLATION

A. Coordinate installing membrane roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.

B. Comply with membrane roofing system manufacturer's written instructions for installing roof insulation.

C. Install tapered insulation under area of roofing to conform to slopes indicated.

D. Install one or more layers of insulation under area of roofing to achieve required thickness. Where overall insulation thickness is 2 inches or greater, install 2 or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches (150 mm) in each direction.

E. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.

F. Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch (6 mm) with insulation.

1. Cut and fit insulation within 1/4 inch (6 mm) of nailers, projections, and penetrations.

G. Adhered Insulation: Install each layer of insulation and adhere to substrate as follows:

1. Prime surface of concrete deck with asphalt primer at rate of 3/4 gal./100 sq. ft. (0.3 L/sq. m) and allow primer to dry.

2. Set each layer of insulation in a solid mopping of hot roofing asphalt, applied within plus or minus 25 deg F (14 deg C) of equiviscous temperature.
3. Set each layer of insulation in a cold fluid-applied adhesive.

H. Mechanically Fastened Insulation: Install each layer of insulation and secure to deck using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to deck type.

1. Fasten insulation according to requirements in FMG's "Approval Guide" for specified Windstorm Resistance Classification.
2. Fasten insulation to resist uplift pressure at corners, perimeter, and field of roof.

I. Mechanically Fastened and Adhered Insulation: Install each layer of insulation and secure first layer of insulation to deck using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to deck type.

1. Fasten first layer of insulation according to requirements in FMG's "Approval Guide" for specified Windstorm Resistance Classification.
2. Fasten first layer of insulation to resist uplift pressure at corners, perimeter, and field of roof.
3. Install subsequent layers of insulation in a solid mopping of hot roofing asphalt, applied within plus or minus 25 deg F (14 deg C) of equiviscous temperature.
4. Install subsequent layers of insulation in a manufacturer’s approved low-rise foam adhesive.

J. Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Loosely butt cover boards together and fasten to roof deck.

1. Fasten insulation according to requirements in FMG's "Approval Guide" for specified Windstorm Resistance Classification.
2. Fasten insulation to resist uplift pressure at corners, perimeter, and field of roof.

3.4 ADHERED ROOFING MEMBRANE INSTALLATION

A. Install EPDM roofing membrane over area to receive roofing according to membrane roofing system manufacturer's written instructions. Unroll roofing membrane and allow to relax before installing.

B. Start installation of roofing membrane in presence of membrane roofing system manufacturer's technical personnel.

C. Accurately align roofing membrane and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.

D. Bonding Adhesive: Apply bonding adhesive to substrate and underside of roofing membrane at rate required by manufacturer and allow to partially dry before installing roofing membrane. Do not apply bonding adhesive to splice area of roofing membrane.

E. Mechanically or adhesively fasten roofing membrane securely at terminations, penetrations, and perimeter of roofing.

F. Apply roofing membrane with side laps shingled with slope of roof deck where possible.

G. Tape Seam Installation: Clean and prime both faces of splice areas, apply splice tape, and firmly roll side and end laps of overlapping roofing membranes according to manufacturer's written instructions to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of roofing membrane terminations.

H. Repair tears, voids, and lapped seams in roofing that does not meet requirements.

I. Spread sealant or mastic bed over deck drain flange at deck drains and securely seal roofing membrane in place with clamping ring.

J. Install roofing membrane and auxiliary materials to tie in to existing roofing.

3.5 BASE FLASHING INSTALLATION

A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.

B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply bonding adhesive to seam area of flashing.

C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.

D. Clean splice areas, apply splicing cement, and firmly roll side and end laps of overlapping sheets to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of sheet flashing terminations.

E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.

F. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion and submit report to Architect.

1. Notify Building Designer or Owner 48 hours in advance of date and time of inspection.

G. Repair or remove and replace components of membrane roofing system where test results or inspections indicate that they do not comply with specified requirements.

H. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.6 PROTECTING AND CLEANING

A. Protect membrane roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Building Designer and Owner.

B. Correct deficiencies in or remove membrane roofing system that does not comply with requirements, repair substrates and repair or reinstall membrane roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

3.7 ROOFING INSTALLER'S WARRANTY

A. WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period,

B. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he will, at his own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work and as are necessary to maintain said work in a watertight condition.

C. This Warranty is made subject to the following terms and conditions:

1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by:

    a. lightning;
    b. peak gust wind speed exceeding 72 mph;
    c. fire;
    d. failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;
    e. faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work;
    f. vapor condensation on bottom of roofing; and
    g. activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.

2. When work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.
3. Roofing Installer is responsible for damage to work covered by this Warranty but is not liable for consequential damages to building or building contents resulting from leaks or faults or defects of work.
4. During Warranty Period, if Owner allows alteration of work by anyone other than Roofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void on date of said alterations, but only to the extent said alterations affect work covered by this Warranty. If Owner engages Roofing Installer to perform said alterations, Warranty shall not become null and void unless Roofing Installer, before starting said work, shall have notified Owner in writing, showing reasonable cause for claim, that said alterations would likely damage or deteriorate work, thereby reasonably justifying a limitation or termination of this Warranty.
5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray-cooled surface, flooded basin, or other use or service more severe than originally specified, this Warranty shall become null and void on date of said change, but only to the extent said change affects work covered by this Warranty.

6. Owner shall promptly notify Roofing Installer of observed, known, or suspected leaks, defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to inspect work and to examine evidence of such leaks, defects, or deterioration.
7. This Warranty is recognized to be the only warranty of Roofing Installer on said work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of original work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

END OF SECTION 07531

Section 08100-Metal Doors and Frames

PART 1 – GENERAL

I. SUMMARY

A. STANDARDS: In addition to other specified requirements, comply with Steel Door Institute "Recommended Specifications for Standard Steel Doors and Frames" (SDI-100), for the following classifications:

1. Exterior Doors: SDI-100, Grade III, extra heavy-duty, Model 2, minimum 16-gage faces.

2. Interior Doors: SDI-100, Grade III, heavy duty, Model 1, minimum 18 gauge faces.

II. SUBMITTALS

A. With manufacturer's details and specifications for steel doors and frames, submit shop drawings showing application to project, as required.

PART 2 – PRODUCTS

A. Fire Rated Assemblies: Provide units that display appropriate UL or FM Labels for fire ratings indicated.

B. Materials: Steel doors and frames; hot-rolled, pickled and oiled per ASTM A 569 and A 568; cold-rolled per ASTM A 366 and A 568.

C. Anchors and accessories: Manufacturer's standard units. Use galvanized items for units built into exterior walls, complying with ASTM A 153.

PART 3 – EXECUTION

A. Fabrication: Fabricate units to be rigid, neat in appearance, and free from defects, warp or buckle. Weld exposed joints continuously, grind, dress, and make smooth, flush and invisible.

B. Prepare steel doors and frames to receive mortised and concealed finish hardware, including cutouts, reinforcing, drilling and tapping, complying with ASNI A115 "Specifications for Door and Frame Preparation for Hardware." Reinforce units to receive surface applied finish hardware to be field applied. Locate finish hardware as indicated or, if not indicated, per DHI "Recommended Locations for Builder's Hardware."

C. Shop paint exposed surfaces of doors and frame units, including galvanized surfaces, using manufacturer's standard baked-on rust inhibitive primer.

D. Doors: Comply with SDI-100, of the types and styles indicated for materials quality, metal gages, and construction details.

E. Frames: Comply with SDI-100, of the types and styles indicated, for materials quality, metal gages, and construction details. Provide standard hollow metal frames for doors and other openings as indicated. Prepare frames to receive 2 silencers on strike jambs of single-swing frames and on heads of double-swing frames. Provide 26-gage steel plaster guards or mortar boxes, welded to frame, at back of hardware cutouts where installed in concrete, masonry or plaster openings.

F. Installation: Install hollow-metal units in accordance with manufacturer's instructions and final shop drawings (if any). Fit doors to frames and floors with clearances specified in SDI-100.

G. Finish hardware is in another division in section 8.

END OF SECTION 08100

Section 08200 – Wood Doors

PART 1 – GENERAL

I. STANDARDS

A. Comply with requirements of ASNI/NWMA I.S. 1 and Section 1300 of AWI "Architectural Woodwork Quality Standards" except as otherwise indicated.

II. SUBMITTALS

A. Product data for each type of door.

B. Provide product warranty on door manufacturer's standard form, signed by Manufacturer, Installer and Contractor, agreeing to repair or replace defective doors and defined by referenced standards warranty shall be in effect during following periods of time after date of substantial completion.

1. Solid core flush interior doors: Two year minimum.

PART 2 – PRODUCTS

I. GENERAL

A. Fire rated assemblies: Provide units that display appropriate UL or FM Labels for fire ratings indicated.

B. General wood door product requirements:

1. Exposed surfaces: Same exposed surface material on both faces of each door, except as otherwise indicated.
2. Interior solid core flush doors for stain finish:
   a. Faces: Red Oak, plain sliced
   b. Grade: Custom
   c. Construction: Particleboard core
   d. Doors to be prefinished

C. Prefitting and preparation for hardware:

1. Prefit and premachine wood doors at factory. Coordinate with finish hardware and door frame requirements.

D. Installation:

1. Install doors to comply with manufacturer's instructions.

END OF SECTION 08200

Section 8400 – Aluminum Framed Storefront

PART 1 – GENERAL

I. SUMMARY

A. Design and size components to withstand the following load requirements without damage or permanent set, when tested in accordance with ASTM E 330, using loads 1.5 times the design wind loads and 10 second duration of maximum load.

1. Design wind loads: Comply with requirements of IBC 2006.
2. Member Deflection: Limit member deflection to flexure limit of glass in any direction, with full recovery of glazing materials.

B. Movement: Accommodate movement between storefront and perimeter framing and deflection of lintel, without damage to components or deterioration of seals.

C. Air Infiltration: limit air filtration through assembly to 0.06 cu ft/min/sq ft of wall area, measured at a reference differential pressure across assembly of 1.57 psf as measured in accordance with ASTM E 283.

D. Water Leakage: None, when measured in accordance with ASTM E 331 with a test pressure difference of 2.86 lbf/sq ft.

E. System Internal Drainage: Drain to the exterior by means of a weep drainage network any water entering joints, condensation occurring in glazing channel, and migrating moisture occurring within system.

II. SUBMITTALS

A. Product data: Provide component dimensions, describe components within assembly, anchorage and fasteners, glass and infill, door hardware, internal drainage details.

B. Shop drawings: Indicate system dimensions, framed opening requirements and tolerances, affected related work, expansion and contraction joint location and details, and field welding required.

III. QUALITY ASSURANCE

A. Manufacturer and installer: Company specializing in manufacturing aluminum glazing systems with minimum three years of documented experience.

