

City of San Leandro
Civic Center, 835 E. 14th Street
San Leandro, California 94577



**SAN LEANDRO SENIOR CENTER - PHASE 2
PROJECT NO. 06-210-18-116**

ADDENDUM NO. 2

July 11, 2008

TO: All Prospective Bidders

The additions and/or deletions contained in this Addendum shall be made a part of the plans and specifications and contract documents for the above described project, and shall be subject to all applicable requirements there under, as if originally shown and/or specified.

THE CONTRACT DOCUMENTS SHALL BE REVISED AS FOLLOWS:

CLARIFICATION

C-1. Section 0700, Paragraph 2.3 Subcontracts, item A: Contractor shall only use Denalect Alarm for security cameras, card access systems, security systems and fire alarm systems. Denalect Alarm shall be used as a sub-contractor for supply and installation including wiring of devices, panels, and equipment required for the above systems. Specification sections 17960, 17964, 17973, 17980 shall be based on the City's Standard as provided by Denalect.

SPECIFICATION CHANGES

S-1. Section 00200 Notice to Bidders:

REVISE to Paragraph 9 to Read as follows:

9. PAYMENT AND PERFORMANCE BONDS: Payment and performance guarantee bonds as set forth in Paragraph 2-4 of specification section 00700 will be required from the successful bidder.

DELETE Paragraph 14 regarding "Obtaining the APWA Standard Specifications (Green Book)".

S-2. Section 00200 Section – Reference Data:

ADD Sentence to end of Section 1.2 A as follows:

An electronic copy of the soil report is also available for review on the City's purchasing website at the following internet address:

<http://www.ci.san-leandro.ca.us/sl purchasingbids.html>

This report is available for information only and shall not be considered part of the contract documents.

S-3. Section 00300 Proposal:

REVISE Line at top of page 00300-3 to read as follows:

The attention of all bidders is directed to paragraph 2-1 of Specification section 00700 – City of San Leandro

Tony Santos, Mayor

City Council:

Surlene G. Grant;
Diana M. Souza;

Michael J. Gregory;
Joyce R. Starosciak;

Jim Prola;
Bill Stephens



- S-4. Section 00700 Section 6.1 Construction, Schedule and Sequence of Work:
ADD paragraph to end of section:
L. The existing parking lot pavement outside of 10' of the new building shall remain in place until after the end of rainy season on April 15, 2009, and until the exterior site work is ready to start construction.
- S-5. Section 00700 Section 7.3 Liability Insurance:
REVISE Paragraph 00700-32 based on the following change:
Separate Earthquake and Flood insurance coverage is not required for this project.
Builder's Risk Insurance is still required as specified.
- S-6. Section 01500 Temporary Facilities and Controls:
ADD to Paragraph 2.2.A. Field Offices, items 1-3, to read as follows:
1. "Provide a separate field office trailer for the Inspector of Record and the City's Project Engineer.
2. Field Office shall be Class "A". with a minimum floor space of 175 square feet, at least one door and window with screens. Furniture provided shall include a plan table, a standard 5 feet long double-pedestal desk with file drawers, two chairs, a drafting stool and a plan rack. Electric power shall include a minimum of four duplex receptacles. The office shall be illuminated at the tables and desk. An outdoor lighting fixture with a 300-watt bulb shall be installed. Heating and air conditioning of sufficient capacity shall be provided at no expense to the Owner. The Contractor shall provide drinking water within the office and integral sanitary facilities directly adjoining. Sanitary facilities shall include a toilet and wash basin with hot and cold running water.
3. Field office to include a meeting space with conference table and chairs, telephone service, copier, fax machine, scanner, computer, digital camera, high speed internet connection, filing cabinets, and other items as directed by Architect or Owner."
- S-7. Section 01810 Commissioning: REPLACE SECTION in its entirety, included in attachments.
- S-8. Section 02550 Natural Gas Distribution:
REVISE Paragraph 1.1.D. Work by Contractor, item 1 to read as follows:
1. "Installation of gas system pipe, regulator, meter and other appurtenances and trenching to be done by the Contractor."
REVISE Paragraph 1.4.A.General, item 1 to read as follows:
1. "Trenching and backfill operations shall conform to the requirements of PG&E and the City of San Leandro, CA."
- S-9. Section 06625 Fiber Reinforced Plastic Paneling: ADD NEW SECTION, included in attachments. FRP used in kitchen walls, refer to A2.11B and drawing change D-17 of this addendum.
- S-10. Section 07511 Built-Up Asphalt Roofing:
ADD to Paragraph 2.9 Roof Insulation, item C and E, to read as follows:

- C. "Tapered Insulation: Provide factory tapered polyisocyanurate boards fabricated to slope of ¼ inch per 12 inches and ½ inch per 12 inches for fabrication of insulation crickets at equipment curbs, unless otherwise indicated.
- E. Thermal Resistance Values: As indicated on the drawings, and per the following:
 - 1. Provide minimum thermal resistance value of R-12 with tapered insulation at typical low-slope roof, with a minimum thickness of 1-1/2 inches.
 - 2. Provide minimum thermal resistance value of R-15 with tapered insulation at typical main circulation/entry roof, with a minimum thickness of 1-1/2 inches."

REPLACE Paragraph 2.10.D. Tapered Edge Strips, to read as follows:

- D. "Tapered Edge Strips: ASTM C208, non-asphaltic wood fiber tapered edge strips for use at tapered insulation board cricket edges and for fabrication of drain sumps."

S-11. Section 07610 Sheet Metal Roofing:

ADD to Paragraph 2.1.A Basis of Design, the following sentence: "...continuous curved metal roof product compatible with slopes and profile as shown on drawings."

DELETE Paragraph 2.3 Underlayment Materials, items A. Polyethylene Sheet and B. Felts.

ADD to Paragraph 2.3.D. Slip Sheet, the following sentence: "..., as required by roofing manufacturer."

ADD new Paragraph 2.5. Roof Insulation, to read as follows:

"2.5. Roof Insulation"

- A. General: As approved by roof membrane manufacturer for compatibility with the membrane system.
- B. Preformed Units: Sizes to fit applications indicated, selected from manufacturer's standard thicknesses, widths, and lengths.
- C. Deck Board: Georgia Pacific, "Dens-Deck Prime", ½ inch thick units.
- D. Polyisocyanurate Foam Insulation: ASTM C 1289, Type II, Class 1, Grade 2, felt or glassfiber mat facing on both major surfaces, approved for use by the roofing membrane manufacturer.
- E. Basis-of-Design Manufacturer/Product: Subject to compliance with requirements, provide "Carlisle SynTec, Inc., "Carlisle HP-H Polyiso.", or one of the following:
 - 1. Firestone Building Products Co., "Firestone ISO 95+ GL Flat and Tapered."
 - 2. Or approved equal.
- F. Board Width: Maximum width as required for application.
- G. Board Thickness: At curved roof areas with metal roofing: 2-1/2 inches minimum.
- H. Thermal Resistance Values: R-15 minimum, at curved roof areas."

ADD to Paragraph 3.2.D. Slip Sheet, the following sentence: "..., as required by roofing manufacturer."

ADD new Paragraph 3.2.E. Install flashings to cover underlayment to comply with requirements in Division 7 Section "Sheet Metal Flashing and Trim."

INSERT new Paragraph 3.4 Insulation Installation, to read as follows:

"3.4 Insulation Installation

- A. Apply insulation units to substrates by method indicated, complying with manufacturer's written instructions. If no specific method is indicated, bond units to substrate with adhesive and use mechanical anchorage to provide permanent placement and support of units.
- B. Seal joints between foam-plastic insulation units by applying adhesive, mastic, or sealant to edges of each unit to form a tight seal as units are shoved into place. Fill voids in completed installation with adhesive, mastic, or sealant as recommended by insulation manufacturer."

Note: Adjust the following numbering of paragraph 3.5- 3.7 accordingly.

S-12. Section 08520 Aluminum Windows:
DELETE paragraph 1.3.C. Windborne Debris Resistance

S-13. Section 10155 Toilet Compartments:
REPLACE in paragraph 1.2.A. Summary, the wording "Solid Polymer Phenolic Core" with "Solid Color Reinforced Composite (SCRC)."

REVISE paragraph 2.1.B to read as follows:

- B. "Door Panel and Pilaster Construction: Solid color reinforced composite (SCRC) composed of dyed wood fibrous material reinforced with polycarbonate and Phenolic resins and with eased and polished edges. Provide minimum 3/4-inch- thick doors and pilasters and minimum 1/2-inch- thick panels.

DELETE paragraph 2.1.C. Core Color.

REPLACE in paragraph 2.1.F. Heat Sink Strip, the wording "Solid Polymer" with "Solid Color Reinforced Composite (SCRC)."

S-14. Section 15821 DUCTWORK SOUND ATTENUATORS:
REPLACE Section 2.2 with the following:

2.2. "SOUND TRAPS:

- A. Drawing/Schedule Reference: xHLFS 24"x18", where x denotes length, in feet.

B. Mechanical Performance Requirements:

Schedule Type	Minimum Test Face Velocity (FPM)	Max. Static Press. Drop (in. W.G.)	Test Trap Face Area (sq. ft.)
3HLFS	-1000	0.57	3
5HLFS	-1000	0.62	3
7HLFS	-1000	0.65	3
10HLFS	-1000	0.71	3

C. Acoustic Performance Requirements:

Type	Octave Band Center Frequency (Hz)							
	63	125	250	500	1000	2000	4000	8000
Dynamic Insertion Loss (dB), at 1,000 FPM Reverse								

3HLFS	7	12	14	20	19	18	15	10
5HLFS	11	16	23	26	25	21	19	14
7HLFS	15	17	23	30	31	29	22	16
10HLFS	15	23	30	36	39	36	28	18
Face Velocity(FPM)	Self-Noise Power Levels, dB re:10-12 Watts, All Sizes							
-1000	45	42	45	43	45	49	44	37
-1500	51	49	53	56	56	59	60	53
-2000	58	54	58	61	62	62	65	63

D. Acceptable Manufacturers:

1. Industrial Acoustics Company – Quiet-Duct Silencer Type HLFS
2. Or equal.”

- S-15. Section 15995 Mechanical Systems Commissioning: ADD NEW SECTION, included in attachments.
- S-16. Section 16600 Uninterruptible Power Supply Systems:
REVISE in Paragraph 2.3.C. Electrical Characteristics, items 1 and 3.c.: Power factor for UPS system from 0.95pf to 0.90pf.
- S-17. Section 16995 Electrical Control Systems Commissioning: ADD NEW SECTION, included in attachments.

DRAWING CHANGES

Note:

See attached sketch drawings as noted.

Use the scale indicated in the title block of the addendum sketch for the scale of the drawing.

