



South San Francisco Unified School District  
Measure T Bond Project  
**Temporary Meal Support Space**  
(Non-PLA)

398 B Street  
South San Francisco, CA 94080  
SSFUSD Project No. 098-926

**Project Manual**  
**Technical Specifications**  
Bid Date, March 25, 2025

Architect  
**PLUM Architects, Inc.**  
870 Market Street Suite #878  
San Francisco, CA 94102  
415-837-0900

---

**SECTION 000100**

---

**TABLE OF CONTENTS**

---

**TECHNICAL SPECIFICATIONS**

---

**DIVISION 2 – EXISTING CONDITIONS**

---

<u>Section</u>	<u>Title</u>
023113	Selective Demolition

---

**DIVISION 3 – CONCRETE**

---

NOT USED

---

**DIVISION 4 – MASONRY**

---

NOT USED

---

**DIVISION 5 – METALS**

---

NOT USED

---

**DIVISION 6 – WOOD, PLASTICS, & COMPOSITES**

---

<u>Section</u>	<u>Title</u>
061000	Rough Carpentry

---

**DIVISION 7 - THERMAL AND MOISTURE PROTECTION**

---

<u>Section</u>	<u>Title</u>
079000	Joint Sealers

---

**DIVISION 8 – OPENINGS**

---

<u>Section</u>	<u>Title</u>
081100	Steel Doors & Frames
087100	Door Hardware

**DIVISION 9 – FINISHES**

NOT USED

**DIVISION 10 – SPECIALTIES**

NOT USED

**DIVISION 11 – EQUIPMENT**

Not Used

**DIVISION 12 – FURNISHINGS**

Not Used

**DIVISION 13 – SPECIAL CONSTRUCTION**

Not Used

**DIVISION 14 - CONVEYING SYSTEMS**

Not Used

**DIVISION 21 – FIRE SUPPRESSION**

Not Used

**DIVISION 22 – PLUMBING**

<u>Section</u>	<u>Title</u>
220000	Plumbing

**DIVISION 23 – HVAC**

<u>Section</u>	<u>Title</u>
230000	Basic Mechanical Requirements
233000	HVAC

**DIVISION 25 – INTEGRATED AUTOMATION**

Not Used

PLUM ARCHITECTS  
870 Market Street, Suite 878  
San Francisco, CA 94102  
415.837.0900

Temporary Meal Support Space  
District Warehouse  
SSFUSD PROJECT NO. 032-926  
SOUTH SAN FRANCISCO UNIFIED SCHOOL DISTRICT

**DIVISION 26 – ELECTRICAL**

---

NOT USED

**DIVISION 27 – COMMUNICATIONS**

---

NOT USED

**DIVISION 28 – ELECTRONIC SAFETY & SECURITY**

---

NOT USED

**DIVISION 31 – EARTHWORK**

---

Not Used

**DIVISION 32 – EXTERIOR IMPROVEMENTS**

---

<u>Section</u>	<u>Title</u>
321216	Asphaltic Paving and Surfacing

**DIVISION 33 – UTILITIES**

---

Not Used

END OF SECTION

---

**SECTION 02 31 13**

**SELECTIVE SITE DEMOLITION**

---

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes
  - 1. Demolition and removal of existing selected doors and finishes.
  - 3. Disconnecting, capping or sealing and abandoning or removing utilities as required for new work.

1.3 DEFINITIONS

- A. Remove: Remove and legally dispose of items.

1.4 MATERIALS OWNERSHIP

- A. Demolished materials shall become the Contractor's property and shall be removed from the site with further disposition at the Contractor's option.

1.5 SUBMITTALS

- A. Proposed dust-control & noise-control measures.
- B. Schedule of demolition activities indicating the following:
  - 1. Detailed sequence of demolition and removal work, with starting and ending dates for each activity.
  - 2. Interruption of utility services.
  - 3. Coordination for shutoff and capping of utility services.
  - 4. Detailed sequence of demolition and removal work to ensure uninterrupted progress of the Owner's on-site operations.
- C. Locations of temporary partitions and means of egress.
- D. Photographs or videotape, sufficiently detailed, of existing conditions of adjoining construction and site improvements that might be misconstrued as damage caused by demolition operations.
- E. Record drawings at Project closeout.
  - 1. Identify and accurately locate capped utilities and other subsurface structural, electrical, or mechanical conditions.

1.6 QUALITY ASSURANCE

- A. Qualifications
  - 1. Demolition Firm: Engage an experienced firm that has successfully completed demolition Work similar to that indicated for this Project.
- B. Regulatory Requirements: Comply with governing EPA notification regulations before starting demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- C. Pre-demolition Conference: Conduct conference at Project site.

#### 1.7 SUBMITTALS

- A. Schedule indicating proposed sequence of operations for selective demolition work prior to start of work. Include coordination for shutoff, capping, and continuation of utility services as required, together with details for dust and noise control protection.
  - 1. Provide detailed sequence of demolition and removal work to ensure uninterrupted use of the existing completed phases.
  - 2. Coordinate with Owner's use and occupancy of the existing facilities.
- B. Take photographs of existing conditions of structure surfaces, equipment, and adjacent improvements that might be misconstrued as damage related to removal operations. File with the Architect prior to start of work.

#### 1.8 JOB CONDITIONS

- A. Occupancy: Site improvements to be demolished will be vacated and their use discontinued before start of Work. The Owner will occupy adjacent rooms and buildings. Conduct selective demolition work in manner that will minimize need for disruption of normal operations. Provide minimum of 72-hours advance notice to the Owner of demolition activities that will affect normal operations.
- B. Condition of Demolition Items: The Owner assumes no responsibility for actual condition of items to be demolished.
  - 1. Conditions existing at time of inspection for bidding purposes will be maintained by the Owner insofar as practicable. However, minor variations within structure may occur by Owner's removal and salvage operations prior to start of selective demolition work.
- C. Partial Demolition and Removal: Items indicated to be removed but of salvageable value to Contractor may be removed from structure as work progresses. Transport salvaged items from site as they are removed.
  - 1. Storage or sale of removed items on site will not be permitted.
- D. Protections: Provide temporary barricades and other forms of protection to protect buildings from damage and to protect building occupants from injury due to selective demolition work.
  - 1. Provide protective measures as required to provide secure passage of building occupants to occupied portions of the building.

2. Provide shoring, bracing, or support to prevent movement, settlement, or collapse of element to be demolished and adjacent facilities or work to remain.
  3. Protect from damage existing finish work that is to remain in place and becomes exposed during demolition operations.
  4. Protect adjacent paving and planting areas with suitable coverings when necessary.
  5. Provide temporary weather protection during interval between demolition and removal of existing construction on exterior surfaces and installation of new construction to ensure that no water leakage or damage occurs to structure or interior areas of existing buildings.
  6. Remove protections at completion of work.
- E. Damages: Promptly repair damages caused to adjacent facilities by demolition work.
- F. Traffic: Conduct selective demolition operations and debris removal to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities.
1. Do not close, block, or otherwise obstruct streets, walks, or other occupied or used facilities without written permission from the Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
- G. Flame Cutting: Do not use cutting torches for removal until work area is cleared of flammable materials. Maintain portable fire suppression devices during flame-cutting operations.
- H. Utility Services: Maintain existing utilities indicated to remain in service and protect them against damage during demolition operations.
1. Do not interrupt utilities serving occupied or used facilities, except when authorized in writing by the Owner. Provide temporary services during interruptions to existing utilities, as acceptable to governing authorities.
  2. Maintain fire protection services during selective demolition operations.
- I. Environmental Controls: Use water sprinkling, temporary enclosures, and other methods to limit dust and dirt migration. Comply with governing regulations pertaining to environmental protection.
1. Do not use water when it may create hazardous or objectionable conditions such as flooding and pollution.
- J. Inspections:
1. Prior to starting demolition, make inspection and report observable defects and structural weaknesses of construction designated for demolition, of adjacent structures, and of other improvements to remain. If unsatisfactory conditions exist, do not commence demolition until appropriate determinations have been made.
  2. As demolition progresses, periodically inspect structures for adverse conditions and for damage. Immediately notify the Owner's Representative if damage is noticed, and stop operations at that location until appropriate determinations have been made.

- K. Hazardous materials: It is expected that asbestos will be encountered in the Work. Hazardous materials will be removed as directed by the Owner before start of Work per the Hazardous Materials Report and Procedures.

PART 2 – PRODUCTS Not Applicable

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of demolition required.
- C. Survey the condition of the site improvements to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of the structure or adjacent structures during demolition.
- D. Perform surveys as the Work progresses to detect hazards resulting from demolition activities.

3.2 UTILITY SERVICES

- A. Utility Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services serving site improvements to be selectively demolished.
- B. Arrange to shut off, disconnect, remove and seal or cap all utilities within demolition area with utility companies.
- C. Do not start demolition work until utility disconnecting and sealing have been completed and verified in writing.

3.3 PREPARATION

- A. Drain, purge, or otherwise remove, collect, and dispose of chemicals, gases, explosives, acids, flammables, or other dangerous materials before proceeding with demolition operations.
- B. Employ a certified, licensed exterminator to treat site improvements and to control rodents and vermin before and during demolition operations.
- C. Conduct demolition operations and remove debris to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.
  - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from the City and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.

- D. Conduct demolition operations to prevent injury to people and damage to adjacent site improvements and facilities to remain. Ensure safe passage of people around selective demolition area.
  - 1. Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction.
  - 2. Protect existing site improvements, appurtenances, and landscaping to remain.
  - 3. Erect a plainly visible fence around drip line of individual trees or around perimeter drip line of groups of trees to remain.
  
- E. Provide and maintain interior and exterior shoring, bracing, or structural support to preserve stability and prevent movement, settlement, or collapse of site improvements to be demolished.
  - 1. Strengthen or add new supports when required during progress of demolition.

#### 3.4 POLLUTION CONTROLS

- A. Use water mist, temporary enclosures, and other suitable methods to limit the spread of dust and dirt. Comply with governing environmental protection regulations.
  - 1. Do not use water when it may damage existing construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.
  
- B. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
  - 1. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level.
  
- C. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before start of demolition.

#### 3.5 DEMOLITION

- A. Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete Work within limitations of governing regulations.
  
- B. Completely remove below-grade construction, including foundation walls, basements and footings.
  
- C. Filling Below-Grade Areas: Completely fill below-grade areas and voids resulting from demolition of site improvements and pavements with soil materials according to requirements specified in Section 31 20 00 "EARTHWORK".
  
- D. Demolish concrete and masonry in small sections. Cut concrete and masonry at junctures with construction to remain, using power-driven masonry saw or hand tools; do not use power-driven impact tools. Sawcut in neat straight lines. Do not overcut.
  
- E. Break up and remove concrete slabs on grade, unless otherwise shown to remain.
  
- F. Remove air-conditioning equipment without releasing refrigerants.

PLUM ARCHITECTS  
870 Market Street, Suite 878  
San Francisco, CA 94102  
415.837.0900

**Temporary Meal Support Space  
District Warehouse  
SSFUSD PROJECT NO. 032-926  
SOUTH SAN FRANCISCO UNIFIED SCHOOL DISTRICT**

3.7 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off the Owner's property and legally dispose of them.

**END OF SECTION**

---

**SECTION 061000**

**ROUGH CARPENTRY**

---

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Construction: Provide material, labor, equipment, services, tests and inspections necessary for the installation of rough carpentry. The work also includes the following:
1. Wood studs & plates, furring blocking and nailers.
  2. Framing connectors and hardware.

1.2 RELATED INFORMATION AND REQUIREMENTS

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

1.3 REFERENCE DOCUMENTS

- A. Standards: Comply with the provisions of the documents listed below and with the requirements described in this Section. Use current editions of documents unless earlier editions are specifically referenced by the governing code or are otherwise indicated.
1. CBC – 2022 California Building Code.
  2. WCLIB - West Coast Lumber Inspection Bureau, Standard Grading Rules for West Coast Lumber, Standard No. 17, latest edition.
  3. U.S. Department of Commerce, Product Standard 1-07: Structural Plywood (PS 1-07).
  4. RIS - Redwood Inspection Service, Standard Specifications for Grades of California Redwood Lumber
  5. AWPA - American Wood Protection Association, Standard U1
  6. ASTM – American Society of Testing Materials, designations referenced herein.

1.4 SUBMITTALS

- A. General: Submittals shall be sent to the Architect, or Owner's Testing Agency, or both, as required herein for review prior to commencing the work. Review of submittals covers the general character of the details and to verify compliance with the performance requirements. Review does not cover checking of quantities, proportions or dimensions. Such review shall not relieve the Contractor from responsibility for executing the work in accordance with the Contract Documents.
- B. Contractor's quality control test reports: The Contractor shall submit quality control test reports to the Architect and Owner's Testing Agency for review.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

#### A. Lumber, general:

1. Sizes: All sizes specified or indicated are nominal dimensions, unless otherwise noted.
2. Lumber Dressing: All lumber shall be S4S of standard dimensions, unless otherwise noted.
3. Grade Marking:
  - a. All lumber shall be graded in accordance with the latest grading rules of the Lumber Manufacturers Inspection Bureau under whose jurisdiction the lumber is manufactured and sold. Each piece of lumber shall bear the grade and trademarks of a competent and reliable organization whose regular business is to establish lumber grades.
  - b. WCLIB Standard Grading and Dressing Rules #17, latest edition, shall govern grading of Douglas Fir, western hemlock, western red cedar, southern spruce, southern pine, and southern fir.
4. Special Conditions Governing Use:
  - a. Maximum moisture content shall not exceed 22% with an average moisture content of lumber not to exceed 19%, when incorporated into the framing, except as specified otherwise.
  - b. Members 3" and wider shall be free of heart center (FOHC). Structural Lumber:
5. Structural framing shall be Douglas Fir and shall comply with the following paragraphs of WCLIB Grading Rules No. 17:
  - a. Studs, plates and blocking                      121
6. Miscellaneous Framing Lumber: Construction Grade.

