Henry Woo Architects, Inc.
1210 Brea Canyon Rd., Diamond Bar, CA 91789-3909 ph. (909) 594-8193 January 21, 2011

ADDENDUM NO. 1

Rowland Unified School District
Alvarado Intermediate School Partial Modernization
HWA Proj. No.108RSD13
DSA No. 03-112358

The following changes, omissions, and/or additions to the Specifications and/or drawings shall apply to proposals made for and to the execution of the various parts of the Work affected thereby, and all other conditions shall remain the same.

Careful note of Addendum shall be taken by all parties of interest so that the proper allowances may be made in strict accordance with the Addendum, and that all trades affected shall be fully advised in the performance of the Work which will be required of them.

In case of conflict between Drawings, Specifications, and this Addendum, this Addendum shall govern.

ADDM. ITEMS

GENERAL

1. Provide full height continuous air barrier between new furred walls and exterior brick masonry wall at following locations. See attached drawing AD1-A5, dated January 21, 2011

   a. North and West wall of Bldg. C-1, C-3, and C-5.
   b. North and East wall of Bldg. C-4 and C-6.
   c. All exterior walls of Bldg. K1-A

2. Provide rigid insulation (Model Foamular 250 as manufactured by Owens Corning, or accepted equal) between all furring studs on the interior side of exterior brick masonry wall.

3. Provide typical plaster patching as required at existing roof overhang finish impacted due to new work per attached drawing AD1-A2, dated January 21, 2011.

4. Contractor shall comply with all district provided hazardous material removal requirements.

5. Contractor shall remove all abandoned piping inside each room of each building being modernized.

6. Provide solid blocking where "C" stud furring occurs behind casework per attached drawing AD1-A4, dated January 21, 2011.

SPECIFICATIONS

SECTION 01010 - Summary of Work

7. REPLACE: This section in its entirety with attached section, dated January 21, 2011.

SECTION 03345 - Concrete Finishing

At Part 2, 2.01 Materials

8. ADD: "G. Provide and install above-slab moisture vapor barrier:

   1. "CS2000" manufactured by Creteseal, P.O. Box 18598, Anaheim, CA 92817 (800) 278-4273 or accepted equal."

SECTION 07100 - Sheet Membrane Waterproofing

9. DELETE: This section in its entirety.

SECTION 07271 - Self-Adhering Sheet Air Barriers

10. ADD: This section in its entirety with attached section, dated January 21, 2011.

SECTION 07273 - Fluid-Applied membrane Air Barriers

11. ADD: This section in its entirety with attached section, dated January 21, 2011.

SECTION 08520 - Aluminum Windows

At Part 2, 2.01 Materials

12. REVISE: Item B
TO READ: "B. Aluminum windows shall be fixed, heavy duty type as shown on plans. Windows shall be Series 5500 fixed as manufactured by Gerkin Windows and Doors, or Series 2000 fixed as manufactured by Torrance Aluminum, or accepted equal, unless noted otherwise."

SECTION 08710 - Finished Hardware

13. REPLACE: This section in its entirety with attached section, dated January 21, 2011.

SECTION 09100 - Lath and Plaster

At Part 2, 2.01 Materials

14. REVISE: Item L
TO READ: "L. Extruded Aluminum Channel Screed: PCS 75-100 as manufactured by Fry Reglet, or EXP 75-100 as manufactured by Flannery Inc., or accepted equal."

SECTION 09650 - Resilient Tile Flooring

At Part 2, 2.01 Materials, Item A

15. Color selection shall include both Imperial Texture Series and Multi-Color Series or in combination as directed by Architect and Owner.

SECTION 10001 - Miscellaneous Items

16. REPLACE: This section in its entirety with attached section, dated January 21, 2011.

SECTION 04810 - Unit Masonry Assemblies

At Part 2

17. ADD: "2.07 Cement based waterproofing coating

A. Material: Shall be a cement based, micro-porous coating used to fill, seal and waterproof masonry and concrete substrates above or below grade.

B. Products:
1. ThoroSeal T1018, Waterproof Cement-based Coating as manufactured by Thoro Consumer Produts, 866-518-7171 or approved equal.
2. Acryl 60, Acrylic polymer emulsion additive for cement based powders designed to improve adhesion, tensile, compressive and flexural strenths as manufactured by Thoro Consumer Products, 866-518-7171 or approved equal."

At Part 3

18. ADD: "3.06 Waterproofing

A. Surface preparation: All surfaces to be coated shall be clean and structurally sound. High pressure wash or sandblast surface to remove all foreign matter, dust, dirt, oils or other surface contaminants.

B. Mixing: Thoroseal powder shall be mixed with a power mixer using a solution consisting of ACRYL 60 diluted with water at a 1:2 ratio. Mix the material until a consistency of smooth, heavy batter is achieed. Allow material to rest for 10 minutes and then remix prior to applying.

C. Application: Thoroseal shall be applied using a tampico fiber brush over completely dampened substrate, filling all pores and voids. The first coat shall be applied at 2 lbs per square yard of surface. Allow first coat to cure a minimum of 24 hours before applying second coat. Apply lighter second coat over entire substrate at 1 lbs per square yard of surface."

SECTION 15050 - Basic Methods and Materials

At Part 2, 2.01

19. REVISE: Item C. 2
TO READ: "2. Piping:

a. Above ground: Seamless Type "L" hard drawn copper tubing, ASTM B-88.
b. I.P.S. brass nipples for rigid connections.
c. Below grade outside the buildings: Schedule 40 polyvinyl chloride 1120, plain end solvent socket fittings, bell end ASTM D-1785, NSF listed. 36" minimum cover required.
d. Exterior piping above grade: Type "K" hard drawn copper tubing, ASTM B-88.
e. Below grade from water meter to reduce pressure backflow preventor and pressure reducing valve: Type "K" hard drawn copper tubing ASTM B-88.

20. REVISE: Item E. 1
TO READ: "1. Sanitary soil, waste and vent piping.

a. Piping: In building above floor. Standard weight no-hub cast iron soil pipe conforming to CISPI specification 301 latest revision.
b. Fitting: Standard weight no-hub cast iron soil pipe conforming to CISPI specification 301 latest revision. With stainless steel bolts, bands and couplings within buildings.
c. Piping below floor slab and outside buildings: ASTM D 2661 Schedule 40 ABS, solvent weld fittings."
d. Vent piping within buildings 6" above floor slab shall be Schedule 40 galvanized steel, ASTM A-53 with black malleable iron, screwed, drainage pattern fittings."

SECTION 16111 - Conduit

At Part 2, 2.15

21. ADD: "B. Primer: Suitable for use prior to applying cement."

At Part 3, 3.02

22. REVISE: Item AA
TO READ: "AA. Stub from each panel which is flush mounted in a wall, from top of panel a minimum 3-3/4" conduits to nearest ceiling space or other accessible locations and cap for future use. Tag to indicate panel origination."

23. REVISE: Item KK
TO READ: "KK. Wipe plastic conduit (PVC) clean before joining. Apply an approved coat of primer. Apply even coat of cement to entire area to be inserted into fitting. Let join cure for 20 minutes minimum. Use approved solvent-weld cement specifically manufactured for purpose. Threading of PVC conduit is prohibited.

SECTION 16120 - Wire and Cable-Rated 600 Volt

At Part 2, 2.02

24. REVISE: Item B
TO READ: "B. Isolated circuit ground: Insulated conductor green in color with yellow stripe."

SECTION 16470 - Panelboards

At Part 2, 2.02

25. REVISE: Item F
TO READ: "F. Doors: Fastened to trims with substantial continuous flush hinges, flush spring catch latch and cylinder lock with two (2) keys for each door. All locks: Master keyed, Corbin Cat 60."

DRAWINGS

On SHEET T-1

At Graphic Symbols

26. REVISE:

XXX Room Use
XXX Bldg. Room Number
XXX Class Number

TO READ:

XXX Room Name
XXX Room Number
XXX School Room I.D. Number

27. REPLACE: The following sheets with attached Addendum No. 1 revision drawings, dated January 21, 2011: (9 Sheets total)

C-1.0 SITE GRADING AND DRAINAGE PLAN - AREA A
C-1.1 SITE GRADING AND DRAINAGE PLAN - AREA B
C-1.2 GRADING AND DRAINAGE ENLARGEMENT PLAN
C-1.3 GRADING AND DRAINAGE DETAILS
C-2.0 SITE CONSTRUCTION PLAN - AREA A
C-2.1 SITE CONSTRUCTION PLAN - AREA B
C-2.2 SITE CONSTRUCTION ENLARGEMENT PLAN
C-2.3 SITE CONSTRUCTION DETAILS
C-2.4 SITE CONSTRUCTION DETAILS

ARCHITECTURAL:

On SHEET A-4.0

At Det. 13, Typical Interior Trench Cover

28. REVISE: Key note "Trench Cover ... w/ recessed tile finish"
TO READ: "Trench cover w/ recessed floor finish. Provide factory standard stainless steel liner in trench"

On SHEET A-9.2

At Det. 12, Typical Soffit

29. Provide 2 layers of continuous ½" plywood backing behind gypsum wallboard at top of projection screen pocket, typical. Pocket dimensions shall remain as noted.

On SHEET A-9.4

At Det. 4, Typical Casework Anchorage - At Detail A

30. REVISE: Per attached drawing AD1-A3, dated January 21, 2011.

31. REPLACE: The following sheets with attached Addendum No. 1 revision drawings, dated January 21, 2011: (15 Sheets total)

A-0.1 SITE DEMOLITION PLAN - AREA A
A-0.2 SITE DEMOLITION PLAN - AREA B
A-1.0 SITE PLAN
A-2.0 DEMOLITION FLOOR PLANS - BLDG. C-1, C-2, C-3, AND C-4
A-2.1 REFLECTED CEILING DEMOLITION PLAN AND DEMOLITION FLOOR PLAN - BLDG. K1-A
A-2.2 FLOOR PLANS - BLDG. C-1, C-2, C-3, AND C-4
A-2.3 FLOOR PLAN - BLDG. K1-A AND ENLARGED FLOOR PLANS
A-2.4 DEMOLITION AND NEW FLOOR PLANS - BLDG. C-5 AND C-6
A-3.0 REFLECTED CEILING PLANS
A-5.0 EXTERIOR ELEVATIONS
A-7.0 INTERIOR ELEVATIONS - BLDG. C-2
A-7.1 INTERIOR ELEVATIONS - BLDG. K1-A
A-7.2 INTERIOR ELEVATIONS - BLDG. K1-A AND TYPICAL CLASSROOM
A-8.0 DOOR SCHEDULE, MATERIAL AND FINISH SCHEDULE, DOOR TYPES, WINDOW TYPES
A-9.1 TYPICAL DETAILS

STRUCTURAL:

On SHEET S-2.1

At Bldg. C-2 and K1-A Foundation Plan

32. REVISE: Detail reference for utility trench
TO READ: 13 / A-4.0

At Det. 4, Bldg. K1-A Foundation Plan

33. REVISE: Per attached drawing AD1-S1, dated January 21, 2011.

On SHEET S-3.1

At Det. 13, Partial Section

34. REVISE: Per attached drawing AD1-S3, dated January 21, 2011.

MECHANICAL:

On SHEET M-2.3

35. ADD: General Notes:
"1. After completion of all mechanical works, the contractor shall operate each mechanical unit to meet original manufacturer's operating standards. Contractor shall submit an air-balance and operating report for each unit."

On SHEET M-3.0

At Demolition Roof Plan, Bldg. K1-A

36. ADD: "Notes:
1. Contractor shall be responsible to protect and store all existing equipments to be salvaged by district."

At Construction Notes in Construction Roof Plan, Bldg. K1-A

37. REVISE: Key Note No. 17
TO READ: "17. Set fixed OSA for 480 CFM."

38. REPLACE: The following sheets with attached Addendum No. 1 revision drawings, dated January 21, 2011: (4 Sheets total)

M-1.0 SCHEDULE, LEGEND AND SITE PLAN
M-2.0 DEMOLITION & CONSTRUCTION FLOOR PLANS - BLDG. K1-A
M-2.2 CONSTRUCTION FLOOR PLANS - BLDG. C-1, C-2, C-3, & C-4
M-3.1 ROOF PLAN & CONTROLS - BLDG. K1-A & C-2

PLUMBING:

On SHEET P-2.1

At Demolition Notes

39. REVISE: Note No. 20
TO READ: "20. Remove existing 3/4" gas ... and all related piping inside each bldg."

40. REPLACE: The following sheets with attached Addendum No. 1 revision drawings, dated January 21, 2011: (6 Sheets total)

P-1.0 NOTE, DETAILS, SCHEDULE AND LEGEND
P-1.1 SITE PLAN
P-2.0 DEMOLITION & CONS. FLOOR PLANS - BLDG. K1-A
P-2.2 CONSTRUCTION FLOOR PLANS - BLDG. C-1,C-2, C-3 AND C-4
P-2.3 CONSTRUCTION FLOOR PLANS - BLDG. K1-A AND C-2
P-2.4 DEMOLITION & CONS. FLOOR PLANS - BLDG. C-5 AND C-6

ELECTRICAL:

On SHEET E-1.3

41. Panel C3 is an existing panel.

On SHEET E-2.2

42. REVISE: Keyed Note No. 1
TO READ: "1. Demolish fixture ... to be reused. (Typ.)"

On SHEET E-7.4

At Notifier Heat Detector and Notifier Low Profile Smoke Detector details

43. REVISE: "4S 2-1/8" deep with 3" - ring"
TO READ: "4S 2-1/8" deep with 3" diameter ring"

44. REPLACE: The following sheets with attached Addendum No. 1 revision drawings, dated January 21, 2011: (17 Sheets total)

E-1.0 SYMBOL LIST, FIXTURE SCHEDULE AND NOTES
E-1.2 SINGLE LINE DIAGRAM & FEEDER LOAD SCHEDULE
E-1.5 TELEPHONE, DATA & PA RISER DIAGRAMS

E-2.0 ELECTRICAL SITE PLAN
E-2.1 DEMOLITION SITE PLAN
E-2.3 EXTERIOR LIGHTING PLAN
E-3.1 DEMOLITION FLOOR PLAN - BLDGS. C-1, C-2, C-3, AND C-4
E-3.2 DEMOLITION FLOOR PLAN - BLDG. K1-A
E-4.1 LIGHTING FLOOR PLANS - BLDGS. C-1, C-2, C-3, AND K1-A
E-5.1 POWER FLOOR PLANS - BLDGS. C-1, C-3, AND C-4
E-5.2 POWER FLOOR AND ROOF PLANS - BLDGS. C-2 AND K1-A
E-6.1 SIGNAL FLOOR PLANS - BLDGS. C-1, C-3 AND C-4
E-6.2 SIGNAL FLOOR PLANS - BLDGS. C-2 AND K1-A
E-6.3 PA FLOOR PLANS - BLDGS. AL, MP AND SL
E-6.4 SIGNAL FLOOR PLANS - BLDGS. C-5 AND C-6
E-6.5 PA FLOOR PLANS - BLDGS. 1A AND LM
E-7.2 FIRE ALARM FLOOR PLANS - BLDGS. C-1 AND C-4

LANDSCAPE:

45. REPLACE: The following sheets with attached Addendum No. 1 revision drawings, dated January 21, 2011: (5 Sheets total)

L-1.0 IRRIGATION PLAN - AREA A
L-1.1 IRRIGATION PLAN - AREA B
L-1.2 IRRIGATION DETAILS
L-2.0 PLANTING PLAN - AREA A
L-2.1 PLANTING PLAN - AREA B

END OF ADDENDUM NO. 1

Henry Woo Architects, Inc.