- D-1. Sheet A0.3 Project and Code Data:
 Revise Project Data note 8 to read as follows: “Per CBC 603.1.2, exposed thermal and acoustical insulation shall have a flame spread index of not more than 25”. Meaning clear, no drawing issued.
- D-2. Sheet C1.0 Legend, Abbreviations and Civil Notes:
REVISE On-Site Grading note #24 to read as follows – “All on-site grading shall be done per details shown on Civil drawings. A Geotechnical report titled “Geotechnical Engineering Investigation Report, Proposed Senior Community Center, East 14th Street and 138th Avenue, San Leandro, California” dated February 20, 2008, prepared by Kleinfelder, is available as a reference.” Meaning clear, no drawing issued. See D-4 for related details.
- D-3. Sheet C6.0 Utility Plan:
 Sketch AD2-1/C6.0-01: Added Backflow Preventer Assembly reference to City Standard detail 408 & 410/L3.3.
- D-4. Sheet C8.0 Details:

- Sketch AD2-9/C8.0-01 and AD2-4/C8.0-02: Revised detail 4, added new detail 9 on exterior concrete flatwork and detail 10 on building slab section.
- D-5. Sheet C8.1 Details:
Sketch AD2-2/C8.1-01: Added Backflow Preventer Assembly note reference to City Standard detail 408 & 410/L3.3.
- D-6. Sheet L0.1. Notes & Legend:
Sketch AD2/L0.1-01: In the Layout Legend, specify "San Diego Buff", Davis Colors (800-356-4848) for Pedestrian Toned Concrete, Medium Broom Finish and "Cobble Stone", Davis Color (800-356-4848) for Pedestrian Toned Concrete, Medium Sandblast Finish.
- D-7. Sheet L1.1. Layout Plan:
Sketch AD2/L1.1-01: Reduce the size of the two planters at the south of the west main entrance to maintain 7'-0" clearance on either side of the double doors.
- D-8. Sheet L2.1. Planting Plan:
Sketch AD2/L2.1-01: Revise the plant counts for shrub plant symbols "YB" and "ID" due to the reduction of the planting area at the west main entrance.
- D-9. Sheet L3.1. Irrigation Plan:
Sketch AD2/L3.1-01: Revise irrigation head layout in the two planters south of the west main entrance due to the reduction of the planting area.
- D-10. Sheet A2.5 Door Type and Schedule:
Sketch AD2-A2.5-01: Revise door 112C, 113C, 114B, 116, 117, 117E, 119C, 133, 136A, 136B, 136C, as indicated on sketch.
- D-11. Sheet A2.7 Window Schedule:
Sketch AD2-A2.7-01: Revise window 4, 7, 8B as indicated on sketch.
- D-12. Sheet A2.8 Window Schedule:
Sketch AD2-A2.8-01: Revise window 13, 14B as indicated on sketch. Use tempered glazing for lower curtain wall sections.
- D-13. Sheet A2.11B Finish and Material Schedule:
Sketch AD2-1/A2.11B-01: Revise carpet tiles, wall paints as indicated on sketch. Clarification of flat metal ceiling with Type 1 and 2 designations.
- D-14. Sheet A2.12A Partial Finish Floor Plan:
Reissue A2.12A : Revise carpet tile designation and layout as indicated.
- D-15. Sheet A2.12B Partial Finish Floor Plan:
Reissue A2.12B : Revise carpet tile designation and layout as indicated.
- D-16. Sheet A3.2 Exterior Elevations:
Sketch AD2-3/A3.2-01: Add Mock-up Wall A layout.

- D-17. Sheet A3.3 Exterior Elevations:
Sketch AD2-3/A3.3-01: Add Mock-up Wall B layout.
- D-18. Sheet A4.4 Enlarged Floor Plans:
Sketch AD2-1/A4.4-01: Revised Solar Panel Room dimension as indicated.
- D-19. Sheet A5.13 Interior Elevations:
Reissue A5.13: Revise detail 1 & 2 – indicated FRP on kitchen walls. Revised detail 3 – clarified note 6.
- D-20. Sheet A8.13 Exterior and Roof Details:
Sketch AD2-8/A8.13-01: Revise detail 8 to clarify metal roofing supports.
- D-21. Sheet A9.9 Interior Details:
Sketch AD2-4/A9.9-01: Add new detail 3 for slate tile transitions.
- D-22. Sheet A9.12 Interior Casework Details:
Reissue A9.12: Revise Reception Desk layout and details 1, 2, 3 & 4.
- D-23. Sheet A9.13 Interior Casework Details:
Reissue A9.13: Revise Reception Desk layout and details 1A, 1B, 1C, 1D, 2 & 3.
- D-24. Sheet A9.14 Interior Casework Details:
Reissue A9.14: Revise Bookshelf layout and details 1, 2, 3, 4A, 4B & 5.
- D-25. Sheet A9.15 Interior Casework Details:
Reissue A9.15: New details 2, 3, 4A & 4B. Revised detail 1.
- D-26. Sheet S0.1 General Notes:
Under Materials, Concrete Mix Table: Revise concrete strength for mix ID D to 4000 psi to match specification section 03300, 2.3A. Meaning clear, no drawing issued.
- D-27. Sheet M1.1A 1st Floor Plan – HVAC Plan A:
Sketch AD2-1/M1.1A-01: Add acoustical lining to part of the ductwork as indicated.
- D-28. Sheet M1.1B 1st Floor Plan – HVAC Plan B:
Sketch AD2-1/M1.1B-02: Add acoustical lining to part of the ductwork as indicated.
- D-29. Sheet M1.2 Roof Plan HVAC
Sketch AD2-1/M1.2-03: Add acoustical lining to part of the ductwork as indicated.
- D-30. Sheet M2.0A Foundation Plan – Plumbing – Area A:
Sketch AD2-1/M2.0A-04: Replace floor drain in Trash Enclosure with Oil/Sediment Interceptor Zurn Z1189 OSI-1.
- D-31. Sheet M3.3 Partial Floor Plan - Kitchen:

- Sketch AD2-1/M3.3-05: Replace floor drain in Trash Enclosure with Oil/Sediment Interceptor Zurn Z1189 OSI-1.
- D-32. Sheet M5.3 Schedules:
Sketch AD2-1/M5.3-06: Added Zurn Z1189 OSI-1 to Miscellaneous Equipment Schedule.
- D-33. Sheet E0.1: Symbol List
Sketch AD2-E0.1-01: Add Daylighting Control symbols.
- D-34. Sheets E0.3 & E0.4:
Sketch AD2-E0.3-01, AD2-E0.3-02 and AD2-E0.4-01: Changes as follows:
- Change fixture FE1 to FE1D with dimming ballast.
 - Add fixture FF1D with dimming ballast.
 - Change fixture FF2 to FF2D with dimming ballast
 - Add fixture FG1D with dimming ballast.
 - Change fixture FX1 to FX1D with dimming ballast.
- D-35. Sheet E2.1A Partial First Floor Lighting Plan:
Reissue E2.1A: Changes as follows:
- Add daylighting controls to Activity Room 110.
 - Add daylighting controls to Computer Room 111.
 - Add daylighting dimmer controls to Main Lighting Controls ML1
 - Add Grafik-Eye and Daylighting Controller for Main Halls A & B.
 - Add fourplex outlet in Storage 116A and 117A for Grafik-Eye interface.
 - Add notes 12 through 15.
 - Update Panel LCP1.
- D-36. Sheet E2.1B Partial First Floor Lighting Plan:
Reissue E2.1B: Changes as follows:
- Add daylighting controls to Classroom 112.
 - Add daylighting controls to Classroom 113.
 - Add daylighting controls to Computer Room 111.
 - Add daylighting dimmer controls to Arts & Crafts 114.
 - Add daylighting dimmer controls to Exercise Room 115.
 - Indicate location of Panel LCP2 in Electrical Room.
 - Add circuit numbers to lights in Storage 115B and Solar Panel Room 128A.
 - Change circuit numbers in Electrical Room 128.
 - Add notes 9 through 11.
 - Update Panel LCP1.
- D-37. Sheet E2.2A Partial High Ceiling Lighting Plan:
Reissue E2.2A: Changes as follows:
- Add daylighting controls to Main Entry Vestibule 100 and indicate fixtures on Daylighting Control Zones.
 - Add a photocell in Main Hall A and a photocell in Main Hall B.
 - Add track lighting in Main Hall B.
 - Clarify Grafik-Eye control zones.
 - Add notes 6 through 9.

- Update Panel LCP1.
- D-38. Sheet E2.2B Partial High Ceiling Lighting Plan:
Reissue E2.2B: Changes as follows:
- Add daylighting controls to Secondary Entry Vestibule 101 and indicate fixtures on Daylighting Control Zones.
 - Add Daylighting Control Modules and Daylighting Power Packs in accessible ceiling at Secondary Entry Vestibule for Rooms 114 and 115.
 - Add Daylighting controls for Rooms 114 and 115.
 - Add notes 7 and 8.
 - Update Panel LCP1.
- D-39. Sheet E4.1 Partial Plans:
Sketch AD2-3/E4.1-01: Revise PV System equipment layout in Solar Panel Room #128A.
- D-40. Sheet E5.3 Single Line Diagrams:
Reissue E5.3: Changes as follows:
- Revise Single Line Diagram for Programmable Dimming System in the Main Hall to incorporate Daylighting Controls, Detail 2/E5.3.
 - Revise dimming panel load schedules.
- D-41. Sheet E5.4 Lighting Diagrams and Details:
Sketch AD2-E5.4-01: Changes as follows:
- Add Daylighting Controls to ML1, detail 3/E5.4.
- D-42. Sheet E5.6 Lighting Diagrams and Details:
Sketch AD2-E5.6-01 and AD2-E5.6-02: Revise Panels LCP1 and LCP2.

BIDDER QUESTIONS & SUBSTITUTION REQUEST

- Q-1. Lighting Fixtures and RCP:
After reviewing lighting drawings E2.1A, E2.1B, E2.2A, E2.2B and comparing these drawings to the reflected ceiling plans, I have noticed many fixtures are shown on the reflected ceiling plans that are not shown on the electrical lighting drawings. Please provide revised electrical lighting drawings with all fixtures shown per reflected ceiling plans.
Response: Contractor shall bid Lighting Fixtures as shown on Electrical drawings, see drawing change D-34, D-35, D-36, D-37 and D-38 of this Addendum. Lighting Fixtures are shown on RCP for reference only.
- Q-2. Section 01500-1, 1.4B-C on Power and Water service:
Response: Contractor to provide electrical service and metered water service as required for construction operations. See Addendum No.1, specification change S-5.
- Q-3. Section 01500-2, 2.1.B on Temporary Security Fencing height:
Response: Contractor is responsible for job site security. We will accept standard 6-foot high construction fencing.

