MONTFORT AT TOWN CENTER

DALLAS, TEXAS

PROJECT MANUAL

OWNER
BlueWave Express Development, LLC
1455 First Street
Suite 301
Napa, California 94559

ARCHITECT
Melton Henry Architectural Group
5100 Westheimer, Suite 425
Houston, Texas 77056
713-572-0577
713-572-0315 FAX
meltonarchitect@comcast.net

MEP CONSULTANT
HGE Consulting
15603 Glen Chase
Houston, Texas 77095
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STRUCTURAL CONSULTANT
Integrity Structural Corp.
12777 Jones Road, Suite 388
Houston, Texas 77070
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SECTION 00100

INVITATION TO BIDDERS

PART 1 GENERAL

1.01 INVITATION

A. The bidders list for this Project has been selected by the Owner and bids will be accepted only from invited bidders. Invited bidders are requested to inform the Architect whether or not they wish to bid this Work.

1.02 WORK DESCRIPTION:

A. Construct the a new BlueWave Express Carwash located at Montfort Town Center in Dallas, Texas The Project includes the construction of:

Express Car Wash Building and interior finishes, site improvements, and sunshade structures

PART 2 THE BID

2.01 BID TYPE

TYPE OF BID: Lump Sum

BID BOND: Not required.

PAY & PERFORMANCE BOND: Required

BID RECEIVER: Everett P. Jackson
4545 Post Oak Place
Suite 140
Houston, Texas 77027

2.02 DOCUMENTS

A. Each prime Bidder will be provided 2 sets of Plans, 2 copies of the Project Manual, and I electronic file of Plans and Project Manual . Originals shall be on file for reproduction purposes at A & E Products, 4235 Richmond. Contractors may obtain additional copies at their own expense.
B. Bidders are encouraged to inspect the site prior to bidding.

2.03 DISCREPANCIES

A. If during the bidding period, a Bidder observes errors, discrepancies, ambiquities, or omissions, or requires clarification as the meaning of the Contract Documents, he shall immediately infor the Architect who in turn will send written addenda to all bidders.
B. Requests for clarifications shall be made to the Architect's office by e-mail: BWEmontfort@hotmail.com
C. Bidders communications will not receive consideration unless they are received by the Architect at least 7 calendar days prior to bid date. Architect will not issue addenda later than 5 calendar days prior to bid date.

2.04 LUMP SUM BID

A. Bids must be submitted on forms prepared by the Architect which are included in the Project Manual. Bidders will be furnished with an electronic bid form written in Microsoft Word format.
B. Bids shall be submitted in duplicate, with each copy signed by an office of the company duly authorized to commit to contracts.
C. Bidders may submit their bids electronically via the e-mail account listed above. Original hard copies must be received not later than 2 days following bid date.
D. Bid opening will be private.
E. The Owner reserves the right to reject any and all bid proposals without explanation.
F. Determination of the successful bidder will be made in private session based on all pertinent data contained in the Lump Sum Bid.

END OF INVITATION TO BIDDERS

SECTION 00300

BID FORM

BlueWave Express
1455 First Street
Suite 301
Napa, CA 94559

The undersigned, having carefully examined the Conditions of the Contract, the Drawings and the Specifications for construction of the above named Project, hereby proposes and agrees to furnish all labor, materials, equipment, plant, transportation, services, sales taxes, permit fees and other costs necessary to complete construction in strict conformity with the Conditions of the Contract, the Drawings and the Specifications, including all work specified in Addenda number and dated all as prepared by Melton Henry Architectural Group.

STIPULATED BASE BID:

Division 1:	General Conditions	$ _____
Division 2:	Site paving, walks, curbs, gutters, approaches	$ _____
Division 3:	Concrete, rebar, and Foundations	$ _____
Division 4:	Masonry	$ _____
Division 5:	Struct steel, deck, erection, and misc metals	$ _____
Division 6:	Rough Carpentry	$ _____
	Millwork	$ _____
Division 7:	Thermal Insulation, sealants, flashing and sheetmetal	$ _____
	TPO Roofing and insulation	$ _____
Division 8:	Doors and Frames, hardware	$ _____
	Overhead coiling doors	$ _____
	Aluminum storefront, windows, and glazing	$ _____
Division 9:	Plaster	$ _____
	Gyp board, acoustical ceilings, lightgage framing	$ _____
	Special Wall panel	$ _____
	Ceramic Tile Exterior	$ _____
	Ceramic Tile Interior	$ _____
	Painting	$ _____
	Wall base	$ _____
Division 10:	Fire Protection Specialties	$ _____

	Extruded Aluminum Canopy	$ _____
	Toilet Accessories	$ _____
Division 11	Exterior Fabric	$ _____
Division 12	Equipment Coordination with Owner's Carwash Installation	$ _____
Division 15	Plumbing Complete	$ _____
	HVAC Complete	$ _____
Division 16	Electrical Complete	$ _____
OH & P	Overhead and Profit	$ _____
	TOTAL BASE BID	**$** _____

We propose to furnish all labor, materials, equipment, tools, construction equipment and machinery, temporary facilities and utilities and other services necessary for the construction, accomplishment and completion in a workmanlike manner for the lump sum amount of_____

(Written in cursive as dollars and cents)

($_____).

(Written in Numbers)

ALTERNATES:

Alternate #A1 _____

Voluntary Alternate 1: _____

Voluntary Alternate 2: _____

UNIT PRICING:

Unit #1: _____

Unit #2: _____

If this Bid Form is accepted, the undersigned agrees to execute the required agreement, execute the bond, and commence construction within seven calendar days from date of receiving notice of acceptance of the Bid Form.

TIME OF COMPLETION:

The undersigned further agrees to complete the construction in 120 calendar days from the after the date executing the Contract.

LIST OF SUBCONTRACTORS:

The undersigned agrees, if notified of the acceptance of his or her bid form, to furnish the Owner, through the Architect, a typewritten list of the names, addresses and telephone numbers of all subcontractors with whom he or she intends to enter into contract for the execution of portions of the entire work under consideration. He or she agrees that such list must be submitted on or before the tenth calendar day following the acceptance of this Bid Form, and before execution of the Contract, that no substitutions shall be made in the employment of subcontractors without written approval having first been obtained through the Architect.

CONTRACT:

If the undersigned is notified of the acceptance of this Bid Form within thirty calendar days after the date of this Bid Form, he or she agrees to execute a Contract for the above work for the above stated compensation, in the form of the Standard Agreement as currently in use by the Owner, with modifications, if required, to make such standard form acceptable to both parties.

SUBMISSION AND ACCEPTANCE OF BID:

The undersigned declares that the preparation and submission of bid and other quotations herein contained do not obligate the Owner and the Architect in any way. The undersigned agrees and understands that the Owner assumes no obligation to enter into a contract for the work.

THE UNDERSIGNED ACKNOWLEDGES

1. That he or she understands the bidding documents, the Conditions of the Contract, the drawings, the specifications and the addenda.

2. That he or she has the equipment, technical ability, personnel and facilities to construct the Project in accord with the Conditions of the Contract, the drawings, the specifications and the addenda.

3. That he or she has visited the site and is completely familiar with all conditions affecting the proposed work described herein.

4. That the undersigned hereby certifies that he or she is licensed as a contractor by the municipality in which the project occurs, that such license is in full force and effect and that any and all subcontractors to be employed on the Project are similarly licensed.

STATUS

The status of bidder must be given, whether individual, co-partnership or corporation. If co-partnership, give full names of partners; if corporation, give State in which incorporated.

TYPE OF ORGANIZATION: _ _____
(Individual, CO-partnership, Corporation, etc)

FIRM NAME_____

NAMES OF INDIVIDUAL FIRM MEMBERS:

_____

_____

(seal)

_____

CONTRACTOR'S SIGNATURE

_____

ADDRESS

_____

LICENSE NO.

_____

TELEPHONE

DATED THIS _____DAY OF _____ , 2011

END OF SECTION

SECTION 00650

CERTIFICATES OF INSURANCE

PART 1 GENERAL

1.01 SUMMARY·

1. Contractor shall, at its own expense, provide and maintain during the entire performance period of this contract at least the kinds and minimum amounts of insurance required herein. Owner shall be named as an additional insured on Contractor's commercial General Liability and Umbrella Liability policies for any liability arising out of Contractor's performance of the Work. Each policy shall state that such insurance is primary and that any insurance maintained by Owner is excess and non-contributory.

2. Before commencing Work under this contract, Contractor shall furnish Owner with a Certificate of Insurance evidencing that the required insurance has been obtained. The policies evidencing required insurance shall contain an endorsement to the effect that any cancellation or any material change adversely affecting Owner's interest shall not be effective without sixty (60) days prior notice to Owner. Standard Certificates of Insurance which do not provide for Owner's status as an additional insured and mandatory advance notice of cancellation or material changes in coverage are not acceptable under this provision.

3. Contractor shall insert the substance of this Article, in subcontracts under this Contract, that require work on an installation owned or operated by, or under the control of Owner and shall require subcontractors to provide and maintain the insurance required herein.

4. Standard Insurance Schedule: Policies At all times during the term of this Contract, Contractor shall procure, pay for, and maintain with approved insurance carriers, the insurance set for the below, and shall require all subcontractors performing Work under this Contract to do likewise.

    a. Worker’s Compensation and Employers Liability Insurance

        i. Workers’ Compensation: Statutory Limits

        ii. Employers Liability: Limits Required:
        $500,000 Each Accident
        $500,000 Disease
        $500,000 Disease Aggregate

    These insurance policies must be endorsed with Waiver of Subrogation Endorsements, waiving the carrier’s right of subrogation with respect to Owner, and must also be endorsed with Master and Servant (Alternate Employer) Endorsements.

    b. Commercial General Liability (CGL)

        i. Contractor's Operations

        ii. Premises Liability

        iii. Broad Form Contractual Liability

        iv. Where there is an exposure for damage due to explosion, collapse or underground operations.

            Limits Required -Bodily Injury and Property Damage Combined:

            $1,000,000 Each Occurrence

$1,000,000 Premises Operations

$1,000,000 Products & Completed Operations

$2,000.000 General Aggregate (other than Products Complete Operations)

$1,000,000 Personal and Advertising Injury

c. Automobile Liability Insurance — (All vehicles used in Work performed) Limits Required - Bodily Injury and Property Damage Combined:
$1,000,000 Each Occurrence

d. Umbrella Liability:
An Umbrella Liability policy in the amount of $5,000,000 in excess of the primary coverage required shall be maintained by Contractor at all times during the term of this Contract. Policy coverage must be on an "occurrence" basis.

These insurance policies must be endorsed with a Waiver of Subrogation Endorsements, waiving the carrier's right of subrogation with respect to Owner. Furthermore, Owner, and its corporate affiliates will be included as an Additional Insured on the following policies.

i. Commercial General Liability Policy

ii. Comprehensive Auto/Truck Policy

iii. Umbrella Liability Policy

iv. All Risk Builders Risk Policy

Other policies as may be deemed appropriate by Contractor's Risk Management Department.

5. Special Conditions -Concerning Insurance to be furnished by Contractor, it is a condition precedent to acceptability thereof that:

a. Any policy submitted shall not be subject to limitations, condition or restrictions deemed inconsistent with the intent of the Insurance Requirements to be fulfilled by Contractors; Owner's decision thereon shall be final.

b. Approval, disapproval, or failure to act by Owner regarding any insurance supplied by Contractor shall not relieve Contractor of responsibility or liability for damages and accidents set forth therein. Neither shall the bankruptcy, insolvency, or denial of liability by the insurance company exonerate Contractor from liability.

c. No special payment shall be made by Owner for insurance that Contractor may be required to carry; all are included in the Contract Sum.

d. The insurance companies issuing the policy or policies shall have no recourse against Owner for payment of any premiums or for assessments under any form of policy.

e. Should this Contract require the use of subcontractors, it will be the sole responsibility of Contractor to verify that such subcontractors are in compliance with the provisions of this Agreement. Owner reserves the right to reject any subcontractor who cannot demonstrate proof of the insurance coverage required hereunder.

6. Any of such insurance policies may be written in combination with any of the others, where legally permitted, but none of the specified limits may be lowered thereby.

7. Proof of Insurance:

   a. When required by Owner, copies of any policies must be furnished to Owner, otherwise Owner shall require certificates only.

   b. Certificates indicating Contractor coverage to be in force shall be filed with Owner prior to commencement of the Work.

   c. All Certificates shall indicate the A.M. Best Company rating of the insurance company. A minimum rating of "A" is required.

   d. Within thirty (30) days subsequent to renewal of required coverage, Contractor shall provide to Owner a Certificate of Insurance evidencing renewal of required coverage.

8. Waiver of Subrogation: Insurers shall have no right of recovery or subrogation against Owner, it being the intention of the parties that the insurance policies shall protect both parties and be primary coverage for any and all losses covered by the above-described insurance. Therefore, all of the aforementioned insurance policies must be endorsed with the waiver of subrogation endorsement.

9. Changes to Insurance: Insurance requirements may be changed at any TIME BY owner during the term of this contract due to changes in the law, changes in Owner's policy, or increased risk due to the nature of the Work being performed.

10. Surety Requirements: Concerning bonds to be furnished by Contractor, it is a condition precedent to acceptability that the surety company shall have a minimum A.M. Best company rating of "A" or be listed by the U.S. Department of the Treasury as an acceptable surety.

ARTICLE 13
ALL RISK BUILDER'S INSURANCE

Until beneficial occupancy of the total premises pursuant to a Certificate of Occupancy issued by the appropriate local governmental agency, Contractor hall maintain an All-Risk Builder's risk policy in the amount equal to 150% of the Contract Sum. This policy shall be written in the name of Owner, subcontractor, and sub-contractors as their interests may appear with an insurer's waiver of subrogation on behalf of each of them. In no event shall the policy deductible exceed $50,000 without the review and consent of the Owner.

The policy shall insure the interest of the, Owner, Contractor and Subcontractors of all tiers, including coverage on an "ALL RISK" basis, including, but not limited to, coverage against fire, flood (any site in flood zone "A"), earthquake (in CA only), lightning, wind damage, hail, explosion, theft, vandalism, transit and off-site material, riot or civil commotion, aircraft, and other vehicles, collapse and coverage available under the equipment "Installation Floater"

The policy shall include $1,000,000 in Owner’s “soft cost” coverage, is to contain an occupancy clause, is to be written on a replacement cost, non reporting completed value forma and the standard loss deduction shall not exceed 1% coverage amount or $`15,000.00, whichever is less

Coverage must include all materials, supplies and equipment that are intended for specific installation in the Project, while such materials, supplies and equipment are located at the Project Site, in Transit or while temporarily located away from the Project Site for the purpose of repair, adjustment or storage at the risk of one of the insured parties.

The policy must be endorses (a) waiving the carrier's rights of recovery under subrogation against the Owner, its OCIP Administrator, their officers, agents and employees, and Consultant, Contractor and Subcontractor whose interest is insured under the policy and (b) so as to provide that the insurance company will not cancel such insurance without giving at least thirty (30) days prior written notice to the Owner.

ARTICLE 14
PERFORMANCE AND PAYMENT BONDS

At Owner's election, Contractor will provide Owner with performance and/or payment bonds each in full amount of the Contract Sum for the faithful performance of the contract and protection of Project subcontractors and suppliers, respectively. The performance bond shall provide for payment of all increased costs and expenses Owner may incur to enforce or complete the Contract, in accordance with the Plans and Specifications, including any legal fees, costs, and interest. The performance bond shall further provide that the Work at all times shall be free and clear of all liens of workmen, material suppliers, subcontractors, or due to any activity of Contractor. The performance and payment bonds shall name Owner as obligee and shall be on the AIA forms in effect as of the date of this Contract and with a surety company approved by Owner. The aforementioned bonds will be furnished a Owner's expense.

END OF SECTION

SECTION 00700

GENERAL CONDITIONS

PART 1 GENERAL

1.01. GENERAL CONDITIONS

A. The AIA Document A201 2007 Edition "General Conditions of the Contract for Construction" are incorporated as part of the construction documents. These General Conditions are available from the Architect.

END OF SECTION

SECTION 00800

SUPPLEMENTARY
CONDITIONS

PART 1 GENERAL

1.01 SUPPLEMENTARY CONDITIONS

A. The following Supplements alters, deletes, and adds to the General Conditions, AIA Document A201-
2007 Edition. Where any part of the General Conditions is altered or deleted by these supplements,
the unaltered provisions of that Article, Paragraph, Subparagraph or Clause shall remain in effect.

1.02 ARTICLE 1, GENERAL PROVISIONS

A. Supplement Subparagraph 1.1.1, THE CONTRACT DOCUMENTS, as follows:

a) Items of labor, material, equipment and appurtenances shown or noted, including demolition and removal of, integration into this Project of existing buildings or physical items, are part of this contract. Work specifically noted in following manner shall be considered as not being in this Contract.

".....by
Others"
".....by
Owner"
.....by BlueWave Express LLC (BWE)
“.....by_____Contractor"
(Unless Subcontractor to this Contract) ".....by
City (County, State, etc.) of_____"
".....by_____"

B. Add the following sentence to the end of the subparagraph 1.1.1 THE CONTRACT DOCUMENTS as follows:

The Contract Documents executed in accordance with Subparagraph 1.5.1 shall prevail in case of an inconsistency with subsequent versions made through manipulatable electronic operations involving computers.

C. Supplement Subparagraph 1.2.1, CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS: as follows

Add the following clause 1.2.1.1 to Subparagraph 1.2.1:
1.2.1 In the events of conflicts or discrepancies among the Contract Documents, interpretations will be based on thefollowing priorities:
1. The Agreement
2. Addenda, with those of later date having precedence over those of earlier date.

3. The Supplementary Conditions.
4. The General Conditions of the Contract for Construction.
5. Division 1 of the Specifications
6. Drawings and Divisions 2-16 of the Specifications.
7. In the case of conflicts or discrepancies between the Drawings and Divisions 2-16 of the Specifications or within either Document not clarified by Addendum, the Architect will determine which takes precedence in accordance with Subparagraph 4.2.11.
8. Consult the Architect for interpretation if the two documents are in conflict.

D. Add the following additional definitions:

"1.1.9 Specified requirements apply to all work of the same type and class even though the work "a;" may not appear.

1.1. 10 The words, "perform", "furnish", "provide", "install", "test", repair", "replace", and "remove" refer to acts which shall be performed by the Contractor.

1.1.11 The words "as shown", "as indicated" mean as drawn, detailed, schedule, noted, or reasonably required by reference in the Contract Drawings.

1.1.12 Terms "selected", "as selected", or other terms of similar meaning, shall mean selected by the Architect from referenced manufacturer and quality within price range established in Contract Documents.

1.1.13 "Project Site" or "Job Site" means "site of work under this Contract".

1.1.14"Provide" means "furnish and install" and implies being “essential to completion of the Work and to make it usable for the purpose intended".

1.1.15 “Furnish” means supply and deliver to the Project unless otherwise defined in greater details.

1.1.16 “Install”: The term install is used to describe operations at Project, from inspecting and unloading, to completion in place, ready for intended use.

1.1.17 "Required" means "as required by the Contract Documents and legal requirements".

1.1.18 "shall" means "mandatory".

1.1.19 Owner means BlueWave Express Development, LLC.

E. Add the following subparagraphs:

1.1.5.1 Drawings which form a part of the Contract Documents are as listed on the Title Sheet of the Drawings.

1.1.6.1 Specifications which form the written requirements for this Project are part of the Contract Documents and consist of Divisions and Sections as listed in the Table of Contents at the front of this book."

F. Delete Subparagraph 1.1.8-Initial Decision Maker entirely.

1.03 ARTICLE 2-OWNER

A. Delete Subparagraph 2.2.5 in its entirety and substitute the following

2.2.5 The Contractor will be provided, free of charge, one reproducible copy of the Drawings and Project Manuals. Contractor will be responsible for reproducing additional copies as contractor feels is necessary to carry of the work.

2.2.5.1 The Owner will procure and bear the cost of structural tests and special inspections as required by the applicable building code.

1.04 ARTICLE 3 -CONTRACTOR

A. Supplement Subparagraph 3.2.1, REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR as follows:

All work shall be executed according to the intention, spirit, and meaning of plans and specifications. If the Contractor discovers any obvious omission, error or conflict in plans and/or specifications, he shall request interpretation from the Architect. Otherwise, he shall at his own expense, supply the proper materials and labor to make good any damage to or defect in his work caused by such omission, error or conflict.

B. Add the following Subparagraph 3.2.4 to Paragraph 3.2.4.1

3.2.4.1 The Owner shall be entitled to deduct from the Contract Sum amounts paid to the Architect for the Architect to evaluate and respond to the contractor's requests for information, where such information was available to the Contractor from a careful study and comparison of the Contract Documents, field conditions, other Owner-provided information, Contractor-prepared coordination drawings, or prior Project correspondence or documentation.

C. Supplement Paragraph 3.3, SUPERVISION AND CONSTRUCTION PROCEDURES add the following subparagraph:

3.3.4 The Contractor shall employ a Professional Land Surveyor to establish all lines, grades, levels and bench marks as required for the performance of the work.

3.3.4.1 The Contractor shall verify all grades lines, levels and dimensions of the drawings and he shall report any inconsistencies to the Architect before starting his Work.

3.3.4.2 Prior to placement of concrete slab, engage surveyor to provide a Category 3, Condition slab survey, showing the slab location on the site relative to the property lines and finish floor elevation relative to established project benchmark.

3.3.4.3 The Contractor shall provide to the Owner upon completion of the Project, and as a precedent to the release of the final payment and/or retainage, an "As Built" survey of the property prepared by a Licensed Public Surveyor which, if required by Owner, must also comply with the 1997 Minimum Standard Detail Requirements and Classifications for ALTA/ASCM Land Surveys including all table A optional requirements except items 7b(2) and item 12. The survey shall include, in addition to the requirements the ALTA/ASCM requirements the matters set forth below:

1. The location of all improvements on the property in relationship to the boundaries of the property;

2. The location of all light poles, standards, signs, curbs and curb cuts in relationship to the boundary of the property and in their relationship to the major improvements constructed on the property;

3. The location of all major landscape items which have been installed on the property;

4. A representation of the striping for automobile parking spaces, including thedesignation of compact only spaces (if any), full size automobile spaces, and handicapped spaces, and including the clear reference on the survey as to the number of unrestricted parking spaces, as well as the number of handicapped parking spaces on the site;

5. A certification from the surveyor that all improvements located upon the property are located within the boundary lines of the property except as specifically and clearly identified on the survey;

6. A certification from the surveyor that the property is not within the 100 year flood plain, referencing the applicable federal or local map establishing same and establishing such elevation.

D. Supplement Subparagraph

3.4.1 LABOR AND MATERIALS, as follows:

3.4.1.1 The General Contractor shall pay for all power, water, and gas used to start up and test the performance of installed equipment and fixtures prior to Substantial Completion.

3.4.1.2 Owner's Responsibility for Utilities: Pay all permanent property assessments, impact fees and utility reservation or capacity allocation fees.

3.4.1.3 Contractor's Responsibility for Utilities: Pay all temporary utility charges, tap fees, construction fees, installation costs and water meter charges until Certificate of Substantial Completion Certificate is issued terminating General Contractor's responsibility for said charges.

E. Add the following Subparagraph 3.4.4 after paragraph 3.4.3

3.4.4 The Owner shall be entitled to deduct from the Contract Sum amounts paid to the Architect to evaluate the Contractor's proposed substitutions and to make agreed-upon changes in the Drawings and Specifications made necessary by the Owner's acceptance of such substitutions.

F. Supplement Subparagraph 3.7, PERMITS, FEES AND NOTICES, Add the following sentence to subparagraph 3.7.1:

3.7.1.1 Certificate of Substantial Completion: The Contractor shall secure all certificates of inspection that may be required by authorities having jurisdiction over the work, including the Certificate of Occupancy.

G. Supplement Paragraph 3.12.5, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES as follows:

3.12.5.1 Contractor shall check and verify all field measurements and shall submit scale and/or full-size shop drawings of the work for the review of the Architect with such promptness as to cause no delay in his own work or in that of any other Contractor, and in sufficient time to allow Architect at least ten days for review.

3.12.5.2 Shop Drawings must be complete in every detail, including provisions required of various trades, connections with other work, all cutting, fitting drilling and all other necessary information in accordance with the usual trade practice as required for any special purpose. Copying of the Construction Documents in any manner for use the of Shop Drawings is not permitted and shall not satisfy these requirements. Shop Drawings shall show exact layout of equipment and materials pertaining to each trade and the actual routing of all pipes, conduits and ducts, including elevations, layouts and sizes. When such drawings are required to be submitted to the Building Authorities, it shall be the duty of the Contractor to submit them to and secure the approval of the Authorities.

3.12.5.3 Contractor shall check and approve all Shop Drawings of the various trades engaged or employed by him, for measurements, size of members, materials and details to make sure they conform to the job conditions and the intent of the Contract requirements. Shop Drawings, at the time of submission to the Architect, must bear the stamp of approval of the Contractor as evidence that such drawings and details have been checked by Contractor and that he fully understands that they comply with the intent of the Contract Demands.

3.12.5.4 Shop Drawings submitted which involve deviations from the Contract Drawings shall be so noted by Contractor and at the time of submission Contractor shall request in writing the review of the Architect stating the reason for the merit of the changes.

3.12.5.5 The Architect will review and take appropriate action on shop drawings, product data, samples, and other submittals required by the Contract Documents. Such review shall be only for general conformance with the design concept and general compliance with the information given in the Contract Documents. It shall not include review of quantities, dimensions, weights or gauges, fabrication processes, construction methods, coordination with the work of other trades, or construction safety precautions, all of which are the sole responsibility of the Contractor. The Architect's review shall be conducted with reasonable promptness consistent with sound professional practice. Review of a specific item shall not indicate acceptance of an assembly of which the item is a component. The Architect shall not be required to review partial submissions or those for which submissions for correlated items have not been received.

3.12.5.6 Each submittal shall bear the Architect's or his consulting Engineers stamp stating the following:

3.12.5.7 "Architect's review is only for general conformance with the design concept of the project and general compliance with the information given in the Contract Documents. Any action shown is subject to the requirements of the Contract Documents. Contractor is responsible for dimensions which shall be confirmed and correlated at the job site: fabrication processes and techniques of construction: coordination of his work with that of all other trades; and the satisfactory performance of his work."

3.12.5.8 Each submission of Shop Drawings shall be accompanied by a letter of transmittal listing

the drawings submitted. Shops drawing intended for the Structural Engineer or Mechanical Engineer shall be sent directly to that consultant and a copy of the transmittal faxed to the Architect. Each submittal shall have the Architect's job number on the front of the submittal.

Total quantities of shop drawings to be transmitted are as follows:

Architectural, General items:	4 copies
Architectural/Engineers:	5 copies
Architectural/BlueWave:	6 copies
Architectural/Engineers/BlueWave:	7 Copies

3.12.5.9 The Contractor shall furnish and distribute all required copies for the use of the various trades at the site.

3.12.5.10 No work shall be done until the drawings are reviewed as herein stipulated.

3.12.5.11 All Shop Drawings, brochures, layouts, specification sheets, and physical samples shall be submitted to the Architect at earliest possible time, and in no event later than thirty (30) calendar days after Contract is signed.

3.12.5.12 Faxed submittal will not be accepted.

H. Add Subparagraph 3.12.11 to

Paragraph 3.12

3.12.11 The Architect's review of the Contractor's submittal will be limited to examination of an initial submittal and one (1) resubmittal. The Architect's review of additional submittals will be made only with the consent of the Owner after notification by the Architect. The Owner shall be entitled to deduct from the contract Sum amounts paid to the Architect for evaluation of such additional resubmittals.

I. Supplement Paragraph 3.14 CUTTING AND PATCHING as follows:

3.14.3 Each section of work in these Specifications shall include all cutting, patching and installation of anchors, supports and built-in frames by that trade section as required for the proper accommodation of all work of other trades, unless specifically stated to the contrary. All work to be done by skilled workmen. The General Contractor is not relieved from responsibility as stated in Article 3 of the General Conditions of the Contract for Construction.

1.05 ARTICLE 4 ARCHITECT

A. Article 4.2.2, replace the first sentence as follows:

"Except with the consent of the Owner, the Architect will perform no more than one (1) inspection to determine whether the Work, or a designated portion thereof has attained Substantial Completion in accordance with the Contract Documents. The Owner shall be entitled to deduct from the Contract Sum amounts paid to the Architect for any additional inspections.…

B. Add Clause 4.2.2.1 to Subparagraph 4.2.1:

"The Contractor shall reimburse the Owner for compensation paid to the Architect for additional site visit made necessary by the fault, neglect or request of the Contractor.

C. Add the following subparagraph to 4.2

4.2.15 The Architect shall have the right to request from any Subcontractor at any time during the course of construction, a notarized affidavit stating the amount of monies which have been paid to the Subcontractor as of any certain stipulated date.

D. Article 4.2.5 Delete entirely.

E. Article 4.2.8 Delete the sentence:
"The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.3.4"entirely.

F. Article 4.2.9 Revise as follows:

"The Owner and Tenant shall conduct inspections to determine the date of Substantial Completion and Notify the Architect of such date for Architects site visit. Upon satisfactory review of the Work, the Architect will issue a Certificate of Substantial Completion".

1.06 ARTICLE 6 – CONSTRUCTION BY OWNER OF BY SEPARATE CONTRACTORS

A. Art 6.3 OWNERS RIGHT TO CLEAN UP, delete the work "Architect and substitute the word "Owner, change to read: "If a dispute arises among the Contractor, separate contractors and the Owner as to the responsibility under their respective contractors for maintaining the premises and surround areas free of waste materials and rubbish, the Owner may clean up and allocate the cost among those responsible."

1.07 ARTICLE 7 – CHANGES IN THE WORK

A. Add the following to Article 7.1 GENERAL as follows:

7.1.4 Where the Specifications allow a material or operation to be "or equal" or "approved", it is understood that any substitution will be warranted by the Contractor to be equal in quality, service and performance to the items originally specified. Final determination and written approval of such equality must be obtained by the Contractor from the Architect prior to ordering or installing any such item.

7.1.5 For use of material other than the one specified, the Contractor shall assume the cost of and responsibility for satisfactory accomplishing all changes in work as shown, and the correction of any faults due to performance, quality of service failures.

7.1.6 In order to facilitate checking of quotations for extras or credits, all proposals, except those so minor that their propriety can be inspected, shall be accompanied by a complete itemization of costs, including labor, materials and Subcontracts. Labor and materials shall be itemized in the manner prescribed above. Where major cost items are Subcontracts, they shall be itemized also. In no case will a change order be approved without such itemization.

B. Add the following to subparagraph 7.1.1:

7.1.1.4 No changes in work shall be performed unless authorized in writing by Architect or Owner.

7.1.1.5 All changes in the work shall be identified by individual change proposals. Change proposals can originate by Contractor, Architect or Owner. Change proposals will be identified and numbered. Owner will either accept a proposal and convert the proposal to a contract change order, or shall reject it. Proposals may also be abandoned for just cause.

1.08 ARTICLE 9 -PAYMENTS AND COMPLETION

A. Article 9.2- Schedule of Values, replace the word Architect with the word "Owner".

B. Delete Entirely Application for Payment, Article 9.3.1.1 Payment and Article 9.3.1.2 .

C. Article 9.3.3 Delete the words "Certificates for Payment have been previously issued", and the sentence to read: "The Contractor warrants that title and all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment, all Work for which payments have bee received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors,"

D. Delete Articles 9.4, 9.4.1, 9.4.2,9.5, 9.5.1, 9.5.2, 9.5.3.

E. Delete Articles 9.6, 9.6.1, 9.6.2, 9.6.3, 9.6.4, 9.6.5, 9.6.6, 9.6.7

F. Article 9.7- FAILURE OF PAYMENT, delete and replace as follows:

"If the Owner does not pay the Contractor within seven days after the date established in the Contract Documents the amount requested and approved by the Lender after Draw Request Inspection is complete, then the Contractor may, upon seven additional days' written notice to the Owner and Architect, stop the Work until payment in the amount owning is received….."

G. Article 9.8.2 Replace the word "Architect" with the word "Owner" throughout this article.
H Article 9.8.3: Replace the word "Architect" with the word "Owner" throughout this article.

H. Add the following sentence to Paragraph 9.3.1:

9.8.3.1" The form of Application for Payment, duly notarized, shall be a current authorized edition of AIA Document G702, Application and Certificate for Payment, supported by a current authorized edition of AIA Document G703, Continuation Sheet. "

J. Add the following Clause 9.8.3.1 to Subparagraph 9.8.3

9.8.3.1.1 Except with the consent of the Owner, the Architect will perform no more than one (1) inspection to determine whether the Work or a designated portion thereof has attained Substantial Completion in accordance with the Contract Documents. The Owner shall be entitled to deduct from the Contract Sum amounts paid to the Architect for any additional inspections."

K. Article 9.10.1 shall read as follows: "The Owner and Tenant shall be responsible for determining that date when the Work will be complete, and shall notify the Architect of

the date, after which the Architect will inspect the work to determine conformance with the documents and issue a Certificate of Substantial Completion."

L. Deleted article 9.10.2: Replace the word Architect with the

word "Owner".

M. Add the following to Subparagraph 9.10.2:

9.10.2.1 "The Contractor shall execute the following forms attached to these Supplementary Conditions:

a) Annex "A" - SUBCONTRACTOR AND MATERIAL SUPPLIER'S RELEASE

1.09 ARTICLE 10 - PROTECTION OF PERSONS AND PROPERTY

101. Supplement Subparagraph 10.2.1, SAFETY OF PERSONS AND PROPERTY as follows:

10.2.8 "The Contractor shall at all times protect excavations, trenches, and the building and equipment from damage from rain water, ground water, backing up of drains or sewers and all other water. He shall provide labor, pumps and equipment to provide this protection."

1.10 ARTICLE 11-INSURANCE AND BONDS

A. Paragraph 11.1 Contractor's Liability Insurance, Subparagraph 11.1.1, add the following:

1. "11.1.1.1. Liability insurance shall include all major divisions of coverage and be on a comprehensive basis including:

a. Premises Operations, including X-C-U.

b. Owner's and Contractor's Protection.

c. Products and Completed Operations.

d. Contractual, including specific provisions for the Contractor's obligations under paragraph 3.18.

e. Owned and Non-Owned Aircraft, Automobiles and other vehicles.

1.11 ARTICLE 12-Uncovering and Correction of Work

A. Article 12.1.1 Replace the word "Architect" with the words "Owner or Architect". B. Article 12..2.1 Replace the word "Architect" with the words "Owner or Architect".

1.12 ARTICLE 13 -TESTS AND INSPECTIONS

A. Article 13.5.1 Replace the word "Architect" with the word "Owner".

B. Article 13.5.41 Replace the word “Architect” with the word

“Owner.”

C.. Article 13.5.5 Delete entirely.

1.13 ARTICLE 14 - TERMINATION BY OWNER FOR CAUSE

A. Article 14.2.2 Delete the words “Upon certification by the Initial Decision Maker that sufficient cause exist to justify such action…”

B. Article 14.2.4, Delete the words: “The amount to be paid to the Contractor or Owners, as the case may be, shall be certified by the Initial Decision Maker, Upon application, and this obligation for payment shall survive termination of the Contract.”

1.14 ARTICLE 15 CLAIMS AND DISPUTES:

A. Article 15.1.2 Delete the following words: “and to the Initial Decision Maker…” and the words “…, if the Architect is not serving as the Initial Decision Maker.”

B. Add the following Clauses to15.1.5 CLAIMS FOR ADDITIONAL TIME, 15.1.1.5.3 and 15.1.1.5:

15.1.1.5.3 “Claims for increase in the Contract Time shall set forth in detail the circumstances that form the basis for the claim, the date upon which each cause of delay began to affect the progress of the Work, the date upon which each cause of delay ceased to affect the progress of the Work and the number of days’ increase in the Contract Time claimed as a consequence of each cause of delay. The Contractor shall provide such supporting documentation as the owner may require including, where appropriate, a revised construction schedule indicating all the activities affected by the circumstances forming the basis of the Claim.”

15.1.1.5 “The Contractor shall not be entitled to a separate increase in the Contract time for each one of the number of causes of delay which may have concurrent or interrelated effects on the progress of the Work, or for concurrent delays due to the fault of the Contractor.”

C. Article 15.2 Delete entirely articles 15.2.1, 15.2.2, 15.2.3, 15.2.4, 15.2.5, 15.2.6, 15.2.6.1and 15.2.8.

END OF SECTION

SECTION 01018

OWNER FURNISHED PRODUCTS

PART 1 GENERAL

1.01 BlueWave Express LLC , the Owner, retains the right to place and install, in coordination with Contractor's construction schedule, as many items and/or as much equipment a he may require during the progress of the work, before completion of the various parts of the work. This shall not in any way evidence completion of the work or any portion thereof, nor shall it signify Owner's acceptance of the work or any portion thereof.

PART 2 PRODUCTS

2.01 BY OWNER

A. Items shown or noted "By BWE" on the drawings and/or in the specifications shall be provided by BlueWave Express LLC, the Owner. The Contractor/subcontractor shall receive, to the extent of unloading at the job site as required, store and be responsible to the extent of carrying necessary insurance to cover items in case of theft, fire, loss, malicious damage and other miscellaneous damage. Included, but not inclusive, in this category are:

1. Sentry automated entry system by ICS.
2. All carwash equipment.
3. Vacuums and related piping.
4. Refuse cans.

2.02 NOT IN CONTRACT (NIC)

A. Items shown or noted "(NIC)" on the drawings and/or in the specifications shall be furnished and installed by Owner (BWE) under separate contract, except as described hereinafter. The Contractor shall coordinate into schedule and receive, unload as required, store, provide conduit power outlets and power usage, etc. as necessary for hook-ups, and be responsible to the extent of carrying necessary insurance to cover items in case of theft, fire, loss, malicious damage and other miscellaneous damage. Included, but not inclusive, in this category are:

1. Appliances
2. Furnishings such as table tops, chairs, stools, etc., and interior decor items.
3. Security System where and if specified.
4. Sound system (to include speaker attachment, cable and pulling cable).
5. Signs and Signage, including painted exterior and interior signs where and if shown on drawings.
6. Safe in office.
7. POS system (to include registers, printers, cables and pulling cables).