IV. DELIVERY, STORAGE, AND PROTECTION

A. Handle products of this section in accordance with AAMA CW-10.

B. Protect finished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings which bond to aluminum when exposed to sunlight or weather.

V. ENVIRONMENTAL REQUIREMENTS

A. Do not install sealants when ambient temperature is less than 40 degrees F. Maintain this minimum temperature during and 48 hours after installation.

PART 2 – PRODUCTS

I. MANUFACTURERS

A. Kawneer Company, Inc.

B. Vistawall Architectural Products

C. Amarlite

D. YKK

II. COMPONENTS

A. Aluminum-framed storefront: Factory fabricated, factory finished aluminum framing members with infill, and related flashings, anchorage and attachment devices.

1. Finish: Class I color anodized.
2. Color: Dark Bronze

B. Aluminum framing members: Tubular aluminum sections, drainage holes and internal weep drainage system.

1. See plans for other requirements

C. Doors: Glazed aluminum

1. See plans for other requirements

III. MATERIALS

A. Extruded aluminum: ASTM B221 (ASTM B221M).

B. Fasteners: Stainless steel

C. Perimeter Sealant: Acrylic emulsion latex; ASTM C 834, single component, paintable.

D. Glass: As specified in section 8800.

E. Glazing gaskets: Type to suit application to achieve weather, moisture and air infiltration requirements.

IV. FINISHES

A. Class I color anodized finish: AAMA 611 integrally colored anodic coating not less than 0.7 mils thick.

B. Touch-up materials: As recommended by coating manufacturer for field application.

V. HARDWARE

A. Door hardware: See section 08710-Finish Hardware

VI. FABRICATION

A. Fabricate components with minimum clearances and shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal.

B. Accurately fit and secure joints and corners. Make joints flush, hairline and weatherproof.

C. Prepare components to receive anchor devices. Fabricate anchors.

D. Coat concealed metal surfaces that will be in contact with cementitious materials or dissimilar metals with bituminous paint.

E. Arrange fasteners and attachments to conceal from view.

F. Reinforce components internally for door hardware.

G. Reinforce framing members for imposed loads.

H. Finishing: Apply factory finish to all surfaces that will be exposed in completed assemblies.

1. Touch-up surfaces cut during fabrication so that no natural aluminum is visible in completed assemblies, including joint edges.

PART 3 – EXECUTION

I. EXAMINATION

A. Verify dimensions, tolerances and method of attachment with other work.

B. Verify that wall openings and adjoining air and vapor seal materials are ready to receive work of this section.

II. INSTALLATION

A. Install wall system in accordance with manufacturer's instructions.

B. Attach to structure to permit sufficient adjustment to accommodate construction tolerances an other irregularities.

C. Provide alignment attachments and shims to permanently fasten system to building structure.

D. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work.

E. Provide thermal isolation where components penetrate or disrupt building insulation.

F. Install flashings. Turn up ends and edges; seal to adjacent work to form water tight dam.

G. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.

H. Set thresholds in bed of mastic and secure.

I. Install hardware using templates provided.

K. Install perimeter sealant in accordance with this section.

III. ERECTION TOLERANCES

A. Maximum variation from plumb: 0.06 inches every 3 ft non-cumulative or 1/16 inches per 10 ft, whichever is less.

B. Maximum misalignment of two adjoining members abutting in plan, 1/32 inch.

IV. ADJUSTING

A. Adjust operating hardware for smooth operation.

V. CLEANING AND PROTECTION

A. Remove protective material from pre-finished aluminum surfaces.

B. Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.

C. Remove excess sealant by method acceptable to sealant manufacturer.

D. Touch-up minor damage to factory applied finish; replace components that cannot be satisfactorily repaired.

E. Protect finished work from damage.

END OF SECTION

SECTION 08710 - **FINISH HARDWARE**

PART 1 -GENERAL

1.01 SUMMARY

A.SECTION INCLUDES-

Furnish and deliver all hardware necessary for all doors ,also hardware as specified herein and as enumerated in "Set Numbers " and as indicated and required by actual conditions at the project. The hardware shall include the furnishing of all necessary screws, special screws, bolts, special bolts, expansion shields and all other devices necessary for the proper application of hardware to insure a complete and thorough project.

B. RELATED SECTIONS

1. Metal Door and Frames	Section 08100
2. Wood Doors	Section 08200
3. Aluminum Storefront	Section
4. Cabinet Hardware	Section
5. Electrical	Section

C.ALLOWANCES

1.02 REFERENCES

A.NFPA Life Safety 2008
B NFPA 80 Fire Doors /Fire Windows 2008
C. NFPA 105 Smoke Door Assemblies
D.Hardware for Labeled Doors 1993
E.Americans with Disabilities Act
F.ANSI 117.1 Accessible & Usable Buildings & Facilities
G.DHI Recommended Locations for Architectural Hardware
H.-IBC 2003

1.03 SUBMITTALS

A.GENERAL REQUIRE

All submittals shall be in accordance with General Conditions Section 1300

B. SCHEDULE

Hardware schedule to be detailed in quantity, type, function and special mounting conditions so that all openings are complete. Submit 6 copies for review.

C.PRODUCT DATA

A detailed drawing of every item of hardware used in schedule shall be submitted with schedule marked with corresponding item numbers.

D. SAMPLES

Furnish sample of each item proposed for project as directed by architect. All samples returned in perfect condition may be incorporated into scope of work

E.TEMPLATES

After architectural review, supplier to furnish product templates to contractor for distribution to door, frame and electrical supplier as required for fabrication of material.

F.KEYING SCHEDULE

A detailed keying schedule will be required to be submitted to architect showing how owners keying requirements have been completed.

G. WIRING DIAGRAMS

A complete wiring diagram and riser diagram shall be provided for every opening involving electrical components. A jobsite meeting between owner, architect, contractor, electrical contractor, installer and hardware supplier shall be held upon approval of these drawings so that the intent of this hardware is satisfied.

H. OPERATIONS/MAINTENANCE DATA

Supplier to provide parts manuals for locks, closers and exit devices.

1**.04 QUALITY ASSURANCE**

A.SUBSTITUTES

All requests for substitution will be in accordance with division 1 Section 1600. Manufacturers numbers found in Section 2.02 are to be used to obtain a level of quality, function, and design. All unlisted approved equals will be posted in addendum 10 days prior to bid opening

B.SUPPLIER QUALIFICATION

Hardware supplier to have been furnishing projects of this type for a period of 2 years prior to this project. Supplier shall also maintain in his/her employ a Certified Hardware Consultant who shall be available for project visits whenever necessary to assure proper installation and function of hardware.

1**.05 DELIVERY, STORAGE & HANDLING**

A. MARKING & PACKAGING

All products to be in original manufacturer's package with manufacturer’s number clearly written. Supplier to mark all products with item number and door number so as not to cause confusion as to their placement.

B. DELIVERY

All hardware shall be delivered to jobsite within requested timeframe .Any item required for fabrication of doors or frames shall be delivered to manufacturer when requested so as to prevent project delay.

C. STORAGE

All hardware shall be stored in a cool, dry space with shelving provided for organization of similar products. Contractor to provide a secured area to prevent loss due to theft.

1**.06 WARRANTY**

All hardware shall carry a warranty as defined in DIVISION .If a product fails within stated warranty period such product shall be repaired or replaced at no expense to owner

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1.07 MAINTENANCE

A. MAINTENANCE SERVICE

Any special tools required for installation shall be turned over to owner at project closeout in duplicate. Security or electrical products shall be covered by maintenance contracts previously arranged with owner.

B. EXTRA MATERIALS
Any products which remain after substantial completion shall be turned over to owner.

PART 2 PRODUCTS
2.01 MANUFACTURERS

A.HINGES-HAGER, STANLEY, IVES
CONTINUOUS HINGES-MARKAR, ROTON, ABH
B.PIVOTS/FLOOR CLOSER-RIXSON, DOR-O-MATIC,
C.LOCKS-SCHLAGE, FALCON, SARGENT
D.EXIT DEVICES-VON DUPRIN, SARGENT, FALCON
E.DOOR CLOSERS- LCN, NORTON, YALE, DOROMATIC
F.FLAT GOODS-QUALITY, HAGER, TRIMCO, ROCKWOOD
G.STOPS-QUALITY, HAGER, TRIMCO, ROCKWOOD
H.OVERHEAD STOPS-RIXSON, ABH, GLYNN-JOHNSON
I.THRESHOLD/WEATHERSTRIPING-PEMKO, NGP, ZERO
J.ELECTRICAL ITEMS- VON DUPRIN, LOCKNETICS, SDC
K.MISC-QUALITY, HAGER, TRIMCO, ROCKWOOD

2.02 MATERIALS
A.SCREWS/FASTENERS
All screws, nuts, bolts and fasteners shall be those provided with hardware by manufacturer.
Installer is to drill and tap fasteners provided in lieu of self tapping screws.
B. Hinges
1. Exterior- all exterior doors to receive brass/bronze hinges
   a. All outswinging exterior doors to have non removable pins
2. Interior -steel based hinges
3. Continuous hinges- where specified

HINGE SIZES

4. Hinge Height	Thickness of door	Width of door
31/2-4"	1-3/8"	to 32"
4- 41/2"	1-3/4''	to 36"
*41/2"	1-3/4”	to 36”
*5"	1-3/4”	over 36"- 48"
*6"	1-3/4”	over 48"
5" heavy wt	2", 2-1/4", 2-1/2"	36” to 42”
6" heavy wt	2", 2-1/4", 2-1/2"	over 42”

*Heavy weight hinges should be provided for heavy doors and doors where high frequency service is expected.
5. Hinge Width
All hinges shall be of the smallest width necessary to clear all trim conditions
BASIC RULE- Two times the door thickness, add the thickness of the trim then subtract 1/2" (for two times the hinge backset)
6. Hinge Spacing

Door Height	Quantity
<60"	2 hinges
61" to 90"	3 hinges
91" to 120"	4 hinges
1 hinge for each additional 30"	

7. Fire Rated Doors
Steel based hinges in accordance with NFPA80 chart 2-8A

C. Pivots/Floor Closers
1. Double acting- as specified
2. Single acting -as specified
3. Fire Labeled -where required

D.Flushbolts
1. Automatic/self latching or combination
2. Manual -only on not normally occupied rooms i.e. mechanical closets
3. Fire Labeled -where required

E. Coordinators
1. Bar type with brackets as required by parallel arm closers

F. Locksets/Latchsets
1. Cylindrical Type series 4000 Grade 2
2. Section trim “D” Dane design

G. Exit Devices
1. Narrow style doors -24 series
2. Basic -25 series

H. Surface Closers
1. Regular arm.parallel arm as required
1461 series 8500 series SC 80 series

I. Push/Pull Plates
1.4" x16"
2. .050 ga beveled 4 sides
3. 6" center to center bar pulls

M. Protective Plates
1. .050 ga, beveled 4 sides
2. Sizes
a. mop plates-4" height
b. kickplates-1/2" less than bottom stile or 8"
c. armor plate-36" height
3. Width
a. 2" less than door width on push side
b. 1" less than door width on pull side

c. 1" less than door width on both sides of pairs of doors

N. Door Stops & Holders

1. Overhead holders - surface mounted heavy duty steel
2. Wall Stops
   a. Contractor to provide wall bracing
3. Floor stops- only where wall stops or overhead stops are not applicable

O. Thresholds/Weatherstriping

1. Thresholds-2" longer than door width cut to fit
2. Weatherstriping -width of head plus two pieces length of jamb
3. Door Bottoms- automatic or sweep as specified- width of door

2.03 FINISHES

Hinges- Exterior	643
Interior	643
Locks	643-
Exit Devices	SP313
Closers	695
Flat goods	613
Misc	613
Threshold	Duranotic
Weatherstrip	Duranotic

2.04 KEYING

New “Falcon” system as required by owner. Constuction masterkey all locks during construction period. Owner/Architect will advise keying requirements prior to the ordering of locksets.