- Q-4. Section 02200-4, 3.3.B.2 on Hazardous Material:
Response: There is no known hazardous material on site. Phase-1 site construction did not encounter any hazardous material. If however hazardous material is found, City (owner) may direct contractor to engage a consulting firm to prepare documentation on hazardous material abatement.
- Q-5. Sheet A1.0 Site Demolition Plan, keynote 24 on Temporary Sidewalk:
Response: Contractor shall provide temporary sidewalk in compliance with Caltrans requirements with K-rail and fully compliant with Title 24 ADA requirements.
- Q-6. Sheet C8.1 details 2 & 8, Backflow Preventer Enclosure:
Response: See Drawing Change D-3 and D-5. Detail references City standard 408 & 410/ L3.3.
- Q-7. Drawings C6.0, C6.1, & C6.2 (at the TRASH ENCLOSURE) area drain note indicates "GREASE TRAP. We have been unable to locate an indication of a GREASE TRAP on any of the Contract Drawings. We have been unable to find any information on a GREASE TRAP. Is a GREASE TRAP required? If the answer is yes where is the GREASE TRAP to be located? If a GREASE TRAP is required what is the make and model number of the GREASE TRAP wanted?
Response: See Drawing Change D-30, D-31, D-32, replace Trash Enclosure floor drain with oil/sediment interceptor.
- Q-8. Review Section 02550-1, 1.1, D, 1 "WORK BY PUBLIC UTILITY". Will you clarify the extent of the Natural Gas Distribution system that will be performed by "the University"? Will you clarify what part of the Natural Gas Distribution system work others will perform? Will you clarify what part of the Natural Gas Distribution system work you want the bidders to perform?
Response: See Specification Change S-3.
- Q-9. Drawing S0.1 (under Materials) the table for Concrete for mix Type D conflicts with Section 03300-7, 2.3, A regarding the Strength 3500 versus 4000. Per Section 00700-6, 2.5, B the Drawings would take precedence over the Contract Book and Specifications. The 3500 strength would control because the Bid drawings would control over the Specifications. This should be clarified. Is this what is wanted?
Response: See Drawings Change D-26, revise Mix ID D to 4,000 psi.
- Q-10. We have not found any specifics regarding the earthwork for the project (within the Contract Documents). Without specifics regarding the requirements in the Contract Documents, it will be impossible to get reasonable pricing for the work scope needed. Drawing C1.0 under "ON-SITE GRADING" # 24 requires that all grading be done per the approved recommendation in the soil and foundation investigations report entitled "GEOTECHNICAL INVESTIGATION REPORT – PROPOSED SENIOR/COMMUNITY CENTER, EAST 14TH STREET SAN LEANDRO, CALIFORNIA DATED NOVEMBER 20, 2006." Will you be issuing this report and confirming that you have approved this report?
Response: Refer to drawing change D-2 and D-4 for additional details.
- Q-11. Sheet A8.13, on Insulation and Cover Board:
Response: See Specification Change S-6 on section 07610 Sheet Metal Roofing and Drawing Change D-20 for clarification.

- Q-12. Sheet A8.13, details 2 & 8 on Roofing Support:
Response: See Drawing Change D-20 for clarification.
- Q-13. Section 07511, 2.9 Insulation Thickness:
Response: See Specification Change S-5 for clarification.
- Q-14. Section 07610, 3.2 Underlayment Installation:
Response: See Specification Change S-6 for clarification.
- Q-15. Sheet A2.11B and A2.12A, Resinous Flooring is specified in plans, not found in Specification:
Response: See Addendum No.1, Specification Change S-38, Section 09671 Resinous Flooring is added to Contract Documents.
- Q-16. Section 16600 Uninterruptible Power Supply Systems, power factor output:
Response: See Specification Change S-11 for clarification.
- Q-17. Detail 10/S3.3, the elevation do not show additional top (Ta) and bottom (Ba) rebars.
Is it showing somewhere or not applicable to project:
Response: Added "Ta" and added "Ba" bars shown on detail 10/S3.3 are required where shown on grade beam elevations as noted on detail 10/S3.3. If not shown on the grade beam elevations, added "Ta" and added "Ba" bars are not required.
- Q-18. Substitution Request: Section 05700 Ornamental Metal Grilles:
H.B. Barrington Company HBB 17550 as equal to basis of design.
Response: We take no exception, pending detailed submittal review.
- Q-19. Substitution Request: Section 10101 Visual Display Surfaces:
Claridge Series 4 Whiteboards as equal to basis of design.
Response: We take no exception, pending detailed submittal review.
- Q-20. Substitution Request: Section 10801 Toilet Accessories:
Columbia Accessories as equal to basis of design.
Response: We take no exception, pending detailed submittal review.

ATTACHMENTS

- A-1. Specifications:
1. Section 01810 Commissioning (Reissue)
 2. Section 06625 Fiber Reinforced Plastic Paneling (New)
 3. Section 15995 Mechanical Systems Commissioning (New)
 4. Section 16995 Electrical Control Systems Commissioning (New)
- A-2. Drawing Changes D-1 through D-42, as referenced accordingly in each item.

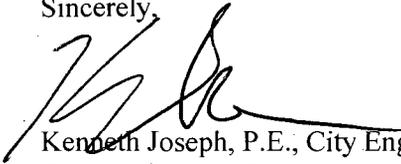
END OF ADDENDUM NO. 2

NOTE THAT THE BID OPENING DATE (PER ADDENDUM 1) REMAINS:

TUESDAY, JULY 22, 2008 AT 3:00 P.M.

In the event of a difference with previous addenda or communications, this addendum shall take precedence. It is the responsibility of the General Contractor to notify all sub-contractors from whom he accepts bids of all changes to the drawings and specifications covering this project. Bidders shall acknowledge the receipt of this Addendum on Page 00300-5 of the Bid Form and attach this signed Addendum to the Bidder's Proposal when submitted. Failure to acknowledge this addendum may be grounds for disqualification. If you have any questions, please call the Project Engineer, Mark Goralka at (510) 577-3329.

Sincerely,



Kenneth Joseph, P.E., City Engineer
Engineering and Transportation Department

ACKNOWLEDGEMENT FOR ADDENDUM NO. 2

I hereby acknowledge receipt of this Addendum for the above noted project.

(Signature) Date: _____

(Company Name – Please Print)

cc: M. Goralka, G. Faria, K. Joseph, A. Osakwe, Kiosk
COSL Current Plan-holders

SECTION 01810 – COMMISSIONING

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. Building commissioning of the following systems:
 - a. HVAC components, equipment, and controls.
 - b. HVAC System: Interaction of cooling, heating, and comfort delivery system.
 - c. Building Automation System (BAS): Control hardware and software, sequence of operations, and integration of factory controls with BAS.
 - d. Potable water efficiency technologies including controls and meters on indoor plumbing fixtures.
 - e. Lighting Control systems.
 - f. Photovoltaic renewable energy system.
2. Building commissioning activities and documentation in support of the U.S. Green Building Council (USGBC) LEED rating program.
 - a. Commissioning activities and documentation for the LEED section on “Energy and Atmosphere” Prerequisite 1 - “Fundamental Building Systems Commissioning.”

B. The Owner, LEED Consultant, Architect, and Commissioning Authority are not responsible for construction means, methods, job safety, or management function related to commissioning on the job site.

C. Related Section:

1. Section 01700 Execution Requirements.
2. Section 01770 Closeout Procedures.
3. Section 01781 Project Record Documents.
4. Section 01782 Operation and Maintenance Data.
5. Section 01820 Demonstration and Training.
6. Section 15010 Mechanical General Requirements.
7. Section 15051 Motors and Motor Controllers.
8. Section 15060 HVAC Pipe and Pipe Fittings.
9. Section 15065 Plumbing Pipe and Pipe Fittings.
10. Section 15070 Noise, Vibration and Motion Control.
11. Section 15100 Valves.
12. Section 15160 HVAC Pumps.
13. Section 15170 Instrumentation.
14. Section 15250 Insulation.
15. Section 15855 Packaged Rooftop Air Conditioners.
16. Section 15860 Fans.
17. Section 15880 Ductwork.
18. Section 15885 Air Filters.
19. Section 15900 Building Management System (BMS).
20. Section 15990 Tests and Balancing.
21. Section 15995 Mechanical System Commissioning.

22. Section 16010 Basic Electrical Requirements.
23. Section 16050 Basic Electrical Materials and Methods.
24. Section 16530 Low Voltage Lighting Control System.
25. Section 16540 Daylighting Control System.
26. Section 16550 Dimming Control System.
27. Section 16950 Testing.
28. Section 16995 Electrical System Commissioning.

1.02 DEFINITIONS

- A. Basis of Design: The basis of design is the documentation of the primary thought processes and assumptions behind design decisions that were made to meet the design intent. The basis of design describes the systems, components, conditions and methods chosen to meet the intent. Some reiterating of the design intent may be included.
- B. Commissioning: Commissioning is a comprehensive and systematic process to verify that the building systems perform as designed to meet the Owner's requirements. Commissioning during the construction, acceptance, and warranty phases is intended to achieve the following specific objectives.
1. Verify and document that the equipment is installed and started per manufacturers' recommendations, industry accepted minimum standards, and the Contract Documents.
 2. Verify and document that equipment and systems receive complete operational checkout by installing contractors.
 3. Verify and document equipment and system performance.
 4. Verify the completeness of operations and maintenance materials.
 5. Ensure that the Owner's operating personnel are adequately trained on the operation and maintenance of building equipment.

The commissioning process does not take away from or reduce the responsibility of the system designers or installing contractors to provide a finished and fully functioning product.

- C. Commissioning Plan: An overall plan that provides the structure, schedule and coordination planning for the commissioning process.
- D. Deficiency Issue: A condition in the installation or function of a component, piece of equipment or system that is not in compliance with the Contract Documents, does not perform properly or is not complying with the design intent.
- E. Owner's Requirements - Design Intent: A dynamic document that provides the explanation of the ideas, concepts and criteria that are considered to be very important to the Owner. It is initially the outcome of the programming and conceptual design phases.
- F. Functional Performance Test: Test of the dynamic function and operation of equipment and systems using manual (direct observation) or monitoring methods. Functional testing is the dynamic testing of system (rather than just components) under full operation; e.g., the chiller pump is tested interactively with the chiller function to see if the pump ramps up and down to maintain the differential pressure setpoint. Systems are tested under various modes, such as during low cooling or heating loads, high loads, component failures, unoccupied, varying outside air temperatures, etc. The systems are run through all the control system's sequences of operation and components are verified to be

responding as the sequences state. Traditional air or water test and balancing (TAB) is not functional testing, in the commissioning sense of the word. TAB's primary work is setting up the system flows and pressures as specified. The Commissioning Authority develops the functional test procedures in a sequential written form, and coordinates, oversees and documents the actual testing, which is performed by the installing contractor or vendor. Functional Performance Tests are performed after prefunctional checklists and startup requirements are complete, controls installation has been completed, and TAB has been completed.

