

Project:

IRC – 2030
Tax Collector Office Expansion – Building B

Located at:

1801 27th Street
Vero Beach, FL 32960

PROJECT MANUAL / TECHNICAL SPECIFICATIONS

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Architect's Commission Number
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OWNER:

Indian River County
1801 27th Street
Vero Beach, FL 32960

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This section provided by MEP engineer.

SECTION 02206 - SITE CLEANUP & RESTORATION

1.01 SCOPE

- A. The Contractor shall furnish all labor, equipment, appliances and materials required or necessary to clean up the site after the construction is completed and to restore items disturbed or damaged due to his construction operation.

2.02 GENERAL

- A. During the progress of the project, the work and the adjacent areas affected thereby shall be kept in a neat and orderly condition. All rubbish, surplus materials, and unused construction equipment shall be removed. All damage shall be repaired so that the public and private property owners will be inconvenienced as little as possible.
- B. Where material or debris has been deposited in watercourses, ditches, gutters, drains, or catch-basins as a result of the Contractor's operations, such material or debris shall be entirely removed and satisfactorily disposed of during the progress of the work, and the ditches, channels, drains, etc., shall be kept clean.
- C. Before the completion of the project, the Contractor shall, unless otherwise especially directed or permitted in writing, tear down and remove all temporary buildings and structures which he builds; remove all temporary works, tools, and machinery or other construction equipment furnished by him; remove, acceptably disinfect, and cover all organic matter and material containing organic matter in, under, and around privies, houses, and other buildings used by him; remove all rubbish from any grounds which he has occupied; and leave the roads, all parts of the premises and adjacent property affected by his operations, in a neat and satisfactory condition.
- D. It shall be the responsibility of the Contractor to repair, rebuild, or restore to its former conditions, any and all portions of existing utilities, structures, equipment, appurtenances, trees and shrubs, or facilities, other than those to be paid for under the specifications, which may be disturbed or damaged due to his construction operations.
- E. The Contractor shall thoroughly clean all materials and equipment installed by him and his subcontractors and on completion of the work shall deliver the facilities undamaged and in fresh and new-appearing condition.

*****END OF SECTION*****

SECTION 02312 - SWALE CONSTRUCTION

PART 1 - DESCRIPTION:

- A. Find grading of swaled shall be accomplished after the existing ground has been excavated and compacted to within + 0.2 ft. of the design elevations. Fine grading of the swale areas will be done by motor grader unless otherwise approved or directed by the Engineer. Hand dressing will not be required except where shown on the Drawings or in confined areas where equipment operation is restricted.
- B. The Contractor shall maintain and keep open and free from leaves, sticks, rubble, and other debris, all swaled graded by him until final acceptance of the work.
- C. The finished grade shall be completed and shaped to a surface which varies no more than 0.1 foot above or below the Plan elevations except that, adjacent to pavement, grates, or sidewalk, the swale shall be graded to match the edge of the pavement, grate or sidewalk.
- D. In areas where sodding is required, finished soil grade shall be set 0.2 foot below the plan elevation to compensate for sod thickness.
- E. Compaction to a specific density will not be required unless so directed by the Engineer. However, swales shall be compacted to a firm, even surface true to grade and cross section. All swales must be rolled.
- F. Fine grading of the swale areas shall preferably be done prior to paving the asphalt wearing course. If the Contractor chooses to fine grade the swale areas subsequent to paving, he must exercise extreme care when dressing areas adjacent to pavement areas to avoid damage to the pavement. No handling of swale material shall be permitted on the pavement surface.

*****END OF SECTION*****

SECTION 02500 - UNDERGROUND SPRINKLER IRRIGATION SYSTEM

PART 1 - IRRIGATION

1.01 RELATED WORK SPECIFIED - ELSEWHERE

- A. Landscaping - Section 02480
- B. Landscape Work - Section 02481
- C. Mechanical - Division 15000
- D. Electrical - Division 16000
- E. Drawings and general provisions of Contract, including General & Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 QUALITY ASSURANCE

- A. This specification is a guide to establish the desired level of quality and results to best service the Owner's need. The Irrigation Contractor is required to furnish all materials and methods, meters, permits required to insure a complete functioning irrigation system.
- B. Products of the following manufacturers are acceptable:
 - 1. Toro
 - 2. Rainbird
 - 3. Nelson
 - 4. Hunter
- C. Products of other manufacturers may be proposed under conditions set forth in the Contract Conditions of these Specifications. Any product that does not have as equal acceptance will not be accepted.
- D. Coordinate Irrigation with Landscaping requirements for watering.

1.03 AS BUILT DRAWINGS

Furnish typewritten operating instructions and two (2) sets of as-built drawings with circuits color coded. Provide this information immediately following completion and acceptance of the work.

PART 2 - PRODUCTS

2.01 PIPE

- A. For all pipe upstream of zone valve -- site irrigation:
 - 1. Size: Per plans.

2. Type: Schedule 40 PVC, ASTM D1785 or D2665.
- B. For all pipe downstream of zone valves -- site irrigation:
1. Size: 3/4", 1", 1-1/4", 1-1/2", 2", 2-1/2", 3", 4".
 2. Type: Per plans, (Solvent Weld), bell ends or Schedule 1120 thin wall.
- C. For all pipe above grade in Pump House:
1. Size: As required.
 2. Type: Galv. Pipe with standard male and female treads.
- D. For sleeving under roadways:
1. Size: Two times size of irrigation line.
 2. Type: PVC Schedule 40.
 3. To extend minimum 2 feet beyond asphalt.
- E. For shrub bed risers:
1. Size: 1/2", 3/4", or 1" as required.

2.02 PVC PIPE FITTING

- A. Size: As required
- B. Type: PVC Schedule 40, ASTM D1785

2.03 PUMP STATION

- A. Manufacturer:
Pump as called out per plans, with a one (1) year guarantee required. Owner to be furnished operating instructions and service manuals. Electric shall be 208/230 or 460 volts as called out on plans.
- B. Field Testing:
Unit shall be given running test under load. No excessive vibration or overheating will be permitted.
- C. Optional equipment to be included:
1. Jockey Pump
 2. Automatic Control Valve
 3. High Pressure Protection
 4. Low Suction & Loss of Prime Protection
 5. Low Water Protection

6. Circuit Breakers
7. Meters if required and cost of such meters.

2.04 VALVES

- A. Manufacturer:
Hydro-Rain (Hardie or approved equal.)
- B. Type:
Remote Control, 24-volt solenoid.
- C. Size:
As noted on plan.

2.05 VALVE BOXES

- A. Manufacturer:
Brooks, or approved equal.
- B. Type:
Concrete or PVC
- C. Size:
As required.

2.06 SPRINKLER

- A. Spray Heads
 1. Manufacturer: Toro or approved equal.
 2. Type: Cicolac - Pop up, minimum 6".
 3. Nozzle Patterns: as shown on the drawings.
- B. Rotary Pop Up
 1. Manufacturer: Toro
 2. Type: Cicolac - gear driven - vandal resistant.
 3. Size: As shown on plan.

2.07 CONTROLLER

- A. Manufacturer:
Toro, 176-06-01 Monitor II, as indicated on Drawings.
- B. Complete with 14 day watering cycle; 3 to 60 minute station run times; manual mode switch; locking, heavy gauge steel cabinet; weather proof.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. System shall be adjusted as required to insure 100% coverage.
- B. Pipes and Fittings
 - 1. All piping shall be run as straight as possible. Cut pipe shall be squarely cut and properly reamed to remove all cuttings and burrs before making up the joints. In general, fittings shall be of the same materials as the pipe. All materials, equipment and fixtures shall be installed in a neat, workmanlike manner.
 - 2. Lawn heads to be installed on flex pipe - Toro #850-01 or equal.
 - 3. Thrust blocks shall be installed on all gasket pipe as instructed by the pipe manufacturer.
 - 4. All pipe 2-1/2" and larger shall have a minimum backfill depth of 18". All pipe 2" and smaller shall have a minimum backfill depth of 12".
 - 5. All electrical connection done below grade shall be water tight.

3.02 JOINTS AND CONNECTIONS

- A. Joints and connections shall be made permanently air and water tight.
- B. Plastic pipe joints shall be made by means of heavy duty PVC solvent welding. Use both cleaner, primer and glue (clear) as recommended by the manufacturer.

3.03 VALVES, CHECK VALVES AND UNIONS

- A. All valves, check valves and unions may not be shown in every instance on the drawings, but whether shown or not, all valves, check valves and unions necessary for the proper operation and maintenance of the system shall be furnished and installed in an approved manner and location. All zone valves shall have gate valves installed upstream side and to fit in same valve box.

3.04 FILLING AND GRADING

- A. Backfill and compact all trenches with suitable clean material. Crown trench fill to permit settlement to a level grade.
- B. Fill over piping shall be done by hand to a point 6" above the pipe. Additional fill

over pipe shall be done by machine.

- C. Pipes routed across drives shall be sleeved in Schedule 40 PVC. Sleeves shall be installed 24" below grade.

3.05 SPRINKLERS

- A. All sprinklers shall be as specified on the drawings, or approved equal. Install 12" from edge of paving or walls.
- B. All sprinklers in lawn areas shall be installed on flex pipe. Shrub heads shall be on PVC pipe. Sprinkler shall be tightly secured to risers to deter vandalism.
- C. All sprinklers shall be set to finished grade.

3.06 COORDINATION

- A. Irrigation Contractor shall coordinate his work with Landscape and Paving Contractors, so that no heads or lines conflict with other work.
- B. Irrigation Contractor shall coordinate his work with Electrical Contractor to provide proper hook-up of the pump station. The Electrical Contractor shall bring power to the station and connect to the pump motor. Irrigation Contractor shall refer to Division 16000 of the Specifications for information concerning electrical work on site.

3.07 TESTING

Pipe lines, when tested under a pressure of 125 lbs. Per square inch, shall have NO LEAKAGE ALLOWED. All visible leaks at exposed joints and all leaks evident at the surface where joints are covered shall be repaired and leakage eliminated, regardless of total leakage as shown by test. Lines which fail to meet tests shall be repaired, and re-tested as necessary until test requirements are complied with. Defective materials, pipes, valves and accessories shall be removed and replaced. The pipe lines shall be tested in such sections as may be directed by the Engineer by shutting gates or installing temporary plugs as required. The line shall be filled with water and all air removed and a pressure of 125 lbs. Per square inch shall be maintained in the pipe for a period of not less than two (2) hours by means of a force pump to be furnished by the Contractor. Accurate means shall be provided for measuring the water required to maintain this pressure. The amount of water required is a measure of the leakage.

3.08 GUARANTEE

All parts, materials and labor shall be guaranteed for one (1) year beginning at final acceptance of the project by the Owner.

*****END OF SECTION*****

SECTION 02516 - SITE CONCRETE (WALKS & SLABS)

PART 1 - GENERAL

The drawings and general provisions of Contract, including General and Supplementary conditions and Division 1 -- Specifications Sections, apply to work of this Section.

1.01 DESCRIPTION

- A. Extent of Portland cement concrete paving, walks and slabs are shown on the drawings.
- B. Prepared subbase is specified in "Earthwork" Section.
- C. Concrete and related sections are specified in Division 3.
- D. Joint fillers and sealers are specified in Division 7.

1.02 QUALITY ASSURANCE

- A. Codes and Standards:
Comply with local governing regulations if more stringent than herein specified.

1.03 SUBMITTALS

- A. Furnish samples, manufacturer's product data, test reports, and materials, certifications as required in referenced sections for concrete and joint fillers.

1.04 JOB CONDITIONS

- A. Traffic Control:
Maintain access for vehicular and pedestrian traffic as required for other construction activities.
- B. Utilize barricades, warning signs and warning lights as required.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Forms:
Steel, wood or other suitable material of size and strength to resist movement during concrete placement and to retain horizontal and vertical alignment until removal. Use straight forms, free of distortion and defects. Use flexible spring steel forms, masonite or laminated boards to form radius bends as required.
- B. Coat forms with a non-staining form release agent that will not discolor or deface surface of concrete.
- C. Reinforcing:

Utilize Fibermesh admixture.

D. Concrete Materials:

Comply with requirements of applicable Division 3 Sections for concrete materials, admixtures, bonding materials, curing materials, and others as required.

2.02 CONCRETE MIX, DESIGN AND TESTING

A. Design mix to produce standard-weight concrete consisting of portland cement, 3/4" aggregate, air-entrained admixture and water to produce the following properties:

1. Compressive Strength: 3,000 psi minimum at 28 days.
2. Slump Range: 4" plus/minus 1" slump.
3. Air Content: 5% to 8%.
4. Water reducing or other supplemental admixtures will not be allowed.
5. Pea rock pump-mix will not be allowed for any slabs on grade.

PART 3 – EXECUTION

3.01 SURFACE PREPARATION

- A. Remove loose material from compacted subbase surface immediately before placing concrete.
- B. Proof-roll prepared subbase surface to check for unstable areas and need for additional compaction. Do not begin paving work until such conditions have been corrected and are ready to receive concrete.
- C. Set forms to required grades and lines, rigidly braced and secured. Install sufficient quantity of forms to allow continuous progress of work and so that forms can remain in place at least 24 hours after concrete placement.
- D. Check completed form work for grade and alignment to following tolerances:
 1. Top of forms not more than 1/8" in 10'.
 2. Vertical face on longitudinal axis, not more than 1/4" in 10'.
 3. Clean forms after each use, and coat with form release agent as often as required to ensure separation from concrete without damage.

3.02 CONCRETE PLACEMENT:

- A. General:

Comply with requirements of Division 3 sections for mixing and placing concrete, and as herein specified.
- B. Do not place concrete until subbase and forms have been checked for line and grade. Moisten subbase if required to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at

required finish elevation and alignment.

- C. Place concrete using methods which prevent segregation of mix. Consolidate concrete along face of forms and adjacent to transverse joints with internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand-spreading and consolidation. Consolidate with care to prevent dislocation of reinforcing, dowels, and joint devices.
- D. Deposit and spread concrete in a continuous operation between transverse joints, as far as possible. If interrupted for more than ½ hour, place a construction joint. Do not use concrete pumps unless they are capable of delivering 3/4" rock mix.

3.03 JOINTS:

- A. General:
Construct expansion, weakened-plane (contraction), and construction joints true-to-line with face perpendicular to surface of concrete. Construct transverse joints at right angles to the centerline, unless otherwise indicated.
- B. Tooled Joints:
Form weakened-plane joints in fresh concrete by grooving top portion with a recommended cutting tool and finishing edges with a jointer.
- C. Construction Joints:
Place construction joints at the end of pours and at locations where placement operations are stopped for a period of more than ½ hour, except where such pours terminate at expansion joints.
- D. Sawcut Control Joints shall be cut a minimum of 1" deep within 24 hours of concrete placement and located per drawings.

3.04 CONCRETE FINISHING

- A. After striking-off and consolidating concrete, smooth surface by screeding and floating. Use hand methods only where mechanical floating is not possible. Adjust floating to compact surface and produce uniform texture.
- B. After floating, test surface to trueness with a 10' straightedge. Distribute concrete as required to remove surface irregularities, and refloat repaired areas to provide a continuous smooth finish.
- C. Work edges of slabs, back top edge of curb, and formed joints with an edging tool, and round to ½" radius, unless otherwise indicated. Eliminate tool marks on concrete surface.
- D. After completion of floating and when excess moisture or surface sheen has disappeared, complete surface finishing as follows:
 - 1. Broom finish, by drawing a fine-hair broom across concrete surface, perpendicular

to line of traffic. Repeat operation if required to provide a fine line texture acceptable to Architect.

- E. Do not remove forms for 24 hours after concrete has been placed. After form removal, clean ends of joints and point-up any minor honey-combed areas. Remove and replace areas of sections with major defects, as directed by Architect.

3.05 CURING

- A. Protect and cure finished concrete paving, complying with applicable requirements of Division 3 sections. Use moist-curing methods for initial curing whenever possible.

3.06 REPAIRS AND PROTECTION

- A. Repair or replace broken or defective concrete, as directed by Architect.
- B. Drill test cores where directed by Architect, when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory pavement areas with portland cement concrete bonded to pavement with epoxy resin grout.
- C. Protect concrete from damage until acceptance of work. Exclude traffic from pavement for at least 14 days after placement. When construction traffic is permitted, maintain pavement as clean as possible by removing surface stains and spillage of materials as they occur.
- D. Sweep concrete pavement and wash free of stains, discolorations, dirt and other foreign material just prior to final inspection.

*****END OF SECTION*****

SECTION 03100 - CONCRETE FORMWORK

PART 1 - GENERAL

1.01 QUALITY ASSURANCE

A. Qualifications of Workmen:

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

B. Codes and Standards:

1. Comply with applicable provisions of the latest edition of Building Code that has jurisdiction and Occupational Safety and Health Act.
2. Where provision of pertinent codes and standards conflict with the requirements of this Section of these Specifications, the more stringent provisions shall govern.
3. Product Standard PS 1-83 for Construction and Industrial Plywood.
4. American Concrete Institute Standard recommended practice for concrete formwork, ACI 347-latest edition.

PART 2 - PRODUCTS

2.01 FORM MATERIALS

A. Form Lumber:

1. All form lumber in contact with exposed concrete shall be new except as allowed for under Re-use of Forms in Part 3 of this Section of the Specifications. All form lumber shall be one of the following, a combination thereof, or an equal approved in advance by the Engineer.
 - a. "Plyform", Class I 5/8" or 3/4" PS 1066, C-D exterior plywood, bearing the label of the Douglas Fir Plywood Association.
 - b. Douglas Fir-Larch, number two grade, seasoned, surfaced four (4) sides.

2.02 OTHER MATERIALS

- A. All other materials, not specifically described but required for proper completion of concrete formwork, shall be as selected by the Contractor subject to the advance approval of the Engineer.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

A. Inspection and Soil Treatment:

1. Prior to all work of this section, carefully inspect the installed work of all other trades and verify that all such work is completed to the point where this installation may properly commence.
2. Verify that forms may be constructed in accordance with all pertinent codes and regulations, the referenced standards, and the original design.
3. Treat underlying soil to prevent vegetation growth and insect infestation.

3.02 CONSTRUCTION OF FORMS

A. General:

1. Construct all required forms to be substantial, sufficiently tight to prevent leakage of mortar, and able to withstand pressures without excessive deflection when filled with wet concrete.

B. Embedded Items:

1. Set all required steel frames, angles, grilles, bolts, inserts, and other such items required to be anchored in the concrete before the concrete is placed.

C. Bracing:

1. Properly brace and tie the forms together so as to maintain position and shape and to ensure safety to personnel.
2. Construct all bracing and supporting members of amply size and strength to safely carry, without excessive deflection, all dead and live loads to which they may be subjected.
3. Space the forms the proper distance apart and securely tie them together, using metal spreader ties that provide positive tying and accurate spreading.