2.05 KEY CONTROL

Provide key cabinet complete with labels and 50% expansion over current requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine door frames and related items for conditions that would prevent proper application of finish hardware.
B. Do not proceed until defects are corrected.

3**.02 INSTALLATION**

A. Securely install finish hardware items in accordance with schedule and templates furnished with hardware
B. Install mortised items flush with adjacent surfaces
C. Install locksets, closers, and trim after finish painting
D. Locate items in accordance with DHI"recommended Locations for Builders Hardware" unless otherwise directed by architect.
E. Test and adjust all hardware for quiet, smooth operation, free from sticking, binding, or rattling. Adjust closers after balancing of HVAC system.Adjust closers to meet required opening force criteria as set forth by handicapped codes.

3.03 FIELD QUALITY CONTROL

After installation, provide the services of a qualified hardware consultant to determine the proper application of hardware according to the approved hardware and keying schedule.
Also check the adjustment and operation of all hardware items.

3.04 ADJUSTMENT AND CLEANING

At final completion hardware should be left clean and free from disfigurement. Replace or repair any hardware in poor condition.

3.05 PROTECTION

Provide for the proper protection of alll items of hardware until the owner accepts the project as complete.

3.06 HARDWARE SETS

Hardware List

Mfg	Description	Product Number	Finish
DO	Door Closer	SC80 DS	695
	Door Closer	SC80 HO/DS	695
	Door Closer	SC80 RW/PA	695
FL	Deadlock	D221P	613
	Lockset	B501PD D	613
	Lockset	B561PD D	613
	Lockset	B581PD D	613
	Privacy Set	B301S D	613
	Exit Device	24-R-DT x 717DT R, V	SP313, 313AN
	Exit Device	24-R-NL x 718NL R, V	SP313, 313AN
	Exit Device	25-R-DT x 512DT	SP313, 313AN
	Exit Device	25-R-EO	313AN
	Exit Device	25-R-L x 510L DANE	SP313, 313AN
	Exit Device	25-R-NL x 512NL	SP313, 313AN
	Exit Device	25-V-L x 510L DANE 36" LBR	SP313, 313AN
	Fire Exit Device	F-25-R-L x 510L DANE	SP313, 313AN
	Mortise Cylinder	985	613
	Removable Mullion	4023 7'2"	PRIMED
GL	Overhead Door Holder	454F	SP313
HA	Continuous Hinge	780-112HD 83"	DBA
	Continuous Hinge	780-112HD 95"	DBA
IV	Hinges	5BB1 4 1/2 x 4 1/2	643
	Hinges	5BB1 4 1/2 x 4 1/2 NRP	643
	Hinges	5PB1 4 1/2 x 4 1/2	643
	Flush Bolt	FB458	US10B
	Set Auto Flush Bolts	FB61P	US10B
	Pull Plate	8305-0 4 x 16	US10B
	Push Plate	8200 4 x 16	US10B
	Coordinator	COR52 2-MB1 FL20	315AN
	Kickplate	8400 10" x 34"	US10B
	Wall Bumper	WS407CCV	US10B

	Dust Proof Strike	DP1	US10B
	Door Silencer	SR64	
MO	Removable Mullion	4423 7'2"	PR
	Removable Mullion	4423 8'0"	PR
PE	Astragal	305 DN 84"	
	Raindrip	346 D 40"	
	Smoke Seal	PK 55 D 17'	
	Smoke Seal	PK 55 D 25'	
	Threshold	2005 DV 36"	
	Threshold	2005 DV 72"	
	Weatherstrip	303 DV 1 x 36" 2 x 84"	
	Weatherstrip	303 DV 1 x 72" 2 x 84"	
	Door Bottom	315 DN 36"	
SC	Rim Cylinder	20-022	613

Hardware Sets

SET #1 - ALUM ENTRANCES

Doors: D105A, D105B, D105C

2	Continuous Hinge	780-112HD 95"	DBA	HA
1	Removable Mullion	4423 8'0"	PR	MO
1	Exit Device	24-R-NL x 718NL R, V	SP313, 313AN	FL
1	Exit Device	24-R-DT x 717DT R, V	SP313, 313AN	FL
1	Rim Cylinder	20-022	613	SC
2	Door Closer	SC80 DS	695	DO
2	Door Bottom	315 DN 36"		PE
1	Threshold	2005 DV 72"		PE

SET #2 - ALUM ENTRANCES

Doors: D115A, D115B, D143A

2	Continuous Hinge	780-112HD 83"	DBA	HA
1	Removable Mullion	4423 7'2"	PR	MO
1	Exit Device	24-R-NL x 718NL R, V	SP313, 313AN	FL
1	Exit Device	24-R-DT x 717DT R, V	SP313, 313AN	FL
1	Rim Cylinder	20-022	613	SC
2	Door Closer	SC80 DS	695	DO
2	Door Bottom	315 DN 36"		PE
1	Threshold	2005 DV 72"		PE

SET #3 - hm

Doors: D131B

3	Hinges	5BB1 4 1/2 x 4 1/2 NRP	643	IV
1	Exit Device	24-R-NL x 718NL R, V	SP313, 313AN	FL
1	Rim Cylinder	20-022	613	SC
1	Door Closer	SC80 DS	695	DO
1	Weatherstrip	303 DV 1 x 36" 2 x 84"		PE

1	Door Bottom	315 DN 36"		PE
1	Threshold	2005 DV 36"		PE

SET #4 - Narthex pairs

Doors: D101A, D101B, D101C

8	Hinges	5BB1 4 1/2 x 4 1/2	643	IV
2	Push Plate	8200 4 x 16	US10B	IV
2	Pull Plate	8305-0 4 x 16	US10B	IV
2	Door Closer	SC80 HO/DS	695	DO
2	Kickplate	8400 10" x 34"	US10B	IV
2	Smoke Seal	PK 55 D 25'		PE

SET #5 - ext single

Doors: D101D, D114B, D304B

3	Hinges	5BB1 4 1/2 x 4 1/2 NRP	643	IV
1	Exit Device	25-R-EO	313AN	FL
1	Door Closer	SC80 DS	695	DO
1	Weatherstrip	303 DV 1 x 36" 2 x 84"		PE
1	Raindrip	346 D 40"		PE
1	Door Bottom	315 DN 36"		PE
1	Threshold	2005 DV 36"		PE

SET #6 - hm exterior pair

Doors: D122D, D301B, D308

6	Hinges	5BB1 4 1/2 x 4 1/2 NRP	643	IV
1	Exit Device	25-R-NL x 512NL	SP313, 313AN	FL
1	Exit Device	25-R-DT x 512DT	SP313, 313AN	FL
1	Rim Cylinder	20-022	613	SC
2	Door Closer	SC80 DS	695	DO
1	Removable Mullion	4023 7'2"	PRIMED	FL
1	Weatherstrip	303 DV 1 x 72" 2 x 84"		PE
1	Astragal	305 DN 84"		PE
2	Door Bottom	315 DN 36"		PE
1	Threshold	2005 DV 72"		PE

SET #7 - push pull singles

Doors: D101E, D127, D128A, D128B, D129, D306, D310

3	Hinges	5BB1 4 1/2 x 4 1/2	643	IV
1	Push Plate	8200 4 x 16	US10B	IV
1	Pull Plate	8305-0 4 x 16	US10B	IV
1	Door Closer	SC80 RW/PA	695	DO
1	Kickplate	8400 10" x 34"	US10B	IV
1	Wall Bumper	WS407CCV	US10B	IV
1	Smoke Seal	PK 55 D 17'		PE

SET #8 - self closing classroom

Doors: D102, D107, D108, D109, D112, D114A, D119, D123A, D125, D132C, D137, D138, D141B, D143B, D146, D302A, D302B, D304A

3	Hinges	5BB1 4 1/2 x 4 1/2	643	IV
1	Lockset	B561PD D	613	FL
1	Door Closer	SC80 RW/PA	695	DO
1	Kickplate	8400 10" x 34"	US10B	IV
1	Wall Bumper	WS407CCV	US10B	IV

SET #9 - classroom set pairs

Doors: D106, D118, D141A, D305

6	Hinges	5PB1 4 1/2 x 4 1/2	643	IV
2	Flush Bolt	FB458	US10B	IV
1	Lockset	B561PD D	613	FL
2	Overhead Door Holder	454F	SP313	GL
1	Dust Proof Strike	DP1	US10B	IV
2	Door Silencer	SR64		IV

SET #10 - classroom no closer

Doors: D117, D120, D121, D122B, D122C, D124, D132A, D132B, D134, D135, D307

3	Hinges	5PB1 4 1/2 x 4 1/2	643	IV
1	Lockset	B561PD D	613	FL
1	Overhead Door Holder	454F	SP313	GL
3	Door Silencer	SR64		IV

SET #11 - office set

Doors: D142, D147, D148B, D149, D151

3	Hinges	5PB1 4 1/2 x 4 1/2	643	IV
1	Lockset	B501PD D	613	FL
1	Wall Bumper	WS407CCV	US10B	IV
3	Door Silencer	SR64		IV

SET #12 - toilet privacy

Doors: D111, D113, D139, D140, D150

3	Hinges	5PB1 4 1/2 x 4 1/2	643	IV
1	Privacy Set	B301S D	613	FL
1	Wall Bumper	WS407CCV	US10B	IV
3	Door Silencer	SR64		IV

SET #13 - self closing storeroom

Doors: D126, D130, D133, D154A, D154B, D309

3	Hinges	5BB1 4 1/2 x 4 1/2	643	IV
1	Lockset	B581PD D	613	FL
1	Door Closer	SC80 RW/PA	695	DO
1	Kickplate	8400 10" x 34"	US10B	IV
1	Wall Bumper	WS407CCV	US10B	IV
1	Smoke Seal	PK 55 D 17'		PE