- G. Manual Test: Using hand-held instruments, immediate control system readouts or direct observation to verify performance (contrasted to analyzing monitored data taken over time to make the "observation").
- H. Monitoring: The recording of parameters (flow, current, status, pressure, etc.) of equipment operation using dataloggers or the trending Capabilities of control systems.
- I. Non-Compliance: See Deficiency Issue.
- J. Non-Conformance: See Deficiency Issue.
- K. Prefunctional Checklist: A list of items to inspect and elementary component tests to conduct to verify proper installation of equipment, provided by the Commissioning Authority to the contractor. Prefunctional checklists are primarily static inspections and procedures to prepare the equipment or system for initial operation (e.g., belt tension, oil level, labels affixed, gauges in place, sensors Calibrated, etc.). However, some prefunctional checklist items entail simple testing of the function of a component, a piece of equipment or system (such as measuring the voltage imbalance on a three-phase pump motor of a chiller system). The word "prefunctional" refers to before functional testing. Prefunctional checklists augment and are combined with the manufacturer's start-up checklist.
- L. Seasonal Performance Tests: Functional Performance Tests that are deferred until the system(s) will experience conditions closer to their design conditions.
- M. Warranty Period: Warranty period for entire project, including equipment components. Warranty begins at Substantial Completion and extends for at least one year, unless specifically noted otherwise in the Contract Documents and accepted submittals.

1.03 COORDINATION

- A. Perform commissioning services to expedite the testing process and minimize unnecessary delays, while not compromising the integrity of the procedures.
- B. Commissioning Authority reporting directly to the building owner shall provide overall coordination and management of the commissioning program as specified herein.
- C. Commissioning Team: The commissioning process will require cooperation of the Contractor, subcontractors, vendors, Architect, Commissioning Authority, LEED Consultant, and Owner. The commissioning team shall be comprised of the following:
 - I. Contractor: Primary role to perform prefunctional and functional testing.
 - a. Project Manager.
 - b. Test Engineer.

2. Subcontractors: As appropriate to product or system being commissioned.
 3. Commissioning Authority: Coordinate and manage commissioning process.
 - a. Project Manager.
 - b. Project Engineers.
 4. Owner Representative(s), which may include Operations and Maintenance staff.
 5. LEED Consultant.
 6. Architect.
 7. MEP Consultant(s).
 8. Specialty Consultant(s).
- D. Progress Meetings: Attend construction job-site meetings, as necessary, to monitor construction and commissioning progress. Coordinate with contractor to address coordination, deficiency issue resolution and planning issues.
1. Plan and coordinate additional meetings as required to monitor progress of the commissioning work and deficiency issue resolution.
- E. Site Observations: Perform site visits, as necessary, to observe component and system installation.
- F. Functional Testing Coordination:
1. Equipment shall not be “temporarily” started for commissioning.
 2. Functional performance testing shall not begin until pre-functional, start-up and TAB is completed for a given system.
 3. The controls system and equipment it controls shall not be functionally tested until all points have been calibrated and pre-functional checklists are completed.

1.04 QUALITY CONTROL

- A. Qualifications for Commissioning Authority: Engage commissioning service personnel that specialize in the types of inspections and tests to be performed.
1. Commissioning Authority shall be a member of the Building Commissioning Association (BCA).
 2. For this project, Commissioning Authority shall be Guttman & Blaevoet.

1.05 SUBMITTALS

- A. Commissioning Authority shall submit the following:
1. Owner’s Requirement - Design Intent document review.
 2. Basis of Design document review.
 - a. Update as necessary during the work to reflect the progress on the components and systems. Forward updates to Architect in a timely manner.
 3. Scoping Meeting Minutes.
 4. Commissioning Plan: Update as necessary during the work to reflect the progress on the components and systems. Forward updates to the Owner’s Construction Project Manager in a timely manner.

5. Commissioning Schedule: Submit with Commissioning Plan.
 - a. Update as necessary during the work to reflect the progress on the components and systems. Forward updates to the Owner's Construction Project Manager in a timely manner.
6. Functional Performance Test Forms: Submit a minimum of 21 Calendar days prior to start of testing.
7. Deficiency Issue Report and Resolution Record: Document items of non-compliance in materials, installation or operation. Document the results from start-up/prefunctional checklists, functional performance testing, and short-term diagnostic monitoring. Include details of the components or systems found to be non-compliant, alterations required to correct the system operation, and identify who is responsible for making the corrective changes.
 - a. Update as necessary during the work to reflect the progress on the components and systems. Forward updates to the Owner's Construction Project Manager in a timely manner.
8. Final Commissioning Report: Compile a final Commissioning Report. The report to include a list of each commissioned system and assembly, and the conclusions and recommendations of the commissioning process. Specific items to be addressed in the Report include:
 - a. Description of the owner's project requirements.
 - b. Description of project specifications.
 - c. Verification of installation (construction checklist disposition)
 - d. Functional performance testing results and forms.
 - e. O&M documentation evaluation.
 - f. Training program evaluation.
 - g. Evaluation of commissioning process for project.
 - h. Any outstanding issues.
9. LEED Documentation: Completed and signed LEED Letter Template for E&A Prerequisite 1, including all of the above-listed items formatted as required by USGBC for submittal under LEED rating system.

PART 2 – PRODUCTS

2.01 TEST EQUIPMENT

- A. Instrumentation shall meet the following standards:
 1. Be of sufficient quality and accuracy to test and measure system performance within the tolerances required to determine adequate performance.
 2. Be Calibrated on the manufacturer's recommended intervals with Calibration permanently affixed to the instrument being used.
 3. Be maintained in good repair and operation condition throughout the duration of use on this project.
- B. All standard testing equipment required to perform startup and initial checkout and required functional performance testing shall be provided by the contractor for the equipment to be tested.

- C. Datalogging equipment or software required to test equipment will be provided by the Commissioning Authority, but shall not become the property of the Owner.

PART 3 – EXECUTION

3.01 COMMISSIONING PROCESS

- A. The following activities outline the commissioning tasks and the general order in which they occur. The Commissioning Authority shall coordinate all activities.
1. Form Commissioning Team. The Commissioning Team is responsible for accomplishing the commissioning process activities and provides leadership for identification and resolution of all commissioning process issues. The Commissioning Team to be led by Commissioning Authority. Team Members: Owner, operations staff, design professionals, contractors.
 2. Design Review and Documentation:
 - a. Documentation of Owner's Project Requirements and Design Intent.
 - b. Documentation of Basis of Design.
 - c. Construction Document Review.
 3. Commissioning Scoping Meeting.
 4. Commissioning Plan.
 5. Start-Up/Pre-Functional Checklists.
 6. Functional Performance Testing.
 7. Deficiency Issue Report and Resolution Record.
 8. Operations and Maintenance Training.
 - a. O&M Manual.
 - b. Training.
 9. Final Commissioning Report and LEED Documentation.
 10. Deferred Testing:
 - a. Unforeseen Deferred Tests.
 - b. Seasonal Testing.

3.02 COMMISSIONING SCOPING MEETING

- A. Commissioning Scoping Meeting:
1. Schedule, coordinate, and facilitate a scoping meeting.
 2. Review each building system to be commissioned, including its intended operation, commissioning requirements, and completion and start-up schedules.
 3. Establish the scope of work, tasks, schedules, deliverables, and responsibilities for implementation of the Commissioning Plan.
- B. Attendance: Commissioning Team members.

3.03 COMMISSIONING PLAN

- A. Commissioning Plan: Develop a commissioning plan to identify how commissioning activities will be integrated into general construction and trade activities. The commissioning plan shall identify how commissioning responsibilities are distributed.

The intent of this plan is to evoke questions, expose issues, and resolve them with input from the entire commissioning team early in construction. Commissioning Plan components:

1. Brief overview of the commissioning process.
2. List of systems and assemblies to be commissioned.
3. Identification of Commissioning Team and Team responsibilities.
4. Description of the communication, reporting and overall facilitation of the commissioning process.
5. List of key commissioning process milestones.

3.04 INSTALLATION VERIFICATION

- A. Commissioning Authority to perform site visits to verify that each commissioned system is installed to achieve owner's project requirements. Verification of other building systems that may compromise the performance of commissioned systems to be checked by means of a review of contractor's completed construction checklists.

3.05 START-UP/PRE-FUNCTIONAL CHECKLISTS

- A. Start-Up/Pre-Functional Checklists: The CA shall coordinate contractor provided start-up plans and documentation formats, including providing contractor with pre-functional checklists to be completed by the contractor during the start-up process.
 1. Manufacturer's start-up checklists and other technical documentation guidelines may be used as the basis for pre-functional checklists.
- B. Start-Up/Pre-Functional Checklist shall help verify that the systems shall fully describe system configuration and steps required for each test, thoroughly and appropriately documented so that another party can repeat the tests with virtually identical results.

3.06 FUNCTIONAL PERFORMANCE TESTING

- A. Functional Performance Testing: The test procedures provided by the CA shall fully describe system configuration and steps required for each test; appropriately documented so that another party can repeat the tests. Functional Performance Testing to be performed by the contractors. See Sections 01650, 01820, 15010, 15656, 15950, 15970, 15995, and 16995.
 1. Test Methods: Functional performance testing and verification may be achieved by direct manipulation of systems inputs (i.e., heating or cooling sensors), manipulation of system inputs with the building automation system (i.e. software override of sensor inputs), trend logs of system inputs and outputs using the building automation system, or short-term monitoring of system inputs and outputs using stand-alone data loggers. A combination of methods may be required to completely test the complete sequence of operations. The Commissioning Authority shall determine which method, or combination, is most appropriate for the contractor to use.
 2. Setup: Each test procedure shall be performed under conditions that simulate normal operating conditions as closely as possible. Where equipment requires integral safety devices to stop/prevent equipment operation unless minimum safety standards or conditions are met, functional performance test procedures shall demonstrate the actual performance of safety shutoffs in a real or closely-simulated condition of failure.

3. Sampling: Multiple identical pieces of non-life-safety or non-critical equipment may be functionally tested using a sampling strategy. The sampling strategy shall be developed by the Commissioning Authority. If, after two attempts at testing the specified sample percentage, failures are still present, then all remaining units shall be tested at the contractors' expense.

- B. The CA shall develop functional performance test procedures for equipment and systems. Identify specific test procedures and forms to verify and document proper operation of each piece of equipment and system. Coordinate test procedures with the contractor for feasibility, safety, equipment and warranty protection. Functional performance test forms shall include the following information:
 1. System and equipment or component name(s).
 2. Equipment location and ID number.
 3. Date.
 4. Project name.
 5. Participating parties.
 6. Instructions for setting up the test, including special cautions, alarm limits, etc.
 7. Specific step-by-step procedures to execute the test.
 8. Acceptable criteria of proper performance with a Yes/No Check Box.
 9. Observations and comments.

- C. Coordinate, observe and record the results of contractor's functional performance testing.
 1. Coordinate retesting as necessary until satisfactory performance is verified.
 2. Verify the intended operation of individual components and system interactions under various conditions and modes of operation.

3.07 DEFICIENCY ISSUE REPORT AND RESOLUTION RECORD

- A. Deficiency Issue Report and Resolution Record: Document items of non-compliance in materials, installation or operation.