#### B. Sills on Concrete or wood connected to concrete in contact with earth: Douglas Fir pressure treated in accordance with AWWA Standard U1 to the requirements of Use Category UC2 for interior lumber not in contact with the ground.

#### C. Hardware:

1. All hardware and accessories, including nails, exposed to weather or in contact with pressure treated lumber shall be hot-dipped galvanized, unless otherwise noted.
2. Nails: Conform to Federal Specifications FF-N-105B. Nails shall be steel common wire nails. Box nails are not permitted.
3. Bolts: Grade A, conforming to ASTM A 307.
4. Washers: Unless otherwise noted, standard cut washers or metal plate or metal strap of equal or greater dimensions for bearing against wood shall be provided under all bolt heads and nuts. Where malleable washers are used, provide malleable iron or steel plate having an area equal to 16 times the area of bolt or lag screw. Steel washers shall have a thickness of not less than 1/10 the length of the washers' longest side. Malleable-iron washers shall have a thickness not less than one-half the bolt or lag screw diameter and having a bearing surface for the nut or head equal in diameter to not less than the long diameter of the nut or head.
5. Framing Connectors: Fabricated sheet metal timber framing connectors shall be manufactured from hot-dipped galvanized steel by "Simpson Strong-Tie", or approved equal, as identified on the Drawings. Connectors shall be at least 16-gage material unless otherwise noted, punched for

nailing. Nails and nailing shall conform to the manufacturer's instructions with a nail provided for each punched hole.

D. Pressure Treatment

1. Where called for on the drawings or specified herein, lumber exposed to weather shall receive preservative-type pressure treatment shall have a maximum moisture content of 19 percent after pressure treatment and shall be pressure treated using ammoniacal copper quaternary compound (ACQ). Preservative shall penetrate a minimum of 3/8-inch (9.5 mm) deep into wood. Materials shall be compatible with stain coatings when specified in Division 09 Section "Painting". Fasteners and connectors used with preservative pressure treated lumber shall be G185 hot dip galvanized, Type 304 stainless steel or Type 316 stainless steel.
  - a. Dimensioned Lumber Posts: AWWA C-2, retention of 0.4 lbs/c.f. per quality standard for LP-22 for in-ground contact.
  - b. Dimensioned Lumber (all other): AWWA C-2, retention of 0.25 lbs/c.f. per quality standard LP-2 for above ground use.
  - c. Pre-treated lumber shall be preserved with ACQ Preserve, Chemical Specialties Inc.
  - d. Field treatment shall be Boracol or Impel Rods, Chemical Specialties Inc. applied in accordance with the manufacturer's instructions.

PART 3 - EXECUTION

3.1 PROTECTION OF MATERIALS

- A. Protect materials from damage, weather, and contaminants such as grease, oil, and dirt. Store lumber to ensure proper ventilation and drainage; protect from rain and other damage. Do not deliver any kiln dried materials or assembled items until building is enclosed or proper storage is provided.

3.2 GENERAL WORKMANSHIP

- A. Carpentry shall be done by competent workers experienced in work of the types specified or required. All work shall be completed in accordance with best standards of practice for carpentry work. When complete, exposed surfaces shall be free from dents and tool marks, unsanded rough or torn faces and corners, and other defects.
- B. Furnish all nails and other installation accessories necessary for proper erection and completion of carpentry work.
- C. Verify all conditions at project site affecting the work; work to field dimensions as required. Coordinate carpentry with rough-ins and installations specified in other sections.
- D. Refer to drawings for layouts, notes and details; provide framing as required; comply with governing building code requirements.
- E. Carefully lay out, cut, fit and erect all framing, blocking and other items. Size lumber and provide framing to achieve true alignments at surfaces receiving finish materials. Assemble members to minimize effects of shrinkage.

- F. Provide and install all wood blocking detailed or required for all finishes and other items as required to complete all work. All blocking and/or backing shall be securely bolted or otherwise anchored in place.

### 3.3 PRESERVATIVE TREATMENTS

- A. All framing in contact with concrete or masonry and not specified or otherwise shown to be pressure treated shall be treated with ACQ Preserve.

### 3.4 STUD WALL FRAMING

- A. Sill plates for bearing and shear walls on concrete shall be anchored with bolts and shall have full bearing on concrete.
- B. Sill plates for non-bearing walls shall be anchored as for bearing walls or may be anchored with powder actuated fasteners, provided with steel washers for bearing on wood.
- C. Cut studs and posts with square ends, erect plumb.
- D. All studs in walls shall be placed with the shortest dimension parallel to the run of the wall. Unless otherwise noted, all wall studs shall be 2 X 4 @ 16" o.c. Bearing studs shall extend full height to the supporting frame as shown; non-bearing studs shall extend to the supporting framing or points of lateral support.
- E. Double studs shall be placed on each side of all openings, unless noted otherwise.
- F. All openings in stud walls shall be framed with headers across the top, as shown, with a minimum size of 6" deep x stud width resting on short cripple studs, as shown on drawings.
- G. Top plates shall be double, set singly, except where noted otherwise. Corners where stud wall or partitions meet shall be framed solid. Double top plates shall be lapped at corners and at intersections.
- H. All stud partitions and walls shall have horizontal solid blocking not less than 2x and of the same width as the stud, fitted snugly and nailed into the studs at maximum spacing of 8 feet on center, or at mid-height of stud.
- I. Stud partitions containing plumbing, heating, or other pipes shall be so framed as to give proper clearance for piping. Plumbing, heating and vent pipes exceeding 1-½ inches inside diameter shall be placed in the center of the stud using a neat bored hole and the studs shall be strapped on each side with 3" x 36" x 14 gauge steel punched for 10d nails @ 2" o.c., staggered.

### 3.5 BACKING AND BLOCKING

- A. Provide all framing, blocking, and backing as required to anchor properly finishes, mirrors, accessories, shelving, casework, and any hangers, clips, or other devices specified under any sections which require such backing or support. Provide all framing, blocking, and backing to anchor properly all plumbing, heating and electrical fixtures and other special or miscellaneous equipment.

### 3.6 ROUGH HARDWARE

- A. General Requirements: Fastenings shown or required shall be of adequate size, spacing and number to resist design loads under intended use, and types shall be appropriate for the materials or conditions for which used.
- B. Framing Nailing: All framing nailing shall conform to minimum requirements of the California Building Code and with details shown on the drawings.
- C. Bolts, Lag Screws and Washers:
  - 1. Bolts in wood shall be machine bolts unless otherwise noted and shall be of such length that the bearing length of the threads against wood does not exceed  $\frac{1}{4}$  of the full bearing length in the member holding the threads. Bolt holes in wood shall be a minimum of 1/32 inch to a maximum of 1/16-inch oversize. Holes in steel shall be 1/16-inch oversize. No more than one-diameter length of bolt shall extend beyond the face of the nut.
  - 2. All nuts shall be tightened when placed and retightened at completion of the job, or immediately before closing with final construction.
  - 3. Lag screws shall be screwed (not driven) into place. Drill holes same diameter and depth as shank, then drill holes same diameter as at base of thread for the threaded portion. Use plate washer as required for same bolt size, in conformance with Section 3.8C2.

### 3.7 ANCHORS AND TIES

- A. Provide and install all anchors, bolts, ties, etc., required for the temporary or permanent securing of all carpentry work. Anchors and bolts shall be accurately located and where embedded in concrete shall be positively secured in position before pouring concrete.

### 3.8 CORRECTION OF DEFECTIVE WORK

- A. Work not in compliance with the requirements of the Contract Documents shall be considered defective, unless otherwise directed in writing by the Architect. Correction of defective work shall be the responsibility of the Contractor.
- B. Corrected work shall conform to the requirements of the Contract Documents.
- C. The Contractor shall prepare a submittal documenting the defective work and proposed corrections and submit to the Architect for review. The submittal shall include a description of the defective work, the location of defective work, and shall be accompanied by supporting sketches, photographs, or both. Additionally, the submittal shall include similar documentation of the Contractor's proposed corrections.
- D. Correction of defective work shall not commence until the Architect has reviewed and accepted the submittal.

### 3.9 CLEAN-UP

- A. Remove from the site all debris resulting from the work of this Section.

END OF SECTION 061000

---

SECTION 07 90 00

**JOINT SEALERS**

PART 1 – GENERAL

1.01 SUMMARY

- A. Section Includes: Requirements for furnishing and applying joint sealers and associated materials for exterior and interior use.

1.02 SUBMITTALS

- A. Product Data: Submit manufacturer's descriptive literature for each product specified, including instructions for joint preparation and sealant application.

1. Certification: Manufacturer's certification joint sealers, primers and cleaners comply with Contract documents, local regulations controlling the use of volatile organic compounds (VOC), and are suitable for Project applications.

B. Test Reports:

1. Certified test results of elastomeric sealants showing compliance with specified requirements. Include results of aged performances including hardness, stain-resistance, adhesion and cohesion under cyclic movement, low temperature flexibility, modulus of elasticity at 100-percent strain, effects of heat and aging, and effects of accelerated weathering.
2. Preconstruction field test results indicating which products and joint preparation methods demonstrated acceptable adhesion to joint substrates.

- C. Certificates: Manufacturer's certification that joint sealants comply with specified requirements and are suitable for uses and joint movements indicated and that total VOC's do not exceed 50 grams per liter.

1.03 QUALITY ASSURANCE

- A. Test Samples: Test sealants that will come in contact with each other for compatibility, or furnish test data or manufacturers' data verifying compatibility.
- B. Select materials for compatibility with joint surfaces and indicated exposures.
- C. Installer Qualifications: Firm with minimum five years successful experience on projects of similar type and size, using specified products.
- D. Obtain joint sealant materials from a single manufacturer for each product required unless otherwise approved.
- E. Preconstruction Compatibility and Adhesion Testing: Submit sample substrate materials to be sealed to joint sealant manufacturer for testing of adhesion and for compatibility with secondary seals.
1. Determine if priming and/or other preparation techniques are required.
2. Test for adhesion.

- 
3. Determine compatibility of exterior joint sealant with concrete masonry unit material to be used. Verify that joint sealant oils do not migrate onto concrete masonry unit face causing visual banding while wet or dry.
- F. Preconstruction Field Testing: Prior to installation of joint sealants, field-test adhesion to joint substrates.
1. Install joint sealants in 5-foot joint lengths. Allow to cure before testing. Test adhesion by pulling sealant out of joint.
  2. Perform field tests for each type of elastomeric sealant and joint substrate.
  3. Arrange for tests to take place with joint sealant manufacturer's technical representative present.
  4. Report whether or not 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.
  5. 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 substrate during testing.
  6. As an alternate, provide 3-inch x 3-inch 24-gauge galvanized sheet metal flashing at jambs and perform test as indicated.
- G. Review Contract Documents and ensure joints are sized as required for anticipated movement and are sized within the ranges of manufacturer's recommendations and warranties. Notify the Architect in writing of any discrepancies.
- H. Sealants shall comply with BAAQMD Regulation 8, Rule 51.
- I. Do not use products containing Methylene Chloride or Chlorinated Hydrocarbons.
- J. Do not use products containing bactericides and fungicides that are classified as Phenol mercury acetates, phenol phenates, or phenol formaldehyde.
- K. Do not use products containing aromatic and aliphatic solvents.
- L. Do not use products containing Styrene Butadiene.
- 1.04 DELIVERY, STORAGE, AND HANDLING
- A. Comply with requirements of Section 01 60 00.
  - B. Deliver materials in the unopened, original containers or unopened packages with manufacturer's name, labels, product identification, color, expiration period, curing time and mixing instructions for multicomponent materials.
  - C. Store materials in the original, unopened containers or packages, and under conditions recommended by manufacturers.
- 1.05 SITE CONDITIONS
- A. Do not proceed with installation of joint sealers under unfavorable weather conditions.
  - B. Install sealants when temperature is in range recommended by manufacturer.

- 
- C. Environmental Conditions: Do not install sealants when ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer, or to wet joint substrates.
  - D. Joint Width Conditions: Do not install sealants when joint widths are less than permitted by sealant manufacturer.
  - E. Joint Substrate Conditions: Do not proceed with installation of joint sealants until contaminants capable of interfering with their adhesion are removed from joint substrates.

#### 1.06 WARRANTY

- A. Comply with requirements of 01 70 00.
- B. Repair or replace joint sealers which fail to perform as intended because of leaking, crumbling, hardening, shrinkage, bleeding, sagging, staining and loss of adhesion.
- C. Warranty Period: Five years labor and material, ten years material.

### PART 2 – PRODUCTS

#### 2.01 MATERIALS

- A. General: Sealants that will come in contact with other sealants shall be compatible with each other.
- B. Sealants:
  - 1. At Other Exterior Joints: Type A - Silicone high performance sealant: One-part non-sag low-modulus, high-elongation and compression recovery, highly adhesive, ASTM C920, Type S, Grade NS, Class 25, Use NT, G, M and O; UL Classified. "Sonneborn NP-1" or equal.
  - 2. Fire Rated: At steel door, frames, and joints in fire rated walls, 3M Fire Barrier 2000+ Silicone Sealant by 3M.
- C. Sealant Colors: For sealants which will be used in exposed locations, color will be selected by Architect from manufacturer's standard range; sealants for use in concealed locations may be any of manufacturer's standard colors.
- D. Sealant Backup: Non-staining, closed-cell foam compatible with sealant to be used; of size and shape to control depth of sealant and to allow manufacturer recommended compression upon insertion.
- E. Miscellaneous Materials:
  - 1. Joint Cleaner for Metal and Glass: Type recommended by manufacturer of sealant to be used.
  - 2. Primer: Type recommended by manufacturer of sealant to be used.
  - 3. Masking Tape: Pressure-sensitive, adhesive paper tape.
  - 4. Bond Breaker: Pressure-sensitive, adhesive polyethylene tape.
  - 5. Sealant Backer Rod: Compressible closed cell polyethylene foam rod or other flexible, permanent, durable nonabsorptive material as recommended by joint sealer manufacturer for compatibility with joint sealer. Oversize backer rod minimum 30% to 50% of joint opening.