3.03 RE-USE OF FORMS

A. General:

1. Re-use of forms shall be subject to advance written approval of the Structural Engineer or his designer.

B. Requirements:

1. Except as specifically approved in advance by the Structural Engineer, re-use of forms shall in no way delay or change the schedule of placement of concrete from the schedule obtainable if all form were new.
2. Except as specifically approved in advance by the Structural Engineer, re-use of forms shall in no way impart less structural stability to the forms no less acceptable appearance to finished exposed concrete.

3.04 REMOVAL OF FORMS

A. General:

1. Minimum periods to form removal after concrete placement shall be as follows:

Slabs and curbs	24 hours
Vertical walls (4'-0" Ht.)	36 hours
Vertical walls (over 4'-0" Ht.)	7 days
2. Removal of formwork may be extended if deemed necessary by the Structural Engineer.

B. Removal:

1. Remove metal spreader ties on exposed concrete by removing or snapping off inside the wall surface and point up and rubbing the resulting pockets to match the surrounding areas.
2. Flush all holes resulting from the use of spreader rods and sleeve nuts, using water, and then solidly pack throughout the wall thickness with cement grout applied under pressure by means of a grouting gun; grout shall be one (1) part Portland cement and two and one-half (2-1/2) parts sand; apply grout immediately after removing forms.

*****END OF SECTION*****

SECTION 03200 - CONCRETE REINFORCEMENT

PART 1 - GENERAL

1.02 QUALITY ASSURANCE

A. Qualifications of Workmen

1. Provide at least one person who shall be present at all times during execution of this portion of the Work and who shall be thoroughly familiar with the type of materials being installed and the best methods for their installation and who shall direct all Work performed under this Section.

B. Codes and Standards

1. Comply with applicable provisions of the latest edition of the Florida Building Code that has jurisdiction.
2. Where provisions of pertinent codes and standards conflict with this Specification, the more stringent provisions shall govern.

1.03 SUBMITTALS

A. Shop Drawings

1. Within thirty-five (35) days after award of Contract, and before any concrete reinforcement materials are fabricated and/or delivered to the job site, submit (4) four sets of Shop Drawings to the Architect.
2. Do not fabricate and/or deliver concrete reinforcement to the job site until receipt of Shop Drawings review and approval from the Architect.

1.04 PRODUCT HANDLING

A. Protection

1. Use all means necessary to protect concrete reinforcement before, during, and after installation and to protect the installed work and materials of all other trades.
2. Store in a manner to prevent excessive rusting and fouling with dirt, grease, and other bond-breaking coatings.

B. Placements

In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

PART 2 - PRODUCTS

2.01 CONCRETE REINFORCEMENT

- A. All concrete reinforcement materials shall be new, free from rust, and complying with the following reference standards unless otherwise specified on the drawings.
1. Bars for reinforcement: "Specifications for Deformed Billet-Steel Bars for Concrete Reinforcement", ASTM A-615, latest editions, Grade 60.
 2. Wire for reinforcement: "Specifications for Cold-Drawn Steel Wire for Concrete Reinforcement", ASTM A-82.
 3. Wire fabric: "Specifications for Wire Fabric for Concrete Reinforcement", ASTM A-185, latest edition. Carefully review the structural drawings for sizes of specified wire fabrics. Do not confuse standard 6X6 10/10 WWF (a rolled product) with specific 6X6 6/6 "road mesh" (a sheet product).

2.02 OTHER MATERIALS

- A. All other materials, not specifically described but required for a complete and proper installation of concrete reinforcement, shall be as selected by the Contractor subject to the approval of the Architect.

2.03 LEED REQUIREMENTS FOR RECYCLED MATERIAL

- A. All reinforcing steel shall be a minimum of 90% recycled as manufactured by utilizing an electric arc furnace (EAF). Manufacturer shall provide documentation clarifying the percentages of post-consumer and pre-consumer recycled content. Manufacturer shall be located within 500 miles of the site.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

A. Inspection

1. Prior to installation of the Work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.

2. Verify that concrete reinforcement may be installed in strict accordance with all pertinent codes and regulations, the approved Shop Drawings, and the original design.

B. Discrepancies

1. In the event of discrepancy, immediately notify the Architect.
2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

3.02 BENDING

A. General

1. Fabricate all reinforcement in strict accordance with the approved Shop Drawings and ASTM A-615.
2. Do not use bars with kinks or bends not shown on the Drawings or on the approved Shop Drawings.
3. Do not bend or straighten steel in a manner that will injure the material.

3.03 PLACING

A. General

1. Before the start of concrete placement, accurately place all concrete reinforcement, positively securing and supporting by means of approved metal chairs, spacers, and metal hangers.

B. Clearance

1. Preserve clear space between bars of not less than one and one-half (1-1/2) times the nominal diameter of round bars.
2. Provide minimum concrete covering of reinforcement as shown or noted on the Structural Drawings.

3.04 CLEANING REINFORCEMENT

- A. Steel reinforcement, at the time concrete is placed around it, shall be free from rust scale loose mill scale, oil paint, and all other coatings which will destroy or reduce the bond between steel and concrete.

*****END OF SECTION*****

SECTION 03300 - CAST IN PLACE CONCRETE

PART 1 - GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

A.	Concrete Formwork	Section 03100
B.	Concrete Reinforcement	Section 03200
C.	Unit Masonry	Section 04200
D.	Underslab Vapor Retarder	Section 07160
E.	Metal Building Systems	Section 13122
F.	Plumbing	Section 15000
G.	Electrical	Section 16000

1.02 QUALITY ASSURANCE

A. ASTM Standards (Latest Editions):

1. C-31 Standard Method of Making and Curing Concrete Test Specimens in the Field
2. C-33 Standard Specification for Concrete Aggregates
3. C-39 Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
4. C-42 Standard Method of Obtaining and Testing Drilled cores and Sawed Beams of Concrete
5. C-94 Standard Specification for Ready Mixed Concrete
6. C-143 Standard Test Method for Slump of Portland Cement Concrete
7. C-150 Standard Specification for Portland Cement
8. C-172 Standard Method of Sampling Freshly Mixed Concrete

B. ACI standards (Latest Editions):

1. ACI-318, Building Code Requirements for Structural Concrete
2. Concrete work shall conform to all requirements of ACI-301 (Latest Editions), Specifications for Structural Concrete for Buildings, except as modified by the supplemental requirements herein.
3. ACI 318 Detailing Standards.

4. ACI 315 Specifications for structural Concrete for Buildings
5. CRSI 347R Recommended Practice for Placing reinforcing bars.

1.03 TESTS AND INSPECTIONS

- A. All tests shall be made in accordance with ASTM recommendations referred to herein.
- B. Tests shall be performed by an independent laboratory approved by the Architect.
- C. Contractor will pay for testing, including tests which indicated failure; in which case that test and all costs incurred as a result thereof, shall be paid for by the Contractor.
- D. Standard slump tests shall be taken of the concrete sample for each strength test and whenever consistency of concrete appears to vary. The maximum slump of concrete shall be 4" plus/minus 1", unless specifically otherwise noted.
- E. Concrete that fails by test shall be replaced at no cost to Owner.
- F. Test for strength shall be made as follows:
 1. **Slump Test:** One test for each load of concrete at the point of discharge taken out of a wheelbarrow and not out of the chute. Maximum slump measurements as stated above.
 2. **Compressive Strength Test:** Randomly test cylinders taken at each major pour; footings, floor slabs, columns and tie-beams. Two (2) specimens are to be tested at 7 days and two (2) specimens tested at 28 days. Hold one cylinder for future use if test does not comply at 28 days.
 3. All test results are to be reported, in writing, to the Owner, and the Architect. Test results should stipulate the day the tests were performed.
 4. Samples for testing shall be taken at 1/4 and 3/4 points of the load discharged from the mixer.
 5. If necessary, comply with Architect or Engineer's request for additional cylinders, slump or load test.

PART 2 - PRODUCTS

2.01 CONCRETE

- A. Cement shall be Portland cement, ASTM C-150.
- B. Aggregates for normal weight concrete shall meet the requirements of ASTM C-33.
- C. Mixing water for concrete shall be potable and meet the requirements of ASTM C-94.

2.02 ACCESSORIES

- A. Anchor slots, reglets and inserts of type, size and spacing required by trades involved, and shown on plans.
- B. Vapor Barrier: 6 mil Polyethylene Film, such as "visqueen". Refer to the Building Plan Sections for specific applications.
- C. Vapor Retarder: 10 mil vapor retarder such as Perminator by WJ Meadows. Refer to the Building Plan Sections for specific applications.
- D. Chemical Curing Compound: Application of a curing compound shall be made to all slabs and such application shall conform to ASTM C-309. The compound shall be applied in accordance with the recommendations of the manufacturer immediately after any water sheen which may develop after finishing has disappeared from the concrete surface. It shall not be used on any surface against which additional concrete or other material is to be bonded unless it is proven that the curing compound will not prevent bond, or unless positive measures are taken to remove it completely from areas to receive bonded applications.

Acceptable materials shall be one of the following:

- | | |
|---------------------|--------------------|
| 1. Burke Company | Aqua resin Cure |
| 2. Sika Corporation | Sikagard Cure/Hard |
| 3. Sonneborn | Hydrocide |
- E. Expansion Joint Water Stops: Continuous, pre-formed, finned, center bulb type, polyvinyl chloride, of sufficient width to provide 3" minimum embedment in concrete each side. Equal to Greenstreak #703.
 - F. Pre-molded Joint Filler: Bituminous Fiber Type, ASTM D-1751-83 and D 545-77 equal to "Celotex Flexcell" of thickness and width indicated or required.

- G. Reinforcement shall be cleaned of all scale and excessive rust. All reinforcement shall be set with the standard accessories as per ACI 315-74. Minimum coverage of reinforcement shall be as follows:
1. Footings – 3” minimum.
 2. Slabs – ¾” minimum.
 3. Beams and Columns – 1-1/2” minimum.

PART 3 - EXECUTION

3.01 PROPORTIONING AND MIXING

A. Concrete Mix:

1. All cast-in-place concrete shall be ready mixed and in accordance with ASTM Specifications C-94 (Latest Edition).
2. Minimum 5 bags cement per yard of concrete.

B. Concrete Strength:

1. Unless specifically noted otherwise, all concrete shall have a minimum compressive strength of $f'c = 3000$ psi.
2. A design mix shall be prepared by a Florida Registered Professional Engineer employed by the concrete supplier.
3. The Contractor shall submit to the Architect/Engineer the concrete materials and the concrete mix designs proposed for use with a written request for acceptance. This submittal shall include the results of all testing performed to qualify the materials and to establish the mix designs.

C. Job Tempering:

1. All Concrete shall be placed within 1½ hours after introduction of water to the mix.
2. Under no condition may additional water be added that exceeds the allowable gallons stipulated on the batch ticket.
3. Submit time stamped batching tickets on delivery of concrete to job site.
4. All concrete where water has been added will be removed and replace with proper concrete at no cost to the Owner.

5. When air temperature is between 85 and 90 degrees F, reduce mixing and delivery time to 75 minutes. When air temperature is higher than 90 degrees, reduce mixing and delivery time to 60 minutes.

3.02 PLACING OF CONCRETE

- A. Review: No concrete shall be placed until all reinforcing steel, pipes, sleeves, inserts, etc. have been set in place and reviewed by the Owner's representative. **Contractor shall notify the Architect of scheduled pours 24 hours prior to pouring.**
- B. Placing: Concrete shall be placed in properly cleaned and prepared forms in accordance with the requirements of ACI-301. Concreting should be carried on at such a rate that the concrete is at all times plastic.
- C. Conveying: Concrete shall be handled from the mixer to the place of final deposit as rapidly as practicable by methods which will prevent segregation or loss of ingredients and in a manner which will assure that the required quality of the concrete is maintained. All other requirements of ACI-301 shall be followed.
- D. Depositing: Concrete shall be deposited continuously or in layers of such thickness that no concrete will be deposited on concrete which is hardened sufficiently to cause the formation of seams or planes of weakness within the section.
- E. Consolidation: All concrete shall be consolidated by vibration, spading, rodding, or forking so that the concrete is thoroughly worked around the reinforcement, around embedded items, and into corner of forms eliminating all air or stone pockets which may cause honeycombing, pitting, or planes of weakness.
- F. All slabs on grade are to be Regular $\frac{3}{4}$ rock concrete at 3000 psi ultimate strength at 28 days. NO PUMP MIX (pea rock) WILL BE ACCEPTED for any slab on prepared grade. This does not prohibit the pumping of the regular $\frac{3}{4}$ rock mix.

3.03 JOINTS

- A. Construction Joints:
 1. Locate as shown on the drawings or near points of minimum shear and as approved by Architect/Engineer for beam or slabs. Construction joints shall be straight saw-cut by a walk behind motorized saw, tooled, mechanical or actual cold joints as called out on the plans.
 2. Locate joints in vertical members, walls at underside of floors or beams, and at tops of footings.

3. Floor slabs keyed joints maximum spacing 20' plus or minus each direction unless otherwise noted.

A. Expansion Joints:

1. Locate as shown on drawings.
2. Joints in walkways maximum at 20' o.c., snap lines and saw-cut 1/8" wide by 1" deep between expansion joints in equal bays at not over 5' o.c., within 24 hours of concrete placement or until concrete is trafficable with power saw.
3. Joints shall be straight and smooth. They shall have hardened before fresh concrete is deposited against them.
4. Do not place expansion joints where slabs are up against the exterior of masonry walls, unless otherwise detailed on plans. Do not place any expansion material on the inside face of masonry walls where slabs are poured against same walls.
5. After concreting has been started, it should be carried on as a continuous operation until placing of a panel or section, as determined by its boundaries or joints, is completed.

3.04 CURING

- A. Begin curing of concrete as soon as practicable after placing, but not more than 3 hours thereafter. Provide a total wet cure time of 7 days minimum at 50 degrees F minimum temperature.
- B. Curing of structural members shall begin immediately after removal of forms.
- C. Apply curing compounds as specified above, clear for exposed slabs. Compound used on floors that are to receive tile or other additional finish shall be compatible with adhesives and finish materials. Apply first coat of curing compound as soon as possible after pouring.

3.05 FINISHES

A. Formed Surfaces:

1. Finishes - Defined:

- a. Rough Form Finish: Reasonable true to line and place. Tie holes and defects shall be patched and fins exceeding 1/4" in height shall

be chipped off or rubbed off. Otherwise, surfaces may be left with the texture imparted by the forms.

- b. Smooth Form Finish: The form facing material shall produce a smooth, hard, uniform texture on the concrete. It may be plywood, tempered concrete-form-grade hardboard, metal, or other material capable of producing the desired finish. The arrangement of the facing material shall be orderly and symmetrical, with the number of seams kept to the practical minimum. It shall be supported by studs or other backing capable of preventing excessive deflection. Material with raised grain, torn surfaces, worn edges, patches, dents, or other defects which will impair the texture of the concrete surface shall not be used. Tie holes and defects shall be patched. All fins shall be completely removed. It is the intention of this surface to produce an Architectural Surface suitable for public view as a completed surface to receive paint. Strict quality control of this surface shall be required. See ACI 301.
- c. Smooth Rubbed Finish: To be applied to all smooth form finishes. (All work will conform with ACI Standard 301-latest edition) to produce a smooth architectural effect.

2. Finishes - Unspecified Buildings: If the finish is unspecified, the following finishes shall be used as applicable.

- a. Rough Form Finish: For all concrete surfaces not exposed to public view, including concrete to receive stucco.
- b. Smooth Form Finish: For all concrete surfaces exposed to view.
- c. Smooth Rubbed Finish: Concrete shall have a Smooth Rubbed Finish applied to produce an architectural effect.

3. Patching: Immediately after stripping forms patch all defective areas with mortar similar to the concrete mix except that coarse aggregate shall be omitted. Bulges, minor honeycomb and other minor defects, as designated by the Architect, shall be patched only where exposed to view. Clean, dampen, and fill tie holes with patching mortar. All patching shall follow procedures and conform to ACI 301.

- a. Major defective areas, as judged by the Owner's representative including those resulting from leakage of forms, excessive honeycomb, large bulges and large offsets at form joints, shall be

chipped away down to sound concrete. The patching mortar shall be pressed in for a complete bond and finished to match adjacent areas, or where defective areas impair the strength of the member in question, as judged by the Owner's representative, the member shall be removed or united as determined by the Owner's representative.

- b. Minor defective areas, as judged by the Owner's representative including honeycomb, air bubbles, holes resulting from removal of ties, and those resulting from leakage of forms shall be patched with grout without resorting to chipping. Minor bulges and offsets at form joints shall be finished as specified herein below.

B. Uniform Surfaces – Flatwork:

1. General: Grade and screed the surfaces to the exact elevation, or slope shown or required. Make proper allowances for setting beds for ceramic tile. After screeding tamp mixture thoroughly to drive the coarse aggregate down from the surfaces and apply the applicable finish specified hereinafter. Always slope exterior walks away from the building at 1/8" per foot. Uncovered walks slope at 1/8" per foot or crown. Covered walks between buildings always slope to drain to the exterior and away from the buildings. At cross intersections of the walks, and at exterior doors, warp the surfaces to drain water from the walls. Provide control joints as indicated on drawings. Follow the requirements and procedures of ACI 301.
2. Finishes - Definitions (See also ACI 301):
 - a. Scratched Finish: After concrete has been placed, struck off, consolidated and leveled to a Class B tolerance, surface shall be roughened with stiff brush, rates or metal lath roller, before final set.
 - b. Floated Finish: After concrete has been placed, struck off, consolidated and leveled, concrete shall not be worked further until water sheen has disappeared and/or when mix has stiffened sufficiently to permit proper operations of a power driven float. Consolidate with power driven float, check trueness of surface, fill low spots and cut down high spots to achieve Class B tolerance. Then, re-float to uniform, smooth, granular texture.
 - c. Troweled Finish: Finish same as above for floated finish and in addition, steel trowel the surface by hand to produce a smooth, glassy, impervious surface free of trowel marks to a Class A tolerance. On surfaces intended to support floor coverings, defects of sufficient magnitude to show through the floor covering shall be removed by grinding.

- d. Broom Finish: Finish same as above for floated finish to a Class B tolerance and then draw a broom or burlap belt across surface transversely.

Finishes - Unspecified

1. When type of finish is not specified, the following shall be applicable:
 - a. Scratched Finish: For surfaces to receive bonded cementitious application, i.e. ceramic tile, single ply epoxy flooring etc., refer to drawings for locations of specific floor coverings.
 - b. Troweled Finish: For surfaces intended as smooth walking surfaces or for receipt of floor coverings.
 - c. Broom Finish: For exterior walks, loggias, curbs and where indicated on drawings.
 - d. Float Finish: Exterior platforms, steps, stairways, landings, and ramps.

Specific Finish Locations:

1. Slab areas to receive ceramic tile, resilient floor coverings, specialized gymnasium flooring, or slabs within a minimum of 2 feet each side of accordion doors shall be "dead level" - Class A. All other slab areas - Class B.

Tolerances for finishes as specified shall be as follows:

1. Class A - True planes within 1/8" in 10 ft.
2. Class B - True planes within 1/4" in 10 ft.

NOTE: Tolerances shall be measured by placing a 10-ft. straightedge anywhere in any direction.