- B. Non-Conformance: Non-conformance and deficiencies observed shall be communicated immediately by written notification to responsible parties. At the request of the Owner, CA will provide suggestions for correcting deficiencies.
 1. Corrections of minor deficiencies identified may be made during the tests at the discretion of the Commissioning Authority. In such Cases the deficiency issue and resolution shall be documented on the procedure form.
 2. For identified deficiencies:
 - a. If there is no dispute on the deficiency issue and the responsibility to correct it:
 - (1) The Commissioning Authority documents the deficiency issue and the adjustments or alterations required to correct it. The contractor corrects the deficiency issue and notifies the Commissioning Authority that the equipment is ready to be retested.
 - (2) The Commissioning Authority reschedules the test and the test is repeated, once more. All additional testing beyond this second test is subject to additional cost. Refer to 3.09.B.3 of this Section.

- b. f there is a dispute about a deficiency issue or who is responsible:
 - (1) The deficiency issue is documented on the non-compliance form and a copy is given to the Owner's Construction Project Manager, general contractor and Architect.
 - (2) Resolutions are made at the lowest management level possible. Additional parties are brought into the discussions as needed. Final authority is with the Owner.
 - (3) The Commissioning Authority documents the resolution process.
 - (4) Once the interpretation and resolution have been decided, the appropriate party corrects the deficiency issue and notifies the Commissioning Authority that the equipment is ready to be retested. The Commissioning Authority reschedules the test and the test is repeated until satisfactory performance is achieved.
3. Cost of Retesting: Costs for retesting shall be charged to the party responsible for the deficiency issue.

3.08 OPERATIONS AND MAINTENANCE MANUALS

- A. O&M Manual: Review the operation and maintenance manuals for all commissioned systems and assemblies, compiled by the contractor for completeness and for adherence to the requirements of the specifications and USGBC LEED certification.
 1. Manuals should include:
 - a. Contact information of manufacture or vendor and installing contractor;
 - b. Site-specific submittal data and operations and maintenance instructions with model and features.
 - c. Data requirements include: installation, maintenance, replacement, start-up, special maintenance and replacement sources, parts list, special tool list, performance data and warranty data.
 - d. A complete control system as-built package.

3.09 FINAL COMMISSIONING REPORT AND LEED DOCUMENTATION

- A. Final Commissioning Report: Compile final commissioning report including but not limited to:
 1. Description of the owner's project requirements.
 2. Description of the project specifications.
 3. Verification of installation (construction checklist disposition).
 4. Functional performance testing results and forms.
 5. O&M documentation evaluation.
 6. Training program evaluation.
 7. Value of commissioning process.
 8. Outstanding Issues.
- B. LEED Documentation: Compile LEED Documentation including completed and signed Letter Template. Format as required by USGBC for submittal under LEED rating system.

3.10 DEFERRED TESTING

- A. Unforeseen Deferred Tests: If a test cannot be completed due to the building structure, required occupancy condition, or other deficiency issue, the functional testing may be delayed upon recommendation of the Commissioning Authority and the approval of the Owner. These tests are conducted in the same manner as the seasonal tests as soon as possible.
- B. Seasonal Testing:
 - 1. Schedule, coordinate, observe, and document additional testing for seasonal variation in operations and control strategies during the opposite season to verify performance of the HVAC system and controls. Complete testing during the warranty period to fully test all sequences of operation.
 - 2. Update O&M manuals and Record Documents as necessary due to the testing.

3.11 COMMISSIONED SYSTEMS & EQUIPMENT SCHEDULE

A. The following equipment shall be commissioned in this project.

System	Equipment	Check
BUILDING HVAC SYSTEM	Boiler B-1	
	Pump HWP-1	
	Air Conditioning Unit ACU-1	
	Split DX Air Conditioning Units FCU-1, FCU-2	
	Remote Air-cooled Condenser Units CU-1, CU-2	
	VAV Terminal Units with Hydronic Heating VAV-01 through VAV-22	
	Exhaust Fans EF-1, EF-2, EF-3, EF-4, EF-5, EF-6	
BUILDING AUTOMATION SYSTEM	LonMark BAS	
POTABLE WATER EFFICIENCY TECHNOLOGIES	Dual Flush Toilets WC-1	
	Domestic Hot Water Heater WH-1	
	Domestic Hot Water Recirculating Pump RP-1	
LIGHTING CONTROL SYSTEM	Lighting Integrator and Control Panels	
	Programmable Dimming System – Main Hall	
	Daylighting Control Photocell	
	Lighting Occupancy sensors	

END OF SECTION

SECTION 06625 - FIBER REINFORCED PLASTIC PANELING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
1. Fiber reinforced plastic paneling, adhesive applied.
 2. Matching molding and accessories.
- B. Related Sections include the following:
1. Section 09250 – Gypsum Board: Panel substrate

1.3 SUBMITTALS

- A. Product Data: Provide manufacturer's product data on paneling, moldings, fasteners and adhesives.
- B. Shop Drawings: Indicate materials, fastening method joining methods, and location of joints relative to other work.
- C. Samples: Submit samples, minimum 2 x 2 inches in size, illustrating specified panel colors and texture.
- D. Environmental Information Submittals:
1. Certificates for LEED Credit MR 5.1 and 5.2, Local/Regional Materials: Manufacturer's certification indicating final point of assembly for products and materials located within 500 miles of Project site. Include manufacturer's name, address and phone number.
 2. Product Data for LEED Credit EQ 4.1, Low-Emitting Materials, Adhesives and Sealants: Manufacturers' product data for installation adhesives, including printed statement of VOC content.

1.4 QUALITY ASSURANCE

- A. Manufacturer: Company specializing in the manufacturer of fiber reinforced plastic paneling systems with a minimum of five years documented experience.
- B. Installer: Company specializing in the installation of fiber reinforced plastic paneling systems with a minimum of three years documented experience and approved by the manufacturer.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store products indoors protected from weather and sunlight.
- B. Store panels flat on a clean dry surface.
- C. Store panel for at least 24 hours immediately prior to installation in temperature and humidity conditions approximating the average environment of the finished rooms.

1.6 ENVIRONMENTAL CONDITIONS

- A. Do not apply adhesives when temperature is below 50 degrees F or above 90 degrees F.

1.7 COORDINATION

- A. Coordinate the work with installation of gypsum wallboard, plumbing fixtures and electrical devices.

PART 2 - PRODUCTS

2.1 COMPONENTS

- A. Panels: Fiberglass reinforced plastic; hard, non-porous surface resistant to stains, odor, mildew and mold; meets USDA and FDA requirements for use in food processing areas; flame spread per ASTM E 84 not to exceed 25; smoke developed per ASTM E 84 not to exceed 450.
 - 1. Fiber Reinforced Plastic Panel: Subject to compliance with requirements, provide Crane Kemlite, "Glasbord, Fiberglass Panel with Surfaseal, FX".
 - a. Or approved equal.
 - 2. Finish and Color: As indicated.
- B. Moldings: One piece extruded plastic trim components; division bar, inside corner, outside corner and cap as required by installation; color to match panels.

- C. Adhesive: High strength waterproof construction; type recommended by panel manufacturer to suit application, containing no urea formaldehyde.
 - 1. VOC Limits for Installation Adhesives and Glues: Use installation adhesives that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
 - a. Adhesive: 200 g/L.

- D. Sealant: Silicone type sealant recommended by panel manufacturer.
 - 1. VOC Content of Sealants: Provide fiber reinforced sealants and sealant primers that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
 - a. Sealants: 250 g/L.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances, and other conditions affecting panels.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.}}

3.2 INSTALLATION

- A. Install fiber reinforced plastic paneling system in accordance with manufacturer's written instructions.
- B. Cut panels to size; scribe panels abutting other components. Carefully measure and cutout for door, windows, electrical devices, pipes, conduits and other projections.
 - 1. Allow minimum 1/8 inch expansion gaps between panels and molding, panels and abutting components, and panels and projections.
- C. Spread adhesive ¼ inch thick over entire back of panel to achieve 100 percent coverage. Apply using adhesive manufacturer's recommended methods and tools and in accordance with adhesive manufacturer's written instructions.
- D. Allow drying time recommended by adhesive manufacturer before setting panels in place.

- E. Set panels in place plumb, level and true. Roll panel surface with sufficient pressure to make full contact between substrate and panel. Brace panels to maintain contact and position while adhesive cures.
- F. Cut moldings to size. Trim division bars and corner moldings to accommodate base and cap moldings.
- G. Install moldings at panel joints and panel edges.
- H. Seal joints between moldings and panel edges and between projections and panel edges to prevent moisture from seeping behind panels.
- I. Apply bead of sealant to channel one side of division bar or corner molding and install on leading edge of panel. Push molding to contact panel edge and pull back to achieve 1/8 inch expansion gap. Check plumb and screw into place with finish screws. Apply bead of sealant to remaining channel of division bar or corner molding prior to installation of next panel.
- J. Replace damage and scratched panels. Replace panels with visible screw holes or fasteners.

3.3 CLEANING

- A. Remove excess adhesive and sealant from panel and molding surfaces without damage to surfaces.
- B. Clean panel and molding surfaces in accordance with manufacturer's written instructions.

END OF SECTION 06625

SECTION 15995 - MECHANICAL SYSTEMS COMMISSIONING

PART 1 – GENERAL

1.01 DESCRIPTION

- A. The purpose of this section is to specify Division 15 responsibilities in the commissioning process, which are directed by the Commissioning Authority (CA). Other mechanical systems' testing is required under the direction of the Owner's Representation (CM).
- B. The systems to be commissioned are listed in Section 01810 Part 3.11.
- C. Commissioning requires the participation of Division 15 to ensure that all systems are operating in a manner consistent with the Contract Documents. The general commissioning requirements and coordination are detailed in Division 1. Division 15 shall be familiar with all parts of Division 1 and the commissioning plan issued by the CA and shall execute all commissioning responsibilities assigned to them in the Contract Documents.

1.02 RESPONSIBILITIES

- A. Mechanical and TAB Contractors. The commissioning responsibilities applicable to each of the mechanical and TAB contractors of Division 15 are as follows (all references apply to commissioned equipment only): Construction and Acceptance Phases
 - 1. Include and itemize the cost of commissioning in the contract price.
 - 2. In each purchase order or subcontract written, include requirements for submittal data, commissioning documentation, O&M data and training.
 - 3. Attend a commissioning scoping meeting and other meetings necessary to facilitate the commissioning process.
 - 4. Contractors shall provide the CA with normal cut sheets and shop drawing submittals of commissioned equipment.
 - 5. Provide additional requested documentation, prior to normal O&M manual submittals, to the CA for development of start-up and functional testing procedures.
 - a. Typically this will include detailed manufacturer installation and start-up, operating, troubleshooting and maintenance procedures, full details of any owner-contracted tests, fan and pump curves, full factory testing reports, if any, and full warranty information, including all responsibilities of the Owner to keep the warranty in force clearly identified. In addition,
 - b. the installation, start-up and checkout materials that are actually shipped inside the equipment and the actual field checkout sheet forms to be used by the factory or field technicians shall be submitted to the Commissioning Agent.
 - c. The Commissioning Agent may request further documentation necessary for the commissioning process.
 - d. This data request may be made prior to normal submittals.
 - 6. Provide a copy of the O&M manuals and submittals of commissioned equipment, through normal channels, to the CA for review and approval.
 - 7. Contractors shall assist (along with the design engineers) in clarifying the operation and control of commissioned equipment in areas where the specifications, control drawings or equipment documentation is not sufficient for writing detailed testing procedures.