PART 3 EXECUTION

3.01 RECEIPT OF ITEMS

A. During the course of construction, some deliveries of equipment and miscellaneous items will be made to the job site by common carrier. Contractor shall receive and inspect items for conformance to delivery ticket(s) and for damage. If during receipt any missing or damaged items are observed, Contractor shall:

1. Make notation of any and all discrepancies on the delivery ticket(s).
2. Call delivery carrier and advise him of the problem.
3. Call the Owner's construction manager and advise of any problems.

END OF SECTION

SECTION 01030

ALTERNATES & UNIT PRICING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This section includes administrative and procedural requirements governing Alternates.

B. An alternate is an amount proposed by the Contractor for certain work that may be added to or deducted from the Lump Sum Contract to incorporate the Alternate into the Work.

1. The cost or credit for each alternate is the net addition to or deduction from the Lump Sum Contract to incorporate the Alternate into the Work.

C. Coordination: Modify or adjust affected adjacent Work as necessary to completely and fully integrate that Work into the Project.

D. Notification: Immediately following commencement of the work notify each party involved, in writing, of the status of each alternate. Indicate whether alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.

PART 2 ALTERNATES

2.01 ADDITIVE ALTERNATES

A. ALTERNATE #A1: Provide 80 mil TPO roofing membrane system with 30 year warranty in lieu of specified system.

PART 3 UNIT PRICING

2.01 PROVIDE SEPARATE UNIT PRICING FOR THE FOLLOWING:

A. UNIT #1: Provide separate bid for the driveway and curbcut that begins at the southwest corner of the site and continues to Town Center Boulevard. This bid must be turn key inclusive of all components necessary to complete the drive as though it were a separate contract independent of the BlueWave Express Contract.

B. UNIT #2: Provide separate bid for the driveway and curbcut that begins at the southeast corner of the site and continues to Montfort Drive. This bid must be turn key inclusive of all components necessary to complete the drive as though it were a separate contract independent of the BlueWave Express Contract.

SECTION 01036

CHANGE ORDER PROCEDURES

PART 1 GENERAL

1.01 GENERAL

A. General conditions of the Contract for Construction, AIA Document A201, Article 7, all paragraphs inclusive, shall govern the work of this section, with the exception that the Owner's representative shall in all cases perform and be responsible for the duties and responsibilities of the "Architect".

1.02 WORK AUTHORIZATION

A. In the event a change to the work is required by the Owner, a written 'Work Authorization" for changes to the contract will be issued by the Owner. The authorization will include actual or estimated costs for the change and a statement of responsibility for actual cost if estimated costs are used.

1.03 CONTRACTOR RESPONSE

A. Contractor shall respond with a formal typewritten "Contract Change Order", in triplicate, referencing authorization number, job name, date, specific items changed and shall indicate total amount of authorization imposed costs. Contractor will only be allowed an (8%) eight percent overhead and profit markup. Backup documentation is to be submitted with all extra costs. Two or more authorizations may be included on one change order.

END OF SECTION

SECTION 01040

COORDINATION

PART 1 GENERAL

1.01 COORDINATION

A. Coordinate construction to assure efficient and orderly installation of each part of the Work. Coordinate operations that depend on each other for proper installation, connection, and operation.
   1. Schedule operations in the sequence required to obtain the best results where installation of one part depends on installation of other components, before or after its own installation.
   2. Coordinate installation of different components to assure maximum accessibility for maintenance, service, and repair.
   3. Make provisions to accommodate items scheduled for later installation.

B. Wherever necessary, prepare memoranda for distribution to each party involved, outlining procedures required for coordination. Include such items as required notices, reports, and attendance at meetings.
   1. Prepare similar memoranda for the Owner and separate contractors where coordination of their work is required.

C. Administrative Procedures: Coordinate scheduling and timing of required procedures with other activities to avoid conflicts and assure orderly progress. Such activities include, but are not limited to, the following:
   1. Preparation of schedules.
   2. Delivery and processing of submittals.
   3. Preparation of and tracking of RFI's (Request for Information)
   4. Progress meetings.
   5. Project closeout activities.

D. Conservation: Coordinate construction to assure that operations are carried out with consideration for conservation of energy, water, and materials.

PART 2 PRODUCTS — (Not applicable)

PART 3 EXECUTION

3.01 EXAMINATION

A. Inspection of Conditions: Require Installers of major components to inspect substrate and conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected.

B. Coordinate temporary enclosures with inspections and tests to minimize the need to uncover completed construction.

3.02 PREPARATION

A. Clean and protect construction in progress and adjoining materials, during handling and installation. Apply protective covering to assure protection from damage or deterioration.

B. Clean and maintain completed construction as necessary through the construction period. Adjust and lubricate operable components to assure operability without damaging effects.

C. Limiting Exposures: Supervise construction to assure that no part is subject to harmful, dangerous, or damaging exposure. Such exposures include, but are not limited to, the following:

1. Excessive static or dynamic loading.
2. Excessive internal or external pressures.
3. Excessively high or low temperatures.
4. Water or ice.
5. Solvents and chemicals.
6. Soiling, staining, and corrosion.
7. Combustion.
8. Traffic or storage of materials on completed roofing.

END OF SECTION

SECTION 01045

CUTTING AND PATCHING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Cutting and patching. Execute cutting, fitting or patching of work, required to:
   1. Make several parts fit properly.
   2. Uncover Work to provide for installation of ill-timed Work.
   3. Remove and replace Work not conforming to requirements of Contract Documents.
   4. Remove and replace defective Work.
   5. Remove samples of installed Work as specified for testing.
   6. Install specified Work in existing construction.

B. In addition to specified requirements, upon written instruction of Owner:
   1. Uncover Work to provide for Owner and Architect's observation of covered Work.
   2. Remove samples of installed materials for testing.

C. Do not endanger any Work by cutting or altering Work or any part of it.

D. Do not cut or alter work of another contractor without written consent of Owner.

1.02 SUBMITTALS

A. Prior to cutting which affects structural safety of Project, submit written notice to Architect, requesting consent to proceed with cutting.

B. Prior to cutting done on instruction of Owner, submit cost estimate.

C. Should conditions of Work, or schedule, indicate change of materials or methods, submit written recommendation to Owner and Architect, including:
   1. Conditions indicating change.
   2. Recommendations for alternative materials or methods.
   3. Submittals as required for substitutions.

D. Submit written notice to Owner and Architect, designating time Work will be uncovered, to provide observation.

1.04 QUALITY ASSURANCE

A. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
   1. Primary operational systems and equipment.
   2. Control systems.
   3. Communication systems.
   4. Electrical wiring systems

B. Miscellaneous Elements: Do not cut and patch the following elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to

perform as intended, or that results in increased maintenance or decreased operational life or safety.

1. Water, moisture, or vapor barriers.
2. Membranes and flashings.
3. Equipment supports.
4. Piping ductwork, vessels and equipment.
5. Noise- and vibration-control elements and systems.

C. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

PART 2 PRODUCTS

2.01 MATERIALS

A. General: Comply with requirements specified in other Sections of these Specifications.

B. Existing Materials: Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of existing materials.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine existing conditions of Work, including elements subject to movement or damage during cutting and patching, and excavating and backfilling.

B. After uncovering Work, examine conditions affecting installation of new products.

3.02 PREPARATION

A. Prior to cutting, provide shoring, bracing and support as required to maintain structural integrity of Project. B. Provide protection for other portions of Project. Provide protection from elements.

3.03 PERFORMANCE

A. General: Employ qualified workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut existing construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Cutting: Cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Existing Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. Concrete and Masonry: Cut using cutting machine such as an abrasive saw or a diamond-core drill.
4. Excavating and Backfilling: Comply with requirements in applicable Division 2 Sections where required by cutting and patching operations.
5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
6. Proceed with patching after construction operations requiring cutting are complete.

3.04 ADJUSTING

A. Execute fitting and adjustment of products to provide finished installation to comply with specified tolerances and finishes.

B. Execute cutting and removal to the extent necessary.

C. Restore Work which has been cut or removed; install new products to provide completed Work in accord with requirements of Contract Documents.

D. Refinish entire surfaces as necessary to provide an even finish.
   1. Continuous surfaces: To nearest intersections.
   2. Assembly: Entire refinishing.

END OF SECTION

SECTION 01200

PROJECT MEETINGS

PART 1 GENERAL

1.01 SUMMARY

A. This Section specifies administrative and procedural requirements for project meetings, including:

1. Pre-installation Conference.
2. Progress Meetings.
3. Post Installation Conference.

1.02 QUALITY ASSURANCE

A. Pre-installation Conferences: Conduct a conference before each activity that requires coordination with other operations.

1. Attendees: The Installer and representatives of manufacturers and fabricators involved in or affected by the installation shall attend. Advise the Architect of scheduled meeting dates.

a. Review the progress of other operations and preparations for the activity under consideration at each pre-installation conference, including requirements for the following:

(1) Compatibility problems and acceptability of substrates.
(2) Time schedules and deliveries.
(3) Manufacturer's recommendations.
(4) Warranty requirements.
(5) Inspecting and testing requirements.

b. Record significant discussions and agreements and disagreements, and the approved schedule.
Promptly distribute the record of the meeting to everyone concerned, including the Owner and the Architect.

B. Progress Meetings: Conduct progress meetings at the Project Site at regular intervals. Notify the Owner and the Architect of scheduled dates. Coordinate meeting dates with preparation of the payment request.

1. Attendees: The Owner, Architect, and other entities concerned with current progress or involved in planning, coordination, or future activities shall be represented. Participants shall be authorized to conclude matters relating to

2. Agenda: Review and correct or approve minutes of the previous meeting. Review items of significance that could affect progress. Include topics for

3. Contractor's Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction; secure commitments from parties involved to do so. Discuss revisions required to insure subsequent activities will be completed within the Contract Time.

4. Review the present and future needs of each entity present, including the following:
a. Time.

b. Sequences.
c. Status of submittals.
d. Deliveries and off-site fabrication problems.
e. Quality and work standards.
f. Change Orders.

5. Reporting: Distribute meeting minutes to each party present and to parties who should have been present.

Include a summary of progress since the previous meeting and report.

6. Schedule Updating: Revise the Contractor's Construction Schedule after each meeting where revisions have been made. Issue the revised schedule concurrently with the report of each meeting.

C. Post Installation Conference: Conduct a post installation conference after specific work activity, were specified.

1. Attendees: The Contractor, Installer for the work affected, Owner's Testing Laboratory (if applicable), Representative of the Manufacturer, Owner's Representative, and the Architect shall attend. Advise the Architect of scheduled meeting dates.

a. Review the completed work including intended and expected results.
b. Water or hose test of work on exterior to check for water leakage.
c. Review Warranty requirements.
d. Record significant discussions and agreements and disagreements. Promptly distribute the record of the meeting to everyone concerned, including the Owner and the Architect.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

END OF SECTION

SECTION 01300

SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This section specifies administrative and procedural requirements for submittals required for performance of the Work including the following:
   1. Contractor's construction schedule.
   2. Submittal schedule.
   3. Construction reports.
   4. Shop Drawings.
   5. Product Data.
   6. Samples.
   7. Quality assurance submittals.

B. Administrative Submittals:
   1. Permits.
   2. Applications for Payment.
   3. Performance and payment bonds.
   4. Insurance certificates.
   5. List of subcontractors.

1.02 SUBMITTALS

A. Required Submittals: Provide submittals as specified in individual Specification Sections, and as the Architect or Engineer may require.

B. Submittal Procedures: Coordinate submittal preparation with construction, fabrication, other submittals, and activities that require sequential operations. Transmit in advance of construction operations to avoid delay.

C. Coordinate submittals for related operations to avoid delay because of the need to review submittals concurrently for coordination. The Architect reserves the right to withhold action on a submittal requiring coordination until related submittals are received.

D. Required Action Markings: No submittals without either the "Reviewed', "Make Corrections Noted" or, "Resubmit Corrected Copy" marking by the Owner/Architect, are permitted to be used in connection with the Work.

E. Processing: At Owner/Architect's discretion, allow 2 weeks for the initial review. Allow more time if the Owner/Architect must delay processing to permit coordination. Allow 2 weeks for reprocessing.
   1. No extension of Contract Time will be authorized because of failure to transmit submittals sufficiently in advance of the Work to permit processing.

F. Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block. Provide a space approximately 4" x 5" on the label or beside the title block on Submittals to record the Contractor's review and approval markings and the Architect's action markings. Include the following information on the label for processing and recording action taken:
   1. Project name:
   2. Date.
   3. Name and address of the subcontractor.
   4. Name and address of the supplier.
   5. Name of the manufacturer.
   6. Number and title of appropriate Specification Section.

7. Drawings number and detail references, as appropriate.

G. Submittal Transmittal: Package each submittal appropriately. Transmit with a transmittal form. The Owner /Architect will not accept submittals from sources other than the Contractor.
H. Transmittal Form: Use Contractor's standard from. On the form, record requests for data and deviations from requirements. Include Contractor's certification that information complies with requirements.
I. Control Submittals
   1. Contractor's Construction Schedule: Prepare a horizontal bar-chart-type, contractor's construction schedule.Provide a, separate time bar for each activity and a vertical line to identify the first working day each week. Use the same breakdown of Work indicated in the "Schedule of Values". As Work progresses, mark each bar to indicate actual completion.
      a. Work Stages: Indicate important stages for each portion of the Work.

   2. Submittal Schedule: After developing the Contractor's Construction Schedule, prepare a schedule of submittals. Submit within 10 days of submittal of the Construction Schedule.
      a. Coordinate with list of subcontracts, Schedule of Values, list of products, and the Contractor's Construction Schedule.
      b. Prepare the schedule in chronological order. Provide: date for first submittal; related section number; submittal category (Shop Drawings, Product Data, or Samples); name of the subcontractor; description of the Work covered and date for the architect's final acceptance.
      c. Schedule distribution; Distribute copies of the Contractor's Construction Schedule and the Submittal Schedule to the Architect, Owner, subcontractors, and parties required to comply with submittal dates. Post copies in the field office.
         (1) When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their Work and are no longer involved in construction activities.
         (2) Updating: Revise the schedule after each meeting or activity where revisions have been made. Issue the updated schedule concurrently with the report of each meeting.

J. Shop Drawings:
   1. Submit newly prepared information, drawn to accurate scale. Highlight, encircle, or otherwise indicate deviations from the contract Documents. Any deviations from the Contract Documents that are not indicated on Submittals, and that are not commented upon by the Architect, will be considered as modifications to the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of shop drawings. Standard information prepared without specific reference to the Project is not considered shop drawings. Shop drawings shall show or be keyed into adjacent construction materials. Shop drawings shall also show locations and details of construction. On each re-submittal for shop drawings, clearly indicate revisions or changes form previous submittal. Include the following information:
      a. Dimensions.
      b. Identification of products and materials included by sheet and detail number.
      c. Compliance with standards.
      d. Notation of coordination requirements.
      e. Notation of dimensions established by field measurement.
   2. Sheet Size: Except for templates, patterns and similar full-size Drawings, submit shop drawings on sheets at least 8-1/2" x 11" but no larger than 24" x 36".
   3. Drawing Submittal:
      a) Option 1: Submit four (4) black-line prints until Architect's final Action" stamp is obtained.
      b) Option 2: Submit electronic file in PDF format

4. Do not use Shop Drawings without and appropriate final "Action stamp in connection with the Work.

K. Product Data: Collect Product Data into a single submittal for each element of construction. Mark each copy to shown applicable choices and options. Where Product Data includes information on several products, mark copies to indicate applicable information.

1. Preliminary Submittal: Submit a preliminary single copy of Product Data where selection of options is required. Submittal may be made electronically in PDF format at Contractor's option.
2. Data Submittals: Unless noncompliance with Contract Documents is observed, the Submittal serves as the final Submittal.
    a) Option 1: Submit 2 copies; submit 4 copies where required for maintenance manuals. The Architect will retain one and return the other marked with action taken.
    b) Option 2: Submit electronic file in PDF format
3. Distribution: Furnish copies to installers, subcontractors, suppliers, and others required for performance of construction activities. Show distribution on transmittal forms. Do not proceed with installation until a copy of Product Data is in the Installer's possession.
    a. Do not use unmarked Product Data for construction.

L. Samples: Submit full-size Samples cured and finished as specified and identical with the material proposed. Mount Samples to facilitate review of qualities.

1. Include the following:
    a. Specification Section number and reference.
    b. Generic description of the Sample.
    c. Sample source.
    d. Product name or name of the manufacturer. e. Compliance with recognized standards.
    f. Availability and delivery time.

2. Submit Samples for review of size, kind, color, pattern, and texture, for a check of these characteristics, and for a comparison of these characteristics between the final submittal and the actual component as delivered and installed. Where variations are inherent in the material, submit at least 3 units that show limits of the variations.
    a. Refer to other Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar characteristics.
    b. Refer to other Sections for Samples to be incorporated in the Work. Samples must be undamaged at time of use. On the transmittal, indicate special requests regarding disposition of Sample submittals.
    c. Samples not incorporated into the Work, or designated as the Owner's property, are the Contractor's property and shall be removed from the site.
    d. Submittals: Custom Colors: Where samples are to be submitted which are to match Architect selected "custom" colors, submit several different attempts or a range of closely matching colors to the Architect for final selection.

3. Preliminary Submittals: Submit a full set of choices where Samples are submitted for selection of color, pattern, texture, or similar characteristics forms standard choices. The Owner /Architect will review and return submittals indicating selection and other action.

4. Submittals: Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation, and similar characteristics, submit 3 sets. One set will be

returned marked with the action take. Maintain sets of Samples, at the Project Site, for quality comparison.

a. Unless noncompliance with Contract Documents is observed, the submittal may serve as the final submittal.

b. Sample sets may be used to obtain final acceptance of the construction associated with each set.

5. Distribution of Samples: Distribute additional sets to subcontractors, manufacturers, and others as required for performance of the Work. Show distribution on Transmittal forms.

M. Quality Assurance

1. Submit quality-control submittals, including design data, certifications, manufacturer's instructions, and manufacturer's field reports required under other Sections of the Specifications.

   a. Certifications: Where certification that a product or installation complies with specified requirements is required, submit a notarized certification from the manufacturer certifying compliance. Certification shall be signed by an officer authorized to sign documents on behalf of the company.

2. Architect's Action: Except for submittals for the record or information, where action and return is required Owner /Architect will review each submittal and will mark to indicate action to be taken. Where submittal must be held for coordination, Contractor will be so advised without delay. Compliance with specified characteristics is the Contractor's responsibility.

   a. Action Stamp: The Architect will stamp each submittal with a uniform, action stamp. The Architect will mark the stamp appropriately to indicate the action taken as follows:

   b. Unsolicited Submittals: The Architect will return unsolicited submittals to the sender without action.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

END OF SECTION

SECTION 01400

QUALITY CONTROL

PART1 GENERAL

1.01 SECTION INCLUDES

A. Testing required of Contractors.
B. Contractor's quality control systems.
C. Manufacturer's field services.
D. Independent Testing Agency services.
E. Tenant shall provide Site Observation and shall report observations to the Architect or Engineer of record.

1.02 RELATED SECTION

A. Shop Drawings, Submittals, Product Data and Samples: Section 01300 Submittals.

1.03 TESTING -GENERAL

A. The term "testing" as used herein is defined as testing and/or inspection.

B. The Contractor shall provide such equipment and facilities as the Testing Agency may require for conducting field tests and for collecting and forwarding samples. The contractor shall not use any materials or equipment represented by samples until tests, if required, have been made and the materials or equipment found to be acceptable. Any product, which becomes unfit for use after acceptance shall not be incorporated into the work.

C. All materials or equipment proposed to be used may be tested at any time during their preparation or use. The Contractor shall furnish the required samples without charge and shall coordinate testing with the Architect, Engineer and Testing Agency to allow sufficient time for testing before placing orders or starting work. Products may be tested either prior to shipment or after being received at the job site.

D. Tests shall be made by an accredited testing agency with a minimum of 5 years experience in the specific type of testing to be performed. Except as otherwise provided, sampling and testing of all materials and the laboratory methods and testing equipment shall be in accordance with the latest standards and tentative methods of the American Society for Testing Materials (ASTM).

E. Where additional or specific information concerning testing methods, samples sizes, etc., is required, such information is included under this section of the Specification.

1.04 TESTING REQUIRED OF CONTRACTORS

A. The following testing shall be performed at the expense of the Contractor installing the material being tested:

1, Material or Method Substitution: Any tests of basic material, fabrication equipment or method offered as a substitute for specified items or methods on which a test may be required in order to provide its compliance with the specifications.

2. Product Performance Verification: The Supplier of products specified based on performance criteria shall, at the request of the Architect or Structural Engineer, inspect the installed product and certify conformance of the product to specified criteria under the installed conditions

3. Masonry: Submit the following tests for each class of unit and type of masonry assemblage two weeks prior to start of construction. Prepare specimens and test in accordance with all applicable Codes and standards cited therein.

    a. Tests made on individual masonry units within the last four months.
    b. Current mortar test including mortar proportions.
    c. Current grout test including grout proportions. d. Current prism test.
        (1) Include mortar and grout proportions used in test specimens.
        (2) Substantiate that each type of masonry assemblage meets or exceeds the required 28-day compressive strength (f m) .

4. Corrective measures resulting from any test that fails shall be paid for by the installing contractor and shall be subject to the following conditions:

    a. The Contractor shall immediately notify the Tenant and provide revised schedules.
    b. Quantity and nature of additional testing, if required, will be determined by the responsible consultant.
    c. All additional tests shall be taken in the presence of the responsible consultant or his representative.
    d. Proof of noncompliance will make the installing contractor liable for any corrective action which the responsible consultant feels is prudent, including complete removal and replacement of defective material.
    e. Nothing contained herein is intended t o imply that the installing contractor does not have the right to have tests performed on any material at any time for his own information and job control so long as the Owner does not assume responsibility for costs or for giving them consideration when appraising quality of materials.

1.05 TEST REPORTS

A. Reports of all tests shall be distributed by the testing agency as follows:

    1 copy – General Contractor's Project Manager
    1 copy– General Contractor's Field Superintendent
    1 copy – Applicable supplier or subcontractor
    1 copy – Owner
    1 copy —Applicable Engineer
    1 copy —Architect
    Other copies – as directed

1.06 QUALITY ASSURANCE

A. The General Contractor is to establish a quality control system and perform sufficient inspection and tests of all items of work, including that of his subcontractors, to ensure conformance to the Contract Documents for materials, workmanship, construction, finish, functional performance and identification. Contractor's quality control system is the means by which he assures himself that his construction complies with the requirements of the Contract Documents. Controls shall be adequate to cover all construction operations.

B. Pre-Construction Conference:
    1. Contractor shall schedule and conduct a pre-construction conference to review the detailed quality control and construction requirements for each of the materials and/or systems listed below, not less than 10 working days prior to commencement of the applicable portion of the work.
        a. Foundations
        b. Structural steel

c. Masonry

2. The Contractor shall require responsible representatives of each party concerned with that portion of the work to attend the conference, including but not limited to the following:
   a. Contractor's superintendent
   b. Materials supplier(s) or fabricator
   c. Installation subcontractor(s)
   d. Agency responsible for Contractor-furnished testing.
3. The Tenant, Architect, responsible Engineer and Owner's Testing Agency will be present and shall be notified by the Contractor at least 5 days prior to the schedule date of each such conference.
4. Minutes of each conference shall be recorded by the Contractor and shall be distributed by him in typed or printed form to each party in attendance within 5 days of the meeting. One copy of these minutes shall also be transmitted to the Owner's representative and to the Architect for information.

C. Records: Contractor shall maintain correct records on an appropriate form for all inspection and tests performed, instructions received from the Architect, responsible Engineer or Testing Agency, and actions taken as a result of those instructions. These records shall include evidence that the required inspections or test shave been performed (including type and number of inspection or tests, nature of defects, causes for rejection, etc.), proposed or directed remedial action, and corrective action taken. Contractor shall document inspections and tests as required by each section of the Specifications.

1.07 MANUFACTURER'S FIELD SERVICES

A. When specified in respective Specification sections, Contractor shall require supplier or manufacturer to provide qualified personnel to observe field conditions, conditions of surfaces and installation, quality of workmanship, testing, and to make appropriate recommendations.

B. Manufacturer's representative shall submit written report to the Architect and Tenant and responsible Engineer listing observations and recommendations.

1.08 INDEPENDENT TESTING AGENCY SERVICES

A. General: The Owner will employ and pay for the services of an independent Testing Agency to perform the following inspections, tests and other services. Services shall be performed in accordance with requirements of governing authorities and with requirements of governing authorities and with specified standards.

1. Contractor shall cooperate with Testing Agency personnel and shall furnish tools, samples of materials, design mixes, equipment, and assistance as requested.

2. Contractor shall provide and maintain, for the sole use of the Testing Agency, adequate facilities for the safe storage and proper curing of concrete test cylinders on the project site for the first 24 hours after casting as required by ASTM C31, Method of Making and Curing Concrete Test Specimens in the field.

3. Contractor shall build and store masonry test prisms in a manner acceptable to the Testing Agency. Prisms to be tested shall remain at the job site until moved by Testing Agency personnel.

4. Contractor shall notify Testing Agency at least 10 working days in advance of any qualification testing for welding required herein.

5. Contractor shall notify Testing Agency at least 24 hours prior to expected time for operations requiring testing or inspection services.

6. Contractor shall make arrangements with the Testing Agency and pay for additional samples and tests made for the Contractor's convenience or for retesting of failed samples.

7. Retention of an independent Testing Agency by the Owner shall in no way relieve the Contractor of responsibility of performing all work in accordance with contract requirements.

8. The Testing Agency inspector shall familiarize himself with all applicable portions of the Contract Documents pertaining to his area of investigation prior to performing his services.

B. Testing Agency Qualifications

1. For each type of inspection and testing service to be performed, the Testing Agency shall submit certification, signed and sealed by the Agency's professional engineer, of compliance with all applicable requirements of the following:

   a. ASTM E329, "Standard Recommended Practice for Inspection Agencies for Concrete, Steel and Bituminous Materials Used in Construction."
   b. "Recommended Requirements for Independent Laboratory Qualifications" published by the American Council of Impendent Laboratories.

2. Furnish evidence, satisfactory to the Architect and Structural Engineer, that all equipment to be used has been calibrated in accordance with applicable ASTM standards within the last year and is improper working order.

3. Testing and inspection services shall be performed only by trained and experienced technicians currently qualified for the work they are to perform. Documentation of such training and experience shall be submitted to the Owner, architect and Structural Engineer upon request.

C. Concrete Work:

1. Concrete inspection and testing will be made in accordance with building code requirements, and Contract
Documents, and will include the following:

   a. Testing concrete for strength, slump, air content, temperature, and unit weight.
   b. Making and testing concrete cylinders, including furnishing cylinder containers, for specimens.
   c. Inspection at the batching plant.
   d. Transporting and storing of all specimens involved in testing and inspection. Test cylinders are to be transported to laboratory no later than 24 hours after casting, nor earlier than 16 hours after casting.
   e. Inspection of mixing and placing of concrete at the site, including recording of: amount and location of concrete placement, truck number and amount of water added to each load of concrete tested, time batched, time of transit, time mixed on job, time placement was completed, method of placing concrete, and any other pertinent information.

2. Test Specimens:

   a. At least one set of four cylinders for each 100 cubic yards or fraction thereof of all concrete, but not less than one set for any one day's operations, and not less than one set of four cylinders for each 5000 square feet of surface area for walls and slabs. Surface area is the area of one face of wall or slab.

b. For concrete placed by pumping, test specimens and concrete used for determination of slump, air content, and weight are to be taken at the point of placement of concrete into the forms.
c. Samples will be obtained in accordance with ASTM C172.
d. Making, curing and subsequent handling of test cylinders, except as modified herein, shall be in accordance with ASTM 31. 'Testing shall be in accordance with ASTM C39.
e. The cylinders shall be placed in laboratory storage under moist curing conditions at approximately 70 degrees F. within 24 hours after molding, and maintained therein until tested. Tests will be as follows:

(1) One cylinder shall be tested at 7 days for information.
(2) Two cylinders shall be tested at 28 days for acceptance. The acceptance test results shall be the average strength of these two cylinders.
(3) One cylinder shall be held and not tested unless the 28-day average strength is below the specified strength or unless otherwise instructed by the Structural Engineer.

3. Test Reports: Reports of cylinder tests shall be submitted as specified herein within five days of laboratory testing. Test reports shall, as a minimum, include:

a. Project data including project name and address, concrete supplier, supplier's delivery ticket number and mix identification number, Testing Agency's test or cylinder identification number, and location of pour.

b. Results of field testing at time of sampling including date and time of sampling, amount of water added at site prior to sampling, ambient air temperature and concrete temperature, concrete slump and air content, and concrete wet unit weight. Include time concrete was batched and time when placement was finished. Include specification limits for concrete temperature, slump, air content, and indicate whether the sample conforms to these limits

c. Results of laboratory testing including date test specimens were transported to laboratory, date and age of concrete at time of testing, compressive strength of each cylinder tested, average compressive strength of each cylinder tested, and specified design strength of concrete represented by the test.

4. Additional Testing: * Contractor shall bear the cost of testing and inspection resulting as a consequence of the following:

a. Work not in compliance with the Contract Documents.
b. Testing required by the Contractor or Subcontractor such as additional cylinders for early breaks, etc.
c. Testing to verify the adequacy of work done without prior notice, without proper supervision, contrary to standard construction practice.

D. Structural Masonry:

1. Prepare test specimens in accordance with the requirements of the governing building code.

2. Tests, consisting of three prisms each made in the field from materials currently in use, shall be conducted for each 5000 square foot, or fraction thereof, of structural masonry throughout the course of construction. Not less than three such tests shall be conducted for the project.

3. Mortar and grout tests shall be conducted on materials used to construct the first set of three prisms above. In the event such tests fail to achieve the required strength, perform additional testing as required by the Structural Engineer.

4. Testing Agency shall provide special inspection complying with the requirements of the governing building code during the construction of the following work:

a. All reinforced and unreinforced masonry bearing walls.
b. All reinforced and unreinforced masonry shear walls.
c. Special inspection shall be performed by personnel experienced in masonry construction and acceptable to the building official and Structural Engineer.
(1) Observe preparation of all masonry prisms and preparation of all grout and mortar specimens.
(2) For masonry constructed by low-lift grouting techniques, observe the following on a schedule of not less than 2 times each day that masonry construction is in progress.
(a) Proportioning, mixing, and placing of mortar and grout.
(b) Placement of masonry units.
(c) Type, size and location of reinforcing, ties, and accessories.
(3) For masonry construction by high-lift grouting techniques, observe the following on a schedule of not less than once each day that masonry construction is in progress.
(a) Proportioning, mixing and placing of mortar including provision for removal of mortar fins from inside of cells to be grouted.
(b) Placement of masonry units including size and location of clean-out openings. (c) Type, size and location of joint reinforcing, ties and accessories.
(4) For masonry constructed by high-lift grouting techniques, immediately prior to the closing of clean-out openings for each section of masonry to be grouted, verify the following:
(a) All cells to be grouted are free of obstructions (including mortar fins), which would inhibit proper placement and consolidation of grout.
(b) Bottom of all cells to be grouted have been thoroughly cleaned of all loose mortar debris.
(c) Proper size, type and placement of all reinforcement in cells to be grouted including location and length of splices and provisions for maintaining proper position of reinforcing during grouting.
(5) For masonry construction by high-lift grouting techniques, continuously observe all grouting operations to verify proper slump, consolidation and reconsolidation of grout, proper height of each grout lift, and elapsed time between placement of successive lifts.

E. Structural Steel

1. During erection provide the following services:
a. Field Inspections of not less than 1 per week of the following:
1) Visual inspection of erected members and field connections for proper workmanship and to determine that members are plumb and level
2) Visual inspection of shop and field welds for proper workmanship
3) Visual inspection and ascertainment of proper installation and tensioning of bolts
4) Ascertainment that Contractor's erection procedures adequately correct for distortion and shrinkage in field welded assemblies and connections. The Testing Agency shall measure weld shrinkage at all groove welded column splices in the first four tiers and at each third tier thereafter.
b. Reports:
1) Reports of such weld measurements shall be submitted to the Architect and Structural Engineer within two days of completion of welding at each tier measured.
2) Reports of visual inspections shall be submitted to the Architect and Structural Engineer within two days of inspection.
c. Inspection of welding by the Testing Agency will be such as to assure that the work conforms to specified requirements, and will include:

(1) Ascertainment that electrodes used for manual shielded metal-arc welding and the electrodes and flux used for submerged arc welding conform to the requirements of structural specifications.

(2) Ascertainment that the approved welding procedure and the approved welding sequence are followed without deviation, unless specific approval for change is obtained from the Structural Engineer.

(3) Ascertainment that the welding is performed only by welding operators and welders who are properly certified. The Testing Agency shall witness such qualification testing of welding operators and welders, as may be required.

(4) Ascertainment that the fit-up, joint preparation, size, contour, extent of reinforcement, and length and location of welds conform to specified requirements and the contract drawings, and that no specified welds are omitted or unspecified welds added without approval of the Structural Engineer.

2. The welding inspector will have the authority to reject weldments. Such rejection may be based on visual inspection where in his opinion the weldment would not pass a more detailed investigation.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

END OF SECTION

SECTION 01500

TEMPORARY FACILITIES

PART 1 GENERAL

1.01 SUMMARY

A. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction.

B. Temporary Utilities: Prepare a schedule indicating dates for implementation and termination of each temporary utility. Submit reports of tests, inspections, meter readings, and procedures performed on temporary utilities. At the earliest time, change over from use of temporary service to use of permanent service.

PART 2 PRODUCTS

2.01 MATERIALS

A. Provide new materials. If acceptable to the Architect, the Contractor may use undamaged, previously used materials in serviceable condition. Provide materials suitable for use intended.

B. Provide new equipment. If acceptable to the Architect, the Contractor may use undamaged, previously used equipment in serviceable condition. Provide equipment suitable for use intended.

PART 3 EXECUTION

3.01 INSTALLATION

A. Use qualified personnel to install temporary facilities. Locate facilities where they will service the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.

1. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

2. Conditions of Use: Keep temporary facilities clean and neat in appearance. Operate safely and efficiently. Relocate as the Work progresses. Do not overload facilities or permit them to interfere with progress. Take necessary fire-prevention measures. Do not allow hazardous, dangerous, or unsanitary conditions, or public nuisances to develop or persist on-site.

B. Temporary Utility Installation: Engage the local utility company to install temporary service. Provide adequate capacity at each stage of construction. Prior to temporary utility availability, provide trucked-in services. Obtain easements to bring temporary utilities to the site, if required.

1. Use Charges: Cost or use charges for temporary facilities will be paid for by the Contractor.

2. Temporary Water Service: Install temporary water service and distribution piping of sizes and pressures adequate for construction. Maintain service until permanent water service is in use. Sterilize piping prior to use.

3. Temporary Electric Power: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics. Include meters, transformers, overload-protected disconnects, automatic ground-fault interrupters, and main distribution switch gear.
   a. Temporary Lighting: Provide temporary lighting with local switching to fulfill security requirements and illumination for construction operations and traffic conditions.

4. Temporary Heat: Provide temporary heat for curing or drying of completed installation or for protection of installed constructions or for protection of installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations. Coordinate ventilation requirements to produce ambient condition required and minimize consumption of energy.

5. Temporary Telephones: Provide temporary telephone service for personnel engaged in construction.

6. Sanitary, Facilities: Comply with regulations and health codes for the type, number, locations, operation and maintenance of fixtures and facilities. Install where facilities will best serve the Project's needs. Provide covered waste containers.
   a. Toilets: Install self-contained, single-occupant toilet units of the chemical type. Provide units properly vented and fully enclosed with a glass-fiber reinforced polyester shell or similar nonabsorbent material. Shield toilets to ensure privacy.

C. Support Facilities Installation: Locate field offices, storage sheds, and other construction and support facilities for easy access. Maintain facilities until near Substantial Completion. Remove prior to Substantial Completion.

1. Field Office: Provide heated and air-conditioned, insulated, weather tight temporary offices of size to accommodate personnel at the Project Site. Provide units with lockable entrances, operable windows, and serviceable finishes. Keep the office clean and orderly for use for small progress meeting. Furnish field offices with a desk and chairs, a 4-drawer file cabinet, plan table, plan rack, and a 6-shelf bookcase.

2. Temporary Paving: Construct temporary paving for roads, storage areas, and parking where the same permanent facilities will be located. Install temporary paving to minimize the need to rework the installations and to result in permanent roads and paved area without damage or deterioration when occupied by the Owner.

3. Temporary Enclosures: Provide temporary enclosures for protection of construction from exposure, foul weather, other construction operations, and similar activities. Where heat is needed and the permanent building enclosure is not complete, provide temporary enclosures where there is no other provision for containment of heat. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions.

D. Security and Protection Facilities Installation: Except for use of permanent fire protection as soon as available, do not change over from use of temporary security and protection facilities to permanent facilities until Substantial Completion.