## PART 3 – EXECUTION

### 3.01 EXAMINATION

- A. Verify that surfaces to receive joint sealants are clean, dry, and free of grease, oil, and other materials that could prevent proper adhesion of sealants.
- B. Verify that other conditions are satisfactory for the application of joint sealants. If unsatisfactory conditions exist, do not begin installation until such conditions have been corrected.

### 3.02 PREPARATION

- A. Clean joints, using recommended cleaner.
- B. Mask surfaces adjacent to exposed joints.
- C. Apply primer, if recommended by sealant manufacturer.
- D. If new or existing joints as indicated are not suitable, clean out to depth indicated or required by sealant manufacturer; grind to minimum ½-inch width without damaging adjacent surfaces. Do not grind metal.

### 3.03 APPLICATION

- A. Apply joint sealants in accordance with the manufacturer's printed instructions.
- B. Provide sealants at areas of new work wherever necessary to prevent light leakage and moisture leakage; at exposed joints around plumbing fixtures, door and window frames, and other locations required to aid cleaning and sanitation, whether or not specifically indicated or specified.
- C. Install sealant backup using blunt instrument; avoid twisting. Install so that joint depth is 50 percent of joint width, but not less than ¼-inch deep.
- D. Apply gun-grade sealants using pressure gun with nozzle sized to fit joint width; apply in continuous, uniform beads, without gaps and air pockets.
- E. Tool joints within ten minutes of sealant application. Around countertops and backsplashes, tool joints flat, not concave. Remove masking materials immediately after tooling.
- F. Seal joints adjacent to surfaces to be painted prior to application of final coat of paint.

### 3.04 CLEANING

- A. Remove excess and spilled sealants adjacent to joints without damaging adjacent surfaces.

END OF SECTION

---

**SECTION 08 11 00**

**STEEL DOORS AND FRAMES**

---

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes: Requirements for furnishing and installing steel doors and steel frames.
- B. Related Sections:
  - 1. Joint sealants are specified in Section 07 90 00.

1.03 QUALITY ASSURANCE

- A. Construction and installation of steel windows, doors and frames shall conform to referenced Steel Door Institute (SDI) publications, Hollow Metal Manufacturers Association (HMMA) publications and the requirements specified herein.
- B. Fire-rated doors and frames shall meet specified rating and shall be labeled accordingly by Underwriters Laboratory.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of Section 01 60 00.
- B. Store steel doors and frames in a vertical position to prevent their twisting and bending.
- C. Protect steel doors and frames from exposure to moisture.

PART 2 - PRODUCTS

2.01 MANUFACTURER

- A. Products shall be manufactured by Ceco Corp., Amweld, Republic Steel, Steelcraft Mfg. Co., or approved equal.

2.02 MATERIALS

- A. Doors:
  - 1. Steel: Commercial-quality, cold-rolled sheet steel, stretcher-leveled for door faces, and galvanized in conformance with ASTM A 525, A60 coating designation (for painted applications) or ASTM A 526, G90 (for unpainted applications).
  - 2. Internal Stiffening: Steel as previously specified.

3. Insulation: Chemically inert, noncombustible, moisture-resistant material in accordance with manufacturer's printed recommendations. Insulation for labeled doors shall conform to the requirements of the labeling authority.
- B. Windows, Window Frames and Door Frames: Cold- or hot-rolled sheet steel, galvanized in conformance with ASTM A 525, A60 coating designation.
- C. Flashing Membrane: 40 mil self-adhesive sheet membrane waterproofing, designed for use as a concealed flashing, composed of SBS-modified asphalt core laminated to a cross-laminated, high-density polyethylene film reinforcement with a siliconized paper release sheet. Provide around all openings.
  1. Acceptable product: Fortiflash-40 with Moistop Corner Shields as manufactured by Fortifiber Building Systems Group, (800) 773-4777, [www.fortifiber.com](http://www.fortifiber.com)
  2. Substitutions: Refer to Section 01 33 00.
- D. Hardware: Specified in Section 08 71 00.
- E. Glazing: Specified in Section 08 80 00.
- F. Painting: Specified in Section 09 90 00.

## 2.03 FABRICATION

- A. Doors: Heavy duty, seamless, in conformance with ANSI A250.8 (formerly SDI-100) for Level II, Model 1, with tolerances in conformance with ANSI standards
  1. Gauge: 14 gauge minimum.
  2. Thickness: 1¾ inches.
  3. Size: As indicated.
  4. Faces: Smooth, with no visible seams.
  5. Top and Bottom Edges: Close top with 16 gauge flush steel closure; top and bottom surfaces shall be watertight for exterior doors.
  6. Vertical Edges: No visible seams; beveled latch edge and square hinge edge.
  7. Clearances: Fire-Rated Doors: Comply with requirements of labeling authority.
- B. Windows, Window Frames and Door Frames: Of types, styles, and sizes indicated.
  1. One-Piece Welded Type: Comply with ANSI A250.8 (formerly SDI-100) and NAAMM Standard HMMA 860, as applicable, for material and construction requirements.
    - a. Gauge: 16 gauge minimum.
    - b. Profiles and Shapes: Free of warp, buckles, fractures, and other defects.
    - c. Corners and Connections: Mitered and welded, with exposed welds ground flush and smooth.
    - d. Conceal fastenings, unless otherwise indicated

C. Accessories:

2. Anchors: 16 gauge minimum sheet steel.
  - a. Four anchors for each jamb and two anchors at each head, except as otherwise indicated.
  - b. Vary anchor types to provide positive fastening to adjacent construction. Sleeved anchors shall be flat head type for recessed installation. Use #12 wood screw for wood; use a Lead expansion shield at concrete unless otherwise noted.
  - c. Secure a metal clip angle at bottom of each jamb for anchoring to floor.
  - d. Middle anchor to be 40" above finished floor.
3. Inserts, Bolts, and Fasteners: Manufacturer's standard types suitable for the conditions of installation.
5. Accessories shall be hot-dip galvanized in conformance with ASTM A 153, Class B, C, or D, as applicable.

2.04 PREPARATION FOR HARDWARE

- A. Prepare steel windows, doors and frames for hardware in conformance with ANSI A151.1, as applicable, SDI-107, and NAAMM HMMA 860, as applicable.
- B. Weld plaster guards or mortar boxes behind cutouts in frames, where required by the conditions of installation.
- C. Provide reinforcements for concealed and surface-applied hardware.
  1. Drill and tap mortised reinforcements at factory, using templates.
  2. Install reinforcements with concealed connections designed to develop full strength of reinforcements.

2.05 FINISH

- A. Apply mineral filler to eliminate weld scars and other blemishes, and to conceal flat-head fasteners; level and grind smooth.
- B. Bonderize and apply one coat of manufacturer's standard baked-on, rust-inhibitive metal primer conforming to ANSI A224.1.
- C. Finished surfaces shall be smooth and free from irregularities and rough spots.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that conditions are satisfactory for the installation of steel doors and frames. If unsatisfactory conditions exist, do not begin installation until such conditions have been corrected.

- B. Verify opening dimensions and degree of plumbness of surrounding structure.

### 3.02 INSTALLATION

- A. Steel Doors and Frames: Install in conformance with the manufacturer's printed instructions and the requirements of SDI-105 and NAAMM HMMA 860 as applicable.
- B. Hardware:
  - 1. Install in conformance with the manufacturer's printed instructions; take care not to damage hardware, door, frame, and their finishes.
  - 2. Adjust and lubricate hardware for proper operation.
  - 3. Upon completion of installation, door and hardware shall operate smoothly, quietly, and free from binding.
- C. Apply bituminous coating to back of frames that will be in contact with cementitious materials in the finished work. For fire-rated frames, use coating acceptable to labeling authority.

### 3.03 TOUCH-UP

- A. Immediately after installation, touch up areas of steel doors and frames where prime coat has been damaged, using primer compatible with that applied in the shop.
- B. Clean surfaces before application of touch-up primer.
- C. Touch-up shall not be obvious.

END OF SECTION

---

**SECTION 08 71 00**

**DOOR HARDWARE**

---

**PART 1 - GENERAL**

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section includes items known commercially as finish or door hardware that are required for swing, sliding, and folding doors, except special types of unique hardware specified in the same sections as the doors and door frames on which they are installed.
- B. This Section includes the following, but is not necessarily limited to:
1. Door Hardware.
  2. Entrance door hardware.
  3. Thresholds, gasketing and weather-stripping.
  4. Door silencers or mutes.
- C. Related Sections: The following sections are noted as containing requirements that relate to this Section, but may not be limited to this listing.
1. Division 8: Section - Steel Doors and Frames.

1.03 REFERENCES (USE DATE OF STANDARD IN EFFECT AS OF BID DATE.)

- A. 2022 California Building Code, CCR, Title 24.
- B. BHMA – Builders' Hardware Manufacturers Association
- C. CCR – California Code of Regulations, Title 24, Part 2, California State Accessibility Standards.
- D. DHI – Door and Hardware Institute
- E. NFPA - National Fire Protection Association.
1. NFPA 80 - Fire Doors and Other Opening Protectives
  2. NFPA 105 - Smoke and Draft Control Door Assemblies
- F. UL - Underwriters Laboratories.
1. UL 10C - Fire Tests of Door Assemblies
  2. UL 305 - Panic Hardware
- G. WHI - Warnock Hersey Incorporated

H. SDI - Steel Door Institute

1.04 SUBMITTALS & SUBSTITUTIONS

- A. General: Submit in accordance with Conditions of the Contract and Division 1 Specification sections.
- B. Submit product data (catalog cuts) including manufacturers' technical product information for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
- C. Submit six (6) copies of schedule organized vertically into "Hardware Sets" with index of doors and headings, indicating complete designations of every item required for each door or opening. Include following information:
  - 1. Include a Cover Sheet with;
    - a. Job Name, location, telephone number.
    - b. Architects name, location and telephone number.
    - c. Contractors name, location, telephone number and job number.
    - d. Suppliers name, location, telephone number and job number.
    - e. Hardware consultant's name, location and telephone number.
  - 2. Job Index information included;
    - a. Numerical door number index including; door number, hardware heading number and page number.
    - b. Complete keying information (referred to DHI hand-book "Keying Systems and Nomenclature"). Provision should be made in the schedule to provide keying information when available; if it is not available at the time the preliminary schedule is submitted.
    - c. Manufacturers' names and abbreviations for all materials.
    - d. Explanation of abbreviations, symbols, and codes used in the schedule.
    - e. Mounting locations for hardware.
    - f. Clarification statements or questions.
    - g. Catalog cuts and manufacturer's technical data and instructions.
  - 3. Vertical schedule format sample:

Heading Number 1 (Hardware group or set number – HW -1)					
			(a) 1 Single Door #1 - Exterior from Corridor 101	(b) 90°	(c) RH
			(d) 3' 0"x7' 0" x 1-3/4" x (e) 20 Minute (f) WD x HM		
(g) 1	(h)	(i) ea	(j) Hinges - (k) 5BB1HW 4.5 x 4.5 NRP (l) ½ TMS	(m) 626	(n) IVE
2	6AA	1 ea	Lockset - ND50PD x RHO x RH x 10-025 x JTMS	626	SCH

(a) - Single or pair with opening number and location. (b) - Degree of opening (c) - Hand of door(s) (d) - Door and frame dimensions and door thickness. (e) - Label requirements if any. (f) - Door by frame material. (g) - (Optional) Hardware item line #. (h) - Keyset Symbol. (i) - Quantity. (j) - Product description. (k) - Product Number. (l) - Fastenings and other pertinent information. (m) - Hardware finish codes per ANSI A156.18. (n) - Manufacture abbreviation.

- D. Make substitution requests in accordance with Division 1. Substitution requests must be made prior to bid date. Include product data and indicate benefit to the project. Furnish samples of any proposed substitution.
- E. Keying Schedule: Submit separate detailed schedule indicating clearly how the Owner's final instructions on keying of locks has been fulfilled.
- F. Templates for doors, frames, and other work specified to be factory prepared for the installation of door hardware. Check shop drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
- G. Furnish as-built/as-installed schedule with close-out documents, including keying schedule and transcript, manufacturers' installation and adjustment and maintenance information.

#### 1.05 QUALITY ASSURANCE

- A. Obtain each type of hardware (latch and lock sets, hinges, closers, exit devices, etc.) from a single manufacturer.
- B. Supplier Qualifications: A recognized architectural door hardware supplier, with warehousing facilities in the project's vicinity, that has a record of successful in-service performance for supplying door hardware similar in quantity, type, and quality to that indicated for this project and that employs an experienced architectural hardware consultant (AHC) who is available to Owner, Architect, and Contractor, at reasonable times during the course of the Work, for consultation.
  - 1. Responsible for detailing, scheduling and ordering of finish hardware.
  - 2. Meet with Owner to finalize keying requirements and to obtain final instructions in writing.
  - 3. Stock parts for products supplied and are capable of repairing and replacing hardware items found defective within warranty periods.
- C. Hardware Installer: Company specializing in the installation of commercial door hardware with five years documented experience.
  - 1. Where emergency exit devices are required on fire-rated doors, (with supplementary marking on doors' UL labels indicating "Fire Door to be Equipped with Fire Exit Hardware") provide UL label on exit devices indicating "Fire Exit Hardware".
- D. Exit Doors: Operable from inside with single motion without the use of a key or special knowledge or effort.