*****END OF SECTION*****

SECTION 03420 - PRECAST CONCRETE LINTELS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

Furnish and install all required Precast Lintels and Door Headers in the locations called out on the architectural and structural drawings as manufactured by WEKIWA CONCRETE PRODUCTS, INC. or an approved equal. Lintels available through CSR Rinker (Cemex Corp.).

1.02 RELATED WORK SPECIFIED ELSEWHERE

Concrete Formwork	Section 03100
Concrete Reinforcement	Section 03200
Cast in place Concrete	Section 03300

1.03 QUALITY ASSURANCE

A. ASTM Standards (Latest Editions):

1. ASTM A615 (Grade 60) for reinforcing bars.
2. ASTM A416, 7 wire for prestress strands.

B. ACI Standards (Latest Editions):

1. ACI 315, Detail Reinforcement.
2. Concrete Operations shall comply with ACI Standards.
3. Design and Construction shall conform to the specification of the national concrete masonry association and ACI 530.
4. ACI 318-95, Building Code Requirements for Structural Concrete.

C. Florida Building Code, latest edition.

D. American Society of Civil Engineers minimum design loads for Buildings and Other Structures (ASCE 7-95).

PART 2 - PRODUCTS

2.01 CONCRETE

A. Concrete Compressive Strength at 28 days:

1. Pre-cast w/standard reinforcement- 3500 PSI.
2. Pre-cast w/prestress reinforcement- 5000 PSI.
3. Concrete Fill (placed in field)- 3000 PSI.

2.02 MASONRY

- A. Minimum masonry unit strength fm 1500 PSI.
- B. Mortar shall be type-M.

2.03 REINFORCING MATERIALS

- A. Reinforcing bars: ASTM A615 (grade 60).
- B. Prestress Strands: ASTM A416, 7-wire.
- C. Steel is placed in the precast lintel at time of fabrication.
- D. Minimum coverage of steel to be 3/4 inch for top bars and 1.5 inches for bottom bars.

PART 3 - EXECUTION

3.01 DELIVERY, STORAGE, AND HANDLING

- A. Deliver precast concrete units to project site in such quantities and at such times to assure continuity of installation.
- B. Store units at project site to ensure against cracking, distortion, staining, or other physical damage, and so that markings are visible.

3.02 INSTALLATION

- A. Lift and support units at designated lift points. Shoring of precast units shall be installed and removed solely by the contractor under the direct supervision of the manufacturer.
- B. Minimum bearing required at each end is 4 inches. Bearing preferred is 8 inches.
- C. Do not install any damaged units.

3.03 DEFECTIVE WORK

- A. Precast concrete units which do not conform to specified requirements, including strength, tolerances, and finishes, shall be replaced with precast concrete units that meet requirements of this section. The contractor shall also be responsible for the cost of corrections to any other work affected by or resulting from corrections to precast lintels.

*****END OF SECTION*****

SECTION 04230 - REINFORCED UNIT MASONRY

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 DESCRIPTION OF WORK

- A. Extent of each type of masonry work is indicated on drawings and schedule.

1.03 QUALITY ASSURANCE

- A. ASTM Standards (Latest Edition)

ASTM C90	Hollow Load Bearing Concrete Block
ASTM C270	Type-M mortar
ASTM C150-98	Type I Portland cement
ASTM C207-97	Hydrated Lime

- B. Construction Tolerances:

1. Variation from Plumb:
For vertical lines and surfaces of columns, do not exceed 1/4".
2. Variation in Cross-Sectional Dimensions:
For columns and thickness of walls, from dimensions shown, do not exceed minus 1/4" nor plus 1/2".

1.04 SUBMITTALS

- A. Product Data: Submit manufacturer's specifications and other data for each type of masonry unit, accessory, and other manufactured products, including certifications that each type complies with specified requirements. Include instructions for handling, storage, installations and protection.

1.05 JOB CONDITIONS

- A. Protection of Work: During erection, cover top of walls with heavy waterproof sheeting at end of each day's work to protect completed work that has not had enough time for the mortar to cure and is still subject to rain damage.
- B. Extend cover a minimum of 24 inches down both sides and hold cover securely in place.

- C. Staining: Prevent grout or mortar from staining the face of masonry to be left exposed or painted. Remove immediately grout or mortar in contact with such masonry.
- D. Protect sill, ledges, finished door and window frames and projections from droppings of mortar.

PART 2 - PRODUCTS

2.01. MATERIALS

Hollow Load Bearing Concrete Block:	ASTM C90- Grade N, Type II, cured 28 days
Mortar:	Type "M", ASTM C270
Cement:	ASTM C150-98, Type I
Hydrated Lime:	ASTM C 207-97
Sand:	Clean Masons Sand
Water:	Potable

2.02 CONCRETE BLOCK

- A. Provide units complying with characteristics indicated below for Grade, Type, face size, exposed face and, under each form of block included, for weight classification.
 - 1. Grade N, Type II C.M.U., normal weight unit, *fm* ' 1500 psi.
 - 2. Size: Manufacturer's standard units with nominal face dimensions of 16" long X 8" high (15-5/8" x 7-5/8" actual) X thicknesses indicated. Splits and halves as appropriate for coursing in vertical and horizontal directions.
 - 3. Hollow Load-Bearing Block: ASTM C-90 and as follows:
 - a. Weight Classification: Normal weight.
 - b. Refer to the Architectural Drawings for specific block types when fire rated walls occur.
 - c. Refer to the Architectural Drawings for specific block types for finished block to receive paint or standard stucco block to receive stucco.

2.03 MORTAR AND GROUT MATERIALS

- A. Portland Cement: ASTM C-150, Type I, except Type III may be used for cold weather construction. Provide natural color or white cement as required to produce required mortar color.

- B. Hydrated Lime: ASTM C-297, Type S.
- C. Aggregate for Mortar: ASTM C-144, except for joints less than 1/4" use aggregate graded with 100% passing the No. 16 sieve.
- D. Aggregate for Grout: ASTM C-404.
- E. Mortar: ASTM C270, Type-M, 2,500 p.s.i.
- F. Joint Reinforcement: ASTM A951, provide welded-wire units prefabricated with deformed continuous side rods and plain cross rods into straight lengths of not less than 10', with prefabricated corner and tee units, and complying with requirements indicated below:
 - 1. Width:
Fabricate joint reinforcement in units with widths of approximately 2" less than nominal width of walls and partitions as required to provide mortar coverage of not less than 5/8" on joint faces exposed to exterior and 1/2' elsewhere.
 - 2. Wire Size for Side Rods: 9 gauge galvanized.
 - 3. Wire Size for Cross Rods: 9 gauge galvanized.
 - 4. For single-wythe masonry provide type as follows with single pair of side rods:
 - a. Truss design, as manufactured by Dur-o-wall, (or approved equal), with diagonal cross rods spaced not more than 16" o.c. Units to be 9 gauge hot dipped galvanized.

2.04 MISCELLANEOUS MASONRY ACCESSORIES

- A. Reinforcing Bars:
Deformed steel, ATSM A-615, Grade 60 for bars No. 3 to No. 18.
- B. Non-Metallic Expansion Joint Strips:
Material as indicated below, designed to fit standard sash block and to maintain lateral stability in masonry walls: size and configuration as indicated.
 - 1. Styrene-butadiene rubber compound complying with ASTM D 2000, Designation 2AA-805.
- C. Bond Breaker Strips:
Asphalt-saturated organic roofing felt complying with ASTM D-226, Type I (No. 15 asphalt felt).

D. Metal cavity caps in lieu of waste mortar shipping bags.

2.05 MORTAR AND GROUT MIXES

A. General:

Do not add admixtures including coloring pigments, air-entraining agents, accelerators, retarders, water repellent agents, anti-freeze compounds or other admixtures, unless otherwise indicated. Do not use calcium chloride in mortar or grout.

B. Mixing:

Combine and thoroughly mix cementitious, water and aggregates in a mechanical batch mixer: comply with referenced ASTM standards for mixing time and water content.

C. Mortar for unit Masonry:

Comply with ASTM C780, proportion Specification, for types of mortar required, unless otherwise indicated.

D. Grout for Unit Masonry:

Comply with ASTM C476, 2,500 p.s.i., for grout for use in construction of reinforced and non-reinforced unit masonry. Use grout of consistency indicated or if not otherwise indicated, of consistency (fine or coarse) at time of placement which will comply completely fill all spaces intended to receive grout.

1. Use fine grout in grout spaces less than 2" in horizontal direction, unless otherwise indicated.

2. Use coarse grout in grout spaces 2" or more in least horizontal dimension, unless otherwise indicated.

E. Masonry Compressive Strength: *f_m* ' 1,500 p.s.i. (Minimum).

PART 3 - EXECUTION

3.01. INSTALLATION, GENERAL

A. See Structural and Architectural Drawings for notes and details and masonry opening requirements. Coordinate all door and window masonry openings with the scheduled manufacturers per the plans. Tolerances are critical to meet the wind load performance testing for said openings within the 130 and 140 mph wind speed zones.

B. Set blocks with 3/8" full, flush joints in running bond. Use a masonry interlock (50% masonry bond) at all intersecting walls where possible. All work not plumb, true and accurate shall be replaced.

- C. Store all materials off the ground and protect from all dirt and foreign material.
- D. Do not retemper any mortar. Discard the mortar if it has begun to set.
- E. Provide Dur-O-Wall, (or approved equal), truss-type, horizontal reinforcing at every other block course. At door and window openings, provide continuous Dur-O-Wall horizontal reinforcing at the first and second block courses above and below the opening or extend the reinforcing back a minimum of two (2) feet from the opening. Extend Dur-O-Wall reinforcing 1-1/2" into concrete columns. Lap splices shall not be less than 6". Cut or interrupt joint reinforcement at control and expansion joints, unless otherwise indicated.
- F. All cells designated on the drawings to be filled with concrete are to be kept clean of any and all debris. Provide inspection/clean-out holes at the bottom course. Inspection holes in finish block shall be neatly saw-cut.
- G. All lintels shall have minimum bearing as called out on the Structural Drawings.
- H. Do not wet concrete masonry units during installation.
- I. Cleaning Reinforcing: Before placing, remove loose rust, and other coatings from reinforcing.
- J. Thickness: Build walls to the actual thickness of the masonry units, using units of nominal thickness indicated.
- K. Build chases and recesses as shown and required for the work of other trades. Provide not less than 8" of masonry between chase or recess and jamb of openings, and between adjacent chases and recesses. See plans for specific conditions.
- L. Leave openings for specialty equipment to be installed before completion of masonry work. After installation of equipment, complete masonry work to match work immediately adjacent to the opening.
- M. 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.
- N. Use inspection and clean-out holes at bottom of wall reinforced vertical cells, for grouting lifts over 5 feet high. C
- O. lean-out holes should be 4" w X 8" h minimum. See ACI 530-92, Section 4.3.2.3.

3.02 CONSTRUCTION TOLERANCES

A. Variation from Plumb:

For vertical lines and surfaces of columns, walls and arises do not exceed $\frac{1}{4}$ " in 10' or $\frac{3}{8}$ " in a story height not to exceed 20', nor $\frac{1}{2}$ " in 40' or more. For external corners, expansion joints, control joints, and other conspicuous lines, do not exceed $\frac{1}{4}$ " in any story of 20' maximum, nor $\frac{1}{2}$ " in 40' or more. For vertical alignment of head joints do not exceed plus or minus $\frac{1}{4}$ " in 10', $\frac{1}{2}$ " maximum.

B. Variation from Level:

For bed joints and lines of exposed lintels, sills, parapets, horizontal grooves and other conspicuous lines, do not exceed $\frac{1}{4}$ " in any bay or 20' maximum, nor $\frac{1}{2}$ " in 40' or more. For top surface of bearing walls no not exceed $\frac{1}{8}$ " between adjacent floor elements in 10' or $\frac{1}{16}$ " within width of a single unit.

C. Variation of Linear Building Line:

For position shown in plan and related portion of columns, walls and partitions, do not exceed $\frac{1}{2}$ " in any bay or 20' maximum, nor $\frac{3}{4}$ " in 40' or more.

D. Variation in Cross-Sectional Dimensions:

For columns and thickness of walls, from dimensions shown, do not exceed minus $\frac{1}{4}$ " nor plus $\frac{1}{2}$ ".

E. Variation in Mortar Joint Thickness:

Do not exceed bed joint thickness indicated by more than plus or minus $\frac{1}{8}$ ", with a maximum thickness limited to $\frac{1}{2}$ ". Do not exceed head joint thickness indicated by more than plus or minus $\frac{1}{8}$ ".

3.03 LAYING MASONRY WALLS

A. Layout walls in advance for accurate spacing of surface bond patterns with uniform joint widths and to accurately locate openings, movement-type joints, returns and offsets. Avoid the use of less-than-half-size units at corners, jambs and wherever possible at other locations.

B. Lay-up walls to comply with specified construction tolerances, with courses accurately spaced and coordinated with other work.

C. Stopping and Resuming Work:

Rack back $\frac{1}{2}$ -unit length in each course: do not tooth. Clean exposed surfaces of set masonry, wet units lightly (if required) and remove loose masonry units and mortar prior to laying fresh masonry.

D. Built-in Work:

As the work progresses, build-in items specified under this and other sections of these specifications. Fill in solidly with masonry around built-in items.

1. Do not fill space between hollow metal frames and masonry with mortar, unless otherwise indicated. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath in the joint below and rod mortar or grout into core.
2. Fill cores in hollow concrete masonry units with grout 3 courses (24") under bearing plates, beams, lintels, posts and similar items, unless otherwise indicated.

3.04 MORTAR BEDDING AND JOINTING

- A. Lay hollow concrete masonry units with full mortar coverage on horizontal and vertical face shells. Bed webs in mortar in starting course on footings and in all courses of piers, columns and pilasters, and where adjacent to cells or cavities to be reinforced or filled with concrete or grout. For starting course on footings where cells are not grouted, spread out full mortar bed including areas under cells.
- B. Maintain joint widths shown, except for minor variations required to maintain bond alignment. If not shown, lay walls with 3/8" joints.
- C. Cut joints flush for masonry walls which are to be concealed or to be covered by other materials, unless otherwise indicated.
- D. Tool exposed joints slightly concave using a jointer larger than joint thickness, unless otherwise indicated.
- E. Remove masonry units disturbed after laying, clean and reset in fresh mortar. Do not pound corners or jambs to shift adjacent stretcher units which have been set in position. If adjustments are required, remove units, clean off mortar and reset in fresh mortar.
- F. Collar Joints:
After each course is laid, fill the vertical longitudinal joint between wythes solidly and with mortar for all exterior walls.
- G. Corners:
Provide interlocking masonry unit bond in each course at corners, unless otherwise shown.
 1. For horizontally reinforces masonry, provide continuity at corners with prefabricated "L" units, in addition to masonry bonding.
- H. Intersecting and Abutting Walls:
If carried up separately, block or tooth vertical joint with 8" maximum offsets and provide rigid steel anchors spaced not more than 4'-0" o.c., vertically, or omit blocking and provide rigid steel anchors at not more than 2'-0" o.c. vertically.

Form anchors of galvanized steel not less than 1-1/2" x 1/4" x 2'-0" long with ends turned up not less than 2" or with cross-pins. If used with hollow masonry units, embed ends in mortar-filled cores.

I. Non-bearing Interior Partitions:

Build full height of story to underside of solid floor or roof structure above, unless otherwise shown.

1. Wedge non-bearing partitions against structure above with small pieces of tile, slate or metal. Fill joint with mortar after dead load deflection of structure above approaches final position.

3.05 LINTELS

- A. Provide precast or formed-in-place masonry lintels. Cure precast lintels before handling and installation. Temporarily support formed-in-place lintels.
- B. For hollow concrete masonry unit walls, use specially formed U-shaped lintel units with reinforcement bars placed as shown filled with coarse grout.
- C. Provide minimum bearing of 8" at each jamb, unless otherwise indicated.

3.06 FIELD QUALITY CONTROL

- A. When field observation by the Architect or the Owner's Agent which generates questions relating to tolerance or quality control, the Contractor shall employ, at his own expense, a testing laboratory experienced in performing types of masonry field quality control tests for masonry indicated. Comply with requirements for qualification and acceptance per tolerances stipulated within this section.
- B. Unit Test Method: For each block type specified per ASTM C90.
- C. Mortar Tests:
For each type indicated, test mortar by methods of sampling and testing of ASTM C-780. Conduct tests no less frequently than that required to evaluate mortar used to install each increment of masonry units indicated above from which samples are taken for testing.
- D. Prism Test Method:
 1. Compression Test:
If required by Architect, test masonry prisms by methods of sampling and testing of ASTM E-447, Method B.

2. Evaluation of Quality Control Tests:
Masonry work, in absence of other indications of noncompliance with requirements, will be considered satisfactory if results from construction quality control tests comply with minimum requirements indicated.
3. Protection:
Provide final protection and maintain conditions in an acceptable manner to ensure that the final unit masonry work is without damage and deterioration at time of substantial completion.

*****END OF SECTION*****

SECTION 05500 - MISCELLANEOUS METALS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

The Bidding and Contract Documents, General Requirements and Addenda, as may be issued prior to bidding, shall govern the work under this Section.

1.02 SCOPE OF THE WORK

A. Provide all labor, materials, necessary equipment and service, to complete the miscellaneous metals work and related work, as indicated on the drawings, as specified herein or both, except for items specifically indicated as "NOT IN CONTRACT" (NIC).

B. Including, but not necessarily limited to the following:

1. Roof opening framing - (Roof Drains, Roof Curbs, Roof Scuttles, Vent Fans, Exhaust Fans).
2. Miscellaneous anchors and fastenings.
3. Piping, RWL, Chilled Water Line (Supports for hangers).
4. Steel & Alum. ladders to Scuttles & Mezzanines.
5. Miscellaneous Angles.
6. Louver Door Security Panels.
7. Safety Nosings.
8. Masonry Openings for Exhaust Fans.
9. Folding Door Support Framing.
10. Recessed Ceiling Framing Supports.
11. Shop Coat Painting of All Items.

1.03 WORK OF OTHER SECTION

- | | |
|---------------------|---------------|
| A. Structural Steel | Section 05120 |
| B. Painting | Section 09900 |
| C. Mechanical | Division 15 |

1.04 SAMPLES, SUBMITTALS AND SHOP DRAWINGS

A. This list consists of samples, submittals and shop drawings which require submission by the Contractor to the Consultant for approval.

B. Any omission of items which require the Contractor's compliance under the contract Documents does not relieve said Contractor from such responsibility.

- C. Submit samples, submittals and shop drawings as required or requested by the Architect/Engineer whether included in this list or not, and as requested on the drawings.
- D. Submittals and shop drawings shall be submitted as (4) four copies, notarized and signed by an officer of the company and shall state the required information explicitly and specifically. Submit shop drawings for all fabricated items in accordance with Contract Conditions, plus plan locations.
- E. Coordinate roof framing opening supports with Steel Joists Shop Drawings. Submit steel Joist and Miscellaneous Metal Shop Drawings as prescribed.