SECTION 01010
SUMMARY OF WORK

THE REQUIREMENTS OF THE GENERAL CONDITIONS AND SUPPLEMENTARY GENERAL CONDITIONS AND APPLY TO THIS SECTION.

PART 1: GENERAL

1.01 Section Includes:

A. Work Included.

B. Work by Owner.

C. Owner Furnished Products.

D. Contractor Use of Site and Premises.

E. Work Sequence.

F. Owner Occupancy.

1.02 Work Included:

A. The scope of work outlined below is a summary of the works to be performed and executed by the Contractor. For complete detail of the scope of work refer to all parts of the Construction/Bid Documents including the following, plans, specifications, and all the codes and standards referred to in the Bid Documents and governing by local standards. In short the work will comprise , but is not limited to:

1. Typical Classroom Buildings

   Provide complete renovation of typical classrooms including accessibility upgrades, replacement of potable water lines, power and data upgrades, telephone system upgrades, adjustment of fire alarm components, and reinstallation of wall-mounted HVAC units.

2. Site

   a. Provide replacement of site utilities, path of travel upgrade for accessibility.
   b. Provide re-roofing of existing walkway cover and related work.

1.03 Work by Owner:

A. The Owner will award a contract which will commence on Owner's notice to proceed. Work under this contract includes:

1. Base Bid.
2. Any alternate bid item accepted by the district.

B. Items noted "N.I.C." (Not in Contract) will be furnished and installed by Owner.

C. Owner will remove and retain possession of the following items prior to start of work:

1. Any demolition items identified by Owner.

D. Contractor will remove and Owner will take possession of the following items prior to start of work:

1. Any existing item identified by Owner.

1.04 Owner Furnished Products:

A. Items noted "OFCI" (Owner-Furnished Contractor Installed) will be furnished by Owner and installed by Contractor.

B. Items noted "OFOI" (Owner-Furnished Owner Installed) will be furnished and installed by Owner.

C. Owner's Responsibilities:

1. Arrange for and deliver Owner reviewed Shop Drawings, Product Data, and Samples to Contractor.

2. Arrange and pay for Product delivery to site.

3. On delivery, inspect Products jointly with Contractor.

4. Submit claims for transportation damage and replace damaged, defective, or deficient itmes.

5. Arrange for manufacturer's warranties, inspections, and service.

D. Contractor's Responsibilities:

1. Review Owner reviewed Shop Drawings, Product Data, and Samples.

2. Receive and unload Products at site; inspect for completeness or damage, jointly with Owner.

3. Handle, store, install, and finish Products.

4. Repair or replace items damaged after receipt.

E. Products furnished and installed by Owner (OFOI):

1. Learning Wall, Carpet, Topset Base, Projector, Projection Screen.

F. Items furnished by Owner for installation by Contractor (OFCI):

1. (None)

1.05 Contractor Use of Site and Premises:

A. Limit use of site and premises to allow:

1. Owner occupancy.

2. Use of site and premises by public, students, and teachers.

3. Work by others and Work by Owner.

B. Construction Operations: Limited to area indicated on drawings.

1. Coordinate to obtain approval by Owner or his designated project representative.

1.06 Work Sequence:

A. Construct work in phases to accommodate Owner's occupancy requirements during the construction period; coordinate construction schedule and operations with Owner.

1.07 Owner Occupancy:

A. The Owner will occupy the site during entire period of construction for the conduct of his normal operations.

B. Cooperate with Owner to minimize conflict, and to facilitate Owner's operations.

C. Schedule work to accommodate Owner occupancy.

PART 2: PRODUCTS

Not used.

PART 3: EXECUTION

Not used.

END OF SECTION

SECTION 07271

SELF-ADHERING SHEET AIR BARRIERS

The requirements of the General Conditions, Supplementary General Conditions, and Division 1 apply to this section.

PART 1: GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. The work of this section includes, but is not limited to, the following: materials and installation methods for self-adhered air and vapor barrier membrane system located in the non-accessible part of the wall. Materials and installation methods to bridge and seal the following air leakage pathways and gaps: connections of the walls to the roof air barrier, connections of the walls to the foundations, seismic and expansion joints, openings and penetrations of window frames, store front, and curtain wall, barrier precast and other envelope systems, door frames, piping, conduit, duct and similar penetrations, masonry ties, screws, bolts and similar penetrations. All other air leakage pathways in the building envelope.

B. Related Sections: Other specification sections that directly relate to the works of this section include, but are not limited to, the following:

Section 03300 – Cast-In-Place Concrete
Section 07200 – Insulation
Section 07273 - Fluid applied Membrane Air Barriers
Section 07600 – Flashing and Sheet Metal
Section 07900 – Sealants
Section 08520 – Aluminum Windows
Section 08800 – Glass & Glazing

1.03 PERFORMANCE REQUIREMENTS

Provide an air and vapor barrier constructed to perform as a continuous air and vapor barrier, and as liquid water drainage plane flashed to discharge any incidental condensation or water penetration. All work shall comply with current California Building Code 2007 edition

1304.3.1 Air Barriers:

The building envelope shall be designed and constructed with a continuous air barrier to control air leakage into, or out of the conditioned space. An air barrier shall also be provided for interior partitions between conditioned space and space designed to maintain temperature or humidity levels which differ from those in the conditioned space by more than 50% of the difference between the conditioned space and design ambient conditions. The air barrier shall have the following characteristics:

1. It must be continuous, with all joints made airtight.
2. It shall have an air permeability not to exceed 0.004 cfm/ft2 under a pressure differential of 0.3 in. water. (1.57 psf.) (equal to 0.02 L/s/m2 @ 75 Pa.) when tested in accordance with ASTM E2178-01.
3. It shall be capable of withstanding positive and negative combined design wind, fan and stack pressures on the envelope without damage or displacement, and shall transfer the load to the structure. It shall not

displace adjacent materials under full load.

4. It shall be durable or maintainable. The air barrier shall be joined in an airtight and flexible manner to the air barrier material of adjacent systems, allowing for the relative movement of systems due to thermal and moisture variations and creep. Connection shall be made between:

   A. Foundation and walls.
   B. Walls and windows or doors.
   C. Different wall systems.
   D. Wall and roof.
   E. Wall and roof over unconditioned space.
   F. Walls, floor and roof across construction, control and expansion joints.
   G. Walls, floors and roof to utility, pipe and duct penetrations.

   1304.3.2 Air barrier penetrations:
   All penetrations of the air barrier and paths of air infiltration/exfiltration shall be made airtight.

1.04 REFERENCES

The following standards and publications are applicable to the extent referenced in the text. The most recent version of these standards is implied unless otherwise stated.

American Society for Testing and Materials (ASTM)

A 167-96	Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip
C 836-95	Standard Specification for Cold Liquid Applied Waterproofing Membranes with a Separate Wearing Course
D 412-87	Standard Test Methods for Rubber Properties in Tension
D 570	Test Method for Water Absorption of Plastics
D 1970-94	Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection
D 2000-98	Classification System for Rubber Products in Automotive Applications
D 2939-94	Standard Test Methods for Emulsified Bitumens Used as Protective Coatings
D 3767-92	Standard Practice for Rubber - Measurements of Dimensions
E 96-95	Test Methods for Water Vapor Transmission of Materials
E 154	Test Method for Water Vapor Retarders used in contact with Earth Under Concrete Slabs, on Walls or as Ground Cover
E 2178-01	Standard Test Method for Air Permeance of Building Materials
E 2357	Standard Test Method for Determining Air Leakage of Air Barrier Assemblies

1.05 SUBMITTALS

A. Product Data: Submit manufacturer's product data, installation instructions, and substrate preparation recommendations. Shop drawings: Show the locations and extent of air and vapor barrier system including details of typical conditions, intersections with other envelope systems and materials, membrane counter-flashings and details showing how gaps in the construction will be bridged and how miscellaneous penetrations such as conduits, pipes, etc. are sealed.

B. Written documentation: Demonstrate the installer's qualifications under the "Quality Assurance" article.

C. Samples: Submit representative samples of the following for approval: Self-adhered air and vapor barrier membrane and through-wall flashing membrane, as well as certification by air and vapor barrier manufacturer that products supplied comply with local regulations controlling use of volatile organic compounds (VOC's).

1.06 QUALITY ASSURANCE

A. Manufacturer: Air and vapor barrier materials shall be manufactured and marketed by a firm with a minimum of 20 years' experience in the production and sales of waterproofing products. Manufacturers proposed for use, but not named in these specifications shall submit evidence of ability to meet all requirements specified.

B. Installer: The installer shall demonstrate qualifications to perform the work of this Section by submitting the following: Written confirmation or certification from the air barrier manufacturer that the installer has been trained and is recognized by the manufacturer as suitable for the execution of the work. Installer must show evidence of adequate equipment and trained field personnel to successfully complete the project in a timely manner. Both the architect and the air barrier materials manufacturer must approve the installer's credentials.

C. Materials: Self-adhered air and vapor barrier material shall be 36 mils of self-adhering SBS rubberized asphalt laminated to a 4 mil cross-laminated high-density polyethylene film.

D. Pre-Installation Conference: A pre-installation conference shall be held prior to commencement of field operations per Section 01200 to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work. Agenda for meeting shall include but not be limited to the following:

1. Review of submittals
2. Review of surface preparation, minimum curing period and installation procedures
3. Review of special details and flashings
4. Sequence of construction, responsibilities and schedule for subsequent operations
5. Review of mock-up requirements
6. Review of inspection, testing, protection and repair procedures

E. Manufacturer's Representative: Make arrangements necessary to have a trained representative of the manufacturer to review installation procedures. Notify manufacturer's representative not less than 72 hours before meeting is to be held.

F. Mock-up: Prior to installation of the air and vapor barrier system a field-constructed mock-up shall be provided under the provisions of Section 01340 – Shop Drawings, Product Data, Samples and Mock-ups to verify details and tie-ins and to demonstrate the required quality of materials and installation. Construct a typical exterior wall section, 8 feet long and 8 feet wide, incorporating back-up wall, cladding, window and doorframe and sill, insulation, flashing and any other critical junction (roof, foundation, etc). Allow 24 hours for inspection and testing of mock-up before proceeding with air and vapor barrier work. Mock-up may remain as part of the work.

G. Inspection and Testing: Cooperate and coordinate with the Owner's inspection and testing agency. Do not cover any installed air and vapor barrier membrane until any required inspections, testing, and approvals have been completed.

1.07 DELIVERY, STORAGE AND HANDLING

Deliver materials and products in labeled packages, storing self-adhered membranes packages in upright position. Store and handle in strict compliance with manufacturer's instructions, recommendations and material safety data sheets. Protect from damage from sunlight, weather, excessive temperatures and construction operations. Remove damaged material from the site and dispose of in accordance with applicable regulations. Do not freeze material prior to application. Sequence deliveries to avoid delays while keeping on-site storage at a minimum.

1.08 PROJECT CONDITIONS

Apply air and vapor barrier within the weather conditions and the range of ambient and substrate temperatures specified by air and vapor manufacturer. Do not apply to a wet substrate. Damp substrates, determined by rubbing a hand across the substrate and seeing no water/dampness on the skin, are suitable for application of ExoAir 120. Substrates receiving ExoAir™ 110 or ExoAir™ TWF should be dry. Proceed with installation only when the substrate construction and preparation work is complete and in condition to receive the air and vapor barrier membrane.

1.09 WARRANTY

Submit manufacturer's warranty that air and vapor barrier and accessories are free of defects at time of delivery and are manufactured to meet manufacturer's published physical properties and material specifications as of the date of product delivery.

Installer to warrant that air barrier and accessories have been installed in accordance with manufacturer's recommendations, and that air barrier membrane, through-wall flashing membrane, primers, mastics, adhesives and sealants used in this section have been sourced from one manufacturer.

PART 2: PRODUCTS

2.01 GENERAL

For each type of material required for the work of this section, provide primary materials and materials compatible with the air and vapor barrier.

2.02 SELF-ADHERED AIR AND VAPOR BARRIER MEMBRANE

Description: A self-adhered air and vapor barrier material shall be 36 mils (.90mm) of self-adhering SBS rubberized asphalt laminated to a 4 mil (.10mm) cross-laminated high-density polyethylene film with a siliconized release liner.

Performance Requirements:

Property	Test Method	Typical Value
Membrane Air Permeance: Air Leakage @ 75Pa Differential Pressure	ASTM E 2178-01 CCMC 07273	Less than 0.00001 $L/s/m^2$
Water Vapor Permeance	ASTM E 96B	0.05 perms
Assembly Performance: Provide a continuous air barrier assembly	ASTM E2357	0.002 cfm/sq ft No noticeable component failures
Elongation (Membrane)	ASTM D 412 Die C	250%
Tensile Strength (Membrane)	ASTM D 412 Die C	500 psi
Tensile Strength (Film)	ASTM D 412 Die C	5,000 psi
Puncture Resistance – Membrane	ASTM E 154	30 lbs minimum
Pliability, 180°F – 1" mandrel @ -25°F, -32°C	ASTM D 1970	Pass
Moisture Absorption	ASTM D 570	.1%
Color	--	White Facer

Acceptable Materials:

ExoAir 110 self-adhered air and vapor barrier membranes by Tremco Inc., or accepted equal, Beachwood, Ohio and Toronto, Ontario, Phone 800-321-7906. www.tremcosealants.com

2.03 AUXILIARY MATERIALS

Transition Membrane: Self-adhered air and vapor barrier membrane, 36 mils of self-adhering SBS rubberized asphalt laminated to a 4 mil cross-laminated, high-density polyethylene film with a siliconized release liner. Product shall be: ExoAir 110 membrane as manufactured by Tremco.