1. Temporary Fire Protection: Until permanent facilities supply fire-protection needs, install and maintain temporary fire-protection facilities of types needed to protect against controllable fire losses. Comply with NFPA10 and NFPA 241.
   a. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than one extinguisher on each floor at or near each usable stairwell. Maintain unobstructed access to fie extinguishers.
   b. Store combustible materials in containers in fire-safe locations
   c. Prohibit smoking in hazardous fire-exposure areas.
   d. Provide supervision of welding operations, combustion-type temporary heating units, and similar sources of fire ignition.

2. Enclosure Fence: Install an enclosure fence with lockable entrance gates.

3. Security Enclosure and Lockup: Install temporary enclosure of partially completed areas of construction. Provide locking entrances to prevent unauthorized entrance, vandalism, and theft. Provide a secure lockup where materials and equipment are of value and must be stored.

E. Termination and Removal: Remove each temporary facility when the need has ended, when replaced by a permanent facility, or no later than Substantial Completion. Complete or restore permanent construction delayed because of interference with the temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. At Substantial Completion, clean and renovate permanent facilities uses during the construction period.
   a. Replace air filters and clean inside of ductwork and housings.
   b. Replace worn parts and parts subject to unusual operating conditions.
   c. Replace burned out lamps.

END OF SECTION

SECTION 01600

MATERIALS AND EQUIPMENT

PART 1 GENERAL

1.01 SUMMARY

A. This Section specifies administrative and procedural requirements governing the Contractor's selection of products for use in the Project.

1.02 DEFINITIONS

A. "Products" are items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock.

B. "Materials" are products substantially shaped, cut, worked mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.

C. "Equipment" is a product with operational parts, whether motorized or manually operated, that requires service connections, such as wiring or piping.

1.03 QUALITY ASSURANCE

A. Source Limitations: To the fullest extent possible, provide products of the same kind from a single source.

1. When the contractor is give the option of selecting between two (2) or more products for use on the Project, the product selected shall be compatible with products previously selected.

B. Nameplates: Except for required labels and operating data, do not attach manufacturer's nameplates or trademarks on surfaces exposed to view in occupied spaces or on the exterior.

1. Labels: Locate required product labels and the stamps on concealed surfaces or, where required for observation after installation, on accessible surface that are not conspicuous.

2. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on an easily accessible surface that is inconspicuous in occupied spaces.

1.04 DELIVERY, STORAGE AND HANDLING

A. Deliver, store, and handle products according to the manufacturer's recommendations, using means and methods that will prevent damage deterioration, and loss, including theft.

1. Schedule delivery to minimize long-term storage and to' prevent overcrowding construction spaces. Coordinate with installation to assure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.

2. Deliver products in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.

3. Inspect products upon delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.

4. Store products subject to damage by the elements above ground, under cover in a weather tight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instruction.

5. Store products subject to damage by the elements above ground, under cover in a weather tight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

PART 2 PRODUCTS

2.01 MATERIALS

A. Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, new at the time of installation.

1. Provide products complete with accessories, trim, finish, safety guards, and other devices and details needed for a complete installation and the intended use and effect.

2. Standard Products: Where available, provide standards products of types that have been produced and used successfully in similar situations on other projects.

3. Visual Selection: Where requirements include the phrase "...as selected form manufacturer's standard colors, patterns, textures..." or a similar phrase, select a product that complies with other requirements. The Architect will select the color, pattern, and texture from the project line selected.

PART 3 EXECUTION

3.01 INSTALLATION

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

END OF SECTION

SECTION 01700

CONTRACT CLOSEOUT

PART 1 GENERAL

1.01 SUMMARY

A. This section includes administrative and procedural requirements for contract closeout.

B. Closeout requirements for specific construction activities are included in the appropriate Specification Sections.

1.02 SUBMITTALS

A. Substantial Completion: Before requesting inspection for certification of Substantial Completion, complete the following:

1. In the Statement for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the Work claimed as substantially complete.

   a. Include supporting documentation for completion and an accounting of changes to the Contract Sum.

2. Advise the Owner of pending insurance changeover requirements.

3. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications, and similar documents.

4. Submit record drawings, maintenance manuals, property surveys, and similar final record information.

5. Deliver tools, spare parts, extra stock, and similar items.

6. Changeover locks and transmit keys to the Owner.

7. Complete startup testing of systems and instruction of operation and maintenance personnel. Remove temporary facilities, mockups, construction tools, and similar elements.

8. Complete final cleanup requirements, including tough-up painting and change-out of equipment filters.

9. Touch up and repair and restore marred, exposed finishes.

B. Review Procedures: On receipt of a request for review, the Architect will proceed or advise the Contractor of unfilled requirements. The Architect will prepare the Statement of Substantial Completion following review or advise the Contractor of construction that must be completed or corrected before the statement will be issued.

1. The Architect will repeat review when requested and assured that the Work is substantially complete.

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

C. Final Acceptance: Before requesting review for statement of final acceptance and final payment, complete the following:

1. Final payment request with releases and supporting documentation. Include insurance certificates where required.

2. Submit a statement, accounting for changes to the Contract Sum.

3. Submit a copy of the final inspection list stating that each item has been completed or otherwise resolve for acceptance.

4. Submit final meter readings for utilities and similar data as of the date of Substantial Completion.

5. Submit evidence of continuing insurance coverage complying with insurance requirements.

D. Re-review Procedure: The Architect will re-review the Work upon receipt of notice that the Work has been completed, except for items whose completion is delayed under circumstances acceptable to the Architect.

1. Upon completion of re-review, the Architect will prepare a statement of final acceptance. If the Work is incomplete, the Architect will advise the Contractor of Work that is incomplete or obligations that have not been fulfilled but are required.

2. If necessary, reinspection will be repeated.

E. Record Document Submittals: Do not use record documents for construction. Protect from loss in a secure location. Provide access to record documents for the Architect's reference.

F. Record Drawings: Maintain a set of prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark the drawing most capable of showing conditions fully and accurately. Give attention to concealed elements.

1. Mark sets with red pencil. Use other colors to distinguish between variations in separate categories of the Work.

2. Organize record drawing sheets into manageable sets. Bind with durable-paper cover sheets; print titles, dates, and other identification on the cover of each set.

G. Record Specifications: Maintain one copy of the Project Manual, including addenda. Mark to show variations in Work performed in comparison with the text of the Specifications and modifications. Give attention to substitutions and selection of options and information on concealed construction. Note related record drawing information and Product Data.

1. Upon completion of the Work, submit record Specifications to the Architect for the Owner's records.

H. Maintenance Manuals: Organize operation and maintenance data into sets of manageable size. Bind in individual, heavy-duty, 2-inch, 3-ring, binders, with pocket folders for folded sheet information. Mark identification on front and spine of each binder. Include the following information.

1. Emergency instructions.
2. Spare parts list.
3. Copies of warranties.
4. Wiring diagrams.
5. Shop Drawings and Product Data.
6. Schedule of Paint and Finishes
7. Contact Names, Addresses, Phone Numbers, and E-mail for all suppliers and subcontractors
8. Contact Names, Addresses, Phone Numbers, and E-mail for all suppliers Utilities

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.01 DEMONSTRATION

A. Operation And Maintenance Instructions: Arrange for each installer of equipment that requires maintenance to provide instruction in proper operation and maintenance. Include a detailed review of the following items.

1. Maintenance manuals.
2. Spare parts, tools, and materials.
3. Lubricants and fuels.
4. Identification systems.
5. Control sequence.
6. Hazards.
7. Warranties and bonds.
8. Maintenance agreements and similar continuing commitments.

B. As part of instruction for operating equipment, demonstrate the following:

1. Startup and shutdown.
2. Emergency operations and safety procedures.
3. Noise and vibration adjustments.

3.02 CLEANING

A. Final Cleaning: Employ experienced cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Complete the following operations before requesting inspection for certification of Substantial Completion.

1. Remove labels that are not permanent labels.
2. Clean transparent materials, including mirrors and glass. Remove glazing compounds. Replace chipped or broken glass.
3. Clean exposed finishes to a dust-free condition, free of stains, films, and foreign substances. Leave concrete floors broom clean. Vacuum carpeted surfaces.
4. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication. Clean plumbing fixtures. Clean light fixtures and lamps.
5. Clean the site of rubbish, litter, and foreign substances. Sweep paved areas; remove stains, spills, and foreign deposits. Make grounds to a smooth, even-textures surface.

B. Pest Control: Engage a licenses exterminator to make a final inspection and rid the Project of rodents, insects, and other pests.

C. Removal of Protection: Remove temporary protection and facilities.

END OF SECTION

SECTION 01730

MAINTENANCE MANUALS

PART 1 GENERAL

1.01 SUMMARY

A. Section includes: To aid in continued instruction of operation and maintenance personnel, and to provide a positive source of information about products used in the Work, provide Manuals and instruction as described in this Section and in various other Sections of these Specifications.

B. Related work described elsewhere:
1. Required instruction procedures and required contents of Manuals may be amplified in other Sections of these Specifications.
2. Refer to Section 01700 Project Closeout for additional requirements

1.02 SUBMITTALS

A. Unless otherwise directed, submit three copies of each Manual compiled in accordance with the provisions of this Section.
B. Make submittals directly to the Owner/Tenant/Architect.
C. Should the Architect's review indicate required changes in the Manual promptly make such changes and submit three revised copies of the entire Manual to the Owner/Tenant/Architect at no additional cost to the Owner.

PART 2 PRODUCTS

2.01 MATERIALS

A. Unless otherwise directed, prepare Instruction Manuals in the following format:
Size: 8-1/2" x 11".
Paper: White bond, at least 20 lb. Weight. Text: Neatly typewritten or printed.
Drawings: 11" in height preferable; bind in with text, foldout acceptable; larger drawings acceptable but fold to fit within the Manual and provide a drawing pocket inside rear cover or bind in with the text.
Flysheets: Separate each portion of the Manual with neatly prepared flysheets briefly describing contents of the ensuing portion.
Binding: Use heavy-duty plastic or fiberboard covers with binding mechanism concealed inside the Manual;
3-ring binders are preferred; all binding shall be subject to the approval of the Architect.
Measurements: Provide all measurements in U.S. standard units such as inches and pounds.

B. Covers: Provide front and back covers for each manual, using durable material and with the following information visible on or through the front cover:

OPERATION AND MAINTENANCE INSTRUCTIONS
BlueWave Express - Montfort
(Name of Equipment system)

Manual approved by:

Owner:

Date:

C. Contents: Include at least the following data:

1. Neatly typewritten index near the front of the manual, giving immediate information as to location within the Manual of all emergency data regarding the installation.

2. Complete instructions regarding operating and maintaining all equipment involved, including lubrication, disassembly, and reassembly.

3. Complete nomenclature of all parts of all equipment.

4. Complete nomenclature and part number of all replaceable parts, name address of nearest vendor of those parts, and all other data pertinent to procurement of replacement parts.

5. Copy of all warranties issued.

6. Such other data as is required in pertinent other Sections of these Specifications.

PART 3 EXECUTION

3.01 DEMONSTRATION

A. At an appropriate time approved by the Owner, instruct Owner's operation and maintenance personnel in use of the equipment and use of the Manuals.

END OF SECTION

SECTION 01740

WARRANTIES

PART 1 GENERAL

1.01 SUMMARY

A. This Section includes administrative and procedural requirements for warranties required by the Contract Documents, including manufacturers' standard warranties on products and special warranties.

1. Refer to the General Conditions for terms of the Contractor's period for correction of the Work.

1.02 WARRANTY

A. Standard product warranties are preprinted written warranties published by the individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.

B. Special warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the Owner.

1. Refer to the General Conditions for terms of the Contractor's period for correction of the Work.

C. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the Warranty on the Work that incorporates the products. Manufacturer's disclaimers and limitations on product warranties do not relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

D. Related Damages and Losses: When correcting failed or damaged warranted construction, remove and replace construction that has been damaged as a result of such failure or remove and replace to provide access for correction of warranted construction.

E. Reinstatement of Warranty: When work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.

F. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of the Contract Documents. The contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through a portion of its anticipated useful service life.

G. Owner's Recourse: Expressed warranties made to the Owner are in addition to implied warranties and shall not limit the duties, obligations, rights, and remedies otherwise available under the law. Expressed warranty periods shall not be interpreted as limitations on the time in which the Owner can enforce such other duties, obligation, rights, or remedies.

1. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selection to products with warranties not in conflict with requirements of the Contract Documents.

2. Where the Contract Documents require a Special Warranty, or similar commitment, the Owner reserves the right to refuse to accept the Work, until the Contractor presents evidence that entities required to countersign such commitments are willing to do so.

H. Submit written warranties to the Owner/Tenant/Architect prior to the date stated for Substantial Completion. If the Owner/Tenant/Architect’s Statement of Substantial Completion designates a

commencement date for warranties other than the date of Substantial Completion, submit written warranties upon request of the Architect.

1. When a designated portion of the Work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Owner/Tenant/Architect within 15 days of completion of that designated -portion of the Work.

I. When the Contract Documents require the Contractor, or the Contractor and a subcontractor, supplier or manufacturer to execute a special warranty, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner, through the Architect, for approval prior to final execution.

1. Refer to Divisions 2 through 14 Sections for specific content requirements and particular requirements for submitting special warranties.

2. Refer to separate design/build contracts for mechanical, electrical, plumbing, fire protection, and security system for specific content requirements and particular requirements and particular requirements for submitting special warranties.

J. Bind warranties and bonds in heavy-duty, commercial-quality, durable 3-ring, vinyl-covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2 –by-11-inch paper.

1. When warranted construction requires operation and maintenance manuals, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

1.03 PART 2 PRODUCTS (Not applicable)_

1.04 PART 3 EXECUTION (Not applicable.)

END OF SECTION

SECTION 02110

SITE CLEARING

PART 1 - GENERAL

1.01 SCOPE

Extent of site clearing is shown on drawings.

Site clearing includes, but is not limited to:
Removal of existing earth fill
Removal of existing debris.
Removal of vegetation and trees.
Topsoil stripping.

1.02 REQUIREMENTS

A. Inspection of Site: Carefully examine the premises to determine the extent of work and the conditions under which it must be done. No extra payments will be allowed for claims for additional work that could have been determined or anticipated by such inspection.

B. Utilities: Support and protect any existing active sewers, water, electric, telephone and similar utilities which may remain from damage due to these operations on and adjacent to Owner's property.

C. General: Remove any buried debris encountered during the removal process. Remove existing soil to specified depths or more as may be required to achieve the specified finished slab elevations.

PART 2 – PRODUCTS (Not Used)

PART 3 - EXECUTION

A. Protections: Ensure safe passage of persons around area of demolition. Conduct operations to prevent injury to adjacent buildings, structures, other facilities, and persons.

B. Damages: Promptly repair damages caused to adjacent properties by demolition operations at no cost to Owner.

C. Pollution Controls: Use water sprinkling, temporary enclosures, and other suitable methods to limit dust and dirt rising and scattering in air to lowest practical level. Comply with governing regulations pertaining to environmental protection.

D. The entire site shall be initially scarified and stripped to a depth of 6 inches. Refer to Earthwork Section 2200 for initial compaction requirements.

E. Strip soil to a depth of at least 12 inches from areas to be covered by "slab- on - grade" portions of the building.

F. Stockpile any useable topsoil for later use in landscaped areas. Stockpile and useable crushed limestone or crushed asphalt for use as backfill..

g. Dispose of unusable excess soil same as waste material, as herein specified.

H. Clearing of vegetation: Clear site of existing trees and vegetation. Completely remove stumps, roots, and other debris protruding through ground surface.

I. Remove abandoned underground piping or conduit not shown on drawings, but interfering with construction.

J. Maintain good surface drainage. Provide adequate exit points for lateral movement of water through temporary sloping and ditching.

K. Disposal of waste materials:
Remove waste materials and unsuitable and excess soil from Owner's property and dispose of off site.

END OF SECTION

SECTION 02200

EARTHWORK

PART1 GENERAL

1.01 RELATED DOCUMENTS:

A. Geotechnical Study prepared by Reed Engineering Group.
B. Earthwork requirements shall comply with the recommendations specified in the Soils Report for the Project.
C. Consult Soils Engineer for changes in requirements should unexpected soil conditions be encountered.

1.02 DESCRIPTION OF WORK:

A. Work Included:
   1.Excavation, filling, backfilling, completion and grading for building pad and overall site.
   2. Preparation of subgrade for building slab, walks, and concrete surfaced parking areas.
B. Work in Other Sections:
   1. Site clearing
   2. Concrete Paving
   3. Independent Laboratory Testing (Division 1)

1.03 QUALITY ASSURANCE:

A. Codes and Standards:
Perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction.
B. Testing and Inspection Service:
Contractor shall engage soil testing and inspection service for quality control testing during earthwork operations.

1.04 JOB CONDITIONS:

A. Existing site is paved with approximately 4-1/2" of asphalt over a crushed limestone base of unknown thickness. The asphaltic paving and up to 6 inches of base material will be removed prior to commencement of this Contract. Under separate contract the site will be filled in 8 inch compact lifts and re-graded to match the contours and elevations indicated on the Civil Grading Plan.
B. Additional test borings and other exploratory operations that may be made by Contractor shall at not be a cost to the Owner.
C. Existing Utilities:

   1.Locate and verify existing underground utilities in the areas of work. Utilities shown on the Civil Plans are to remain in place except where indicated on the Demolition Plan. Provide adequate means of protection during earthwork operations.
   2.Should uncharted or incorrectly charted, piping or other utilities be encountered during excavation, consult the Owner's Representative and appropriate utility company immediately for directions. Cooperate with Owner and utility companies for keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility company.
   3.Do not interrupt existing utilities serving facilities occupied and used by Others, except when permitted in writing by the Others, and then only after acceptable temporary utility services have been provided.
   4. Protection of Persons and Property:
      a. Operate warning lights as recommended by authorities having jurisdiction.
      b. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.

1.05 SUBMITTALS:

A.Test reports on borrow material.
B. Field density test reports.
C. One optimum moisture maximum density curve for each type of soil encountered.
D. Report of actual unconfined compressive strength and/or results of bearing tests of each strata tested.

PART 2 PRODUCTS

2.01 MATERIAL CLASSIFICATIONS:

Materials for backfill shall be classified for the purpose of quality control in accordance with the Unified Soil Classification Symbols as defined in ASTM D 2487

A. CLASSIFICATIONS:

Subbase Material (Class I): Well graded sands and gravel, crushed well graded rock, little or no fines.
Plasticity Index: 0
Seive: 5% passing No. 200
Back Fill Material (Class II): Poorly graded gravel and sand, silty sand and gravel, Lsite excavated crushed limestone or crushed asphalt, ittle to moderate fines
Plasticity Index: 0 to 4
Seive: 12% to 50% passing No. 200
Select Backfill (Class III): Clayey gravel and sand, poorly graded mixture of sand, clay, and gravel.
Plasticity Index: 8 to 20
Seive: 12 to 50% passing No. 200
Impervious Fill: Lean Clay
Plasticity Index: Greater than 7
Liquid Limit: 40 or more
Pourous Fill: Clean sharp sand
Plasticity Index: 0 to 7
Clay Lumps not exceeding 2%
Select Fill: Sandy or silty clay
Plasticity Index: 8 to 20
Seive: 70% passing No. 200
Earth Fill: Clean topsoil obtained from excavation of this Project or soil of suitable character subject to approval by the Architect.

PART 3 EXECUTION

3.01 INSPECTION:

A. The contractor shall visit the site and examine the areas and conditions under which excavating, filling, and grading are to be performed. Do not proceed with the work until unsatisfactory conditions detrimental to the proper and timely completion of the work have been corrected.

3.02 EXCAVATION:

A. Excavation consists of removal and disposal of material encountered when establishing required grade elevations.

B. Unauthorized_Excavation:

1. Unauthorized excavation consists of removal of materials beyond indicated subgrade elevations, limits or dimensions without specific directions of Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be at the Contractor's expense.
2. Under footings, foundation bases, or retaining walls, fill unauthorized excavation by extending the indicated bottom elevation of the footing or base to the excavation bottom, without altering required top elevation. Lean concrete fill may be used to bring elevations to proper position, when acceptable to Architect.

3. Elsewhere, backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by Architect.

C. Additional_Excavation:

1. When excavation has reached required subgrade elevations, notify the Architect for inspection of conditions.
2. If unsuitable bearing materials are encountered at the required subgrade elevations, carry excavations deeper and replace with acceptable bearing material as directed by the Architect. If random fill is encountered, remove at least 4'0" and replace with select material. Refer to Soil Report for further information.
3. Removal of unsuitable material and its replacement as directed will be paid on the basis of Changes In The Work defined in the Conditions of the Contract.

D. Stability_of_Excavation:

1. Slope sides of excavations to comply with governing codes and ordinances. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated.
2. Maintain sides and slopes of excavations in a safe condition until completion of backfilling.

3.03 Dewatering:

1. Prevent surface water and subsurface or ground water from flowing into excavations and from flooding project site and surrounding area.
2. Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.
3. Convey water removed from excavations and rain water to collecting or run off areas. Establish and maintain temporary drainage ditches and other diversions outside excavation limits. Do not use trench excavations as temporary drainage ditches.
4. Reference geotechnical report for expected ground water conditions.

3.04 Material Storage:

A. Stockpile satisfactory excavated materials where directed, until required for backfill or fill. Place, grade and shape stockpiles for proper drainage.
B. Locate and retain soil materials away from edge of excavations.
C. Dispose of excess soil material and waste materials as hereinafter specified.

3.05 Excavation for Structures:

A. Conform to elevations and dimensions shown within a tolerance of plus or minus 0.10' and extending a sufficient distance from footings and foundations to permit placing and removal of concrete formwork, installation of services, other construction, and for inspection.
B. In excavating for footings and foundations, take care not to disturb bottom of excavation. Excavate by hand to final grade just before concrete reinforcement is placed. Excavate to required lines and grades providing a solid base to receive other work.
C. Where rock is encountered, carry the excavation 6" below the required elevation and backfill with a 6" layer of crushed stone or gravel prior to pipe and conduit installation.
D. Grade bottoms of trenches as indicted to provide solid bearing for the entire body of the pipe. Notching under pipe bells performed by installer of pipe.
E. Do not backfill trenches until tests and inspections have been made and backfilling authorized by Owner’s Rep or Engineer. Use care in backfilling to avoid damage or displacement of pipe systems.

3.06 COMPACTION:

A. General:
1. Control soil compaction during construction, providing minimum percentage of density specified for each area classification. Intact limestone will not require scarification or compaction.

2. Proofroll subgrade to detect any soft spots, which if exist, should be reworked, compacted and tested.
3. All materials (either imported or onsite soils) should be placed in loose lifts not exceeding 8" in uncompacted thickness, and be compacted to a density between 92% and 98% of Standard Proctor (ASTM D 698), at a moisture content ranging between optimum to four percentage points above optimum (+0 to +4).
4. Compaction test should be taken as the fill is being placed. Each lift should be compacted, tested and approved before another lift is added. The purpose of the field density tests is to provide some indication that uniform and adequate compaction is being obtained. The quality of the fill, as compacted, is the responsibility of the contractor. Satisfactory results from the field density tests should not be considered as a guarantee of the quality of the Contractor's filling operations.

B. Moisture Control:

1.Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade, or layer of solid material, to prevent free water appearing on surface during or subsequent to compaction operations.
2.Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.
3. Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing or pulverizing until moisture content is reduced to a satisfactory value.

C. Percentage of Maximum Density Requirements:

1.Compact soil to not less than the following percentages of maximum dry density for soils which exhibit a well defined moisture density relationship determined in accordance with ASTM D 698; and not less than the following percentages of relative density, determined in accordance with ASTM D 4253 and ASTM D 4254, for soils which will not exhibit a well defined moisture density relationship.
2. Initial Scarification and Compaction: The entire site shall be scarified to at least 6 inches of depth and conpacted to 95% maximum dry density.
3. Building Slabs Compact top 12" of subgrade and each layer of backfill or fill material at 95% maximum density or 90% relative density.
4. Lawn or Unpaved Areas: Compact top 6" of subgrade and each layer of backfill or fill material at 90% maximum dry density.
5. Walkways: Compact top 6" of subgrade and each layer of backfill or fill material at 95% maximum dry density or 90% relative density.

D. Pavements:

1. Prior to paving, all pavement areas should be proofrolled with a compactor weighing at least 25 tons. Each strip of ground should be rolled a minimum of 3 times in rapid succession. All soft or unstable areas encountered should be either removed or reworked until a firm unyielding subgrade is achieved. This proofrolling should be performed prior to placement of additional fill.
2. All additional fill should be placed in maximum 8" lifts at optimum to plus 3 percentage points of optimum moisture and should be compacted to a minimum of 95% Standard Proctor density.
3. Soil Report: Reference geotechnical investigation report and the Civil Drawings for additional requirements. If conflict exists soil report, whichever requirement is the most restrictive, governs.

3.07 GRADING:

A. General:

1. Uniformly grade area within limits of grading under this Section, including adjacent transition areas. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades.
2. Paved_Areas_and_Building_Slab_Subgrade: Make at least one field density test of subgrade for every 2000 square feet of paved area or building slab, but in no case less than 3 tests. If each compacted fill layer, make one field density test for every 2000 square feet of overlaying building slab or paved area, but in no case less than 3 tests.
3. For each strata of soil on which shallow bearing footings (not drilled Piers) will be placed, conduct at least one test to verify required design bearing capacities. Subsequent verification and approval of each footing subgrade may be based on a visual comparison of each subgrade with related tested strata,

when acceptable to Architect/Engineer.

B. Grading Outside Building Lines:

1. Grade areas adjacent to building lines to drain away from structures and to prevent ponding. Finish surfaces free from irregular surface changes, and as follows:
2. Lawn or Unpaved Areas: Finish areas to receive topsoil to within not more than 1/8" above or below the required subgrade elevations.
3. Walks: Shape surface of areas under walks to line, grade and cross section, with finish surface not more than 1/8" above or below the required subgrade elevation.
4. Pavements: Shape the surface of the areas under pavement to line, grade and cross section, with the finish surface not more than 1/2" above or below the required subgrade elevation, compacted as specified, and graded to prevent ponding of water after rains.
5. Grading Surface of Fill Under Building Slabs: Grade smooth and even, free of voids, compacted as specified, and to required elevation. Provide final grades within a tolerance of 1/2" when tested with a 10' straightedge.
6. Compact as required above and test before preparing with a minimum of 6" thick drainage course. Conform to indicated cross section and thickness.

3.08 MAINTENANCE:

A. Protection_of_Graded_Areas:

1. Protect newly graded areas from traffic and erosion. Keep free of trash and debris.
2. Repair and reestablish grades in settled, eroded, and rutted areas to specified tolerances.

3.09 DISPOSAL OF EXCESS AND WASTE MATERIALS:

A. Removal from Owner's Property:

1. Remove excess excavated material as determined by the Owner, trash, debris and waste materials and dispose of it off the Owner's property.

END OF SECTION

SECTION 02400 - SITE DRAINAGE

PART I - GENERAL

1.01 RELATED DOCUMENTS:

The provisions of the Contract and applicable requirements of Divison 1 govern this Section.

1.02 SCOPE

Furnish and install the following systems as required for the Work:
Storm water drainage from site. Refer to Civil Drawings

1.03 REQUIREMENTS

Submittals: Conform to procedures specified in Section 01300 SUBMITTALS and the requirements below.

Shop Drawings: Submit manufacturer's data showing details of fabrication and installation of the following:
Inlet grate and frame

Inspection of site: Examine the site to determine extent of work required and the conditions under which it will be done.

PART 2 - PRODUCTS

2.01 PVC Pipe:

SDR 35.

2.02 Cast metal items:
Fabricate the inlet grates and frames of cast iron conforming to ASTM A 48 for Class 20 according to the shape and dimensions shown on the Drawings and so as to be clean and perfect, free of sand, blow holes and other defects.

Cement: ASTM C 150, Type I Portland.

Aggregate: ASTM C 33 except conform to the following grading:

Sieve Size	Percent Passing
4	100
8	95 - 100
16	60 - 100
30	35 - 70
50	15 - 35
100	0 - 15

PART 3 EXECUTION

3.01 EXCAVATION & TRENCHING

3.01 General: Provide protections for the safety of all personnel. When existing utilities to be removed are in the area of these operations, provide notice in sufficient time so as to prevent interruption of service.

3.02 Trenches: Banks shall be as nearly vertical as possible. Provide uniform bearing and support for each section of the pipe on undisturbed soil. Excavate rock to a minimum overdepth of 6 inches below required trench depth. Remove wet or other unstable material to the depth required. Backfill overdepth to the proper trench depth with coarse sand, fine gravel or other approved material. Conform to the following requirements for specific systems:

3.03 Structure: Excavate subservice so as to leave at least 12 inches clear between outer surfaces and the embankment or material supporting the bank. Step or serrate slopes bounding the excavation so as to prevent any wedging action of backfill against the structure.

3.04 General: Use suitable materials from excavations. Fill to finish grade elevations of adjacent surface.

A. Material:

1. General: Suitable backfill material shall be earth, loam, sandy clay, sand and gravel, soft shale or other approved material.

2. Trenches_under_concrete_paving: Use cement stabilized sand or bank sand or approved material.

B. Placing: Deposit fill in 6 inch layers at proper moisture content to facilitate compaction. Thoroughly and carefully ram or tamp each layer until pipe has a cover of one foot. Deposit the remainder of the fill in 8 inch layers and properly tamp, water tamp or consolidate it by other approved means. Compact trenches under new sidewalks or pavements to at least 95% of maximum density at optimum moisture content determined by AASHO T90 Method A.

3.05 Protection: Properly protect existing utility lines shown on the Drawings from damage due to these operations. If damage occurs, satisfactorily repair it at no additional expense. If damage occurs to an unknown line, give immediate notification.

END OF SECTION 02400

SECTION 02505

CONCRETE PAVING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Concrete walks, ramps, parking lots, ramps, gutters and concrete curbing as indicated on the Drawings.

1.02 RELATED SECTION

A. Cast-In-Place Concrete SECTION 03300
B. Formwork; SECTION 3100
C. Reinforcing SECTION 3210

1.03 REFERENCE PUBLICATIONS AND STANDARDS A. Governing Authority:
1. Applicable standards and regulations of state and municipal agencies having governing authority over the work specified in this section shall take priority over items specified herein and shown on the drawings unless the requirements set for the herein require a superior quality work.

B. Material Standards:

1. American Society for Testing Materials (ASTM). C. Concrete Standards:
1. American Concrete Institute (ACI): ACI-617 "Standard Specifications for Concrete Pavement and Bases" ACI-
395 "Manual of Standard Practice for Detailing Reinforced Concrete.

1.04 SUBMITTALS

A. Testing Laboratory Reports:

1. Furnish three copies of the test reports to the Owner indicating results of the cylinder test.

PART 2 PRODUCTS

2.01 BASIC MATERIALS
A. Concrete:
1. As specified in CAST-IN-PLACE CONCRETE

2.02 MISCELLANEOUS MATERIALS A. Air Entraining Agent:
A. 1. ASTM CO260, Master Builders or equal.
B. Dispersing Admixture:
ASTM C-494. Master Builders or equal. C. Curing compound:
ASTM C-309, No. 40W by A.C. Horn Company or equal. D. Joint Filler:
ASTM D1751, pre-molded fiber filler, unless shown otherwise on the drawings. E. Joint Sealer:
ASTM D-1190, Code 2351.

2.03 CONCRETE MIX DESIGN

A. Contractor shall employ and pay for, as a part of the contract price, the services of an Owner-approved independent testing laboratory to determine actual design mix to be used, based on the following:

Addenda 1 1. All concrete: 3000 3600 psi at 28 days.
2.. Minimum 5 sack mix required.

PART 3 EXECUTION

3.01 INSPECTION OF SUBGRADE

A. Inspect subgrades prepared as specified elsewhere in these Specifications and report any deficiencies to the Owner before beginning work. Commencement of work shall indicate acceptance of subgrades by this Contractor.

3.02 CONSTRUCTION

A. General: Deliver and place concrete as specified in CAST-IN-PLACE CONCRETE. B. Curbs and Gutters:
1. Configurations

a. Construct to cross-sections details shown on drawings and at indicated locations. Curbs may be fully formed or pulled and troweled to configurations shown on the drawings.

2. Reinforcement

a. Reinforce as indicated on the drawings with continuous reinforcing bars lapped 30 bar diameters and securely tied at al splices. Metal chairs shall be used to hold the reinforcing steel in the proper plane.

3. Expansion Joints

a. Construct 1/2" wide expansion joints with joint filler across lengths of curb at all tangent points and at not more than twenty-foot intervals. All fixed objects, such as buildings, poles, pipes, catch basins, etc., within or abutting the concrete shall be separated from the concrete by expansion joints.

4. Finishing

a. Finish surfaces with texture as approved by the municipal jurisdiction" deep cross joints at ten foot intervals with edges smooth.

5. Joints

a. Fill expansion joints with joint filler. After concrete has set, clean the open joint above filler and fill with joint sealer in accordance with instructions of sealer manufacturer.

C. Walks:

1. Configuration

a. Construct to cross-sectional details shown on drawings and at indicated locations.

2. Sand Cushion

3.

Concrete shall be placed over a sand cushion placed on the compacted subgrade as shown on the drawings or a minimum of 2" thick if not shown on

3. Reinforcing

a. Per Site Civil Engineering.

4. Expansion Joints

a. Construct expansion joints as detailed in locations shown on the drawings.

5. Finishing

a. General: Finish surfaces not noted on the drawings to be finished with light broom surface on
sidewalks and heavier broom on the parking area. Tool joints and edges to to each section or division of the walk.

b. Finish vertical surfaces in a manner that leaves the exposed surfaces free of marks. Any damaged surfaces shall be repaired and stone rubbed to match surfaces.

D. Driveways and parking areas:

1. Configurations
a. Construct to cross-sectional details shown on drawings and at indicated locations.

2. Sub-base Configurations

a. Place concrete on subgrade as required by the Geotechnical Report.
b. Provide Lime Fly Ash stabilized subgrade if no recommendation by Geotechnical.

2. Reinforcing
a. Per Site Civil Engineering
3. Expansion Joints

a. Construct expansion joints as detailed in locations shown on the drawings.

4. Finishing

a. General: Finish surfaces not noted on the drawings to be finished to match existing. Tool joints and edges to provide a smooth border to each section or division of the walk. Finish all vertical surfaces in a manner that leaves the exposed surfaces free of "honeycombing and form marks. Any damaged surfaces shall be repaired and stone rubbed to match adjacent finished surfaces.

3.03 CURING CONCRETE

A. Apply a white-pigmented type curing compound at a uniform rate of approximately 200 .square feet/gallon, or as recommended by curing compound manufacturer as soon as the finishing operation has been completed and the concrete has lost its water sheen. The curing procedure must protect the concrete against loss of moisture and rapid temperature change for a period of not less than four days from the beginning of the curing operation and without damage to, or marking of the finished concrete surface. Traffic shall not be allowed on finished concrete for a minimum period of seven days.

3.04 TESTING

A. Independent Testing Laboratory

1. Contractor shall employ and pay for, as a part of .the contract price, the services of an Owner approved independent testing laboratory to perform concrete cylinder testing.
2. Four test cylinders shall be taken and cured by the Contractor and tested by the testing laboratory for each different class of concrete poured in any one day.
3. Cylinders shall be taken in accordance with ASTM C31, and cured and tested in accordance with ASTM C39. One set of four cylinders is required for each 50 cubic yards of concrete or less, placed in any one day.
4. Two cylinders shall be tested at 7 days, and two cylinders shall be tested at 28 days.

B. Contractor Tests

1. Slump tests shall be taken by the Contractor when cylinders are taken, and shall show maximum slump 5-inch and minimum slump 3-inch.
2. Air content by volume: 3% based on measurements made in concrete mixtures at point of discharge at job site at time slump tests are made. Air content by volume shall be determined in accord with ASTM C231.

3.05 CLEANING CONCRETE

A. Concrete approaches, sidewalks and related work shall be hosed down with water, scrubbed with fiber brushes, allowed to dry and be left broom clean and in condition acceptable to the Owner.
B. Upon completion of work of this Section remove related debris from premises.

END OF SECTION

SECTION 03100

CONCRETE FORMWORK

PART 1 GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

A. Cast-In-Place Concrete: Section 03300.
B. Refer to Structural Drawings

1.02 REFERENCES

A. Except as shown or specified otherwise, the Work of this Section shall conform to the requirements of Specifications for Structural Concrete for Buildings ACI 301-99 of the American Concrete Institute.

1.03 DESIGN REQUIREMENTS

A. Comply with ACI 301, Section 2.1 – Formwork and formwork accessories.

PART 2 PRODUCTS

2.01 GENERAL:
The formwork shall be designed for loads, lateral pressure, and allowable stresses outlined in Chapter 2 - Design of "Guide to Formwork for Concrete" (ACI 347-01).

2.02 MATERIALS
A. Wood framing – No. 2 Southern Yellow Pine or Construction Grade Douglas Fir, or better grade lumber.
B. Plywood: U.S. Product Standard Exterior Grade B-B Classification carrying APA grade mark. Mimimum thickness: 5/8 inch
C. Panel Forms: Dimension lumber framed, plywood faced; or metal framed plywood or metal faced.
D. Plastic Sheeting: 6 mil translucent white or black polyethylene sheets 6 feet or wider.
E. Release Agent: Non staining bond breaker that does not produce a chemical reation with the concrete mortar.
Symons Manufacturing Co.- Magicoat
Or approved Equal

PART 3 EXECUTION

3.01 CONSTRUCTION OF FORMS
A. Construct forms for slabs and grade beams outside faces with continuous dimensional lumber to a minimum depth of 11-1/2” or greater depending up integrity of trench. Brace faces lined to grade as screeds. Ramp backfill against outside of form board for additional bracing.