SET #14 - cross corridor exit

Doors: D131A, D136B

3	Hinges	5BB1 4 1/2 x 4 1/2	643	IV
1	Fire Exit Device	F-25-R-L x 510L DANE	SP313, 313AN	FL
1	Rim Cylinder	20-022	613	SC
1	Door Closer	SC80 RW/PA	695	DO
1	Kickplate	8400 10" x 34"	US10B	IV
1	Wall Bumper	WS407CCV	US10B	IV
1	Smoke Seal	PK 55 D 17'		PE

SET #15 - FELLOWSHIP PAIR

Doors: D122A

6	Hinges	5BB1 4 1/2 x 4 1/2	643	IV
2	Exit Device	25-V-L x 510L DANE 36" LBR	SP313, 313AN	FL
2	Rim Cylinder	20-022	613	SC
2	Door Closer	SC80 RW/PA	695	DO
2	Kickplate	8400 10" x 34"	US10B	IV
2	Wall Bumper	WS407CCV	US10B	IV
2	Smoke Seal	PK 55 D 25'		PE

SET #16 - EXTERIOR HM ENTRANCE

Doors: D148A, D303B, D401A

3	Hinges	5BB1 4 1/2 x 4 1/2 NRP	643	IV
1	Deadlock	D221P	613	FL
1	Lockset	B501PD D	613	FL
1	Door Closer	SC80 DS	695	DO
1	Weatherstrip	303 DV 1 x 36" 2 x 84"		PE
1	Raindrip	346 D 40"		PE
1	Threshold	2005 DV 36"		PE

SET #17 - ACCESS PANEL

Doors: D110, D203
NOTE: ALL HARDWARE BY ACCESS PANEL

SET #18 - CYLINDER ONLY

Doors: D116, D123B, D401B

1	Mortise Cylinder	985	613	FL

SET #19 - pair fire rated

Doors: D153

6	Hinges	5BB1 4 1/2 x 4 1/2	643	IV
1	Set Auto Flush Bolts	FB61P	US10B	IV
1	Lockset	B561PD D	613	FL
1	Coordinator	COR52 2-MB1 FL20	315AN	IV
2	Door Closer	SC80 RW/PA	695	DO
2	Wall Bumper	WS407CCV	US10B	IV
1	Smoke Seal	PK 55 D 25'		PE

SET #20 - Narthex pairs

Doors: D301A

6	Hinges	5BB1 4 1/2 x 4 1/2	643	IV
2	Push Plate	8200 4 x 16	US10B	IV
2	Pull Plate	8305-0 4 x 16	US10B	IV
2	Door Closer	SC80 HO/DS	695	DO
2	Kickplate	8400 10" x 34"	US10B	IV
2	Smoke Seal	PK 55 D 25'		PE

SET #21 - self closing office

Doors: D144, D145, D152, D303A

3	Hinges	5BB1 4 1/2 x 4 1/2	643	IV
1	Lockset	B501PD D	613	FL
1	Door Closer	SC80 RW/PA	695	DO
1	Kickplate	8400 10" x 34"	US10B	IV
1	Wall Bumper	WS407CCV	US10B	IV

SET #22 - cross corridor exit

Doors: D136A

3	Hinges	5BB1 4 1/2 x 4 1/2	643	IV
1	Exit Device	25-R-L x 510L DANE	SP313, 313AN	FL
1	Rim Cylinder	20-022	613	SC
1	Door Closer	SC80 RW/PA	695	DO
1	Kickplate	8400 10" x 34"	US10B	IV
1	Wall Bumper	WS407CCV	US10B	IV
1	Smoke Seal	PK 55 D 17'		PE

Section 09206 – Metal Lath

PART 1 – GENERAL

I. SECTION INCLUDES: METAL LATH FOR PORTLAND CEMENT PLASTER.

II RELATED SECTION: SECTION 09220 – PORTLAND CEMENT PLASTER.

III. SUBMITTALS

A. Product Data: Provide data on furring and lathing components, structural characteristics, material limitations and finish.

IV. QUALITY ASSURANCE

A. Installer qualifications: Company specializing in performing the work of this section with minimum three years experience.

PART 2 – PRODUCTS

I. LATH

A. Diamond Mesh Metal Lath: ASTM C 847; self-furring.
1. Weight: 3.0 lb/sq yd.
2. Backed with treated paper.
3. Galvanized.

B. Corner Mesh: Formed sheet steel, minimum 0.018 inch thick, perforated flanges shaped to permit complete embedding in plaster, minimum 2 inch size; same finish as lath.

C. Strip Mesh: Expanded metal lath, same weight as lath, 2 inch wide x 24 inch long; same finish as lath.

D. Casing beads: Formed sheet steel, depth governed by plaster thickness, maximum possible lengths, expanded metal flanges, with square edges; galvanized.

E. Corner beads: Formed sheet steel, depth governed by plaster thickness, maximum possible lengths, expanded metal flanges, with radiused edge; galvanized.

F. Base Screeds: Formed sheet steel, depth governed by plaster thickness, maximum possible lengths, expanded metal flanges, with beveled edge, galvanized.

G. Control Joints: Formed sheet steel, accordion profile, 2 inch expanded metal flanges each side, galvanized.

II. ACCESSORIES

A. Anchorage: Tie wire, nails and other metal supports, of type and size to suit application; to rigidly secure materials in place, galvanized.

B. Fasteners: ASTM C 1002, self drilling, self tapping screws.

C. Tie Wire: Annealed galvanized steel.

PART 3 – EXECUTION

I. EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that substrates are ready to receive work and conditions are suitable for application.

II. INSTALLATION – GENERAL

A. Install lath for plaster work in accordance with ASTM C 841.

III. CONTROL JOINTS

A. Control Joint Spacing: Not to exceed 12 feet on center.

B. Install control joints.

IV. LATH INSTALLATION

A. Apply metal lath taut, with long dimension perpendicular to supports.

B. Lap ends minimum 1 inch. Secure end laps with tie wire where they occur between supports.

C. Lap sides of diamond mesh lath minimum 1-1/2 inches.

D. Attach metal lath to wood supports using screws or nails: space at maximum 16 inches on center.

F. Attach metal lath to concrete masonry using wire hair pins. Attach anchors to backup surface: space at maximum 16 inches on center.

G. Continuously reinforce internal angles with corner mesh, except where the metal lath returns 3 inches from corner to form the angle reinforcement; fasten at perimeter edges only.

H. Place corner bead at external wall corners; fasten at outer edges of lath only.

I. Place base screeds at termination of plaster areas; secure rigidly in place.

J. Place 4 inch wide strips of metal lath centered over junctions of dissimilar backing materials. Secure rigidly in place.

K. Place casing beads at termination of plaster finish. Butt and align ends. Secure rigidly in place.

L. Place additional strip mesh diagonally at corners of lathed openings. Secure rigidly in place.

V. ERECTION TOLERANCES

A. Maximum variation from true lines and levels: 1/8 inch in 10 feet.

B. Maximum variation from true position: 1/8 inch.

END OF SECTION 09206

Section 09220 – Portland Cement Plaster

PART 1 – GENERAL

I. SECTION INCLUDES PORTLAND CEMENT PLASTER FOR INSTALLATION OVER METAL LATH AND MASONRY.

II. RELATED SECTION: SECTION 09206 – METAL LATH: Metal furring and lathing for plaster.

III. SUBMITTALS

A. Product Data: Provide data on plaster materials, characteristics and limitations of products specified.

B. Samples: Two 2’ x 2’ mock-ups will be required for Owner to select color and approval of finish texture.

IV. QUALITY ASSURANCE: PERFORM WORK IN ACCORDANCE WITH ASTM C 926.

V. ENVIRONMENTAL REQUIREMENTS.

A. Do not apply plaster when substrate or ambient air temperature is under 50 degrees F or over 80 degrees F.

B. Maintain minimum ambient temperature of 50 degrees F during installation of plaster and until cured.

PART 2 – PRODUCTS

I. PLASTER MATERIALS

A. Finish Coat: System will receive an elastomeric paint finish. Color to be selected by Owner.

B. Portland Cement: ASTM C 150, Type I.

C. Lime: ASTM C 206, Type S.

D. Aggregate: In accordance with ASTM C 926.

E. Water: Clean, fresh, potable and free of mineral or organic matter which can affect plaster.

F. Admixture: Air entrainment type.

II. METAL LATH: AS IN SECTION 09206

III. PLASTER MIXES

A. Over metal lath: Three-coat application, mixed and proportioned in accordance with ASTM C 926.

B. Mix only as much plaster as can be used prior to initial set.

C. Mix materials dry, to uniform color and consistency, before adding water.

D. Add air entrainment admixtures to all coats to provide 5-7 percent entrainment.

E. Protect mixtures from freezing, frost contamination, and excessive evaporation.

F. Do not retemper mixes after initial set has occurred.

PART 3 – EXECUTION

I. EXAMINATION

A. Verify the suitability of existing conditions before starting work.

B. Metal Lath and Accessories: Verify lath is flat, secured to substrate, and joint and surface perimeter accessories are in place.

II. PLASTERING

A. Apply plaster in accordance with ASTM C 926.

B. Moist cure base coats.

C. Apply second coat immediately following initial set of first coat.

D. After curing, dampen previous coat prior to applying finish coat.

E. Finish Texture: To be selected by owner

F. Avoid excessive working of surface. Delay troweling as long as possible to avoid drawing excess lines to surface.

III. ERECTION TOLERANCES

A. Maximum variation from true flatness: 1/8 inch in 10 feet.

END OF SECTION 09220

Section 09250 – Gypsum Board Systems

PART 1 – SUMMARY

I. GENERAL

A. Support System: Where stud partitions are called for, see plans for use of 4” or 6” (nom.) wood or Steel Studs at 16” c-c.

B. Gypsum Board Standard: ASTM C 840

C. Fire Resistance Ratings: Provide gypsum drywall work with ratings indicated and conforming to assemblies tested and listed by recognized authorities.

D. Gypboard Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Flintkote Products, Genstar Building Materials Co.
2. Georgia-Pacific Co.
3. Gold Bond Building Products Div., National Gypsum Co.
4. United States Gypsum Co.

PART 2 – PRODUCTS

I. DRYWALL MATERIALS

A. Exposed gypsum board: ASTM C 36. Provide type “X” where required in fire resistance rated assemblies.

1. Long edges: standard taper.
2. Thickness: 5/8”, unless otherwise indicated. 5/8” type “X” at rated ceiling assemblies.

B. Water-resistant gypsum backing board: ASTM C 630. Provide type “X” where required in fire resistance rated assemblies.