Flashing Membrane: Self-adhered through-wall flashing membrane, 32 mils (.80mm) of self-adhering SBS rubberized asphalt laminated to a 8 mil cross-laminated, high-density polyethylene film with a siliconized release liner. Product shall be: ExoAir™ TWF (Thru-Wall Flashing) membrane as manufactured by Tremco.

Primary, Transition and Flashing Membrane Primer: Water-based liquid primer for extruded polystyrene, concrete, masonry, gypsum sheathing, wood, metal, and painted substrates. Product shall be: ExoAir™ 10 WB Primer as manufactured by Tremco.

Primary, Transition and Flashing Membrane Primer: Solvent-based liquid primer for concrete, masonry, gypsum sheathing, wood, metal, and painted substrates. Product shall be: ExoAir 10 Primer™ as manufactured by Tremco.

Butyl-based Self-Adhered Membrane: Transition between air and vapor barrier membrane and TPO or EPDM membranes.

Mastic: Liquid mastic for sealing around brick ties, penetrations and lap and T-joints. Product shall be: ExoAir Termination Mastic, as manufactured by Tremco.

Stainless-Steel Sheet Flashing: ASTM A167, Type 304, soft annealed, with No. 2D finish; minimum, 0.0156 inch thick.

3.01 EXAMINATION

The installer shall examine conditions of substrates, areas and other conditions under which air barrier systems will be applied for compliance with requirements. Verify that surfaces and conditions are suitable prior to commencing work of this section. Notify the contractor in writing of circumstances detrimental to the proper completion of the work. Do not proceed with installation until unsatisfactory conditions have been corrected.

A. Ensure that:

1. surfaces are sound, dry, even, and free of oil, grease, dirt, excess mortar or other contaminants.
2. concrete surfaces are cured and dry, smooth without large voids, spalled areas or sharp protrusions. Allow new concrete to cure for a minimum 7 days.
3. masonry joints are flush and completely filled with mortar, and all excess mortar sitting on masonry ties has been removed.
4. ensure that the exterior sheathing panels are sufficiently stabilized with corners and edges fastened with appropriate screws.

B. Verify substrate is visibly dry and free of moisture.

C. Notify Architect in writing of anticipated problems using air barrier over substrate.

3.02 SURFACE PREPARATION

A. Clean, prepare and treat substrates according to manufacturers' written instructions. Surfaces to be coated must be clean, smooth, firm, free of dust, mud, loose mortar, wires, fins or any other substance that might

prevent placement and bonding of membrane.

B. Mask off surrounding surfaces to prevent accidental coating by primers and mastics.

C. Remove contaminants such as grease, oil and wax from exposed surfaces. Use repair materials and methods that are acceptable to manufacturer of the self-adhered membrane.

D. Prime areas to be detailed and allow to cure. Ensure exterior sheathing panels and other substrates receiving ExoAir 110 and ExoAir TWF receive an adequate amount of primer to achieve required bond to substrate. Exterior sheathing panels may require increased usage rates for ExoAir 10 Primer and ExoAir 10 WB Primer and/or multiple coats, allowing for complete drying between coats, to achieve required bond to substrate.

E. Masonry Substrates: Repair any cracks, voids, and unfilled mortar joints with non-shrinking grout.

3.03 INSTALLATION

A. Refer to manufacturer's literature for recommendations on installation.

B. Prior to the installation of ExoAir 110 and ExoAir TWF, prime area to be detailed using ExoAir 10 Primer or ExoAir 10 WB Primer and allow to dry. Ensure gypsum sheathing and other substrates receiving ExoAir 110 and ExoAir TWF receive an adequate amount of ExoAir 10 Primer or ExoAir 10 WB Primer and/or multiple coats, allowing for complete drying between coats, to achieve required bond to substrate.

C. Application of Transition and Through-Wall Flashing Membranes: Apply ExoAir 110 transition membrane (narrow widths used for detailing), and ExoAir TWF through-wall flashing membranes, before or after application of ExoAir 110 (used for primary wall surface) so that the membrane assemblies create a shingle effect from top of the building to the bottom. Install transition membranes at all beams, columns, joints and all windows, doors and penetrations as indicated in detail drawings. Overlap all edge seams a minimum of 2" and end laps a minimum of 5"; stagger all end laps.

D. Use Spectrem 1 or other pre-approved Tremco sealant to connect window and curtain wall systems to ExoAir 110 or ExoAir TWF.

E. Use transition membranes to tie into window and doorframes, spandrel panels, floor intersections and changes in substrates. When installing ExoAir TWF, trim bottom edge of ExoAir TWF ½" back from exposed face of the wall. ExoAir TWF shall not be permanently exposed to sunlight. Bring ExoAir 110 and ExoAir TWF a minimum of 3" onto wall, window, door frame and other substrates. Apply transition and through-wall flashing membranes in appropriate lengths and in such a manner as to ensure continuity of the entire air barrier assembly.

F. At through-wall flashings, provide an additional 6" wide strip of ExoAir TWF to seal top of through-wall flashing to ExoAir 110 installed on substrate. Seal top edge of ExoAir TWF with ExoAir Termination Mastic. Tool the ExoAir Termination Mastic to ensure it is worked into the surface.

G. Use pre-cut, easily handled lengths for each location. Remove release paper, position membranes carefully before placing them against the surface. Use a roller to apply pressure to the entire surface to remove all air pockets and assure positive contact to the substrate. Apply ExoAir Termination Mastic at all penetrations, lap joints not oriented to shed water, and T-joints.

H. Prior to completion of the air barrier project work or at the end of each work day, apply ExoAir Termination Mastic to the top edge seam of ExoAir 110 or ExoAir TWF. Tool the ExoAir Termination Mastic to ensure it is worked into the surface.

I. Coordinate installation of the air barrier system with the roofing trade to ensure continuity / compatibility with the roofing system at this critical transition area. Roofing system should be capped and sealed prior to installation of the air barrier product to prevent moisture on interior and exterior side of the walls that will be treated. Connect the air barrier membrane to adjacent parts of the building envelope such as the roof membrane air barrier, below-grade wall, window and curtain wall systems, and other parts of the building envelope.

J. Application on Substrates with Pre-Applied Brick Ties (typically CMU – Concrete Masonry Units): After detailing is complete and wall surface is primed, begin applying ExoAir 110 (typically 18" widths) horizontally at base of wall, with top edge seam of each section meeting the bottom edge of the masonry brick ties. Overlap the next higher sections on the previous section a minimum of 2". To do this, make a vertical cuts in the higher sections at the location of the brick ties. Use a roller to apply pressure to the entire surface to remove all air pockets and assure positive contact to the substrate. Apply ExoAir Termination Mastic at all penetrations, lap joints not oriented to shed water, and T-joints, so that there are no passages remaining for air infiltration/exfiltration, water vapor transmission or water penetration.

K. Application on Substrates with Post-Applied Brick Ties (typically exterior sheathing): After detailing is complete and wall surface is primed, apply ExoAir 110 horizontally or vertically. Apply ExoAir Termination Mastic at all penetrations, lap joints not oriented to shed water, and T-joints, so that there are no passages remaining for air infiltration/exfiltration, water vapor transmission or water penetration.

L. Inspect the ExoAir110 and ExoAir TWF membranes before covering and repair any punctures or damaged areas. Make repairs with ExoAir 110 or ExoAir TWF as appropriate, or ExoAir Termination Mastic, extending repair material a minimum of 4" (100mm) beyond the puncture or damage.

3.04 PROTECTION AND CLEANING

Remove any masking materials after installation. Clean spillage and soiling on adjacent construction that will be exposed in the finished work using cleaning agents and procedures recommended by manufacturer of the affected construction. Protect membranes to avoid damage from other trades, and construction materials during subsequent operations. Insulation and/or protection products may be installed after all membranes have cured. Schedule work so that the air and vapor barrier system is covered as soon as possible after installation. If the air and vapor barrier system cannot be covered within 30 days after installation, apply temporary UV protection such as dark plastic sheet or tarpaulins or contact Tremco for additional recommendations.

END OF SECTION

SECTION 07273

FLUID-APPLIED MEMBRANE AIR BARRIERS

The requirements of the General Conditions, Supplementary General Conditions, and Division 1 apply to this section.

PART 1 : GENERAL

1.01 Summary:

A. The work of this section includes, but is not limited to, the following: materials and installation methods for fluid-applied air and vapor barrier membrane system located in the non-accessible part of the wall. Materials and installation methods to bridge and seal the following air leakage pathways and gaps: connections of the walls to the roof air barrier, connections of the walls to the foundations, seismic and expansion joints, openings and penetrations of window frames, store front, and curtain wall, barrier precast cast and other envelope systems, door frames, piping, conduit, duct and similar penetrations, masonry ties, screws, bolts and similar penetrations. All other air leakage pathways in the building envelope.

B. Related Sections: Other specification sections that directly relate to the works of this section include, but are not limited to, the following:

Section 03300 – Cast-In-Place Concrete
Section 07200 – Insulation
Section 07271 – Self-Adhering Sheet Air Barriers
Section 07600 – Flashing and Sheet Metal
Section 07900 – Sealants
Section 08520 – Aluminum Windows
Section 08800 – Glass & Glazing

1.02 PERFORMANCE REQUIREMENTS

Provide an air and vapor barrier constructed to perform as a continuous air and vapor barrier, and as liquid water drainage plane flashed to discharge any incidental condensation or water penetration. All work shall comply with current California Building Code 2007 edition

1304.3.1 Air Barriers:
The building envelope shall be designed and constructed with a continuous air barrier to control air leakage into, or out of the conditioned space. An air barrier shall also be provided for interior partitions between conditioned space and space designed to maintain temperature or humidity levels which differ from those in the conditioned space by more than 50% of the difference between the conditioned space and design ambient conditions. The air barrier shall have the following characteristics:

It must be continuous, with all joints made airtight. It shall have an air permeability not to exceed 0.004 cfm/ft2 under a pressure differential of 0.3 in. water. (1.57 psf.) (equal to 0.02 L/s/m2 @ 75 Pa.) when tested in accordance with ASTM E2178-01. It shall be capable of withstanding positive and negative combined design wind, fan and stack pressures on the envelope without damage or displacement, and shall transfer the load to the structure. It shall not displace adjacent materials under full load. It shall be durable or maintainable. The air barrier shall be joined in an airtight and flexible manner to the air barrier material of adjacent systems, allowing for the relative movement of systems due to thermal and moisture variations and creep. Connection shall be made between:

A. Foundation and walls.
B. Walls and windows or doors.

C. Different wall systems.
D. Wall and roof.
E. Wall and roof over unconditioned space.
E. Walls, floor and roof across construction, control and expansion joints.
F. Walls, floors and roof to utility, pipe and duct penetrations.

1304.3.2 Air barrier penetrations:
All penetrations of the air barrier and paths of air infiltration/exfiltration shall be made airtight.

1.03 REFERENCES

The following standards and publications are applicable to the extent referenced in the text. The most recent version of these standards is implied unless otherwise stated.

American Society for Testing and Materials (ASTM)

D 412-87	Standard Test Methods for Rubber Properties in Tension
C 836-95	Standard Specification for Cold Liquid Applied Waterproofing Membranes with a Separate Wearing Course
D 2939-94	Standard Test Methods for Emulsified Bitumens Used as Protective Coatings
D 1970-94	Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection
D 3767-92	Standard Practice for Rubber - Measurements of Dimensions
E 96-95	Test Methods for Water Vapor Transmission of Materials
A 167-96	Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip
E 2178-01	Standard Test Method for Air Permeance of Building Materials
D 2000-98	Classification System for Rubber Products in Automotive Applications

1.04 SUBMITTALS

A. Product Data: Submit manufacturer's product data, installation instructions, and substrate preparation recommendations.

B. Shop drawings: Show the locations and extent of air and vapor barrier system including details of typical conditions, intersections with other envelope systems and materials, membrane counter-flashings and details showing how gaps in the construction will be bridged and how miscellaneous penetrations such as conduits, pipes, etc. are sealed.

C. Submit documentation from manufacturer that air barrier materials and accessories are compatible.

D. Written documentation: Demonstrate the installer's qualifications under the "Quality Assurance" article.

E. Samples: Submit representative samples of the following for approval: Cured sample of the fluid-applied, transition, and through-wall flashing membranes, as well as certification by air and vapor barrier manufacturer that products supplied comply with local regulations controlling use of volatile organic compounds (VOC's).

1.05 QUALITY ASSURANCE

A. Manufacturer: Air and vapor barrier materials shall be manufactured and marketed by a firm with a minimum of 20 years' experience in the production and sales of waterproofing products. Manufacturers proposed for use, but not named in these specifications shall submit evidence of ability to meet all requirements specified. Material system shall be of a single manufacturer.

B. Installer: The installer shall demonstrate qualifications to perform the work of this Section by submitting the following: Written confirmation or certification from the air barrier manufacturer that the installer has been trained and is recognized by the manufacturer as suitable for the execution of the work. Installer must show evidence of adequate equipment and trained field personnel to successfully complete the project in a timely manner. Both the architect and the air barrier materials manufacturer must approve the installer's credentials.

C. Materials: Fluid-applied air and vapor barrier material shall be water-based and an elastomeric, single-component, polymer-modified, asphaltic membrane, and contain less than 100 gm/l VOC.

D. Pre-Installation Conference: A pre-installation conference shall be held prior to commencement of field operations per Section 01200 to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work. Agenda for meeting shall include but not be limited to the following:

Review of submittals
Review of surface preparation, minimum curing period and installation procedures
Review of special details and flashings
Sequence of construction, responsibilities and schedule for subsequent operations
Review of mock-up requirements
Review of inspection, testing, protection and repair procedures
Review and approval of all structural glazing application by Manufacturer's Technical Service is required.

E. Manufacturer's Representative: Make arrangements necessary to have a trained representative of the manufacturer to review installation procedures. Notify manufacturer's representative not less than 72 hours before meeting is to be held.

F. Mock-up (as required): Prior to installation of the air and vapor barrier system a field-constructed mock-up shall be provided under the provisions of Section [01340 – Shop Drawings, Product Data, Samples and Mock-ups] to verify details and tie-ins and to demonstrate the required quality of materials and installation. Construct a typical exterior wall section, 8 feet long and 8 feet wide, incorporating back-up wall, cladding, window and doorframe and sill, insulation, flashing and any other critical junction (roof, foundation, etc). Allow 24 hours for inspection and testing of mock-up before proceeding with air and vapor barrier work. Mock-up may remain as part of the work.