1.05 QUALITY STANDARDS

Conform to applicable portions of the following:

- A. American Institute of Steel Construction (A.I.S.C.)
- B. American Welding Society (A.W.S.)

PART 2 - PRODUCTS

2.01 BASIC MATERIALS

Refer to Drawings for locations of each material use and type. Some or all of these materials may be utilized on each project.

- A. Steel shapes - ASTM A-50
- B. Steel pipe -ASTM A-50, galvanized where called for on plans.
- C. Bolts - ASTM A-325, galvanized for exterior use, and where called for on plans.
- D. All exterior steel items to be hot dipped galvanized.
- E. Aluminum pipe - ASTM B 221 for 6063-T6.
- F. Stainless Steel plate, angles and fabricated hangers, Grade 304 where concealed from weather, and Grade 316 where exposed to weather.

2.02 STEEL & ALUMINUM LADDERS

- A. Fabricate to size and detail, with welded joints dressed smooth.
- B. Erect ladders as indicated, securely fastened to structure.
- C. Steel ladders to be hot dipped galvanized after fabrication in accordance with ASTM A-123-59T.

2.03 FASTENERS

- A. General: Provide stainless steel fasteners for exterior use and zinc-coated fasteners where built into exterior walls where fasteners are not exposed. Select fasteners for

the type, grade and class required.

- B. Bolts and Nuts: Regular hexagon head type, ASTM A307, Grade A.
- C. Lag Bolts: Square head type, FS FF-B-561.
- D. Machine Screws: Cadmium plated steel, FS FF-S-92.
- E. Wood Screws: Flat head carbon steel, FS FF-S-111.
- F. Plain Washers: Round, carbon steel, FS FF-W-92.
- G. Masonry Anchorage Devices: Expansion shields, FS FF-S-325.
- H. Toggle Bolts: Tumble-wing type, FS FF-B-588, type, class and style as required.
- I. Lock Washers: Helical spring type carbon steel, FS FF-W-84.

2.04 ROUGH HARDWARE

- A. Fabricate bent or otherwise custom fabricated bolts, plates, anchors, hangers, dowels and other miscellaneous steel and iron shapes as required for framing and supporting woodwork, and for anchoring securing woodwork to concrete or other structures. Provide straight bolts and other stock rough hardware items as specified on the drawings.
- B. Manufacture or fabricate items of sizes, shapes and dimensions required. Furnish malleable iron washers for heads and nuts which bear on wood structural connections; elsewhere, furnish steel washers.

2.05 MISCELLANEOUS

- A. Fabricate all steel headers, angles, channels, ladders, steel shapes, inserts, anchors, brackets, support framing, as indicated and/or detailed on plans.

2.07 SHOP COAT PAINT

- A. Apply red oxide shop coat paint to all ferrous metal.
- B. Apply shop touch-up zinc based paint to all galvanized metals after installation.
- C. Aluminum products to be mill finish unless called out otherwise on the drawings.
- D. Apply specialty coatings as called for on the drawings.

*****END OF SECTION*****

SECTION 06100 - ROUGH CARPENTRY

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 DESCRIPTION OF WORK

A. Definition: Rough carpentry includes carpentry work not specified as part of other sections and which is generally not exposed, except as otherwise indicated. Types of work in this section include, but are not limited to, rough carpentry for:

1. Nailers & dead wood
2. Cant strip
3. Wood roof curb supports
4. Door frame bracing
5. Chalk, tack board, backing
6. Casework backing
7. Plumbing backing - (Supports)
8. Projection screen backing
9. Window stripping
10. Recessed clock/speakers (framed opening)
11. Recessed fire extinguisher cabinets (framed opening) RWL - Access to clean out.
12. Toilet partition backing
13. Recessed electrical panels backing
14. Mirror backing
15. Acoustical backing
16. Ceiling trim backing

B. Finish carpentry is specified in another section within Division 6.

1.03 SUBMITTALS

A. Wood treatment Data: Submit treatment manufacturer's instructions for proper use of each type of treated material.

B. Pressure Treatment: For each type of specified, include certification by treating plant stating chemicals and process used, net amount of preservative retained and conformance with applicable standards.

C. For water-borne preservatives, include statement, that moisture content of treated materials was reduced to a maximum of 15% prior to shipment to project site.

- D. Fire-retardant treatment: Include certification by treatment plant that treatment material complies with governing ordinances and that treatment will not bleed through finished surfaces.

1.04 PRODUCT HANDLING

Delivery and Storage: Keep materials dry at all times. Protect against exposure to weather and contact with damp or wet surfaces. Stack lumber and plywood, and provide air circulation within stacks.

1.05 JOB CONDITIONS

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

PART 2 - PRODUCTS

2.01 WOOD PRODUCT QUALITY STANDARDS

- A. Lumber Standards: Comply with PS 20.
- B. Plywood Standards: Comply with PS 1.
- C. Factory mark each piece of lumber and plywood with type, grade, mill and grading agency, except omit marking from surfaces to be exposed with transparent finish or without finish.

2.02 MATERIALS

- A. Nominal sizes are indicated, except as shown by detail dimensions. Provide actual sizes as required by PS 20, for moisture content specified for each use. Provide dressed lumber, S4S, unless otherwise indicated. Provide seasoned lumber with 10% maximum moisture content at time of dressing.
- B. Framing Lumber: (2" through 4" thick)
- C. For light framing (less than 6" wide), provide the following grade and species:
 - Construction grades, any species.
- D. Miscellaneous Lumber: Provide wood for support or attachment of other work including cant strips, bucks, nailers, blocking, furring, grounds, stripping, and similar members. Provide lumber of sizes shown or specified, worked into shapes shown, and as follows.

Moisture content: 19% maximum for lumber items not specified to receive wood preservative treatment.

- E. Grade: Construction Grade light framing size lumber of any species or board size lumber as required. Provide construction grade boards (RIS or WCLB) or No. 2 boards (SPIB or WWPA).
- F. Plywood: Where plywood will be exposed in finished work supply the following:
 - 1. Where painted finish is indicated, provide A-C/EXT-APA plywood with Grade A face exposed and Grade C concealed, for exterior use; and provide A-D/INT-APA plywood with Grade A face exposed and Grade D concealed, for interior use.
 - 2. Concealed Plywood: Where plywood will be concealed by other work, provide C-D Plugged/INT-APA.
 - 3. For backing panels for electrical or telephone equipment, provide 3/4" fire-retardant treated plywood with exterior glue.

2.03 MISCELLANEOUS MATERIALS

- A. Fasteners and Anchorages: Provide size, type, material and finish as indicated and as recommended by applicable standards, complying with applicable Federal Specifications' for nails, staples, screws, bolts, nuts, washers and anchoring devices. Provide metal hangers and framing anchors of the size and type recommended by the manufacturer for each use including recommended nails.

Where rough carpentry work is exposed to weather, in ground contact, or in area of high relative humidity, provide **stainless steel fasteners type 305 or 316.**

Interior work shall utilize hot dipped galvanized.

- B. Building Paper Interior Use Only: Asphalt saturated felt, non-perforated, 15# or 30 #, ASTM D226.

2.04 WOOD TREATMENT

- A. Preservative treatment: Where lumber or plywood is indicated as "Trt-Wd", "P.T." or "Treated", or is specified herein to be treated, comply with applicable requirements of AWPB Standards C2 (Lumber) and C9 (Plywood) and of AWPB standards listed below. Mark each treated items with the AWPB Quality Mark Requirements.
- B. Pressure-treat above-ground items with water-borne preservatives complying with AWPB LP-2. After treatment, kiln-dry to a maximum moisture content of 15. Treat indicated items and the following:

Wood cants, nailers, cures, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers and water proofing. Wood sills, sleepers, blocking furring, stripping and similar concealed members in contact with masonry or concrete.

- C. Fire-Retardant Treatment: Where "FR-S" lumber or plywood is specified or otherwise indicated, provide materials which comply with AWWA standards for pressure impregnations with fire-retardant chemicals, and which have a flame spread rating of not more than 25 when tested in accordance with UL Test 723 or ASTM E84, and show no increase in flame spread and significant progressive combustion upon continuation of test for an additional 20 minutes.

Kiln-dry treated items to maximum moisture content of 19%.

Provide UL label on each piece of fire-retardant lumber or plywood.

- D. Inspect each piece of treated lumber or plywood after drying and discard damaged or defective pieces.

PART 3 - EXECUTION - INSTALLATION

3.01 GENERAL

- A. Discard units of material with defects which might impair quality of work, and units which are too small to fabricate work with minimum joints or optimum joint arrangement.
- B. Set carpentry work accurately to required levels and lines, with members plumb and true and accurately cut and fitted.
- C. Securely attach carpentry work to substrate by anchoring and fastening as shown and as required by recognized standards. Countersink nail head on exposed carpentry work and fill holes.
- D. Use common wire nails, except as otherwise indicated. Use finishing nails for finish work. Select fasteners of size that will not penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting of wood; pre-drill as required.

3.02 WOOD GROUNDS, NAILERS, BLOCKING, AND SLEEPERS

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

- B. Attach to substrates as required to support applied loading. Countersink bolts and nuts flush with surfaces, unless otherwise shown. Build into masonry during installation of masonry work. Where possible, anchor to formwork before concrete placement.
- C. Provide permanent grounds of dressed, preservative treated, key-beveled lumber not less than 1 ½" wide and thickness required to bring face of ground to exact thickness of finish material involved. Remove temporary grounds when no longer required.

3.03 WOOD FURRING

- A. Install plumb and level with closure strips at edges of openings. Shim with wood as required for tolerance of finished work.
- B. Furring to Receive Plywood Paneling: Unless otherwise shown, provide 1"x 3" furring at 2 'o.c., horizontally and vertically. Structural framing to receive furring will dictate the spacing, size and type of furring. Refer to drawings and details.

3.04 WOOD FRAMING, GENERAL (WD-FRM)

- A. Provide framing members of sizes and on spacings shown, and frame openings as shown, or if not show, comply with recommendations of "Manual for House Framing" of National Forest Productions Association. Do not splice structural members between supports.
- B. Anchor and nail as shown, and to comply with "Recommended Nailing Schedule" of "Manual for Housing Framing" and other recommendations of the N.F.P.A.

3.05 INSTALLATION OF PLYWOOD (PWD)

- A. Comply with recommendations of the American Plywood Association (APA), for the installation of plywood and per the current edition of the Florida Building Code nailing patterns.

3.06 GENERAL REQUIREMENTS

1. All work shall comply with the standards of the American Institute of Timber Construction, AWI, API, AWP, and local codes and regulations.
2. All framing shall be square, plumb and true.
3. All furring shall be shimmed to a plumb, true surface.
4. All lumber in contact with masonry shall be #2 yellow pine, pressure treated.
5. Coordinate blocking and backing requirements of all trades and provide where indicated and required.

6. Provide solid blocking behind all shower valves.
7. Provide rough openings for all manufactured items such as medicine cabinets, fire extinguisher cabinets, etc.
8. Provide wood fire cats in all **interior and exterior** wood framed walls where vertical cavity exceeds 8 feet and where soffits adjoin vertical walls.
9. Construct 3/4 inch BC plywood plenum bases, including vertical sides, for all Closet Mounted Air-Handling Units. Line interiors with 5/8" type "X" gypsum board and rigid foil faced insulation board to comply with non-combustible plenum requirements.

*****END OF SECTION*****

SECTION 06200 - FINISH CARPENTRY

PART 1 - GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

- | | |
|---|---------------|
| A. Rough Carpentry | Section 06100 |
| B. Wood Doors | Section 08200 |
| C. Finish Hardware | Section 08700 |
| D. Chalkboards, Tackboards, & Pegboards | Section 10100 |

1.02 QUALITY ASSURANCE - STANDARDS

- A. The “Quality Standards” of the Architectural Woodwork Institute shall apply and by reference are hereby made a part of this Specification. Any reference to Premium, Custom or Economy shall be as defined in the latest edition of the AWI Standards.
- B. Any items not given a specific quality grade, shall be custom grade.
- C. Products of other manufacturers may be proposed under conditions as set forth in the Contract Conditions of these Specifications.

1.03 DELIVERY AND STORAGE

- A. Deliver manufactured material in original packages.
- B. Store all finish materials in an enclosed shelter providing protection from damage and exposure to the elements.

1.04 MISCELLANEOUS WOODWORK

Shelving not included in Casework Specifications nor in Casework Drawings:

- A. SWI Custom Grade, if stained.
- B. AWI Economy Grade, if painted.

PART 2 - PRODUCTS

2.01 INTERIOR WOODWORK FOR PAINT FINISH

- A. Quality Grade: Economy grade requirements of AWI Quality Standards.
- B. Wood Species: B and better V.G. Fir, Birch, and pines with sound tight knots.

- C. Plywood: All plywood shall be exterior grade, Group 1, A, B, Veneer grades. This shall include any plywood shelving to receive paint as indicated on the casework drawings.

2.02 INTERIOR WOODWORK FOR STAINED FINISH

- A. SWI Custom Grade hardwoods and softwoods.
- B. Hardwood Species: (S& B) Select and Better for mouldings, #1 Common or Better for furniture and casework making, or Clear where indicated on drawings.
- C. Softwood Species: Select (clear) and #2 sound tight knots where indicated on the drawings.

PART 3 - EXECUTION

3.01 INSTALLATION OF WOODWORK

- A. Only experienced finish carpenters are to work on exposed woodwork.
- B. Erect all work plumb, level and true to the line and detail.
- C. Make any adjustments necessary for proper operation.
- D. Nailing: Use finish nails and counter sink. Fill holes with putty after prime coat.
- E. Sand all finish woodwork and leave ready for finishing.

3.02 DOORS

- A. Install doors as provided under other Sections of these Specifications.
- B. Install doors true and plumb with equal clearances at jambs and head.
- C. Make any adjustments necessary for proper operation.

3.03 HARDWARE

Install finish hardware as specified under another Section of these Specifications.

- A. Installation of all finish hardware shall be by a skilled and experienced mechanic in a neat and workmanlike manner. Where required, the hardware shall be removed for application of finishes and fully protected until final installation.

- B. Carefully tag and file all keys in the key file and deliver all keys to the Owner's representative at the completion of the job. See Finish Hardware for detailed specifications and instructions.

3.04 CLEAN UP

- A. Leave all work in neat and in a finished condition.
- B. Remove all debris as result of work under this Section of these Specifications.

*****END OF SECTION*****

SECTION 07200 - INSULATION

PART 1 - ROOF/CEILING ASSEMBLIES:

1.01.1 When Wood Trusses in combination with Vented Soffits:

When called out and detailed on the wall sections- Provide (R-19, R-28 or R-30) fiberglass or rockwool Batt Insulation installed between the bottom chords of the pre-engineered roof trusses. Install in all ceiling spaces as shown on the drawings and building sections. Provide the clear air space above insulation at tails of trusses as required by the Florida Model Energy Code.

1.02 When Wood Trusses in combination with Non-Vented Soffits:

When called out and detailed on the wall sections- Provide sprayed insulation to the underside of the plywood decking as manufactured by **Icynene, or an approved equal with a similar perm rating**, to a minimum R-Rating of 20.0. Refer to Section 07205 Icynene Insulation for manufacturer's data and the plans for actual placement.

1.03 When nominal Wood Rafters, Heavy Timber framing or Engineered Glu-Lam framing with exposed tongue and groove wood decking or exterior plywood:

When called out and detailed on the wall sections- Provide rigid foam insulation board above the wood deck with high performance dry-in and roofing membranes per manufacturer's requirements.

1.04 When Steel Joists: (Three methods- When called out and detailed on the wall sections)

- A. Provide R-19 nailable rigid roofing deck secured to pan-deck as per drawings.
- B. Provide (R-19) Batt insulation - suspended by clips and nylon mesh between the joists bottom chord when no insulation is provided on the metal roof decking. Refer to drawings for placement. Do not lay insulation on top of suspended acoustic ceiling panels.
- C. Provide (R-19 overall average) EPS roof deck insulation integral with the lightweight concrete or cellcore deck pour. Refer to drawings for placement, thicknesses and slopes.

1.04 When Concrete Joists and Deck:

Provide roof top insulation board per plans for uppermost floor. No ceiling insulation for all lower floor/ceiling assemblies.

1.05 When Ceiling Assembly is used as a return air plenum:

Insulation within the plenum space must meet flame spread and smoke development ratings of the current FBC and Life Safety Codes for an exposed installation.

PART 1 - EXTERIOR WALLS:

2.01 When Concrete Block Walls:

(Two Methods: Refer to plan section and details for final system)

- A. Provide furring on the interior face of the block walls as per plans and place rigid insulation of thickness called out on the wall sections.
- B. Fill the exterior block cells with **CoreFill 500** amino-plast, Class-A, Foam insulation, (or an approved equal product). The thermal properties for an 8" block/60 lbs. Density wall assembly is R-14.2. Install in strict compliance with manufacturers application procedures. **Thermco Foam Insulation** and **CoreFoam, Inc.** are approved equal products.

2.02 When Wood Frame or Steel Assembly Walls:

R-11 in 3 ½" walls, and R-19 in 5 ½" walls. Utilize foil faced or waxed Kraft paper faced fiberglass batt insulation. V.B. to weather side.

2.03 When Insulated Concrete Tilt-wall Sandwich Panels:

Provide extruded Dow STYROFOAM Brand rigid blue board insulation with heat formed, regular spaced holes identifying connector plate locations. Thicknesses per the plan with a minimum of 1 ½ inch thickness in all applications.

PART 3 - INTERIOR WALLS:

3.01 Framed Walls, Wood or Metal Stud:

3-1/2" Sound Batt insulation where shown on the plans.
Staples or Adhesive: As recommended by the insulation manufacturer.

PART 4 - ATTIC BARRIERS:

4.01 When called out on the plans, provide a roll foil perforated vapor barrier as manufactured by **Fi-Foil**. Location, type, and application method as called out on the sections and details. Staples, pins and tape as recommended by the insulation manufacturer.

PART 5 - SUSTAINABLE (GREEN) PROJECT REQUIREMENTS

- 5.01 For all projects seeking a sustainable green certification, such as USGBC LEED or an equivalent rating system, utilize only ecologically recognized products such as:
- A. Knauf Ecobatt (or equal) to replace standard fiberglass batt insulation products.
 - B. Thermafiber SAFB (or equal) mineral wool with special 90% green fiber recycled content.
 - C. Homasote 440 SoundBarrier w/ 98% Post-Consumer by weight recycled product.
 - D. BioBased 501w or 502 spray foam insulation at underside of roof decks.

PART 6 - INSULATION PRODUCTS MANUFACTURERS

- 6.01 For the insulation products specified on the plans utilize one of the following approved manufacturers:
- Johns Manville
 - Owens Corning
 - Celotex
 - Knauf Ecobatt
 - Thermafiber
 - Homasote
 - BioBased
 - Icynene
 - Dow

PART 7 - INSTALLATION:

7.01 Allow proper air space for thermal insulation, using flanges provided, in accordance with manufacturer's printed instructions.