8. Provide assistance to the CA in preparing the specific functional performance test procedures as specified in Section 01810 and in this section. Subs shall review test procedures to ensure feasibility, safety and equipment protection and provide necessary written alarm limits to be used during the tests.
9. Develop a full start-up and initial checkout plan using manufacturer's start-up procedures and the prefunctional checklists from the CA for all commissioned equipment. Submit to CA for review and approval prior to startup. Refer to Section 01810 for further details on start-up plan preparation.
10. During the startup and initial checkout process, execute the mechanical-related portions of the prefunctional checklists for all commissioned equipment.
11. Perform and clearly document all completed startup and system operational checkout procedures, providing a copy to the CA.
12. Address current A/E punch list items before functional testing. Air and water TAB shall be completed with discrepancies and problems remedied before functional testing of the respective air- or water-related systems.
13. Provide skilled technicians to execute starting of equipment and to execute the functional performance tests. Ensure that they are available and present during the agreed upon schedules and for sufficient duration to complete the necessary tests, adjustments and problem-solving.
14. Provide skilled technicians to perform functional performance testing under the direction of the CA for specified equipment in Section 01810. Assist the CA in interpreting the monitoring data, as necessary.
15. Correct deficiencies (differences between specified and observed performance) as interpreted by the CA, CM and A/E and retest the equipment. See Section 01810 for deficiency reporting and resolution recording methodology and responsibility.
16. Prepare O&M manuals according to the Contract Documents, including clarifying and updating the original sequences of operation to as-built conditions.
17. During construction, maintain as-built red-line drawings for all drawings and final CAD as-builts for contractor-generated coordination drawings. Update after completion of commissioning (excluding deferred testing).
18. Provide training of the Owner's operating staff using expert qualified personnel, as specified.
19. Coordinate with equipment manufacturers to determine specific requirements to maintain the validity of the warranty.

B. Seasonal Performance Test

1. Execute seasonal or deferred functional performance testing, witnessed by the CA, according to the specifications.
2. Correct deficiencies and make necessary adjustments to O&M manuals and as-built drawings for applicable issues identified in any seasonal testing.

C. Mechanical Contractor. The responsibilities of the HVAC mechanical contractor, during construction and acceptance phases in addition to those listed in (A) are:

1. Provide startup for all HVAC equipment, except for the building automation control system.
2. Assist and cooperate with the TAB contractor and CA by:
 - a. Putting all HVAC equipment and systems into operation and continuing the operation during each working day of TAB and commissioning, as required.
 - b. Including cost of sheaves and belts that may be required by TAB.

- c. Providing test holes in ducts and plenums where directed by TAB to allow air measurements and air balancing. Providing an approved plug.
 - d. Providing temperature and pressure taps according to the Construction Documents for TAB and commissioning testing.
3. Install a P/T plug at each water sensor, which is an input point to the control system.
 4. List and clearly identify on the as-built drawings the locations of all air-flow stations.
 5. Prepare a preliminary schedule for Division 15 pipe and duct system testing, flushing and cleaning, equipment start-up and TAB start and completion for use by the CA. Update the schedule as appropriate.
 6. Notify the CM or CA depending on protocol, when pipe and duct system testing, flushing, cleaning, startup of each piece of equipment and TAB will occur. Be responsible to notify the CM or CA, ahead of time, when commissioning activities not yet performed or not yet scheduled will delay construction. Be proactive in seeing that commissioning processes are executed and that the CA has the scheduling information needed to efficiently execute the commissioning process.
- D. TAB Contractor. The duties of the TAB contractor, in addition to those listed in (A) are:
1. Six weeks prior to starting TAB, submit to the CM the qualifications of the site technician for the project, including the name of the contractors and facility managers of recent projects the technician on which was lead. The Owner will approve the site technician's qualifications for this project.
 2. Submit the outline of the TAB plan and approach for each system and component to the CA, CM and the controls contractor six weeks prior to starting the TAB. This plan will be developed after the TAB has some familiarity with the control system.
 3. The submitted plan will include:
 - a. Certification that the TAB contractor has reviewed the construction documents and the systems with the design engineers and contractors to sufficiently understand the design intent for each system.
 - b. An explanation of the intended use of the building control system. The controls contractor will comment on feasibility of the plan.
 - c. All field checkout sheets and logs to be used that list each piece of equipment to be tested, adjusted and balanced with the data cells to be gathered for each.
 - d. Discussion of what notations and markings will be made on the duct and piping drawings during the process.
 - e. Final test report forms to be used.
 - f. Detailed step-by-step procedures for TAB work for each system and issue: terminal flow calibration (for each terminal type), diffuser proportioning, branch / submain proportioning, total flow calculations, rechecking, diversity issues, expected problems and solutions, etc. Criteria for using air flow straighteners or relocating flow stations and sensors will be discussed. Provide the analogous explanations for the water side.
 - g. List of all air flow, water flow, sound level, system capacity and efficiency measurements to be performed and a description of specific test procedures, parameters, formulas to be used.
 - h. Details of how total flow will be determined (Air: sum of terminal flows via BAS calibrated readings or via hood readings of all terminals, supply (SA) and

- i. return air (RA) pitot traverse, temperature difference equation, SA or RA flow stations. Water: pump curves, circuit setter, flow station, ultrasonic, etc.).
 - i. The identification and types of measurement instruments to be used and their most recent calibration date.
 - j. Specific procedures that will ensure that both air and water side are operating at the lowest possible pressures and provide methods to verify this.
 - k. Confirmation that TAB understands the outside air ventilation criteria under all conditions.
 - l. Details of whether and how minimum outside air cfm will be verified and set, and for what level (total building, zone, etc.).
 - m. Details of how building static and exhaust fan / relief damper capacity will be checked.
 - n. Proposed selection points for sound measurements and sound measurement methods.
 - o. Details of methods for making any specified coil or other system plant capacity measurements.
 - p. Details of any TAB work to be done in phases (by floor, etc.), or of areas to be built out later.
 - q. Details regarding specified deferred or seasonal TAB work.
 - r. Details of any specified false loading of systems to complete TAB work.
 - s. Details of all exhaust fan balancing and capacity verifications, including any required room pressure differentials.
 - t. Details of any required interstitial cavity differential pressure measurements and calculations.
 - u. Plan for hand-written field technician logs of discrepancies, deficient or uncompleted work by others, contract interpretation requests and lists of completed tests (scope and frequency).
 - v. Plan for formal progress reports (scope and frequency).
 - w. Plan for formal deficiency reports (scope, frequency and distribution).
- 4. A running log of events and issues shall be kept by the TAB field technicians. Submit hand-written reports of discrepancies, deficient or uncompleted work by others, contract interpretation requests and lists of completed tests to the CA and CM at least twice a week.
- 5. Communicate in writing to the controls contractor all setpoint and parameter changes made or problems and discrepancies identified during TAB which affect the control system setup and operation.
- 6. Provide a draft TAB report within two weeks of completion. A copy will be provided to the CA. The report will contain a full explanation of the methodology, assumptions and the results in a clear format with designations of all uncommon abbreviations and column headings. The report should follow the latest and most rigorous reporting recommendations by AABC, NEBB or ASHRAE Standard 111.
- 7. Provide the CA with any requested data, gathered, but not shown on the draft reports.
- 8. Provide a final TAB report for the CA with details, as in the draft.
- 9. Conduct functional performance tests and checks on the original TAB as specified for TAB in Section 15990.

1.03 RELATED WORK

A. Section 01810-Commissioning Requirements.

B. Section 15900-Building Management System

C. Section 15990-Tests and Balancing.

PART 2 – PRODUCTS

2.01 TEST EQUIPMENT

A. Division 15 shall provide all test equipment necessary to fulfill the testing requirements of this Division.

B. Refer to Section 01810 for additional test equipment requirements.

PART 3 – EXECUTION

3.01 SUBMITTALS

A. Division 15 shall provide submittal documentation relative to commissioning as required in this Section Part 1, and DIVISION 1.

3.02 STARTUP

A. The HVAC mechanical and controls contractors shall follow the start-up and initial checkout procedures. Division 15 has start-up responsibility and is required to complete systems and sub-systems so they are fully functional, meeting the design objectives of the Contract Documents. The commissioning procedures and functional testing do not relieve or lessen this responsibility or shift that responsibility partially to the commissioning agent or Owner.

B. Functional testing is intended to begin upon completion of a system. Functional testing may proceed prior to the completion of systems or sub-systems at the discretion of the CA and CM. Beginning system testing before full completion does not relieve the Contractor from fully completing the system, including all prefunctional checklists as soon as possible.

3.03 TAB

A. Refer to the TAB responsibilities in Part 1.2 above.

3.04 FUNCTIONAL PERFORMANCE TESTS

A. Refer to Section 01810 for a list of systems to be commissioned, and to for a description of the process, and to THIS SECTION for specific details on the required functional performance tests. The functional performance tests in this section are samples. They are representative of tests that are required for the commissioned systems and equipment. All commissioned systems and equipment will be commissioned in the same rigor as the samples.

3.05 TESTING DOCUMENTATION, NON-CONFORMANCE AND APPROVALS

A. Refer to Section 01810 for specific details on non-conformance issues relating to prefunctional checklists and tests.

B. Refer to Section 01810 for issues relating to functional performance tests.

3.06 OPERATION AND MAINTENANCE (O&M) MANUALS

- A. The following O&M manual requirements do not replace O&M manual documentation requirements elsewhere in these specifications.
- B. Division 15 shall compile and prepare documentation for all equipment and systems covered in Division 15 and deliver this documentation to the GC for inclusion in the O&M manuals, according to this section and Section 01782, prior to the training of owner personnel.
- C. The CA shall receive a copy of the O&M manuals for review.
- D. Special TAB Documentation Requirements. The TAB will compile and submit the following with other documentation that may be specified elsewhere in the Specifications.
 - 1. Final report containing an explanation of the methodology, assumptions; test conditions and the results in a clear format with designations of all uncommon abbreviations and column headings.
 - 2. The TAB shall mark on the drawings where all traverse and other critical measurements were taken and cross reference the location in the TAB report.
- E. Review and Approvals. Review of the commissioning related sections of the O&M manuals shall be made by the A/E and by the CA. Refer to Section 01810 for details.