G. Inspection and Testing: Cooperate and coordinate with the Owner's inspection and testing agency. Do not cover any installed air and vapor barrier membrane until any required inspections, testing, and approvals have been completed.

1.06 DELIVERY, STORAGE AND HANDLING

Deliver materials and products in labeled packages. Store and handle in strict compliance with manufacturer's instructions, recommendations and material safety data sheets. Protect from damage from sunlight, weather, excessive temperatures and construction operations. Remove damaged material from the site and dispose of in accordance with applicable regulations. Store ExoAirÔ 220 off the ground/floor at an ambient temperature above 50°F. Do not freeze. Protect from direct sunlight. Sequence deliveries to avoid delays while keeping on-site storage at a minimum.

1.07 PROJECT CONDITIONS

Apply air and vapor barrier within the weather conditions and the range of ambient and substrate temperatures specified by air and vapor manufacturer. Do not apply to a wet substrate. Damp substrates, determined by rubbing a hand across the substrate and seeing no water/dampness on the skin, are suitable for application of ExoAir 220.

Substrates receiving ExoAirÔ 110/110LT or ExoAirÔ TWF should be dry. Proceed with installation only when the substrate construction and preparation work is complete and in condition to receive the air and vapor barrier membrane.

1.08 WARRANTY

Submit manufacturer's warranty that air and vapor barrier and accessories are free of defects at time of delivery and are manufactured to meet manufacturer's published physical properties and material specifications as of the date of product delivery.

Installer to warrant that air and vapor barrier and accessories have been installed in accordance with manufacturer's recommendations, and that air barrier membrane, transition and through-wall flashing membranes, assemblies/tie-ins, primers, mastics, adhesives and sealants used in this section have been sourced from one manufacturer.

PART: 2 PRODUCTS

2.01 GENERAL

For each type of material required for the work of this section, provide primary materials and materials compatible with the air and vapor barrier.

2.02 FLUID-APPLIED AIR BARRIER MEMBRANE

Description: A fluid-applied air and vapor barrier material shall be water-based and an elastomeric, single-component, polymer-modified, asphaltic membrane, and contain less than 100 gm/l VOC.Performance Requirements:

Property	Test Method	Typical Value
Color	--	Black
Cured Film Thickness	--	40 mils min.
Solids Content	--	56 %
Air Leakage @ 75Pa Differential Pressure	ASTM E 2178-01 CCMC 07273	0.00120 L/s/m^2
Water Vapor Permeance	ASTM E 96	12 perms
Elongation	ASTM D 412	900%
Chemical Resistance	--	Resists alkalis, mild acids and salt solutions
Maximum V.O.C.	--	100 grams/liter

Acceptable Materials:

ExoAir 220 fluid-applied air and vapor barrier membrane by Tremco Inc., Beachwood, Ohio and Toronto, Ontario, Phone 800-321-7906. www.tremcosealants.com

2.03 AUXILIARY MATERIALS

Transition Membrane: Self-adhered air and vapor barrier membrane, 36 mils of self-adhering SBS rubberized asphalt laminated to a 4 mil cross-laminated, high-density polyethylene film with a siliconized release liner. Product shall be: ExoAir 110 and ExoAir 110LT (Low-Temperature) membrane as manufactured by Tremco or accepted equal.

Flashing Membrane: Self-adhered through-wall flashing membrane, 32 mils of self-adhering SBS rubberized asphalt

laminated to an 8 mil cross-laminated, high-density polyethylene film with a siliconized release liner. Product shall be: ExoAirÔ TWF (Thru-Wall Flashing) membrane as manufactured by Tremco or accepted equal.

Transition and Flashing Membrane Primer: Water-based liquid primer for extruded polystyrene, concrete, masonry, gypsum sheathing, wood, metal, and painted substrates. Product shall be: ExoAirÔ WB Primer as manufactured by Tremco or accepted equal.

Transition and Flashing Membrane Primer: Solvent-based, VOC compliant liquid primer for concrete, masonry, gypsum sheathing, wood, metal, and painted substrates. Product shall be: ExoAir PrimerÔ as manufactured by Tremco or accepted equal.

Transition and Flashing Membrane Primer: Solvent-based, VOC compliant liquid primer for gypsum sheathing. Product shall be: ExoAirÔ GM (Glass-Mat) Primer as manufactured by Tremco or accepted equal.

Butyl-based Self-Adhered Membrane: Transition between air and vapor barrier membrane and TPO or EPDM membranes.

Mastic: Liquid mastic for sealing around brick ties, penetrations and lap and T-joints. Product shall be: TREMproofÒ 201T or other pre-approved Tremco sealant, as manufactured by Tremco or accepted equal.

Stainless-Steel Sheet Flashing: ASTM A167, Type 304, soft annealed, with No. 2D finish; not less than 0.0156 inch thick.

PART 3 INSTALLATION INSTRUCTIONS

3.01 EXAMINATION

The installer shall examine conditions of substrates, areas and other conditions under which air barrier systems will be applied for compliance with requirements. Verify that surfaces and conditions are suitable prior to commencing work of this section. Notify the contractor in writing of circumstances detrimental to the proper completion of the work. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 SURFACE PREPARATION

Clean, prepare and treat substrates according to manufacturers' written instructions. Surfaces to be coated must be clean, smooth, firm, free of dust, mud, loose mortar, wires, fins or any other substance that might prevent placement and bonding of a continuous film. Remove contaminants such as grease, oil and wax from exposed surfaces. Use repair materials and methods that are acceptable to manufacturer of the fluid-applied membrane.

Exterior Sheathing Board Joints and Inside/Outside Corners: Ensure that the boards are sufficiently stabilized with corners and edges fastened with appropriate screws. Pre-treat all board joints with 2-3" wide, reinforced, self-adhesive, fiberglass mesh-style wallboard tape. Gaps greater than 1/16" should be filled, and adjacent substrate covered, with a 30 mil coat of TREMproof 201T or pre-approved Tremco sealant. Coating width should exceed width of tape. Fully embed tape into uncured TREMproof 201T or sealant then overcoat with an additional 30-mil coat. Allow sufficient time TREMproof 201T or sealant to fully cure before application of ExoAir 220. Detail inside and outside corners as above.

Alternate Method - Exterior Sheathing Board Joints and Inside/Outside Corners: A second method of detailing these conditions can be used in place of the method discussed above. Prime area to be detailed using ExoAir Primer, WB Primer or GM primer and allow to cure. Ensure gypsum sheathing and other substrates receiving ExoAir 110/110LT receive an adequate amount of ExoAir Primer or WB Primer to achieve required bond to substrate. Apply a minimum 3" width of ExoAir 110/110LT to the area to be treated. Use a roller to apply pressure to the entire surface

to remove all air pockets and assure positive contact to the substrate.

Masonry Substrates: Repair any cracks, voids, and unfilled mortar joints with non-shrinking grout prior to application.

3.03 INSTALLATION (Refer to manufacturer's literature for recommendations on installation.)

Application of Transition and Through-Wall Flashing Membranes: Apply ExoAir 110/110LT transition, and ExoAir TWF through-wall flashing membranes, before or after application of ExoAir 120 membrane so that the membrane assemblies create a shingle effect from top of the building to the bottom. Prior to the installation of ExoAir 110/110LT and ExoAir TWF, prime area to be detailed using ExoAir Primer, ExoAir WB Primer or ExoAir GM primer and allow to cure. Ensure exterior sheathing and other substrates receiving ExoAir 110/110LT receive an adequate amount of ExoAir Primer or ExoAir WB Primer and/or multiple coats, allowing for complete drying between coats, to achieve required bond to substrate. Install transition membranes at all beams, columns, joints and all windows, doors and penetrations as indicated in detail drawings, overlapping edge seams a minimum of 2" and end laps a minimum of 5".

Use Spectrem 1 or other pre-approved Tremco sealant to connect window and curtain wall systems to ExoAir 110/110LT transition membranes or ExoAir TWF.

Use transition membranes to tie into window and doorframes, spandrel panels, floor intersections and changes in substrates. When installing ExoAir TWF, trim bottom edge of ExoAir TWF ½" (13mm) back from exposed face of the wall. ExoAir TWF shall not be permanently exposed to sunlight. Bring ExoAir 110/110LT and ExoAir TWF a minimum of 3" (75mm) onto wall, window, door frame and other substrates. Apply transition and through-wall flashing membranes in appropriate lengths and in such a manner as to ensure continuity of the entire air barrier assembly.

At through-wall flashings, provide an additional 6" wide strip of ExoAir TWF to seal top of through-wall flashing to ExoAir 110/110LT installed on substrate. Seal top edge of ExoAir TWF with TREMproof 201T or other pre-approved Tremco sealant. Tool the TREMproof 201T to ensure it is worked into the surface.

Use pre-cut, easily handled lengths for each location. Remove release paper, position membranes carefully before placing them against the surface. Use a roller to apply pressure to the entire surface to remove all air pockets and assure positive contact to the substrate. If an edge is not going to be over coated with ExoAir 120 fluid-applied air and vapor barrier membrane, seal the edge with TREMproof 201T or other pre-approved Tremco sealant. If a transition membrane is to be attached to ExoAir 220, ExoAir 120 must be cured (16-24 hours and/or firm and dry to the touch) prior to installing the transition membrane.

Prior to completion of the air barrier project work or at the end of each workday, apply TREMproof 201T or other pre-approved Tremco sealant to the top edge seam of ExoAir 110/110LT or ExoAir TWF. Tool the TREMproof 201T to ensure it is worked into the surface.

Coordinate installation of the air barrier system with the roofing trade to ensure continuity / compatibility with the roofing system at this critical transition area. Connect the air barrier membrane to adjacent parts of the building envelope such as the roof membrane air barrier, below-grade wall, window and curtain wall systems, and other parts of the building envelope.

Application of Fluid-Applied Membrane: Spray a continuous uniform film of ExoAir 220 at 70 wet mils min. wet film thickness using multiple, overlapping passes. Seal all brick-ties and other penetrations with ExoAir 220 or TREMproof 201T as appropriate and as work progresses. Carry ExoAir 220 a minimum of 3" onto the ExoAir 110/110LT transition and ExoAir TWF membranes. Review final ExoAir 220 application to ensure all substrates have been fully coated, and that there are no passages remaining for air infiltration / exfiltration, water vapor transmission or water penetration.

Inspect the ExoAir 220 membrane before covering and repair any punctures or damaged areas with ExoAir 220, TREMproof 201T or other pre-approved Tremco mastic, extending repair material a minimum of 6" beyond the puncture or damage.

Inspect ExoAir 110/110LT and ExoAir TWF membranes before covering and repair any punctures or damaged areas. Make repairs with ExoAir 110/110LT or ExoAir TWF as appropriate, or TREMproof 201T or other pre-approved Tremco mastic, extending either repair material a minimum of 6" beyond the puncture or damage.

3.04 PROTECTION AND CLEANING

Remove any masking materials after installation. Clean spillage and soiling on adjacent construction that will be exposed in the finished work using cleaning agents and procedures recommended by manufacturer of the affected construction. Protect membranes to avoid damage from other trades, and construction materials during subsequent operations. Insulation and/or protection products may be installed after all membranes have cured (24 hours and/or firm and dry to the touch). Schedule work so that the air and vapor barrier system is covered as soon as possible after installation. If the air and vapor barrier system cannot be covered within 30 days after installation, apply temporary UV protection such as dark plastic sheet or tarpaulins or contact Tremco for additional recommendations.

END OF SECTION

SECTION 08710

DOOR HARDWARE

THE REQUIREMENTS OF THE GENERAL CONDITIONS, SUPPLEMENTARY GENERAL CONDITIONS, AND DIVISION 1 APPLY TO THIS SECTION.

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Door Hardware for new classroom entry doors, new science classroom doors, new hardware for existing exterior admin building door, lab prep room doors and lab materials storage doors.
2. Locking hardware for chainlink gate between parking lot and schoolground.

B. Related Sections:

1. Section 06200 - Finish Carpentry: Finish Hardware Installation
2. Section 07900 - Joint Sealers – exterior thresholds
3. Section 08100 - Metal Doors and Frames
4. Section 08300 – Wood Doors

C. Specific Omissions: Hardware for the following is specified or indicated elsewhere.

1. Windows.
2. Cabinets, including open wall shelving and locks.
3. Rough hardware.

1.02 REFERENCES:

A. Use date of standard in effect as of Bid date.
B. American National Standards Institute – ANSI 156.18 – Materials and Finishes.
C. BHMA – Builders Hardware Manufacturers Association
D. DHI – Door and Hardware Institute
E. UL – Underwriters Laboratories

1. UL10C – Positive Pressure Fire Tests of Door Assemblies.
2. UL 305 – Panic Hardware

F. WHI – Warnock Hersey Incorporated State of California Building Code
G. Local applicable codes
H. SDI – Steel Door Institute

1.03 SUBMITTALS & SUBSTITUTIONS

A. SUBMITTALS: Submit six copies of schedule per Section 01330. Organize vertically formatted schedule 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. Type, style, function, size, quantity and finish of hardware items.
   2. Use BHMA Finish codes per ANSI A156.18.
   3. Name, part number and manufacturer of each item.
   4. Fastenings and other pertinent information.
   5. Location of hardware set coordinated with floor plans and door schedule.
   6. Explanation of abbreviations, symbols, and codes contained in schedule.
   7. Mounting locations for hardware.
   8. Door and frame sizes, materials and degrees of swing.
   9. List of manufacturers used and their nearest representative with address and phone number.
   10. Catalog cuts.

B. Discontinued items: Bid and submit manufacturer's updated/improved item if scheduled item is discontinued.

C. Deviations: Highlight, encircle or otherwise identify deviations from this section on submittal with notations clearly designating those portions as deviating from this section.

D. If discrepancy between drawings and scheduled material in this section, bid the more expensive of the two choices, note the discrepancy in the submittal and request direction from Architect for resolution.

E. Substitutions: per Division 1. Include product data and indicate benefit to the Project. Furnish operating samples on request.

   1. Items listed with no substitute manufacturers have been requested by Owner to meet existing standard.

F. Furnish as-built/as-installed schedule with closeout documents, including keying schedule, wiring diagrams, manufacturers' installation, adjustment and maintenance information, and supplier's final inspection report.

1.04 QUALITY ASSURANCE:

A. Qualifications:

   1. Hardware supplier: direct factory contract supplier who employs or retains a certified architectural hardware consultant (AHC), available at reasonable times during course of work for project hardware consultation to Owner, Architect and Contractor.

      a) Responsible for site conditions survey, detailing, scheduling and ordering of finish hardware. Detailing implies that the submitted schedule of material is correct and complete for the intended function and performance of the openings.