7.02 When utilizing a vented soffit assembly, provide a minimum of a 2" air space at all perimeter overhangs between the insulation face and the underside of roof decking. Utilize vinyl or cardboard prefab vent sleeves as required to maintain said clearance.

7.03 Concealed Installation: in buildings **of any type construction**, shall have a flame spread rating of not more than 75 and a smoke development rating of not more than 450.

7.04 Exposed Installation: in buildings **of any type construction**, shall have a flame spread rating of not more than 25 and a smoke development rating of not more than 450.

7.05 Vapor Retarders: in order to prevent indoor air quality problems in hot, humid climates, vapor retarders such as asphalt impregnated felts, polyethelenes, or "Tyvics", should be placed on the outside, or weather side, of the insulation as a complete building wrap.

*****END OF SECTION*****

SECTION 07840 - FIRE STOPPING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 DESCRIPTION OF WORK

Work, in general, includes furnishing and installing fire and smoke barrier penetration seals for openings in floors, walls, and other elements of construction.

1.03 RELATED WORK OF OTHER SECTION

Coordinate work of this section with work of other sections as required to properly execute the work and as necessary to maintain satisfactory progress of the work of other sections, including:

Concrete Work	Section 03010
Unit Masonry	Section 04200
Joint Sealers	Section 07900
Lathing & Stucco	Section 09100
Gypsum Drywall	Section 09250
Mechanical, Electrical and Plumbing Work	Division 15 & 16 Sections

1.04 QUALITY ASSURANCE

- A. Applicator Qualifications: One-year experience installing UL classified fire stopping.
- B. Performance: Materials shall have been tested to provide fire rating equal to that of the construction.

1.05 SUBMITTALS

A. Shop Drawings

1. Submit (4) four copies of shop drawings showing each condition requiring penetration seals in dictating proposed UL systems materials, anchorage, methods of installation, and actual adjacent construction.
2. Submit a copy of UL illustration of each proposed system indicating manufacturer approved modifications.

B. Manufacturer's Data: Submit copies of manufacturer's specifications, recommendations, installation instructions, and maintenance data for each type of material required. Include letter indicating that each material complies with the requirements and is recommended for the applications shown.

C. Applicator's Qualification Statement: List past projects indicating required experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials undamaged in manufacturer's clearly labeled, unopened containers, identified with brand, type, grade, and UL label where applicable.

B. Coordinate delivery with scheduled installation date to allow minimum storage time at site.

C. Store materials in clean, dry ventilated location. Protect from soiling, abuse, and moisture. Follow manufacturer's instructions.

1.07 PROJECT CONDITIONS

A. Existing Conditions

1. Verify existing conditions and substrates before starting work. Correct unsatisfactory conditions before proceeding.
2. Proceed with installation only after penetrations of the substrate and supporting brackets have been installed.

B. Environmental Requirements

1. Furnish adequate ventilation of using solvent.
2. Furnish forced air ventilation during installation if required by manufacturer.
3. Keep flammable materials away from sparks or flame.
4. Provide masking and drop cloths to prevent contamination of adjacent surfaces by fire stopping materials.

1.08 GUARANTEE

Submit copies of written guarantee agreeing to repair or replace joint sealers which fail in joint adhesion, cohesion, abrasion resistance, weather resistance, extrusion resistance, migration resistance, stain resistance, or general durability or appear to deteriorate in any other manner not clearly specified by the material for the exposure indicated. The

guarantee period shall be one year from date of substantial completion.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

Products: Subject to compliance with requirements, products which may be incorporated in the work include but not limited to, the following:

1. Dow Corning Fire Stop Products; Dow Corning Corp.
2. 3M Fire Barrier Products; Electrical Products Div./3M
3. Flame Stop, Inc. Products
4. Rectorseal's Bio-Fireshield, Metacaulk products
5. Allied Gold A-1000 Products
6. Tremco Products

2.02 MATERIALS

- A. Provide materials classified by UL to provide Fire Barrier equal to time rating of construction being penetrated.
- B. Materials and Products shall conform with fire resistance characteristics required by ASTM E119 Fire Tests of Building Construction and Materials.
- C. Provide asbestos free materials that comply with applicable codes and have been tested in accordance with UL 1479 or ASTM E-814.

PART 3 - EXECUTION

3.01 PREPARATION

Clean surfaces to be in contact with penetration seal materials, of dirt, grease, oil, loose materials, rust or other substances that may affect proper fitting, adhesion, or the required fire resistance.

3.02 INSTALLATION

- A. Install penetration seal materials in accordance with printed instructions of the UL Building Materials Directory and in accordance with manufacturer's instruction.
- B. Seal holes or voids made by penetrations to ensure an effective smoke barrier.
- C. Where floor openings without penetrating items are more than 4 inches in width and subject to traffic or loading, install fire stopping materials capable of supporting same loading as floor.

D. Protect materials from damage on surfaces subject to traffic.

3.03 FIELD QUALITY CONTROL

A. Examine penetration sealed areas to ensure proper installation before concealing or enclosing areas.

B. Keep areas of work accessible until inspection by applicable code authorities.

C. Perform under this section patching and repairing of fire stopping caused by cutting or penetration by other trades.

3.04 ADJUSTING AND CLEANING

A. Clean up spills of liquid components.

B. Neatly cut and trim materials as required.

C. Remove equipment, materials and debris, leaving area in undamaged, clean condition.

3.05 SYSTEM APPLICATION CONDITIONS

Requiring UL approved classification, may include but are not limited to:

- A. Metal Pipe or Conduit Through Round Opening
- B. Insulated Metal Pipe Through Round Opening
- C. Metal Pipes or Conduits Through Large Opening
- D. Busway Through Rectangular Opening
- E. Cables Through Opening
- F. Cable Tray
- G. Blank Opening
- H. Non-metallic (plastic) Pipe or Conduit Through Opening
- I. Metal Pipe or Conduit Through Gypsum Board Wall
- J. Non-metallic (plastic) Pipe or Conduit Through Gypsum Board Wall
- K. Cables Through Gypsum Board Wall
- L. Insulated Metal Pipe Through Gypsum Board Wall
- M. Metal Pipe or Conduit Through Wood Construction
- N. Non-metallic (plastic) Pipe or Conduit Through Wood Construction
- O. Cables Through Wood Construction
- P. Duct Opening Flange Seals
- Q. Steel Joists through fire walls
- R. Top of walls at underside of concrete and metal decks

*****END OF SECTION*****

SECTION 07900 - JOINT SEALANTS AND ADHESIVES

PART 1- GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes joint sealants for the following applications, including those specified by reference to this Section: following applications:
 - 1. Interior joints in the following vertical surfaces and horizontal non-traffic surfaces:
 - a. Control and expansion joints on exposed interior surfaces of exterior walls.
 - b. Perimeter joints of exterior openings where indicated.
 - c. Tile control and expansion joints.
 - d. Vertical joints on exposed surfaces of interior unit masonry concrete walls and partitions.
 - e. Perimeter joints between interior wall surfaces and frames of interior doors windows and elevator entrances.
 - f. Joints between plumbing fixtures and adjoining walls, floors, and counters.
 - g. Other joints as indicated.
 - 2. Interior joints in the following horizontal traffic surfaces:
 - a. Control and expansion joints in tile flooring.
 - b. Other joints as indicated.
 - 3. Exterior joints in the following vertical surfaces and horizontal traffic surfaces:
 - a. Control and expansion joints at Structural Control Joints in masonry wall coursing and in combination with stucco accessories as detailed on the Architectural and Structural plans.
 - b. Control and expansion joints in concrete decking as detailed on the Architectural and Structural plans.
- B. Related Sections include the following:
 - 1. Division 8 Section "Glass and Glazing" for glazing sealants.
 - 2. Division 9 Section "Gypsum Drywall" for sealing perimeter joints of gypsum board partitions to reduce sound transmission.

3. Division 9 Section "Ceramic Tile Work" for sealing tile joints.

1.3 PERFORMANCE REQUIREMENTS

- A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.
- B. Delete paragraph above or below if not applicable. Revise wording to reflect performance required for both interior and exterior joints. Add specific applications where watertight or water-resistant performance may not be required or attainable with products selected.
- C. Provide joint sealants for interior applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrates.
- D. All sealants and adhesives **used on the interior of the building** (i.e. inside of the weatherproofing system and applied on-site) must comply with the following requirements as applicable to the project scope:
- E. **Adhesives, Sealants and Sealant Primers** must comply with South Coast Air Quality Management District (SCAQMD) Rule #1168. Volatile organic compound (VOC) limits listed in the table (see the last page of this spec section) correspond to an effective date of July 1, 2005 and rule amendment date of January 7, 2005.

1.4 SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.
- B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.
- C. Delete paragraph above if colors are preselected and specified or scheduled. Retain first paragraph below with or without above.
- D. Samples for Verification: For each type and color of joint sealant required, provide samples with joint sealants in 1/2-inch- (13-mm-) wide joints formed between two 6-inch- (150-mm-) long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
- E. Product Certificates: For each type of joint sealant and accessory, signed by product manufacturer.
- G. SWRI Validation Certificate: For each elastomeric sealant specified to be validated by SWRI's Sealant Validation Program.

- H. Coordinate paragraph below with qualification requirements in Division 1 Section "Quality Requirements" and as supplemented in "Quality Assurance" Article.
- I. Qualification Data: For Installer.
- J. Preconstruction Field Test Reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on preconstruction testing specified in "Quality Assurance" Article.
- K. Field Test Report Log: For each elastomeric sealant application.
- L. Product Test Reports: Based on comprehensive testing of product formulations performed by a qualified testing agency, indicating that sealants comply with requirements.
- M. Warranties: Special warranties specified in this Section.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized Installer who is approved or licensed for installation of elastomeric sealants required for this Project.
- B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.
- C. Product Testing: Obtain test results for "Product Test Reports" Paragraph in "Submittals" Article from a qualified testing agency based on testing current sealant formulations within a 36-month period preceding the Notice to Proceed with commencement of the Work.
 - 1. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated, as documented according to ASTM E 548.
 - 2. If retaining subparagraph below, also retain "Product Test Reports" Paragraph in "Submittals" Article.
 - 3. Test elastomeric joint sealants for compliance with requirements specified by reference to ASTM C 920, and where applicable, to other standard test methods.
 - 4. Test elastomeric joint sealants according to SWRI's Sealant Validation Program for compliance with requirements specified by reference to ASTM C 920 for adhesion and cohesion under cyclic movement, adhesion-in-peel, and indentation hardness.
 - 5. Test other joint sealants for compliance with requirements indicated by referencing standard specifications and test methods.
- D. Pre-construction Field-Adhesion Testing: Before installing elastomeric sealants, field test their adhesion to Project joint substrates as follows:

1. Locate test joints where indicated on Project or, if not indicated, as directed by Architect.
2. Conduct field tests for each application indicated below:
 - a. Each type of elastomeric sealant and joint substrate indicated.
 - b. Each type of nonelastomeric sealant and joint substrate indicated.
3. Notify Architect seven days in advance of dates and times when test joints will be erected.
4. Report whether sealant in joint connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained.
5. Evaluation of Pre-construction Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.

1.6 PROJECT CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:
 1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
 2. When joint substrates are wet.
 3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
 4. Contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.7 WARRANTY

- A. When warranties are required, verify with Owner's counsel that special warranties stated in this Article are not less than remedies available to Owner under prevailing local laws. Coordinate with Division 1 Section "Product Requirements."
- B. Special Installer's Warranty: Installer's standard form in which Installer agrees to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
 1. Warranty Period: Two years from date of Substantial Completion.
- C. Special warranties specified in this Article exclude deterioration or failure of elastomeric joint sealants from the following:
 1. Movement of the structure resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression caused by structural settlement or errors attributable to design or construction.
 2. Disintegration of joint substrates from natural causes exceeding design specifications.

3. Mechanical damage caused by individuals, tools, or other outside agents.
4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A. See Editing Instructions No. 1 and No. 2 in the Evaluations for cautions about naming manufacturers and products and in coordinating requirements in this Section with other Part 2 articles.

Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in other Part 2 articles.

2.2 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, backings, 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. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.3 ELASTOMERIC JOINT SEALANTS

Elastomeric Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

B. Stain-Test-Response Characteristics: Where elastomeric sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

C. Suitability for Contact with Food: Where elastomeric sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.

D. Single-Component Nonsag Polysulfide Sealant:

1. Available Products:

- a. Pacific Polymers, Inc.; Elastoseal 230 Type I (Gun Grade).
 - b. Polymeric Systems Inc.; PSI-7000.
2. Type and Grade: S (single component) and NS (nonsag).
 3. Class: 25.
 4. Use Related to Exposure: NT (nontraffic).
 5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.

2.4 LATEX JOINT SEALANTS

- A. Latex Sealant: Comply with ASTM C 834, Type P, Grade NF.
- B. Available Products:
 1. Pecora Corporation; AC-20+.
 2. Sonneborn, Division of ChemRex Inc.; Sonolac.
 3. Tremco; Tremflex 834.

2.5 ACOUSTICAL JOINT SEALANTS

- A. Acoustical Sealant for Concealed Joints: Manufacturer's standard, nondrying, nonhardening, nonskinning, nonstaining, gunnable, synthetic-rubber sealant recommended for sealing interior concealed joints to reduce airborne sound transmission.
 1. Available Products:
 - a. Pecora Corporation; BA-98.
 - b. Tremco; Tremco Acoustical Sealant.

2.6 JOINT-SEALANT BACKING

- A. General: Provide sealant backings of material and type that 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 experience and laboratory testing.
- B. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 26 deg F. Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and to otherwise contribute to optimum sealant performance. Backing rods used in combination with silicone sealants shall be soft rod "open cell" to prevent off-grassing bubbles in the cured surface. All other backing rods shall be "closed cell".

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape 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.

D. When proposing paintable silicones using acrylic latex paints make special consideration that these products must be painted within seven days of placement of sealants. Refer to manufacturer's literature for proper sequence of applications.

2.7 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

2. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
 - a. Concrete.
 - b. Masonry.
 - c. Unglazed surfaces of ceramic tile.
3. Remove laitance and form-release agents from concrete.
4. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
 - a. Metal.
 - b. Glass.
 - c. Porcelain enamel.
 - d. Glazed surfaces of ceramic tile.

B. Joint Priming: Prime joint substrates, where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Acoustical Sealant Application Standard: Comply with recommendations in ASTM C 919 for use of joint sealants in acoustical applications as applicable to materials, applications, and conditions indicated.

D. Install sealant backings of type indicated to support sealants during application and at

position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

E. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

F. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

G. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.
4. Provide flush joint configuration where indicated per Figure 5B in ASTM C 1193.
5. Provide recessed joint configuration of recess depth and at locations indicated per Figure 5C in ASTM C 1193.
 - a. Use masking tape to protect surfaces adjacent to recessed tooled joints.

H. Install sealants to size and shape shown on drawings, or, if not shown, with slightly concave surfaces.

- a. The minimum opening should be 1/4".
- b. The opening should be at least 4 times the maximum movement of the sealant.
- c. The sealant should be more than 1/4" and less than 1/2" deep.
- d. The depth of the sealant should be no greater than the width.
- e. No joint to receive sealant should be less than 1/4" deep.

3.4 FIELD QUALITY CONTROL

A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:

1. Extent of Testing: Test completed elastomeric sealant joints as follows:

- a. Perform 10 tests for the first 1000 feet (300 m) of joint length for each type of elastomeric sealant and joint substrate.
- b. Perform 1 test for each 1000 feet of joint length thereafter or 1 test per each floor per elevation.

2. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab in Appendix X1 in ASTM C 1193, as appropriate for type of joint-sealant application indicated.

- a. For joints with dissimilar substrates, verify adhesion to each substrate separately; do this by extending cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.

3. Inspect joints for complete fill, for absence of voids, and for joint configuration complying with specified requirements. Record results in a field-adhesion-test log.

4. Inspect tested joints and report on the following:

- a. Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate. Compare these results to determine if adhesion passes sealant manufacturer's field-adhesion hand-pull test criteria.
- b. Whether sealants filled joint cavities and are free of voids.
- c. Whether sealant dimensions and configurations comply with specified requirements.

5. Record test results in a field-adhesion-test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant fill, sealant configuration, and sealant dimensions.

6. Repair sealants pulled from test area by applying new sealants following same procedures used originally to seal joints. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.

B. Evaluation of Field Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

3.5 CLEANING

A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.6 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

Architectural Applications	VOC Limit (g/L less water)	Specialty Applications	VOC Limit (g/L less water)
Indoor carpet adhesives	50	PVC welding	510
Carpet pad adhesives	50	CPVC welding	490
Wood flooring adhesives	100	ABS welding	325
Rubber floor adhesives	60	Plastic cement welding	250
Subfloor adhesives	50	Adhesive primer for plastic	550
Ceramic tile adhesives	65	Contact adhesive	80
VCT and asphalt adhesives	50	Special purpose contact adhesive	250
Drywall and panel adhesives	50	Structural wood member adhesive	140
Cove base adhesives	50	Sheet applied rubber lining operations	850
Multipurpose construction adhesives	70	Top and trim adhesive	250
Structural glazing adhesives	100		
Substrate Specific Applications	VOC Limit (g/L less water)	Sealants	VOC Limit (g/L less water)
Metal to metal	30	Architectural	250
Plastic foams	50	Roadway	250
Porous material (except wood)	50	Other	420
Wood	30		
Fiberglass	80		
Sealant Primers	VOC Limit (g/L less water)		
Architectural, nonporous	250		
Architectural, porous	775		
Other	750		

This table excludes adhesives and sealants integral to the water-proofing system or that are not building related.

Aerosol Adhesives	VOC Limit
General purpose mist spray	65% VOCs by weight
General purpose web spray	55% VOCs by weight
Special purpose aerosol adhesives (all types)	70% VOCs by weight

*** END OF SECTION ***

SECTION 08400 - ENTRANCE STOREFRONT DOORS

PART 1 - GENERAL

- A. All entrance system materials are to be provided by one manufacturer. Entrances shall be wide OR medium stile doors as detailed on the architectural drawings and as manufactured to the design and specifications of one of the following manufacturers:

Trulite
Kawneer Corporation
CRL
Frontline Aluminum
Aldora
CGI Commercial
Envirolume Windows and Doors, Inc.
YKK Storefront System

All adjacent framing, sidelites and fixed lites shall be of system shown, or approved equal, and where specified and designed as an exterior door assembly, shall be impact rated per FBC 2014 Fifth Edition and ASCE 7-10.

PART 2 - SPECIFICATIONS (NOTE: See Door Schedule for Sizes and manufacturers)

- A. Wide Stile doors, when scheduled, shall be composed of tubular extrusions with 5" stiled and 5" top rail and 7-1/2" bottom rail. Corners shall have reinforcing plates, extruded anti-twist guides with mortise joinery and full width 3/8" plated steel tension rods.
- B. Medium Stile doors, when scheduled, shall be composed of tubular extrusions with 3-1/2" stiles and a 3-1/2" top rail and 5" bottom rail. Corners shall have reinforcing plates, extruded anti twist guides with mortise joinery and full width 3/8" plated steel tension rods.
- C. Glazing beads shall be an integral sash, non-removal from the exterior with vinyl bulb inserts for dry glazing. Glazing beads for insulated glass are available. Minimum bite on tempered glass shall be 1/2" in door leafs and fixed lite transoms.
- D. All aluminum components shall be of 6063 alloy with T-5 temper. All screws shall be of plated steel. All steel in contact with aluminum shall be plated or painted.