3.07 TRAINING OF OWNER PERSONNEL

- A. Mechanical Contractor. The mechanical contractor shall have the following training responsibilities:
 - 1. Provide the CM with a training plan two weeks before the planned training. See Section 01820.
 - 2. Provide designated Owner personnel with comprehensive orientation and training in the understanding of the systems and the operation and maintenance of each piece of HVAC equipment including, but not limited to, pumps, boilers, air handling units, fans, terminal units, controls and water treatment systems, etc.
 - 3. Training shall normally start with classroom sessions followed by hands-on training on each piece of equipment, which shall illustrate the various modes of operation, including startup, shutdown, fire/smoke alarm, power failure, etc.
 - 4. During any demonstration, should the system fail to perform in accordance with the requirements of the O&M manual or sequence of operations, the system will be repaired or adjusted as necessary and the demonstration repeated.
 - 5. The appropriate trade or manufacturer's representative shall provide the instructions on each major piece of equipment. This person may be the start-up technician for the piece of equipment, the installing contractor or manufacturer's representative. Practical building operating expertise as well as in-depth knowledge of all modes of operation of the specific piece of equipment are required. More than one party may be required to execute the training.
 - 6. The controls contractor shall attend sessions other than the controls training, as requested, to discuss the interaction of the controls system as it relates to the equipment being discussed.
 - 7. The training sessions shall follow the outline in the Table of Contents of the operation and maintenance manual and illustrate whenever possible the use of the O&M manuals for reference.

8. Training shall include:
 - a. Use of the printed installation, operation and maintenance instruction material included in the O&M manuals.
 - b. A review of the written O&M instructions emphasizing safe and proper operating requirements, preventative maintenance, special tools needed and spare parts inventory suggestions. The training shall include start-up, operation in all modes possible, shut-down, seasonal changeover and any emergency procedures.
 - c. Discussion of relevant health and safety issues and concerns.
 - d. Discussion of warranties and guarantees.
 - e. Common troubleshooting problems and solutions.
 - f. Explanatory information included in the O&M manuals and the location of all plans and manuals in the facility.
 - g. Discussion of any peculiarities of equipment installation or operation.
 - h. The format and training agenda in The HVAC Commissioning Process, ASHRAE Guideline 1-1989R, 1996 is recommended.
 - i. Classroom sessions shall include the use of overhead projections, slides, video/audio-taped material as might be appropriate.
9. Hands-on training shall include start-up, operation in all modes possible, including manual, shut-down and any emergency procedures and preventative maintenance for all pieces of equipment.
10. The mechanical contractor shall fully explain and demonstrate the operation, function and overrides of any local packaged controls, not controlled by the central control system.
11. Training shall occur after functional testing is complete, unless approved otherwise by the Project Manager.

B. TAB -The TAB contractor shall have the following training responsibilities:

1. TAB shall meet with facility staff after completion of TAB and instruct them on the following:
 - a. Go over the final TAB report, explaining the layout and meanings of each data type.
 - b. Discuss any outstanding deficient items in control, ducting or design that may affect the proper delivery of air or water.
 - c. Identify and discuss any terminal units, duct runs, diffusers, coils, fans and pumps that are close to or are not meeting their design capacity.
 - d. Discuss any temporary settings and steps to finalize them for any areas that are not finished.
 - e. Other salient information that may be useful for facility operations, relative to TAB.

3.08 DEFERRED AND SEASONAL TESTING

- A. Refer to Section 01810 for requirements of deferred or seasonal testing.

3.09 WRITTEN WORK PRODUCTS

- A. Written work products of Contractors will consist of the start-up and initial checkout plan described in Section 01810 and the filled out start-up, initial checkout and prefunctional checklists.

3.10 INSTALLATION AND PREFUNCTIONAL VERIFICATION CHECKLIST SAMPLES

- A. The checklists in this section are samples. They are representative of those that are required for all commissioned systems and equipment. All commissioned systems and equipment will be commissioned in the same rigor as the samples. Samples are not provided for all systems and equipment to be commissioned.

3.11 CHECKLIST

- A. Project: San Leandro Senior Community Center
HOT WATER HEATING BOILER

Associated checklists: HW Pumps, Finned Tube Radiators, Reheat Coils

1. Field Verification Checks

Checklist items are to be completed as part of startup & initial checkout, preparatory to functional testing.

- This checklist does not take the place of the manufacturer’s recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Contractors assigned responsibility for sections of the checklist shall be responsible to see that checklist items by their subcontractors are completed and checked off.

“Contr.” column or abbreviations in brackets to the right of an item refer to the contractor responsible to verify completion of this item. A/E = architect/engineer, All = all contractors, CA = commissioning agent, CC = controls contractor, EC = electrical contractor, GC = general contractor, MC = mechanical contractor, SC = sheet metal contractor, TAB = test and balance contractor

This filled-out checklist has been reviewed. Its completion is approved with the exceptions noted below.

Commissioning Agent

Date

Owner’s Representative

Date

NOTES:

2. Boiler model verification
1 = as specified, 2 = as submitted, 3 = as installed. Enter note number if deficient.

	MFR	MODEL	GROSS INPUT (MBH)	SERIAL NO.	GROSS OUTPUT (MBH)
1				--	
2			√		
3					

The equipment installed matches the specifications for given trade. YES NO

NOTES:

3. Installation Checks
Check if Okay (P=Pass, F=Fail). Enter comment or note number if deficient.

Check	Equip Tag->			Control	Initials	Date
General Installation						
General appearance good, no apparent damage				MC		
				MC		
Equipment labels affixed				MC		
Tube pulling, and access space adequate				MC		
Required seismic restraints/anchorage in place				MC		
Flue completely installed and sloped properly				MC		
Combustion air supply complete				MC		
Pressure gages installed				MC		
Thermometers installed				MC		
P/T plugs installed as per drawings				MC		
Piping (Immediately around unit.)						
Gas piping installed and tested				MC		
Isolation valves and balancing valves installed				MC		
Pipe fittings and accessories complete				MC		
Test ports installed per spec				MC		
Flow switch installed as required				MC		
Chemical treatment system installed				MC		
ASME pressure vessel data sheet or certification tag posted and inspection complete for each expansion tank				MC		
Electrical and Controls						

Check if Okay (P=Pass, F=Fail). Enter comment or note number if deficient.

Check	Equip Tag->			Control	Initials	Date
Power to unit and disconnect installed				EC		
All electrical components grounded				EC		

The checklist items of Part 3 are all successfully completed for given trade. YES NO

NOTES:

- B. Project: San Leandro Senior Community Center
HEATING HOT WATER PUMPS
Associated checklists: Boiler

1. Field Verification Checks

Checklist items are to be completed as part of startup & initial checkout, preparatory to pre-functional testing.

- This checklist does not take the place of the manufacturer’s recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Contractors assigned responsibility for sections of the checklist shall be responsible to see that checklist items by their subcontractors are completed and checked off.

“Contr.” column or abbreviations in brackets to the right of an item refer to the contractor responsible to verify completion of this item. A/E = architect/engineer, All = all contractors, CA = commissioning agent, CC = controls contractor, EC = electrical contractor, GC = general contractor, MC = mechanical contractor, SC = sheet metal contractor, TAB = test and balance contractor

This filled-out checklist has been reviewed. Its completion is approved with the exceptions noted below.

Commissioning Agent

Date

Owner’s Representative

Date

NOTES:

2. Model verification
1 = as specified, 2 = as submitted, 3 = as installed. Check if Okay. Enter note number if deficient.

HWP-1/2	MFR	MODEL	GPM/Head	SERIAL NO.	MOTOR (V/PH, HP)
1					
2	√		√	-	√
3					

The equipment installed matches the specifications for given trade..... YES NO

NOTES:

3. Installation Checks
Check if Okay (P=pass, F=Fail). Enter comment or note number if deficient.

Equip Tag->				Control.	Initials	Date
General						
General appearance good, no apparent damage				MC		
Pressure gages working				MC		
Pump and accessory environment clean				MC		
Required seismic restraints/anchorage in place				MC		
No visible water leaks				MC		
Pressure gauges & thermometers installed per design				MC		
Equipment labels affixed per spec				MC		
System filled				MC		
Access for maintenance adequate				MC		
Piping (in vicinity of pumps)						
Piping type and flow direction labeled on piping				MC		
Piping configuration per design & per manufacturer's requirements				MC		
Piping insulation in good condition where visible				MC		
Check valves & flow switches installed in proper direction.				MC		
Pipe fittings and accessories complete per design				MC		
Hydronic system flushing complete and strainers cleaned				MC		
Isolation valves and balancing valves installed per design				MC		

Equip Tag->				Control.	Initials	Date
Electrical and Controls						
Power disconnects installed				EC		
Control system interlocks hooked up				CC		
TEFC motor used in outdoor locations				EC		

The checklist items of Part 3 are all successfully completed for given trade.... YES NO

NOTES:

- Calibration: [Contr = CC]
All field-installed temperature, relative humidity, CO, CO₂ and pressure sensors and gages, and all actuators (dampers and valves) on this piece of equipment shall be calibrated using the methods and tolerances given in the Calibration and Leak-by Test Procedures document. All test instruments shall have had a certified calibration within the last 12 months: Y/N . Sensors installed *in* the unit at the factory with calibration certification provided need not be field calibrated.

Sensor Location	Loc-action OK	1st Gage or BAS Value	Insert. Mesa's Value	Final Gage or BAS Value	Pass Y/N?

Sensor Location	Loc-action OK	1st Gage or BAS Value	Insert. Mesa's Value	Final Gage or BAS Value	Pass Y/N?

Gage reading = reading of the permanent gage on the equipment. BAS = building automation system. Instr. = testing instrument. Visual = actual observation. The Contractor's own sensor check-out sheets may be used in lieu of the above, if the same recording fields are included and the referenced procedures are followed.

All sensors are calibrated within required tolerances YES NO

NOTES:

C. Project: SAN LEANDRO SENIOR COMMUNITY CENTER
HEATING HOT WATER PUMPS

Included components:

Associated checklists: __ Boiler and HW Piping, __ Other

1. Approvals

The above equipment and systems integral to them are complete and ready for functional testing. The checklist items are complete and have been checked off only by parties having direct knowledge of the event, as marked below, respective to each responsible contractor. This prefunctional checklist is submitted for approval, subject to an *attached list* of outstanding items yet to be completed. A *Statement of Correction* will be submitted upon completion of any outstanding areas. None of the outstanding items preclude safe and reliable functional tests being performed.

_____	_____	_____	_____
Mechanical Contractor	Date	Controls Contractor	Date
_____	_____	_____	_____
Electrical Contractor	Date	Sheet Metal Contractor	Date
_____	_____	_____	_____
TAB Contractor	Date	General Contractor	Date

Prefunctional checklist items are to be completed as part of startup & initial checkout, preparatory to functional testing.

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- If this form is not used for documenting, one of similar rigor shall be used.
- Contractors assigned responsibility for sections of the checklist shall be responsible to see that checklist items by their subcontractors are completed and checked off.
- "Contr." column or abbreviations in brackets to the right of an item refer to the contractor responsible to verify completion of this item. A/E = architect/engineer, All = all contractors, CA = commissioning agent, CC = controls contractor, EC = electrical contractor, GC = general contractor, MC = mechanical contractor, SC = sheet metal contractor, TAB = test and balance contractor, _____ = _____.

This filled-out checklist has been reviewed. Its completion is approved with the exceptions noted below.