#### 1.06 DELIVERY, STORAGE AND HANDLING

- A. Coordinate delivery of packaged hardware items to the appropriate locations (shop or field) for installation.
- B. Hardware items shall be individually packaged in manufacturers' original containers, complete with proper fasteners. Clearly mark packages on outside to indicate contents and locations in hardware schedule and in work.
- C. Provide locked storage area for hardware, protect from moisture, sunlight, paint, chemicals, etc.

- D. Contractor to inventory door hardware jointly with representatives of hardware supplier and hardware installer until each all are satisfied that count is correct.
- E. Exit Doors: Operable from inside with single motion without the use of a key or special knowledge or effort.
- F. Product packaging to be labelled in compliance with CA Prop 65, Safe Drinking Water and Toxic Enforcement Act of 1986.

#### 1.07 WARRANTY

- A. Provide warranties of respective manufacturers' regular terms of sale from day of final acceptance as follows:
  - 1. Locksets: "ND" Ten (10) years.
  - 2. Closers: Thirty (30) years.
  - 3. All other hardware: Two (2) years.

#### 1.08 MAINTENANCE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

### PART 2 - PRODUCTS

#### 2.01 MANUFACTURERS

<u>Item</u>	<u>Manufacturer</u>	<u>Acceptable Substitutes</u>
Hinges	Ives	Hager, Stanley, McKinney
Locks, Latches & Cylinders	Schlage	Or Approved Equal
Exit Devices	Von Duprin	Or Approved Equal
Closers	LCN	Or Approved Equal
Push, Pulls & Protection Plates	Ives	Trimco, BBW, DCI
Stops	Ives	Trimco, BBW, DCI
Thresholds	Zero	Pemko, National Guard
Seals & Bottoms	Zero	Pemko, National Guard

#### 2.02 MATERIALS

- A. Hinges: Exterior out-swinging door butts shall be non-ferrous material and shall have stainless steel hinge pins. All doors to have non-rising pins.

1. Hinges shall be sized in accordance with the following:
    - a. Height:
      - 1) Doors up to 42" wide: 4-1/2" inches.
      - 2) Doors 43" to 48" wide: 5 inches.
    - b. Width: Sufficient to clear frame and trim when door swings 180 degrees.
    - c. Number of Hinges: Furnish 3 hinges per leaf to 7'-5" in height. Add one for each additional 2 feet in height.
  2. Furnish non-removable pins (NRP) at all exterior out-swing doors and interior key lock doors with reverse bevels.
- B. Heavy Duty Cylindrical Locks and Latches: Schlage "ND" Series as scheduled with "Rhodes" design, fastened with through-bolts and threaded chassis hubs.
1. Provide cylindrical locksets exceeding the ANSI/BHMA A156.2 Grade 1 performance standards for strength, security, and durability in the categories below:
    - a. Abusive Locked Lever Torque Test – minimum 3,100 inch-pounds without gaining access
    - b. Offset lever pull – minimum 1,600 foot pounds without gaining access
    - c. Vertical lever impact – minimum 100 impacts without gaining access
  2. Cycle life - tested to minimum 16 million cycles per ANSI/BHMA A156.2 Cycle Test with no visible lever sag or use of performance aids such as set screws or spacers
  3. UL 10C for 4'-0" x 10'-0" 3-hour fire door.
  4. Cylinders: Refer to "KEYING" article, herein.
  5. Provide solid steel anti-rotation through bolts and posts to control excessive rotation of lever.
  6. Provide lockset that allows lock function to be changed to over twenty other common functions by swapping easily accessible parts.
  7. Provide locks with standard 2-3/4 inches (70 mm) backset, unless noted otherwise, with 1/2 inch latch throw capable of UL listing of 3 hours on a 4' x 10' opening. Provide proper latch throw for UL listing at pairs.
  8. Provide locksets with separate anti-rotation thru-bolts, and no exposed screws.
  9. Provide independently operating levers with two external return spring cassettes mounted under roses to prevent lever sag.
  10. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
  11. Lever Trim: Solid cast levers without plastic inserts, and wrought roses on both sides.
- C. Deadlocks: Rotating cylinder trim rings of attack-resistant design. Mounting plates and actuator shields of plated cold-rolled steel. Mounting screws of 1/4" diameter steel and protected by drill-resistant ball bearings. Steel alloy deadbolt with hardened steel roller. Strike alloy deadbolt with reinforcer and two 3" long screws. ANSI A156.5, 2001 Grade 1 certified.
- D. Exit devices: Von Duprin as scheduled.
1. Provide certificate by independent testing laboratory that device has completed over 1,000,000 cycles and can still meet ANSI/BHMA A156.3 - 2001 standards.
  2. All internal parts shall be of cold-rolled steel with zinc dichromate coating.
  3. Mechanism case shall have an average thickness of .140".
  4. Compression spring engineering.
  5. Non-handed basic device design with center case interchangeable with all functions.
  6. All devices shall have quiet return fluid dampeners.

7. All latchbolts shall be deadlocking with  $\frac{3}{4}$ " throw and have a self-lubricating coating to reduce friction and wear.
  8. Device shall bear UL label for fire and or panic as may be required.
  9. All surface strikes shall be roller type and utilize a plate underneath to prevent movement.
  10. Lever Trim: "Breakaway" design, forged brass or bronze escutcheon with a minimum of .130" thickness, match lockset lever design.
  11. Removable Mullions: Removable with single turn of building key. Securely reinstalled without need for key.
  12. Furnish glass bead kits for vision lites where required.
  13. All Exit Devices to be sex-bolted to the doors.
  14. Panic Hardware shall comply with CBC Section 11B.404.2.7 and shall be mounted between 34" and 44" above the finished floor surface.
    - a. Provide exit devices UL certified to meet maximum 5 pound requirements according to the California Building Code section 11B-309.4, and UL listed for Panic Exterior Fire Exit Hardware maximum opening force of 15 pounds according to the California Building Code section 11B-404.2.9.
- E. Closers: LCN as scheduled. Place closers inside building, stairs, room, etc.
1. Door closer cylinders shall be of high strength cast iron construction with double heat treated pinion shaft to provide low wear operating capabilities of internal parts throughout the life of the installation. All door closers shall be tested to ANSI/BHMA A156.4 test requirements by a BHMA certified testing laboratory. A written certification showing successful completion of a minimum of 10,000,000 cycles must be provided.
  2. All door closers shall be fully hydraulic and have full rack and pinion action with a shaft diameter of a minimum of 11/16 inch and piston diameter of 1 inch to ensure longevity and durability under all closer applications.
  3. All parallel arm closers shall incorporate one piece solid forged steel arms with bronze bushings. 1-9/16" steel stud shoulder bolts, shall be incorporated in regular arms, hold-open arms, arms with hold open and stop built in. All other closers to have forged steel main arms for strength, durability, and aesthetics for versatility of trim accommodation, high strength and long life.
  4. All parallel arm closers so detailed shall provide advanced backcheck for doors subject to severe abuse or extreme wind conditions. This advanced backcheck shall be located to begin cushioning the opening swing of the door at approximately 45 degrees. The intensity of the backcheck shall be fully adjustable by tamper resistant non-critical screw valve.
  5. Closers shall be installed to permit doors to swing 180 degrees.
  6. All closers shall utilize a stable fluid withstanding temperature range of 120 degrees F. to -30 degrees F. without requiring seasonal adjustment of closer speed to properly close the door.
  7. Provide the manufactures drop plates, brackets and spacers as required at narrow head rails and special frame conditions. NO wood plates or spacers will be allowed.
  8. Maximum effort to operate closers shall not exceed 5 lbs., such pull or push effort being applied at right angles to hinged doors. Compensating devices or automatic door operators may be utilized to meet the above standards. When fire doors are required, the maximum effort to operate the closer may be increased but shall not exceed 15 lbs. when specifically approved by fire marshal. All closers shall be adjusted to operate with the minimum amount of opening force and still close and latch the door. These forces do not apply to the force required to retract latch bolts or disengage other devices that hold the door in a closed position. Per 11B-404.2.8.1, door shall take at least 5 seconds to move from an open position of 90 degrees to a position of 12 degrees from the latch jamb.

- F. Flush Bolts & Dust Proof Strikes: Automatic Flush Bolts shall be of the low operating force design. Utilize the top bolt only model for interior doors where applicable and as permitted by testing procedures.
1. Manual flush bolts only permitted on storage or mechanical openings as scheduled.
  2. Provide dust proof strikes at openings using bottom bolts.
- G. Door Stops:
1. Unless otherwise noted in Hardware Sets, provide floor type with appropriate fasteners. Where wall type cannot be used, provide floor type. If neither can be used, provide overhead type.
  2. Do not install floor stops more than four (4) inches from the face of the wall or partition (CBC Section 11B-307).
  3. Overhead stops shall be made of stainless steel and non-plastic mechanisms and finished metal end caps. Field-changeable hold-open, friction and stop-only functions.
- H. Protection Plates: Fabricate either kick, armor, or mop plates with four beveled edges. Provide kick plates 10" high and 2" LDW. Sizes of armor and mop plates shall be listed in the Hardware Schedule. Furnish with machine or wood screws of bronze or stainless to match other hardware.
- I. Thresholds: As Scheduled and per details.
1. Thresholds shall not exceed 1/2" in height, with a beveled surface of 1:2 maximum slope.
  2. Set thresholds in a full bed of butyl-rubber or polyisobutylene mastic sealant complying with requirements in Division 7 "Thermal and Moisture Protection".
  3. Use 1/4" fasteners, red-head flat-head sleeve anchors (SS/FHSL).
  4. Thresholds shall comply with CBC Section 11B-404.2.5.
- J. Seals: Provide silicone gasket at all rated and exterior doors.
1. Smoke & Draft Control Doors, Provide UL10C Classified complies with NFPA 80 & NFPA 252 for use on "S" labeled Positive Pressure door assemblies.
- K. Door Shoes & Door Top Caps: Provide door shoes at all exterior wood doors and top caps at all exterior out-swing doors.
- L. Silencers: Furnish silencers for interior hollow metal frames, 3 for single doors, 2 for pairs of doors. Omit where sound or light seals occurs, or for fire-resistive-rated door assemblies.

## 2.03 KEYING

- A. Furnish all cylinders in the Schlage Full Size Interchangeable Core (FSIC). Pack change keys independently (PKI)
- B. Furnish construction keying for doors requiring locking during construction.
1. For FSIC systems provide 23-030-ICX Full Size Construction Cores
  2. For FSIC systems provide ten 48-101-ICX Construction Keys
  3. For FSIC systems provide two 48-056-ICX Control Keys (const.)

4. For FSIC systems provide two control keys for installing the permanent cores (49-056 for "Classic" keyways, 48-052-XP for "Classic Primus") (49-003 for "Everest Conventional", 48-005-XP for "Everest Primus")
- C. Furnish all keys with visual key control.
1. Stamp key "Do Not Duplicate".
  2. Stamp (BHMA) key symbol on key.
- D. Furnish all cylinders with visual key control.
1. Stamp (BHMA) key symbol on side of cylinder (CKC).
- E. Furnish mechanical keys as follows:
1. Furnish 2 cut change keys for each different change key code.
  2. Furnish 1 uncut key blank for each change key code.
  3. Furnish 6 cut masterkeys for each different masterkey set.
  4. Furnish 3 uncut key blanks for each masterkey set.
  5. Furnish 2 cut control keys cut to the top masterkey for permanent I/C cylinders.
  6. Furnish 1 cut control key cut to each SKD combination.
- F. Furnish Schlage Padlocks and the cylinders to tie them into the masterkey system for gates, storage boxes, utility valve security, roof hatches and roll-up doors keyed as directed in the keying schedule.
1. Furnish KS43D2200 padlock for use with non-I/C Schlage cylinders. Furnish 47-413 (conventional) or 47-743-XP (PrimusXP) with above.
  2. Furnish KS43G3200 padlock for use with FSIC Schlage cylinders. Furnish 23-030 (Classic / Everest) or 20-740 (PrimusXP) with above.
  3. Furnish KS41D1200 padlock for use with SFIC Schlage cylinders. Furnish 80-037 (Everest-B) with above.
- G. Furnish one Schlage cabinet lock for each cabinet door or drawer so designated on the drawings or keying schedule to match the masterkey system.
1. Furnish CL100PB for use with non-I/C Schlage cylinders.
  2. Furnish CL77R for use with FSIC Schlage cylinders.
  3. Furnish CL721G for use with SFIC Schlage cylinders.

## 2.04 FINISHES

- A. Generally to be satin chrome US26D (626 on bronze and 652 on steel) unless otherwise noted.
- B. Furnish push plates, pull plates and kick or armor plates in satin stainless steel US32D (630) unless otherwise noted.
- C. Door closers shall be powder-coated to match other hardware, unless otherwise noted.
- D. Aluminum items to be finished anodized aluminum except thresholds which can be furnished as standard mill finish.

## 2.05 FASTENERS

- A. Screws for strikes, face plates and similar items shall be flat head, countersunk type, provide machine screws for metal and standard wood screws for wood.
- B. Screws for butt hinges shall be flathead, countersunk, full-thread type.
- C. Fastening of closer bases or closer shoes to doors shall be by means of sex bolts and spray painted to match closer finish.
- D. Provide expansion anchors for attaching hardware items to concrete or masonry.
- E. All exposed fasteners shall have a phillips head.
- F. Finish of exposed screws to match surface finish of hardware or other adjacent work.
- G. All Exit Devices and Lock Protectors shall be fastened to the door by the means of sex bolts or through bolts.