PART 3 - HARDWARE

- A. Arch's standard hardware shall consist of AR-800 pull handles and H-2 push bars with 1-1/2 pair Hager #23439, 4-1/2" brass butt hinges or offset cast aluminum

pivot hinges international #OP-160 at each end and intermediate cast aluminum hinges #IP-1900 at midspan of each leaf. Door hardware schedule per each approved manufacturer takes precedence over this description.

- B. Locks: two point concealed vertical rod panic hardware in door pairs.
- C. Please be advised that the door manufacturer should provide all entrance hardware. Refer to the Door Hardware Schedule Section 08710 for a complete description. In the event that hardware is to be provided by others, such hardware specification must be received by the Storefront Manufacturer before fabrication of doors can begin.

PART 5 - FASTENERS

- A. Typical anchors:
 - 1. Into P.T. wood bucks or wood structure, #14 SMS with 1-1/2" minimum total embed at spacings to comply with manufacturer's NOA data.
 - 2. Through P.T. 1X wood bucks and into masonry, 1/4" dia. Tapcons with 1-1/4" minimum embed into masonry at spacings to comply with manufacturer's NOA data.

NOTE: All wood bucks provided by the general contractor must sustain the loads imposed by the glazing system and transfer them to the building structure.

PART 6 - FINISH

- A. All exposed surfaces shall be free from unsightly scratches and blemishes. Aluminum sections shall be coated with one of the following options:
 - 1. Anodized material: shall be given a caustic etch followed by an anodic oxide treatment. Color shall be one of the following and per the door schedule on the plans:

a) Dark Bronze	AA	M12	C22	A42/44
b) Medium Bronze	AA	M12	C22	A40
c) Clear	AA	M12	C22	A21
d) Black	AA	M12	C22	A44
 - 2. Powder coated material, when called out on the door schedule, shall be given an acidic wash and etch and coated with one of the following:
 - a) ARCHKOTE 1000 – 1 YEAR WARRANTY MEETS OR EXCEEDS AAMA 603.8-85
 - b) ARCHKOTE 6000 – 6 YEAR WARRANTY MEETS OR EXCEEDS AAMA 605.2-85
 - 3. The option and color selected for this project is:
DARK BRONZE ANODIZED – MATCH EXISTING

END OF SECTION

SECTION 08410 - FLUSH GLAZED STOREFRONT WINDOWS

PART 1 - GENERAL

- A. Store front framing shall be impact rated and detailed on the Architectural drawings and as manufactured to the design and specifications of one of the following or an approved equal:

Trulite
Kawneer
CRL
Frontline Aluminum

Storefront glazing systems vary with each project. Refer to plans and details for flush glazed and curtain wall systems required.

PART 2 - SPECIFICATIONS

- A. The Framing System shall have a maximum face dimension of 2.50" and a maximum depth of 5" for both vertical and horizontal members. (Section profiles may vary w/manufacturer). All sections shall be of extruded aluminum alloy 6063 and a T5 temper. Glazing Gaskets shall be of EPDM or pvc extrusions. Assembly screws shall be of plated steel. Glass shall have a minimum bite of 5/8" on the perimeter. Glass types and SHGC requirements shall be as defined on the window schedule. **All storefront framing and glass assemblies shall be impact rated.** (Refer to Window Schedule to determine if single glazed, insulated or a combination of both).

PART 3 - FINISH

- A. All exposed surfaces shall be free from unsightly scratches and blemishes. Aluminum sections shall be coated with one of the following options:

1. Anodized material: shall be given a caustic etch followed by an anodic oxide treatment. Color shall be:

a) Dark Bronze	AA	M12	C22	A42/44
b) Medium Bronze	AA	M12	C22	A40
c) Clear	AA	M12	C22	A21
d) Black	AA	M12	C22	A44

2. Powder coated material shall be given an acidic wash and etch and coated with one of the following:

a) ARCHKOTE 6000 – 6-YEAR WARRANTY MEETS OR EXCEEDS AAMA 605.2-85
b) TIGER DRYLAC – SERIES 19, 6-YEAR WARRANTY

- B. The option and color selected for this project is: **DARK BRONZE ANODIZED
– MATCH EXISTING.**

PART 4 - ERECTION

- A. The Storefront Glazing System specified shall be installed, in properly prepared openings, level, plumb and in alignment and consistent with acceptable erection techniques and practices. Frames shall be secured to the walls/jambes with approved fasteners to comply with manufacturer's NOA data.

*****END OF SECTION*****

SECTION 08700 - FINISH HARDWARE

PART 1 – GENERAL

1.01 WORK NOT INCLUDED

- A. Rough Hardware
- B. Casework Hardware
- C. Installation of Hardware

1.02 GENERAL

- A. All exterior doors shall open outward or in direction of travel to an exit.
- B. Copies of the Hardware Schedule, templates and keying schedules shall be submitted to the Architect and approved before ordering.
- C. Exchange schedules and template lists, with related trades, for coordination with their Shop Drawings.

1.03 GUARANTEE

- A. The hardware supplier shall provide a written guarantee that all materials furnished under this Section will be free from defects in the materials and the workmanship for a period of one (1) year from the date of a final **“Certificate of Occupancy”**.
- B. The hardware supplier, after a complete and thorough inspection by the Architect, shall further certify that all items furnished under this Section have been properly located, in accordance with the Hardware Schedule and the manufacturer’s instructions.

1.04 SUBMITTALS

- A. Three (3) copies of the Hardware Schedule, complete with catalog cuts, shall be submitted for approval. Door numbers and hardware groups are not to be changed.
- B. Approval of the Hardware Schedule shall be for type, operation and finish only.

1.05 DELIVERY

- A. Each item of hardware shall be delivered to job site, packaged separately, complete with the necessary fasteners, screws and anchors. Provide templates and/or instructions as required.
- B. Mark each item so as to correspond with the Hardware Schedule, identifying contents and defining location.

PART 2 - PRODUCTS

2.01 HINGES

- A. All Hinges shall be STANLEY, HAGER, McKINNEY.
- B. Use three hinges per door leaf on all doors up to a door height of 7'-6" and width up to 3'-0". Add an extra hinge for each additional twenty-four (24) inches of door height and widths over 36" to a maximum of 48".
- C. Provide the following size and type hinges unless otherwise noted in the hardware groups which takes priority. Provide non-removable pins for exterior doors.
 - 1. **Exterior Doors:**
4-1/2" x 4-1/2", Stainless Steel
 - 2. **Interior Doors with Closers:**
4-1/2" x 4-1/2", US26D finish
 - 3. **Interior Doors without Closers:**
4-1/2" x 4-1/2", US26D finish
- D. Finish
 - 1. Exterior Doors: Stainless Steel
 - 2. Interior Doors: Satin Chromium Plated Finish

2.02 LOCKS & EXIT DEVICES

- A. All locksets shall be AS SPECIFIED ON THE HARDWARE SCHEDULE. All locks shall have a minimum throw of 1/2". Finish to be per the Finish Hardware Schedule. Functioning of the locks shall be as designated in the hardware groups.
- B. Locksets shall comply with the following additional requirements:
 - 1. The hardware manufacturer will meet with the **owner** to finalize keying requirements and to obtain keying instructions in writing.
 - 2. All cylinders will be 6-pin interchangeable core type. All cylinders will be keyed to the existing **Schlage** key system.
 - 3. All cylinders will be supplied with Temporary construction cores. Construction Cores and keys will be a different keyway (key section) than the final cores.
 - 4. The following will be provided by the Contractor:
 - a. 3 change keys each cylinder
 - b. 4 Construction keys
 - c. 2 Construction core removal keys
 - d. 2 Each of all GGMK, GMK and MK's used in the system

- e. Catalog cuts and parts manuals

5. All keys shall be stamped "DO NOT DUPLICATE".

2.03 CLOSING DEVICES

- A. All hydraulic door closers shall be provided by one manufacturer and guaranteed for five (5) years.
- B. Door Closers shall be LCN, HAGER at all doors per schedule, fully hydraulic, full rack and pinion action. Closers shall have a separate adjustment for latch speed, general speed and back check. All closers and accessories, except special purpose types, whether applied to hinge side, stop face, over door or on bracket, shall be non-handed. All closers are to be installed on the room side of the door except where noted in the Hardware Schedule. All closers are to be installed with thru-bolts and five screws in the foot.

2.04 STOPS

- A. Wall Stops shall be AS SPECIFIED ON THE HARDWARE SCHEDULE, NOTE: Utilize Rockwood Model 409, US26D/626 at all doors that have push button locks. This model has a larger diameter recessed receiving hole. Wall stops to be utilized on interior/exterior frame walls to have solid wood backing to prevent drywall failure. Wall Stops WB11 should be mounted to the wood base. Areas with Vinyl or Ceramic Tile Base should utilize the wall stops 50C/60C.

2.05 THRESHOLD, WEATHERSTRIP

- A. Thresholds and Weather stripping shall be PEMKO, HAGER to match the types and sizes indicated on the Hardware Schedule or detailed on the drawings.
- B. Provide screws and anchors as required.
- C. Finish to be per Schedule.

2.06 PLACEMENT OF HARDWARE

Various items shall have the following heights and locations, unless otherwise indicated. (Heights are shown from finish floor to center line of item):

- A. Hinges: Standard Placement
- B. Cylindrical Lockset 38"

- C. Closer per manufacturer template to give maximum degree of opening. All closers to be mounted on room side of door.
- D. Stops:
 - 1. Wall: On wall where knob or pull hits.
 - 2. Floor: As per standard practice.
 - 3. Chain Door: As per standard practice.
 - 4. Over-Head: Per manufacturer template to give maximum degree of opening. All Over-Head stops to be mounted on room side of door.

PART 3 - EXECUTION

3.01 KEYING

- A. All installed locksets shall be keyed to the Owner's satisfaction. Coordinate with Owner as to manufacturer, function and type prior to ordering specified locksets.
- B. Submit keying schedule, based on the instructions and prior approval of the Owner's representative, for final approval before ordering locksets.
- C. Delivery
 - 1. All locks are to be delivered to the job site without the permanent key. All locks are to be keyed to the existing Owner's master key, if required.
 - 2. A representative of the Hardware Supplier, upon the completion of the project, shall check all locks for proper location, operation and keying as well as deactivate the construction-key operation and transfer all locks to a permanent key operation.
 - 3. All permanent keys shall be properly identified and tagged with a code number and location and shall be turned over directly to the Owner's representative.
 - 4. Furnish six (6) master keys of each set to the Owner.

3.02 DESCRIPTION OF HARDWARE GROUP NUMBERS

The following Hardware Schedule is to be used as a general guide. Special or unusual conditions not covered in the schedule will have hardware of a similar type and quality to meet the job conditions, and it shall be the hardware consultant's responsibility to insure that all hardware is supplied to meet job requirements and produce a complete job.

*****END OF SECTION*****

SECTION 08710 - DOOR FINISH HARDWARE SCHEDULE

1.01 List of Materials and Approved Manufacturers

<u>HARDWARE TYPE:</u>	<u>LISTED MANUFACTURER:</u>	<u>APPROVED EQUALS:</u>
Hinges	Hager	Stanley, Mckinney
Locks	Best Corp.	Corbin/Russwin, Yale, Schlage
Exits	Von Duprin	Precision
Door Closers	LCN	Norton, Corbin/Russwin
Push/Pulls/Kick & Mop Plates	Rockwood	Brookline, Baldwin
Stops	Rockwood	Ives, Baldwin
Thresholds	Pemko	Reese, Zero
Weatherstrip	Pemko	Reese, Zero

DOOR HARDWARE SCHEDULE

The Door Hardware Schedule is called out on the Door Schedule. The above manufacturers shall be utilized for each component of the door assembly.

*****END OF SECTION*****

SECTION 08800 - GLASS AND GLAZING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 DESCRIPTION OF WORK

- A. Definition: “glass includes prime glass, processed glass, and fabricated glass. “Glazing” includes glass installation and materials used to install glass. Types of work in this section include glass and glazing for:
 - Window units, sidelites, transoms
 - Window wall
 - Entrances and other doors, not indicated as “preglazed”.
- B. Packaged mirror units are specified as “accessories” in section 10800.

1.03 QUALITY ASSURANCE

- A. Prime Glass Manufacturer: One of the following for each type/color/pattern of glass:
 - ASG Industries. Inc.
 - Guardian Industries Corporation
 - Ford Glass Company
 - Libbey-Owens-Ford Company
 - PPG Industries, Inc.
 - Visteon
- B. Certificate: Submit certificates from respective manufacturers attesting that glass and glazing materials furnished for project comply with requirements.
- C. Glazing Standards: Comply with recommendations of Flat Glass Marketing Assoc. (FGMA) “Glazing Manual” and “Sealant Manual” except where more stringent requirements are indicated. Refer to those publications for definitions of glass and glazing terms not otherwise defined in this section or other referenced standards.
- D. Installer Qualifications: Installation contractor specializing in glazing, with a minimum of 5 years experience on projects of similar size and also being an approved installer for the glazing product supplier.

PART 2 - PRODUCTS

2.01 GLASS PRODUCTS

Clear Heat-Treated Float Glass: Type I (transparent glass, flat), Class 1 (clear), Quality q3 (glazing select), fully tempered. Other glass products for impact resistance are called out on the drawings and may include, but are not limited to, safety laminate heat strengthened glass with an .090 inner liner. Thicknesses of laminated glass vary from 3/8 inch to 9/16 inch. Frames to receive the glass vary to achieve various levels of impact resistance per local and state codes. **Refer to the drawings for a description of glazing and SHGC requirements.**

2.02 GLAZING SEALANTS AND COMPONENTS

- A. General: provide color of exposed sealant/compound indicated or if not otherwise indicated, as selected by Architect from manufacturer's standard colors, or black if no color is as selected. Comply with manufacturer's recommendations for selection of hardness, depending upon the location of each application, conditions at time of installation, and performance requirements as indicated. Select materials, and variations or modifications, carefully for compatibility with surfaces contacted in the installation.
- B. 2-Part Polysulfide Glazing Sealant (2Ps-GS): Elastomeric polysulfide sealant complying with FS TTS-227, Class A, Type 2; specially compounded and tested to show a minimum of 20-years resistance to deterioration in normal glazing applications. Use for exterior applications.
- C. Acrylic-Emulsion Glazing Sealant (AcEm-GS): Emulsion of acrylic, with or without latex rubber modification; compounded specifically for glazing; non-hardening, non-staining, and non-bleeding. Use for interior applications.

2.03 GLAZING GASKETS

- A. Polyvinyl Chloride Glazing Gaskets (PVC-GG): Extruded, flexible PVC gaskets of the profile and hardness shown, or as required for watertight construction; comply with ASTM D 2287.
- B. Cellular Neoprene Glazing Gaskets (PVC-GG): Extruded/molded, closed-cell, integral-skinned neoprene of profile required to maintain watertight seal; comply with ASTM C509, Type II, black.
- C. Vinyl Foam Glazing Tape (VF-GT): Closed cell flexible, self-adhesive, non-extruding, polyvinyl chloride foam tape; recommended by manufacturer for exterior, exposed, watertight installation of glass, with only nominal pressure in the glazing channel; comply with ASTM C 1667.

2.04 MISCELLANEOUS GLAZING MATERIALS

- A. Cleaners, Primers, and Sealers: Type recommended by sealant or gasket manufacturer.
- B. Setting Blocks: Neoprene or EPDM, 70-90 durometer hardness, with proven compatibility with sealants used.
- C. Spacers: Neoprene or EPDM, 40-50 durometer hardness with proven compatibility with sealants used.
- D. Compressed Filler (Rod) Ccp-FR: Closed cell or waterproof jacketed roof stock of synthetic rubber or plastic foam, proven to be compatible with sealants used, flexible and resilient, with 5-10 psi compression strength for 25% deflection.

PART 3 - EXECUTION

3.01 STANDARDS AND PERFORMANCE

- A. Watertight and airtight installation of each glass product is required, except as otherwise shown. Each installation must withstand normal temperature changes, wind loading, impact loading (for operating sash and doors), without failure including loss or breakage of glass, failure of sealants or gaskets to remain watertight and airtight, deterioration of glazing materials and other defects in the work.
- B. Protect glass from edge damage during handling and installation, and subsequent operation of glazed components of the work. During installation, discard units with significant edge damage or other imperfections.
- C. Glazing channel dimensions as shown are intended to provide for necessary bite on glass, minimum edge clearance, and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by job conditions at time of installation.
- D. Comply with combined recommendations and technical reports by manufacturers of glass and glazing products as used in each glazing channel, and with recommendations of Flat Glass Market Assoc. "Glazing Manual", except where more stringent requirements are indicated.

3.02 PREPARATION FOR GLAZING

- A. Clean glazing channel and other framing members to receive glass, immediately before glazing. Remove coatings which are not firmly bonded to substrate. Remove lacquer from metal surfaces where elastomeric sealants are used.
- B. Apply primer or sealant to joint surfaces where recommended by sealant manufacturer.

3.03 GLAZING

- A. Install setting blocks of proper size in still rabbit, located 1/4 of glass width from each corner. Set blocks in thin course of heel-bead compound, if any.
- B. Provide spacers inside and out, or proper size and spacing, for glass sizes larger than 50 united inches, except where gaskets or preshimmed tapes are used for glazing. Provide 1/8" minimum bite of spacers on glass and use thickness equal to sealant width, except with sealant tape used thickness slightly less than final compressed thickness of tape.
- C. Set units of glass in each series with uniformity of pattern, draw, bow and similar characteristics.
- D. Voids and Filler Rods: Prevent exudation of sealant or compound by forming voids or installing filler rods in channel at heel of jambs and head (do not leave voids in sill channels), except as otherwise indicated and depending on light size, thickness and Type of glass, and complying with manufacturer's recommendations.
- E. Force sealants into channel to eliminate voids and to ensure complete "wetting" or bond of sealant to glass and channel surfaces.
- F. Tool exposed surfaces of glazing liquids and compounds to provide a substantial "wash" away from glass. Install pressurized tapes and gaskets to protrude slightly out of channel, so as to eliminate dirt and moisture pockets.
- G. Clean and trim excess glazing materials from glass and stops or frames promptly after installation, and eliminated stains and discolorations.
- H. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage to ensure that gasket will not "walk" out when installation is subjected to movement. Anchor gasket to stop with matching ribs, or by proven adhesives, including embedment of gasket tail in cured heel bead.
- I. Gasket Glazing: Miter cut and bond ends together at corners where gaskets are used for channel glazing, so that gaskets will not pull away from corners and result in voids or leaks in glazing system.
- J. Structural Gasket Glazing: Cut zipper strips slightly long, to ensure tight closure. Lubricate zipper strip and use special tool to install zipper. Do not lubricate glazing channel or anchorage rabbit. Comply with details as shown and manufacturer's instructions, including possible use of liquid sealants and weep holes.