B. Construct forms for pavements and walks outside faces with continuous dimensional lumber or properly braced plywood or bender board to a full depth of the concrete.. Brace faces lined to grade as screeds. Ramp backfill against outside of form board for additional bracing.

c Frame recessed pit wall forms with continuous plywood panels both sides, all supported by braces and braced strongbacks as may be required by height. Provide spreaders and ties as required by height and loads.

D. Install continuous water dams at all cold joint locations.

E. Provide ¾" or smaller chamfer on all exposed external corners of concrete.

3.02 PREPARATION OF FORM SURFACES

A. Release Agent: Apply form-coating material in accordance with manufacturer's instructions.

3.03 FORM REMOVAL

A. Do not disturb any forms until the concrete has attained sufficient set to assure its surface will not be damaged. When normal cement has been used in the concrete mix, and temperature is above 50 degrees, minimum wait period before forms are stripped is 24 hours after concrete placement for slabs. For pits, leave forms in place for 5 days. A curing day shall mean any calendar day in which the temperature is above 50 degrees F. for at least 19 hours.

B. Provisions for Work of Related Contracts: Provide openings and chases in concrete formwork to accommodate Work of related contracts. Obtain information for size and location of openings, recesses and chases from subcontractor requiring such items.

C. Install metal edges where indicated on the Structural Drawings

3.03 RE-USE OF FORMS

A. Split, frayed, delaminated or otherwise damaged form facing material shall not be used.

END OF SECTION

SECTION 03210

STEEL CONCRETE REINFORCEMENT

PART 1 GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

A. Concrete Formwork: Section 03100.
B. Cast-In-Place Concrete: Section 03300.

1.02 REFERENCES

A. Except as shown or specified otherwise, the Work of this Section shall conform to the applicable requirements of the following:
   1. Specifications for Structural Concrete, ACI 301-99 of the American Concrete Institute.
   2. Manual of Standard Practice, MSP-1-01 of the Concrete Reinforcing Steel Institute.
   3. Structural Drawings

PART 2 PRODUCTS

2.01 MATERIALS

A. Bar Reinforcement: ASTM A 615, Grade 60, deformed steel bars.
B. Fabric Reinforcement: ASTM A 185, welded wire fabric, fabricated into flat sheets unless otherwise indicated.
C. Bar Supports; Either of the Following Types:
   1. Insoluble plastic, with minimum 1,500 psi tensile strength and capable of retaining fabricated shape at temperatures between 5 degrees F and 170 degrees F.
E. Tie Wire: Black annealed wire, 16-1/2 gage or heavier.
F. Steel Wire: ASTM A 82, cold-drawn plain steel wire, size No. W2.9 unless otherwise indicated. G. Reed Clips: ASTM A 185, rigid type reed clips, fabricated of W1.4 steel cross wires spaced 12 inches apart and looped at edges of flanges, and W1.4 longitudinal wire. Reinforcement shall have two longitudinal wires for flanges 9 inches to 15 inches in width, and three longitudinal wires for flanges over 15 inches in width. Cross wires shall be welded to longitudinal wire(s).

PART 3 EXECUTION

3.01 PLACING

A. QUALITY CONTROL
   1. Provide following minimum concrete cover for reinforcement (ACI 318, section 7-7)
   2. Bend bars cold.
   3. Confirm that steel is anchored and that reinforcing bars and dowels are securely tied prior to placing concrete.
   4. Conduit: Conduit in slabs shall be less that 1/3 of the slab depth in height and shall be chaired above reinforcing mats or supported on mats. Conduits shall be located 3 diameters apart, not in groups. Conduits passing through concrete sections, such as grade beams, shall be sleeved.

END OF SECTION

SECTION 03300

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

A. Section 02505- Concrete Paving, Walks, Curbs, Gutters, and Approaches
B. Section 03100- Concrete Formwork
C. Section 03200- Concrete Reinforcing
D. Section 03360- Integrally Colored Ground and Polished Concrete

1.02 REFERENCES

A. Except as shown or specified otherwise, the Work of this Section shall conform to the requirements of American Concrete Institute (ACI) and American Society for Testing and Materials (ASTM) documents.

1. ACI 301: Specification for Structural Concrete for Buildings.
2. ACI 302.1R: Guide for Concrete Floor and Slab Construction.
3. ACI 304.2R: Placing Concrete by Pumping Methods.
4. ACI 305R: Hot Weather Concreting.
5. ACI 308.1: Standard Specification for Curing Concrete.
6. ACI 318 Building Code Requirements for Reinforced Concrete.
7. ASTM C 94/C 94M - 04: Standard Specification for Ready- Mixed Concrete.
8. ASTM C 494/C 494M - 04: Standard Specification for Chemical Admixtures for Concrete.

1.03 DEFINITIONS

A. ACI 301, Section 1.2 - Definitions:
1. Add the following definitions:
a. Cementitious Material: Cementitious materials include cement, ground blast furnace slag and fly ash.
b. Corrosion Inhibitor Admixture: A liquid admixture, calcium nitrite, that inhibits corrosion of concrete-embedded steel in the presence of chloride ions.
c. Pumped Concrete: Concrete that is conveyed by pumping pressure through rigid pipe or flexible hose.
d. Water-to-Cementitious Ratio (w/c): An equational value representing quantity in pounds of free moisture available for cement hydration divided by quantity of cementitious materials in pounds per cubic yard concrete.

1.04 SUBMITTALS

A. Submittals Package: Provide mix designs with supporting strength test record for each mix design to Owner's Rep/Architect/Structural Engineer 2 weeks prior to work..

1.05 QUALITY ASSURANCE

A. Perform work in accordance with ACI 301.
B. Acquire cement and aggregate from same source for all work.
C. Conform to ACI 305R when placing concrete during hot weather.
D. Conform to ACI 306R when placing concrete in cold weather.
E. Provide "sample panel" approx 4' x 4' of Colored/Sealed concrete for Owner's review before proceeding with remaining Colored Concrete Work.

1.06 DELIVERY

A. ASTM C 94/C 94M, Article 13.1 - Batch Ticket Information: In addition to the information required by Paragraph 16.1, also include the following:
1. Type and brand, and amount of cement.
2. Weights of fine and coarse aggregates.

3. Class and brand, and amount of fly ash (if any).

PART 2 PRODUCTS

2.01 MATERIALS
- A. Cement: ASTM C 150, Type I or II Portland cement.
- B. Water: Potable, complies with ASTM C94
- C. Aggregate: ASTM C33, angular coarse aggregate, maximum 1 ½ inch diameter.
- D. Type 3 Expansion Joint Filler: Preformed, resilient, nonextruding bituminous units complying with ASTM D 1751.
- E. Expansion Joint Dowels: Smooth steel expansion joint dowel with minimum 5 inch long steel dowel cap, unless otherwise indicated.

2.02 PROPORTIONING OF MIXES
- A. Performance design mix: submit mix design to Architect for Engineer review, as specified in this section, minimum two weeks prior to use.
- B. Strength:
1. Concrete Slabs: Minimum 3000 psi @ 28 day strength.
2. See also Structural Notes and Section 02505 - Concrete Paving for exterior paving slab structural requirements.
- C. Slump for Pumped Concrete: When a water-reducing admixture is not used, maximum slump shall be 4 inches. When a water-reducing admixture is used, maximum slump shall be 6 inches and when a high-range water-reducing admixture (superplasticizers) is used, maximum slump shall be 8 inches.
- D. Design Air Content for Exterior Concrete: Design air content for concrete shall be 5 percent by volume, with an allowable tolerance of plus or minus 1.5 percent for total air content, except as otherwise specified. Use air-entraining admixture, not air-entrained cement.
- E. Water-Cement Ratio for Interior Slabs: a maximum water-cement ratio of 0.40. All other concrete can have a maximum water-cement ratio of 0.52.
- G. Admixtures: Do not use admixtures in concrete unless specified or approved in writing by the Engineer of record.

2.03 JOINTS
- A. Expansion joint caps: as specified in section 03100
- B. Joint filler: as specified in section 03100
- C. Thermal Break: As specified in section 03100.

2.04 PRODUCTION OF CONCRETE
- A. Mixing and delivery : ASTM C94. Sampling at delivery.
- B. Sampling and Delivery: Comply with ASTM C172, cylinders cured per ASTM C31. C. Retempering Concrete: Adding water to concrete on site not permitted.

PART 3 EXECUTION

3.01 EXAMINATION AND PREPARATION
- A. Verify requirements for concrete cover over reinforcing.
- B. Verify that reinforcement and other items to be cast in concrete are accurately placed, positioned securely, and will not cause hardship in placing concrete.
- C. Hardened concrete, reinforcement, forms, and earth which will be in contact with fresh concrete shall be free from frost at the time of concrete placement.
- D. Do not deposit concrete in water. Keep excavations free of water by pumping or by other approved methods.
- E. Prior to placement of concrete, remove all hardened concrete spillage and foreign materials from the space to be occupied by the concrete.
- F. Coordinate work with requirements of Section 03360 Colored Concrete

3.02 ADMIXTURE ADDITIONS AT THE SITE

A. Site additions shall be limited to high-range water-reducers, non-chloride accelerators, and corrosion inhibitors. Comply with manufacturers' printed instructions for discharge of admixtures shall be furnished.
B. All concrete with other admixture additions shall mix a minimum of 70 revolutions or 5 minutes to assure a consistent mixture.

3.03 PLACING

A. Place concrete in accordance with ACI 304
B. Consolidate concrete, except slabs on grade, by mechanical vibration as specified and in accordance with ASI 309.
C. Ensure reinforcement, inserts, embedded parts, formed joint fillers and joint devices are not disturbed during concrete placement.

3.04 FINISHING SURFACES

A. Finish Schedule: Except where indicated otherwise on the Drawings, provide the finishes below:
   1. Rough Form Finish for concrete surfaces not exposed to view.
   2. Smooth Machine Troweled Finish for concrete surfaces exposed to view.
   3. Smooth Rubbed Finish for exterior concrete surfaces exposed to view.
   4. Grout Cleaned Finish for interior concrete surfaces exposed to view.
B. ACI 301, Section 5.3.3.3 - As-cast Finishes:
   1. Add the following to paragraph 5.3.3.3:
      Fins shall be completely removed on surfaces to receive waterproofing.

3.05 SLABS

A. ACI 302 Chapter 8.2.8.2 - Tools for jointing; Saw-cutting.
   1. Add the following paragraph:
      Early-entry dry-cut saws are preferred in place of conventional wet-cut saws.
B. ACI 302 Chapter 8.3.12
   Add the following to Conventional wet-cut saw cutting:
   Begin saw-cutting as soon as the saw will not dislodge the aggregate or ravel the edge of the saw-cut, but in no case longer than 12 hours after the slab is placed. Saw-cut a minimum of one quarter of the slab depth leaving a clean, sharp edge in the pattern shown on the Contract Documents. Provide sufficient personnel and equipment to complete saw-cutting operations within 18 hours after the slab is placed.
C. Gradient tolerances: Interior Building floor surface tolerances shall be within 1/4 inch of spot elevations indicated.

3.06 CURING AND PROTECTION

A. Curing Temperature: Maintain the temperature of the concrete at 50 degrees F. or above during the curing period. Keep the concrete temperature as uniform as possible and protect from rapid atmospheric temperature changes. Avoid temperature changes in concrete which exceeds 5 degrees F. in any one hour and 50 degrees F. in any 24-hour period.

3.07 FIELD QUALITY CONTROL

A. ACI 301, Section 1.6.4.2 - Testing Services:
   1. Add the following paragraph: 1.6.4.2.e Strength Tests for Pumped Concrete: Prepare strength test specimens and make strength tests from concrete samples obtained at the truck discharge chute and at the end of the pump delivery line in accordance with paragraph 16.3.4.4.
B. ACI 301, Section 1.6.3.3 – Tests required of Contractor's testing agency:
   1. Add the following paragraph:
      1.6.3.3.c Make available to the Owner's Representatives whatever test samples are required to make tests. Furnish shipping boxes for compression test cylinders.
C. Adjustment to Concrete Mixes: Mix design adjustments may be requested by the Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant, at no additional cost to the State and as accepted by the Director. Laboratory test data for revised mix design

and strength results must be submitted to and accepted by the Owner's Representative before using in the work.

D. Test results will be reported in writing to the Architect, Owner's Representative, Ready-Mix Producer, and Contractor within 24 hours after tests. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-day tests and 28-day tests.

E. Nondestructive Testing: Impact hammer,, Windsor probe, or other nondestructive device may be permitted but shall not be used as the sole basis for acceptance or rejection.

END OF SECTION

SECTION 04061

MORTAR AND MASONRY GROUT

PART 1 GENERAL

1.01 REFERENCES
- A. Standards:
  1. Mortar: ASTM C 270, except as otherwise specified.
  2. Grout: ASTM C 476.
- B. Where proprietary CMU products require variations to this specification, comply with proprietary product manufacturer's recommendations or requirements.

1.02 SUBMITTALS
- A. Product Data:
  1. Portland Cement: Brand and manufacturer's name.
  2. Masonry Cement: Brand and manufacturer's name, and color.
  3. Lime: Brand and manufacturer's name.
  4. Sand(s): Location of pit, name of owner, and previous test data.

1.03 DELIVERY, STORAGE, AND HANDLING
- A. Deliver, store, and handle materials in a manner which will insure the preservation of their quality and fitness for the Work.
- B. Store cement and lime on raised platforms under waterproof, well ventilated cover.

PART 2 PRODUCTS

2.01 MATERIALS
- A. Cement: One of the following complying with the indicated requirements:
  1. Portland Cement: ASTM C 150, Type 1, to match existing.
- B. Hydrated Lime: ASTM C 207, Type S.
- C. Mortar Sand: ASTM C 144, except that for joints less than 1/4 inch thick use sand graded with 100 percent passing the No. 16 sieve.
- D. Grout Sand: ASTM C 404.
- E. Water: Clean and free of deleterious amounts of acids, alkalis, and organic materials.

2.02 MIXES
- A. Mortar for Unit Masonry: Comply with ASTM C 270, proportion specifications, having minimum compressive strength of 2800 PSI. Color: Plain Grey.
- B. Grout: Comply with ASTM C 476 having minimum compressive strength of 2000 PSI with a slump range of 8 inches to 11 inches.

2.03 SEALING
- A. Trenwyth Astra Glaze by Trenwyth Industries, Clean the glazed surface of completed walls with a mild soap/water solution. Do not use acid or abrasives on the glazed surfaces. Apply Water Repellant Sealer to exposed interior surfaces of CMU. (Trenwyth Astra Glaze CMU is glazed on one side only. See extents of vinyl paneling in tunnel.)

PART 3 EXECUTION

3.01 INSTALLATION
- A. Refer to sections of Specifications which require mortar and masonry grout.

3.02 MORTAR SCHEDULE
- A. Where mortar types are not indicated on Drawings or specified, use types as follows:
  1. Type M for unit masonry below grade in contact with fill materials.
  2. Type S for concrete masonry units.
     a. Proportion Portland cement, lime, and sand in a 1:1:6 ratio.

END OF SECTION

SECTION 04200

MASONRY

PART 1 GENERAL

1.01 DESCRIPTION
A. Masonry work includes concrete masonry unit (CMU) wall structures.
B. Masonry work includes coordination and setting of embed plates and similar structural connections.
C. See Section 01010 – Summary of Work .
D. See Section 04061 Mortar and Grout.

1.02 QUALITY ASSURANCE
A. Work shall conform to the standards of the Masonry Institute of America and to codes having jurisdiction.
B. Do not lay units that are wet or frozen.
C. All concrete masonry units shall be from a single manufacturer's production run.

PART 2 PRODUCTS

2.01 CONCRETE MASONRY UNITS
A. Type: Hollow Core and Load Bearing. B. ASTM C 90 Class: Normal Weight, having minimum compressive strength of 2800 PSI.
B. Size: Nominal 8 x 16 x 8-inches
C. Color: Natural.
D. Texture: Smooth Face
D. Dry Density: 95 to 105 lbs. per cubic ft.
E. Manufacturer:
1. Headwaters Construction Materials (Palestine Concrete Tile),
2202 Chalk Hill Road
Dallas Texas 75212
2. Or Approved Equal

2.02 MORTAR PREPARATION/USE
A. See Section 04061 Mortar and Grout.

2.03 REINFORCING STEEL
A. Horizontal Joints:
1. Welded Wire Steel: 9 gauge galvanized steel, ladder type conforming to ASTA A 145
2. Deformed Reinforcing Wire conforming to ASTM A 496.
B. Vertical Reinforcing thru cells:
1. Deformed Reinforcing Bars, Grade 60 conforming to ASTM A 615.

2.04 Dry- Block Additive: Provide integral color, hollow load bearing "DRY-BLOCK", with integral water-repellent admixture, complying with ASTM C90, medium weight, as shown on the drawings.

2.05 Water Repellent Coating:
Fabrishield 653 Siloxane/Quartz Water Repellant as manufactured by Fabrikem Chemical International, or approved equivalent

PART 3 EXECUTION

3.01 INSTALLATION
A. Cut masonry units using motor-driven saws to provide clean, sharp, unchipped edges. Cut units as required to provide continuous pattern and to fit adjoining work. Use full-size units without cutting where possible.
B. Draw blocks from more than one pallet at a time during installation. All exterior mortar shall include water-repellent additive added to each batch in the appropriate dosage rates for mortar type (M, S or N) per manufacturer's instructions.

3.02 CONSTRUCTION TOLERANCES

A. Variation from Plumb: Vertical lines, surfaces or columns, walls do not exceed 1/4” in 10’ nor 1/2” up to 40’. For external corners, expansion joints, control joints and other conspicuous lines, do not exceed 1/4” in any story of 20’ maximum. Vertical alignment of head joints not to exceed 1/4” in 10’.
B. Variation from Level: For bed joints, parapets, horizontal grooves and other conspicuous lines, do not exceed 1/4” in any bay or 20’ maximum.
C. Variation of Linear Building Line: Do not exceed 1/2” in any bay or 20’ maximum, nor 3/4” in 40’or more.
D. Variation in Mortar Joint Thickness: Do not exceed joint thickness indicated by more than plus or minus 1/8”

3.03 LAYING MASONRY WALLS:

A. Pattern Bond: Lay masonry in ½ running bond. Do not use units with less than nominal 8” horizontal face dimensions at comers or jambs.
B. At Roof Parapet inside walls that receive a single ply membrane flashing, strike these joints flush. C. Strike other joints concave.
D. Double strike all mortar joints.
E. Keep cavity in cavity walls clean of mortar drippings and debris. F. Concrete Masonry Units:
1. Shall be laid with full face and head joints to increase resistance to water penetration. G. Trenwyth Products requires compliance with NCMA TEK Notes, available at www.trenwyth.com.
H. Units shall have uniform face joint dimensions of 1/4" both horizontally and vertically. Tool joints neatly after they are finger-hard to make them straight and uniform.

3.04 CLEANING

A. After mortar is thoroughly set and cured, clean masonry completely using the least harsh method possible
B. Clean the completed walls with Burnished Custom Masonry Cleaner by PROSOCO at a 3:1 solution, carefully following manufactuer's washdown instructions -- including thorough rinsing. Do not use acid or abrasives on the glazed surfaces.

3.05 SEALING

A. At exposed CMU walls: Water Repellant: Apply Fabrishield 653 Water Repellant. Apply in accordance to manufacturer’s recommendations but no less that a minimum of two coats.

3.06 CLOSEOUT:

A. Provide 2 gallons block manufacturer’s recommended graffiti cleaner to Owners.

END OF SECTION

SECTION 05122

STRUCTURAL STEEL

PART 1 GENERAL

1.01 PRODUCTS FURNISHED BUT NOT INSTALLED UNDER THIS SECTION
A. Anchor Bolts: Installed under Section 03050 or 03300.

1.02 RELATED WORK SPECIFIED ELSEWHERE
A. Fluted Steel Decks, Section 05310
B. Field Painting, Section 09900.
C. Misc Fabrications, Section 05500

1.03 REFERENCES
A. Except as shown or specified otherwise, the Work of this Section shall meet the requirements of the following:
1. Design, Fabrication, and Erection: "Specification for Structural Steel Buildings, Load and Resistance Factor Design" (LRFD), December 1, 1993, by the American Institute of Steel Construction (AISC Specification).
2. Standard Practice: Fabrication and erection practices shall comply with the "Code of Standard Practice for Steel Buildings and Bridges", June 10, 1992, by the American Institute of Steel Construction (AISC Code); and Steel Joist Institute “Standard Specifications, Load Table and Weight Tables” for types of steel joists indicated on the Structural Drawings.
3. Welding: Welding shall comply with the provisions of the "Structural Welding Code - Steel, AWS D1.1", by the American Welding Society (AWS Code).
4. High-Strength Bolting: High-strength bolting shall comply with the "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" approved by the Research Council on Structural Connections of the Engineering Foundation on November 13, 1985 (Specification for Structural Joints).
5. Cleaning Steel: Comply with the appropriate specifications (SSPC SP-X) by the Steel Structures Painting Council.

1.04 DEFINITIONS

A.AISC Manual: Where reference is made to the AISC Manual, it shall mean the Manual of Steel Construction, LRFD, Second Edition, of the American Institute of Steel Construction.

1.05 All bolted connections shall have a minimum of two bolts.
A. Shop Connections: Unless otherwise indicated, all shop connections shall be welded or high strength bolted. Field connections required to be welded or fully-tensioned high-strength bolted shall meet the same requirements when fabricated in the shop.
B. Field Connections:
1. All bolted field connections need only be tightened to the snug tight condition.
C. Standard Beam Connections:
1. Standard beam connections shown on the Drawings shall be fabricated as detailed.

1.06 SUBMITTALS

A. Shop Drawings: Submit shop drawings for all structural steel required by this Contract. Machine-duplicated copies of Contract Drawings will not be accepted as shop drawings. Shop drawings shall be standard 24 by 36 inch size sheets.
1. Special Exception: Electronic submittal of Structural and Joist Shop drawing will not be acceptable for the initial submittal.
2. Failure to submit legible drawings of required size will be cause for their disapproval without review. If the drawings are not prepared by a detailer under the direct control of the fabricator, the fabricator shall stamp each drawing and initial or sign the stamp to certify review and approval of the drawings, and conformance with the fabricator's shop practice and capability.

3. Include the following in the initial submission:
   a. Drawings of proposed job standards for shop and field connections, including standard and special connections, complying with the requirements.
   b. Erection drawings indicating sizes, weights, and locations of all structural members.
   c. Anchor bolt and base plate plans.
4. Include the following in subsequent submissions:
   a. Index sheets and revised erection drawings to which erection marks have been added.
   b. Detail drawings of all structural members.
   c. Electronic submittal on PDF format will be acceptable for subsequent or final submission
5. Indicate all required shop and field welds by Standard AWS Welding Symbols in accordance with AWS A2.4.
6. Indicate shop painting requirements.
7. When shop drawings are marked "Approved as Noted", corrected re-submittal is not required.
8. Contract Drawings are not considered released for construction. Orders for materials may be placed only after approval of erection drawings or written approval of the Structural Engineer.d

B. Product Data:
1. Shop Paint: Manufacturer's name and printed product literature, including storage and application instructions.

C. Quality Control Submittals:
1. Test Reports: Submit 3 copies of each of the following:
   a. Steel manufacturer's mill test reports, covering physical and chemical tests, for all main material.
   b. Bolt manufacturer's test reports, covering physical and chemical tests, for each lot of high strength bolts supplied.
2. Certificates: Whenever any structural steel items other than main members, such as anchor bolts, base plates and detail material, are supplied either from plant stock or from a warehouse, submit 3 copies of evidence of compliance of the material with the applicable requirements of this Specification. Such evidence shall consist of certification as to the source of the material and copies of purchase orders, manufacturer's certifications or, in the case of stock material, copies of the latest mill orders or purchase orders for routine replacement of such stock material.
3. Fabricator's and Erector's Qualifications Data: Name and experience of fabricator and erector.
4. Welding Procedure Specifications: Submit procedure specifications for each joint to be welded by submerged arc or flux cored arc welding.
5. Welder's Certification: Submit each welder's welding certification for each type weld and position before fabrication.

1.07 QUALITY ASSURANCE

A. Fabricator's Qualifications: The fabricator of the structural steel shall be regularly engaged in the fabrication of structural steel, and shall be subject to the approval of the Engineer. AISC Quality Certified Fabricators (latest list issued) are approved.
B. Erector's Qualifications: The structural steel erector shall be regularly engaged in the erection of structural steel, and shall be subject to the approval of the Engineer.
C. Welders' Qualifications: Welding shall be performed only by welders, welding operators, and tackers who have been qualified by tests as prescribed in the AWS Code to perform the type of welding required.
D. Do not deviate from the requirements of the Contract Documents except where an option is specifically mentioned. The Engineer, however, may accept deviations proposed by the Contractor when it is deemed in the best interest of the State and if the deviations are consistent with sound and accepted engineering practice. Requests for deviations shall be made prior to the submission of shop drawings to preclude delay in the expeditious preparation and approval of the required shop drawings. In addition, design calculations or other data may be required to establish conformity of such deviations with the applicable Standards.

1.08 INSPECTION

A. Quality Control Inspection: Refer to Section 01400, Quality Control for requirements.

1.11 DELIVERY, STORAGE, AND HANDLING

A. Deliver anchor bolts and other devices which are to be embedded in cast-in-place concrete or masonry construction, for anchorage of structural steel, one week prior to the start of that Work, unless otherwise required.
B. Receiving Shop Paint: Receive paint in original, unopened containers bearing paint manufacturer's printed label.
   1. Label shall show manufacturer's name, trade name of paint, Federal Specification compliance (if applicable), shelf life, and date of manufacture.
C. Protection:
   1. Upon delivery to the site, promptly cover and protect steel items (which are not required to receive shop paint) from rusting.
   2. Store shop paint in accordance with paint manufacturer's printed instructions.

1.12 ENVIRONMENTAL REQUIREMENTS FOR SHOP PAINTING

A. Comply with the following conditions for the application of paint unless otherwise stated in the paint manufacturer's printed directions.
   1. Minimum ambient, steel surface, and paint temperatures: 40 degrees F.
   2. Maximum steel surface temperature: 100 degrees F.
   3. Maximum relative humidity: 85 percent.
   4. Surface of steel: Dry.

PART 2 PRODUCTS

2.01 MATERIALS

A. Structural Steel: See Structural Notes on Drawings.
B. Steel for Anchor Bolts, Tie Rods, Sag Rods, and other Detail Material Not Proportioned for Calculated Stress: ASTM A 36; or ASTM A 675, Grade 70.
C. Steel for Shims and Fillers: ASTM A 569.
D. High-Strength Threaded Fasteners (High-Strength Bolts): ASTM A 325 heavy hexagon structural bolts, nuts, and hardened washers.
E. Steel Pipe: ASTM A 53, Grade B.
F. Steel Structural Tubing: ASTM A 500, Grade B; or ASTM A 501. H. Weld Filler Metal:
   1. General: Weld filler metal shall be in accordance with Table 4.1.1 of the AWS Code, except as follows:
      a. Only electrode and flux combinations complying with AWS Classifications F7AX-EXXX or F7AX-EXXX-a, (a = B2, Ni1, Ni2, Ni3 or W), shall be used for submerged arc welding.
      b. Only electrode and shielding gas combinations complying with AWS Classifications E 7XT-1 or E 7XT-5 shall be used for flux cored arc welding.
   2. Weld filler metal for shielded metal arc welding which conforms to AWS Specifications A5.1 or A5.5 shall be considered to be prequalified.
   3. Weld filler metal for submerged arc and flux cored arc welding shall be qualified by performing the procedure qualification tests required under Part 1 of this Section.
H. Shop Paint (General): Steel primer selected from the following:
   1. TNEMEC 10-99 (Red), 10-99G (Green) or 10-1009 (Gray).
   2. Rust-Oleum 769.
   3. Valspar 13-R-53.
   4. Sherwin-Williams "Kromik".
I. Shop Paint for Exterior Equipment Supports (High-Ratio Water Based Zinc Silicate): Steel primer selected from the following:
   1. Inorganic Coatings IC 531
   2. Valspar 13-R-53
   3. Ameron Dimetcote 21-7
J. Bedding Mortar:
   1. Shrink-Resistant Grout (Non-Staining): Factory-packaged, non-ferrous mortar grouting compound selected from the following:
      a. Masterflow 713 by Master Builders, 23700 Chagrin Blvd., Cleveland, OH 44122 (800) 227-3350.
      b.Sonogrout by Sonneborn, Chemrex, Inc., 57-46 Flushing Ave., Maspeth, NY 11378, (800) 433-9517.

c. Five Star Grout by Five Star Products, Inc.,425 Stillson Rd., Fairfield, CT 06430, (800) 243-2206.
d. Crystex by L&M Construction Chemicals, 14851 Calhoun Rd., Omaha, NB 68152, (800) 362-3331.
e.Non-Corrosive, Non-Shrink Grout by A.C. Horn, Inc., Tamm Industries, 7405 Production Dr., Mentor, OH 44060, (800) 862-2667.

2.02 FABRICATION

A. Progress shop fabrication from "Approved" or "Approved as Noted" detail drawings only.
1. When detail drawings are "Approved as Noted", progress fabrication in strict accordance with notes thereon.
2. Fabrication progressed from "DISAPPROVED" or "RETURNED FOR CORRECTION" detail drawings will be rejected. The contractor shall have no claim for any costs or delays due to rejection of items fabricated from "DISAPPROVED" or "RETURNED FOR CORRECTION" detail drawings.
B. Finish column ends at base plates and at load carrying cap plates to a true plane square to the column, with a maximum American National Standards Institute surface roughness value of 500 microinches.
C. Pipe and Tube Columns: Cap columns with a closure plate shop welded to the top of the columns to exclude water and foreign material from entering the column.
D. Make provision for connections of other Work, including all cutting and punching of structural members where required by the Drawings, or for which information is furnished prior to approval of the shop drawings.
E. Remove extension bars or run-off plates upon the completion and cooling of groove welds. Grind the ends of the welds smooth and flush with the edges of the abutting parts.
F. Remove tack welds not incorporated into the final weld, and temporary welds. Grind affected surfaces smooth and flush.
G. Detail fillet welded joints so as to permit the welding electrode or wire to be positioned at a minimum angle of 30 degrees from the face of any material upon which weld metal is to be deposited.
H. Prepare material in accordance with Section 3 of the AWS Code. Do not use gas or air carbon-arc cutting to cut or enlarge bolt holes.

2.03 SHOP PAINTING

A. Thoroughly clean structural steel. Remove oil, grease, and similar contaminants in accordance with SSPC SP-1 "Solvent Cleaning". Remove loose mill scale, loose rust, weld slag and spatter, and other detrimental material in accordance with SSPC SP-2 "Hand Tool Cleaning", SSPC SP-3 "Power Tool Cleaning", SSPC SP-6 "Commercial Blast Cleaning" or SSPC SP-7 "Brush-Off Blast Cleaning".
B. Apply one coat of shop paint to all steel surfaces except as follows:
1. Do not paint steel members designated "NP" on the Drawings.
2. Paint steel surfaces inaccessible after assembly, except surfaces in contact, with two coats of shop paint before assembly.
3. Do not paint steel surfaces to be field welded, contact surfaces of high-strength bolted slip-critical connections, steel to be encased in cast-in-place concrete, steel receiving sprayed-on fireproofing (if recommended by manufacturer of the fireproofing material approved for use on this Project), and the top flange of beams and girders in composite construction.
4. Do not paint galvanized items which are not to be finish painted under Section 09900.
5. Apply two shop coats of High-Ratio Water Based Zinc Silicate to all exterior equipment support member surfaces.
C. Apply paint and compound to the following minimum thickness per coat:
1. Shop Paint (General): 4.0 mils wet film.
2. Shop Paint for Galvanized Steel: 3.0 mils wet film.

PART 3 EXECUTION

3.01 ERECTION

A. Erect steel in accordance with the AISC Specification, the AISC Code, the AWS Code and the Specification for Structural Joints, except as otherwise specified.
B. Prepare and place shrink-resistant grout in accordance with grout manufacturer's printed instructions.

1. Comply with manufacturer's instructions for preparation of surfaces in contact with the grout, and for curing and protection of the grout.

C. Remove extension bars and run-off plates upon the completion and cooling of groove welds. Grind the ends of the welds smooth and flush with the edges of the abutting parts.

D. Remove tack welds not incorporated into the final weld, and temporary welds. Grind affected surfaces smooth and flush.

E. Delete Paragraph M2.2. of the AISC Specification. Prepare material in conformance with Section 3 of the AWS Code. Do not use gas or air carbon-arc cutting to cut or enlarge bolt holes.

F. Do not make corrections or alterations to fabricated steel without prior written approval by the Engineer.

END OF SECTION

SECTION 05310

FLUTED STEEL DECKS

PART 1 GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE
A. Field Touch-up Painting: Section 09900.

1.02 REFERENCES
A. Comply with the following reference standards unless otherwise shown or specified:
1. Design: "Specification for the Design of Cold-Formed Steel Structural Members" by the American Iron and Steel Institute (AISI Specification).
2. Welding: "Structural Welding Code - Sheet Steel, AWS D 1.3", by the American Welding Society (AWS Code).

1.03 SUBMITTALS
A. Shop Drawings: Show application to project. Prepare separate drawings, coordinated with, but not superimposed on, joist drawings or structural steel erection drawings.
B. Product Data: Manufacturer's printed specifications and installation instructions.

1.04 HANDLING AND STORAGE
A. Handle and stack materials carefully in order to prevent deformation or damage. During unloading and hoisting, take extra care to prevent damage to ends and sides of individual metal deck panels. Do no place panels in direct contact with the ground. Protect panels from the elements and keep panels dry.
1. If mud, dirt, or other foreign matter is accumulated on panels, remove such accumulation completely prior to installation.

PART 2 PRODUCTS

2.01 MATERIALS

A. Fluted Steel Roof Deck and Metal Accessories: Sheet steel conforming to ASTM A 611 Grade C or ASTM A 653 SQ Grade 33, wide rib configuration, 1-1/2” depth, 22 gauge. Fluted Steel decking shall receive chemical cleaning, phosphate treatment, and baked on primer. Finish shall be evenly coated with no cracking after fabrication. Accessories shall be fabricated of not lighter than 18 US Standard Gage sheet steel.
B. Acoustical metal decks: Provide perforated acoustical metal decking in the Dry Bay only. Provide manufacturer‘s standard perforations and fiberglass flute fillers.
C. Self-Drilling Fasteners: No. 12-14 x 3/4 inch, hex washer head, self-drilling fastener with pilot point.
D. Flexible Closure Strips: Manufacturer's standard vulcanized, closed- cell, synthetic rubber closure strips.

2.02 FABRICATION
A. Furnish units in lengths to be continuous over 3 spans wherever possible. B. Steel deck shall conform to the properties noted on the Drawings:
C. Unless otherwise indicated or approved, fabricate deck for predetermined openings, and reinforce where required to maintain deck strength, alignment, and profile.
1. Small openings, as recommended by the deck manufacturer, may be field cut.
D. Accessories: Shop fabricated accessories, compatible with steel deck, as required to complete the Work, including, but not limited to, the following:
1. Sheet metal cants beneath flashings when required for roofing over steel deck.
2. Closures to close deck at ridges, valleys, and hips on roof deck slopes exceeding 1/2 inch per foot.
3. Column closures, end closures, Z closures, and cover plates.
E. Progress shop fabrication from "APPROVED" or "APPROVED AS NOTED" detail drawings only.
1. When detail drawings are "APPROVED AS NOTED", progress fabrication in strict accordance with notes thereon.

2. Fabrication progressed from "DISAPPROVED" or "RETURNED FOR CORRECTION" detail drawings will be rejected. The contractor shall have no claim against the State for any costs or delays due to rejection of items fabricated from "DISAPPROVED" or "RETURNED FOR CORRECTION" detail drawings.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine supporting framing and field conditions for compliance with requirements for installation tolerances and other conditions affecting performance of steel deck.
B. Do not start installation of metal deck until corresponding steel framework has been plumbed, aligned and completed and until temporary shoring, where required, has been installed. Coordinate installation sequence of metal deck with concrete encasement of steel beams.
C. Steel surfaces to which materials, provided under this Section, are to be welded, shall be free of paint, ice, water, oil, dirt, rust and other materials detrimental to welding.
D. Locate decking bundles to prevent overloading of supporting members

3.02 INSTALLATION

A. Install the Work of this Section in accordance with the manufacturer's printed instructions except where shown or specified otherwise.
    1. Welding shall comply with the AWS Code.
    2. Perform welding free of sharp points.
B. Place deck units on supporting steel framework and adjust to final position with ends bearing on supporting members and flutes in straight and true alignment through entire length of run before being permanently fastened. Do not stretch or contract side lap interlocks. Install temporary shoring before placing single span deck panels when required to meet manufacturer’s recommendations.
C. End Bearing: Install deck units over supporting framing with a minimum end bearing of 1-1/2 inches, with end joints as follows:
    1. Non-Composite Deck End Joints: Lapped 2 inches minimum.
D. Deck Fastening: Fasten deck units at ends and intermediate supports with arc spot welds (puddle welds) not less than 3/4 inch diameter, at 12 inches on centers, along the supporting members, unless more stringent requirements are indicated on the drawings or required by the fire resistance ratings indicated on the drawings. Weld the first and last deck flutes. Use welding washers for all deck lighter than 20 gage. Deck units may be fastened to steel supports 0.18 inches or less in thickness (cold-formed metal framing) with No.12-14 x 3/4 inch self-drilling fasteners at 12 inches on center at ends and intermediate supports.
E. Side lap fastening: Fasten side laps at intervals not exceeding 36 inches, using one of the following methods, unless more stringent requirements are indicated on the drawings or required by the fire resistance ratings indicated on the drawings:
    1. Mechanically fasten with self-drilling No.12 diameter or larger carbon steel screws.
    2. Mechanically button punch.
F. Perimeter Edge Fastening: Weld starting and finishing side edges in bearing to supporting members at 36 inches on centers maximum, unless more stringent requirements are indicated on the drawings or required by the fire resistance ratings indicated on the drawings.
G. Neatly field cut required openings, other than shop fabricated openings, after installation in accordance with the manufacturer's recommendations.
H. Closures: Install flexible closure strips to effectively seal underside of flutes where fluted decks extend over exterior walls and also above interior partitions where there are no ceilings below the fluted deck.