1. Thickness: 5/8”, unless otherwise indicated.

C. Trim accessories: Provide manufacturer’s standard metal trim accessories, of the beaded type with face flanges for concealment in joint compound except where semi-finishing or exposed type is indicated. Provide corner beads, L-type edge trim beads, U-type trim beads, special L-kerf-type edge trim-beads, and one piece control beads.

D. Gypsum board fasteners: Type recommended by gypsum board manufacturer, except as otherwise indicated.

E. Joint tape: ASTM C 475, paper reinforcing tape.

F. Joint compound: ASTM C 475, of the type indicated.

1. Provide ready-mixed vinyl-type for interior work.
2. Provide a single multi-purpose compound for 3 courses of compound application.
3. Provide water-resistant type manufactured by United States Gypsum Co. for use with water-resistant backing board.

PART 3 – INSTALLATION

I. GENERAL

A. Install supplementary framing, furring, blocking and bracing at openings and terminations in gypsum drywall and where required for support of other work which cannot be adequately supported in gypsum board alone.

B. Install gypsum boards in lengths and directions which will minimize number of end joints, and avoid end joints in central area of ceilings. Install walls and partitions with exposed gypsum boards vertical, with joints offset on opposite sides of partitions. Otherwise, install boards with edges perpendicular to supports, with end joints staggered over supports, except where recommended in a different arrangement by manufacturer.

C. Form control joints with ½" space between boards. Install trim accessory at face.

D. Screw gypsum board to metal supports.

E. Screw gypsum board to wood supports at ceilings and at exterior walls where stucco occurs.

F. Screw or nail gypsum board to wood supports at all other areas.

G. Drywall finishing: Except as otherwise indicated, apply joint tape and joint compound at joints (both directions) between gypsum boards. Apply compound at accessory flanges, penetrations, fasteners heads and surface defects.

1. Install compound in 3 coats (plus prefill of cracks where recommended by mfr.); sand after last 2 coats.

2. Treat joints, fasteners heads, cut edges and penetrations in water-resistant backing board using water-resistant joint compound to comply with water-resistant joint compound mfr's. directions.

END OF SECTION 09250

Section 09300 – Ceramic Tile

PART 1 – GENERAL

I. SUMMARY

A. Ceramic tile for floor and wall applications.

B. TCA (HB) – Handbook for Ceramic Tile Installation; Tile Council of America, Inc. 1999

II. SUBMITTALS

A. Product Data: Provide instructions for using grouts and adhesives.

B. Samples: Mount tile and apply grout on two plywood panels, 3’ x 3’ in size illustrating pattern, color variations and grout joint size variations.

III. QUALITY ASSURANCE

A. Maintain one copy of TCA Handbook and ANSI A108 Series/A118 on site.

B. Use experienced installers.

IV. ENVIRONMENTAL REQUIREMENTS

A. Maintain ambient and substrate temperature of 50 degrees F during installation of mortar materials and/or follow manufacturer’s recommendations.

PART 2 – PRODUCTS

A. Tile: To be selected by Owner. For the purposes of bidding, allow a $2.00 per foot ceramic tile material allowance.

B. Mortar bond coat materials:
1. Dry-set Portland Cement type: ANSI A118.1.
2. Latex-Portland Cement type: ANSI A118.4.

C. Grout: Latex-Portland Cement type as specified in ANSI A118.6.
1. Color: As selected by Owner.

PART 3 – EXECUTION

I. EXAMINATION

A. Verify that sub-floor surfaces are smooth and flat within tolerances and are ready to receive tile.

B. Verify that wall surfaces are smooth and flat within tolerances and are dust-free and are ready to receive tile.

C. Verify that sub-floor surfaces are dust-free, and free of substances which would impair bonding of setting materials to sub-floor surfaces.

D. Verify that concrete sub-floor surfaces are ready for tile installation by testing for moisture emission rate and alkalinity; obtain instructions if test results are not within limits recommended by tile manufacturer and setting materials manufacturer.

E. Verify that required floor-mounted utilities are in correct location.

II. PREPARATION

A. Protect surrounding work from damage.

B. Vacuum clean surfaces and damp clean.

C. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.

III. INSTALLATION

A. Install tile and grout in accordance with applicable requirements of ANSI A108.1 through A108.10, manufacturer's instructions and TCA Handbook recommendations.

B. Cut and fit tile, leaving sealant joint space. Form corners and bases neatly. Align floor and base joints.

C. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make joints watertight, without voids, cracks, excess mortar, or excess grout.

D. Form internal angles square and external angles bullnosed.

E. Sound tile after setting. Replace hollow sounding units.

F. Allow tile to set for a minimum of 48 hours prior to grouting.

G. Grout tile joints. Use standard grout unless otherwise indicated.

H. Apply sealant to junction of tile and dissimilar materials and junction of dissimilar planes.

IV. INSTALLATION – FLOORS – THIN-SET METHOD

A. Over interior concrete substrates, install in accordance with TCA Handbook Method F113, dry-set or latex-portland cement bond coat, with standard grout, unless otherwise indicated.

V. INSTALLATION – WALL TILE

A. Over gypsum wallboard on wood or metal studs install in accordance with TCA Handbook Method W243, thin-set with dry-set or latex-portland cement bond coat, with standard grout, unless otherwise indicated.

VI. CLEANING

A. Clean tile and grout surfaces.

VII. PROTECTION OF FINISHED WORK

A. Do not permit traffic over finished floor surface for 4 days after installation.

END OF SECTION 09300

Section 09510 – Suspended Acoustical Ceiling

PART 1 – GENERAL

I. SUMMARY

A. Acoustical materials: FS SS-S-118

B. Suspension Systems: ASTM C 635 for materials; ASTM C 636 for installation.

II. SUBMITTALS.

A. Submit 4”x6” square samples of acoustical unit; 12” long samples of each exposed suspension member and molding.

B. Submit product data.

PART 2 – PRODUCTS

I. GENERAL

A. Mineral composition with standard washable painted finish: NRC 50, LR 1, STC 35-39, square-edge, white, 24”x24”x5/8”, non-directional fissured pattern as manufactured by Armstrong World Industries, Inc. or equal.

B. Suspension system: as required to support acoustical units, fixtures and other components as indicated, including anchorage, hangers, runners, cross runners, splines, clips, molding, fasteners, and other member, devices and accessories. Comply with requirements of ASTM C 635.

1. Hanger wire: Not less than 12-gage (0.106”) galvanized steel.
2. Type: Exposed direct hung steel suspension system painted white.

PART 3 – EXECUTION

I. INSTALLATION

A. Layout: Balance ceiling borders on opposite sides, using more-than-half width acoustical units.

B. Tolerance: 1/8” in 12’-0” level tolerance.

C. Pattern Direction: One-way, align joints.

D. Suspension system: Secure to building structure, with hangers spaced 4’-0” along supported members.

E. Edge moldings: Secure to substrate with screw anchors spaced 16” o.c. Miter corner joints.

F. Cope exposed flanges of intersecting suspension members for flush intersections.

G. Install acoustical panels without hold-down clips.

END OF SECTION 09510

Section 09520 – Suspended Tectum Acoustic Ceiling

PART 1 – GENERAL

I. SUMMARY

A. Section Includes: Cementitious wood fiber plank acoustical ceiling system

II REFERENCES

A. ASTM International:

1. ASTM C635 Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.
2. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials.
3. ASTM E1264 Standard Classification for Acoustical Ceiling Products.

B. Ceilings and Interior Systems Construction Association (CISCA):

1. CISCA Code of Practices.

III. SYSTEM DESCRIPTION

A. Performance Requirements:

1. Provide acoustical ceiling assembly designed and tested to provide surface burning characteristics (ASTM E84) as follows:
   a. Flamespread: 0.
   b. Smoke Developed: 0.
2. Provide acoustical ceiling system which has been manufactured, fabricated and installed to provide Noise Reduction Coefficient (NRC) rating as follows:
   a. .45 Min

IV. SUBMITTALS

A. General: Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedures Section.

B. Product Data: Submit manufacturer’s product data and installation instructions.

C. Samples: Submit selection and verification samples: 6 inch × 6 inch (152 × 152 mm) sample for each wood fiber ceiling unit required, showing full range of exposed texture to be expected in completed work.

D. Quality Assurance/Control Submittals: Submit the following:

1. Certificates: Submit manufacturer's certificate that products meet or exceed specified requirements.

V. QUALITY ASSURANCE

A. Installer Qualifications: Utilize an installer having demonstrated experience on projects of similar size and complexity.

VI. DELIVERY, STORAGE & HANDLING

A. General: Comply with Division 1 Product Requirement Section.

B. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

1. Provide labels indicating brand name, style, size and thickness.

C. Storage and Protection: Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer.

1. Prevent soiling, physical damage or wetting.
2. Store cartons open at each end to stabilize moisture content and temperature.

VII. PROJECT/SITE CONDITIONS

A. Environmental Requirements:

1. Do not install ceiling panels until building is closed in and HVAC system is operational.
2. Locate materials onsite at least 24 hours before beginning installation to allow materials to reach temperature and moisture content equilibrium.
3. Maintain the following conditions in areas where acoustical materials are to be installed 24 hours before, during and after installation:
   a. Relative Humidity: 65 - 75%.
   b. Uniform Temperature: 55 - 70 degrees F (13 - 21 degrees C).

VIII. MAINTENANCE

A. Extra Materials: Provide additional material for use by owner in building maintenance and repair.

B. Provide new unopened cartons of extra materials, packaged with protective covering for storage and identified with appropriate labels.

PART 2 PRODUCTS

I. ACOUSTICAL CEILING SYSTEM

A. Manufacturer: Tectum Inc. or equal to

1. Contact: 105 South Sixth Street, Newark, OH 43055; Telephone: (888) 977-9691, (740) 345-9691; Fax: (800) 832-8869; E-mail: info@tectum.com; website: www.tectum.com.

B. Proprietary Systems. Acoustical ceiling systems, including the following:

1. Tectum Acousti-Tough Ceiling System:

a. Material: Aspen wood fibers bonded with inorganic hydraulic cement.

b. Thickness: 1 inch (25.4 mm).

c. Size: 24 inches × 48 inches (610 × 1219 mm).

II. PRODUCT SUBSTITUTIONS

A. Substitutions: Refer to Section 01600.

III. ACCESSORIES

1. Provide accessories as follows:

a. Acousti-Tough Keep Clips:

b. Material: Steel.

c. Manufacturer Designation: [ARC-100 for 1 inch (25.4 mm) panels] [ARC-200 for 1½ inch (38 mm) and 2 inch (51 mm) panels].

2. Tectum Touch-Up Paint:

a. Color: To be selected by Church Interiors Committee

PART 3 EXECUTION

I. MANUFACTURER'S INSTRUCTIONS

A. Comply with the instructions and recommendations of the ceiling system manufacturer.

B. Install materials in accordance with governing regulations, fire resistance rating requirements and industry standards applicable to work.