B. Hardware: Free of defects, blemishes and excessive play. Obtain each kind of hardware (latch and locksets, exit devices, hinges and closers) from one manufacturer.

C. Exit Doors: Operable from inside with single motion without the use of a key or special knowledge or effort.

D. Fire-Rated Openings: NFPA 80 compliant. Hardware UL10C / UBC Standard 7-2 (positive pressure) compliant for given type/size opening and degree of label. Provide proper latching hardware, non-flaming door closers, approved-bearing hinges, and resilient seals. Coordinate with wood door section for required intumescent seals. Furnish openings complete.

1. Note: scheduled resilient seals may exceed selected door manufacturer's requirements.
2. See 2.6.E for added information regarding resilient and intumescent seals.

E. Furnish hardware items required to complete the work in accordance with specified performance level and design intent, complying with manufacturers' instructions.

1. Where scheduled item is now obsolete, bid and furnish manufacturer's updated item at no additional cost to the project.

1.5 DELIVERY, STORAGE AND HANDLING:

A. Delivery: coordinate delivery to appropriate locations (shop or field).

1. Permanent keys and cores: secured delivery direct to Owner's representative.

B. Acceptance at Site: Items individually packaged in manufacturers' original containers, complete with proper fasteners and related pieces. Clearly mark packages to indicate contents, locations in hardware schedule and door numbers.

C. Storage: Provide securely locked storage area for hardware, protect from moisture, sunlight, paint, chemicals, dust, excessive heat and cold, etc.

1.06 PROJECT CONDITIONS AND COORDINATION:

A. Where exact types of hardware specified are not adaptable to finished shape or size of members requiring hardware, provide suitable types having as nearly as practical as the same operation and quality as type specified, subject to Architect's approval.

1. With the submittal, Contractor certifies that the submitted material is applicable and compatible with the new and existing doors and frames.

B. Coordination: Coordinate hardware with other work. Furnish hardware items of proper design for use on doors and frames of the thickness, profile, swing, security and similar requirements indicated, as necessary for proper installation and function, regardless of omissions or conflicts in the information on the Contract Documents. Furnish related trades with the following information:

1. Location of items embedded in or attached to concrete.

2. Location of wall-mounted hardware, including wall stops.

3. Location of finish floor materials and floor-mounted hardware.

4. Locations for conduit and raceways as needed for electrical, electronic and electro-pneumatic hardware items. Fire/life-safety system interfacing. Point-to-point wiring diagrams plus riser diagrams to related trades.

5. Manufacturer templates to door and frame fabricators.

C. Check Shop Drawings for doors and entrances to confirm that adequate provisions will be made for proper hardware installation.

1.07 WARRANTY:

A. Part of respective manufacturers' regular terms of sale. Provide manufacturers' written warranties:

1.	Locksets:	Three years.
3.	Exit Devices:	Three years.
4.	Closers:	Ten years.
5.	Hinges:	Life of bldg.
6.	Other Hardware:	Two years.

108 COMMISSIONING:

A. Conduct these tests prior to request for certificate of substantial completion:

1. With installer present, test door hardware operation with climate control system both at rest and while in full operation.

1.09 REGULATORY REQUIREMENTS:

A. Locate latching hardware between 34 inches to 44 inches above the finished floor, per California Building Code, Section 1008.1.9.2 and 1133B.2.5.2.

1. Locate panic hardware between 36 inches to 44 inches above the finished floor.

B. Handles, pull, latches, locks, other operating devices: readily openable from egress side without tight grasping, tight pinching, or twisting of the wrist to operate. California Building Code 1133B.2.5.2.

C. Adjust doors to open with not more than 5.0-pounds pressure to open at exterior doors and 5.0-pounds at interior doors. As allowed per California Building Code, Section 1133B.2.5 and 1008.1.3, local authority may increase the allowable pressure for fire doors to achieve positive latching, but not to exceed 15-pounds.

1. Door latch shall release when subjected to a 15-pound force.

2. Door shall be set in motion when subjected to a 30-pound force.

3. Door shall swing to a full-open position when subjected to a 15-pound force.

D. Adjust door closer sweep periods so that from an open position of 70 degrees, the door will take at least 3 seconds to move to a point 3 inches from the latch, measured to the landing side of the door, per California Building Code Section 1133B.2.5.1.

E. Smooth surfaces at bottom 10 inches of push sides of doors, facilitating push-open with wheelchair footrests, per California Building Code Section 1133B.2.6.

F. Door opening clear width no less than 32 inches, measured from face of frame stop, or edge of inactive leaf of pair of doors, to door face with door opened to 90 degrees. Hardware projection not a factor in clear width if located above 30 inches and the hardware projects no more than 4 inches. California Building Code Section 1133B.2.2, 1133B.2.3, and 1008.1.1.

1. Exception: doors not requiring full passage through the opening, that is, to spaces less than 24 inches in depth, may have the clear opening width reduced to 20 inches. Example: shallow closets.

G. Door opening clear height no less than 80 inches measured from top of sill to bottom of frame header stop. Projections into clear opening height not to exceed 4 inches. California Building Code Section 1133B.2.2 and 1008.1.1.

H. Thresholds: floor or landing no more than 0.50 inches below the top of the threshold of the doorway. Change in level between 0.25 inches and 0.50 inches: beveled to slope no greater than 1:2 (50 percent slope). California Building Code Section 1133B.2.4.1.

1. Existing conditions, where DSA determines unreasonable hardship, may be mitigated with a maximum 0.75 inches threshold with slope no greater than 1:2 (50 percent slope). DSA Policy #8.22.a.

I. Floor stops: Do not locate in path of travel. Locate no more than 4 inches from walls, per DSA Policy #99-08 (Access).

J. Pairs of doors: limit swing of inactive leaf to 90 degrees to protect persons reading wall-mounted tactile signage.

K. Meet California Building Code Sections 1133B.2.1, 1133B.2.5 and 1008.1.8.

L. Exit Devices:

1. Panic hardware shall comply with CBC Section 1008.1.9 (consider that if the device is mounted lower than 36 inches AFF, the clear opening may be restricted to less than the 32 inches required clear opening). Panic bar shall be mounted 36 inches to 44 inches above finished floor surface.

2. The unlatching force shall not exceed 15-pounds applied in the direction of travel.

PART 2 PRODUCTS

2.01 MANUFACTURERS:

A. Listed acceptable alternate manufacturers: submit for review products with equivalent function and features of scheduled products.

ITEM:	MANUFACTURER:	ACCEPTABLE SUB:
Continuous Hinges	(IVE) Ives	Markar
Key System	(SCH) Schlage	District Standard
Locks	(SCH) Schlage	District Standard
Exit Devices	(VON) Von Duprin	District Standard
Closers	(LCN) LCN	District Standard
Kickplates	(IVE) Ives	Trimco, Rockwood
Stops & Holders	(IVE) Ives	Trimco, Rockwood
Thresholds	(NGP) National Guard	Pemko, Reese, Zero
Seals & Bottoms	(NGP) National Guard	DHSI, Reese, Zero

2.02 HINGING METHODS:

A. Drawings typically depict doors at 90 degrees, doors will actually swing to maximum allowable. Use wide-throw conventional or continuous hinges as needed up to 8 inches in width to allow door to stand parallel to wall for true 180-degree opening. Advise architect if 8-inch width is insufficient.

B. Refer to manufacturer's published hinge selection standard for door dimensions, weight and frequency, as well as the hinge selection as scheduled in these hardware groups. Where manufacturer's standard exceeds the scheduled product, furnish the heavier of the two choices, notify Architect of deviation from scheduled hardware.

D. Continuous Hinges:

1. Pinned steel/stainless steel type: continuous stainless steel, 0.25-inch diameter stainless-steel hinge pin.

a) Use engineered application-specific wide-throw units as needed to provide maximum swing degree of swing, advise architect if required width exceeds 8 inches.

2.03 LOCKSETS AND LATCHSETS:

A. Mortise Locks and Latches: as scheduled.

1. Chassis: cold-rolled steel, handing field-changeable without disassembly.
2. Latchbolts: 3/4 inch throw stainless steel anti-friction type.
3. Lever Trim: through-bolted, accessible design, cast lever or solid extruded bar type levers as scheduled. Filled hollow tube design unacceptable.

a) Spindles: security design independent breakaway. Breakage of outside lever does not allow access to inside lever's hubworks to gain wrongful entry.

4. Furnish solid cylinder collars with wave springs. Wall of collar to cover rim of mortise cylinder.

5. At exterior doors to occupied spaces, furnish locksets that afford "safe-school" function, where faculty/staff can secure the door from inside the room without opening the door.

6. Strikes: 16 gage curved steel, bronze or brass with 1 inch deep box construction, lips of sufficient length to clear trim and protect clothing.

7. Scheduled Lock Series and Design: Schlage L series, 06A or 06L design as scheduled.

8. Certifications:

   a) ANSI A156.13, 1994, Grade 1 Operational, Grade 1 Security.

   b) ANSI/ASTM F476-84 Grade 31 UL Listed.

2.04 EXIT DEVICES / PANIC HARDWARE

A. General features:

1. Independent lab-tested 1,000,000 cycles.
2. At exterior doors to occupied spaces, furnish devices that afford "safe-school" function, where faculty/staff can secure the door from inside the room without opening the door.
3. Push-through push-pad design. No exposed push-pad fasteners, no exposed cavities when operated. Return stroke fluid dampeners and rubber bottoming dampeners, plus anti-rattle devices.
4. 0.75-inch throw deadlocking latchbolts.
5. End caps: impact-resistant, flush-mounted. No raised edges or lips to catch carts or other equipment.
6. Non-Fire Rated Devices: cylinder dogging.
7. Non-handed basic device design with center case interchangeable with all functions, no extra parts required to effect change of function.
8. Releasable in normal operation with 15-lb. maximum operating force per UBC Standard 10-4, and with 32 lb. maximum pressure under 250-lb. load to the door.
9. Flush end cap design as opposed to typical "bottle-cap" design end cap.
10. Comply with CBC Section 1003.3.1.9.

2.05 CLOSERS

A. Surface Closers:

1. Full rack-and-pinion type cylinder with removable non-ferrous cover and cast iron body. Double heat-treated pinion shaft, single piece forged piston, chrome-silicon steel spring.
2. ISO 2000 certified. Units stamped with date-of-manufacture code.
3. Independent lab-tested 10,000,000 cycles.
4. Non-sized, non-handed, and adjustable. Place closer inside building, stairs, and rooms.
5. Furnish plates, brackets and special templating when needed for interface with particular header, door and wall conditions and neighboring hardware. Furnish extended arms where needed with wide-throw hinges to allow maximum door swing.

6. Adjustable to open with not more than 5.0lbs pressure to open at exterior doors and 5.0lbs at interior doors. As allowed per California Building Code, Section 1133B.2.5, local authority may increase the allowable pressure for fire doors to achieve positive latching, but not to exceed 15lbs.
7. Separate adjusting valves for closing speed, latching speed and backcheck, fourth valve for delayed action where scheduled.
8. Extra-duty arms (EDA) at exterior doors scheduled with parallel arm units.
9. Exterior door closers: tested to 100 hours of ASTM B117 salt spray test, furnish data on request.
10. Exterior doors do not require seasonal adjustments in temperatures from 120 degrees F to –30 degrees F, furnish data on request.
11. Non-flaming fluid, will not fuel door or floor covering fires.
12. Pressure Relief Valves (PRV) not permitted.

2.06 OTHER HARDWARE

A. Kick Plates: Four beveled edges, .050 inches minimum thickness, height and width as scheduled. Sheet-metal screws of bronze or stainless steel to match other hardware.

B. Door Stops: Provide stops to protect walls, casework or other hardware.

1. Unless otherwise noted in Hardware Sets, provide floor type with appropriate fasteners. Where floor type cannot be used, provide wall type. If neither can be used, provide overhead type.

C. Seals: Four-fingered type at head & jambs. Inelastic, rigid back, not subject to stretching. Self-compensating for warp, thermal bow, and out-of-plumb. Adhesive warranted for life of installation.

1. Proposed substitutions: submit for approval.

2. Three-fingered type at hinge jambs of doors fitted with continuous hinges where jamb leaf of hinge is fastened to the frame reveal.

D. Thresholds: As scheduled and per details. Comply with CBC Section 1133B.2.4.1. Substitute products: certify that the products equal or exceed specified material's thickness. Proposed substitutions: submit for approval.

1. Exteriors: Seal perimeter to exclude water and vermin. Use exterior-grade sealant complying with requirements in Division 7 "Thermal and Moisture Protection". 1/4inch fasteners and lead expansion shield anchors, or Flat Head Sleeve Anchors (FHSL).
2. Plastic plugs with wood or sheet metal screws are not an acceptable substitute for specified fastening methods.

E. Fasteners: Generally, exposed screws to be Phillips or Robertson drive. Pinned TORX drive at high security areas. Flat head sleeve anchors (FHSL) may be slotted drive. Sheet metal and wood screws: full-thread. Sleeve nuts: full length to prevent door compression.

F. Exposed Through-Bolts: Do not use SNB, grommet nuts, sleeve nuts or other such clamping type fasteners, intent is for minimal exposed hardware. Coordinate with metal doors and frames; ensure provision of proper reinforcement to support machine screws for mounting panic hardware and door closers.

2.07 FINISH:

A. Generally BHMA 626 Satin Chromium.

1. Areas using BHMA 626 to have push-plates, pulls and protection plates of BHMA 630, Satin Stainless Steel, unless otherwise noted.

B. Door closers: factory powder coated to match other hardware, unless otherwise noted.

C. Aluminum items: match predominant adjacent material. Seals to coordinate with frame color.

2.08 KEYING REQUIREMENTS:

A. Key System: Furnish Schlage Primus large-format interchangeable core. For estimate use factory GMK charge. Initiate and conduct meeting(s) with Owner and I-R Security & Safety Consultants representatives to determine system keyway(s), keybow styles, structure and degree of geographic exclusivity. Furnish Owner's written approval of the system.

1. Existing factory registered master key system.
2. Construction keying: furnish temporary keyed-alike cores. Remove at substantial completion and install permanent cylinders/cores in Owner's presence. Demonstrate that construction key no longer operates.
3. Furnish 10 construction keys.
4. Furnish 2 construction control keys.

C. Key Cylinders: furnish utility patented, 6-pin solid brass construction.

D. Cylinder cores: furnish keyed at factory of lock manufacturer where permanent records are maintained. Locks and cylinders same manufacturer.