3.03 CURE, PROTECTION AND CLEANING

- A. Protect exterior glass from breakage immediately upon installation, by use of crossed streamers attached to framing and held away from glass. Do not apply markers to surfaces of glass. Remove nonpermanent labels and clean surfaces. Cure sealants for high early strength and durability.
- B. Remove and replace glass which is broken, chipped, cracked, etched, abraded or damaged in other ways during construction period, including natural causes, accidents and vandalism.
- C. Wash and polish glass on both faces not more than 4 days prior to date scheduled for inspections intended to establish date of substantial completion in each area of project. Comply with glass product manufacturer's recommendations for final cleaning. Sub-contractors performing glass and window cleaning must be fully insured to replace damaged glass as a direct result of their negligence. The general contractor is ultimately responsible for replacing all damaged glass.

*****END OF SECTION*****

SECTION 09100 - LATHING AND STUCCO

1.01 GENERAL

- A. All applicable provisions of the General Conditions are a part of this section.
- B. Furnish all labor, materials, tools, equipment, etc., and services necessary and incidental to the complete fabrication, furnishing and erection of this section as shown, noted, detailed and reasonably implied on the drawings and in the specifications.
- C. All lathing, plastering, and stucco work, in addition to conforming to this section, shall conform to the American National Standards Specifications A42.2 and A42.3.

1.02 MATERIALS

Stucco

- A. Do not use any precolored stucco mixes.
- B. Premix stucco bag mix shall conform to ASTM C-926, Gray.
- C. Sand shall be clean, sharp, fine, sand conforming to ASTM C-144.
- D. Water shall be clean, fresh, portable and free from mineral organic substances that would affect the set of stucco.

Metal Lath

- A. Self-furring metal lath shall be expanded metal lath with staggered indentations spaced 3 - 1/2" apart horizontally and 2" apart vertically with indentations of depth to hold lath a minimum of 1/4" away from back-up material. Lath shall be hot dipped galvanized for interior and exterior use and shall weigh 3.4 pounds per square yard.
- B. Metal lath to be used where supports are spaced over 16" on centers shall be hot dipped galvanized, expanded metal lath stiffened with 3/8" ribs spaced 4" on center, weighing a minimum of 3.4 pounds per square yard.
- C. Sheets secured to supports at intervals not exceeding six inches (6"). Place ties where sides of sheets lap at supports, and at side laps or sheets between supports. Tie wire to be not less than 18 ga. galvanized wire.
- D. Diamond-mesh lath lapped at sides not less than 1/2" and at ends not less than 1". End laps of sheets should generally occur only over supports; if between, end of sheets to be laced or adequately tied with #18 ga., galvanized, annealed wire.

- E. No paper backed laths will be accepted. Remove paper backings on any laths supplied to the job site. Utilize 30# felt roofing paper or backing as called out on the plans.
- F. Install according to ASTM C 1063.

1.03 MIXING AND APPLICATION

- A. Before the application of stucco masonry, all surfaces shall be clean and free from defect. Concrete surfaces to receive stucco shall be coated with a bonding agent to insure proper bond. Dampen masonry surfaces with a fog spray immediately prior to application so as to prevent excessive withdrawal of moisture from the stucco.
- B. Stucco shall be applied in three (3) coats to a total thickness of 3/4" over specified metal lath and in two (2) coats to a total thickness of 5/8" on concrete or masonry. Finish coat to be installed as per manufacturer's recommendations of approximately 1/4" thickness with **surface finishes as scheduled on the building elevation drawings**. When textured surfaces are specified, troweled or sprayed, the General Contractor shall submit a 2' X 2' sample board to the Architect for approval, **PRIOR** to applying the finish coating of stucco to the building.
- C. Cross rake all scratch coats in order to form a mechanical bond with brown coats. Lightly cross-scratch all brown coats of plaster in order to form a mechanical bond with the finish coat.
- D. Keep each base coat moist for at least 48 hours; commence moistening as soon as plaster is hardened sufficiently to prevent injuries. If atmospheric conditions are hot and dry, curing time shall be extended as necessary to at no additional cost to the Owner. Allow base coat to cure for a minimum of seven (7) days before applying finishing coat.
- E. **FINISH COAT**, when scheduled as a sponge finish, shall be free from waves, dents, trowel marks, and shall be a smooth sponge finish. Do not deviate more than plus or minus 1/4 inch in 10 feet from a true plane in finished surfaces.
- F. Plaster and stucco used for patching and replacing existing work shall be mixed, applied and finished to match adjacent surfaces.
- G. Apply stucco in accordance with ASTM C-926.

1.04 CLEANING

- A. After completion of work, all scaffolding, tools, and other equipment shall be removed from the building, taking care not to damage work of other trades. All cement plaster rubbish shall be removed and the building left broom clean.
- B. Stucco Contractor is responsible for protecting all existing work, windows, doors, equipment, etc. from stucco residue during application. Clean any residue that may exist at completion of work.

1.05 STUCCO ACCESSORIES

NOTE: REFER TO PLANS, SECTIONS, DETAILS AND ELEVATIONS FOR SPECIFIC TYPE AND PLACEMENT PER PROJECT.

- A. Casing Beads:
 - 1. For interior use shall be formed of 24-gauge Galvanized Steel, ASTM A525-81, A527-80, A446 (.0179 thickness G90 galv.).
 - 2. For exterior use, where scheduled, shall be formed of Solid Zinc Alloy, type #66 as manufactured by U.S. Gypsum Company, #66 as manufactured by Inland Steel Company, type #66X as manufactured by Keene Products or an approved comparable product. Zinc shall be Alloy 190, ASTM B69-89 (.0179 thickness).
 - 3. For exterior use, where scheduled, shall be Rigid Vinyl (PVC, Unplasticized Polyvinyl Chloride), type 6658 or 6675 as manufactured by Vinyl Corporation, or an approved comparable product. ASTM D-1784-81 cell class 13244C.
- B. Interior corner beads shall be fabricated of 26 ga. galvanized, type 1, as manufactured by National Gypsum Co., 1-A as manufactured by National Gypsum Co., 1-A as manufactured by U.S. Gypsum Co., or #1 as manufactured by Inland Steel Products Co., or an approved comparable product.
- C. Control Joints, Expansion Joints, Channel Reveals
 - 1. For exterior use, where scheduled, on flat vertical and horizontal surfaces shall be Solid Zinc Alloy as manufactured by U. S. Gypsum Company, Inland Steel Company, Keene Products, or an approved comparable product. Profiles and configurations vary greatly; refer to plans and details for product numbers and applications.
 - 2. For exterior use, where scheduled, shall be Rigid Vinyl (PVC, Unplasticized Polyvinyl Chloride), as manufactured by Vinyl Corporation or an approved comparable product. Profiles and configurations vary greatly; refer to plans and details for product numbers and applications. ASTM D-1784-81 cell class 13244C. ASTM C1063-86.

- D. Inside corner Expansion Joints for interior or exterior applications, when scheduled or depicted on the drawings, shall be vinyl, Model 3058 or 3075, as manufactured by Vinyl Corporation, or an approved comparable product. ASTM D-1784-81 cell class 13244C. ASTM C1063-86.
- E. Fascia Drip Screed for exterior application, when depicted or scheduled on the drawings, shall be vinyl, Model DS 15-75 by Vinyl Corporation, or Model 540-75 by Plastic Components, or an approved comparable product meeting ASTM D-1784-81 cell class 13244C, and ASTM C-1063-86.

1.06 EXECUTION

- A. Quality - Follow recommendations and specifications for strict installation. Allow adequate time for each of three (3) coats to dry before going on with the next coat.
- B. Stucco Accessories:
 - 1. The stucco contractor **shall request a project walk-around with the Architect prior to installing any exterior stucco and exterior stucco accessories,** to insure all conditions, materials, and applications are understood.
 - 2. Corner beads, for interior applications only, shall be installed on all corners and edges of corner openings. Corner beads shall extend the full height of the corners on which they are applied and shall act as a ground.
 - 3. Casing beads shall be applied where stucco stops and other products begin, or where indicated on plans and details.
 - 4. When applying vinyl products, all intersections, end butts and end miters shall have manufacturer's approved sealant placed at raw edges to adhere the sections prior to application of stucco.
- C. Metal lath shall be applied with long dimension of sheet across supports.
- D. Control Joints and Expansion Joints shall be installed in exact locations shown, or as to check shrinkage and expansion cracks. **Do not fill any throats of control joints with sealants.** Painting of all stucco accessories is recommended.
- E. Inside-Corner Expansion Joints shall be installed in exact locations shown on details.

END OF THIS SECTION

SECTION 09250 - GYPSUM DRYWALL

1.01 GENERAL

- A. Gypsum Board Standard: ASTM C 840
- B. As manufactured in the United States by one of the following approved companies:
 - 1. United States Gypsum Co.
 - 2. National Gypsum Co.
 - 3. Georgia-Pacific Gypsum Co.

1.02 MATERIALS

- A. Drywall Materials: Exposed Gypsum Board ASTM C 36
 - 1. Long Edges: Standard taper
 - a. 1/2" Gypsum Drywall (Regular).
 - b. 1/2" Moisture-Resistant Gypsum Drywall.
 - c. 5/8" Gypsum Drywall (Regular).
 - d. 5/8" Moisture-Resistant Gypsum Drywall.
 - e. 5/8" Type-X Fire Resistant Gypsum Drywall.
 - f. 5/8" Vandal Resistant (High Impact) Gypsum Drywall.
- B. Trim Accessories: Provide manufacturer's standard metal trim accessories, of the beaded type with face flanges for concealment in joint compound except where semi-finishing or exposed type is indicated. See plans and details for specific locations and conditions.
- C. Provide corner beads at external corners. Install with nails or screws at minimum of 16" on center. No crimp bead will be accepted unless in combination with nails or screws. As an alternate use Ultratrim-Outside 90 as manufactured by No-Coat. www.no-coat.com 1-888-662-6281
- D. Provide edge trim of the shape indicated where edge of gypsum board would otherwise be exposed or semi-exposed; L-type for abutment at edges, other U-type except special kerfed-type where kerf is provided in adjoining work. See plans and details for specific locations and conditions.
- E. Gypsum Board Fasteners: Self drilling, self-tapping, bugle head, screws.
- F. Joint tape: ASTM C 475, performed, Type II.
- G. Joint Compound: ASTM 475, Type I.
- H. Provide water-resistant type MR manufactured by United States Gypsum

Company for use with water-resistant backing board and cementitious substrate backing board.

1.03 DRYWALL INSTALLATION AND FINISHING

- A. Install gypsum boards in lengths and directions which will minimize number of end joints, and avoid end joints in central area of ceilings. Install walls and partitions with exposed gypsum boards vertical, with joints offset on opposite sides of partitions. Otherwise, install boards with edges perpendicular to supports, with end joints staggered over supports, except where recommended in a different arrangement by manufacturer. Install as per UL#U305 for 1-hour rating when utilizing rated panels or as specified on the Life Safety Plans.
- B. Form "Floating": Construction for gypsum boards at internal corners, except where special isolation or edge trim is indicated.
- C. Screw gypsum boards to supports.
- D. Drywall Finishing: Except as otherwise indicated, apply joint tape and joint compound at joints (both directions) between gypsum boards. Apply compound at accessory flanges, penetrations, fasteners heads and surface defects.
- E. Apply compound in three (3) coats (plus prefill of cracks where recommended by manufacturer); sand after last two (2) coats to achieve a **Level 4 or Level 5 finish** per U.S. Gypsum Corporation guidelines. Refer to the **Room Finish Schedule** for level of finish required for this project.
- F. Ceiling Finish as per **Finish Schedule** on the Construction Plans. Where a textured ceiling is called for on the drawings the drywall finisher shall provide a 24" X 24" sample board for approval by the Owner prior to applying any finished ceiling textures.
- G. The drywall installer shall notify the General Contractor of walls out of plumb in the vertical or horizontal direction, as well as the absence of proper wall, soffit, overhead deadwood blocking, pipe and wire plate protectors prior to installing drywall. Finished walls shall be no more than 3/16" out of dead straight within any (six) 6-foot direction. Walls not conforming to this standard shall be removed and replaced at the General Contractors expense.
- H. The drywall contractor shall remove all debris associated with his portion of the work and remove all dried finishing compound from the floors. All scrap drywall sections must be taken to a scrap yard by the subcontractor for recycling of the gypsum product.

*****END OF THIS SECTION*****

SECTION 09510 - LAY IN PANEL CEILINGS (See schedule next page)

A. GENERAL

1. Acceptable Manufacturers:

- a. Grid System: Chicago Metallic Corporation
Donn Corporation
U.S. Gypsum Corp.
W.J. Haertel Division; Leslie-Locke
National Rolling Mills Company
Armstrong Ceilings
- b. Lay-in-Panels: Celotex
Armstrong
Conwed
U.S. Gypsum

2. Product delivery storage and handling: Store materials in protective packaging to prevent soiling or physical damage.

B. PRODUCTS

- 1. Lay-in Panels: **As per the attached schedule included in this specification section**, or an approved equal.
- 2. Grid Systems: With all components conforming to the requirements of ASTM C-635 in a low-sheen, baked-on white enamel finish or in a color and material to be selected by the Architect. See the plans for a complete description.
- 3. Perimeter Molding: Channel formed, of not less than 22-gauge steel, 1" horizontal exposed face with exposed edge hemmed; low sheen, baked-on white enamel finish or in a color to be selected by Architect.
- 4. Suspension System:
 - a. Hangers: Annealed zinc-coated wire #12 gauge or heavier.
 - b. Carrying Channels: 1-1/2" x 3/4 x #16 gauge for greater spans.

C. EXECUTION

- 1. Condition of Surfaces: Examine surfaces scheduled to receive suspended or directly attached lay in panels for unevenness, irregularities that would affect quality or execution of work. Install ceiling system in strict accordance with the manufacturers printed specifications.
- 2. Cleaning: Clean soiled units after installation.
- 3. Remove and replace damaged or improperly installed units.

SCHEDULE OF SELECTED CEILINGS:

<u>Location</u>	<u>Type</u>	<u>Lay In Panel & Grid</u>
Typical Throughout	I	ARMSTRONG 24" X 24" X 7/8" Cirrus Open Plan 583 Beveled Tegular, Class - A, w/ 9/16" silhouette bolt slot grid or match existing.

*****END OF SECTION*****

SECTION 09650 - RESILIENT FLOORING AND BASE

PART I - General

1.01 RELATED DOCUMENTS:

The Bidding and Contract Documents, General Requirements and Addenda as may be issued prior to bidding, shall govern the work under this section.

1.02 DESCRIPTION:

- A. Provide resilient flooring, vinyl or rubber base, and related items and their installation. Refer to Finish Schedule for description of base being utilized.
- B. Related Work Specified Elsewhere:
 - 1. Section 09680 & 09681- Carpeting.

1.03 QUALITY ASSURANCE:

Acceptable Manufacturer - Select product of the following manufacturers or equal:

- B. Tarkett Floor Products
- C. Congoleum
- D. Mannington
- E. Armstrong: Azrock
- F. VPI Premium Wall Base
- G. Roppe Rubber Corporation: Wall Base
- H. Burke Mercer: Rubber or Vinyl Wall Base
- I. Johnsonite Wall base
- J. Marley: Flexco
- K. Armstrong: Vinyl or Rubber Base
- L. Allstate: Rubber Base and Flooring

1.04 SUBMITTALS:

- A. Literature: Submit manufacturers specifications and installation instructions for each type of material specified.
- B. Samples: Submit 12" X 12" samples of all materials specified in this Section for approval and color section.
- C. Maintenance Data: Furnish list of recommended maintenance products and recommended maintenance methods and procedures.

1.05 PRODUCT HANDLING:

Deliver and store on the site in original containers with seals unbroken and labels intact until time of use.

1.06 ENVIRONMENTAL REQUIREMENTS:

Temperature of the rooms shall be 70 F. (21 C.) Minimum for 24 hours prior to installation, during installation, and for 48 hours after installation.

PART 2 - PRODUCTS

2.01 MATERIALS:

- A. Vinyl Composition Tile (VCT): Provide tile complying with FS-SS-T-312B, Type IV, Composition 1 (asbestos free). Colors as selected by Architect, 15% of which shall be feature tile and strips. Size of tile: 12" x 12" x 1/8".
- B. Inlaid Commercial Sheet Vinyl Flooring: Inlaid composite with compression-resistant vinyl chips on flexible backing, with an approved mildew protection throughout all layers. Static load limit of 125 p.s.i., Nominal thickness of 0.085 inch; Wear layer thickness 0.050 inch, roll width 6, 8, 9, or 10 feet, Pattern to be omnidirectional, color as selected by the Architect and approved by Owner. Meet Federal Specification SS-T-312B, Type III, Vinyl.
- C. Vinyl or Rubber Base: 4" high x 1/8" thick **roll stock only**, (see finish schedule for different locations and types of base).
- D. Low-Emitting Adhesive: Provide waterproof stabilized type as recommended by the flooring manufacturer and as outlined in its Technical Manual complying with Specifications Section 07900 Sealants and Adhesives.
- E. Concrete Slab Primer: Non-staining type as recommended by the flooring manufacturer.
- F. Wax: As recommended by the flooring manufacturer.
- G. Reducer Strips: Beveled edge, 1" wide, 1/8" thick tapered.
- H. Feature Strip: Provide where no threshold or saddle is scheduled between rooms, with flooring of same type and manufacturer, in a different color and width to match door jamb.

PART 3 - INSTALLATION

3.01 PREPARATION OF SURFACE:

- A. The contractor is to carefully examine substrate and conditions to which the VCT tile is to be applied. Any conditions detrimental to work under this Contract shall be reported to the General Contractor in writing. Failure in this respect shall constitute an acceptance of the base to which his work is to be applied and any further corrections to be made in his work will be done at this contractor's expense, insofar as his work is concerned. This Contractor will only be required to patch

minor holes or cracks, with suitable materials, before applying the resilient flooring.

- B. Do not commence work until other trades have completed their work.
- C. Fill all cracks, holes, etc. in concrete sub-floor with fillers as recommended by manufacturer of resilient flooring.

3.02 INSTALLATION:

- A. Apply primer, if recommended by the resilient material manufacturer, prior to application to adhesive.
- B. Resilient Flooring shall be installed in accordance with the manufacturer, prior to application of adhesive. Wood floor faces shall be fully sanded to receive adhesive.
- C. Install reducer strips where VCT abuts concrete floor.
- D. Centering:
 - 1. Establish center lines for tile patterns both ways with respect to principal walls in areas or rooms. Start laying tile from center lines; keep joints parallel to principal walls.
 - 2. Where field pattern is not a whole number of units, lay out the pattern so that the edge units are not smaller than half units (except corner pieces).
- E. Uniformity: If vinyl composition tile, use tile from contents of at least two different containers so that pattern will be uniform and not spotty due to the variance that may be found in different containers. Use tile from one mill run.
- F. Application of Adhesive
 - 1. Evenly spread approved adhesive on prepared surfaces as recommended by manufacturer; within the time recommended by manufacturer; embed each tile firmly in place to assure proper bond. In wet areas, such as toilet rooms, or rooms with floor drains, utilize a waterproof adhesive complying with the Low-Emitting requirements per Specification Section 07900- Sealants and Adhesives.
 - 2. Cover only that amount of area which can be covered by resilient flooring within recommended working time of the adhesive.
- G. Laying Vinyl Composition Tile
 - 1. Lay tile with grain in all tile running in the same direction (generally parallel with the short wall of the room).