II. EXAMINATION

A. Site Verification of Conditions:

1. Examine surfaces scheduled to receive

suspended or directly attached acoustical units for unevenness, irregularities and dampness that would affect quality and execution of work.

2. Do not proceed with installation of ceiling system until unacceptable conditions are corrected.

III. INSTALLATION

A. General: Do not begin installation until materials sufficient to complete an entire room are received and prepared for installation.

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.

C. Symmetrically locate grid layout in each space. Coordinate work with other trades so that lighting fixtures, grilles and other ceiling fixtures work with grid layout.

D. Do not use universal splices or other splices that would obstruct passage of recessed lighting fixtures through grid openings or limit fixture relocation upon flanges of ceiling grids.

E. Support suspension system from structure above, not from ductwork, metal deck, equipment or piping.

F. Space hangers not more than 6 inches (152 mm) from ends and not more than 4 feet (1219 mm) on centers on runners.

G. Install wall moldings at the perimeter of each acoustical ceiling area and at locations where edge of units would otherwise be exposed.

1. Secure moldings to supporting construction by fastening with screw anchors into the substrate, through holes drilled in vertical leg. Space holes not more than 3 inches (76 mm) from each end and not more than 16 inches (406 mm) on center along each molding.

2. Level moldings with ceiling suspension system, to a level tolerance of 1/8 inch (3.2 mm) in 12 feet (3658 mm).

3. Miter corners of moldings accurately to provide hairline joints, securely connected to prevent dislocation. Cope exposed flanges of intersecting suspension system members, so that flange faces will be flush.

4. Furnish additional tees for supporting grilles, diffusers and light fixtures. Refer to reflected ceiling, HVAC and electrical plans for locations.

5. Provide reveal edge at walls, other abutting vertical surfaces.

H. Field paint cut edges to match surface color and sheen.

I. Arrange acoustical units and orient directionally patterned units, if any, in manner shown on reflected ceiling plans.

IV. CLEANING

A. Clean exposed surfaces of acoustical ceilings, trim, edge moldings and suspension members to comply with manufacturer’s instructions for cleaning.

B. Touch up any minor finish damage.

C. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

V. PROTECTION

A. Protect installed work from damage due to subsequent construction activity, including temperature and humidity limitations and dust control, so that the work will be without damage and deterioration at the time of acceptance by the Owner.

END OF SECTION 09520

Section 09650 – Resilient Flooring

PART 1 – GENERAL

I. SUMMARY

A. Provide resilient flooring and base.

II. SUBMITTALS

A. Submit for approval samples, product data, extra stock.

III. QUALITY ASSURANCE

A. Comply with governing codes and regulations. Provide products of acceptable manufacturers which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.

B. Provide materials and adhesives which do not contain asbestos.

PART 2 – PRODUCTS

I. MATERIALS

A. Tile flooring: Vinyl composition tile to be selected by Owner.
Acceptable manufacturers: Tarkett, Armstrong, Azrock, or equal.

B. Rubber Base: To be selected by owner
Acceptable manufacturers: Burke or equal.

C. Use manufacturer recommended waterproof adhesive.

PART 3 – EXECUTION

I. INSTALLATION

A. Comply with manufacturer's instructions and recommendations. Install in proper relation to adjacent work.

B. Prepare surfaces by cleaning, leveling and priming as required. Test adhesive for bond before general installation. Level to 1/8" in 10' tolerance.

C. Tile flooring: Install tile with tight joints and with one-way pattern. Layout to prevent less than ½ tile units.

D. Install necessary transitions applicable to floor covering changes.

E. Clean, polish and protect.

END OF SECTION 09650

Section 09680 – Carpeting

PART 1 – GENERAL

I. SUMMARY

A. Provide carpeting for glued-down installation.

II. SUBMITTALS

A. Submit for approval samples, product data, warranty, maintenance data, extra stock, proposed seaming layout.

III. QUALITY ASSURANCE

A. Comply with governing codes and regulations. Provide products of acceptable manufacturers which have been in satisfactory use in similar service for three years. Use experience installers. Deliver, handle and store materials in accordance with manufacturer's instructions.

B. Provide carpet materials meeting applicable fire regulations.

PART 2 – PRODUCTS

I. MATERIALS

A. Carpet: To be selected by Owner.
See Section 01020-Allownace.

B. Mounting: Direct glue down; waterproof, strippable adhesive.

C. Accessories: Provide all necessary accessories for a complete job. Include proper transitions between floor covering changes.

PART 3 – EXECUTION

I. INSTALLATION

A. Comply with recommendations of Carpet and Rug Institute "Specifier's Handbook."

B. Prepare surfaces and install materials in accordance with manufacturer's instructions and approved submittals. Clean, patch, and level substrate. Install materials in proper relation with adjacent construction and with uniform appearance. Coordinate with work of other sections.

C. Install edge guards and reducer strips as required; clean and protect.

END OF SECTION 09680

Section 09900 – Painting

PART 1 – GENERAL

I. SUMMARY

A. Provide surface preparation and painting for unfinished interior and exterior surfaces, including electrical and mechanical equipment with shop primed surfaces and exposed red iron.

II. SUBMITTALS

A. Submit for approval samples, product data, 4'x4' mock-ups, extra stock.

III. QUALITY ASSURANCE

A. Comply with governing codes and regulations. Provide products of acceptable manufacturers which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.

PART 2 – PRODUCTS

I. MATERIALS

A. First-line standard products for all systems by Sherwin Williams, Benjamin-Moore, Glidden, Devoe, or approved equal. Match color chips selected.

B. Exterior Paint Systems:

1. Wood for transparent finish: Filler coat (for open grained wood only); Stain, 1 coat; Sealer, 1 coat; Exterior varnish (gloss), 2 coats
2. Ferrous Metal, Unprimed: Alkyd primer, 1 coat; Alkyd enamel (semi-gloss), 2 coats.
3. Ferrous Metal, Primed: Touch up with zinc chromate primer; Alkyd enamel (semi-gloss), 2 coats.
4. Stucco: Block surfacer, 1 coat; Elastomeric, 2 coats
5. Cement Fiber Board: Exterior primer, 1 coat; Exterior latex (semi-gloss finish), 2 coats.

C. Interior Paint Systems:

1. Drywall: Medium texture orange peal; Latex primer, 1 coat; Interior latex (flat or eggshell finish) 2 coats.

2. Drywall (toilet rooms, heavy duty): Medium texture orange peal; Latex primer, 1 coat; water-based epoxy (semi-gloss finish), 2 coats.
3. Wood for opaque finish (to be selected at later date - doors, trim, cabinets, solid stock): Alkyd enamel undercoat, 1 coat; Alkyd enamel (semi-gloss finish), 2 coats.
4. Wood for semi-transparent finish (to be selected at later date - doors, trim, cabinets, solid stock): Filler coat (for open grained wood only); Stain, 1 coat; Sealer, 1 coat; varnish (satin), 2 coats.
5. Ferrous Metal, Unprimed (steel framing and supports, stairs, handrails, railing, joists, trusses, beams, bar gratings, misc. & ornamental iron, doors, frames, pumps, motors, machines, ducts [ventilating], non galvanized metals): Alkyd primer, 1 coat; Alkyd enamel (semi-gloss), 2 coats.
6. Ferrous Metal, Primed (steel framing and supports, stairs, handrails, railing, joists, trusses, beams, bar gratings, misc. & ornamental iron, doors, frames, pumps, motors, machines, ducts [ventilating], non galvanized metals): Touch up with alkyd primer; Alkyd enamel (semi-gloss), 2 coats.
7. Galvanized Metal: Galvanized primer, 1 coat; Alkyd enamel, 2 coats.

PART 3 – EXECUTION

I. INSTALLATION

A. Inspect surfaces, report unsatisfactory conditions in writing; beginning work means acceptance of substrate.

B. Comply with manufacturer’s instructions and recommendations for preparation, priming, and coating work. Coordinate with work of other sections.

C. At existing areas to be repainted, remove blistered or peeling paint to sound substrates. Remove chalk deposits and mildew and wash all surfaces with mild detergent. Perform related minor preparation including caulk and glazing compounds. Spot prime bare areas before priming and painting as specified. All existing exterior surfaces that receive paint will be repainted to match new construction.

D. Match approved mock-ups for color, texture, and pattern. Re-coat or remove and replace work which does not match or shows loss of adhesion. Clean up, touch up and protect work.

END OF SECTION 09900

Section 10165 – Plastic Laminate Toilet Partitions

PART 1 – GENERAL

I. DESCRIPTION

A. Particle board core compartment work includes the followings:
1. Floor anchored/overhead braced

B. Furnish all labor and materials necessary for the completion of work in this section as shown on the contract drawings and specified herein.

C. Work in this section shall include but is not limited to:
1. Toilet compartments
2. Hardware for toilet compartments
3. Shop drawings and working drawings
4. Manufacturer's guarantee

D. Related work specified elsewhere shall include accessories and anchorage/blocking for attachment of compartments.

II. SUBMITTALS

A. Submittal of shop drawings and details, for Timbercon's approval.

B. Colors shall be selected from the manufacturer's standard range of colors.

C. Color and hardware samples shall be submitted for approval to the Owner upon request.

PART 2 – PRODUCTS

I. MANUFACTURER

A. Toilet compartments to be supplied by Global Steel Products Corp. Deer Park, New York or approved equal.

II. MATERIALS

A. Doors and panels shall be 1" thick, constructed of decorative plastic laminate, bonded with a non-toxic waterproof adhesive under pressure to a 7/8" particle board core; the laminate to be 0.050" with a matte finish; the core to be 45 pound density, resin impregnated particle board.

B. Pilasters shall be 1-1/4" thick, constructed of decorative plastic laminate, bonded with a non-toxic waterproof adhesive under pressure to a 1-1/8"

particle board core; the laminate to be 0.050" with a matte finish; the core to be 45 pound density, resin impregnated particle board.

III. CONSTRUCTION

A. Doors and panels to be 1". All face and edge surfaces to be covered with decorative laminate, face surfaces to overlap all edges so that joints between laminates fall on the edge surface of components only. Doors to be recessed to accept hinges within the door and yield bi-directional operation about an axis within the plane of the door.

B. Pilasters finish thickness shall be 1-1/4". All face and edge surfaces to be covered with decorative laminate, face surfaces to overlap all edges so that joints between laminates fall on the edge surface of components only. Pilasters shall include a mounting system comprising a mounting bar. Each mounting bar shall be secured to the building structure with 3/8" cadmium-plated studs. A shoe shall conceal each floor mounting, having an internal cross section conforming to the pilaster, and being formed of type 304 stainless steel #4 finish.