E. Permanent keys: use secured shipment direct from point of origination to Owner.

1. For estimate: 3 keys per change combination, 5 master keys per group, 5 grand-master keys, 3 control keys.

PART 3 - EXECUTION

3.01 ACCEPTABLE INSTALLERS:

A. Can read and understand manufacturers' templates, supplier's hardware schedule and printed installation instructions. Can readily distinguish drywall screws from manufacturers' furnished fasteners. Available to meet with manufacturers' representatives and related trades to discuss installation of hardware.

3.02 PREPARATION:

A. Ensure that walls and frames are square and plumb before hardware installation. Make corrections before commencing hardware installation.

B. Locate hardware per SDI-100 and applicable building, fire, life-safety, accessibility, and security codes.

1. Notify Architect of code conflicts before ordering material.
2. Locate levers, key cylinders, t-turn pieces, touchbars and other operable portions of latching hardware between 30 inches to 44 inches above the finished floor, per CBC Section 1133B.2.5.1.
3. Where new hardware is to be installed near existing doors/hardware scheduled to remain, match locations of existing hardware.

C. Overhead stops: before installing, determine proposed locations of furniture items, fixtures, and other items to be protected by the overhead stop's action.

3.03 INSTALLATION

A. Install hardware per manufacturer's instructions and recommendations. Do not install surface-mounted items until finishes have been completed on substrate. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate for proper installation and operation. Remove and reinstall or replace work deemed defective by Architect.

1. Gaskets: Install sweeps across bottoms of doors before continuous hinges and astragals, cope sweeps around bottom pivots, trim continuous hinges and astragals to tops of sweeps.
2. When hardware is to be attached to existing metal surface and insufficient reinforcement exists, use RivNuts, NutSerts or similar anchoring device for screws.
3. Use manufacturers' fasteners furnished with hardware items, or submit Request for Substitution with Architect.
4. Replace fasteners damaged by power-driven tools.

B. Locate floor stops no more that 4 inches from walls and not within paths of travel. See paragraph 2.2 regarding hinge widths, door should be well clear of point of wall reveal. Point of door contact no closer to the hinge edge than half the door width. Where situation is questionable or difficult, contact Architect for direction.

C. Core concrete for exterior door stop anchors. Set anchors in approved non-shrink grout.

D. Locate overhead stops for minimum 90 degrees and maximum allowable degree of swing.

E. Drill pilot holes for fasteners in wood doors and/or frames.

F. Remove existing floor closers not scheduled for reuse, fill cavities with concrete and finish smooth.

G. At doors where a floor stop cannot be used, request direction from Architect.

3.04. ADJUSTING

A. Adjust and check for proper operation and function. Replace units, which cannot be adjusted to operate freely and smoothly.

1. Hardware damaged by improper installation or adjustment methods to be repaired or replaced to Owner's satisfaction.
2. Adjust doors to fully latch with no more than 1 pound of pressure.
3. Adjust delayed-action closers on fire-rated doors to fully close from fully-opened position in no more than 10 seconds.

B. Inspection: Use hardware supplier. Include supplier's report with closeout documents.

C. Final inspection: Installer to provide letter to Owner that upon completion installer has visited the Project and accomplished the following:

1. Re-adjust hardware.
2. Evaluate maintenance procedures and recommend changes or additions, and instruct Owner's personnel.
3. Identify items that have deteriorated or failed.
4. Submit written report identifying problems

3.05 DEMONSTRATION:

A. Demonstrate mechanical hardware and electrical, electronic and pneumatic hardware systems, including adjustment and maintenance procedures.

3.06 PROTECTION/CLEANING:

A. Cover installed hardware, protect from paint, cleaning agents, weathering, carts/barrows, etc. Remove covering materials and clean hardware just prior to substantial completion. Remove paint from hardware.

B. Clean adjacent wall, frame and door surfaces soiled from installation/reinstallation process.

3.07 SCHEDULE OF FINISH HARDWARE

A. See door schedule in drawings for hardware set assignments.

SPECWORKS # 107109-B7Q53UKKR

HW SET: 01-PH EXT CLSSRM ENTRY PLUS EXSTG EXT ADMIN DR 01A: PH

1	EA	CONTINUOUS HINGE	703	630	IVE
1	EA	PANIC HARDWARE	CDXP98NL-OP	626	VON
1	EA	IC RIM CYL	20-057 ICX	626	SCH
1	EA	MORTISE CYLINDER	20-061 XQ11-948 ICX (DOGGING)	626	SCH
2	EA	PRIMUS CORE ONLY	20-740	626	SCH
1	EA	DOOR PULL	VR910NL	630	IVE
1	EA	SURFACE CLOSER	4041 HEDA	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	FLR STOP + BASE ANCH	1214CK X 1268CK	626	TRI
1	EA	DOOR CAP	541SS	630	NGP
1	SET	PERIMETER SEAL	105-B/105-3HJ-B HEAD&JAMBS	BRN	DHS
1	EA	DOOR SWEEP	200N	628	NGP
2	EA	BTM CORNER SEAL	DP		DHS
1	EA	THRESHOLD	PER DETAIL, COMBO/FHSL	719	
3	EA	SILENCER	SR64	GRY	IVE
1	EA	STRIKE FILLER	4478 (@ 01A ONLY)	600	SBH
1	EA	BLANK WRAP-AROUND	90-CW (@ 01A ONLY)	630	DON
3	EA	HINGE/PIVOT FILLER	F542 (V.I.F. SIZE REQ'D, OMIT @ NEW FRM)	600	SBH

REMOVE EXSTG FLOOR CLOSER, FILL CAVITY WITH NON-SHRINK CONCRETE, TROWEL SMOOTH.
PH USED AT DR 01A TO COMPENSATE FOR LACK OF 12" PUSH-SIDE ACCESSIBLE APPROACH.

HW SET: 01-LK EXT CLSSRM ENTRY: LOCKSET

1	EA	CONTINUOUS HINGE	703	630	IVE
1	EA	SECURITY CLSSRM LCK	L9077T LLL/06A L283-150	630	SCH
2	EA	PRIMUS CORE ONLY	20-740	626	SCH
1	EA	DOOR PULL	VR900	630	IVE
1	EA	SURFACE CLOSER	4041 HEDA	689	LCN
1	EA	KICK PLATE	KO050 10" X 2"LDW	630	TRI
1	EA	FLR STOP + BASE ANCH	1214CK X 1268CK	626	TRI
1	EA	DOOR CAP	541SS	630	NGP
1	SET	PERIMETER SEAL	105-B/105-3HJ-B HEAD&JAMBS	BRN	DHS
1	EA	DOOR SWEEP	200N	628	NGP
1	EA	CAP SWEEP/SHOE	CS		DHS
2	EA	BTM CORNER SEAL	DP		DHS
1	EA	THRESHOLD	PER DETAIL, COMBO/FHSL	719	
3	EA	SILENCER	SR64	GRY	IVE
3	EA	HINGE/PIVOT FILLER	F542 (V.I.F. SIZE REQ'D, OMIT @ NEW FRM)	600	SBH

REMOVE EXSTG FLOOR CLOSER, FILL CAVITY WITH NON-SHRINK CONCRETE, TROWEL SMOOTH.

HW SET: 02 INT COMMUNICATING DOOR

3	EA	HINGE	3CB1 4.5 X 4.0	652	IVE
1	EA	STORE LOCK	L9466T 06L	626	SCH
2	EA	PRIMUS CORE ONLY	20-740	626	SCH
1	EA	SURFACE CLOSER	4041 HEDA	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	DOME STOP	FS436 / FS438	626	IVE
1	SET	PERIMETER SEAL	105-B/105-3HJ-B HEAD&JAMBS	BRN	DHS
1	EA	CAP SWEEP/SHOE	CS		DHS
2	EA	BTM CORNER SEAL	DP		DHS
1	EA	THRESHOLD	513 COMBO	719	NGP
3	EA	SILENCER	SR64	GRY	IVE

HW SET: 03 INT LAB PREP ROOM

3	EA	HINGE	3CB1 4.5 X 4.0	652	IVE
1	EA	CLASSROOM LOCK	L9070T 06L	626	SCH
1	EA	PRIMUS CORE ONLY	20-740	626	SCH
1	EA	SURFACE CLOSER	4041 HEDA	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	DOME STOP	FS436 / FS438	626	IVE
1	SET	PERIMETER SEAL	105-B/105-3HJ-B HEAD&JAMBS	BRN	DHS
1	EA	CAP SWEEP/SHOE	CS		DHS
2	EA	BTM CORNER SEAL	DP		DHS
1	EA	THRESHOLD	513 COMBO	719	NGP
3	EA	SILENCER	SR64	GRY	IVE

HW SET: 04 LAB PREP RM STG

3	EA	HINGE	3CB1 4.5 X 4.0	652	IVE
1	EA	CLASSROOM LOCK	L9070T 06L	626	SCH
1	EA	PRIMUS CORE ONLY	20-740	626	SCH
1	EA	SURFACE CLOSER	4041	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	DOME STOP	FS436 / FS438	626	IVE
1	SET	PERIMETER SEAL	105-B/105-3HJ-B HEAD&JAMBS	BRN	DHS
1	EA	CAP SWEEP/SHOE	CS		DHS
1	EA	THRESHOLD	513 COMBO	719	NGP

HW SET: 05 EXT UTILITY, UNEQUAL LEAFS (@ SHOWER/LOCKER BLDG)

2	EA	CONTINUOUS HINGE	703	630	IVE
1	EA	CHAIN BOLT	514.00036 42" CHAIN L/TOP STRIKE	600	RIC
1	EA	CANE BOLT	524.00021	602	RIC
1	EA	CHAIN BOLT TOP STK	299	BLK	VON
1	EA	STOREROOM LOCK	L9080T LLL/06A	626	SCH
1	EA	PRIMUS CORE ONLY	20-740	626	SCH
1	EA	DOOR PULL	VR900LLP	630	IVE
2	EA	HYDRAULIC CHECK	4041 HEDA ST2687	689	LCN
2	EA	KICKPLATE	8400 10" X 1.0" LDW	630	IVE
2	EA	HD FLOOR STOP	FS18L	BLK	IVE
1	SET	PERIMETER SEAL	105-B/105-3HJ-B HEAD&JAMBS	BRN	DHS
2	EA	CAP SWEEP/SHOE	CS		DHS
2	EA	BTM CORNER SEAL	DP		DHS
1	EA	HD THRSHLD	513HD COMBO	719	NGP
2	EA	SILENCER	SR64	GRY	IVE
6	EA	HINGE/PIVOT FILLER	F542 (V.I.F. SIZE REQ'D, OMIT @ NEW FRM)	600	SBH

NOTE: THESE DOORS RECEIVE DIRECT SUN EXPOSURE AND WILL NOT BE SUPPORTED BY WARRANTY FOR EXTERIOR WOOD DOORS. OTHER DOORS THIS PROJECT ARE SHELTERED. USE HOLLOW METAL DOORS IN THIS OPENING.

HW SET: GATELK, GATE @ PARKING LOT

1	EA	SECURITY CLSSRM LCK	L9077T LLL/06A L283-150	630	SCH
2	EA	PRIMUS CORE ONLY	20-740	626	SCH
1	EA	DOOR PULL	VR900	630	IVE
2	EA	GATE CLOSER	"KANT-SLAM"	BLK	KAN
1	EA	GATE STOP/HOLDER	1260 SERIES + 1260P (NEED 3/4"PIPE)	626	TRI
1	EA	GATE BOX	K-BXMOR SERIES	600	KEE

HINGING/PIVOTING DEVICES: PART OF CHAIN LINK GATE FABRICATION PACKAGE.

END OF SECTION 08710

SECTION 10001
MISCELLANEOUS ITEMS

The requirements of the General Conditions, Supplementary General Conditions, and Division 1 apply to this section.

PART 1 : GENERAL

1.01 Scope:

A. Furnish and install all Miscellaneous Items as indicated on the drawings and as specified in this section.

1.02 Submittal:

A. Shop Drawings: Submit four (4) copies of shop drawings for each item for the Architect's approval prior to commencement of work.

PART 2 : PRODUCTS

2.01 Materials:

A. Trench Cover (as manufactured by Balco Inc.):

1. MODEL: TST-12-250 with tile recess.

B. Fire Extinguisher Cabinet and Extinguisher (as manufactured by Potter-Roemer,Inc. or accepted equal):

1. SEMI-RECESSED: Cabinet 1772 semi-recessed - up to 10 lb extinguisher, stainless steel frame, continuous hinged full bubble door, with 3006, 3A:40BC extinguisher.

2. Mounting height: 48" high max. to top of extinguisher handle.

C. Detectable Warning Surfaces:

1. Cast-In-Place: Cast-In-Place Detectable/Tactile Warning Surface as manufactured by Armor-Tile, Engineered Plastics Inc., or accepted equal.

a. Color: Yellow conforming to Federal Color No. 33538.

2. Surface Applied: Surface Applied Detectable/Tactile Warning Surface Tile as manufactured by Armor-Tile, Engineered Plastics Inc., or accepted equal.

a. Color: Yellow conforming to Federal Color No. 33538

b. Fasteners: Color matched, corrosion resistant, flat head drive anchor: 1/4" diameter x 1 ½" long as supplied by Engineered Plastics Inc.

c. Adhesive: Armor-Bond as supplied by Engineered Plastics Inc.