END OF SECTION

SECTION 05400 - LIGHT GAUGE METAL STUD

PART 1 - GENERAL

SCOPE

Furnish and install the following metal framing members complete with their accessories as required for the Work.
Interior Non-load Bearing Studs
Steel Stud Framing and Bracing

REQUIREMENTS

Component Design: Compute structural properties of studs in accordance with AISC "Specification for the Design of Cold- Formed Steel Structural Members".

PART 2 - PRODUCTS

System Components: With each type of metal framing required, provide manufacturer's standard steel runners (tracks), blocking, lintels, clip angles, shoes, reinforcements, fasteners, bridging, and accessories as recommended by manufacturer for application indicated, as needed to provide a complete metal framing system.

Acceptable Manufacturers:

United States Gypsum Co.
Gold Bond Bond Building Products Div., National Gypsum Co.
Chicago Metallic
Alabama Metal Industries
Super C Steel Studs, U.S. Steel

Materials and Finishes: The following are based upon U.S Gypsum Products.

Interior Partitions, Misc Framing:
2-1/2", 3-5/8", and 6" C shaped, 25 gauge steel studs, ASTM A568
U.S. Gypsum, ST25 studs, CR25 runners

Miscellaneous Framing and Suspension Systems
1-1/2 16 gauge cold rolled hanger channels
3/4" furring chanels, 20 or 25 gauge USG DWC 20, 25
Hanger Wire - minimum 12 gauge or heavier
Miscellaneous clips

Joists
6” , 25 gauge steel joists
U.S. Gypsum 60SJ20

Provide galvanized finish to all studs, joists, and metal framing components complying with ASTM A 525 for minimum G60 coating.

PART 3 - EXECUTION

ERECTION

General: Unless exceeded by the requirements below, conform to the erection procedures recommended by the manufacturer of the framing members.

INTERIOR STUD WALLS

Track: Provide continuous channel tracks as top and bottom support for studs. Secure tracks to structure as required. Provide additional fastenings and holes if necessary so that no length of runner has less than 2 fastenings. Join adjacent lengths and form corner joists by butt welding the sections together.

Studs: Space studs at 24" O.C., except space studs at 16" O.C. at walls to receive ceramic tile. Secure them to the flanges to the tracks per manufacturer's recommendation.

Prefabrication: Structural framing components may be prefabricated into panels prior to erection. Fabricate panels plumb, square, true to line and braced against racking with joints welded. Perform lifting of prefabricated panels to prevent damage or distortion.

Fastenings: Attach components bolting, or screw fasteners, as standard with manufacturer.
Wire tying of framing components is not permitted.

Bridging Clips: Furnish and weld metal bridge clips at bridging channel position through stud punch outs. Furnish sufficient quality to permit the attachment of the clips required for the material involved.

Set studs plumb, except as needed for diagonal bracing or required for non plumb walls or warped surfaces and similar requirements.

Install supplementary framing, blocking and bracing in metal framing system wherever walls or partitions are indicated to support fixtures, equipment, services, casework, heavy trim and furnishings, and similar work.

Frame Door and Window Openings with vertical studs attached to each jamb of the door frame. Install with at least one additional stud 2" from each jamb stud and connect to the jamb stud with column clips. Where door does not extend to ceiling, frame head with horizontal section of runner track attached to jamb studs with stud shoes. Install jack studs over head track and secure with stud shoes. Install stiffeners as recommended by manufacturer.

STEEL STUD FRAMING AND BRACING

General: Provide continuous framing and bracing of the type and size shown on the drawings or as recommended by the manufacturer for the specific application. Provide channel tracks as top and bottom support for studs. Secure tracks to structure as required. Provide additional fastenings and holes if necessary so that no length of runner has less than 2 fastenings. Join adjacent lengths and form corner joists by butt welding the sections together. Space studs at 24" O.C or closer as required. Secure them to the flanges to the tracks per manufacturer's recommendation.

Fastenings: Attach components welding, bolting, or screw fasteners, as standard with manufacturer. Wire tying of framing components is not permitted.

Set studs plumb, except as needed for diagonal bracing or required for non plumb walls or warped surfaces and similar requirements.

Install supplementary framing, blocking and bracing in metal framing system wherever walls or partitions are indicated to support fixtures, equipment, services, casework, heavy trim and furnishings, and similar work.

Suspended framing for gypsum ceilings: Suspend hangar channels spaced no more than 48" O.C.. Attach furring channels to hanger channels at intervals of 24" O.C. or less, assemble in accordance to manufacturer's recommendations.

END OF SECTION 05400

SECTION 05500

METAL FABRICATIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Shop fabricated steel and aluminum items.

1.02 RELATED REQUIREMENTS

A. Section 03300 - Cast-in-Place Concrete: Placement of metal fabrications in concrete.

B. Section 04810 - Unit Masonry Assemblies: Placement of metal fabrications in masonry.

C. Section 09900 - Paints and Coatings: Paint finish.

1.03 PRICE AND PAYMENT PROCEDURES

A. Components:
   1. Basis of Payment: Includes fabrication, finishing, and installation.

B. Components:

1.04 REFERENCE STANDARDS

A. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum; American Architectural Manufacturers Association; 1998.

B. AAMA 2603 - Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels; 2002.

C. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels; 2005.

D. ASTM A 36/A 36M - Standard Specification for Carbon Structural Steel; 2008.

E. ASTM A 53/A 53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2007.

F. ASTM A 123/A 123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2009.

G. ASTM A 153/A 153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.

H. ASTM A 325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength; 2009a.

I. ASTM A 325M - Standard Specification for Structural Bolts, Steel, Heat Treated 830 MPa Tensile Strength (Metric); 2009.

J. ASTM A 500/A 500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2010.

K. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2008.

L. ASTM B 221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes [Metric]; 2007.

M. SSPC-Paint 15 - Steel Joist Shop Primer; Society for Protective Coatings; 1999 (Ed. 2004).

N. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); Society for Protective Coatings; 2002 (Ed. 2004).

1.05 SUBMITTALS

A. See Section 01300 - Administrative Requirements, for submittal procedures.

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

C. Welders' Certificates: Submit certification for welders employed on the project, verifying AWS qualification within the previous 12 months.

1.06 QUALITY ASSURANCE

A. Design structures under direct supervision of a Professional _____Engineer experienced in design of this Work and licensed in Texas.

PART 2 PRODUCTS

2.01 MATERIALS - STEEL

A. Steel Sections: ASTM A 36/A 36M.

B. Steel Tubing: ASTM A 500, Grade B cold-formed structural tubing.

C. Pipe: ASTM A 53/A 53M, Grade B Schedule 40, black finish.

D. Bolts, Nuts, and Washers: ASTM A 325 (ASTM A 325M), Type 1, galvanized to ASTM A 153/A 153M where connecting galvanized components.

E. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.

F. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction.

2.02 MATERIALS - ALUMINUM

A. Extruded Aluminum: ASTM B 221 (ASTM B 221M), 6063 alloy, T6 temper.

2.03 FABRICATION

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

B. Fabricate items with joints tightly fitted and secured.

C. Continuously seal joined members by intermittent welds and plastic filler.

D. 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.

E. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.

F. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

2.04 FABRICATED ITEMS

A. Ladders: Steel; in compliance with ANSI A14.3; with mounting brackets and attachments; prime paint finish.
   1. Side Rails: 3/8 x 2 inches (9 x 50 mm) members spaced at 20 inches (500 mm).

2. Rungs: one inch (25 mm) diameter solid round bar spaced 12 inches (300 mm) on center.
3. Space rungs 7 inches (175 mm) from wall surface.

B. Telescopic Steel Columns: Steel pipe; prime paint finish.
1. Diameter: 3 inch (75 mm).

C. Bollards: Steel pipe, concrete filled, crowned cap, as detailed; prime paint finish.

D. Ledge Angles, Shelf Angles, Channels, and Plates Not Attached to Structural Framing: For support of metal decking; prime paint finish.

E. Lintels: As detailed; prime paint finish.

2.05 FINISHES - STEEL

A. Prime Painting: One coat.

B. Galvanizing of Structural Steel Members: Galvanize after fabrication to ASTM A 123/A 123M requirements.

C. Galvanizing of Non-structural Items: Galvanize after fabrication to ASTM A 123/A 123M requirements.

2.06 FINISHES - ALUMINUM

A. Exterior Aluminum Surfaces: Class I natural anodized.

B. Class I Natural Anodized Finish: AAMA 611 AA-M12C22A41 Clear anodic coating not less than 0.7 mils (0.018 mm) thick.

C. Pigmented Organic Coating System: AAMA 2603 polyester or acrylic baked enamel finish; color as scheduled.

2.07 FABRICATION TOLERANCES

A. Squareness: 1/8 inch (3 mm) maximum difference in diagonal measurements.

B. Maximum Offset Between Faces: 1/16 inch (1.5 mm).

C. Maximum Misalignment of Adjacent Members: 1/16 inch (1.5 mm).

D. Maximum Bow: 1/8 inch (3 mm) in 48 inches (1.2 m).

E. Maximum Deviation From Plane: 1/16 inch (1.5 mm) in 48 inches (1.2 m).

PART 3 EXECUTION

3.01 EXAMINATION

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

3.02 PREPARATION

A. Clean and strip primed steel items to bare metal where site welding is required.

B. Supply setting templates to the appropriate entities for steel items required to be cast into concrete or embedded in masonry.

3.03 INSTALLATION

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

B. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.

C. Obtain approval prior to site cutting or making adjustments not scheduled.

3.04 TOLERANCES

A. Maximum Variation From Plumb: 1/4 inch (6 mm) per story, non-cumulative. B. Maximum Offset From True Alignment: 1/4 inch (6 mm).

C. Maximum Out-of-Position: 1/4 inch (6 mm).

END OF
SECTION

SECTION 05500

MISCELLANEOUS METAL FABRICATIONS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes Custom Elements:
   1. Water reclaim and trench edge angles, cover plates and hinges.
   2. Mechanical and electrical equipment support frames.
   3. Tube steel awning frames attached to the building.
   4. Bollards.
   5. Angle Iron corner protection on the Refuse Screen.
   6. Steel Gates at Vacuum Screens.
   7. Miscellaneous steel as indicated on the Drawings.
   8. Cast Metal Trench Covers
B. Related Sections:
   1. Section 01450, Quality Control: Weld inspections.
   2. Section 03300, Cast-In-Place Concrete: Inserts and anchors for concrete substrates.
   3. Section 03600, Grouts: Grout and anchoring cement.
   4. Section 05120, Structural Steel: Structural steel framing.
   5. Section 09900, Painting: Field painting metal fabrications.

1.02 REQUIREMENTS

A. Design Requirements:
   1. Design Manual: AISC, Manual of Steel Construction, Ninth Edition.
B. Submittals:
   1. Submit product data for factory fabricated items.
   2. Submit shop drawings for custom fabricated framing items, handrails, and railings.
C. Quality Assurance:
   1. Use welders certified by AWS for structural welding.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Substitute Manufacturers:
   1. Submit substitution requests prior to Bid Date.
   2. Comply with requirements in Section 01600, Product Requirements.

2.02 MATERIALS

A. Metal Framing Materials:
   1. Steel Plates, Shapes, and Bars: ASTM A 36.
   2. Steel Round, Square, and Rectangular Tubing: ASTM A 501, Fy = 36 KSI.
   3. Steel Pipe: ASTM A 53, Grade B, Schedule 40, Fy = 35 KSI, Type S.
B. Connectors and Primers:
   1. Standard Bolts: ASTM A 307, Grade A.
   2. High Strength Bolts: ASTM A 325, Type N, F, or SC.
   3. Welding Electrodes: E70XX.
   4. Concrete Anchors: Sup-R-Stud by Diamond, Inc., Taper Bolt by Gunnebo Fastening Corporation, Kwik-Bolt II by Hilti Fastening Systems, Inc., Red Head Wedge Anchors by ITW Ramset, Rawl-Stud by Rawlplug.
   5. Interior Steel Primer: Fabricator's standard rust inhibitive.
   6. Touch-Up Galvanized Steel Primer: Zinc rich steel primer.
C. Trench Covers
   Neenah R-4999 Series, Type D, Solid Checkered Face, bolted connection, with frame, for 8 inch wide trench

2.03 FABRICATION

A. Fabrication Requirements:
   1. Comply with AISC, Manual of Steel Construction, Ninth Edition including Specification for the Design, Fabrication and Erection of Structural Steel for Buildings.
   2. Comply with AISC, Specifications for Architecturally Exposed Structural Steel.
   3. Use welds for shop connections and bolts for field connections, except where indicated otherwise on Drawings.
   4. Preassemble items in shop to greatest extent possible to minimize field splicing and assembly.
   5. Disassemble units only as necessary for shipping and handling limitation.
   6. Clearly mark units for site reassembly and installation.

B. Shop Fabrication of Welded Connections:
   1. Comply with ANSI/AWS D1.1 Structural Welding Code-Steel.
   2. Provide 3/16 inch minimum fillet welds and full penetration butt welds, unless indicated otherwise on Drawings.
   3. Grind exposed welds smooth.
   4. Shop weld bases and bearing plates to steel columns and framing members where indicated on Drawings for anchorage to concrete substrates.

C. Shop Fabrication of Bolted Connections:
   1. Fabricate anchor bolts for connecting to substrates.
   2. Drill bolt holes in steel 1/16 inch larger than nominal bolt diameter.
   3. Drill anchor bolt holes in concrete 5/16 inch larger than nominal bolt diameter.
   4. Do not thread bolts at shear plane.
   5. Install friction bolts free of paint at the friction bearing surfaces.

D. Shop Finishing, General:
   1. Shop clean steel to remove rust by Hand Tool Cleaning SR-2, Power Tool Cleaning SP-3, or Brush-Off Blast Cleaning SP-7 as published by Steel Structures Painting Council (SSPC).
   2. Remove oil and other contaminating material by Solvent Cleaning SP-1 as published by Steel Structures Painting Council (SSPC).
   3. Hot-dip galvanize, bonderize, and prime paint steel exposed to unheated concrete, masonry, or weather after fabrication with 2.0 mil minimum dry film thickness for each coat.
   4. Apply rust inhibitive metal primer to interior steel items after fabrication with 2.0 mil minimum dry film thickness for each coat.
   5. Apply two coats of prime paint to surfaces concealed after assembly.

E. Shop Finishing, Exterior Façade Elements:
   1. At exposed exterior metal façade elements including trellis's, sloping and flat canopy structures, powder coat finish.

F. Shop Weld and Bolt Inspections:
   1. Comply with requirements in Section 01450, Quality Control.
   2. Employ a testing laboratory to provide Uniform Building Code required shop inspections.

PART 3 EXECUTION

3.01 PERFORMANCE

A. Preparation:
   1. Erect temporary shoring and bracing needed for structural support for metal fabrications until structure is complete.
   2. Clean the bottom surface of base and bearing plates.
   3. Clean contact surface of structural steel prior to assembly.
   4. Furnish anchors and inserts to support metal fabrications anchored in concrete or masonry assemblies.

B. Installation of Metal Fabrications:
   1. Erect steel members in accordance with Drawings, reviewed shop drawings, AISC Manual of Steel Construction.
   2. Perform required cutting, drilling, and fitting.
   3. Set work accurately in location, alignment, and elevation, measured from established lines and levels.
   4. Align members to tolerance of one in 300 and within 1/2 inch from design dimension.

5. Install structural members to lines and elevations indicated on shop drawings.
6. Adjust location of structural members to required tolerances prior to permanent fastening.
7. Fill steel bollards with concrete and trowel top to 1/2 inch high smooth convex surface.

C. Installation of Anchor Bolts:
1. Anchor structural steel to installed concrete substrates with concrete anchors.
2. Set anchor bolts in fresh concrete with double nuts and 1/2 inch thick plywood or oriented strand board templates.
3. Drill holes in cured concrete and secure anchor bolts in anchoring cement.

D. Installation of Field Bolted Connections:
1. Install bolted connections as detailed, using not less than 5/8 inch diameter bolts.
2. Install 3/4 inch diameter A 325 N high strength bolts with threads allowed in bearing area, unless indicated otherwise on Drawings.
3. Install load indicator washers on high strength bolts, ASTM A325 F.

E. Field Finishing:
1. Remove dust and dirt prior to field finishing exposed structural steel.
2. Apply one coat of touch-up galvanized steel primer to damaged galvanized exterior steel.
3. Apply one coat of interior steel primer to damaged primed interior steel.

3.02 COMPLETION

A. Field Bolt and Weld Inspections:
1. Comply with requirements in Section 01450, Quality Control.
2. Owner will pay Independent Testing Laboratory to provide Uniform Building Code required field inspections of bolts and welds.

B. Removal of Temporary Shoring and Bracing:
1. Remove temporary shoring and bracing when structural system is complete.

C. Adjusting and Cleaning:
1. Replace damaged and defective metal fabrications.
2. Adjust alignment when members are installed more than 1/2 inch from design dimension.
3. Remove exposed pits, bumps, and irregular weld surfaces by grinding smooth and applying zinc rich steel primer.
4. Repair rejected field welds and bolted connections.
5. Touch up damaged shop primer on exposed steel after installation.
6. Clean field welds, bolted connections, and abraded areas, and apply same type primer paint as used in shop.
7. Apply touch-up galvanized steel primer to exposed exterior steel where galvanized finish is damaged.
8. Remove dirt and oil from metal items scheduled for field finishing.

END OF SECTION

SECTION 06100

ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Minor framing, blocking, and grounds.

PART 2 PRODUCTS

2.01 MATERIALS

A. Lumber. Manufactured, graded and grade-marked in compliance with the following grading rules:
   1. Grading shall comply with latest editions and supplements of the American Lumber Standards and the Lumber Associations or agencies which are applicable, including the West Coast Lumberman's Assoc., Western Wood Products Assoc., Douglas Fir Plywood Assoc. and Southern Pine Inspection Bureau.

B. Plywood: U.S. Department of Commerce, Product Standard PS1, Structural 1, C-D grade, graded and grade-marked by the American Plywood Association.

C. Pressure Treated Plywood: ¾-inch thickness Osmose Advance Guard Wood Preservative
   1. Pressure Treat in conformance with the Advance Guard Treating Manual.
   2. Species: Douglas Fire, Hem-Fire, or approved equivalent.

D. Treated Lumber: plates and cant strips: #1 Southern Yellow Pine, pressure treated in accordance with Ameriacn Wood-Preserver's Association (AWPA) Standard C1.

E. Bolts: ASTM A307, Grade A, square or hexagonal head. All heads and nuts bearing on wood shall be fitted with washers.
   1. Bolts, nuts and washers for use in locations subject to moisture, for outside use or in portions of the structure which are not completely enclosed, or elsewhere as shown: Galvanize in compliance with ASTM A153.

F. Nails – (common: FS FF-N-105. Size and type as required for the purpose intended.

G. Special purpose fasteners: All fasteners including, nails and screws, in direct contact with any pressure treated wood products shall be hot-dipped galvanized or stainless steel.

H. Timber connectors and other fasteners: Refer to Drawings.

I. Miscellaneous materials: As necessary to complete this work. J. Lumber Seasoning:
   1. Before incorporation into the work, allow lumber to attain a state of equilibrium with the local atmosphere.
   2. If wood treatment specifications state the maximum percentage of moisture con-tent at the time of treatment, comply with those requirements.

PART 3 EXECUTION

3.01 INSTALLATION

A. Workmanship: Perform Work in accordance with the best standards of practice. Accurately saw-cut and fit lumber into the respective locations, true to line, grade, and level, as shown or required, and permanently secure with nails, lag screws, bolts, hangers, or other fastenings to make the work substantial and rigid in all parts and connections.

B. Connections: Make connections between members tight, accurate and square. Place fastenings without splitting wood; predrill when required. Drill bolt holes same size as bolt diameter.
   1. Drill holes for lag screws same as thread root diameter; and counterbore, same depth and diameter as shank. Turn lag screws into place; do not drive. Provide bolts and lag screws with washers under every head and nut bearing on wood.

C. Attach wood nailing strips, plates, blocking, etc., as shown. Bolt attach with galvanized washers nailng strips and blocking in connection with metal, masonry and concrete.

END OF SECTION

SECTION 06400

MILLWORK

PART 1 GENERAL

1.01 SECTION INCLUDES
A. Provide and install shop-fabricated millwork and counter tops/splashes.
B. Provide Flush Overlay style plastic laminate faced Millwork constructed with wood veneer core MDF panels with matching interior melamine surfaces, in accordance with the Drawings.

1.02 SUBMITTALS
A. Millwork Shop Drawings: Indicate Millwork locations, scale plans, elevations, clearances required, materials, finishes, accessories, filler panels and anchorage details to countertop and walls, backsplash profile, cutouts for plumbing fixtures, and methods of joining.
B. Samples: Submit samples to the Owner's Representative for approval:
   1. 12" x 12" of veneer-core MDF.
   2. Plastic laminate patterns and colors in manufacturer's standard chip size.
   3. Edge banding materials in colors matching as closely as possible plastic laminates specified.
C. Product literature
   1. Provide for each hardware item specified.
   2. Clearly mark each selection with arrows to indicate selections on the page.

1.03 REFERENCES
A. American Woodworkers Institute (AWI), Custom Grade – Finish/quality standards.

1.04 QUALITY ASSURANCE
A. Comply with AWI standards for Custom grade, products and finishes specified.
B. Manufacturer's Qualification, Manufacturer shall:
   1. Be able to demonstrate a minimum of 5 years of experience in the woodworking profession.
   2. Have shop drawing capability in house.
   3. Have installation capability in-house.

1.05 PROJECT CONDITIONS

A. Field Conditions: Field verify all measurements. Field-measure cabinets and confirm all dimensions on shop drawings before fabrication.
B. Verify Millwork can be installed in compliance with the original design and referenced standards.

PART 2 - PRODUCTS

2.01 COUNTERTOPS & SPLASHES
A. Plastic Laminate Manufacturers:
   1. WilsonArt or Nevamar Decorative Surfaces.
   2. Or Architect approved equivalent.
B. Plastic Laminate Materials shall:
   1. be equal to NEMA No. LD-3, 0.050 inch thickness, horizontal general purpose for horizontal surfaces, and 0.028 inch thickness vertical general purpose for vertical purposes.
   2. meet ANSI A161.2, Performance Standards for Fabricated High Pressure Decorative Laminate Countertops.
C. Colors/finishes:
   M-1 Melamine Black
   M-2 Wilsonart 1595-60 Black
D. Color Coordination: Edge banding, counter edges, plastic laminate and melamine materials to be color-coordinated, see individual products.

2.03 CABINET REQUIREMENTS

A. General Panel Material: MDF veneer core, 3\4' thickness, Select Core" by Columbia Forest Products with matching melamine faces inside, plastic laminate faces on the outside, 3mm edge-banding 4 edges on doors, drawers front faces.
B. Manufacturer: Veneer Core MDF LamMates by Nevamar www.laminates.com, with plastic laminate-matching surface one side, or WilsonArt equivalent, or Architect approved equivalent.
C. Edge Banding: 3mm, color to match plastic laminate selected from manufacturer's standard colors. D. Millwork Type: Euro Style, no face frame, flush doors in accordance with the Drawings and approved Shop Drawings.
E. Base cabinet end panels stop 3-1/2 inches above the floor supported by 3/4 inch plywood or similar board.
F. Backs: MDF, 1/4 inch thick melamine faced. Securely glue and staple to ends, installation cleats and shelves in not adjustable.
G. Installation Cleats: Solid lumber, ¾ x 3-1/2 inch S4S, "C" kiln dried jointed or solid lumber, running full length of wall and base cabinet at top and bottom.
H. Wall Cabinet Bottoms: ¾- inch thick Veneer Core MDF, 3mm PVC edge banded front edge, let into dado and hot glued approved equivalent. Bottoms let into ends, installation cleats, and front frames, glued and stapled.
I. Shelves: ¾- inch thick Veneer Core MDF, Melamine faced one side, plastic laminate top side, 3mm edge banded (4), hot glued.
J. Doors: ¾- inch thick Veneer Core MDF, Flush doors, square edges with 3mm edge banded edges and hot- glued, plastic laminated face, melamine interior.
K. Base Bottoms: Plywood ¾- inch thick Veneer Core MDF with square edges with 3mm PVC edge banded front edge, let into dado and hot-glued. Bottoms let into end panels, front rails, and installation cleats supported by 3/4 inch thick pressure treated solid lumber braces at 24 inches o.c. running front to rear of cabinet.
L. Toe Kicks: 3/4 inch pressure treated solid lumber or approved equivalent.
M. Drawers:
    1 Drawer box shall be four sided with finish drawer front then attached to drawer box.
    2. Sides, backs & secondary front minimum of 11/16 inch "C" grade solid red oak lumber.
    3. Dado backs into sides, provide 1/4 inch thickness melamine drawer bottoms or approved equal, let into front, sides, back and front. All drawer parts glued, and stapled together.
    4. Provide pair of metal drawer slides at each drawer. Attach guides at rear to 3/4 inch solid lumber hanging rail with additional cleats as required and in accordance with the manufacturers installation instructions.
N. Fillers and Molding: Provide as needed. Paint finish to match cabinets fronts.

2.04 HARDWARE

A. Pulls- Mockett DP7A-26D, 3" Bow drawer pull, Satin chrome finish. www.mockett.com Phone 800-523-1269
B. Drawer Guides and Shelf Pull Out Guides:
    1. 50 kg-rated capacity side-mounted metal drawer slides.
    2. Blum Blumotion Series or approved Equivalent, full extension.
C. Hinges: Blum Clip Top Soft Close Hinges
D. Locks where indicated on the Drawings:
    1. Doors: Hafele 235.03.657 Cam Lock with Elbow Catch Hafele 245.75.000 on adjacent door where doors are paired.
    2. Drawers Hafele 235.03.755 Cam Lock
    3. Provide manufacturers recommended strike.
E. Adjustable shelf Brackets: 1/4" nickel plated spoon clips for pre-drilled holes
F. Fixed Shelf Brackets: Mockett SWS5 Metallic Silver
G. Table leg for Vanities: Mockett TLWH27 Crystallite Chrome, 27-1/8" tall Whitley table leg. .
    www.mockett.com Phone 800-523-1269

PART 3 - EXECUTION

3.01 FABRICATION

A. Counter Tops and Splashes
   1. Field applied plastic laminate on 3/4" water resistant high-density particle board. Seal perimeter of countertop edges and sink cut outs. Provide continuous countertops, hairline joints at corners and at sink where required by the size of the countertop. Self-edge countertops, 1-1/4" edge.
   2. Splash shall be as indicated on the drawings, with plastic laminate bonded to substrate using contact cement. At splash terminations, scribe to wall surface and sealant with paint-able white latex sealant. Seal counter-level metal inside corner with clear silicone sealant, remove residual sealant at final cleaning.

B. Fabricate Base and Upper Cabinets to dimensions and profiles indicated. Units assembled in the shop shall be as large as is practical to minimize field cutting and joining. Dadoes, rabbettes, mortises, and tenons shall be stopped at visible faces and all joints shall be glued and blind nailed (or screwed). Plain butt joints without an acceptable device for preventing separation will not be accepted.

C. Exposed screws inside of cabinets and drawers are unacceptable and shall be placed only when necessary and carefully and evenly spaced. Where exposed screws are placed in areas not easily subject to wear and tear, plastic screw caps should be employed. In higher maintenance areas, such as drawers, exposed screws shall be stainless or chrome and installed using finishing washers.

D. Coordinate with work of mechanical and electrical.

3.02 INSTALLATION

A. Set and secure Millwork in place rigid, plumb, and level.
B. Provide accurate cutouts for plumbing fixtures and pipes and for electrical outlets in splash.
C. Use concealed joint fasteners to align and secure adjoining cabinet units and counter tops.
D. Carefully scribe Millwork which is against other building materials, leaving gaps of 1/32 inch. E. Secure cabinets using screws through integral or attached cleats into studs.

3.03 FINAL CLEANING/TOUCHUP

A. Clean drawers and cabinets interiors thoroughly.
B. Wipe down cabinet faces.
C. Touch-up finishes as required.
D. Adjust moving or operating parts to function smoothly and correctly.
E. Remove all debris from installation.
F. Remove excess sealant at plastic laminate intersections.

END OF SECTION

SECTION 07200

INSULATION

PART 1 - GENERAL

1.01 SECTION INCLUDES
- A. Batt Insulation at walls and where indicated.
- B. Rigid Insulation roof insulation, see Section 07560-Thermoplastic Roofing.
- C. Loose-fill masonry insulation at 8" concrete masonry walls where indicated.

1.02 QUALITY CONTROL
- A. Engage a company using worker who are trained and experienced in necessary craft and familiar with requirements and methods needed for proper performance of Work of this section.
- B. Surface Burning Characteristics of Exposed Rigid Insulation: When tested in accordance with ASTM E-84.
  1. Flame Spread: No greater than 25.
  2. Smoke Developed: No greater than 50.

PART 2 - PRODUCTS

2.01 INSULATION MATERIALS
- A. Foil-faced Insulation: ASTM C665, preformed glass fiber batt.
  1. CertainTeed or equivalent Tabless Speedy R Batts, R-30
- B. Rigid board roof insulation: Provide thermal break polyisocyranurate (polyiso) foam insulation blocks to separate the outer skin from the structural framework. Use roofing manufacturers' standard.
- C. Perlite loose-fill insulation.

2.02 ACCESSORIES
- A. Provide necessary accessories for proper installation of materials.

PART 3 – EXECUTION

3.01 INSTALLATION – GENERAL
- A. Comply with manufacturer's instructions for particular conditions of installation in each case.
- B. Batts in wall cavities or against roof deck.
- C. Over metal roof decks install insulation directly to the roof deck with specified anchor system see Section 07560 Thermoplastic Membrane Roofing.
- D. In masonry cells, fill all open cells and voids in hollow concrete masonry walls where shown on drawings.

3.03 INSTALLATION – CEILING BATTS
- A. Maintain vapor retarder integrity by tightly abutting adjacent insulation.
- B. Repair punctures or tears in vapor retarder facing by taping. Follow tape Manufacturer's application recommendations.
- C. Install to bottom of steel deck using standard equipment associated with this trade.
- D. Cut and fit tightly around obstructions and fill voids with insulation.
- E. Place insulation between pipes and exterior side of assembly. Leave no gap or voids.

3.04 INSTALLATION – PERLITE LOOSE-FILL INSULATION
- A. The insulation shall be installed in the following locations:
  a. In the cores of exterior walls as indicated.
  b. In the cores of interior walls as indicated.
- B. The insulation shall be poured directly (or via a hopper) in the top of the wall at any convenient interval (not in excess of 20 ft). Wall sections under doors and windows shall be filled before sills are placed. Wall sections under concrete gap fill (top of wall condition) shall be filled before concrete gaps are filled. Rodding or tamping is not necessary.
- C. All holes and opening in the wall through which insulation can escape shall be permanently sealed or caulked prior to installation of the insulation.
- D. Insulation must remain dry. Cavity caps or other suitable means should be used as the work progresses to insure that the insulation is protected from inclement weather.

END OF SECTION

SECTION 07560

THERMOPLASTIC MEMBRANE ROOFING

PART 1 GENERAL

1.01 SUMMARY
- A. Section Includes:
  1. Vapor retarder.
  2. Rigid roof insulation.
  3. Tapered edge and cant insulation.
  5. Thermoplastic roofing membrane.
  6. Fasteners, termination strips, aluminum extrusion drip edges, and adhesive.
  7. Walking pads [between roof hatch and roof equipment.]
- B. Related Sections:
  1. Section 07600, Flashing and Sheet Metal: Metal downspouts, scuppers, counter flashing, parapet coping, and pitch pans.
  2. Section 07720 Roof Accessories
  2. Division 15000, Plumbing: Roof vents; Mechanical Exhaust Fans and HVAC equipment.

1.02 REQUIREMENTS
- A. Roof Design Requirements:
  1. U.L Rating: Class A.
  2. Wind Resistance: Factory Mutual I-90.
- B. Submittals:
  1. Submit product data for major roof system components.
  2. System components are to be of one manufacturer.
  3. Submit copy of manufacturer's standard 20 year warranty, with liability limited to original cost of installed roof. See Section 01030 Alternates for additional requirements.
  4. Submit copy of installer's 2 year watertight roofing and flashing warranty.
- C. Quality Assurance:
  1. Acceptable Applicators: Approved by membrane manufacturer.

PART 2 PRODUCTS

2.01 MANUFACTURERS
- A. Acceptable manufacturers
  1.John Manville, Dura-Last, 60 mil, TPO (Thermoplastic Polyolefin)
  2. Carlise Sure-Weld 60 mil, TPO (Thermoplastic Polyolefin)
  3. Or approved equal
- B. Roof Insulation Manufacturers:
  1. Johns Manville, R-max, Inc.
  2. Carlisle Syn Tec polyisocyanurate

2.02 COMPONENTS
- A. Roof Insulation System:
  1. Manufacturer: Rmax Inc, Dallas Texas.
  2. Type: FA-3
  3. Base layer insulation; rigid boards, minimum density 2 lbs./cu. Ft. complying with ASTM C-1289, Type II, Class 1, Grade 2, ASTM C-1330 and ASTM D-1622, polyisocyanurate with fiberglass perforated facer sheet, 18 psi compressive strength complying with ASTM D-1621. Dimenisonal stability shall comply with ASTM D-2126-87. Provide 3” x 48” x 96: size. R-value 19 minimum (15 yr. time weighted average).
  2. Top layer coverboard: ½” x 48” x 48” wood fiberboard as approved by membrane manufacturer.
     a. Approved wood fiber insulation
        1). High density wood fiberboard.
        2). Tapered insulation boards (Fesco Board) for saddles and crickets’ sloped ½” per ft
- B. Roof Membrane Components:

1. Membrane Roofing: John Manville UltraGard SRT60 mil Fully Adheared Thermo Plastic (TPO) Membrane – Adhesive Applied

2. Base Flashing: John Manville UltraGard SRT45 FR l Thermo Plastic Membrane.
3. Termination Bar: 3/32-inch thick used to terminate adhered, reinforced membrane base flashings.

C. Roof Walking Pads:
   1. Type: Neoprene, rubber, or laminated asphaltic roof protection pads.
   2. Thickness: 1/2 inch minimum.
   3. Size: 12 by 24 inches minimum to 36 by 72 inches maximum.
   4. Acceptable Walking Pads: Traffic Pads by Conglas, J-Walk (12 by 24) by Manville.

PART 3 EXECUTION

3.01 PERFORMANCE

A. Examination:
   1. Verify layout of Work prior to beginning installation.
   2. Examine substrate before beginning installation for adequate anchorage, drainage, foreign materials, moisture and unevenness which would prevent proper roof application.
   3. Verify that Work of other trades that penetrate roof have been completed.
   4. Notify Contractor of unsatisfactory conditions.
   5. Beginning of Work constitutes acceptance of existing conditions by installer.

B. Preparation:
   1. Protect paving and building walls adjacent to hoist and kettle prior to starting Work.
   2. Lap suitable protection minimum of 6 inches.
   3. Secure protection against wind.
   4. Leave protection in place for duration of roof installation.
   5. Dry and broom clean surface before beginning Work.

C. Installation of Insulation:
   1. Lay insulation board on prepared deck, staggering joints no less than 12 inches.
   2. Secure boards with Utrafast screws (John Manville) or equivalent manufacturer recommended fastener, and plates at minimum rate of one per 2.67 square feet.
   3. Secure FesCant (John Manville)) or equivalent manufacturer approved tapered insulation at all vertical intersections with hot asphalt.

D. Installation of Roof Membrane:
   1. General:
      a. Install TPO roofing with welded hot air welding.
      b. Use hand-held welding machines or walk-behinds.
      c. After seaming, check for integrity with blunt-ended probe. Any openings or fishmouths shall be repaired with Do not undertake more TPO roofing each day than can be completed within the same day.
      d. At end of day, edge seal finished portion of roofing system. e. Remove edge seal prior to start of next days Work.
   2. Application:
      a. Start at low point, install per manufacturer's recommendations.
      b. Undertake roofing Work in dry weather only.
      c. Repair fishmouths, wrinkles, tears, buckles or other imperfections or damage by installation of an additional layer of felt set into hot bitumen. Lay full width under each felt layer.

E. Installation of Base Flashing:
   1. Install Dyna Flex base flashing per manufacturer's flashing details.
   2. Extend flashing up to coping nailer or termination bar.

3.02 COMPLETION

A. Adjusting, Cleaning, and Protecting:
   1. Repair defective felts, flashings, and cap sheets.
   2. Remove excess adhesive from adjacent finished surfaces.
   3. Remove excess materials from the site.
   4. Protect membrane assembly from exposure to construction traffic until Substantial Completion.