## PART 3 - EXECUTION

### 3.01 INSPECTION

- A. Verify that doors and frames are square and plumb and ready to receive work and dimensions are as instructed by the manufacturer.
- B. Beginning of installation means acceptance of existing conditions.

### 3.02 INSTALLATION

- A. Install hardware in accordance with manufacturer's instructions and requirements of DHI.
- B. Use the templates provided by hardware item manufacturer.
- C. Mounting heights for hardware shall be as recommended by the Door and Hardware Institute. Operating hardware will to be located between 34" and 44" AFF.
- D. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
- E. Drill and countersink units that are not factory-prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.
- F. Set thresholds for exterior doors in full bed of butyl-rubber sealant.
- G. If hand of door is changed during construction, make necessary changes in hardware at no additional cost.
- H. Hardware Installer shall coordinate with security contractor to route cable to connect electrified locks, panic hardware and fire exit hardware to power transfers or electric hinges at the time these items are installed so as to avoid disassembly and reinstallation of hardware.

- I. Hardware Installer shall also be present with the security contractor when the power is turned on for the testing of the electronic hardware applications. Installer shall make adjustments to solenoids, latches, vertical rods and closers to insure proper and secure operation.
- J. All wiring for electro-mechanical hardware mounted on the door shall be connected through the power transfer and terminated in the interface junction box specified for in the Electrical Section.
- K. Conductors shall be minimum 18 gage stranded, multicolored. A minimum 12 in. loop of conductors shall be coiled in the interface junction box. Each conductor shall be permanently marked with its function.
- L. If a power supply is specified in the hardware sets, all conductors shall be terminated in the power supply. Make all connections required for proper operation between the power supply and the electro-mechanical hardware. Provide the proper size conductors as specified in the manufacturer's technical documentation.

### 3.03 ADJUST AND CLEAN

- A. Adjust and check each operating item of hardware and each door, to ensure proper operation or function of every unit. Replace units which cannot be adjusted to operate freely and smoothly as intended for the application made.
- B. Clean adjacent surface soiled by hardware installation.
- C. Final Adjustment: Wherever hardware installation is made more than one month prior to acceptance or occupancy, return to that work area and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.
- D. Instruct Owner's Personnel in proper adjustment and maintenance of hardware finishes, during the final adjustment of hardware.
- E. Continued Maintenance Service: Approximately six months after the completion of the project, the Contractor accompanied by the Architectural Hardware Consultant, shall return to the project and re-adjust every item of hardware to restore proper functions of doors and hardware. Consult with and instruct Owner's personnel in recommended additions to the maintenance procedures. Replace hardware items which have deteriorated or failed due to faulty design, materials or installation of hardware units. Prepare a written report of current and predictable problems (of substantial nature) in the performance of the hardware.

### 3.04 HARDWARE LOCATIONS

- A. Conform to CCR, Title 24, Part 2; and ADAAG; and the drawings for access-compliant positioning requirements for the disabled.

### 3.05 FIELD QUALITY CONTROL

- A. Contractor is responsible for providing the services of an Architectural Hardware Consultant (AHC) or a proprietary product technician to inspect installation and certify that hardware and its installation have been furnished and installed in accordance with manufacturers' instructions and as specified herein.

3.06 SCHEDULE

- A. The items listed in the following schedule shall conform to the requirements of the foregoing specifications.
- B. While the hardware schedule is intended to cover all doors, and other movable parts of the building, and establish type and standard of quality, the contractor is responsible for examining the Plans and Specifications and furnishing proper hardware for all openings whether listed or not. If there are any omissions in hardware groups in regard to regular doors they shall be called to the attention of the Architect prior to bid opening for instruction; otherwise, list will be considered Complete. No extras will be allowed for omissions.
- C. The Door Schedule on the Drawings indicates which hardware set is used with each door.

**Manufacturers Abbreviations (Mfr.)**

ADA	=	Adams Rite Mfg.	Aluminum Door Hardware
GLY	=	Glynn-Johnson Corporation	Overhead Door Stops
IVE	=	Ives	Hinges, Pivots, Bolts, Coordinators, Dust Proof Strikes, Push Pull & Kick Plates, Door Stops & Silencers
JOH	=	L.E. Johnson	Sliding Door Hardware
LCN	=	LCN	Door Closers
SCE	=	Schlage Electronics	Electronic Door Components
SCH	=	Schlage Lock Company	Locks, Latches & Cylinders
TRI	=	Trimco	Signs
VON	=	Von Duprin	Exit Devices
ZER	=	Zero International	Thresholds, Gasketing & Weather-stripping

**HARDWARE SET: 02 – WAREHOUSE MAN DOOR ADJACENT TO ROLL DOOR.**

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5 NRP	630	IVE
1	EA	SURFACE CLOSER	4111 AVB	689	LCN
1	EA	MORTISE CYLINDER	20-001 1-1/4" (MULLION)	626	SCH
2	EA	FSIC CORE	23-030	626	SCH
1	EA	RIM CYLINDER	20-057T	626	SCH
1	EA	SURFACE CLOSER	4040XP EDA	689	LCN
1	EA	FLOOR STOP	FS18L	BLK	IVE
1	EA	GASKETING	188SBK PSA	BK	ZER
1	EA	DOOR SWEEP	39A	A	ZER
1	EA	THRESHOLD	PER DETAIL	AL	ZER

PLUM ARCHITECTS  
 870 Market Street, Suite 878  
 San Francisco, CA 94102  
 415.837.0900

Temporary Meal Support Space  
 District Warehouse  
 SSFUSD PROJECT NO.032-926  
 SOUTH SAN FRANCISCO UNIFIED SCHOOL DISTRICT

**HARDWARE SET: 02 - WAREHOUSE SORTING SHED – DOUBLE DOOR**

QTY	DESCRIPTION	CATALOG NUMBER	FINIS	MFR
6	EA HINGE	5BB1HW 4.5 X 4.5 NRP	630	IVE
1	EA MULLION	KR4954 X 154 STABILIZER	689	VON
1	EA PANIC HARDWARE	99DT	626	VON
1	EA PANIC HARDWARE	99NL	626	VON
1	EA MORTISE CYLINDER	20-001 1-1/4" (MULLION)	626	SCH
1	EA RIM CYLINDER	20-057T	626	SCH
1	EA PRIMUS CORE ONLY	20-740 (VERIFY KEYWAY)	626	SCH
1	SET SPLIT ASTRAGAL	115NA/2	628	NGP
2	EA SURFACE CLOSER	4111 AVB	689	LCN
2	EA KICK PLATE	8400 10" X 2" LDW	630	IVE
2	EA FLOOR STOP & HOLDER	FS43	626	IVE
1	SET SEALS	2525B	BRN	NGP
2	EA DOOR SWEEP	200NA	AL	NGP
	EA THRESHOLD	PER DETAIL	AL	NGP

**END OF SECTION**

---

**SECTION 22 00 00**

**PLUMBING**

---

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. Requirements of General Conditions, Supplementary General Conditions, and Section "General Requirements" and Section 23 00 00 apply to the work of this section the same as if set forth in full herein.

1.02 SCOPE

- A. The work under this section includes everything necessary for or incidental to completing plumbing and piping work except as herein specifically excluded.
- B. Work Included: Principal items of work include, but are not limited to the following:
1. Domestic water system from point of connection to existing piping to all plumbing fixtures and equipment requiring cold water.
  2. Sanitary drains, waste and vent system and building sewers to point of connect to existing underground sewer.
  3. Trenching and backfilling for plumbing work.
  4. Rough-in for and connections to equipment furnished under this and other sections.
  5. Plumbing fixtures with trim, traps and supports.
  6. Flashing and counterflashing of all roof and wall penetrations.
  7. Identification of all piping with direction of flow.
  8. Identification of all valves with function and direction.
  9. Thorough cleaning of all plumbing fixtures and drains; removal of all debris.
  10. Supports and foundations for all equipment furnished under this Section.
  11. Thorough cleaning of all plumbing fixtures and drains; removal of all debris.
  12. Provide "As-Built" drawings as herein before specified.
  13. Testing of equipment and systems.
  14. All insurance, fees and taxes required and applicable.
- C. Work Not Included in This Section:
1. Field installed accessories.

2. Sheet metal ductwork or fans.
3. Fire sprinklers.

D. Related Work Specified Elsewhere Includes:

1. Painting.
2. Electrical line voltage wiring and connection to equipment.
3. Automatic fire sprinkler system.

1.03 QUALITY ASSURANCE

- A. All work shall be in strict accordance with the South San Francisco Unified School District standards, CA AB 1953, and latest applicable code and ordinances.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Materials shall be clearly marked or stamped with manufacturer's stamp and rating, and shall be of domestic manufacture.
- B. All ASA and ASTM designations shall be as set forth in the hereinbefore mentioned plumbing and gas piping ordinances.

2.02 MATERIALS

- A. Valves: Nibco, Hammond
1. Globe: Nibco S-23Y with Teflon plunger, 2" and smaller. Nibco S-211; 2-1/2" and larger or ball valves.
  2. Ball Valves: Nibco 580 series two piece bronze. At contractors option can be used in lieu of gate valves for valves 1-1/2" and smaller.
- B. Dielectric protection: Provide insulated couplings and/or unions at points of connection between copper, steel and brass piping, EPCO or equal.
- C. Sound Control: All water piping systems and drainage piping systems, including supply, waste and drain shall be installed with vibration isolators and shall be isolated from any structural members, wall sections or other materials that could transmit sound to the occupied areas. All hangers, straps, brackets, and supports shall have acoustical components or combined neoprene and plastic from by Tech Specialties, division of Specialty Products Co. to isolate complete pipe contact area. All isolation material shall have a minimum thickness of 1/2". Install all components as per manufacturer's instructions.

2.03 SANITARY SEWER PIPING, BURIED WITHIN 5 FEET (1500MM) OF BUILDING

- A. The following piping systems shall be allowed where permitted by Local Code:
- B. Cast Iron Pipe: ASTM A 74 service weight.
1. Pipe to be coated inside and out.
  2. Fittings: Cast iron.

3. Joints: Hub-and-spigot, CISPI HSN compression type with ASTM C 564 neoprene askets or lead and oakum.
- C. CPVC and PVC piping for corrosive soil installation. All piping and fittings shall comply with CPC codes.
- 2.04 SANITARY SEWER PIPING, ABOVE GRADE
- A. Cast Iron Pipe: ASTM A74, service weight.
1. Fittings: Cast Iron.
  2. Joints: Hub-and-spigot, CISPI HSN compression type with ASTM C564 neoprene gaskets or lead and oakum.
- B. Cast Iron Pipe: CISPI 301, hubless, service weight.
1. Fittings: Cast iron.
  2. Joints: Neoprene gaskets and stainless steel clamp-and-shield assemblies.
- C. Copper Pipe: ASTM B306, DWV.
1. Fittings: ANSI/ASME B16.3, cast bronze, or ANSI/ASME B16.29, wrought copper.
  2. Joints: ANSI/ASTM B32, solder, Grade 50B.
- 2.05 VENTS
- A. Above grade:
1. 1-1/2-inches and Smaller: cast iron or DWV copper.
  2. 2-inches and larger: Cast-iron, hubless or DWV copper.
  3. Standard no-hub couplings.
- 2.06 WATER PIPING, ABOVE GRADE
- A. Copper Tubing: ASTM B88 Type L, hard drawn.
1. Fittings: ANSI/ASME B16.23, cast brass, or ANSI/ASME B16.29, wrought copper.
  2. Joints: ANSI/ASTM B32, solder, Grade 95TA.
- 2.07 NATURAL GAS PIPING, ABOVE GRADE (IF APPLICABLE)
- A. Steel Pipe: ASTM A53 of A120, Schedule 40 black.
1. Fittings: ASME B16.3, malleable iron, or ASTM A234, forged steel welding type.
- 2.08 FLANGES, UNIONS AND COUPLINGS
- A. Pipe size 2 inches (50mm) and under: 150 psig (1 034 kPa) bronze unions for copper pipe, soldered joints.

- B. Pipe size over 2 inches (50mm): 150 psig (1 034 kPa) bronze flanges for copper piping.
- C. Dielectric connections: Union with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.

#### 2.09 HANGERS AND SUPPORTS

- A. Manufacturer: Superstrut, Grinnel, or approved equal. Screws shall be used in wood construction, concrete inserts in concrete construction.
- B. Cast iron and screwed ferrous pipe: Horizontal runs shall be supported by individually adjustable hangers, wrought straps, U-Hooks or single hooks as applicable.
- C. Copper Tubing: Support similarly to screwed pipe except that supports and hangers shall be copper or copper plated type especially for copper tubing.
- D. Trapeze Hangers: Steel members as required; when used with copper tubing, a layer of 15 lb. asphalt felt shall be placed between copper and ferrous material.

#### 2.10 CLEANOUTS

- A. Install where required by ordinances, where shown on the drawings, and in the following locations; at ends of house drains, at all changes in directions, in all straight runs at 100 foot intervals, where horizontal mains change size, and at all ends of all branch pipes which are 5' or over in length.
- B. Manufacturer: Smith, Zurn, Wade or Josam. Numbers cited are Smith.
- C. Floor Cleanouts: 4023 with nickel bronze top.
- D. Wall Cleanouts (finished areas): 4472 with stainless steel wall plates.
- E. Grade Cleanouts: 4243, cast iron body, same size as lined served. Set flush in finish pavement or 18" square X 4" thick concrete anchor pad, flush with grade.

#### 2.11 SLEEVES AND WALL PLATES

- A. Service Pipe Through Exterior Walls and Ceilings: Water-tight cast iron caulking sleeves, Smith 1720 or equal.
- B. Pipe Through Interior Walls and Ceilings: Provide with wall and ceiling plates, Crane Style BC or equal. Plates in finished rooms shall be chrome plated.
- C. Pipe Under or Through Footings: 18 gauge iron sleeves, cast in concrete, two diameters larger than the pipe and the annular space filled with mastic or plastic bituminous cement or LINK-SEAL.