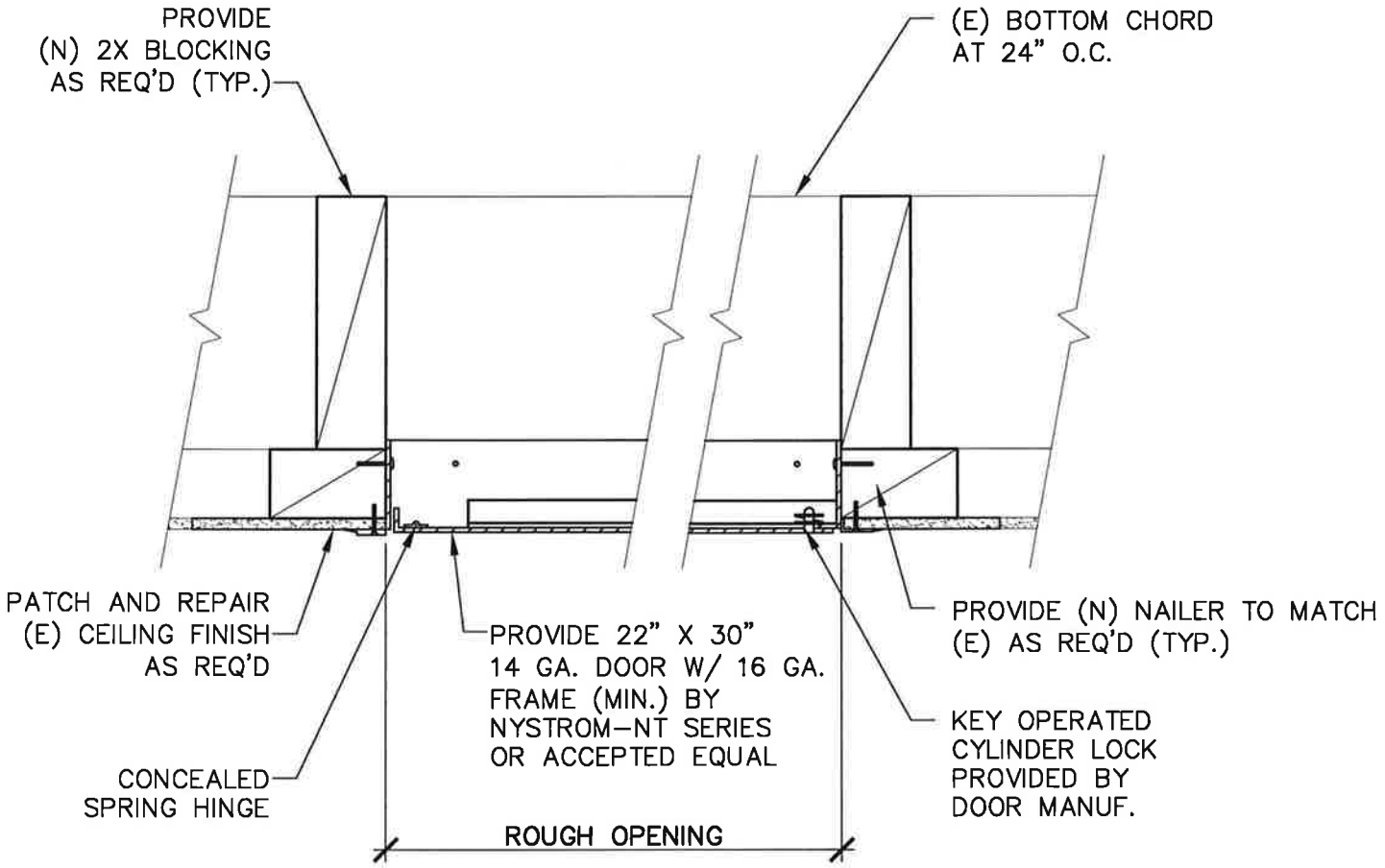
d. Sealant: Armor-Seal as supplied by Engineered Plastics Inc.

PART 3 : INSTALLATION

3.01 Installation:

A. Install all miscellaneous items per manufacturer's printed installation instructions and all recommendations.

END OF SECTION



NOTE:
CONTRACTOR SHALL VERIFY WITH PROJECT INSPECTOR THAT NO STRUCTURAL MEMBERS ARE CUT.

LICENSED ARCHITECT
HENRY H. WOO
C-12998
1/31/2013
RENEWAL DATE
STATE OF CALIFORNIA

TYPICAL CEILING HATCH

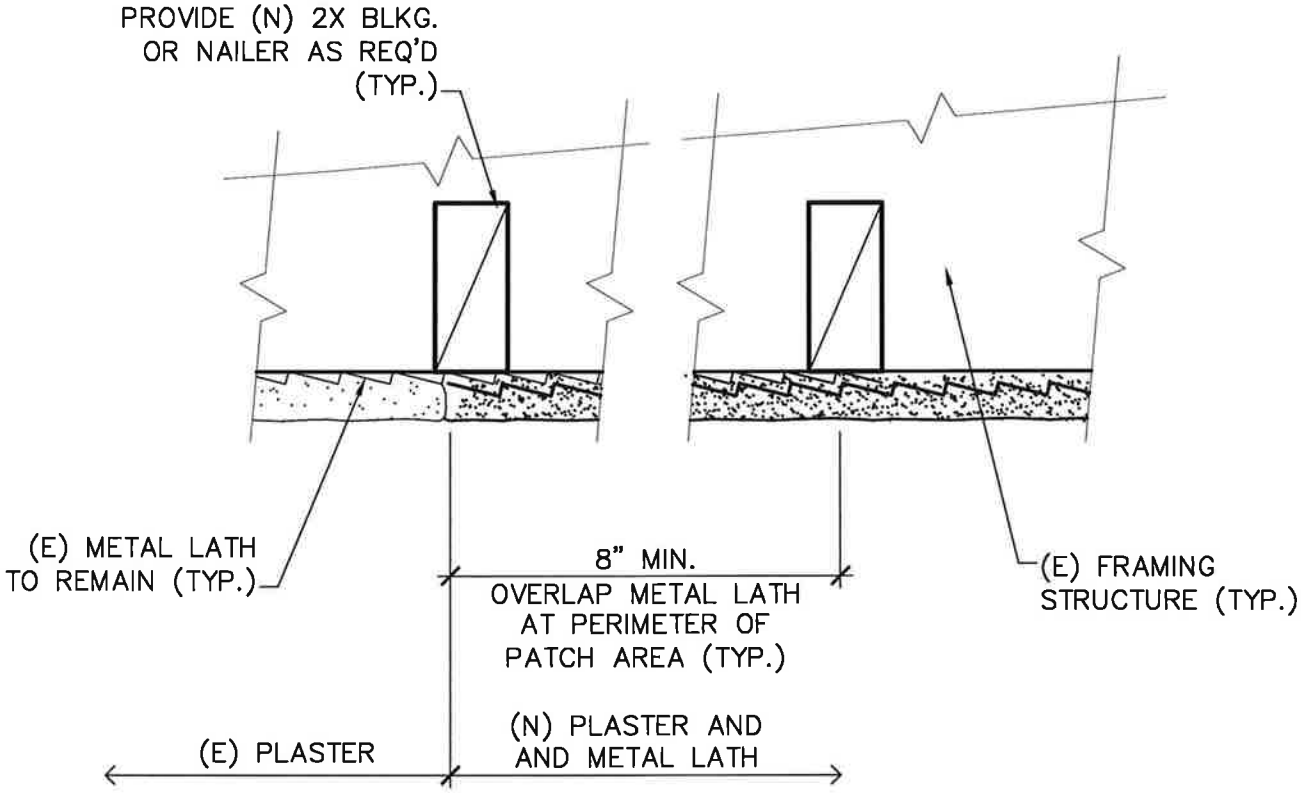
SCALE: 3" = 1'-0"

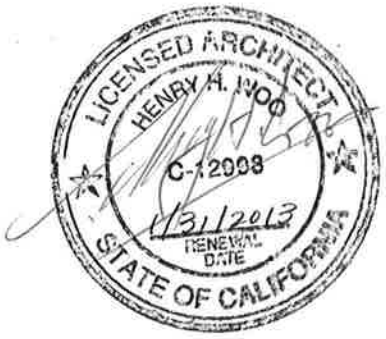
PROJECT TITLE:
ALVARADO I.S. PARTIAL MODERNIZATION

DSA NO.: 03-112358 FILE NO.: 19-92
PROJECT NO.: 108RSD13
HENRY WOO ARCHITECTS, INC.

AD1-A1

DATE: 01/25/11





TYP. EXTERIOR PLASTER PATCHING

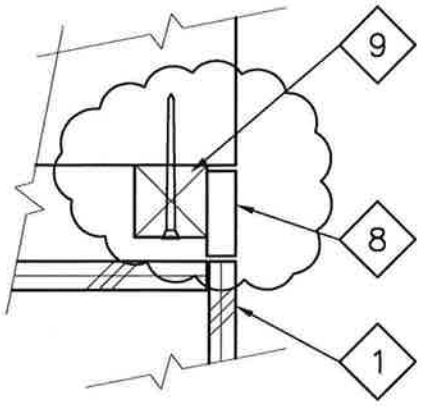
SCALE: N.T.S.

PROJECT TITLE:
ALVARADO I.S.
PARTIAL MODERNIZATION

DSA NO.: 04-112358 FILE NO.: 19-92
PROJECT NO.: 108FRSD13
HENRY WOO ARCHITECTS, INC.

AD1-A2

DATE: 01/21/2011



A

KEY NOTES (FOR THIS DETAIL ONLY)

1. CASEWORK (FRONT, BACK, TOP, BOTTOM)
2. FACE OF WALL
3. 1x4 CONTINUOUS WOOD CLEAT
4. 1x2 CONTINUOUS WOOD CLEAT
5. ANCHORAGE – TYPE VARIES BASED UPON WALL CONSTRUCTION AS FOLLOWS:

   WOOD STUD FRAMING – #12 x 3 1/2" FHWS WITH 3/4" DIAMETER METAL WASHERS @ 16" O.C., 2" MAXIMUM FROM EACH END.

   MINIMUM 2 PER CABINET W/ 3x4 WOOD BLOCKING WITH A34 TOP AND BOTTOM @ 16" O.C., 2" MAXIMUM FROM EACH END.

   MINIMUM 2 PER CABINET W/ CONT. 16 GA. x 4" STEEL PLATE x CABINET LENGTH OR MASONRY – 1/2" HILTI HY–20 ANCHORS ICC# ER–4815 (FOR BRICK) (2" MIN. EMBEDMENT) @ 24" O.C. MINIMUM 2 PER CABINET.

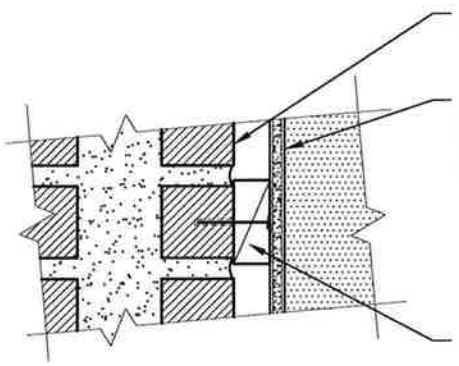
6. (NOT USED)
7. 2x4 PLATE PRESSURE TREATED
8. PLASTIC LAMINATE FILLER PANEL SET W/ WOOD ADHESIVE. (BY CASEWORK CONTRACTOR)
9. 2x BLOCKING W/ #10 WOOD SCREWS TO SOFFIT FRAMING @ 24" O.C. (BY CASEWORK CONTRACTOR)
10. 2x W #10 x 3" FLAT HEAD WOOD SCREWS @ 24" O.C.
11. 3/8" ø HILTI KB–TZ ANCHORS ICC# ESR–1917 (3" MIN. EMBED.) @ 24" O.C. TO CONCRETE SLAB, MIN. 2 PER CABINET.

TYPICAL CASEWORK ANCHORAGE **(REF. 4/A-9.4)** SCALE: N.T.S.

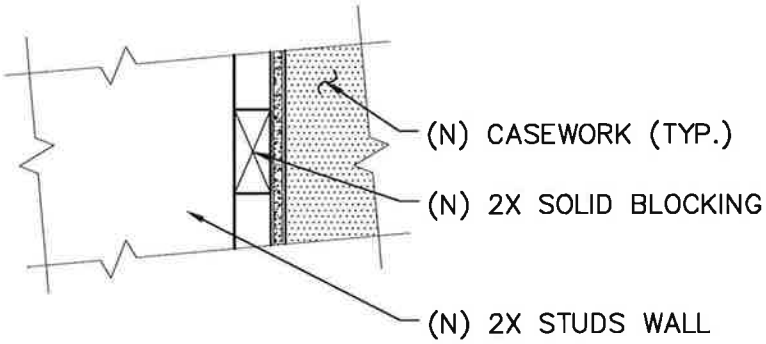
PROJECT TITLE:
ALVARADO I.S. PARTIAL MODERNIZATION

DSA NO.: 03-112358 FILE NO.: 19-92
PROJECT NO.: 108RSD13
HENRY WOO ARCHITECTS, INC.

AD1-A3 DATE: 01/21/2011



A AT (E) BRICK WALL



B AT (N) 2X STUDS WALL

TYP. REQ'D BLOCKING

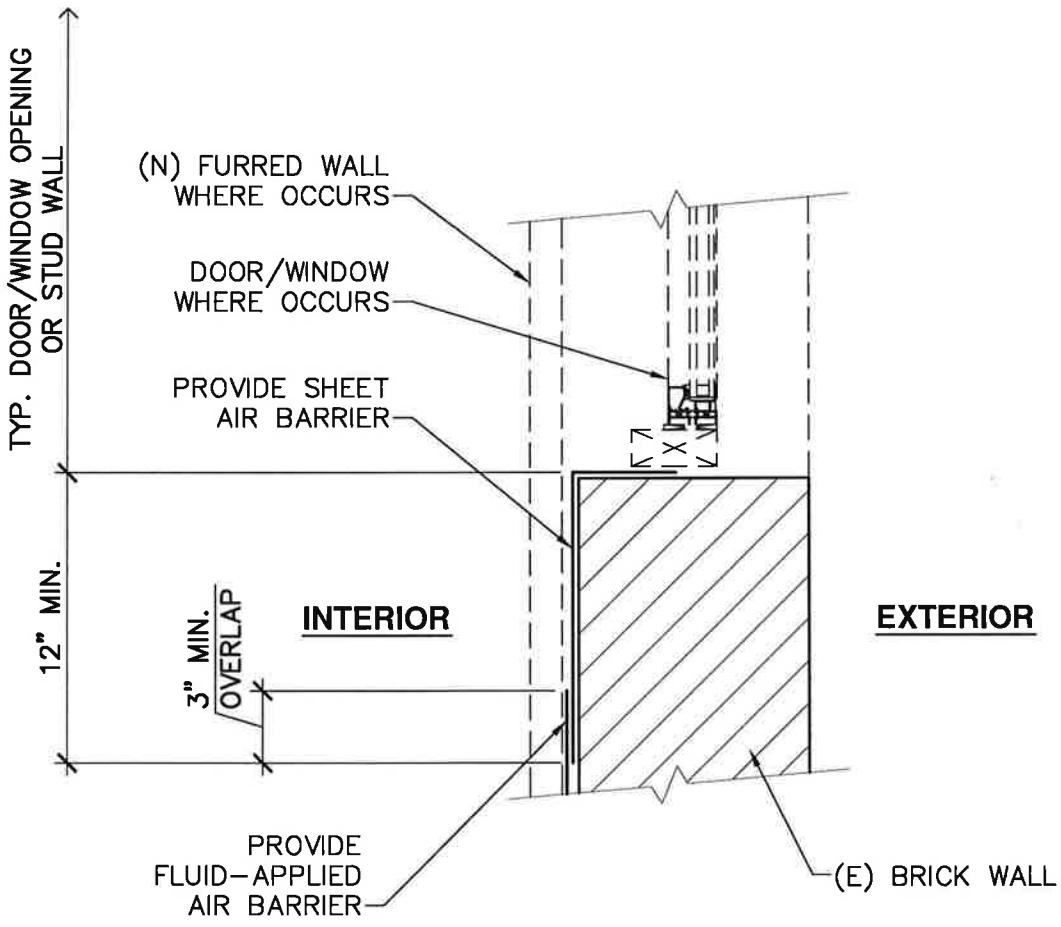
SCALE: N.T.S.