C. The color and texture of the finish on plastic laminate units is determined by the selected decorative pattern.

IV. HARDWARE

A. All exposed door hardware shall be of chromium-plated diecast Zamac and shall be as noted:
   1. Upper door hinge is recessed within the plane of the door and saddled on the adjacent pilaster, to yield bidirectional operation about an axis within the plane of the door. All hinges to include adjustable cams to support the door and establish set positions by gravity only.
   2. Slide latches shall be mounted at the mid-point of the door, 29" up from the bottom. Keepers shall be designed and installed permitting emergency access to the compartment by lifting the door until the latch bolt is clear of the keeper.
   3. Hardware includes coat hook, bumper, stop, keeper and all necessary fasteners for installation.

B. Fasteners shall be of chrome-plated steel; door hinges will be mounted with tamper resistant barrel nuts and machine screws; hooks and handles will be mounted with tamper resistant, full thread screws.

C. Wall brackets shall be secured to walls with anchoring and/or expansion shields.

D. Pilaster shoes shall be of type 304 steel #4 finish.

PART 3 – EXECUTION

I. PREPARATION

A. Examine areas to receive toilet compartments for correct height and spacing of anchorage/blocking and plumbing fixtures that may affect installation of compartments. Report any discrepancies to Timbercon.

B. Take complete and accurate measurements of complete toilet compartment locations.

C. Start of work constitutes acceptance of the job.

II. INSTALLATION

A. Install compartments in a rigid, straight, plumb and level manner as shown on the shop drawings and manufacturer's installation instructions.

B. All doors and panels to be mounted at 12" above the finished floor.

C. Clearance at vertical edges of door shall be uniform top to bottom.

D. No evidence of cutting, drilling and/or patching shall be visible on the finished work.

E. Finished surfaces shall be cleaned after installation and be left free of all imperfections.

III. WARRANTY

A. Global Steel Products Corp. guarantees its plastic laminated units, properly maintained, against discoloration or delamination for 2 years from the date of receipt by the customer. If materials are found defective during that period for the reasons listed above, the material will be replaced free of charge. No credits or allowances will be issued for any labor or expenses relating to the replacement of components covered under the warranty plan. All such expenses are to be borne by the installer.

END OF SECTION 10165

Section 10440 – Signs

PART 1 – GENERAL

I. SUMMARY

A. See related section – Allowances.

B. Owner to select style and placement of signage.

PART 2 – PRODUCTS - NOT APPLICABLE

PART 3 – EXECUTION - NOT APPLICABLE.

END OF SECTION 10440

Section 10523 – Fire Extinguishers & Cabinets

PART 1 – GENERAL

I. SUMMARY

A. Location and number of units will be determined by the Fire Marshall. Provide standard recessed cabinets with 5 lb. fire extinguishers. They shall be installed by the Contractor. See Division 15 for smoke detectors.

PART 2 – PRODUCTS—NOT APPLICABLE

PART 3 – EXECUTION—NOT APPLICABLE.

END OF SECTION 10523

Section 10800 – Toilet Accessories

PART 1 – GENERAL

I. SUMMARY

A. Provide toilet accessories.

B. See related section – Allowances.

II. SUBMITTALS

A. Submit for approval samples, product data, and accessory schedule.

III. QUALITY ASSURANCE

A. Comply with governing codes and regulations. Provide products of acceptable manufacturers which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle and store materials in accordance with manufacturer's instructions.

PART 2 – PRODUCTS

I. MATERIALS

A. Stainless steel fabrication with satin finish; American Specialties, Inc. or approved equal. Surface and recessed mounted as indicated.

B. Types and quantities - minimum requirements:
1. Provide 1 each of the following per restroom:
   a. Surface mount paper towel dispenser: ASI 0210
2. Provide 1 each of the following per water closet compartment or toilet room:
   a. Surface mounted dual roll toilet paper dispenser:
3. Provide 1 each of the following per women's water closet compartment:
   a. Surface mounted sanitary napkin disposal: ASI 0852.
4. Provide 2 each of the following per handicap water closet:
   a. Surface mounted grab bars in lengths required by TAS and ADA.
5. Provide 1 each of the following per restroom:
   a. Surface mounted baby changing station: ASI 9012
6. Provide 1 each of the following per counter top lavatory:
   a. Soap Dispenser: ASI 0332D
7. Provide 1 each of the following per wall hung lavatory:
   a. Soap Dispenser: ASI 9343

8. Provide 1 each of the following ADA/TAS required fold up shower seats:
   a. ASI 8206 (L), ASI 8206 (R)
9. Provide 1 corner grab bar for each shower stall in lengths required by ADA/TAS. (1 left hand, and 1 right hand)

C. Full-size frameless mirrors: ¼" float glass with polished edges. See plans for size.

PART 3 – EXECUTION

I. INSTALLATION

A. Install materials and systems in accordance with manufacturer's instructions and approved submittals. Install materials and systems in proper relation with adjacent construction and with uniform appearance. Coordinate with work of other sections.

B Restore damaged finishes and test for proper operation. Clean and protect work from damage.

END OF SECTION 10800

Section 13121 – Pre-engineered Metal Structure

PART 1 – GENERAL

I. SUMMARY

A. PROJECT INCLUDES

1. Pre-engineered metal buildings.

a. Structural framing.
b. Roofing.
c. Trim, gutters, downspouts.

B. Codes and standards: In addition to complying with the Standard of A.I.S.C. and the IBC 2006, the standards of the Metal Building Manufacturers Association shall be met or exceeded. In case of difference between the standards, the higher quality requirement shall prevail.

PART 2 – PRODUCTS

I. MANUFACTURER

A. Structural Framing: structural steel shapes, ASTM A 36, and primary, secondary, and endwall framing including columns, beams, purlins, girts, struts and bracing.

B. Ceco Metal Building Manufacturing or approved equal.

C. Metal Roofing Panels:

a. Type: Standing-seam roof panel system.
(Straight Rib Architectural Roof Panel)
b. Roofing Panel Finish: Kynar 500

D. Related Materials:

a. EPDM membrane Roofing
a. Vapor barriers.
b. Gutters and downspouts.
c. Caulking and sealants.
d. Wall louvers.
e. Roof ventilators.

PART 3 – EXECUTION

I. INSTALLATION

A. Comply with all local, state and federal building codes applicable to the installation of the metal building components. Install as per manufacturer's instructions.

II. WARRANTY

A. 20 YEAR WEATHER TIGHTNESS WARRANTY

1. Submit executed original of preformed metal roofing system manufacturer's single source non-prorated, systems warranty agreement, signed by an authorized representative of preformed metal roofing system manufacturer, on form published with product literature as of date of Contract Documents. The warranty shall cover the entire roofing system including but not limited to: hip flashings, ridge flashings, eave flashings, valley flashings, and other flashings, end laps, panels and associated accessories, trim components, tape sealants, sealants, curbs, penetrations, transitions, terminations, and other items installed under this section.

a. The preformed metal roofing manufacturer will warranty that furnished roofing system, as herein defined, will not allow intrusion of water from the exterior of the roofing manufacturer's roofing system into the building envelope, when exposed to ordinary weather conditions and ordinary wear and usage.

b. The preformed metal roofing system manufacturer will take appropriate actions necessary to cause the non-performing portions of the roofing system to perform their proper function during the warranty period.

c. The warranty will be direct from the preformed metal roofing system manufacturer as indicated in this section and the manufacturer is responsible for the full term of the warranty.

d. The owner will not accept a warranty that requires the owner or the owner's team to ensure that the roofing system is installed in accordance with the

preformed metal roofing system manufacturer's requirements.

e. The preformed metal roofing system manufacturer will provide the sole and exclusive obligation for all warranty work from the date of substantial completion and under all circumstances, terminate on the expiration of the indicated warranty period.

f. Length of coverage:
   1. 20 years.

END OF SECTION 13121

Section 15400 – Plumbing

PART 1 – GENERAL

I. SUMMARY

A. Related work specified elsewhere.

II. SUBMITTALS

A. Submit product data for specified fixtures for approval prior to ordering.

III. QUALITY ASSURANCE

A. Requirements of regulatory agencies: comply with local, state, and national ordinances, codes and health regulations.

B. Reference standards: American Society for Testing and Materials (ASTM):

1. D2665-68, Poly Vinyl Chloride (PVC) plastic drain, waste and vent pipe and fittings.
2. B88-71, copper water tube, seamless.

PART 2 – PRODUCTS

I. PIPE AND PIPE FITTINGS

A. Soil, waste and vent piping: PVC drain, waste and vent pipe fittings (ASTM D2665).

B. Domestic water pipe and fittings:

1. Under floor slab or cast in concrete: Type L soft copper (no fittings): ASTM B88
2. Exterior service line: Type L hard copper with wrought fittings: ASTM B88
3. Interior above slab: Type L hard copper with wrought fittings: ASTM B88.

C. Piping specialties:

1. Escutcheons: Chrome plated.
2. Access Panels: Milcor, Style DW
3. Copper Tube Straps: Mueller Brass Style WS-1100
4. Valves: Mueller Brass Style V-1026

5. Hose Bibbs: Freeze proof, w/ back flow preventer
6. Floor Drains: Wade W-1742-UF, or equal to

II. DOMESTIC WATER PIPING INSULATION

A. Owens-Corning Fiberglass, Universal Fire Retardant, FRJ, ½" thickness.

III. PLUMBING FIXTURES

A. Brand as specified in schedule or equal to, submit for approval

B. Color of all fixtures: white

C. Schedule: See Plans

PART 3 – EXECUTION

I. EXCAVATION AND BACKFILL

A. Locate and protect existing utilities and other underground work to insure against damage or interruption to existing services.

B. Provide and maintain barricades, lighting and warning signs as necessary for the protection of persons and property.

C. Saw cut existing pavement and concrete slabs prior to removal of asphalt or concrete to provide straight clean lines.

D. Perform all excavations and trenching required for the work under this section. Comply with the "Texas Safety Standard for Excavation Work and Shoring."

E. Backfill with applicable fill material that meets all applicable codes. Compact backfill with vibratory tampers to maximum density for the material at optimum moisture.

F. Replace asphalt pavements and concrete slabs with like materials and finish to match adjacent surfaces.

II. WASTE AND VENT PIPING

A. All soil, waste and vent piping shall be sized and installed in accordance with the Uniform Plumbing Code and any other codes having jurisdiction.

B. Install cleanouts at the base of all vent stacks and at each change in direction of drains.

C. Slope horizontal pipe runs ¼" per foot.

D. Test by filling with water to the topmost opening for one hour. Remake any leaking joint and replace any leaky pipes.

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III. DOMESTIC WATER SERVICE

A. Piping for mains, branches and runouts shall be cut accurately to measurements taken at the jobsite and shall be worked into place without springing or forcing. Do not allow copper pipes to contact ferrous metals. Wrap copper piping in concrete slab with roofing felt or plastic to prevent contact with reinforcing steel. Use only copper tube straps for securing pipe to structural supports.