#### 2.12 ACCESS DOORS

- A. Provide, where required, for valves and other concealed equipment, complete with frames. Coordinate with Architect.

#### 2.13 PLUMBING FIXTURES

- A. Plumbing fixtures shall be complete with all accessories required for a complete installation. Fixture and trim numbers indicated represent a type and quality only. Substitution of equal or greater quality may be permitted in accordance with the requirements of the general conditions and as approved by the Architect. All plumbing shall be compliant with CA AB 1953.
- B. Selection of faucets and fittings shall avoid the type with potential for lead contamination.
- C. Install chrome-plated escutcheons on all pipes through walls, ceilings or floor.
- D. Install stop valves on, hot and cold water supplies to each fixture.
- F. Make sink/lavatory trap and waste line adaptable to adjustment with only the replacement of the drain tailpipe. Tempered, hot and cold water supply tubes shall be configured so that their length may be changed without modifying the slip joints.

2.14 CONNECTION OF EQUIPMENT FURNISHED BY OTHERS

- A. Rough-in and connect equipment furnished under this Section. Furnish and install pipes, stops, traps, and all other items required where not supplied with unit.

2.15 FLASHING

- A. All pipes passing through the roof shall be flashed and counter flashed with 22 gauge sheet metal. Flashing shall extend a minimum of 8 inches around the base and counter flashing shall be made watertight.
- B. Comply with additional requirements of Section 07 60 00, "Flashing and Sheet Metal".

2.16 PLUMBING ACCESSORIES

- A. General:
  - 1. Provide complete fixture assembly, including all trim and appurtenances for proper operation and neat, finished appearance. Procure all rough-in data from manufacturer and rough-in and connect to fixtures as required.
  - 2. Provide all fixtures with flow restrictors in accordance with Title 24 Energy Conservation Regulations. Provide CAC-T.24 certified fixtures only.
  - 3. Support properly and securely fasten fixtures to adequate backing per manufacturer's instructions.
- B. Submissions: Include brochure complete with description of all fixtures and trim.
- C. Trim:
  - 1. Exposed trim, including stops, tubing, traps, waste pieces, and escutcheons shall be polished chrome plated.
  - 2. Provide separate control stops compression fitting for each fixture.
- D. Carriers:
  - 1. J.R. Smith as specified, or Josam or Zurn.

2. Bolt chair carriers and rear foot lug to floor.
  3. Provide ¼" steel backing plates where required.
- E. Mounting Heights: Manufacturer's standard heights unless indicated otherwise. Comply with handicap requirements and architectural drawings.
- G. ADA Regulations:
1. Comply with the local, State and Federal ADA regulations.
- H. Fixture sealer: Provide white silicone sealer between fixtures and walls applied smooth and even.

#### 2.17 ESCUTCHEONS, FLASHING AND SLEEVES

- A. Escutcheons: Grinnell or Beaton-Corbin; polished chrome plated. Provide at all exposed piping penetrations of walls, floors and ceilings. Where piping is insulated provide Escutcheons to fit insulation outside diameter. Where piping requires special Escutcheons sizes, manufacture from stainless steel.
- B. Roof Flashing: Sheet lead or galvanized sheet metal flashing mop in with roofing material and turn lead down into stack.
- C. Sleeves:
1. Through Interior concrete walls and floors: "ADJUS-TO-CRETE" or equal.
  2. For insulated piping, sleeve diameter shall be less than diameter of insulation.
- D. Separate piping through walls, other than concrete walls, from contact with wall construction materials with non-hardening caulking.

#### 2.18 PIPING SPECIALTIES

- A. Test Plug: Peterson Engineering Company, Pete's Plug, No. 110 with brass body and Nordel valve core, suitable for 1,000 psig and 275-degrees F.
- B. Strainers:
1. C.M. Bailey No. 100A, Muller or Red-White 380-B (bronze) or 381 (cast iron).
  2. Bottom shouldered with gasket, inserted cap with tap for blown down, and removable screen.
- C. Hose Bibbs: Woodford, Acorn or approved equal. Operating key, screw driver stop, and vacuum breaker.
- D. Water Hammer (Shock) Arrestors: Sioux Chief, Zurn, J.R. Smith, Josam or equal.
- E. Cleanouts:
1. Zurn, J.R. Smith, Josam or equal.

#### 2.19 PIPE AND EQUIPMENT WRAPPING AND COATING

- A. Manville No. 22 primer adhesive.
- B. Manville V10-20, 20 mil thick polyvinyl tape.
- C. Standard X-Tru-Coat and Thermofit-25 mil extruded polyethylene.
- D. KoDDers Bitumastic 70-B enamel.

## 2.20 GAS-FIRED WATER HEATER

- A. 30 Gallon Tank Type Water Heater.
- B. Provide all accessories as called for on plans and schedule for a complete installation.
- C. Provide Unistrut wall mounted brackets.
- D. Connect new flue up thru roof with weather cap.
- E. AO Smith or approved equal

## PART 3 - EXECUTION

### 3.01 SERVICES

- A. Materials, methods and locations of service mains connecting the new construction to all new and existing services shall be in strict accordance with rules, regulations, codes and requirements of all agencies having jurisdiction over this installation. Check connections to existing work in order that the extension may be done as indicated on the drawings but before starting any other work. Locate and excavate all existing buried stubs to be connected to in this contract before excavation of trenches is started. Coordinate location of water and sewer connections with other trades.
  - 1. Sanitary Sewer: Connect to the on-site sewer connection points as shown on civil engineering drawings.
  - 2. Gas Service: Connect to on-site gas connection as shown on Civil drawings. Provide a lubricated gas shut off cock at each service. (IF APPLICABLE)
  - 3. Water Service: Connect to the on-site domestic water main connection points as shown on civil engineering drawings.

### 3.02 PLUMBING FIXTURES

- A. Contractor shall install all plumbing fixtures and trim as shown on the architectural plans and as herein specified. Rough-in for all fixtures shall be exactly to measurements furnished by fixture manufacturer. All exposed parts to be chromium plated unless specified otherwise.
- B. Caulk airtight all plumbing penetrations in sound rated walls and floor/ceilings. Seal penetrations of concrete floors with cement grout. Minimize penetrations through sound rated construction.
- C. Keep rough-in cuts within the plate lines and do not cut completely through plates in sound-rated walls. Drill or saw neat round holes for all piping. Size approximately ½ inch larger than the pipe diameter.

- D. Provide aeration devices on all lavatories and sink faucets.

### 3.03 PIPING INSTALLATION

- A. Pipe lines shall be installed free from traps and air pockets and true to line and grade with suitable supports properly spaced. Piping shall be installed without undue stresses and with provision for expansion and contractions.
  - 1. Vertical lines shall be braced and supported at every floor level.
  - 2. Horizontal lines shall have hangers or supports spaced as follows:
    - a. Cast iron pipe - 5' centers
    - b. Steel pipe - 10' centers
    - c. Cooper tubing - 5' centers for 1-1/2" and smaller, 10' centers for 2" and larger.
  - 3. Below-Grade Piping: Support on a firm bed for the entire length. Minimum depth of cover shall be 2'0" unless noted otherwise.
- B. Piping shall be new and free from foreign substances. Ream out all burrs formed in cutting pipe. Threads shall be cut accurately and not over two threads shall show beyond the fitting. Friction wrenches shall be used with plated polished, or soft metal piping.
- C. Changes in pipe size shall be made with reducing fittings, and bushing will not be permitted.
- D. Union connection shall be installed downstream of all valves, at all equipment connections and at other points as required.
- E. Valves shall be accessible and shall not be installed with stems below horizontal plane. Exterior valves shall be provided with cast iron or concrete valve boxes with identification permanently marked on cover.
- F. Cutting or boring of holes through joists or structural members shall be done only when it is impossible to route piping in another manner. If cutting or boring is necessary it shall be accomplished only by written approval from the Architect.
- G. Exposed pipe passing through walls, floors and ceilings shall be fitted with wall plates securely held in position and large enough to cover opening around pipe. Plates in exposed areas shall be chromium plated. Pipe passing through concrete or masonry shall be provided with pip sleeves.
- H. Provide access doors for all concealed valves and Cleanouts.
- I. Insulate trap, cold, hot and tempered water supply trim on all lavatories with protective devices by TrueBro.
- J. All domestic water piping systems and all waste and drain piping must be vibration isolated from the structure.
- K. Water supply lines 1 inch or less in diameter should be isolated from the structure using the entire system of Acousto-Plumb isolators as manufactured by Specialty Products Company. All other supply lines and all drain and waste lines should be isolated using ½ inch thick felt pads or rubber sleeves isolation hanger by Stonemane. Use ½ inch thick 40-durometer neoprene waffle pads under all riser clamps (e.g., Mason Industries).

- L. Do not allow the piping, valves or connectors to form a rigid connection with the structure or other pipes.
- M. Provide Josam "Absorbotron" or equal water hammer arrestors in supply lines connected to fixtures.
- N. Install piping to allow for expansion and contraction without stressing pipe, joints or connected equipment.
- O. All valves installed by this section shall be of the same manufacturer. Valves, strainers cocks, etc., shall be the same size as the pipes in which they are installed, unless otherwise indicated.
- P. Vent all traps and run separately or combine to a point 1-foot above the roof and leave open. Fixture vents may be connected to the main vent at a point 1-foot above the highest fixture and not less than 3'-6" above the floor. While work is in progress, plug or cap all openings in plumbing work. Provide sound control on all water piping not installed in the ground. Install dielectric couplings whenever a non-ferrous pipe connects to a ferrous pipe or piece of equipment.
- Q. Floor drain located in the bathroom shall have hose bibs within the space in lieu of trap primer valve.

#### 3.04 DRAINAGE, WASTE AND VENT PIPING

- A. Interior drainage, waste, and vent lines shall be installed to a uniform grade of 1/4" per foot minimum. Vent piping shall be graded so that all condensation shall flow directly to a drainage or waste lines.
- B. Exterior soil and waste lines shall be installed to inverts or grades to suit field conditions and to ensure not less than 2 feet of cover.
- C. Test tee with clean out plugs shall be installed at the foot of waste stacks.

#### 3.05 DOMESTIC COLD WATER SYSTEMS

- A. Di-electric unions shall be installed where copper pipe is connected to galvanized steel piping or stubs.
- B. Connections from copper pipe to fixture supply fittings shall be made with copper or brass pipe nipples.

#### 3.06 EXCAVATION AND BACKFILL

- A. Provide all excavations and backfill necessary for this installation. Restore existing concrete and paved surfaces damaged or cut due to plumbing work. Such work shall be acceptable to the Architect and local authorities.
- B. Excavate trenches for pipe lines to required depth, tamp bottoms hard and grade to the required slope. Excavate holes for bells to permit pipe to rest on solid ground.

#### 3.07 STERILIZATION OF WATER PIPING

- A. The domestic water supply and distribution system within the building shall be sterilized with chlorine in solution in accordance with American Water Works Association Publication 1992.
- B. Open and close all valves several times during the period, the flush out the system until the

residual chlorine content is not greater than 0.2 PPM.

- C. All work and certification of performance shall be done by approved applicators or qualified personnel with chemical and laboratory experience. Submit a certificate of sterilization.

3.08 TEST

- A. Pressure test entire hot and cold piping and drainage system from capped connections, to and including vents above roof.

- 1. Furnish the necessary materials, test pumps, gauges and labor required for testing.
- 2. System shall be tested in accordance with the following schedule without pressure loss not visible leaks within four (4) hours duration:

<u>System Tested</u>	<u>Tested Pressure PSIG</u>	<u>Test With</u>
Sanitary Sewer, Drain and Vent	Fill to 10 ft. head	Water
Cold	150% of line pressure	Water

- 3. Any test valves shall be removed at no cost to the Owner. No test valves shall be left or any water or other lines in walls and covered.

3.09 OPERATION

- A. After completion, operate the different systems and equipment under their normal working conditions.
- B. Should any piece of apparatus or any material or work fail in any of these test, immediately remove and replace with new materials and test the portion of the work replaced.

3.10.1 GUARANTEE

- A. Guarantee all materials, equipment, apparatus and workmanship to be free of defective materials and faulty workmanship for period of one (1) year after completion of the work.
- B. Provide new materials, equipment, apparatus and labor to replace that determined by Architect to be defective or faulty.
- C: This guarantee also applies to services including instructions, Adjusting, Testing, Noise, Balancing, etc.

END OF SECTION

---

**SECTION 23 00 00**

**BASIC MECHANICAL REQUIREMENT**

---

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. The General Conditions, Supplementary General Conditions, and Division 1 - General Conditions are hereby made a part of this Section as fully as if repeated herein.

1.02 SCOPE

- A. The work under this Section includes all labor and material necessary for the installation of complete and satisfactory operable systems of heating, ventilating and plumbing including work shown on the drawings and/or described by this Section of the Specifications. In general, the work includes but it is not limited to the following:
1. Gas-Fired Wall Furnace and Water Heater
  2. Flashing and counterflashing of all roof and wall penetrations.
  3. Supports and foundations for all equipment furnished under this Section.
  4. Coordination of Mechanical Work with that of other connecting or adjoining trades in order that their work properly relates with all Mechanical Work, including openings in structural beams.
  5. Permanent identification of all piping and equipment installed under this section.
  6. Domestic water system from point of connection to existing piping to all plumbing fixtures and equipment requiring cold water.
  7. Sanitary drains, waste and vent system and building sewers to point of connect to existing underground sewer.
  8. Trenching and backfilling for plumbing work.
  9. Rough-in for and connections to equipment furnished under this and other sections.
  10. Cold water piping systems.
  11. Plumbing fixtures with trim, traps and supports.
  12. Identification of all piping with direction of flow.
  13. Identification of all valves with function and direction.
  14. Acoustical and noise control measures for plumbing and drain systems.
  15. Thorough cleaning of all plumbing fixtures and drains; removal of all debris.
  16. Supports and foundations for all equipment furnished under this Section.