END OF SECTION

SECTION 07600

FLASHING AND SHEET METAL

PART 1 GENERAL

1.01 SUMMARY
- A. Provide flashing and sheet metal including parapet caps, flashing over metal panels, and as detailed on the Drawings.
- B. Provide welded mechanical curbs for mechanical equipment.

1.02 SUBMITTALS
- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Shop Drawings: Submit shop drawings indicating material characteristics, details of construction, connections, and relationship with adjacent construction.
- C. Samples: Submit two representative samples of each material specified indicating visual characteristics and finish. Include range samples if variation of finish is anticipated.

PART 2 PRODUCTS

2.01 MATERIALS
- A. Flashing and Sheet Metal:
  1. Coping Caps
  2. Scuppers, Leader Heads and Downspouts.
  4. Metal: Paint Grip Galvanized Sheet Metal
  5. Flexible Sheet Membrane Flashing: Nonreinforced flexible black elastic sheet, 50 to 65 mils thick, synthetic rubber.
- B. Auxiliary Materials:
  1. Solder compatible with metal.
  2. Bituminous isolation coating.
  3. Mastic and elastomeric sealants.
  4. Epoxy seam sealer.
  5. Rosin-sized building paper slip sheet.
  6. Polyethylene underlayment.
  7. Reglets and metal accessories.
  8. Gutter and conductor head guards.
  9. Asphaltic roofing cement.

2.02 SCUPPERS, CONDUCTOR HEADS, AND DOWNSPOUTS, EXTERIOR
- A. Smooth rectangular, paint grip galvanized.
- B. Size and Configuration: Per Drawings
- C. Gauge: 24 Gauge minimum.
- D. Downspouts will terminate into storm drain hubs per Civil Drawings.

2.03 COPING CAPS, EXTERIOR
- A. Paint grip galvanized.
- B. Size and Configuration: Per Drawings
- C. Gauge: 24 Gauge minimum.

2.04 LOUVERS
- A. Paint grip galvanized.
- B. Size and Configuration: Per Drawings
- C. Gauge: 20 Gauge minimum

2.05 ACCESSORIES
- A. Fasteners: Galvanized steel.

B. Gutter and Downspout Anchorage Devices: SMACNA requirements.
C. Gutter Supports: Spikes and ferrules. Locate one at each rafter end, but not less than 24 inches on center.
D. Downspout Supports: Straps, minimum four per leader, concealed fasteners.

2.05 FABRICATION

A. Form components true to shape, accurate in size, square, and free from distortion or defects.
B. Form pieces in longest practical lengths.
C. Mechanical Curbs: Fabricate mechanical equipment curbs for existing and re-located mechanical equipment in accordance with SMACNA.
D. Louvers
   1. Fabricate in accordance with SMACNA Plate 103, Fig. A
   2. Form with square frame and level louvers.
   3. Provide sill flash
   4. Exposed joints shall me made by riveting or welding. Junctions at corners shall be mitered. All joints must be made water tight.
   5. Lover blades shall be pitched at 45 degree angle. Provide stiffener bar to connect blades

PART 3 EXECUTION

3.01 INSTALLATION

A. Follow recommendations of SMACNA Sheet Metal Manual. Allow for expansion. Isolate dissimilar materials.
B. 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.
C. Restore damaged components and finishes. Clean and protect work from damage. D. Provide for thermal movement of sheet metal.
E. Provide dielectric protection in areas where dissimilar metals are adjacent to each other.
F. Downspout Supports: Straps, minimum four (4) per leader, concealed fasteners.
G. Flashing: Install flashing where shown on the Drawings.
H. Install louvers level and square. Anchor inside of openings using 2” x 2” x 1/8” galvanized brake angles full length of head, sill, and jambs.

END OF SECTION

SECTION 07720

ROOF ACCESSORIES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Roof access hatches.
   2. Ladder extension safety posts.
   3. Mechanical curbs.
   4. Skylights

B. Related Sections:
   1. Section 06100, Pressure Treated Wood Blocking.
   2. Section 07600, Flashing and Sheet Metal
   3. Section 07900, Joint Sealers.
   4. Section 09900, Painting: Field painting roof hatches and roof smoke vent hatches.
   5. Section 05500, Metal Fabrications: Roof Hatch ladder

1.02 REQUIREMENTS

A. Submittals:

1. Submit product data for:
   a. Manufactured equipment curbs
   b. Roof access hatches
   c. Skylights

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Substitute Manufacturers:
   1. Submit substitution requests prior to Bid Date.
   2. Comply with requirements in Section 01600, Product Requirements.

2.02 ROOF HATCH

A. Option 1: Steel Roof Access Hatches:
   1. Fixed Wall Ladder Hatch Opening: 36 by 36 inches.
   2. Minimum Wall and Top Insulation Thickness: 1 inch.
   3. Roof Curb and Lid: Galvanized and primed steel with bottom flange, wall counter flashing, and lined and insulated lid.
   4. Minimum Lid Hardware: Pivot hinges, padlock hasps, handles, spring latch, spring operators, hold open, and air gasket.
   5. Acceptable Fixed Wall Ladder Hatches: RBS by Inryco/Milcor, 6-802 by Babcock Davis, RH-GS14-3036-00 by O'Keefe's, Inc., PLH-G by Precision Stair Corp.

B. Option 2: Aluminum Roof Access Hatches:
   1. Fixed Wall Ladder Hatch Opening: 36 by 36 inches.
   2. Minimum Wall and Top Insulation Thickness: 1 inch.
   3. Roof Curb and Lid: Minimum 11 gage aluminum with bottom flange, wall counterflashing, lined and insulated lid.
   4. Minimum Lid Hardware: Pivot hinges, padlock provision, handles, spring latch, lifting mechanism, hold open and air gasket.
   5. Acceptable Aluminum Roof access Hatches: F-50 by Bilco, PLH-A or PSRH by Precision Ladder, 6-804 by Babcock Davis.

2.03 SKYLIGHTS

A. 24” x 48” Insulated, Insulated double dome.
   1. 9 inch tall self flashing curb with thermal break, 3” mounting mounting flange
   2. Minimum 1 inch thick insulation at curb
   3. Dome: Double sealed polycarbonate white (translucent)
   4. Frame construction: white finished aluminum, .032” thick inner frame, .060” thick outer wall.

5. Unit shall be constructed having thermal breaks between dome and curb, and having integral condensation gutter.
7. Skylight dome surfaces shall be protected by plastic sheeting applied to the surface of the dome
6. Acceptable manufacturer:
   a. American Skylights, Arlington, Texas 76011, 800-772-7401
   b. Or approved equal

PART 3 EXECUTION

3.01 PERFORMANCE

A. Installation of Roof Curbs:
   1. Mechanical equipment curbs to be furnished by Mechanical Contractor.
   2. Roof vents and related curbs to be furnished and installed by Contractor.
B. Installation of Roof Access Hatches:
   1. Anchor roof hatch flange to roof deck with steel fasteners at flanges.
   2. Secure ladder extension to ladder rungs.
C. Installation of Skylights
   1. Anchor skylight flange to roof with steel fasteners at flanges.
   2. Do not remove protective plastic sheeting from dome surfaces until Substantial Completion
   3. Special Requirement: Skylights shall be water tested using a pressure hose after completion of the roofing and flashing. Any leaks will be considered a defect.

3.02 COMPLETION

A. Adjusting and Cleaning:
   1. Replace damaged and defective roof accessories.
   2. Touch-up damaged shop prime finished metal.
   3. Clean exposed surfaces of roof accessories prior to Substantial Completion.

END OF SECTION

SECTION 07900

JOINT SEALANTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Sealants and caulking materials indicated in joints fitting descriptions and locations listed below.

1. Joints on exterior of building and joints on interior of building in horizontal (traffic) concrete surfaces
   a. Multi-Part Pourable Urethane.
2. Exposed metal to metal joints:
   a. One-Part Non-Acid Curing Silicone.
3. Joints on interior of building in vertical and overhead surfaces, tops of partitions unless otherwise indicated, and joints subject to maximum movement of plus or minus 12.5 percent.
   a. Acrylic.
4. Non-moving joints on interior of building in vertical and overhead surfaces at perimeter of, hollow metal, and aluminum door frames; and other metal frames; gypsum drywall; and other interior locations; unless otherwise indicated:
   a. Acrylic-emulsion.
5. Joints in Toilet Rooms and other wet areas, and perimeter of hot pipes through non-fire-rated floors or walls:
   a. One-Part Mildew-Resistant Silicone.
6. Acoustical Sealant: Concealed acoustical sealed joints in interior partition construction and at perimeter of interior partition which abut other materials:
   a. Acoustical non-drying, non-hardening, non-skinning, non-staining, gunnable synthetic rubber sealant recommended for sealing interior concealed joints to reduce transmission of airborne sound.
7. Joint Seals and Fillers: Provide the following joint seals and fillers:
   a. Joint fillers in exterior concrete paving.
8. Reticulated filter foam.
   a. Cellular foam fillers for non-fire-rated interior drywall partitions.

1.02 RELATED SECTIONS

A. Section 02555 - Paving Joint Sealers: Sealants and joint fillers in concrete paving, and other site paving.

1.03 SUBMITTALS

A. Product data from each joint sealer and joint filler product required, including instructions for joint preparation and joint sealer application.
B. Samples for initial selection purposes in form of strips of actual products showing full range of color available, for each product exposed to view.
   acceptable adhesion to joint substrates.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in original unopened containers or bundles with labels informing about manufacturer, product name and designation, color, expiration period for use, pot life, curing time and mixing instructions for multi- component materials.
B. Store and handle materials in compliance with manufacturers' recommendations to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants or other causes.

1.07 PROJECT CONDITIONS

A. Environmental Conditions: Do not proceed with installation of joint sealers when ambient and substrate temperature conditions are outside the limits permitted by joint sealer manufacturers or when joint substrates are wet due to rain, frost, condensation or other causes.
B. Joint Width conditions: Do not proceed with installation of joint sealers where joint widths are less or more, than allowed by joint sealer manufacturer for application indicated.

1.08 SPECIAL PROJECT WARRANTY

A. Warranty: Provide an exterior sealant warranty signed by Contractor and Installer that the exterior sealant installation will remain weather tight or will not lose adhesion to its sealed surfaces for a period of five (5) years.

Contractor and Installer shall agree to repair or replace exterior joint sealer work that fails to stay weathertight or loses adhesion during that period.

PART 2 PRODUCTS

2.01 MATERIALS, GENERAL

A. Compatibility: Provide sealants, joint fillers and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.

B. Standard Colors: Provide color of exposed joint sealers as selected by Architect from manufacturer's standard color.

2.02 SEALANT MATERIALS

A. Multi-Part Pourable Urethane Sealant (Self Leveling Grade): One of the following:
   1. Chem-Calk 550; Bostik Construction Products Div.
   2. Vulkem 245; Mameco International, Inc.
   3. Sonolastic SL-2; Sonnebom Chemrex, Inc.
   4. Sikaflex 2c SL; Sika Corp.

B. Multi-Part Nonsag Urethane Sealant: One of the following:
   1. Chem-Calk 500; Bostik Construction Products Div.
   2. Sikaflex 2cNS; Sika Corp.
   3. Sonolastic NP2; Sonneborn Chemrex, Inc.
   4. Vulkem 227; Mameco International, Inc.

C. One-Part Non-acid Curing Silicone Sealant: One of the following:
   1. Low/Medium Modulus ± 50 Percent Movement Capability:
      a. Dow Corning 790; Dow Corning Corp.
      b. Silpruf SCS 2000; General Electric Co.
      c. Rhodorsil 5C; Rhone-Poulene Inc.
   2. Low/Medium Modulus ± 35 or ± 40 Percent Movement Capability:
      a. Dow Corning 790; Dow Corning Corp.
   3. High Modulus:
      a. Down Coming 784; Dow Corning Corp.
      b. Dow Corning 799; Dow Coming Corp.
      c. Ultraglaze SSG 4000; General Electric Co.

D. Acrylic Sealant: One of the following:
   1. PTI 738, Protective Treatments, Inc.
   2. PTI 767; Protective Treatments, Inc.
   3. Mono; Tremco, Inc.

E. Acrylic-Emulsion Sealant: One of the following:
   1. Chem-Calk 600; Bostik Construction Products Div.
   2. Sonolac; Sonneborn Chemrex, Inc.
   3. Tremco Acrylic Latex 834; Tremco, Inc.

F. One-Part Mildew-Resistant Silicone Sealant: One of the following intended for sealing interior joints with nonporous substrate and subject to in-service exposure to conditions of high humidity and temperature extremes:
   1. OmniPlus; Sonneborn Chemrex, Inc.
   2. Dow Corning 786; Dow Coming Corp.
   3. SCS 1702 Sanitary; General Electric Co.
   4. Proglaze White; Tremco, Inc.

G. Acoustical Sealant for Concealed Joints: One of the following:
   1. BA-98; Pecora Corp.
   2. Tremco Acoustical Sealant; Tremco Inc.

3. Sheetrock Acoustical Sealant; USG.

2.03 JOINT SEALANT BACKING

A. General: Provide sealant backings of material and type which are nonstaining; are compatible with joint substrates, sealants, primers and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experienced and laboratory.

B. Plastic Foam Joint Fillers: Preformed, compressible, resilient, nonwaxing, nonextruding strips of flexible nongassing plastic foam of material indicated below, nonabsorbent to water and gas; and of size, shape and density to control sealant depth and otherwise contribute to producing optimum sealant performance. Extruded or molded polystyrene is not acceptable.
   1. Extruded Polyolefin Foam: Sof Rod; Applied Extrusion Technologies, Inc.

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape as recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.04 ACCESSORIES

A. Primer: Provide type recommended by joint sealer manufacturer where required for adhesion of sealant to joint substrates indicted, as determined form preconstruction joint sealer-substrate tests and field tests.
   1. If adhesion-to-Peel (ASTM C 794) is performed successfully, use same primer used in test for project.

B. Cleaners for Nonporous Surfaces: Provide non-staining, chemical cleaners of type which are acceptable to manufacturer of sealant and sealant backing materials which are not harmful to substrates and adjacent nonporous materials and which do not leave oily residues or otherwise have a detrimental effect on sealant adhesion or in-service performance.

C. Masking Tape: Provide non-staining, non-absorbent type compatible with joint sealants and to surfaces adjacent to joints.

D. Reticulated Foam Baffles: Provide suitable PVC coated reticulated foam baffles at weep hole locations; 45 psi compressed 30 to 50 percent.

E. Open-Cell Polyurethane Joint Filler for Tops of Non-Fire Rated Gypsum Board Partitions: Provide flexible, highly compressible, open-cell polyurethane foam of not less than 1.3 lbs. per cu. ft. density and not less than 2 psi compression deflection (25%), with not more than 10% compression set for 25 hours at 50% compression; ASTM D 3574 test methods. Use Williams Products, Inc. Williams Polyurethane Foam 1320 Series, or equal.

PART 3 EXECUTION

3.01 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealers to comply with recommendations of joint sealer manufacturers.

B. Joint Priming: Prime joint substrates where indicated or where recommended by joint sealer manufacturer based on preconstruction joint sealer-substrate tests or prior experience.

C. Masking Tape: Use masking tape to prevent contact of sealant with adjoining surfaces.

3.02 INSTALLATION OF JOINT SEALERS

A. General: Comply with joint sealer manufacturers' printed installation instructions applicable to products and applications indicated, except where more stringent requirements apply.

B. Elastomeric Urethane and Silicone Sealant Installation Standard: Comply with recommendations of ASTM C 962 for use of joint sealants as applicable to materials, applications and conditions indicated.

C. Solvent-Release-Curing Acrylic and Butyl Sealant Installation Standard: Comply with requirements of ASTM C 804 for useof solvent-release-curing sealants.

D. Acrylic-Emulsion Sealant Installation Standard: Comply with requirements of ASTM C 790 for use of latex sealants.

E. Acoustical Sealant Application Standard: Comply with recommendations of ASTM C 919 for use of joint sealants in acoustical applications as applicable to materials, applications and conditions indicated.

F. Installation of Sealant Backings: Install sealant backings to provide support of sealants during application and at position required to product the cross-sectional shapes and depths of installed sealants relative to joint widths which allow optimum sealant .movement capability.
G. Install bond breaker tape between sealants and joint-fillers or back of joints where adhesions of sealant to surfaces at back of joints would result in sealant failure.
H. Installation of Sealants: Install sealant by proven techniques that result in sealant directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration and providing uniform, cross-sectional shapes and depths relative to joint widths which allow optimum sealant movement capability.
    1. Tooling of Non-sag Sealants: Immediately after sealant application and prior to time skinning or uring begins, tool sealants to form smooth, uniform beads to eliminate air pockets and to ensure contact and adhesion of sealant to joint.

3.03 JOINT FILLER INSTALLATION

A. Extend joint fillers full-width and depth of joint, and not less than 1/2" or more than 1" below finished surface where joint sealer is indicated. If no joint sealer, place top of joint filler flush with finished concrete surface. Protect top edge of joint filler during concrete placement with a metal cap or other temporary material. Remove protection after concrete has been placed on both sides of joint.
B. Furnish joint fillers in one-piece lengths for full width being placed, wherever possible.

3.04 CLEANING

A. Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and with cleaning material approved by manufacturers of joint sealers and of products in which joints occur.

END OF SECTION

SECTION 08110

STEEL DOORS AND FRAMES

PART 1 GENERAL

1.01 SECTION INCLUDES
- A. Standard galvanized steel doors with insulating cores.
- B. Standard hollow metal galvanized steel frames for steel doors.

1.02 RELATED SECTIONS
- A. Section 08710 - Door Hardware: For door hardware and weatherstripping.
- B. Section 08800 - Glazing: For glass in hollow metal steel doors
- C. Section 09250 - Gypsum Board: For spot grouting frames in gypsum board partitions.
- D. Section 09900 – Painting: For field painting primed doors and frames.

1.03 SUBMITTALS
- A. Product Data for each type of door and frame specified, including details of construction, materials, dimensions, hardware preparation, core, label compliance sound ratings, profiles and finishes.
- B. Shop Drawings showing fabrication and installation of steel doors and frames. Include details of each frame type, elevations of door design types, conditions at opening, details of construction, location and installation requirements of door and frame hardware and reinforcements, and detail of joints and connections. Show anchorage and accessory items.
- C. Door Schedule: Submit schedule of doors and frames using same reference numbers for details and openings as those on Contract Drawings.
  1. Indicate coordination of glazing frames and stops with glass and glazing requirements.

1.04 QUALITY ASSURANCE
- A. Provide doors and frames complying with ANSI/SDI 100 "Recommended Specifications for Standard Steel Doors and Frames" and as specified.

1.05 DELIVERY, STORAGE, AND HANDLING
- A. Deliver doors and frames cardboard-wrapped or crated to provide protection during transit and job storage. Provide additional protection to prevent damage to finish of factory-finished doors and frames.
- B. Inspect doors and frames on delivery for damage. Minor damages may be repaired provided refinished items match new work and are acceptable to Architect; otherwise, remove and replace damaged items as directed.
- C. Store doors and frames at building site under cover. Lace units on minimum 4-inch-high wood blocking. Avoid using non-vented plastic or canvas shelters that could create a humidity chamber. If cardboard wrappers on doors become wet, remove cartons immediately. Provide minimum 1/2-inch spaces between stacked doors to promote air circulation.

PART 2 PRODUCTS

2.01 MANUFACTURERS
- A. Subject to compliance with requirements, provide products by one of the following:

1. Steel Doors and Frames
   - a. Curries
   - b. Amweld Building Products, Inc.
   - c. Ceco Door Products
   - d. Steelcraft.

2.02 MATERIALS
- A. Hot-Rolled Steel Sheets and Strip: Commercial-quality carbon steel, pickled and oiled, complying with ASTM A 569. B. Cold-Rolled Steel Sheets; Carbon steel complying with ASTM A 366, commercial quality, ASTM A 620, drawing quality, special kilned.

C. Galvanized Steel Sheets: Zinc-coated carbon steel complying with ASTM A 526, commercial quality, or ASTM A 642, drawing quality, hot-dip galvanized according to ASTM A 525, with a 60 or G 60 coating designation, mill phosphatized.
D. Supports and Anchors: Fabricated from not less than 0.0478-inch-thick steel sheet; 0.0516-inch-thick galvanized steel where used with galvanized steel frames.
E. Inserts, Bolts, and Fasteners: Manufacturer's standard units. Where items are to be built into exterior walls, hot-dip galvanize complying with ASTM A 153, Class C or D as applicable.

2.03 DOORS

A. Steel Doors: Provide 1-3/4 inch-thick doors of materials and ASNI/SDI 100 grades and models specified below, or as indicated on Drawings or schedule:
   1. Interior Doors: Grade II, heavy-duty, Model 1, full flush design, minimum 0.0478-inch-thick cold-rolled steel galvanized sheet faces.
   2. Exterior Doors: Grade II, heavy-duty, Model 1, full flush design, minimum 0.0516-inch-thick galvanized steel sheet faces.
B. Door Louvers: Provide louvers according to SDI 111 C for interior doors where indicated, with blades or baffles formed of 0.0239-inch-thick cold-rolled steel sheet set into minimum 0.0359-inch-thick galvanized steel frame and blades.
   1. Sight-Proof Louvers: Stationary louvers constructed with inverted V-shaped or Y-shaped blades., 50% free air.

2.04 FRAMES

A. Provide metal frames for doors, transoms, sidelights, borrowed lights, and other openings, according to ANSI/SDI 100, and of types and styles as shown on Drawings and schedules. Conceal fastenings, unless otherwise indicated. Fabricate frames of minimum 0.0478-inch-thick cold-rolled galvanized steel sheet.
   1. Fabricate frames with mitered or coped corners, continuously welded construction for exterior and interior applications. Provide fully welded center seam.
B. Door Silencers: Except on weather stripped frames, drill stops to receive 3 silencers on strike jambs of single-door frames and 2 silencers on heads of double-door frames.

2.05 FABRICATION

A. Fabricate steel door and frame units to be rigid, neat in appearance, and free from defects, warp, or buckle. Where practical, fit and assemble units in manufacturer's plant. Clearly identify work that cannot be permanently factory assembled before shipment, to assure proper assembly at Project site. Comply with ASNI/SDI 100 requirements.
   1. Internal Construction: One of the following manufacturer's standard core materials according to SDI standards:
      a. Rigid polyurethane conforming to ASTM C 591. b. Rigid polystyrene conforming to ASTM C 578.
   2. Clearances: Not more than 1/8 inch at jambs and heads, except not more than ' / inch between non-fire-rated pairs of doors. Not more than 3/4 inch at bottom.
B. Fabricate exposed faces of doors and panels, including stiles and rails of non-flush units, from only cold-rolled steel sheet.
C. Tolerances: Comply with SDI 117 "Manufacturing Tolerances Standard Steel Doors and Frames".
D. Fabricate concealed stiffeners, reinforcement, edge channels, louvers and moldings from either cold-or hot-rolled steel sheet.
E. Exposed Fasteners: Unless otherwise indicated, provide countersunk flat or oval heads for exposed screws and bolts.
F. Hardware Preparation: Prepare doors and frames to receive mortised and concealed hardware according to final door hardware schedule and templates provided by hardware supplier. Comply with applicable requirements of SDI 107 and ANSI A115 Series specifications for door and frame preparation for hardware.
   1. For concealed overhead door closers, provide space, cutouts, reinforcing, and provisions for fastening in top rail of doors or head of frames, as applicable.
G. Reinforce doors and frames to receive surface-applied hardware, drilling and tapping for surface-applied hardware. Drilling and tapping for surface-applied hardware may be done at Project site.

H. Locate hardware as indicated on Shop Drawings or, if not indicated, according to the Door and Hardware Institute's (DHI) "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames.
I. Glazing Stops: Minimum 0.0359-inch-thick steel or 0.040-inch-thick aluminum.
   1. Provide screw-applied, removable, glazing beads on inside of glass, louvers, and other panels in doors.

2.06 FINISHES, GENERAL
A. Comply with NAAMM's "Metal Finishes Manual" for recommendations relative to applying and designating finishes.
B. Comply with SSPC-PA 1, "Paint Application Specification No. 1", for steel sheet finishes. C. Apply primers and organic finishes to doors and frames after fabrication.

2.07 GALVANIZED STEEL SHEET FINISHES
A. Surface Preparation: Clean surfaces with non-petroleum solvent so that surfaces are free of oil or other contaminants. After cleaning, apply a conversion coating of the type suited to the organic coating applied over it. Clean welds, mechanical connections, and abraded areas, and apply galvanizing repair paint specified below to comply with ASTM A 780.
B. Factory Priming for Field-Painted Finish: Where field painting after installation is indicated, apply air-dried primer specified below immediately after cleaning and pretreatment.
   1. Shop Primer: Zinc-dust, zinc-oxide primer paint complying with performance requirements of FS TT-P-641, Type II.

2.08 STEEL SHEET FINISHES
A. Surface Preparation: Solvent-clean surfaces to comply with SSPC-SP 1 to remove dirt, oil, grease, and other contaminants that could impair paint bond. Remove mill scale and rust, if present, from uncoated steel to comply with SSPC-SP 5 (White metal Blast Cleaning) or SSPC-SP 8 (Pickling).
B. Pretreatment: Immediately after surface preparation, apply a conversion coating of type suited to organic coating applied over it.
C. Factory Priming for Field-Painted Finish: Apply shop primer that complies with ANSI A224.1acceptance criteria, is compatible with finish paint systems indicated, and has capability to provide a sound foundation for field-applied topcoats. Apply primer immediately after surface preparation and pretreatment.

PART 3 EXECUTION

3.01 INSTALLATION

A. General: Install steel doors, frames, and accessories according to Shop Drawings, manufacturer's data, and as specified.
B. Placing Frames: Comply with provisions of SDI 105, unless otherwise indicated. Set frames accurately in position, plumbed, aligned, and braced securely until permanent- anchors are set. After wall construction is completed, remove temporary braces and spreaders, leaving surfaces smooth and undamaged.
   1. Place frames before constructing enclosing walls and ceilings.
   2. In metal-stud partitions, install at least 3 wall anchors per jamb at hinge and strike levels.
      In steel-stud partitions, attach wall anchors to studs with screws.
C. Door installation: Fit hollow-metal doors accurately in frames, within clearances specified in ANSI/SDI 100.

3.02 ADJUSTING AND CLEANING
A. Prime Coat Touchup: Immediately after erection, sand smooth any rusted or damaged areas of prime coat and apply touchup of compatible air-drying primer.
B. Protection Removal: Immediately before final inspection, remove protective wrappings from doors and frames.

END OF SECTION

SECTION 08815

FIBERGLASS DOORS AND FRAMES

PART 1 GENERAL

1.01 Scope
A. Standards for manufacturing, machining, finishing and installation of fiberglass doors unless more specifically described under other section(s).

1.02 Related work in other sections
A. Section 06100: Carpentry
B. Section 08710 Hardware
D. Section 08800: Glazing
E. Section 09900: Painting

1.03 Quality Assurances
A. All fiberglass doors shall be the products of the same manufacturer to insure uniformity of quality and appearance throughout the project.
B. The top edge of each door shall bear a quality assurance label from the manufacturer indicating the door handing and order number.

1.04 Submittals
A. Shop Drawings Submit schedules and elevations indicating door sizes, construction, swing, undercut and applicable hardware locations.
B. Product Information Submit manufacturer's product description showing compliance with specifications, finishing instructions, installation instructions, and any general recommendations the manufacturer may have for the care and maintenance of each door type.

1.05 Coordination
Contractor shall be responsible for coordination and acquiring of all necessary information from hardware manufacturers. Door supplier shall be responsible for coordinating all necessary information received by Contractor from hardware manufacturers, to facilitate door preparation for hardware installation. Contractor shall provide door supplier with two copies of hardware schedule and all necessary hardware templates. All of the above information shall be in possession of door supplier 120 days prior to desired delivery date of doors.

1.06 Delivery, Storage and Handling
A. No doors shall be delivered to the building until weatherproof storage space is available. Stack doors flat and off the floor. Protect doors from damage at all times.
B. Gel-Coated doors shall be individually wrapped in plastic bags to protect the finish from damage by contact with other doors.
C. Do not walk or place other material on top of stacked doors. Do not drag doors across one another.
D. Installer shall use all means necessary to protect doors from damage prior to, during and after installation. All damaged doors shall be repaired or replaced by Contractor at no cost to Owner.
E. Doors may be palletized at the factory in stacks of no more than 30 doors per pallet. Door edges shall be protected with heavy corner guards.

1.07 Warranty
A. All work in this Section shall be warranted (from the date of shipment) against defect in materials including the following:
1. Delamination in any degree.
2. Warp or twist of 1/4" or more in any 3'0" x 7'0" door.
3. Telegraphing of any core assembly through face to cause surface variation of 1/100" or more in a 3" span.
4. Any defect that may, in any way, impair or affect performance of the door for the purpose which it is intended.
B. Warranty Period: Fiberglass doors and frames shall be guaranteed for the life of the product against corrosion induced failure and for a period of ten (10) calendar years after the date of purchase against

defects. Doors may not be construed as being purchased any sooner than 180 days prior to Substantial Completion of the project.

C. Doors must be stored, finished, hung and maintained per manufacturer's recommendation set forth in their Warranty.

PART 2 PRODUCTS

2.01 Manufacturers

A. Listed manufacturers are believed to conform to the criteria stated for material quality standards, function and appearance. Manufacturers are still subject to meeting the requirements of this specification. Non-conforming substitutions shall not be accepted.

Oshkosh Door Company – Cor-Guard product line
Corrim
Edge Water
Or Approved Equal

2.02 Materials and Components

A. Core: Cores shall be closed cell polystyrene foam with a density of 2 pounds per square foot. Foam shall be placed into the door cavity before the door is inserted into a press.

B. Stiles and Rails: Stiles and rails shall be constructed with 2 ply solid polymers. Outside dimensions shall conform to hardware reinforcement requirements and overall door thickness of 1.75 inches. Door stiles and reinforcement selection shall be compatible with door facing material.

C. Door Face Skins: Door face skins shall consist of a Fiberglass Laminate manufactured by the Resin Transfer Molding (RTM) process. Skin thickness shall be 0.090 inches. Gel Coat and resin selection: Gel coat and resin shall be selected to withstand the installed environment. Both UV and corrosion resistance shall be considered paramount. Face sheet reinforcements shall be either type "A" or "C" glass.

D. Vision lites: These may be furnished by Door Supplier in corrosion resistant materials. The units shall be furnished either installed or as a drop in kit. Glass may be ordered directly from manufacturer.

PART 3 EXECUTION

3.01 Fabrication:

A.Fabricate all doors and accessories in strict accordance with this specification and Door Manufacturer's manufacturing specifications.

3.02 Machining and fitting:

A. All fiberglass doors shall be machined by the manufacturer or authorized manufacturer for cutouts, hinges, locks, closures and all hardware requiring routing and mortising. Doors shall be sized to allow 0.125 inches of clearance at top and each side and 5/8 inch clearance at bottom (unless specified otherwise).

3.03 Installation of Hardware

A. Contractor shall install hardware according to approved hardware schedule for proper locations.

B. Install with full threaded screw furnished by hardware manufacturer.

C. Drill proper size pilot holes for all screws.

D. Securely anchor hardware in correct position and proper alignment.

E. Adjust hardware and door for proper function and smooth operation, proper latching, without force or excessive clearance.

3.04 Finishing

A. Unfinished product shall be sanded and primed by the manufacturer and suitable for field finishing.

END OF SECTION

SECTION 08330

OVERHEAD COILING DOORS

PART 1 GENERAL

1.01 SUMMARY
A. Provide overhead coiling doors.

1.02 Related Sections:
A. Section 05500-Metal Fabrications and Section 05120 Structural Steel: Door opening jamb and head members.
B. Section 09900-Painting. Field painting.

1.03 SUBMITTALS
A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
B. Shop Drawings: Submit shop drawings indicating material characteristics, details of construction, connections, and relationship with adjacent construction. specific modifications, anchorage and installation methods, and hardware.
C. Shop Drawings shall include:
1. Indicate location of coil housing hood.
2. Height and width dimensions; and jamb conditions.
3. Opening sizes.
4. Details of slats.
5. Track, jambs, and hardware.
D. Detailed specification of construction and fabrication, gauge and type of metal; parts list; name, address, and phone number of installing distributor; and operating and maintenance instructions.

1.04 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. Qualifications: ISO 9001:2000 registered and minimum 5 years experience in producing doors of the type specified. .

PART 2 PRODUCTS

2.01 MATERIALS
A. Manufacturers: Cornell Iron Works, Inc., Crestwood Industrial Park, Mountaintop, PA 18707. Telephone: (800) 233-8366, Fax: (800) 526-0841.
B. Type: Standard service door, non-fire-rated.
C. Curtain:
1. Slat Material: .050 Aluminum
2. Total Slat Thickness: ½”
D. Design
1. Slat Profile: Flat-face slats.
2. Operation: Chain hoist or push-up operation.
3. Mounting: Behind the jambs, interior side.
4. Steel Finish: Polyester powder coating
5. Aluminum Finish: Mill finish.
6. Bottom Bar: Reinforced extruded aluminum to match curtain material.
7. Auxiliary Materials:
a. Helical torsion spring counterbalance. Provide wheel for applying and adjusting spring torque.
b. Hood for curtain and operating mechanism, 1.016 mm 0,040-inch aluminum with reinforced top and bottom edge.
c. Windlocks, end locks, jamb guides, and weatherstripping.
E. Operators:

1. Manufacturer’s standard chain hoist, manual.

F. Guides Fabricate with minimum 3/16 inch (4.76 mm) structural steel angles. Provide windlock bars of same material when windlocks are required to meet specified wind load. Top of inner and outer guide angles to be flared outwards to form bellmouth for smooth entry of curtain into guides. Provide removable guide stoppers to prevent over travel of curtain and bottom bar.

G. Weatherstripping:
   1. Bottom Bar: Replaceable, bulb-style, compressible EDPM gasket.
   2. Guides: Replaceable vinyl strip on guides sealing against fascia side of curtain.

H. Spring Balance: Oil-tempered, heat-treated steel helical torsion spring assembly designed for proper balance of door to ensure that maximum effort to operate will not exceed 25 lbs (110 N).

I. Locking: Bottom bar locking device from coil or fascia side of curtain. Padlockable chain keeper on guide, padlocks by Owners.

J. Operation: Provide manufacturer’s standard chain hoist operator with endless steel chain, chain 0ocked wheel and guard, geared reduction unit, and chain keeper secured to guide.

K. At Doors 6’ wide and under, provide Manual Push-up type operator, with lift handles on bottom bar.

PART 3 EXECUTION

3.1 INSTALLATION

A. Examine substrates upon which work will be installed and verify conditions are in accordance with approved shop drawings. . Coordinate with responsible entity to perform corrective work on unsatisfactory substrates.

B. Commencement of work by installer is acceptance of substrate, supports and accessories.

C. Install materials and systems in accordance with manufacturer's instructions and approved submittals.

D. Install materials and systems in proper relation with adjacent construction and with uniform appearance. Coordinate with responsible entity to perform corrective work on unsatisfactory substrates

E. Install assemblies complete with all hardware, anchors, inserts, weather-stripping, and related elements of the Work

F. Test and adjust operation.

G. Provide weather-stripping and wind-locks for doors installed in exterior walls and at air-conditioned spaces.

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

3.2 CLEANING

A. Clean surfaces soiled by work as recommended by manufacturer.

B. Remove surplus materials and debris from the site.

3.3 DEMONSTRATION:

A. Demonstrate proper operation to Owner's Representative.

B. Instruct Owner's Representative in maintenance procedures.

END OF SECTION

SECTION 08410

ALUMINUM WINDOWS AND STOREFRONTS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
1. Storefront wall framing systems.
2. Storefront Door
B. Related Sections:
1. Section 07900, Joint Sealers: Sealant materials at perimeter of framing.
2. Section 08800, Glazing: Glass and glazing sealants.
3. Section 08710, Hardware

1.02 SUBMITTALS

A. General: Prepare, review, approve, and submit specified submittals in accordance with “Conditions of the Contract” and Division 1 Submittals Sections. Product data, shop drawings, samples, and similar submittals are defined in “Conditions of the Contract.”
B. Submit shop drawings with elevations, dimensions, details, hardware, and glazing.
C. Submit Engineering for window wind loads for large scale expanses of glass. Include all connections required.

1.03 SYSTEM DESCRIPTION

A. Window Wall System Performance Requirements:
1. Uniform Load: A static air design load of 40 psf shall be applied in the positive and negative direction in accordance with ASTM E 330. There shall be no deflection in excess of L/175 of the span of any framing member at design load. At structural test load equal to 1.5 times the specified design load, no glass breakage or permanent set in the framing members in excess of 0.2% of their clear spans shall occur.

1.04 WARRANTY

A. Project Warranty: Refer to “Conditions of the Contract” for project warranty provisions.
B. Manufacturer’s Product Warranty: Submit, for Owner’s acceptance, manufacturer’s warranty for window wall systems as follows:
1. Warranty Period: Two (2) years from Date of Substantial Completion of the project provided however that the Limited Warranty shall begin in no event later than six months from date of shipment by Kawneer.

1.05 Quality Assurance

A. Qualifications:
1. Installer Qualifications: Installer experienced (as determined by contractor) to perform work of this section who has specialized in the installation of work similar to that required for this project and who is acceptable to product manufacturer.
2. Manufacturer Qualifications: Manufacturer capable of providing field service representation during construction, approving acceptable installer and approving application method.
3. Pre-Installation Meetings: Conduct pre-installation meeting to verify project requirements, substrate conditions, manufacturer’s installation instructions, and manufacturer’s warranty requirements.