B. Notching or boring of structural members shall be held to a minimum and shall be accurately and carefully done. Notches shall be closed at stud or joist faces with sheet metal plates to prevent nail penetrations in pipes.

C. Piping above grade shall be run parallel to building lines.

D. No joints shall be made in pipe in under concrete slab.

E. Dielectric unions shall be provided between ferrous and nonferrous pipes to prevent galvanic action.

F. Water hammer shock arrestors, consisting of 12 inch high, capped pipe stubs shall be installed at the end of all fixture runs.

G. Test water lines for 4 hours at 125 psi pressure and prove tight before covering. Remake all leaking joints and retest.

V. DOMESTIC WATER PIPING INSULATION

A. Insulate hot water lines throughout and all cold water lines in attic and in exterior walls.

B. Install insulation in accordance with the manufacturer's printed instructions, using the recommended adhesives.

VI. WATER LINE STERILIZATION
VII.

A. Sterilize water lines upon completion with a chlorinated lime solution, as required by the Texas Department of Health.

VII. FIXTURE INSTALLATION

A. Install and anchor plumbing fixtures in accordance with the manufacturer's printed instructions.

B. Level and support fixtures as recommended by the fixture manufacturer.

VIII. CLEAN UP

A. Remove from the site all excess materials and debris resulting from work under this section. If debris is disposed of in construction dumpster, all boxes, etc. must be broken down.

B. Repair any damage to the building or grounds, resulting from these operations, to the Owner's satisfaction.

END OF SECTION 15400

15500 – Heating, Ventilating, and Air Conditioning

SEE DRAWINGS

END OF SECTION 15500

15600 – Fire Protection System

Part I – GENERAL

I. SCOPE

A. The work included under this section of the specifications consists of the providing of all materials, labor, and equipment required for a complete and workable automatic fire sprinkler system as shown on the plans and hereinafter specified and described. The Contractor is to provide 100 percent fire sprinkler coverage in all newly constructed areas of the facility.

II. SUBMITTALS

A. Working Plans

1. As soon as practical, but not later than twenty-one (21) days after the award of the Contract, the Fire Sprinkler System Subcontractor is to provide engineered fire sprinkler design drawings to the Building Designer for building permit/city plan review purposes. Drawings shall be complete, showing entire piping layout, sprinkler heads, hydraulic calculations, etc. Drawings shall be prepared on minimum 24” x 36” sheets and shall be provided on mylar or vellum media for reproduction purposes.

2. The Fire Sprinkler System Subcontractor shall also submit the necessary sets of these design drawings to the City Fire Marshal for review and comments.

III. QUALITY ASSURANCE

A. Codes

1. The Automatic Sprinkler System shall be installed in accordance with and meet the standards of the following codes and/or standards of the latest issue:

a. NFPA Pamphlet 13, AUTOMATIC SPRINKLER SYSTEMS
b. Building Codes of the city of Kirby, Texas.
c. Fire Prevention Requirements of Texas.
d. Other codes as specified by section 15400

B. APPROVAL AND ACCEPTANCE

1. The system shall be installed subject to the approval and/or acceptance of the following:

   a. State Fire Rating Office.
   b. Building Department of the City of Kirby.
   c. Fire Marshal of the City of Kirby.

2. All inspections and tests required by the above listed agencies shall be arranged and paid for by the Contractor and certificates of letters of approval from the inspecting agencies shall be provide to the Building Designer and Engineer.

3. Inspection Services: The Contractor shall perform two (2) inspections of the sprinkler system during the one year guaranteed period. Items to be inspected shall be as described in NFPA-13A. The first inspection shall be made 6 months after the church opening and the second approximately 6 months later. Inspections shall be coordinated with the church office. The following maintenance shall be performed during the course of the second inspection:

   a. Operation of all control valves.
   b. Lubrication of operating stems of all interior control valves.
   c. Operation of water motor gong.
   d. Cleaning of alarm valves.
   e. Lubrication of Fire Department hose connection inlets.

   Each inspection report shall be filled out with copies sent to the church office.

IV. PERMITS

A. Any permits for the installation or construction of any of the work included in this section, which are required by any of the authorities and/or agencies having jurisdiction, shall be obtained and paid for by the Contractor.

PART 2 – PRODUCTS

I. MATERIALS, EQUIPMENT, VALVES AND DEVICES

A. All materials, equipment, valves and devises installed and/or provided under this section shall be listed and/or approved for use in the fire

protection installation by the authorities, agencies, codes and standards named in this section of the specifications.

PART 3 – EXECUTION

I. SPRINKLER HEAD POSITIONING AND PIPE ROUTING

A. A complete fire sprinkler layout showing all heads and piping throughout the building shall be prepared by the Contractor. It is understood that this contract shall include the proper and required installations throughout. Rout piping to avoid conflicts with ductwork, pipes, conduits, and other equipment or systems. In finished areas especially, sprinkler heads shall not interfere with lighting fixtures, air conditioning outlets, or with general aesthetics and shall be located to provide a symmetrical layout. Sprinkler heads in public areas shall be centered in ceiling tiles. Submit drawings to Building Designer for review before fabrication.

II. VALVES AND CONNECTIONS

A. All drain valves, test valves, bleed valves, flushing connections, etc., required by codes and/or Fire Marshal shall be provided and installed by the Contractor. Inspector's test pipe shall be extended in attic space and dropped down on wall in storage room adjacent to fire sprinkler riser. Test pipe shall be minimum 1", but shall be increased in size if necessary to compensate for friction loss.

END OF SECTION 15600

Section 16000 – Electrical

SEE DRAWINGS

END OF SECTION 16000

Section 16700 - Fire Alarm & Detection System

PART 1 – GENERAL

I. RELATED DOCUMENTS:

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

II. DESCRIPTION OF WORK:

A. Types of fire alarm and detection systems in this section include the following:

1. Combination Manual/Automatic

III. QUALITY ASSURANCE:

A. Manufactures: Firms regularly engaged in manufacture of fire alarm and detection systems, of types, sizes, and electrical characteristics required, whose products have been in satisfactory use in similar services for less than five years.

B. Installer: Qualified with at least five years of successful installation experience on projects with fire and alarm detection system installation work similar to that required for this project.

C. NEC Compliance: Comply with NEC as applicable to construction and installation of fire alarm and detection system components and accessories.

D. UL Compliance and Labeling: Provide fire alarm and detection system components which are UL-listed and labeled.

E. FM Compliance: Provide fire alarm and detection systems and accessories which are FM-approved.

IV. SUBMITTALS

A. Product Data: Submit manufacture’s data on fire alarm and detection systems including, but not limited to, roughing-in diagrams and instructions for installation, operation and maintenance, suitable for inclusion in maintenance manuals. Also include standard or typical riser and wire diagrams.

B. Shop Drawings: Provide shop drawings showing equipment/devise locations and connecting wiring of entire fire alarm and detection system. Include wiring diagrams and riser diagrams.

PART 2 – PRODUCTS

I. ACCEPTABLE MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, the following manufactures (or approved equal) offering fire alarm and detections systems may be incorporated in the work:

1. Fire-Lite
2. Silent Knight
3. GE FireworX
4. Hochiki
5. System Sensor
6. Wheelock
7. Gentex

II. FIRE ALARM AND DETECTION SYSTEMS

A. General: Provide fire alarm and detection system products of types, sizes, and capacities indicated, which comply with manufacturer's standard design, materials, components; construct in accordance with published product information, and as required for complete installation. Provide fire alarm and detection systems for applications indicated, and with sequence of operations, components, and function features as follows.

1. Combination: Either manual activation of a fire alarm station or activation of an automatic initiating device energizes all fire alarm system signaling devises, sounding and alarm.

B. Equip and wire system so that energizing the fire alarm audible/visual signaling devises also activated the following:

1. Air Handler Fan Shutdown
2. Fire/Smoke Dampers
3. Public Address Speaker Strobe Devices.
4. Visual Devices.

C. Materials and Equipment

1. Wiring System Materials: Provide basic wiring materials which comply with Drawings, "Raceways, Wires, Box/Fittings, and Devices;" types to be selected by installer.

2. Wiring System Materials: Refer to Drawings for wiring materials required in conjunction with fire alarm and detection systems.

D. Manual Fire Alarm Stations: Provide manufacturer's standard construction, red enclosure, manual fire alarm stations. Station will mechanically latch upon operation and remain so until manually reset by opening with a key common to all system locks. Pull stations will be double lock.

1. Surface Mounted: Fire-Lite BG-12 or equal

E. Automatic Smoke (Combustion Products) Detectors: Provide manufacture's standard construction automatic smoke detectors of the following types.

1. Photoelectric duct detectors: Fire-Lite InnovairFlex or equal.

2. Ionization type, restorable, for area detection: Fire-Lite I3 Series or equal.

F. Audio-Visual Alarms: Audio-visual signaling devises shall be manufacturer's standard construction with the following features:

1. Integral speaker and high-intensity strobe light.
2. Surface mounting.
3. Fire-Lite or equal

G. Control Panels: Provide manufacture's standard construction fire alarm control panels to house devises and circuits necessary to perform required functions, and to serve as test points, and trouble-signal points.

H. Voice Evacuation: Provide manufacturer's standard construction voice evacuation panel to play an approved pre-recorded message in accordance with the Uniform Fire Code.

III. SYSTEM OPERATION

A. System alarm operation for any manual or automatic fire alarm device activation shall be as follows:

1. The Alarm LED/Light shall be energized on the Fire Alarm Control Panel (FACP) until the alarm has been manually acknowledged. When the alarm has been silenced, the same LED/Light shall remain "On" and the master alarm shall flash. A subsequent alarm received after any silencing shall again re-sound the audible circuits.

2. All speaker/strobe devises in the building shall be activated by the new fire alarm output.

3. All alarm conditions shall be visually indicated at the system control panel.

B. The System operation shall be such that the alarm operation of any zone alarm initiating device shall not prevent the subsequent alarm operation of any other zone initiating device.

C. Activation of any manual or automatic fire alarm in the building shall energize an associated output point for the fan shutdown relays. All fans are to be de-energized, with all capable of automatic re-start upon reset of the fire alarm system.

PART 3 – EXECUTION

I. INSTALLATION OF FIRE ALARM AND DETECTION SYSTEMS

A. Install fire alarm and detection systems as indicated, in accordance with equipment manufacturer's written instructions and complying with applicable portions of NEC and NECA's "Standard of Installation".

II. INSTALLATION OF BASIC WIRING SYSTEM MATERIALS

A. Install wiring, raceways, and electrical boxes and fittings in accordance with the Drawings.

III. FIELD QUALITY CONTROL

A. Inspect relays and signals for malfunctioning, and where necessary, adjust units for proper operation to fulfill project requirements.

B. Final adjustment shall be performed by specially trained personnel in direct employ of manufacturer of fire alarm and detection system equipment.

END OF SECTION 16700