17. Thorough cleaning of all plumbing fixtures and drains; removal of all debris.
18. Provide "As-Built" drawings as herein before specified.
19. Testing of equipment and systems.
20. All insurance, fees and taxes required and applicable.

B. Work Not Included: Related work under other headings includes, but is not limited to the following:

1. Line voltage power wiring for materials and equipment installed under this Section.
2. Furnish installation of access panels in finished walls and ceilings.

#### 1.03 RULES AND REGULATIONS

- A. All work and material shall be in strict accordance with the requirements of the latest 2022 California Building Code, California Plumbing Code, California Mechanical Code, California Fire Code, National Electrical Code, the California Energy Conservation Standard, the National Fire Protection Association, South San Francisco Unified School District Standards, and any applicable State laws or regulations of local utility companies. Nothing in the plans or specifications shall be construed to permit work not conforming to these rules and regulations.
- B. Should there be any direct conflict between the drawings and/or specifications and the above rules and regulations, the rules and regulations shall take precedence. However, when the indicated material, workmanship, arrangement or construction is of superior quality or capacity to that required by the above rules and regulations, the drawings and/or specifications shall take precedence. Rulings and interpretations of enforcing agencies shall be considered a part of the regulations.
- C. All electrical materials shall bear the label of or be listed by the U.L. unless the material is of a type for which label or listing service is not provided.
- D. No extra charge will be paid furnishing items required by the regulation, but not specified or shown on the drawings.

#### 1.04 ENERGY CONSERVATION COMPLIANCE

- A. All work shall comply with Title 20, Ch. 2, Sub Ch. 4, Article 1, Energy Building Regulation, and California Code of Regulations Title 24, Part 2, Ch. 2-53.
- B. Reference is specifically made to the following paragraphs:
  1. **Equipment Maintenance:** The standards require that the equipment furnished under this Division be provided with a permanent label affixed to the equipment, which will either clearly indicate the routine maintenance actions which must be performed to maintain the equipment in efficient operating condition or indicate by number which maintenance or operational manuals explain the maintenance requirements in greater detail.
  2. **Responsibility of Equipment Suppliers:** Suppliers of equipment shall furnish upon request by prospective purchasers, designers or contractors, the full and partial capacity and standby input(s) and output(s) of all equipment and components of applied systems, based on equipment in new condition, to enable determination of their compliance with

these standards. This includes performance data under modes of operation and ambient conditions necessary to make the analysis outlined in these standards.

- a. Performance data furnished by the equipment supplier or certification under a nationally recognized certification program, when available, satisfies this requirement when all energy input(s), output(s) and operating modes are included.

- C. Equipment: All equipment shall have been certified to the California Energy Commission by the manufacturer to comply with the efficiency standards for such appliances per 2-5314.,

#### 1.05 EXAMINATION OF SITE

- A. Examine the site compare with the drawings and specifications, and determine the conditions under which the work will be performed. Examine and be responsible for all conditions which affect the work. No allowance will subsequently be made for extra expense due to failure to make such an examination, or due to failure to discover conditions which affect this work.

#### 1.06 MATERIAL AND SUBSTITUTIONS

- A. Brand or trade names are used to establish minimum standards of quality and performance only. Products of other manufacturers may be substituted only with written approval of the Owner. Substitute products shall have performance and material characteristics equal to or greater than those specified and/or scheduled.
- B. Approval of a substitution does not authorize any deviation from the utility, size or function of the specified item, unless specifically pointed out and approval requested in the letter of submittal. Responsibility for conflicts due to space limitations is not relieved by approval of a substitution. If revision of wiring, piping, or arrangement of other equipment is required because of a substitution, such revisions shall be accomplished at no charge in Contract cost. Submit shop drawings of all revisions to the Architect/Owner for approval.
- C. Unless otherwise shown or specified, all material shall be new, full weight, standard, of the best quality of its kind, and satisfactory to the Architect.

#### 1.07 CUTTING AND REPAIRING

- A. All cutting, repairing and patching of ceiling and roof necessary for the installation of the work shall be included in the work specified under this section and paid for by this Contractor. No cutting shall be done except with the Owner's approval. Reimbursed other contractor for any damage done to their work due to careless cutting, leaks or overflow during construction.

#### 1.08 FURRED SPACES

- A. Spaces provided in the design of the building shall be utilized and the work shall be kept within the furring lines established on the architectural drawings.
- B. Provide all necessary sleeves, chases and openings required where ducts pass through roofs or walls.
- C. Should additional openings or spaces be found necessary during construction, the Architect/Owner shall be notified in time to prevent unnecessary cutting or furring.

#### 1.09 COORDINATION AND PROJECT CONDITIONS

- A. The plans shall be regarded as diagrammatic, establishing general requirements of the work. Exact locations, distances, levels, etc., will be governed by the building. Preparation of such shop drawings as may be necessary shall be included as part of the work and such drawings shall be submitted to the Architect/Owner for approval. All dimensions and locations of doors, partitions, etc., shall be taken from the Architectural plans, but shall be verified at the work.
- B. The Architectural and Mechanical Drawings accompanying these specifications and forming a part of this Contract are enumerated under the Architect's Schedule of Drawings. This Contractor shall verify these drawings against the structural, plumbing and electrical drawings. If any discrepancies are not reported, the Contractor shall perform all work as instructed by the Architect/Owner at no change in Contract cost.
- C. Install all equipment and material with working parts readily accessible for inspection, repair and/or replacement. The right is reserved to make reasonable changes in locations of equipment shown on the drawings prior to roughing-in with no change in Contract cost.
- D. Remove and replace as directed by the Architect/Owner all work installed without proper cooperation and coordination with other crafts.

#### 1.10 MANUFACTURER'S DIRECTIONS

- A. Follow manufacturer's directions and installation diagrams where these directions and/or diagrams cover points not included on the drawings or in the specifications.

#### 1.11 DAMAGE

- A. Repair any damage to the building, premises and/or equipment occasioned by work under this section.

#### 1.12 COMPLETE WORKING INSTALLATION

- A. The drawings and specifications do not undertake to list every item that will be installed. When an item is necessary for the satisfactory operation of the equipment or is required by the equipment manufacturer, law, ordinance or rule, furnish without change in Contract cost.
- B. Work called for in the specifications but not on the plans, or vice versa, shall be done as though required by both. Lack of specific mention of any work necessary for proper completion of the job in the specifications and/or plans shall not lessen the Contractor's responsibility or entail any change in Contract cost.

#### 1.13 AS-BUILT DRAWINGS

- A. Keep up-to-date a complete "as-built" record set of blueline prints, corrected daily, showing every change from original drawings and specification, exact "as-build" locations, sizes and kind of equipment.
- B. Upon project completion, transfer "as-build" information to a reproducible copy of Contract Drawings on 5-mil matte mylar, which may be obtained from the Architect at cost. Indicate all changed conditions by drawing a "cloud" around the added information; add date and name of subcontractor. Furnish these revised drawings to the Owner in accordance with Section 01700 PROJECT CLOSEOUT.

#### 1.14 PERMITS, FEES AND INSPECTIONS

- A. See supplementary conditions for payment of all permits, inspections fees and utility company

charges.

1.15 SUBMITTALS (SHOP DRAWINGS)

- A. All HVAC equipment.
- B. Registers and grilles.
- C. Plumbing fixtures, trim, drains and appurtenances.
- D. Floor drains.
- E. Ductwork
- F. Piping and pipe insulation.

1.16 SERVICE MANUALS

- A. Service manuals shall include complete list of replacement parts, complete oiling, cleaning, servicing data and operating instructions, compiled in a clear easily understood form, in a durable binder. Show all serial numbers of every piece of equipment. Submit one (1) set to Owner for review and approval. Add information or amend when so directed.

1.17 RELATED WORK PERFORMED UNDER THIS SECTION

A. Trenching and Backfilling:

- 1. Provide excavation and backfilling including sheathing, shoring and pumping required for the installation of the work. Such sheathing and shoring shall be done as may be necessary for the protection of the work and for the safety of personnel and conformance with State Industrial Safety Orders and all other codes, ordinances, laws and regulations pertaining to the safety of workmen.
- 2. Provide excavation, trenching and backfilling in conformance with Section 31 20 00 EARTHWORK, of these specifications, and the Soils Report.
- 3. During excavation, materials suitable for backfilling shall be piled in an orderly manner at a sufficient distance from the trench to avoid damage to the trench. All trench and excavation spoils must be collected, loaded and disposed of offsite. The cost of such work must be included as part of this work.
- 4. Trenches shall not be backfilled until piping has been tested, inspected and approved.

B. Caulking and sealing:

- 1. Seal exterior and below grade building penetrations related to work under this section as required, against entry of water into interior or concealed spaces of structures.
- 2. Coordinate with acoustic caulking work specified in Section 07 90 00, JOINT SEALING.
- 3. Include grouting as required for work under this section, except where integral with structural concrete. Work and materials shall conform to Concrete Section.

C. Welding and Welders:

- 1. Include welding as required for fabrication and installation of work under this section; welding, welding procedures and qualifications of welders for structural welding shall conform to Structural Steel and Miscellaneous Metals Section.

D. Securing of mechanical items:

1. Include all materials necessary for supports required for equipment in these specifications. Securely bolt all fixtures, bathroom accessories, piping, motors, furnaces, fans, etc., to their supports.
2. Provide acoustic isolation as required.

#### 1.18 GUARANTEE

- A. Guarantee all materials, equipment and installation to be free from all defects of workmanship and material, and replace at any time within one (1) year after installation is accepted by Owner, and all defective parts that may be found.

### PART 2 - PRODUCTS

#### 2.01 MATERIALS AND EQUIPMENT

- A. Latest design of each respective manufacturer, first quality, free from blemishes or defects.

#### 2.02 MATERIALS AND STANDARDS

- A. Code requirements: All work to be in full accordance with applicable requirements with all applicable federal, state and city laws, ordinances and codes.
- B. Electrical materials: Conform to the requirements of latest approved standards of NEMA, AIEE, and IEEE, and to be listed by U.L. and so labeled.
- C. Mechanical materials: Conform to requirements of latest approved standards of ASME and ANSI.
- D. Base materials: Conform to ASTM and ANSI.

#### 2.03 CONNECTIONS

- A. Connections between copper tubing and steel piping, UPC approved dielectric unions.

#### 2.04 PIPE HANGERS

- A. Clevis, split ring of J-type for individual pipes. Maintain a minimum of 12" clearance between hot water and cold water lines. Plumbers tape hangers and straps are acceptable except in parking garage. Install friction clamp pipe supports at floor penetrations. There shall be not direct contact between pipes and hanger straps or building construction for uninsulated pipe at points of contact, pipes shall be separated by not less than 1/2" thickness of hair felt. For insulated pipe, pipe hangers shall be outside of the pipe insulation. Two or more pipes shall be supported on trapeze hangers, superstrut channels or equal, with pipe clamps. Support trapeze with 1/2" hanger rods and concrete inserts.

#### 2.05 FLASHING

- A. Pipes: Provide lead pipe flashing on pipes passing through roof; completely weatherproof, in accordance with requirements described in Section 07 60 00 FLASHING AND SHEET METAL, and the recommendation of the roof manufacturer.

2.06 MANUFACTURER'S IDENTIFICATION

- A. Manufacturer's nameplate, name or trademark shall be permanently affixed to all equipment and material furnished under this specification. The nameplate of Subcontractor or Distributor are not acceptable.
- B. Identify model number, size, capacity, electrical characteristics, serial number, etc.
- C. Leave nameplates clean, legible and with unobstructed view.

2.07 PIPE IDENTIFICATION

- A. Identify with symbol identification and color-code all piping. Provide directional arrows on circulating systems separate from and adjacent to each identification. Identification in conformance with ANSI.1 Scheme of Identification of Piping Systems (OSHA).
- B. Submit one 8-1/2 inch by 11 inch sample of each color for review prior to installation.
- C. Plastic Markers: Brady Perma-Code or Setmark Type "SNA" self-adhesive markers. Each marker must show accepted color-coded background, proper color of legend in relation to background color, accepted legend letter size, accepted marker length.
  - 1) 2 inch letter size for pipe or insulation 3 inches or larger. 1 inch letter size for pipe or insulation 2-1/2 inches or smaller.
- D. Underground Plastic Pipe Markers: Bright colored continuously printed plastic ribbon tape, minimum 6 inches wide by 4 mil thick, manufactured for direct burial service.

E. Color Coding:

Service	A.S.A. Color Background	Color Of Letter
Domestic Cold Water	Green	Black
Electric Conduit	Gray	Black
Fire Alarm Conduit	Red	White
Fire Protection Water	Red	White
Sanitary Sewer	Green	Black
Sanitary Sewer Vent	Green	Black
Rainwater Leaders	Green	Black
Storm Sewer	Green	Black

2.08 Valve identification

- A. Attach to handwheel or stem of each control and line shutoff valve installed under this Division, with heavy brass "S" hook, color-coded plastic laminate or brass identification tag. Engrave laminate tags with 1 inch high designating numbers, in accordance with typed schedule showing valve sizes, locations, service, similar to following form:

DCW - 1-1/2 inches  
 Shutoff, Office Toilets  
 First Floor  
 Column J-4

- B. Engrave identification tags with "normally open" (green) or "normally closed" (red).