1.06 Delivery, Storage, and Handling

A. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.
B. Packing, Shipping, Handling, and Unloading: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
C. Storage and Protection: Store materials protected from exposure to harmful weather conditions. Handle storefront material and components to avoid damage. Protect curtainwall material against

damage from elements, construction activities, and other hazards before, during and after curtainwall installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS
A. Manufacturers: Kawneer , or approved equivalent
B. Substitute Manufacturers:
1. Submit substitution requests prior to Bid Date. Comply with requirements in Section 01600, Product Requirements.2.02 Source Quality Control
C. Source Quality: Provide aluminum storefront walls specified herein from a single source.

2.03 COMPONENTS
A. Aluminum:
1. Material Standard: Extruded Aluminum, ASTM B 221, 6063-T5 or 6063-T6 alloy and temper.
2. Member Wall Thickness: Each framing member shall have a wall thickness sufficient to meet the specified structural requirements.
3. Tolerances: Reference to tolerances for wall thickness and other cross-sectional dimensions of curtain wall members are nominal and in compliance with AA Aluminum Standards and Data.
B. Standard Window Wall Framing:
1. Kawneer 1600
2. Head, sill and mullion Size: 2-1/2 by 7-1/2 inches..
C. Standard Punched Opening Window Framing :
1. Kawneer 450.
2. Head, sill and mullion Size: 1-3/4” x 4-1/2”
D. Framing Sealants:
1. Concealed Joints Between Framing Members and Adjacent Surfaces: CK-2, butyl calking or TS-2, tape sealant as specified in Section 07900, Joint Sealers.
2. Exposed Joints Between Framing Members and Adjacent Surfaces: ES-2, polyurethane or ES-5, silicone rubber as specified in Section 07900, Joint Sealers.
3. Small Exposed Joints Between Framing Members: CK-5, small joint calking as specified in Section 07900, Joint Sealers.
E. Aluminum Finish:
1. Interpon® D2000, AAMA 2604, Powder coating, Refer to Color Schedule on Drawings.

PART 3 EXECUTION

3.01 PERFORMANCE
A. General: Install storefront wall framing and windows plumb, level, and true to line, without warp or rack of frames with manufacturer’s prescribed tolerances and installation instructions. Provide support and anchor in place.
B. Dissimilar Materials: Provide separation of aluminum materials from sources of corrosion or electrolytic action contact points.
C. Glazing: Glass shall be glazed as indicted on Drawings and held in place with extruded aluminum pressure plates anchored to the mullion using stainless steel fasteners spaced no greater than 9" on center.
D. Water Drainage: Each light of glass shall be compartmentalized using joint plugs and silicone sealant to divert water to the horizontal weep locations. Weep holes shall be located in the horizontal pressure plates and covers to divert water to the exterior of the building.
E. Related Products Installation Requirements:
1. Sealants (Perimeter): Refer to Division 7 Joint Treatment (Sealants) Section.
2. Glass: Refer to Section 08800-Glass and Glazing.
3. Reference: ANSI Z97.1, CPSC 16 CFR 1201 and GANA Glazing Manual
F. Installation of Framing Systems:
1. Install framing plumb and level, accurately aligned, and securely anchored with concealed fasteners.
2. Install base in full bed of polyisobutylene rubber calk.

3. Install polyurethane or silicone rubber sealant, at exposed joints between framing system and adjacent materials.

G. Installation of Glazing:
1. Set glass units on setting blocks.
2. Install gaskets, tapes, and glazing sealants as recommended by glass and sealant manufacturers..

3.02 COMPLETION

A. Adjusting and Cleaning:

1. Replace damaged and defective entrance systems.
2. Clean entrance doors and frames and storefront frames prior to
3. Remove excess sealants from glazing, doors, frames, and substrate
4. Wash and wipe dry glazing not more than seven days prior to Substantial Completion

END OF SECTION

SECTION 08710

HARDWARE

PART 1 GENERAL

1.01 WORK INCLUDED
- A. Provide hardwarefor doors.
- B. Section 06400 Millwork Woodwork: Cabinet hardware.

1.02 QUALITY ASSURANCE
- A. Access for Persons with Disabilities: Comply with Texas Accessbility Standards (TAS) and Americans with Disabilities Act Accessibility Guidelines (ADAAG).
- B. Supplier: Recognized builders hardware supplier with minimum five years successful experience in scheduling and furnishing hardware.
  1. Provide services of architectural hardware consultant to supervise hardware supply.
- C. Products: Provide each type of hardware (hinges, pivots, locksets, latch sets, closers, trim) from single manufacturer unless otherwise indicated in Hardware Schedule.

1.03 REFERENCES
- A. ANSI A115 and Al 15W Series: Door and Frame Preparation Standards.
- B. ANSI A156.1 through Al 56.20: Standards for various hardware items.
- C. Americans with Disabilities Act Accessibility Guidelines (ADAAG).
- D. Texas Accessbility Standards (TAS)

1.04 SUBMITTALS
- A. Product Data: Submit catalog cuts for each type of hardware.
  1. Keying Schedule: Coordinate directly with Owner's Representative.
  2. Obtain Key Codes for all doors from Owner.
- B. Shop Drawings: Indicate locations and mounting heights of hardware.
- C. Supply templates to door and frame manufacturers for proper and accurate sizing and locations of cut-outs for hardware.
  1. Samples: Indicate required style and finish.
  2. Closeout Submittal: Record actual locations of installed cylinders and master key codes on Project Record Documents.

1.05 DELIVERY, STORAGE AND HANDLING
- A. Deliver hardware in manufacturer's original packages.
- B. Pack complete with necessary screws, bolts, keys, instructions, and installation template, if necessary, for spotting mortising tools.
- C. Upon delivery, furnish complete list of hardware for checking, clearly marked to correspond with marking on each package.
- D. Review list for completeness and accuracy.

1.06 MAINTENANCE
- A. Provide manufacturer's parts list and maintenance instructions for each type of hardware supplied and necessary wrenches and tools required for proper maintenance of hardware.

PART 2 PRODUCTS

2.01 MANUFACTURERS
- A. Refer to Drawings for hardware group locations and door types; where not fully covered in Hardware Schedule, comply with the following general requirements; inform Architect where conflicts occur.

1. Provide hardware items with accessories complete to function as intended. B. Hinges and Butts: ANSI A156.1; comply with following unless otherwise indicated.
2. Acceptable Manufacturers:
   a. Ives, Division of Ingersoll Rand
   b. McKinney Products Co., Division of Essex Industries.
   c. Hager
   d. Substitutions: Refer to Section 01630.

C. Doors 1-3/4" Thick: 4-1/2" standard weight, extra heavy weight ball or oilite bearing where over 40" wide.
1. Provide widths sufficient to clear trim projection when door swings 180 degrees.
2. Provide minimum 3 hinges to 90" high door, 4 hinges to 120" high for each door leaf, unless otherwise indicated.
3. Provide nonferrous butts with non-removable pins at exterior and locked outswinging doors, non-rising at interior doors.
4. Provide ball bearing or oilite bearing hinges at doors with closers.
5. Tips: Flat button tips with matching plug.

D. Locking Devices: Provide of metal matching specified finish; interior parts of steel and zinc-dichromate plating, to resist rusting and corrosion; do not supply plastic, die-cast or aluminum mechanisms.
1. Acceptable Manufacturers:
   a. Schlage Lock Co.
2. Type:
   a. Cylindrical Locksets: ANSI A156.2, Series 4000, Grade 1, Bored Type (cylindrical) with 6 pin-C Keyway tumbler cylinders, except where otherwise indicated in Hardware Schedule.

E. Deadbolts: ANSI A156.2 Schlage BC160P single cylinder.

F. Lockset and Latch set Design: Wrought lever Rhodes design by Schlage with rose

G. Backset: 2-3/4".

H. Strikes: Furnish standard strikes with extended lips where required to protect trim from being marred by latch bolt. Verify type of cutouts provided in metal frames.

I. Cylinders, Keys, and Keying: Hardware manufacturers shall provide for grand master, master key alike except Manager's Office ,or different keying as directed by Owner.
1. Acceptable Manufacturer:
   a. Provide cylinders by lockset manufacturer unless otherwise indicated.
2. Provide cylinders of extruded brass bar material.
3. Provide construction cylinders for doors requiring locking during construction; construction cylinders shall be removed and replaced just J prior to Owner occupancy.
4. Submit keys for final use to Owner. Provide not less than two keys for each lockset, six of each type and level of master key, two grand master keys, and 5% extra blanks. All keys shall be delivered directly to owner by Locksmith.
5. Hardware manufacturers shall key and register lock cylinders.
6. Key Control System: Provide complete key control system with identification and storage capacity suitable for Project.

J. Closers: ANSI A156.4, furnish products of one manufacturer; full rack and pinion type with steel spring and non-freezing hydraulic fluid.
1. Acceptable Manufacturers: If additional mfrs are needed, I recommend Sargent. They have one model with a cast iron body.
a. LCN Closers. Division Schlage Lock Co. /4000 Series. b. Substitutions: Refer to Section 01630.
2. Provide controls for regulating closing, latching, speeds and back check.
3. Arm types shall suit individual conditions, as approved; supply parallel-arm closers at reverse bevel doors and where doors swing full 180 degrees.
4. Mount closers on room side unless otherwise indicated.
5. Sizes: Adjustable to following maximum door operating pressures:
   a. Interior Doors: 5 pounds.
   b. Exterior Doors: 8.5 pounds.
6. Closer bodies to be constructed of cast iron.
7. Pressure relief valves not permitted.
8. Make labeled doors self-closing.
9. Closers shall be adjusted by factory representative at no cost.

10. Design: ANSI Modern Type with Cover, unless otherwise indicated.

K. Thresholds, Stops, Trim, and Miscellaneous Hardware: Provide as indicated, as specified, as included in Hardware Schedule, and as required for complete installation.
   1. Acceptable Manufacturers
      a. Ives
      b. National Guard Products
      c. Pemko Mfg. Co.
      d. Rixon-Firemark Sub., Yale Security, Inc.
      e. Trimco, Triangle Brass Mgf., Co.
      f. Zero International, Inc.
   2. Kickplates: 10” height by 1" less than door width at pairs of doors, 2” less than door width at single doors; minimum 0.050" thick.

L. Through Bolts: Through bolts and grommet nuts shall be avoided on door faces in highly visible areas, unless no alternative is possible, as directed and approved, and shall not be used for solid wood core doors.

2.02 MATERIALS

A. General: Provide complete hardware with accessories as required for doors and applications indicated.
B. Acceptable Manufacturers: Provide manufacturers specified and manufacturers listed in Hardware Schedule, with references to catalog numbers and designations.
C. Templates: Furnish templates or physical hardware items to manufacturers concerned sufficiently in advance to avoid delay in Work.
D. Reinforcing Units: Furnished by door manufacturer, coordinated by hardware manufacturer.
E. Fasteners: Furnish as recommended by manufacturer and as required to install secure hardware.
   1. Finish: Match hardware.
   2. Furnish screws for items applied on gypsum board sufficiently long to provide solid connection to framing or backing

2.03 FINISHES

A. Hardware Finish: satin chrome 26D and satin stainless 32D. See Hardware Groups.
B. Closers: Cover finished to match door operating hardware.
C. Other Items: Provide manufacturer's standard finishes to match similar hardware types on same door, and maintain acceptable finish considering anticipated use.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install finish hardware specified under this section. Coordinate with manufacturer and installation of doors and frames.
B. Fit hardware prior to painting then remove for painting of doors and frames before final installation of hardware.
C. Install hardware in accordance with manufacturer's instructions.
D. No extra cost will be allowed because of changes or corrections necessary to facilitate installation of hardware.
E. Mounting Positions
   1. Heights given are center line heights from finished floor.
      a. Locks and Latches: 38" to center of lever.
      b. Top Hinge: To jamb manufacturer's standard, but not greater than 10" from head of frame to center line of hinge.
      c. Bottom Hinge: To jamb manufacturer's standard, but not greater than 12-1/2" from floor to center line of hinge.

d. Intermediate Hinges: Equally spaced between top and bottom hinges and from each other. e. Door Leaf: 1/4" to 5/16" from stop side of door.
f. Dead Bolt: Not more than 44" from floor to operating lever.
g. Comply with recommendations of Builders Hardware Manufacturers Association, subject to approval, for heights of items not indicated.

F. ADJUSTING
After air supply is turned on, qualified hardware supplier's or manufacturer's representatives shall inspect installation and make adjustments.

1. Adjust closers, locks, and critical operational hardware.
2. Deliver instructions for maintenance and future adjustments to Owner's representative.

3.02 SCHEDULES

A. The Hardware Schedule establishes a type and standard of quality.
B. Examine Drawings and Specifications and furnish proper hardware for door openings, whether listed or not.
C. Bring omissions to attention of Architect prior to bid opening for instructions; otherwise, list will be considered complete; no extras will be allowed.
D. Hardware Groups General: Base bids on manufacturers' items specified for locks, closers and panic devices.
1. After acceptance of original bid based on items specified, other manufacturers may be presented for cost saving purposes only, or at the direct request of Owner and Architect.
2. In some cases, quantity of hinge pairs will vary with height of door (see Hardware Section Preamble). A. Locks: Schlage 6 pin series 610 locks or equivalent.

HARDWARE GROUPS

HW SET: 1

EACH TO HAVE:

3	EA	HINGE	5BB1 4.5 X 4.5	26D	IVES
1	EA	ENTRANCE LOCK	CYLINDER W/ THUMB	26D	SCH
1	EA	SURFACE CLOSER	4110T(ADA)	689	LCN
1	EA	PULL/PUSHBAR	9190	26D	IVES
		SEALS	BY DOOR SUPPLIER		
1	EA	LATCH BOLT	BY DOOR SUPPLIER		
1	EA	THRESHOLD	425	AL	NGP
1	EA	RAIN DRIP	17A	AL	NGP
1	EA	DOOR BOTTOM	C626	AL	NGP

HW SET: 02

EACH TO HAVE:

3	EA	HINGE	5BB1 4.5 X 4.5	26D	IVES
1	EA	PATIO LOCK	ND30D XN12-007 RHO	26D	SCH
1	EA	SURFACE CLOSER	4110	689	LCN
2	EA	KICK PLATE	8400 10" X 2" LDW	26D	IVES
1	EA	WALL STOP	WS407CCV	26D	IVES
1	SET	SEALS	5050B (HEAD & JAMBS)	BROWN	NGP

HW SET: 03

EACH TO HAVE:

3	EA	HINGE	5BB1 4.5 X 4.5 NRP	32D	IVE
1	EA	ENTRANCE LOCK	ND92PD RHO	26D	SCH
1	EA	SURFACE CLOSER	4111	689	LCN
2	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	SET	SEALS	5050B (HEAD & JAMBS)	BROWN	NGP
1	EA	RAIN DRIP	17A	AL	NGP
1	EA	DOOR BOTTOM	C626	AL	NGP
1	EA	THRESHOLD	425	AL	NGP

HW SET: 04

EACH TO HAVE:

3	EA	HINGE	5BB1 4.5 X 4.5	26D	IVE
1	EA	CLASSROOM LOCK	ND70PD RHO	26D	SCH
1	EA	WALL STOP	WS407CCV	630	IVE
1	SET	DOOR SILENCERS	SR64		IVES

HW SET: 5

EACH TO HAVE:

3	EA	HINGE	5BB1 4.5 X 4.5	32D	IVES
1	EA	ENTRANCE LOCK	DEADBOLT W/ THUMB	32D	SCH
1	EA	SURFACE CLOSER	4110T(ADA)	689	LCN
1	EA	PULL	8305	32D	IVES
1	EA	PUSH	8300	32D	IVES
1	EA	THRESHOLD	425	AL	NGP
1	SET	SEALS	5050B (HEAD & JAMBS)	BROWN	NGP
1	EA	RAIN DRIP	17A	AL	NGP
1	EA	DOOR BOTTOM	C626	AL	NGP

END OF SECTION

SECTION 08800

GLAZING

PART 1 GENERAL

1.01 SUMMARY
- A. Section Includes:
  1. Single glass glazing
  2. Glazing accessories.
- B. Related Sections:
  1. Section 08115, Fiberglass Doors and Frames
  2. Section 08410, Aluminum Windows and Storefronts

1.02 REQUIREMENTS
- A. Submittals:
  1. Shop Drawings
  2. Submit product samples of each type of glass except tempered samples not required.
- B. Regulatory Requirements:
  1. Comply with U.S. Consumer Product Safety Commission Standard 16CFR 1201.
  2. Safety glass shall comply with ANSI Z97.1. PART 2 PRODUCTS

2.01 MANUFACTURERS
- A. PPG or substitute approved prior to Bid Date

2.02 COMPONENTS (SEE SCHEDULE ON DRAWINGS)
- A. Tempered Glass(TG):
  1. Industry Standard: ASTM C 1048.
  2. Door Light Glass: Select Quality, PPG clear, minimum 1/4 inch thick, full tempered.
  3. Storefront Glass: Select Quality, PPG clear, minimum 1/4 inch thick, full tempered
- B. Clear Float Plate (CFP)
  1. Industry Standard: ASTM C 1048.
  2. Storefront Glass: Select Quality, PPG float plate, 1/4 inch thick.

2.03 GLAZING ACCESSORIES
- A. Glazing Sealant, GS-6:
  1. Industry Standard: AAMA 808.3.
  2. Components and Composition: One, Acrylic Polymer.
  3. Acceptable Acrylic Sealants: PTI 767 by Protective Treatments, Mono by Tremco.
- B. Glazing Gaskets, GG-3:
  1. Industry Standard: ASTM C 864.
  2. Composition: EPDM or neoprene rubber.
  3. Acceptable Gaskets: Poly-Wej Gaskets and Dense Curtain Wall Gaskets by Tremco, Stanlock by Standard
- C. Setting and Edge Block Spacers, SB-1:
  1. Industry Standard: ASTM C 864.
  2. Composition: EPDM, neoprene rubber, silicone compatible rubber, or silicone compound.
  3. Acceptable Block Spacers: Full Density by F.H. Maloney, Stanlock by Standard Products, Setting and Edge Blocks by Tremco.

PART 3 EXECUTION

3.011 PERFORMANCE
- A. Installation of Glass:
  1. Install setting blocks at quarter points of framed glass.
  2. Install spacers and compression gaskets as recommended by glass manufacturer.
  3. Install gaskets on frame and stops continuous at glass face.
  4. Compress gaskets at least 25 percent of thickness with minimum finished thickness of 3/32 inch.

3.02 COMPLETION
- A. Adjusting and Cleaning:
  1. Replace broken and damaged glazing and mirror panels prior to Substantial Completion.
  2. Wash glazing panels not more than seven days prior to Substantial Completion.

END OF SECTION

SECTION 09220

PORTLAND CEMENT PLASTER

PART 1 - GENERAL

1.01 SUMMARY
- A. Related Sections:
  1. 07900 - Joint Sealants: Sealing of expansion joints between accessories; sealant materials at butt joints.

1.02 SUBMITTALS
- A. Product Data for each product specified.
- B. Samples for verification in units at least 12 inches square of each type of finish indicated; in sets for each color, texture, and pattern specified, showing the full range of variations expected in these characteristics.

1.03 QUALITY ASSURANCE
- A. Mockups: When required by the Project Manager construct panels for each type of finish and application required to verify selections made under Sample submittals and to demonstrate aesthetic effects as well as qualities of materials and execution. Build mockups to comply with the following requirements, using materials indicated for final unit of Work.
  1. Locate mockup on-site in the location and of the size indicated or, if not indicated, as directed by Architect.
  2. Use the full system of materials, including flashing, lath, support system, and control joints, indicated for final Work.
  3. Demonstrate the proposed range of aesthetic effects and workmanship.
  4. Obtain Owner’s approval of mockups before start of plaster Work.
  5. Retain and maintain mockups during construction in an undisturbed condition as a standard for judging the completed portland cement plaster Work.

1.04 DELIVERY, STORAGE, AND HANDLING
- A. Deliver cementitious materials to Project site in original packages, containers, or bundles, labeled with manufacturer's name, product brand name, and lot number.
- B. Store materials inside, under cover, and dry, protected from weather, direct sunlight, surface contamination, aging, corrosion, and damage from construction traffic and other causes.

1.05 PROJECT CONDITIONS
- A. Environmental Requirements, General: Comply with requirements of referenced plaster application standards and recommendations of plaster manufacturer for environmental conditions before, during, and after plaster application.
- B. Cold-Weather Requirements: Provide heat and protection, temporary or permanent, as required to protect each coat of plaster from freezing for at least 24 hours after application. Distribute heat uniformly to prevent concentration of heat on plaster near heat sources; provide deflection or protective screens.
- C. Warm-Weather Requirements: Protect plaster against uneven and excessive evaporation and from strong flows of dry air, both natural and artificial. Apply and cure plaster as required by climatic and job conditions to prevent dry out during cure period. Provide suitable coverings, moist curing, barriers to deflect sunlight and wind, or combinations of these, as required.
- D. Exterior Plaster Work: Do not apply plaster when ambient temperature is below 40 deg F.
- E. Protect contiguous work from soiling and moisture deterioration caused by plastering. Provide temporary covering and other provisions necessary to minimize harmful spattering of plaster on other work.

PART 2 - PRODUCTS

2.01 PLASTER MATERIALS
- A. Gypsum Plaster:
  1. Vertical Surfaces: 3/4” thick 3 coat system over CMU
  2. Horizontal Surfaces: 5/8” thick 3 coat system over metal lath
  1. Conforming to ASTM C 926 Specification for Application of Portland Cement Based Plaster
     a. Base Coat having 2800 psi compressive strength
     b. Finish Coat: Gauging type
- B. Grey Cement conforming to ASTM C 150, Type 1
- C. White Cement conforming to ASTM C 150, Type 1

D. Aggregate:
1. Sand conforming to ASTM C 897, sharp, clean, for base coat graded as follows:

	SIEVE	MAX %	MIN %
No.	4	0	
No.	10	10	0
No.	16	40	10
No.	30	65	30
No.	50	90	70
No	100	100	95
No	200	100	97

E. Lime conforming to ASTM C 206 Type S
F. Lath: 3.4 lb diamond mesh metal lath

2.02 COMPOSITION OF PLASTER
A. Scratch Coat
1. Portland cement plaster on metal lath or masonry
a. 1 part grey cement
b. 3/4 to 1-1/2 parts lime
c. 2-1/2 to 4 parts sand
B. Brown Coat
a. Same as Scratch coat
C. Finish Coat
a. Same as Scratch and coat, but use White Cement and White Sand

2.03 FRAMING AND SUSPENSION SYSTEMS
A. 1-1/2 16 gauge cold rolled hanger channels
B. 3/4" furring chanels, 20 or 25 gauge USG DWC 20, 25
C. Hanger Wire - minimum 12 gauge or heavier
D. Miscellaneous clips

PART 3 - EXECUTION

3.01 ACCESSORY INSTALLATION
A. General: Comply with referenced lathing and furring installation standards for provision and location of plaster accessories of type indicated. Miter or cope accessories at corners; install with tight joints and in alignment. Attach accessories securely to plaster bases to hold accessories in place and in alignment during plastering. Install accessories of type indicated at following locations:
1. External Corners: Install corner reinforcement at external corners.
2. Terminations of Plaster: Install casing beads, unless otherwise indicated.
3. Control Joints: Install at locations indicated or, if not indicated, at locations complying with the following criteria and approved by Architect:
B. Where an expansion or contraction joint occurs in surface of construction directly behind plaster membrane.
C. Distance between Control Joints: Not to exceed 18 feet in either direction or a length-to-width ratio of 2-1/2 to 1
D. Wall Areas: Not more than 144 sq. ft..
E. Horizontal Surfaces: Not more than 100 sq. ft. in area.
F. Where plaster panel sizes or dimensions change, extend joints full width or height of plaster membrane.

3.02 INSTALLING STEEL FRAMING FOR SUSPENDED AND FURRED CEILINGS
A. Suspend ceiling hangers from building structural members and as follows:
1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, counter-splaying, or other equally effective means.

2. Where width of ducts and other construction within ceiling plenum produces hanger spacing that interferes with the location of hangers required to support standard suspensions system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices.. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.
3. Secure wire hangers by looping and wire-tying, either directly to structures or to inserts, eye screws, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause them to deteriorate or otherwise fail.
4. Secure flat, angle, and rod hangers to. structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices and fasteners that are secure and appropriate for structure as well as for type of hanger involved, and in a manner that will not cause them to deteriorate or otherwise fail.
5. Do not attach hangers to steel deck tabs.
6. Do not attach hangers to steel roof deck. Attach hangers to structural members.
7. Do not connect of suspend steel framing from ducts, pipes, or conduit.
8. Wire Hangers: 48 inches o.c.

B. Installation Tolerances: Install steel framing components for suspended ceilings so that cross-furring or grid suspension members are level to within 1/8 inch in 12 feet as measured both lengthwise on each member and transversely between parallel members.

C. Grid Suspension System: Attach perimeter wall track or angle where grid suspension system meets vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.

3.03 PLASTER APPLICATION

A. Apply bonding agent or dash coat on CMU surfaces indicated for direct plaster application; comply with manufacturer's written instructions for application. Moist-cure dash coat for at least 24 hours after application and before plastering.

B. Finished surface shall be true and uniform in texture and hardness

C. Total thicknesses

1. For horizontal surfaces (ceilings)
   a. Base coats: ½” thick
   b. Finish coat: 1/8” thick
2. For vertical surfaces (cmu walls)
   a. Base coats: 5/8” thick
   b. Finish coat: 1/8” thick

D. Base Coats – scratch and brown coats may be machine applied at contractor’s option

E. Finish Coat

1. Apply finish coat thoroughly dry and cured base coats that have achieved full shrinkage abd have been evenly wetted by brushing or spraying. Avoid excessive use of water.
2. Apply finish coat in sufficient thickness to produce sand finish. Match the approved sample

3.04 CUTTING AND PATCHING

A. Cut, patch, replace, repair, and point up plaster as necessary to accommodate other work. Repair cracks and indented surfaces. Point-up finish plaster surfaces around items that are built into or penetrate plaster surfaces. Repair or replace work to eliminate blisters, buckles, check cracking, dry outs, efflorescence, excessive pinholes, and similar defects. Repair or replace work as necessary to comply with required visual effects.

3.05 CLEANING AND PROTECTING

A. Remove temporary covering and other provisions made to minimize spattering of plaster on other work. Promptly remove plaster from door frames, windows, and other surfaces not to be plastered. Repair surfaces stained, marred or otherwise damaged during plastering work. When plastering work is completed, remove unused materials, containers, equipment, and plaster debris.

B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure plaster work is without damage or deterioration at the time of Substantial Completion.

END OF SECTION

SECTION 09250

GYPSUM BOARD & LIGHT GAUGE METAL STUDS

PART 1 GENERAL

1.01 SECTION INCLUDES
- A. Non load-bearing steel framing members for gypsum board assemblies.
- B. Gypsum board assemblies attached to steel framing.
- C. Water-resistant gypsum board

1.02 RELATED SECTIONS
- A. Section 06100 - Rough Carpentry: Plates, blocking and furring.

1.03 QUALITY ASSURANCE
- A. Single-Source Responsibility for:
  1. Steel Framing: Obtain steel framing members for gypsum board assemblies from a single manufacturer.
  2. Gypsum Board: Obtain each type of gypsum board and other panels products from a single manufacturer.
  3. Finishing Materials: Obtain finishing materials from either the same manufacturer that supplies gypsum board and other panel products or from a manufacturer acceptable to gypsum board manufacturer.

1.04 DELIVERY, STORAGE, AND HANDLING
- A. Deliver materials in original packages, containers, or bundles bearing brand name and identification of manufacturer or supplier.
- B. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic and other causes. Neatly stack gypsum panels flat to prevent sagging.

1.05 PROJECT CONDITIONS
- A. Environmental Conditions, General: Establish and maintain environmental conditions for applying and finishing gypsum board to comply with ASTM C 840 requirements or gypsum board manufacturer's recommendations, whichever are more stringent.
- B. Room Temperatures: For non-adhesive attachment of gypsum board to framing, maintain not less than 40 deg F. For adhesive attachment and finishing of gypsum board, maintain not less than 50 deg F for 48 hours before application and continuously after until dry. Do not exceed 95 deg F when using temporary heat sources.
- C. Ventilation: Ventilate building spaces as required to dry joint treatment materials. Avoid drafts during hot, dry weather to prevent finishing materials from drying too rapidly.

PART 2 PRODUCTS

2.01 MANUFACTURERS
- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  a. National Gypsum Co.; Gold Bond Building Products Division.
  b. Unimast, Inc.
  c. or approved equal
- B. Gypsum Board and Related Products:
  a. Georgia-Pacific Corp.
  b. National Gypsum Co.: Gold Bond Building Products Division.
  c. United States Gypsum Co.

2.02 STEEL FRAMING FOR WALLS AND PARTITIONS
- A. General: Provide steel framing members complying with the following requirements:
- B. Protective Coating: ASTM A 653, G 40 hot-dip galvanized coating.
  1. Steel Studs and Runners: ASTM C 645, with flange edges of studs bent back 90 degrees and doubled over to form 3/16-inch-wide minimum lip (return), and complying with the following requirements for minimum thickness of base (uncoated) metal and for depth:
  2. Verify that stud manufacturer's deflection criteria is within specified tolerances for depth of stud shown, span or height of wall or partition, and for horizontal loads anticipated.
  3. Component Sizes and Spacing: As indicated but not less than that required to comply with ASTM C 754 under the following maximum deflection and lateral loading conditions:

4. Maximum Deflection:
   a. U240 at 5 lb per sq. ft.
   b. Thickness: 010179 inch nominal 25 gauge unless otherwise indicated.
   c. Thickness: 0.0329 inch nominal 20 gauge as follows:
5. For head runner, sill runner, jamb, and cripple studs at door and other openings.
   a. Where indicated.
   b. Thickness: As indicated.
   c. Depth: As indicated.
6. Deflection Track: Manufacturer's top runner complying with the requirements of -ASTM C 645 and with 2-inch-deep flanges.
7. Fasteners for Metal Framing: Provide fasteners of type, material, size, corrosion resistance, holding power, other properties required to fasten steel framing and furring members securely to substrates involved; complying with the recommendations of gypsum board manufacturers for applications indicated.

2.03 GYPSUM BOARD PRODUCTS

A. Water-Resistant Gypsum Backing Board: ASTM C 630 and as follows:
   1. Type: Regular WR , unless otherwise indicated.
   2. Thickness: 5/8 inch, unless otherwise indicated.
   3. Widths: Provide gypsum board in widths of 48 inches.
   4. Location: toilet rooms

B. General: Standard gypsum board: ASTM C 36 and as follows:
   1. Type: Regular, unless otherwise indicated.
   2. Thickness: 5/8 inch, unless otherwise indicated.
   3. Widths: Provide gypsum board in widths of 48 inches.
   4. Location: all other areas indicated to receive gypsum board finishes

2.04 TRIM ACCESSORIES

A. Accessories for Interior Installation: Corner bead, edge trim, and control joints complying with ASTM C 1047 and requirements indicted below:
   1. Type: Regular, unless otherwise indicated.
   2. Material: Formed metal or plastic, with metal complying with the following requirement:
   3. Steel sheet zinc coated by hot-dip or electrolytic process, or steel sheet coated with aluminum or rolled zinc.
   4. Comerbead on outside comers, unless otherwise indicated.
   5. LC-bead with both face and back flanges; face flange formed to receive joint compound. Use LC-beads for edge trim, unless otherwise indicated.
   6. L-bead with face flange only; face flange formed to receive joint compound. Use L-bead where indicated.

2.05 JOINT TREATMENT

A. General: Provide joint treatment materials complying with ASTM C 475 and the recommendations of both the manufacturers of sheet products and of joint treatment materials for each application indicated.

B. Joint Tape for Gypsum Board: Paper reinforcing tape, unless otherwise indicated

C. Setting-Type Joint Compounds for Gypsum Board: Factory-packaged, job-mixed, chemical-hardening powder products formulated for uses indicated.
   a. Where setting-type joint compounds are indicated as a taping compound only or for taping and filling only, use formulation that is compatible with other joint compounds applied over it.
   b. For pre-filling gypsum board joints, use formulation recommended by gypsum board manufacturer.
   c. For filling joints and treating fasteners of water-resistant gypsum backing board behind base for ceramic tile, use formulation recommended by gypsum board manufacturer.
   d. For topping compound, use sandable formulation.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine substrates to which gypsum board assemblies attach, abut, frame around, installed hollow metal frame, cast-in-anchors, pipe or utility chases, and building structural framing, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of assemblies specified in this Section. Provide additional framing and blocking as may be necessary to frame around building structural framing, with Installer present, for compliance with requirements for

installation tolerances and other conditions affecting performance of assemblies specified in this Section. Provide additional framing and blocking as may be necessary to frame around building structural framing or pipe or utility chases. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Ceiling Anchorages: Coordinate installation of ceiling suspension systems with installation of overhead structural assemblies to ensure that inserts and other provisions for anchorages to building structure have been installed to receive ceiling hangers that will develop their full strength and at spacing required to support ceilings.

3.03 INSTALLING STEEL FRAMING, GENERAL

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

B. Provide supplementary framing, blocking, and bracing at terminations in gypsum board assemblies to support fixtures, equipment services, heavy trim, railings, grab bars, toilet accessories, furnishing, or similar construction. Provide additional framing around building structural members, pipe and utility chases, or other special construction areas. Comply with details indicated and with recommendations of gypsum board manufacturer or, if none available, with United States Gypsum Co.'s "Gypsum Construction Handbook", current edition.

3.04 INSTALLING STEEL FRAMING FOR WALLS AND PARTITIONS

A. Install runners (tracks) at floors, ceilings, and structural walls and columns where gypsum board stud assemblies abut other construction.
   1. Where studs are installed directly against exterior walls, install asphalt felt strips or form gaskets between studs and wall.

B. Installation Tolerances: Install each steel framing and furring member so that fastening surfaces do not vary more than 1/8 inch from the plane formed by the faces of adjacent framing.

C. Extend partition framing full height to structural supports or substrates above suspended ceiling, except where partitions are indicated to terminate at suspended ceilings. Continue framing over frames for doors and openings and frame around ducts penetrating partitions above ceiling to provide support for gypsum board.
   1. Cut studs Y2 inch short of full height to provide perimeter relief.

D. Terminate partition framing at suspended ceilings where indicated.

E. Install steel studs and furring in sizes and at spacings indicated.
   1. Space studs 16 inches o.c., unless otherwise indicated.

F. Install steel studs so flanges pointing the same direction and leading edge or end of each gypsum board panel can be attached to open (unsupported) edges of stud flanges first.

G. Frame door openings to comply with GA-219, and with applicable published recommendations of gypsum board manufacturer, unless otherwise indicated. Attach .vertical studs at jambs with screws either directly to frames or to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
   1. Install 2 studs at each jamb, unless otherwise indicated.
   2. Install cripple studs at head adjacent to each jamb stud, with minimum Y2-inch clearance from jamb stud to allow for installation of control joint.
   3. Extend jamb studs through suspended ceilings and attach to underside of floor or roof structure above.

H. Frame openings other than door openings to comply with details indicated or, if none indicated, as required for door openings. Install framing below sills of openings to match framing required above door heads.

3.05 INSTALLING STEEL FRAMING FOR SUSPENDED AND FURRED CEILINGS

A. Suspend ceiling hangers from building structural members and as follows:

1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, counter-splaying, or other equally effective means.
   2. Where width of ducts and other construction within ceiling plenum produces hanger spacing that interferes with the location of hangers required to support standard suspensions system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices.. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.

3. Secure wire hangers by looping and wire-tying, either directly to structures or to inserts, eye screws, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause them to deteriorate or otherwise fail.
4. Secure flat, angle, and rod hangers to. structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices and fasteners that are secure and appropriate for structure as well as for type of hanger involved, and in a manner that will not cause them to deteriorate or otherwise fail.
5. Do not attach hangers to steel deck tabs.
6. Do not attach hangers to steel roof deck. Attach hangers to structural members.
7. Do not connect of suspend steel framing from ducts, pipes, or conduit.
8. Wire Hangers: 48 inches o.c.

B. Installation Tolerances: Install steel framing components for suspended ceilings so that cross-furring or grid suspension members are level to within 1/8 inch in 12 feet as measured both lengthwise on each member and transversely between parallel members.
C. Grid Suspension System: Attach perimeter wall track or angle where grid suspension system meets vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.

3.06 APPLYING AND FINISHING GYPSUM BOARD, GENERAL

A. Gypsum Board Application and Finishing Standards: Install and finish gypsum panels to comply with ASTM C.840 and GA-216.
B. Install ceiling board panels across framing to minimize the number of abutting end joints in the central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
C. Install gypsum panels with face side out. Do not install imperfect, damaged, or damp panels. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.
E. Locate both edge or end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints.

F. Do not stagger vertical joints on opposite sides of partitions. Avoid joints other than control joints at corners of framed openings where possible.
G. Attach gypsum panels to steel studs so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.
H. Install steel reinforcement sheet prior to installing gypsum panels.
I. Attach gypsum panels to framing provided at opening and cutouts.
J. Spot grout hollow metal door frames for solid-core wood doors, hollow metal doors, and doors over 32 inches wide. Apply spot grout at each jamb anchor clip and immediately insert gypsum panels into frames.
K. Form control joints at locations indicated and as detailed, with space between edges of adjoining gypsum panels, as well as supporting framing behind gypsum panels.
L. Cover both faces of steel stud partition framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases that are braced internally.
1. Except where concealed application is indicated or required for sound, fire, air, or smoke rating, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
2. Fit gypsum panels around ducts, pipes, and conduits.
3. Where partitions intersect open concrete coffers, concrete joists, and other structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by coffers, joists, and other structural members; allow'/- to 3/8-inch- wide joints to install sealant.