2. Where necessary, cut tiles neatly and snugly around pipes and at other vertical projections.
3. Provide hairline joints, cut straight and true. Seal tile joints at pipes with waterproof cement.
4. Provide tiles level and flush with the surface of adjoining tiles.
5. Immediately remove stains, spots and smears of adhesive.

H. Installing Base

1. Do not install base until plaster, painting or other backing materials has thoroughly dried. Install bases on walls, including walls behind movable equipment.
2. Extend bases into closets offsets and adjoining areas scheduled to receive base.
3. Firmly cement bases to previously prepared surfaces, using an approved recommended adhesive.
4. Fit base joints tight and align top and bottom edged in firm contact with walls and floors throughout its entire length.
5. Install base in carpet areas after carpet has been installed.
6. Provide factory exterior and interior corners where clearance is available.

I. Installing Edge Strips:

1. Install edge strips with adhesive wherever exposed tile edges occur.
2. Where tile stops at doorways, set edge strips directly under doors.

3.03 CLEANING AND FINISHING:

- A. After flooring has been laid and adhesive is thoroughly cured, clean and finish resilient floors as recommended by tile manufacturer. Install two coats of wax and machine buff.
- B. Keep traffic off finished floors. Protect all floors as necessary with reinforced Kraft building paper and tape joints. Maintain this paper cover and otherwise protect floor until acceptance.
- C. Provide 20 square feet of extra stock of each color used. Provide 8 linear feet of extra stock of each color and size of base used. Each product to be left with General Contractor for delivery to Owner at completion of the job.

END OF SECTION

SECTION 09900 - PAINTING

1.01 GENERAL

1. Submittals:

- a. In addition to manufacturer's data, application instructions, and label analysis for each coating material, submit samples for Architect's review of color and texture only. Resubmit samples if requested until required sheen, color and texture is achieved. Submittals must also include material requirements data per Article 1.08.
- b. On 8" x 8" hardboard, provide two (2) samples of each color and material, with texture to simulate finish conditions.
- c. On wood surfaces provide two (2) 4" x 8" samples for natural and stained wood finish.
- d. On actual wall surfaces and other building components, duplicate painted finishes of acceptable samples, for approval by the Architect.

1.02 DESCRIPTION OF WORK

1. Painting and finishing of interior and exterior items and surfaces, unless otherwise indicated.
2. Paint exposed surfaces, except as otherwise indicated, whether or not colors are designated. If not designated, colors will be selected by Architect from standard colors available for the coatings required.
3. Work Not Included: Unless otherwise indicated, shop priming of ferrous metal items and fabricated components are included under their respective trades. Unless otherwise indicated, painting not required on surfaces of concealed areas. Finished metals such as anodized aluminum, stainless steel, bronze, and specialty metals will not be painted. Do not paint any moving parts of operating units, or over any equipment identification, performance rating, name or nomenclature plates or code-required labels.

1.03 DELIVERY AND STORAGE

1. Deliver materials to job site in new, original, and unopened containers bearing manufacturer's name, trade name, and label analysis. Store where indicated in accordance with manufacturer's instructions.

1.04 PROTECTION:

1. Protect work of other trades. Correct any painting related damage, by cleaning, repairing or replacing, and refinishing, as directed by Architect.

1.05 PROJECT CONDITIONS:

1. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 98 degrees. Do not apply paints in rain, fog or mist; when relative humidity exceeds 95 percent; at temperatures less than 5 degrees F above the dew point; or to damp or wet surfaces.
2. Provide finish coats which are compatible with prime paints used. Provide barrier coats over incompatible primers where required. Notify Architect in writing of anticipated problems using specified coatings with substrates primed by others.
3. Surface Conditions: Apply paint and coatings when the following surface conditions have been met:
 - a. Interior Drywall - 12% maximum moisture content.
 - b. Exterior Stucco and Cementitious Wall Panels- 12% maximum moisture content.
 - c. Exposed Wood, Wood Doors, Wood Trim- 15% maximum moisture content.

1.06 EXTRA MATERIALS:

1. Provide a minimum of 1 gallon of each material and color of paint as materials applied that are packaged and stored with identification labels describing contents.

1.07 SURFACE PREPARATION:

1. Perform preparation and cleaning procedures in strict accordance with coating manufacturer's instructions of each substrate condition.
2. Remove hardware and accessories, machined surfaces, plates, lighting fixtures and similar items in place that are not to be finish-painted or provide surface-applied protection. Re-install removed items and remove protective coverings at completion of work.
3. Seal all wood required to be job-painted. Prime edges, ends, face, undersides and backsides of counters, cases, fascias, soffits, cabinets, counters, etc.

4. Back-prime with one coat on interior paneling only where masonry, plaster, or other wall construction occurs on backside.
5. Seal tops, bottoms, and cut-outs of wood doors with heavy coat of quick drying sealer immediately upon delivery to job. Do not paint door UL Labels.

1.08 MATERIAL REQUIREMENTS:

1. Paints and coatings used on the interior of the building (i.e., inside of the weatherproofing system and applied on site) must comply with the following criteria as applicable to the project scope:
 - a. Architectural paints and coatings applied to interior walls and ceilings must not exceed the volatile organic compound (VOC) content limits established in Green Seal Standard GS-11, Paints, 1st Edition, May 20, 1993.
 - b. Anti-corrosive and anti-rust paints applied to interior ferrous metal substrates must not exceed the VOC content limit of 250 g/L established in Green Seal Standard GC-03, Anti-Corrosive Paints, 2nd Edition, January 7, 1997.
 - c. Clear wood finishes, floor coatings, stains, primers, sealers and shellacs applied to interior elements must not exceed the VOC content limits established in South Coast Air Quality Management District (SCAQMD) Rule 1113, Architectural Coatings, rules in effect on January 1, 2004.

1.09 MATERIAL PREPARATION:

1. Mix, prepare, and store painting and finishing materials in accordance with manufacturer's directions.

1.10 APPLICATION:

1. Apply painting and finishing materials in accordance with manufacturer's directions. Use applicators, and techniques best suited for materials and surfaces to which applied, but in no case will spray application be used unless approved by Architect.
2. Apply additional coats when undercoats, stains, or other conditions show through final paint coat, until paint film is of uniform finish, color and appearance.
3. Paint surfaces behind movable equipment same as similar exposed surfaces. Paint surfaces behind permanently fixed equipment with prime coat only before equipment is installed.
4. Finish exterior doors on tops, bottoms and edges same as exterior faces, unless otherwise indicated. Do not paint door UL Labels.
5. Sand lightly between succeeding enamel, urethane or varnish coats.

6. Omit first coat (primer) on metal surfaces which have been shop-primed and touch-up painted, unless otherwise specified.
7. Apply prime coat to material which is required to be painted or finished, and which has not been prime coated by others.
8. Apply each material at not less than the manufacturer's recommended spreading rate, to provide a total dry film to thickness of not less than 4.0 mils for entire coating system of prime and finish coats for (3) coat work.
9. Provide a total dry film thickness of not less than 2.5 mils for entire coating system of prime and finish coat for two (2) coat work.

1.11 COMPLETED WORK:

1. Match approved samples for color, texture and coverage. Remove, finish or repaint work not in compliance with specified requirements.

1.12 TOUCHING UP AND CLEANING:

1. Upon completion, all touching up as required shall be done and paint removed from all surfaces which are not specified to receive paint.

1.13 PAINT, GENERAL:

1. Material Compatibility:
 - a. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 - b. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

1.14 PAINTING SCHEDULE

The following paints specified shall be manufactured by one of the following manufacturer's or an approved, comparable product:

Benjamin Moore Paints
Sherwin Williams Paints
Porter Paints
Devoe Paints
MAB Paints
ICI Paints

Armourcoat, USA

NOTE: Color selections to be by the Owner, the Architect, and/or the Interior Designer. See Finishes Schedule on the plans for location of paint. When more than five (5) colors are selected for interior or for exteriors, a painting upcharge shall be negotiated prior to application of paints.

- A. Exterior wood Trim, Wood Siding, Wood Fascias & Soffits, Etc.: One (1) coat sealer primer on all faces and edges
Two (2) coats Benjamin Moore Exterior Acrylic Latex paint on exposed surfaces.
- B. Interior Drywall: Two (2) coats Benjamin Moore Regal AquaVelvet Eggshell (319) over base sealer coat. Specialty finishes may apply also.
- C. Galvanized Metal: One (1) coat Benjamin Moore Galvanized Iron Primer. Two (2) coats Benjamin Moore Meta-lastic Paint.
- D. Metal Surfaces: Structural Steel Beams & Columns, Wall girts, Roof purlins, Fire Sprinkler Riser Assemblies, Steel Trusses, Steel Tanks:

Exterior Exposed – Two (2) coats Benjamin Moore Retard-X Rust Inhibitive Latex Primer 162 over the shop delivered primer, welds and bolts. Allow a minimum of 4 hours between coats. Finish with two (2) coats Benjamin Moore Eggshell alkyd house paint 108.

Interior Exposed – Same applications but one (1) coat only of latex Primer 162.

NOTE: All galvanized metal to be washed with mineral spirits to remove any oil.

- E. Exterior Stucco and Cementitious Wall Panels: finish. One (1) coat Benjamin Moore Masonry sealer. Two (2) coats Benjamin Moore Latex, or Acrylic Latex paint.
- F. Steel Doors & Frames: Spot prime any scratches in factory primer with Benjamin Moore Iron Clad Rust Inhibiter Red Oxide. Finish with (2) coats Benjamin Moore oil based or water based enamel, (semi-gloss).
- G. Wood Doors and Trim (Interior): One (1) coat sealer primer. Two (2) coats Benjamin Moore oil based enamel, (semi-gloss).
- H. Wood Doors and Trim (Interior): Three coats of Satin Finish clear urethane, lightly sanded between coats.
- I. Interior Aluminum or Steel Handrails: One coat metal primer and two coats shop applied industrial enamel, or factory powder coating, (both gloss finish).

- J. Exposed finish Grade Concrete Block: One coat block filler and sealer primer. Specialty Paint, two (2) coats acrylic latex, over primer in accordance with the Manufacturers Specifications.
- K. Exterior Aluminum Tubing, Handrails, Guardrails, Caps, Cast Trim and Frames: Powder coated after completed fabrication and assembly and prior to installation. Powder Coat RAL standard color as specified on Architectural Details.
- L. Exterior Architectural Masonry Units (such as decorative split faced, split ribbed, and smooth faced colored block, and any manufactured stone such as Herpel), including the mortar used to set the units, shall be sealed with a water repellent-anti graffiti coating after installation and cleaning of all block faces.
EXCEPTION: If the block manufacturer supplies an integral water repellent admixture in their block and a water repellent is added to the grout (mortar) during installation, then no exterior sealer is required.
- M. Toilet Room Walls: Apply water base epoxy coating full height on the wall materials scheduled in toilet rooms/bathrooms, to achieve an impervious finish.

NOTE: DO NOT APPLY EPOXY PAINTS TO ANY INTERIOR FACES OF BARE BLOCK AT MASONRY EXTERIOR WALLS. UTILIZE LATEX PAINTS WITH BREATHABILITY OF 1 PERM OR GREATER.

- 1. **ON INTERIOR MASONRY** - Semigloss Finish using Sherwin Williams Paints.
 - a. **1st coat:** S-W KEM CATI-COAT EPOXY FILLER/SEALER B42 WA8/B42 WA9 (87-108 sq. ft./gal @ 8-10 mild dry).
 - b. **2nd coat:** S-W Water Based Catalyzed Epoxy B70/B60 V25.
 - c. **3rd coat:** S-W Water Based Catalyzed Epoxy B70/B60 V25, (8mils wet, 3 mils wet per coat).
- 2. **ON DRYWALL** - Semi-Gloss Finish using Sherwin Williams Paints.
 - a. **1st coat:** S-W PrepRite 200 Latex Primer, B28W200, (4 mils wet, 1.2 mils dry).
 - b. **2nd coat:** S-W Heavy Duty Epoxy, B67 Series/B60 V3. (3 mils dry per coat)
 - c. **3rd coat:** S-W Heavy Duty Epoxy, B67 Series/ B60 V3. (3 mils dry per coat)

- N. Stained Concrete Floors when called for on Finish Schedule: Two coats solid color stain material as per Specification Section 09940. Apply over a clean, cured, dry, dirt and dust free, lightly broomed finished concrete slab. Color as selected by the Architect. Make a special effort to never apply concrete sealers to any surface to receive concrete stains.
- O. Specialty Coatings, when scheduled on the Interior Finish Schedule, shall be placed in accordance with manufacturer's specification for application and protected until the project is occupied by the end user.
- P. Specialty coatings approved, when scheduled on the interiors include:
 - a. Amourcoat
 - b. Polymix

***** END OF THIS SECTION*****

SECTION 10260 - CORNER GUARDS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 DESCRIPTION OF WORK

Furnish and install, as detailed, as located on the Drawings, at all exterior doors with drywall corners, and at corridor interior corners C/S Acrovyn Surface Mounted Corner Guard 90 degree Models SM20, SSM-20 and the 135-degree Model SM-20M. All as manufactured by Construction Specialties, Inc. or an approved equal. Complete details, locations and samples of selected models and colors, including end caps, and mounting hardware shall be submitted to the Architect for approval.

1.03 APPROVED MANUFACTURER'S OR EQUAL

Construction Specialties, Inc., Acrovyn
Arden Architectural
Balco Metalines, Inc.
IPC/InPro Corp.
Korogard, RJF International Inc.
Pawling Corporation, Pro Tek

1.04 MATERIAL

Corner guards shall be manufactured from .078" thick nominal high impact vinyl/acrylic extrusions, designed to absorb and resist abrasions under impact. The extrusion shall include a matte finish pebblette grain surface, and be supplied in a **color to be selected by Owner & Architect**. Continuous retainers shall be a minimum .063" thickness. End caps and mounting hardware shall be furnished to complete the assembly.

1.05 DESIGN

Corner guards shall be securely locked in place yet provide for free-floating action to absorb heavy impact without damage to guard, retainer or adjacent wall. Corner guard shall be straight and true over full length.

1.06 PERFORMANCE

Vinyl/acrylic extrusions shall be U.L. tested, Classified and Labeled reflection a Class I Fire Rating in accordance with UL=723 (ASTM-E84-91a) (CAN 4S102-2-M83 in Canada) test procedures. Chemical and stain resistance shall be per CSAV-280 standards, established by manufacturer.

Color shall be integral with components matched in accordance with SAE J-1545-(Delta E) with color difference no greater than 1.0 units using the Hunter (Lab) scale. Impact tested in accordance with applicable provisions of ASTM-F476-76.

*****END OF THIS SECTION*****

SECTION 10520 - PORTABLE FIRE EXTINGUISHERS AND CABINETS

PART I - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 DESCRIPTION OF WORK

A. Definition: "Portable fire extinguishers" includes units which can be hand-carried as opposed to those which are equipped with wheels or to fixed fire extinguishing systems, unless otherwise indicated.

B. Extent of fire extinguishers is indicated on drawings with a **FE** designation.

C. Accessories include: Mounting brackets and recessed cabinets.

NOTE: All Fire Extinguishers for this project are wall hung and not recessed cabinets.

1.03 QUALITY ASSURANCE

A. Provide portable fire extinguishers and accessories by one manufacturer of those specified.

B. Portable Fire Extinguisher Standard: Provide new portable fire extinguishers which comply with applicable UL standard and are labeled by UL. All extinguishers shall be installed and maintained in accordance with NFPA 10, "Portable Fire Extinguishers." Install only fully charged fire extinguishers.

1.04 SUBMITTALS

A. Product Data: Submit manufacturer's technical data, detail drawings, and installation instructions for each portable fire extinguisher and/or recessed cabinet for the project.

B. Schedule: Submit schedule indicating types, quantities, sizes and installation locations for each portable fire extinguisher and/or cabinet for the project.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURER'S

- A. Manufacturer: Subject to compliance with requirements, provide extinguishers and cabinets manufactured by one of the following:

J.L. Industries, Inc.
Larsen's Manufacturing Co.
Modern Metal Products by Muckle
Potter-Roemer, Inc.

2.02 MATERIALS - GENERAL

- A. Provide the following types of extinguishers in accordance with area/occupancy uses:

1. In General Office Spaces Fire Extinguishers: Multi-purpose dry chemical type (2A-10BC-FE): UL rated 2-A:10:B:C, 5 lb. Nominal capacity, in enameled steel container, for class A, Class B, and Class C fires. Equal to J.L. Industries Cosmic 5E.
2. In Kitchen/Breakroom/Employee Lounge Spaces/ Electrical Rooms: Liquid carbon dioxide, UL rated, 10 lb nominal capacity, in enameled steel container for class B, and Class C fires only. Equal to J.L. Industries Sentinel 10.
3. In Electronic Equipment/Computer Room: Inergen clean agent EPA approved fire extinguishing system complete with metal supply piping, heads, regulators, sensors and steel tanks secured to approved wall brackets. Discharges as an odorless clear gas leaving no residue to clean-up or reclaim. Class A,B,C fires, with system sized to match volume of room to be protected. This system is not considered portable and is specified under a separate section, when utilized in lieu of sprinkler systems in these specialty rooms.

2.03 MOUNTING BRACKETS

- A. Provide manufacturer's standard bracket designed to prevent accidental dislodgment of extinguisher, of proper size for type and capacity of extinguisher indicated, in manufacturer's standard plated finish. Extinguishers must be mounted with the bottom of the cylinder at 26 inches above the finished floor if the unit projects more than 4 inches off the face of the wall.
- B. Provide a recessed or semi-recessed cabinet, clear anodized aluminum, clear bubble, no letters on the bubble. NOTE: All semi-recessed cabinets must meet ADA guidelines for projections into rooms and hallways. Projections cannot exceed 4 inches. Mount cabinet tubs with case access handles and extinguisher handles at a maximum of 48 inches above finished floor.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install items included in this section in locations and at mounting heights indicated, or if not indicated, at heights to comply with applicable regulations of governing authorities. Where exact location of surface-mounted cabinets and/or bracket-mounted fire extinguishers is not indicated, locate as directed by Architect.

3.02 IDENTIFICATION

- A. Identify bracket-mounted extinguishers with a permanently affixed sign with a red background and white letters spelling “**FIRE EXTINGUISHER**” applied to wall surface above extinguisher. Letter size, style and location as scheduled in Section 10440- Specialty Signs.

*****END OF SECTION*****