PROJECT TITLE:
ALVARADO I.S. PARTIAL MODERNIZATION

DSA NO.: 03-112358 FILE NO.: 19-92
PROJECT NO.: 108RSD13
HENRY WOO ARCHITECTS, INC.

AD1-A4

DATE: 01/21/2011



LICENSED ARCHITECT
HENRY H. WOO
C-12988
1/31/2013
RENEWAL DATE
STATE OF CALIFORNIA

TYPICAL AIR BARRIER AT (E) BRICK MASONRY WALL

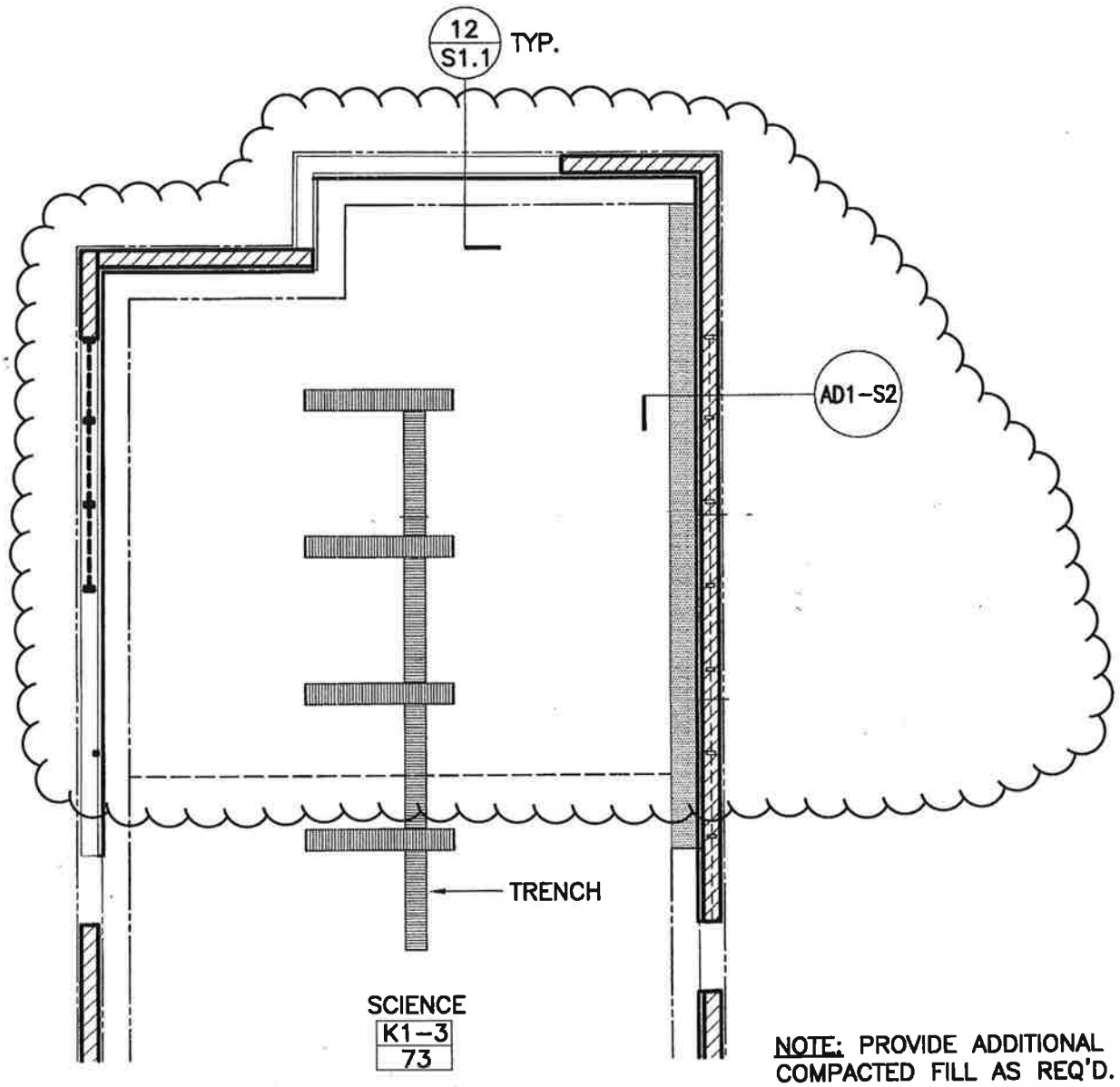
SCALE: N.T.S.

PROJECT TITLE:
ALVARADO I.S. PARTIAL MODERNIZATION

DSA NO.: 03-112358 FILE NO.: 19-92
PROJECT NO.: 108RSD13
HENRY WOO ARCHITECTS, INC.

AD1-A5

DATE: 01/21/2011



NOTE: PROVIDE ADDITIONAL COMPACTED FILL AS REQ'D. AT AREAS W/ EXISTING DEPRESSED SLAB AND/OR BELOW GRADE TRENCHES.

REGISTERED PROFESSIONAL ENGINEER
LESLIE TSO
No. S 3073
Exp. 3-31-2011
STRUCTURAL
STATE OF CALIFORNIA

LICENSED ARCHITECT
HENRY H. WOO
C-12908
1/31/2013
RENEWAL DATE
STATE OF CALIFORNIA

KANDA | TSO

Kanda and Tso Associates consulting structural engineers
511 Mission Street
South Pasadena, California 91030-3035
tel [626] 441 1211
fax [626] 441 1011

(KTA #W00-2008-001)

N

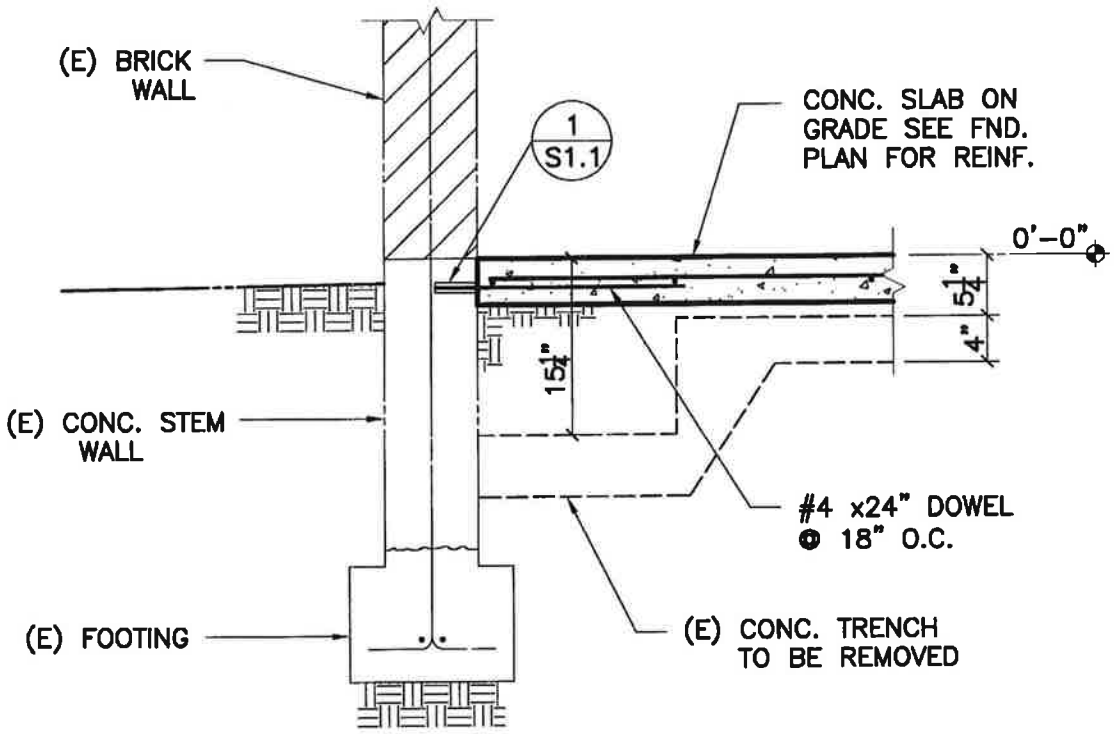
REVISED PARTIAL FOUNDATION PLAN (BLDG. C-2) (REF. 1 / S2.1) SCALE: 1/8" = 1'-0"

PROJECT TITLE:
ALVARADO I.S.
PARTIAL MODERNIZATION

DSA NO.: 03-112358 FILE NO.: 19-92
PROJECT NO.: 108RSD13
HENRY WOO ARCHITECTS, INC.

AD1-S1

DATE: 01/17/11



REGISTERED PROFESSIONAL ENGINEER
LESLIE TSO
No. S 3073
Exp. 3-31-2011
STRUCTURAL
STATE OF CALIFORNIA

LICENSED ARCHITECT
HENRY H. WOO
C-12908
1/31/2013
RENEWAL DATE
STATE OF CALIFORNIA

KANDA | TSO

Kanda and Tso Associates consulting structural engineers

511 Mission Street
South Pasadena, California 91030-3035

tel [626] 441 1211
fax [626] 441 1011

(KTA #W00-2008-001)

NEW SLAB TO (E) WALL DETAIL

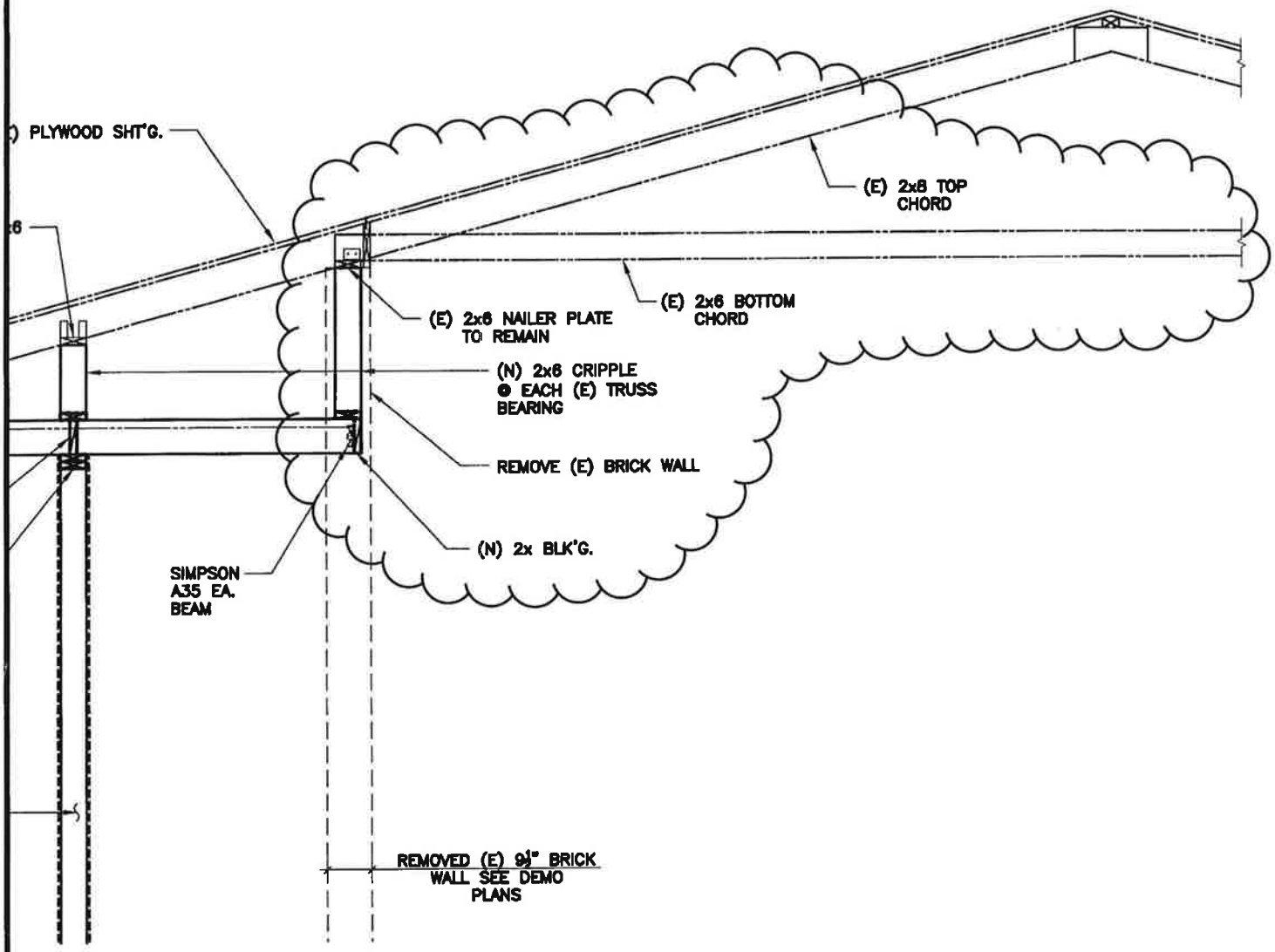
SCALE: 3/4" = 1'-0"

PROJECT TITLE:
ALVARADO I.S.
PARTIAL MODERNIZATION

DSA NO.: 03-112358 FILE NO.: 19-92
PROJECT NO.: 108RSD13
HENRY WOO ARCHITECTS, INC.

AD1-S2

DATE: 01/17/11



REGISTERED PROFESSIONAL ENGINEER
LESLIE TSO
No. S 3073
Exp. 3-31-2011
STRUCTURAL
STATE OF CALIFORNIA

LICENSED ARCHITECT
HENRY H. WOO
C-12908
1/31/2013
RENEWAL DATE
STATE OF CALIFORNIA

KANDA | TSO

Kanda and Tso Associates consulting structural engineers
511 Mission Street
South Pasadena, California 91030-3035
tel [626] 441 1211
fax [626] 441 1011

(KTA #W00-2008-001)

REVISED PARTIAL SECTION

(REF. 13 / S3.1)

SCALE: NONE

PROJECT TITLE:
ALVARADO I.S.
PARTIAL MODERNIZATION

DSA NO.: 03-112358 FILE NO.: 19-92
PROJECT NO.: 108RSD13
HENRY WOO ARCHITECTS, INC.

AD1-S3

DATE: 01/17/11