- C. Brass tags with stamped letters. Tag size minimum 1-1/2 inch diameter or square with smooth corners.
- D. Identify all fire service valves with above specified tags with "FIRE MAIN - DO NOT CLOSE" with white letters on red background.

## 2.09 DUCTWORK IDENTIFICATION

- A. Duct markers shall be stenciled onto insulation of duct with legend and flow arrow. Letters shall be 2 inches high.

## PART 3 - EXECUTION

### 3.01 SERVICING

- A. For all equipment installed, a manufacturer's representative and adequate maintenance facilities in the Bay Area is required to insure prompt servicing by the Subcontractor.

### 3.02 LOCATION

- A. Equipment, fitting, etc., shall be arranged, located or positioned for maintenance or inspection without undue inconvenience. Where concealed, provide access panels of appropriate size and type.

### 3.03 PROTECTION

- A. During construction and until Owner acceptance of work, protect work from damage; replace any broken, damaged or otherwise defective material.
- B. Completely cover up to keep dirt and water from equipment during construction. Effectively cap all openings into ducts and pipes to keep foreign matter out while under construction.

### 3.04 CLEANING

- A. At all times keep premises free from accumulation of waste materials or rubbish caused by employees or work. At completion of work, remove all super fluous materials, equipment and debris resulting from the work done under this Division.
- B. Thoroughly clean fans, motors, etc., furnished under this Division, free from all rust, scale and all other dirt before any covering or painting is done. Lubricate equipment before start-up and before final acceptance of work. Furnish a lubrication schedule for all equipment. Upon completing work, clean all equipment.
- C. Clean ductwork before grilles are installed and before the blowers are operated.
- D. Domestic water piping: Thoroughly flush with domestic water to remove all debris.
- E. All piping systems: After piping systems are tested and proven tight, clean systems free from dirt, scale, waste and other foreign substances.

### 3.05 TESTS AND INSPECTIONS

- A. Pipelines shall be completed and all permanent pipe fittings installed before final tests.
- B. Work shall not be covered up or enclosed until it has been inspected, tested and approved by the

plumbing inspector and other governmental authorities having jurisdiction. Should any of his work be enclosed before such inspection and tests, the Contractor shall uncover the work, and, after it has been tested, inspected and approved, restore his work and that of other Contractors to its original condition at no expense to the Owner.

1. All water piping shall be hydrostatically tested and proven tight at a pressure of 150 psi.
  2. All drainage system and gas piping shall be tested as set forth in the local plumbing and gas piping ordinance.
  3. All test pressures shall be held for not less than two hours without additional pumping.
  4. Faucet stops, etc., shall be adjusted to their normal working condition.
  5. The Contractor shall furnish all labor and materials required for making the tests.
- C. HVAC Equipment and controls shall be adjusted and tested for normal operating conditions. Temperature control system shall be adjusted to maintain a temperature of  $\pm$  degree either side of the set point.
- D. After system and controls are adjusted to this operating condition, notify the Owner: and when directed, operate the system for one day of 24 hours to demonstrate acceptability. Furnish all necessary labor and materials to operate the system.
- E. Should any part of the system or any materials or workmanship fail this test, it shall be rectified, and the system made ready for a new test and inspection. The Owner shall be notified that a new inspection will be called for. The cost of rectifying the defective work and/or materials, and the second test and inspection shall be borne by the Contractor, as shall be the cost of any further tests and inspections, if required.
- 3.06 MAINTENANCE
- A. Contractor shall include in his bid all maintenance service for system he has installed for a period of one (1) year after date of acceptance. Service shall include all lubrication and adjustments. Filters shall be changed every 90 days. A clean set of filters shall be provided upon date of final acceptance.
- 3.07 SUPERVISION
- A. Keep experienced superintendent constantly in charge of work, together with all necessary personnel required.

END OF SECTION

---

**SECTION 23 30 00**

**HVAC**

---

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. Requirements of General Conditions, Supplementary General Conditions, Section "General Conditions", and Electrical, Division 26, shall apply to the work of this section the same as if set forth in full herein.

1.02 SCOPE OF WORK

- A. Work included: The work under this section includes all labor and material necessary for the installation of complete and satisfactory operable systems of heating, ventilating and air conditioning, including work shown on the drawings and/or described by this section of the specifications. In general, the work includes but is not limited to the following:
  - 1. Gas-Fired Wall Furnace
  - 2. Flashing and counterflashing of all roof and wall penetrations
  - 3. Supports and foundations for all equipment furnished under this Section
  - 4. Coordination of HVAC work with that of other connecting or adjoining trades in order that their work properly relates, including openings in structural beams.
  - 5. Complete sound attenuation equipment, including equipment vibration isolation and anchoring systems.
  - 6. Coordination of HVAC work with that of other connecting or adjoining trades in order that their work properly relates, including openings in structural beams.
  - 7. Permanent identification of all equipment installed under this Section.
  - 8. Provide "As-build" drawings as herein before specified.
  - 9. Furnish, install and connect all temperature control and interlock wiring for mechanical equipment for all voltages.
  - 10. All insurance, fees, and taxes required and applicable.
- B. Work not included: Related work under other headings includes, but is not limited to the following:
  - 1. Wall Louvers: See Section 07 60 00, Flashing and Sheet Metal.
  - 2. Line voltage power wiring for materials and equipment installed under this Section.
  - 3. Installation of access panels in finished walls and ceilings.
  - 4. Painting of exposed piping and ductwork.

1.03 RULES AND REGULATIONS

- A. All work and material shall be instruct accordance with the requirement of the latest 2022 California Building Code, California Plumbing Code, California Mechanical Code, national Electrical Code, the California Energy Conservation Standard, the National Fire Protection Associates, South San Francisco Unified School District Standards, and any applicable State laws or regulations of local utility companies. Nothing in the plans or specifications shall be construed to permit work not conforming to these rules and regulations.
- B. Should there be any direct conflict between the drawings and/or specifications and the above rules and regulations, the rules and regulations shall take precedence. However, when the indicated material, workmanship, arrangement or construction is of a superior quality or capacity to that required by the above rules and regulations, the drawings and/or specifications shall take precedence. Rulings and interpretation of enforcing agency shall be considered a part of the regulations.

1.04 FEES AND PERMITS

Procure and pay for all permits and licenses required.

1.05 FRAMING, CUTTING AND PATCHING

Special framing, recesses, chases, and backing for work of this sections, unless otherwise specified, is covered under other sections. Be responsible for proper placement of all pipe sleeves, hangers, and supports and location of openings for work of this section.

1.06 RECORD DRAWINGS

Upon completion of the work, and as a precedent to final payments, the subcontractor shall deliver to the Director of Construction, originals of all drawings showing the work exactly as installed.

PART 2 - PRODUCTS

2.01 GENERAL

The Heating and Ventilation system shall be installed to suite the project space in accordance to ASHRAE standards and in compliance to all code requirements. All material and equipment shall be U.L. Listed, CEC approved, and in accordance with approved submittals. Materials and equipment shall be new, unused and clearly marked with manufacturer's stamp and rating.

2.02 GAS-FIRED WALL FURNACE

- A. Direct vent, wall mounted, high efficiency wall furnace.
- B. Complete with all accessories as called for on plans and equipment schedule.
- C. Cozy, Williams, or approved equal.

PART 3 - EXECUTION

3.01 SEISMIC REQUIREMENTS

- A. All HVAC equipment and machinery shall be anchored to withstand forces generated by earthquake motions. As a minimum, equipment and equipment frames shall be designed to

withstand a force of 100% of the weight of the equipment and frame acting as its center of gravity. Anchorage of the equipment and/or frame to the structure shall be for a force of 100% gravity also acting at the center of gravity.

- B. Piping and ductwork shall be seismically braced per SMACNA manual "Seismic Restraints of Mechanical System and Piping System".
- C. For substituted equipment all seismic calculations shall be the responsibility of the contractor.

### 3.02 PROTECTION OF WORK

- A. Until final acceptance of the work, the HVAC contractor shall protect all materials from damage, from any cause whatsoever, and shall provide adequate and proper storage facilities. He shall replace all damaged or defective work, materials, and equipment before requesting final acceptance. Duct access panels and damper adjustment locations which impact ceiling or millwork areas must be pre-approved by Architects.
- B. The HVAC contractor shall not allow or cause any of his work to be covered up or enclosed until it has been inspected and tested by an Engineer or governmental agency having jurisdiction over the work.
- C. Should any of the work be enclosed or covered up prior to inspection and testing, the HVAC contractor shall at his own expense uncover the work, and after it has been tested, inspected, and approved, make all repairs with such materials as may be necessary to restore all work disturbed by him to its original and proper condition. This work shall be coordinated with the general contractor.
- D. The HVAC contractor shall be responsible for damage to work of other Sections caused by leaks in temporary or permanent piping systems caused by disconnected pipes or fittings, overflows of equipment or by improper installation.

### 3.03 PAINTING

- A. Touch up all scratches, etc., on factory finished items. Paint black any duct or damper visible behind air outlets, including return air openings.
- B. Refer to other sections for painting requirements.

### 3.04 MAINTENANCE AND GUARANTEE

In addition to GENERAL CONDITIONS, the following shall be provided:

- A. The HVAC contractor, by accepting these specifications and by signing the Sub-contract, shall guarantee the following:
  - 1. All equipment, material, and workmanship against all defects in material and workmanship for a period of one (1) year from substantial completion of the project. The HVAC contractor shall furnish written guarantee to replace all defective work and materials furnished under this Section at no cost to the Owner for this one (1) year period.
  - 2. That all equipment and material will produce the results specified.
- B. The Owner reserves the right to make temporary repairs as necessary to keep equipment in operating condition without voiding the guarantees or relieving responsibility during the

**MHC ENGINEERS**  
150 8<sup>th</sup> Street  
San Francisco, CA 94103  
415.512.7141

**Temporary Meal Support Space**  
**District Warehouse**  
**SSFUSD PROJECT NO.032-926**  
**SOUTH SAN FRANCISCO UNIFIED SCHOOL DISTRICT**

guarantee period.

- C. Provide, at no cost to Owner, complete service and maintenance for systems installed for a period of 365 calendar days from date of substantial completion of the project of systems by Owner including all labor, materials, parts, etc.

END OF SECTION

---

**SECTION 32 12 16**

**ASPHALT PAVING AND SURFACING**

---

PART 1 – GENERAL

1.1 SUMMARY

- A. This section describes general requirements, products, and methods of execution relating to on-site crack fill & slurry surfacing. Any work within the Public right-of-way shall be done to the standards of the local City or County or the State of California Department of Transportation. Paving and surfacing includes but is not limited to:

1. Liquid Asphalt and Asphalt Emulsion.

1.2 REFERENCES

- A. California Department of Transportation (CalTrans):

1. Standard Specifications:
  - a. Section 37 Bituminous Seals.
  - b. Section 93 Liquid Asphalts.
  - c. Section 94 Asphaltic Emulsions.
2. Traffic Manual.
3. Highway Design.

- B. Institute of Transportation Engineers: Transportation and Traffic Engineering Handbook.

1.3 SUBMITTALS

- A. Requirements: Refer to Section 01 33 00 – Submittals.

- B. Product Data:

1. Liquid Asphalt.

1.4 PROJECT CONDITIONS

- A. Liquid Asphalt and Asphalt Emulsion:

1. Prime coat, seal coat, and paint binder shall be applied only when the ambient temperature is above 50° Fahrenheit and when temperature has not been below 35° Fahrenheit for 12 hours immediately prior to application.
2. Prime coat, fog coat, seal coat, and paint binder shall not be applied when base or surfaces are wet or contain excess moisture.

## PART 2 - PRODUCTS

### 2.1 PAVING MATERIALS

#### A. Crack Sealant:

1. Crack sealant: Rubberized hot-pour type and shall meet ASTM D 3405, Husky 1611 or approved equivalent.
2. Blotting Agent: One of: Screened sand, cement, or fly ash.

#### B. Tack coat: Meet Caltrans Section 39-4.02.

## PART 3 - EXECUTION

### 3.1 PREPARATION

#### A. Crack Sealing:

1. Before sealing, clear cracks of dirt, dust, and all other deleterious materials to a depth of 1/4-inch to 1/2-inch.
2. Seal cracks 1/8-inch in width and greater.
3. Apply crack sealer accordance with the manufacturer's recommendations unless otherwise directed.

### 3.2 ASPHALT CONCRETE SEAL

#### A. General:

1. Apply fog seal to all finished surfaces of asphalt concrete pavement at a rate of 0.05 gallons per square yard, in accordance with Section 37 of the CalTrans Standard Specifications.
2. After fog seal has been applied, allow ample time for drying before traffic is allowed on the pavement or paint striping is applied.

### 3.3 FIELD QUALITY CONTROL

#### A. Asphalt Base: The surface of finished aggregate base shall vary no more than 0.05 feet above or below the grade established as shown on the drawings.

#### B. Asphalt Concrete Paving:

1. The finished pavement, where not controlled by adjacent structures or features, shall not vary more than 0.05 feet above or below the planned grade, providing it is uniform and free of sharp breaks.
2. The cross section of the finished pavement shall be free of ridges and valleys and shall not vary more than 0.02 feet above or below the theoretical section at any point on the cross section.

PLUM ARCHITECTS  
870 Market Street, Suite 878  
San Francisco, CA 94102  
415.837.0900

**Temporary Meal Support Space  
District Warehouse  
SFFUSD PROJECT NO. 032-926  
SOUTH SAN FRANCISCO UNIFIED**

### 3.4 CLEANUP

#### A. General:

1. Surplus material remaining upon completion of paving operations shall become the property of the Contractor, to be removed from the work site and disposed of in a lawful manner.
2. Leave surfaces in a clean, neat, and workmanlike condition, and remove all construction waste, rubbish, and debris from the work site and dispose of in a lawful manner.

END OF SECTION

4/22/24