M. Space fasteners in gypsum panels according to referenced gypsum board application and finishing standard and manufacturer's recommendations.
1. Space screws a maximum of 12 inches o.c. for vertical applications.
2. Space fasteners in panels that are tile substrates a maximum of 8 inches o.c.

3.07 GYPSUM BOARD APPLICATION METHODS

A. Single-Layer Application: Install gypsum wallboard panels as follows:
1. On ceiling, apply gypsum panels prior to wall/partition board application to the greatest extend possible and at right angles to framing, unless otherwise indicated. Fasten with screws.
2. On partition walls, apply gypsum panels vertically (parallel to framing), unless otherwise indicated, and provide panel lengths that will minimize end joints. Fasten with screws.

B. Wall Tile Substrates: For substrates indicated to receive thin-set ceramic tile and similar rigid applied wall finishes, comply with the following:
   1. Install water-resistant gypsum backing board panels to comply with manufacturer's installation instructions at showers, tubs, and where indicated. Install with '/-inch open space where panels abut other construction or penetrations.
   2. Install gypsum wallboard panels with tapered edges taped and finished to produce a flat surface except at showers, tubs, and other locations indicated to receive water-resistant panels.

3.08 INSTALLING TRIM ACCESSORIES

A. General: For trim accessories with back flanges, fasten to framing with the same fasteners used to fasten gypsum board. Otherwise, fasten trim accessories according to accessory manufacturer's directions for type, length, and spacing of fasteners.
B. Install corner bead at external corners.
C. Install edge trim where edge of gypsum panels would otherwise be exposed. Provide edge trim type with face flange formed to receive joint compound, except where other types are indicated.
   1. Install LC-bead where gypsum panels are tightly abutted to other construction and back flange can be attached to framing or supporting substrate.
   2. Install L-bead where edge trim can only be installed after gypsum panels are installed.
   3. Install aluminum trim and other accessories where indicated. D. Install control joints at locations indicated.

3.09 FINISHING GYPSUM BOARD ASSEMBLIES

A. General: Treat gypsum board joints, interior angles, flanges of cornerbead, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decorations.
B. Prefill open joints, rounded or beveled edges, and damaged areas using setting-type joint compound.
C. Apply joint tape over gypsum board joints, except those with trim accessories having flanges not requiring tape. D. Apply joint tape over gypsum board joints and to flanges of trim accessories as recommended by trim accessory manufacturer.
D. Levels of Gypsum Board Finish: Provide the following levels of gypsum board finish per GA-214.
   1. Level 1 for ceiling plenum areas, concealed areas, and where indicated, unless a higher level of finish is required for fire-resistance-rated assemblies and sound-rated assemblies.
   2. Level 2 where panels form substrates for tile and where indicated.
   3. Level 4 for gypsum board surfaces, unless otherwise indicated.
F. Use one of the following joint compound combinations as applicable to the finish levels specified:
   1. Embedding and First Coat: Setting-type joint compound.
   2. Fill (Second) Coat: Setting-type joint compound.
   3. Finish (Third) Coat: Sandable, setting-type joint compound.
G. For Level 4 gypsum board finish, embed tape in joint compound and apply first, fill (second), and finish (third) coats of joint compound over joints, angles, fastener heads, and accessories. Touch up and sand between coats and after last coat as needed to produce a surface free of visual defects and-ready for decoration.
H. Where Level 2 gypsum board finish is indicated, embed tape in joint compound and apply first coat of joint compound.
I. Where Level 1 gypsum board finish is indicated, embed tape in joint compound.
J. Finish water-resistant gypsum backing board forming base for ceramic tile to comply with ASTM C 840 and gypsum board manufacturer's directions for treatment of joints behind tile.

3.10 CLEANING AND PROTECTION

A. Promptly remove any residual joint compound from adjacent surfaces.
B. Provide final protection and maintain conditions, in a manner acceptable to Installer that ensures gypsum board assemblies are without damage or deterioration at the time of Substantial Completion.

END OF SECTION

SECTION 09010

TILE

PART 1 GENERAL

1.01 THIS SECTION INCLUDES:
- A. Porcelain ceramic tile square edged 12 x 24 cut to fit on on window sills
- B. Porcelain ceramic tile square edged 12 x 24 cut to fit on exterior pilasters
- C. Porcelain ceramic tile square edged 12 x 24 on floors
- D. Ceramic wall tile 4 x 8 (nominal) on walls
- E. Ceramic accessory pieces, including coves, bullnoses, top glazed pieces, etc.
- F. Custom mosaic glass tiles at exterior face of building

1.02 SUBMITTALS:
- A. Product Data for each type specified
- B. Samples for verification of each type specified
- C. For Custom Mosaic Glass Tile: provide One (1) full, sequence matched, series of sheets for the tallest section of wall.
- D. For all others, provide three (3) full sized units of each trim specified or expected to be used in the execution of the Project

1.03 QUALITY ASSURANCE
- A. Single source responsibility for setting and grouting materials.
- B. Qualifications: Engage an experienced installer who has successfully completed tile installations of similar or greater scope and extent to that required for this Project.
- C. Products to be installed in accordance to the Tile Council of America (TCA) standards as publish in the latest edition of the TCA Handbook for Ceramic Tile Installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS
- A. Tile Manufacturers: Dal-Tile
  1. Floor Tile: Diamante Blanco, 12 x 24
  2. Window sills and Pilasters: Diamante Blanco, 12 x 24
  3. Wall Tile: Modern Dimension 4x8, DT K175, color: Biscuit. Accessories to match.
  4.Cove Base Tile: Modern Dimension 4x8, Flat top Biscuit.
  5. Bar Liner: ½ x 6 Flat Liner, DT H2O #499149, Cobalt Blue
- B. Setting Materials:
  1. Laticrete International
  2. Tex-Rite
  3. C-Cure
  4. Hydroment by Bostik Construction Products

PART 3 EXECUTION

3.1 INSTALLATION
- A. Examine substrates upon which work will be installed and verify conditions are in accordance with requirements . Coordinate with responsible entity to perform corrective work on unsatisfactory substrates.
- B. Commencement of work by installer is acceptance of substrate, supports and accessories.
- C. Install interior wall tiles in accordance to TCA W202-88, joint widths 1/8” .
- D. Install window sills and pilaster caps in accordance to TCA W202-88, joint widths 1/4” .
- E. Install interior floor tiles in accordance to TCA W-88, joint widths 1/8” .
- F. Install exterior mosaic wall tiles in accordance to TCA W202-88, joint widths set by manufacturer
- G. Setting beds shall be in accordance the TCA specification.
- H. Grouts for joints exceeding 1/8” shall be sanded type, all others shall be latex type.

3.2CLEANING
- A. On completion of grouting, clean al tile surfaces so they are free of residue or other foreign material. Do not use acid cleaners. B. Remove surplus materials and debris from the site.

END OF SECTION

SECTION 09750 – QUARTZ STONE TOPS

PART 1 -GENERAL

1.01 SUMMARY

A. This Section includes the countertops.

B. Related Sections include the following:

Section 06400 Section Millwork for casework to receive stone tops.

1.02 DEFINITIONS

A. Dimension Stone: Slab stone 20 mm to 30 mm in thickness.

B. Polished Finish: Smooth finish that produces sharp, mirrorlike reflections. Reflected images of overhead fluorescent tubes have straight lines without visible distortion when viewed at arm's length.

C. Honed Finish: Smooth, non-reflective finish similar to that produced by grinding with a 400to 1200-grit abrasive; with a gap not exceeding 0.005 inch (0.13 mm), when faces are tested for flatness with a 24-inch (600-mm) straightedge.

D. Sand-Rubbed Finish: Uniform, fine-textured surface similar to that produced by grinding with a 40-grit abrasive; with a gap not exceeding 1/32 inch (0.8 mm), when faces are tested for flatness with a 24-inch (600-mm) straightedge.

E. Thermal Finish: Uniform, coarse-textured surface produced by thermal shock; with a gap not exceeding 3/16 inch (5 mm) when faces are tested for flatness with a 24-inch (600-mm) straightedge.

F. Natural-Cleft Finish: Uneven surface produced by splitting stone along a natural cleavage plane; without visible tool marks and with a gap not exceeding 3/16 inch (5 mm), when faces are tested for flatness with a 24-inch (600-mm) straightedge.

1.03 SUBMITTALS

A. Product Data: Submit manufacturer’s printed product description and installation instructions for each type and use of manufactured mortars, grouts, adhesives, cleaning and sealing materials. Include mortar and grout proportioning and mixing instructions for latex additives.

B. Samples: Submit minimum of three samples of each stone type and finish, at least 6 inches x 6 inches by thickness required for stone finish specified, indicating full range and texture to be expected in finished

1.04 QUALITY ASSURANCE

A. Fabricator/Installer Qualifications: Fabricator/Installer shall have at least five years successful experience in the fabrication and installation of stone work similar to the type specified and, if required by Architect, shall submit evidence of such experience.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Store and handle materials to prevent chipping of faces and edges. Use no pinch or wrecking bars without protecting edges of stone.

B. Protect stone during storage and construction against moisture, soiling, staining and physical damage.

C. Lift stone with wide-belt slings; do not use wire rope or ropes that might cause staining. Move stone, if required, using dollies with cushioned wood supports.

D. Store stone indoors on wood A-frames or pallets with nonstaining separators and nonstaining, waterproof covers. Ventilate under covers to prevent condensation.

1.06 PROJECT CONDITIONS

A. Maintain air and material temperatures to comply with requirements of installation material manufacturers, but not less than 50 TO 95 deg prior to, during installation and for 7 days after completion.

B. For manufactured mortar, adhesive and grout, comply with minimum temperature recommendations of manufacturers.

C. Field Measurements: Verify dimensions of construction to receive interior stone facing by field measurements before fabrication. Prepare full sized paper templates for fabrication.

PART 2 - PRODUCTS

2.01 PRODUCTS

A. STONE TOPS AND SPASHES: Natural Quartz and Resin Composite Countertops: Non-porous blend of natural quartz, 93 percent, and polyester resin, 7 percent, formed into flat slabs over continuous substrate

OKITE: 12227 FM 529, Suite K, Houston, TX 77041.
Phone: (713) 849-3800, Toll Free: (866) 654-8397.
Fax: (713) 849-3835.
Website: www.okite.us.

1. Overall Slab Size: 120 x 55 inches (3m x 1.4m).
2. Flat Sheet Thicknesses:
   a. Horizontal surfaces: 30 mm
   b. Vertical Surfaces: 20mm
3. Edge Detail: Flat square edge having sharp corners
4. Surface Finish:
5. Color: 1896 Bianco Carrara

B. SETTING MATERIALS
1. Water-Cleanable Epoxy Adhesive: ANSI A118.3**,** with a VOC content of 65 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
   a. Bonsal, W. R. Company.
   b. Custom Building Products.
   c. MAPEI Corp.

C. GROUT
1. Standard Unsanded Cement Grout: ANSI A118.6.
2. Polymer-Modified Tile Grout: ANSI A118.7.

D. SEALANTS
1. Joint Sealants: Sealants of characteristics indicated below that comply with applicable requirements in Division 07 Section "Joint Sealants" and will not stain the stone they are applied to.
   a. Pecora Corp., Dynatrol II.
   b. Sonneborn Building Products, Div./ChemRex, Inc., NP-2.
   c. Tremco, Inc., Dymeric.

2.02 STONE FABRICATION, GENERAL

A. Inspect Stone prior to fabrication for defects. Reject any slabs not suitable for fabrication due to flaws or damage.
B. Fabricate stone tops and splashes to greatest extent practical in sizes and shapes as indicated on Drawings
C. Cut stone to produce pieces of thickness, size, and shape indicated and to comply with fabrication and construction tolerances.
D. Where items are installed with adhesive or where edges of stone is visible in the finished work, make items uniform in thickness and of identical thickness for each type of item; gage back of stone if necessary.
E. Clean sawed backs of stones to remove rust stains and iron particles.
F. Dress joints straight and at right angle to face, unless otherwise indicated.
G. Carefully inspect finished stone units at fabrication plant for compliance with requirements for appearance, material, and fabrication. Replace defective units.
H. Countertops and splash edges: Provide polished square edge having sharp corners eased no greater than 1/16 inch.

PART 3 -EXECUTION

3.01 EXAMINATION

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

B. Examine surfaces indicated to receive interior stone facing and conditions under which interior stone facing will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Verify that items built-in by others are properly located and sized. Verify substrate is properly placed and finished.

B. Establish lines, levels and patterns. Protect from disturbance.

1. Cut stone where necessary with an approved saw to provide crisp, clean cuts free of chips, spalls and other surface defects.

C. Surfaces to receive stone shall be free of oil, grease, debris, frozen or loose materials.

D. Clean dirty or stained stone surfaces by removing soil, stains, and foreign materials before setting. Clean stone by thoroughly scrubbing with fiber brushes and then drenching with clear water. Do not use wire brushes and use only mild cleaning compounds that contain no caustic or harsh materials or abrasives.

3.03 SETTING OF STONE, GENERAL

A. Install as indicated in approved setting details and in applicable provisions of Marble Institute of America (MIA) Standard Specifications and Tile Council of America (TCA) Manual for stone work.

B. Arrange panels to provide consistent joint work.

C. Form joints to have close contact for full thickness of material.

D. Do necessary field cutting as stone is set. Use power saws with diamond blades to cut stone. Cut lines straight and true, with edges eased slightly to prevent snipping.

E. Set stone to comply with requirements indicated on Drawings. Install anchors, supports, fasteners, and other attachments indicated or necessary to secure stone in place. Shim and adjust anchors, supports, and accessories to set stone accurately in locations indicated, with edges and faces aligned according to established relationships and indicated tolerances.

3.04 INSTALLATION OF COUNTERTOPS

A. Set countertops in adhesive over substrate Install components plumb and level and in accordance with drawings and installation details.

1. Tops: Within 1/8 inch (3.2mm) of a flat surface over a 10 foot (0.3m) length.

a. Install with at least 1/16 inch (1.6mm) to at most 1/8 inch (3.2 mm) clearance between surface perimeter and wall.

2. Sinks:

a. Install under-mount sinks or bowls to countertops using appropriate adhesive, sealant and mounting hardware.

b. Install drop-in sinks or bowls to countertops using appropriate adhesive and color matched silicone sealant.

B. Install backsplashes and end splashes as indicated on the Drawings.

a. Adhere to countertops using appropriate adhesive and color matched silicone sealant.

C. Seal between lavatory bowl and countertop and splash with mirror with sanitary silicone sealant specified in Division 07 Section “Joint Sealants.”

3.05 GROUTING JOINTS

A. Grout stone to comply with ANSI A108.10.

1. Use unsanded grout mixture for joints 1/8 inch (3 mm) and narrower.

B. Remove temporary shims before grouting.

C. Tool joints uniformly and smoothly with plastic tool.

3.06 ADJUSTING AND CLEANING

A. In-Progress Cleaning: Clean stonework as work progresses with fresh clean water, fiber brushes and

approved masonry detergent to remove stains and excess mortar. Proportion and apply detergent, and rinse in strict compliance with detergent manufacturer's printed instructions. Remove mortar fins and smears before tooling joints. Remove adhesive, grout, mortar, and sealant smears immediately.

B. Exposed surfaces and edges shall be free from cracks, broken corners, chipped edges, scratches, or other defects affecting appearance. No hiding of defects will be permitted. Panels having flaws or imperfections are not acceptable and will be rejected. Replace with acceptable panels without additional compensation. Patching of stone shall only be done in compliance with procedures as approved by Architect.

C. Remove and replace interior stone facing of the following description:

Broken, chipped, stained, or otherwise damaged stone. Stone may be repaired if methods and results are approved by Architect.

3.07 PROTECTION

A. Protect stone surfaces, edges, and corners from construction damage.

B. Upon completion of cleaning operations, cover all finished stone with polyethylene sheeting or nonstaining Kraft paper to protect against damage by soiling and staining.

C. Leave protective coverings in place until directed by Architect or immediately before inspection for Substantial Completion. At that time remove protective coverings and clean surfaces.

END OF SECTION

SECTION 09900

PAINTING

PART 1 GENERAL

1.01 INCLUDES

A. Surface preparation and priming in addition to shop-priming and surface treatment specified under other Sections.
B. Painting and finishing of exposed interior items and surfaces.
C. Painting and finishing of exposed exterior items and surfaces.
D. High performance coatings in the Wash Tunnel
E. High performance coating of concrete floors
F. Painting is not required on prefinished items such switchgear, finished metal surfaces such as stainless steel, concealed surfaces such as furred areas and pipe spaces, operating parts such as valve and damper operators and sensing devices, and labels such as UL or code-required labels or equipment name, identification, performance rating, or nomenclature plates.
G. Colors, See Color Schedule on, Drawings

1.02 RELATED SECTIONS

A. Section 01340 - Alternates: Shop-priming structural steel to be field painted.
B. Section 05120 - Structural Steel: Shop-priming structural steel to be field painted.
C. Section 05500 - Metal Fabrications: Shop-priming ferrous metal.
D. Section 08110 - Standard Steel Doors and Frames: Shop-priming steel doors and frames.

1.03 DEFINITIONS

A. "Paint" includes coating systems materials, primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate, or finish coats.
B. “High Performance Coating” includes epoxy and high solid coatings

1.04 SUBMITTALS

A. Product data for each paint system specified, including primers.
   1. Provide the manufacturer's technical information including label analysis and instructions for handling, storage, and application of each material proposed for use.
   2. List each material and cross-reference the specific coating, finish system, and application. Identify each material by the manufacturer's catalog number and general classification.
B. Samples for initial color selection in the form of manufacturer's color charts.
C. Samples for Verification Purposes: Provide samples of each color and material to be applied, with texture to simulate actual conditions, on representative samples of the actual substrates.
   1. Use representative colors when preparing samples for review. Resubmit until required sheen, color, and texture are achieved.

1.05 QUALITY ASSURANCE

A. Single-Source Responsibility: Provide primers and undercoat paint produced by the same manufacturer as the finish coats.
B. Field Samples: On wall surfaces and other exterior and interior components, duplicate finishes of prepared samples. Provide full-coat finish samples on at least 100 sq. ft. of surface until required sheen, color, and texture are obtained; simulate finished lighting conditions for review of in-place work.
1. Final acceptance of colors will be from job-applied samples.
2. The Architect will select one room or surface to represent surfaces and conditions for each type of coating and substrate to be painted. Apply coatings in this room or surface according to the schedule or as specified.
a. After finishes are accepted, this room or surface will be used to evaluate coating systems of a similar nature.

1.06 PROJECT CONDITIONS

A. Apply water-based paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 50 deg.F (10 deg.C) and 90 deg.F (32 deg.C).

B. Apply solvent-thinned paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 45 deg.F (7 deg.C) and 95 deg.F (35 deg.C).
C. Do not apply paint in snow, rain, fog, or mist; or when the relative humidity exceeds 85 percent or at temperatures less than 5 deg.F (3 deg.C) above the dew point or to damp or wet surfaces.

1.07 MAINTENANCE

A. Extra Materials: Provide one (1) gallon of extra stock for every fifty (50) gallons, or portions thereof, of finish coats applied to surfaces. Do not provide extra materials for High Performance Coatings.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Subject to compliance with requirements, provide products of one of the following, unless otherwise indicated in the systems listed at the end of this section:
   1. Sherwin Williams (SW)
   2. Benjamin Moore and Co. (Moore)

2.02 MATERIALS

A. Material Compatibility: Provide block fillers, primers, finish coat materials, and related materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by the manufacturer based on testing and field experience.
B. Tint or shade first, second and third coats differently.
C. Color Pigments: Pure, non-fading, applicable types of suit substrates and service indicated.
D. High Performance Clear Floor Sealer: Clear water based catalyzed epoxy , SW B70 Series Industrial Coatings
   Location: All interior concrete floors not scheduled to be pigmented concrete (SSC)
E. High Performance Coating: Sherwin Williams Industrial and Marine Coatings, Macropoxy® 646-100 Fast Cure Epoxy, color: White
F. High Perfomance Block Filler: Sherwin Williams Kem Cati-Coat HS Epoxy Filler/sealer, color: White
H. Standard Block Filler: Sherwin Williams Promar B25W25, color: white

PART 3- EXECUTION

3.01 EXAMINATION

A. Examine substrates, areas, and conditions, with the Applicator present, under which painting will be performed for compliance with paint application requirements.
   1. Do not begin to apply paint until satisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
   2. Start of painting will be construed as the Applicator's acceptance of surfaces and conditions within a particular area.

3.02 PREPARATION

A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of the size or weight of the item, provide surface-applied protection before surface preparation and painting.
   1. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.
B. Cleaning: Before applying paint or other surface treatments, clean the substrates of substances that could impair the bond of the various coatings. Remove oil and grease before cleaning.
   1. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
C. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.
   1. Provide barrier coats over incompatible primers or remove and reprime.
   2. Cementitious Materials: Prepare concrete, concrete masonry block, cement plaster, and mineral-fiber-reinforced cement panel surfaces to be painted. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface protection.
      a. Use abrasive blast-cleaning methods if recommended by paint manufacturer.

b. Determine alkalinity and moisture content of surfaces by performing appropriate tests. If surfaces are sufficiently alkaline to cause the finish paint to blister and burn, correct this condition before application. Do not paint surfaces where moisture content exceeds that permitted in manufacturer's written instructions.

c. Before proceeding with Conveyor Trench paint, confirm surfaces are in accordance with CSP-1-2 , check PH per ASTM D 4262, followed by acid wash and cleaning with pressure washer and substantial quantities to wash fully the salts from the reaction.

3. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off.
   a. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer before applying primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.
   b. Prime, stain, or seal wood to be painted immediately on delivery. Prime edges, ends, faces, undersides, and backsides of wood, including cabinets, counters, cases, and paneling.
4. Ferrous Metals: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with the Steel Structures Painting Council's (SSPC) recommendations.
   a. Blast steel surfaces clean as recommended by paint system manufacturer and according to requirements of SSPC-SP 10, unless otherwise specified.
   b. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.
   c. Touch up bare areas and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by paint manufacturer, and touch up with the same primer as the shop coat.
   d. Metal Work Imperfections: Dents, cracks, hollow places, open joints and other irregularities in metal work to be painted shall be filled with metal filler which, after setting, shall be sanded to a smooth, hard finish, in accordance with SSPC-SP-2.
5. Galvanized Surfaces: Clean galvanized surfaces with nonpetroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.
6. Gypsum Board: Surfaces of gypsum board shall have all damaged areas cut out and patched, cracks taped and all roughness sanded smooth. Gypsum board shall be brushed clean of dust before painting begins. No texture shall be added to paint or applied to gypsum surfaces prior to painting,

D. Materials Preparation: Mix and prepare paint materials according to manufacturer's written instructions.
1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.
3. Use only thinners approved by paint manufacturer and only within recommended limits.

E. Tinting: Tint each undercoat a lighter shade to simplify identification of each coat when multiple coats of the same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoat to distinguish each separate coat.

3.03 APPLICATION

A. General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.
1. Paint colors, surface treatments, and finishes are indicated in the schedules.
2. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
3. Apply additional coats if undercoats, stains, or other conditions show through final coat of paint until paint film is of uniform finish, color, and appearance. Give special attention to ensure that surfaces, including edges, comers, crevices, welds, and exposed fasteners, receive a dry film thickness equivalent to that of flat surfaces.
4. Apply materials uniformly, showing no runs, sags, "crawls, "holidays", or other defects.
5. Provide finish coats that are compatible with primers used.

6. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, convector covers, covers for finned-tube radiation, grilles, and similar components are in place. Extend coatings in these areas, as required, to maintain the system integrity and provide desired protection.
7. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before the final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
8. Paint interior surfaces of ducts with a flat, nonspecular black paint where visible through registers or grilles.
9. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
10. Finish exterior doors on tops, bottoms, and side edges the same as exterior faces.
11. Sand lightly between each succeeding enamel or varnish coat.

B. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
1. The number of coats and the film thickness required are the same regardless of application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
2. Omit primer on metal surfaces that have been shop primed and touchup painted.
3. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
4. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and where application of another coat of paint does not cause the undercoat to life or lose adhesion.
5. Heated Items: Pipes containing heat shall not be painted until system is cold and remains old until after final coat has dried.

C. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.
1. Spray Equipment: If spray application is to be used, use airless spray equipment with orifice size as recommended by the manufacturer for the material and texture required.

D. Miscellaneous Metal Items: Access doors, plates, panel boxes, steel grilles, louvers, convector covers, registers and similar items shall be painted in colors selected. Plates and grilles in ceilings or walls shall be painted to match ceilings or walls, unless work is factory finished or noted otherwise.

E. Recoat primed and sealed surfaces where there is evidence of suction spots or unsealed areas in first coat, to assure a finish coat with no burn-through (paint holidays) or other defects due to insufficient sealing.

F. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate. Provide the total dry film thickness of the entire system as recommended by the manufacturer.

G. Mechanical and Electrical Work: Painting of mechanical and electrical work is limited to items exposed in equipment rooms and in occupied spaces.

H. Standard Block Fillers: Apply block fillers to concentrate masonry block at a rate to ensure complete coverage with pores filled. Location: all exposed CMU scheduled to receive painted finishes except interior of Wash Tunnel.

I. Prime Coats: Before applying finish coats, apply a prime coat of material, as recommended by the manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no bum through or other defects due to insufficient sealing.

J. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.

K. Stipple Enamel Finish: Roll and redistribute paint to an even and fine texture. Leave no evidence of rolling, such as laps, irregularity in texture, skid marks, or other surface imperfections.

L. Completed Work: Match accepted samples of color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.

M. High Performance Block Filler: apply in accordance to manufacturer’s Application Bulletin to exposed CMU surfaces in Wash Tunnel. Allow for curing times as recommended by manufacturer prior to applying finish coats.

N. High Performance Coating: apply in accordance to manufacturer's Application Bulletin to exposed CMU surfaces in Wash Tunnel after surfaces have been filled and cured. Allow for curing times as recommended by manufacturer.

O. High Performance Floor Sealer: apply in accordance to manufacturer's Application Bulletin to exposed concrete floors scheduled to receive clear sealer.

3.04 CLEANING

A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and, other discarded paint materials from the site

1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping. Be careful not to scratch or damage adjacent finished surfaces.

3.05 PROTECTION

A. Protect work of other trades, whether being painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Architect.

B. Provide "Wet Paint" signs to protect newly painted finished. Remove temporary protective wrappings provided by others to protect their work after completing painting operations.

1. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.06 PAINTING SCHEDULE

A. Exterior Work: Provide following paint systems.

1. Framing, Wash Tunnel Trench metal edges and covers: Semigloss sheen
   a. 1"St Coat: Sherwin-Williams Kem Kromik Universal Metal Primer.
   b. 2nd and 3rd Coat: Sherwin-Williams D.T.M.Enamel Alkyd Semi-Gloss #2.25.
2. CMU surfaces unless indicated otherwise on the Drawings:
   a. 1"St Coat: Sherwin Williams PrepRite Block Filler, Interior/Exterior B25W25 b. 2nd Coat and 3rd Coat: Sherwin Williams SuperPaint, Exterior Latex.
3. Sheet Metal (Field Applied, see Section 05500 Miscellaneous Metal Fabrications for other manufacturer coatings for specific products.)
   a. 1"St Coat: Benj Moore Chemical Resistant Metal Primer #M10. Primer not required on paint grip galvanized surfaces.
   b. 2nd and 3rd Coats: Benjamin Moore D.T.M. Acrylic Semi-Gloss #M29 (MPI Listed Product Category 141).

B. Interior Work: Provide following paint systems.

1. Exposed CMU except Wash Tunnel and other surfaces unless indicated otherwise on the Drawings:
   a. 1"St Coat: Sherwin Williams PrepRite Block Filler, Interior/Exterior B25W25
   b. 2nd Coat and 3rd Coat: Sherwin Williams SuperPaint, Exterior Latex.
2. CMU and Gypsum Board in toilet areas:
   a. 1 St Coat: Sherwin-Williams Prep-Rite High Build Interior Latex Primer/Surfacer for Masonry1 St Coat: Sherwin-Williams Prep-Rite Latex Primer/Surfacer for Drywall. b. 2nd & 3rd Coats- Sherwin-Williams Waterbased Tile-Clad II Epoxy Finish
3. Gypsum Board Systems: Eggshell (satin) at walls and semigloss sheen at ceilings:
   a. 1 St Coat: Sherwin-Williams Prep-Rite High Build Interior Latex Primer/Surfacer B28W601.
   b. 2nd and 3rd Coat: Interior latex or acrylic latex emulsion, Sherwin-Williams ProGree 200 Low VOC Egg-Shel B20-600 Series.
4. Conveyor Trench Epoxy Paint:
   a. 1 St Coat: Euclid Chemical Duraltex a. 2"d Coat Euclid Duralkote 240
5. Concrete Floors:
   a. Prepare concrete surfaces to be coated in accordance with manufacturer's requirements. Surfaces must be clean, dry, and free of all dust, grease, dirt, and other foreign materials to assure adequate adhesion.
   b. 1 st and 2nd coats: SW B70 clear epoxy using a roller and brush in tighter spaces. Allow curing time between coats
6. Wash Tunnel Exposed CMU surfaces:
   a. Prepare CMU surfaces to be coated in accordance with manufacturer's requirements. Surfaces must be clean, dry, and free of all dust, grease, dirt, and other foreign materials to assure adequate adhesion. Mortar should have cured for at least 28 days prior to application.

b. 1 st coat: Sherwin Williams Kem Cati-Coat HS Epoxy Filler/sealer using a roller and brush in tighter spaces. Allow curing time between coats. Second coat may be required to fill voids and provide continuous substrate.

c. 2nd coat: Sherwin Williams Industrial and Marine Coatings, Macropoxy® 646-100 Fast Cure Epoxy, using a roller and brush in tighter spaces. Allow curing time between coats.

d. 3rd coat: same as 2nd coat, airless spray application concurrent with steel roof structure.

7. Wash Tunnel Ceiling and Exposed structural steel surfaces:
   a. Prepare surfaces to be coated in accordance with manufacturer's requirements. Surfaces must be clean, dry, and free of all dust, grease, dirt, and other foreign materials to assure adequate adhesion.
   b. 1 st coat and 2nd coat: Sherwin Williams Industrial and Marine Coatings, Macropoxy® 646-100 Fast Cure Epoxy, using airless spray application. Allow curing time between coats.
8. Exposed Structural Steel,Metal Framing, and Steel Deck (exposed): Semigloss sheen
   a. 1"St Coat: Sherwin-Williams Kem Kromik Universal Metal Primer.
   b. 2nd and 3rd Coat: Sherwin-Williams D.T.M.Enamel Alkyd Semi-Gloss #2.25.

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END OF SECTION

SECTION 10520

FIRE PROTECTION SPECIALTIES

PART 1 GENERAL

1.01 SUMMARY

A. Contractor provided and installed fire extinguishers where indicated on the Drawings.

1.02 SUBMITTALS

A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.

1.03 QUALITY ASSURANCE

A. Comply with governing codes and regulations. Provide products of acceptable manufacturers that 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. Standards: UL and FM listed products, NFPA 10. PART 2 PRODUCTS

2.01 MATERIALS

A. Manufacturers: Owner Provide and selected.

B. Mounting: Surface-mounted.

PART 3 EXECUTION

3.01 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. Install fire extinguishers in mechanical and service areas with wall-hung brackets at locations and heights indicated and acceptable to authorities having jurisdiction.

C. Install fire extinguishers in on wall where indicated at heights acceptable to authorities having jurisdiction.

D. Restore damaged finishes. Clean and protect work from damage.

END OF SECTION

SECTION 10530

EXTRUDED ALUMINUM CANOPY

PART 1 GENERAL

1.01 WORK INCLUDED
A. Furnish a complete extruded aluminum canopy walkway cover system including labor as shown on drawings
1.02 SUBMITTALS
A. Shop Drawings bearing the seal of a registered structural engineer showing required live and wind loads for the project.
1.03 QUALITY ASSURANCE
A. Comply with governing codes and regulations. Provide products of acceptable manufacturers that have been in satisfactory use in similar service for five years.
B. Installation shall be done by the manufacturer of the aluminum canopy to assure single source responsibility for the work. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
1.04 WARRANTY
A. Provide one year warranty against defects in materials, workmanship, and installation. Warranty shall commence at date of substantial completion.

PART 2 MATERIALS

2.01 MANUFACTURERS
A. AVadek, 9201 Winkler, Houston, Texas 77017, 713-944-0988
B. Or approved equivalent by architect prior to bidding
2.02 COMPONENTS
A. All components shall be 6061-T6 or 6005-T5 Alloy extruded aluminum
B. Beams, and deck shall be sized by manufacturer and shall meet the engineering requirements of the
C. Finish: Clear anodized
D. Fasteners shall be concealed as much as is possible. Material shall be stainless steel or specially coated to provide for long life durability.

PART 3 – EXECUTION

3.01 FABRICATION
A. Beams shall be heliarc welded.
B. The canopy deck is to have welded end closures at the deck terminations.
C. The canopy shall be fabricated to drain through the beams and exit canopy through scuppers in the face of the awning.
D. Flashing shall be .040 aluminum fabricated to prevent leakage between the canopy and adjacent structures.
30.2 INSTALLATION
A. Install the canopy in strict accordance with the manufacturer’s recommendations.
B. Erect canopy after masonry, stucco, and tile work in vicinity is completed and washed down.
C. Install beams straight and true.
D. Install flashing as required.
E. Thoroughly clean canopy after installation.

END OF SECTION

SECTION 10800

TOILET ACCESSORIES

PART 1 GENERAL

1.01 INCLUDES:
A. Accessories for toilet rooms.
B. Grab bar and mirrors.
1.02 ADMINISTRATIVE REQUIREMENTS
A. Coordinate the work with the placement of internal wall reinforcement, concealed ceiling supports, and reinforcement of toilet partitions to receive anchor attachments.
1.03 SUBMITTALS
A. See Section 01300 Submittals for requirements
B. Product Data: Provide data on accessories describing size, finish, details of function, attachment methods.
C. Manufacturer's Installation Instructions: Indicate special procedures and conditions requiring special attention.

PART 2 PRODUCTS

2.01 MANUFACTURERS
A. Bobrick.
B. Or approved equal
2.02 MATERIALS
A. Accessories - General: Shop assembled, free of dents and scratches and packaged complete with anchors and fittings, steel anchor plates, adapters, and anchor components for installation.
2.03 FINISHES
A. Unless noted otherwise, all accessories shat be type 304 stainless steel
2.04 TOILET ROOM ACCESSORIES – the following are based on Bobrick selections
A. Grab Bars: B-5806 Stainless steel, 1-1/4 inches (32 mm) outside diameter, minimum 0.05 inch (1.3 mm) wall thickness, nonslip grasping surface finish, concealed flange mounting; 1-1/2 inches (38 mm) clearance between wall and inside of grab bar.
1. Length and configuration: As indicated on drawings.
B. Toilet Tissue Dispenser: B-288 Multi-roll Dispenser
C. Paper Towel Dispenser: B-262 Surface mounted, multi-fold dispenser
D. Metal Framed Mirror: B-290 24” wide x 48” tall, 304 ss frame, 1/4” Q1 polished mirror
E. Soap Dispenser: B-822 Deck mounted 34 oz capacity

PART 3 EXECUTION

3.01 EXAMINATION
A. Verify existing conditions before starting work.
B. Verify exact location of accessories for installation.
3.02 INSTALLATION
A. Install accessories in accordance with manufacturers' instructions.
B. Install plumb and level, securely and rigidly anchored to substrate.
C. Mounting Heights and Locations: As required by accessibility regulations, as indicated on drawings

END OF SECTION

SECTION 12053

EXTERIOR FABRICS

PART 1- GENERAL

1.01 DESCRIPTION
A. The scope of work includes fabrics associated with Sunscreens and Awnings.

1.02 RELATED SECTIONS AND DOCUMENTS
A. Section 01600-Materials and Equipment.

1.03 SUBMITTALS
A. Submit product data, including installation instructions, on fabrics.
B. Submit copies of warranties and cleaning instructions.

PART 2 PRODUCTS

2.01 FABRIC

A. Manufacturer: Cooleroo Commercial 95 as manufactured by Gale Pacific Limited . (The product is manufactured in Australia by Gale Pacific Limited ACN 082 263 778 (“Gale Pacific”), an ISO9002 accredited company.)
B. US Distributor Address: Gale Pacific Inc, PO. Box 951509, Lake Mary, Floreida 32795-1509
C. Description: 100 percent flame retardant High Density Polyethylene.
D. Weight: 9 oz per yard.
E. Knit Pattern: Lock Stitch.
F. Color: Navy Blue
G. Warranty: 10 years
H. Flamability:
   1. Meets NFPA 701-99 test method 2, Test Report 756, Magill Laboratories, Inc, P.O. Box 267, One Railroad Street, Slatersville, Rhode Island 02876
   2. Meeting ASTM E-84-06 Test Number 3829-3112, Oct 16, 2006 a. Roll Width: 9’-10”

PART 3 EXECUTION

3.01 COORDINATION
A. Coordinate with awning structure manufacturer as required to provide fabrics specified.

3.02 INSTALLATION
A. Install fabric in accordance with manufacturer’s current written specifications, recommendations, and instructions.
B. Install fabric taunt and tensioned to avoid sag.

3.03 COMPLETION
A. At completion, clean fabric as required and in accordance with current written cleaning instructions.
   1. Remove loose threads and selvedge.
      a. Re-tension fabrics where directed by the Owner’s Representative.

END OF SECTION