_____	_____	_____	_____
Commissioning Agent	Date	Owner's Representative	Date

2. Requested documentation submitted

Check if Okay. Enter comment or note number if deficient.

Tag->	Check	Equip	H W P- 1	H W P- 2				
	Manufacturer's cut sheets							
	Performance data (fan curves, coil data, etc.)							
	Installation and startup manual and plan							
	Sequences and control strategies							
	O&M manuals							

- Documentation complete as per contract documents for given trade YES NO

NOTES:

3. Physical Installation Checks

Check if Okay (P = Pass, F = Fail). Enter comment or note number if deficient.

Check	Equip Tag->				Control.	Initials	Date
General Installation							
Label permanently affixed							
Pump lubricated							
Vibration isolation devices installed and functional							
Factory alignment appears correct							
Field alignment, if required, completed							
Temperature, pressure and flow gages and sensors installed and functional							
Piping (immediately around pump)							
Piping complete and pipes properly supported							
Pipes properly labeled							
Pipes properly insulated							
Strainers in place and clean							
Piping system properly tested and flushed							
Valves properly tagged							
Electrical and Controls							
Power disconnects labeled and operate properly							
All electric connections tight							
Proper grounding installed for components and unit							
Motor safeties in place and operable							
Control system interlocks hooked up and functional							
All control devices and wiring complete							

Check	Equip Tag->			Control.	Initials	Date
TAB						
Installation of system and balancing devices allowed balancing to be completed following specified NEBB or AABC procedures and contract documents				TAB		
Final						
Startup report completed with this checklist attached				MC		
Safeties installed and safe operating ranges for this equipment provided to the commissioning agent				MC		

- The checklist items of Part 3 are all successfully completed for given trade..... YES NO

NOTES:

4. Operational Checks

These checks augment the manufacturer’s startup list. This is not the functional performance testing. These tests must be done during scheduled occupancy.

Check if Okay (P = Pass, F = Fail). Enter comment or note number if deficient.

Check	Equip Tag->			Control.	Initials	Date
The HOA switch properly activates and deactivates the unit						
Pump rotation verified correct						
No unusual noise or vibration						
No leaking apparent around fittings						
Measure line to line voltage phase imbalance for each pump: (%Imbalance = 100 x (avg. - lowest) / avg.) Record imbalance of each pump in cell. Imbalance less than 2%?						
Record full load running amps for each pump. _____ rated FL amps x _____ srvc factor = _____ (Max amps). Running less than max?						
Specified sequences of operation and operating schedules have been implemented with all variations documented						
Point-to-point checks have been completed and documentation record submitted for this system						

- *The checklist items of Part 4 are all successfully completed for given trade.....* **YES** **NO**

NOTES:

5. Sensor and Actuator Calibration [CONTR = CC]
All field-installed temperature, relative humidity, CO, CO₂ and pressure sensors and gages, and all actuators (dampers and valves) on this piece of equipment shall be calibrated using the methods and tolerances given in the Calibration and Leak-by Test Procedures document.

All test instruments shall have had a certified calibration within the last 12 months:
Y/N _____.

Sensors installed *in* the unit at the factory with calibration certification provided need not be field calibrated.

Sensor Location	Loc-action OK	1st Gage or BAS Value	Insert. Mesa's Value	Final Gage or BAS Value	Pass Y/N?

Sensor Location	Loc-action OK	1st Gage or BAS Value	Insert. Mesa's Value	Final Gage or BAS Value	Pass Y/N?

Gage reading = reading of the permanent gage on the equipment. BAS = building automation system. Instr. = testing instrument. Visual = actual observation. The Contractor's own sensor check-out sheets may be used in lieu of the above, if the same recording fields are included and the referenced procedures are followed.

- *All sensors are calibrated within required tolerances.....* **YES** **NO**

NOTES:

3. Sensor Calibration Checks
---NONE---

4. Device Calibration Checks
---NONE---

5. Verification of Miscellaneous Prefunctional Checks.

Verify that site checks of the prefunctional checklist and startup reports are completed successfully.

Pass? Y / N _____

6. Functional Testing Record

ITEM	Test Procedure	Expected and Actual Response	Pass Y/N
1	Pump speed. With boiler running, raise the space temperature setpoint in all zones to put all boxes in full heating. Wait 10 minutes to ensure that all valves are fully open. Check the amps on the pump motors.	Pump motor amperage should be less than the product of "Rated Full Load Amps x Service Factor". Record these values below. CALCULATED: HWP-1 _____ amps HWP-2 _____ amps MEASURED: HWP-1 _____ amps HWP-2 _____ amps	
2	Change the schedule so the pumps should be OFF.	Pumps shut OFF.	
3	Schedule the pumps to be ON. Return schedule to normal.	Pumps start.	
4	Measure and record pump differential pressure (suction and discharge) of each pump.	HWP-1 _____ HWP-2 _____	

ITEM	Test Procedure	Expected and Actual Response	Pass Y/N
5	Close pump discharge valve and record each pumps discharge pressure (deadheading).	HWP-1 _____ HWP-2 _____	
6	Using the certified curve for each pump, verify the impeller size of the pump by plotting the deadhead pressure on the curve. Record the value here and attach curve to this report.	HWP-1 _____ HWP-2 _____	
7	Verify that on failure of lead pump, that lag pump starts and alarm is generated	HWP-1 _____ HWP-2 _____	
---	Return all changed control parameters and conditions to their pre-test values.	Check off in Section 2 above when completed	

E. Functional Test

ROOFTOP HVAC PACKAGED UNIT ACU-1

Related Tests: Heating Boiler and Pumps, Exhaust Fans, Terminal Unit Reheat Coils, HVAC Controls

1. Participants

PARTY	PARTICIPATION

INDIVIDUAL FILLING OUT THIS FORM AND WITNESSING TESTING _____
DATE OF TESTING _____

2. Prerequisite Checklist

a. The following have been started up and startup reports and prefunctional checklists submitted and approved ready for functional testing:

- | | |
|--|--|
| <input type="checkbox"/> HVAC Controls | <input type="checkbox"/> Heating System Pumps |
| <input type="checkbox"/> VAV Terminal Unit | <input type="checkbox"/> Heating System Boiler |
| <input type="checkbox"/> Exhaust Fans | |

- b. All control system program functions for this unit and all interlocking systems are operable including final setpoints and schedules have been completed.

Controls Contractor Signature

Date

- c. ___ Test and balance (TAB) completed and approved.
- d. ___ All A/E punchlist items for this equipment corrected.
- e. ___ Functional test procedures have been reviewed and approved by installing contractor.
- f. ___ Operating schedule and setpoints attached.
- g. ___ Record the current values for setpoints, limits, schedules, etc. that are changed to accommodate testing in the table below.

Parameter	Pre-Test Values	Returned to Pre-Test Values
Discharge air static pressure		
Discharge air temperature		
Static pressure reset schedule		
Discharge air temperature reset schedule		
OSA ventilation (CFM)		
Dirty filter differential pressure setting		
Building static pressure		

- 3. **Sensor Calibration Checks.** Check the sensors listed below for calibration and adequate location.

NOTE: "In calibration" means taking a reading with a calibrated test instrument within 6 inches of the site sensor.

Sensor Type	Location OK?	Press or Temp Gage Reading	Test Instrument Metered Value	BMS Value	Pass Y/N?
SAT					
RAT					
OSAT					

- 4. **Device Calibration Checks.** Check the actuators or devices listed below for calibration.

NOTE: "In calibration" means observing a readout in the BMS and going to the actuator or controlled device and verifying that the BMS reading is correct

Device	Operation	BAS Value	Observed Value or Position	Final BAS Value	Pass Y/N?
Supply Fan VFD	Lower SP control setpoint by 25% and record rpm (min) _____ % (min)				
	Return SP control setpoint to normal and record rpm (max) _____ % (max)				
OSA Damper	Command damper closed				
	Command damper open				
RA Damper	Command damper closed				
	Command damper open				
Return Fan VFD	Lower SP control setpoint by 25% and record: rpm (min) _____ % (min)				
	Return SP control setpoint to normal and record: rpm (max) _____ % (max)				

5. Verification of Miscellaneous Prefunctional Checks.
Site checks of the prefunctional checklist and startup reports were completed successfully.
Pass? Y / N _____

6. Functional Testing Record

Item No. Mode	Test Procedure	Comments and Response	Pass Y/N?
1 AHU-1 OFF	Standby Check. AHU-1 commanded off by BMS.	Verify by visual inspection: Return air damper is open. Outside air damper is closed. Barometric relief damper is closed. Associated exhaust fan(s) are OFF.	
2 UNIT STARTUP	AHU-1 commanded on by the BMS.	Supply fan starts. Associated exhaust fan(s) are ON.	
3 ECONOMIZE R CONTROL	Record OSA dry and wet bulb temperatures. Reset DAT setpoint such that OSA enthalpy is less than SA.	Do the OSA and RA dampers modulate to maintain DAT setpoint?	

Item No. Mode	Test Procedure	Comments and Response	Pass Y/N?
4 ECONOMIZER CONTROL	Reset DAT setpoint such that the SA enthalpy is less than OSA. Return to normal operation.	OSA damper should close and RA damper should open. Unit should attempt to utilize economizer cycle when possible for cooling.	
5 DISCHARGE TEMPERATURE RESET	For all reheat coil terminal units, reset the zone temperature setpoints five (5) °F below the current temperature of each zone. Reset zone temperature setpoints five (5) °F above the current temperature of each zone.	Does HC-2 preheat coil valve modulate to decrease DAT at AHU-1? Does HC-2 preheat coil valve modulate to increase DAT at AHU-1?	
6 SMOKE CONDITIONS	Coordinate with contractor to simulate a smoke fire with the Fire Alarm System, i.e., spray "smoke" on the sensor.	Does AHU-1 shut down and OSA damper close?	
7 WARMUP CONTROL	Place AHU-1 in warm-up control mode and overwrite RA temperature reading to 65 °F.	Verify the following: Dampers assume a 100% return air mode. The OSA economizer damper is closed. Observe the position of four (4) reheat coil valves through the BMS. Field verify the valve position. Verify that the associated exhaust fan(s) are OFF.	
8 WARMUP CONTROL	Place AHU-1 in warm-up control mode and overwrite RA temperature reading to 72 °F.	Does AHU-1 return to normal operation mode?	
9 FREEZE CONDITION	Manually reset the low limit thermostat reading of AHU-1 to 38 °F.	Verify that AHU-1 alarms, fan stops, OSA damper closes and RA damper opens.	
10 AHU FILTER ALARM	In the BMS, lower the filter alarm setpoint until it equals the filter differential pressure.	Verify that the BMS reports an alarm.	
11 STATIC PRESSURE CONTROL	Supply Air static pressure control		
	Building Static Pressure Control		

Item No. Mode	Test Procedure	Comments and Response	Pass Y/N?
<p>12 UNOCCUPIED NIGHT LOW LIMIT MODE</p>	<p>a) With Unit in normal mode, change the schedule so unoccupied mode will begin in 5 minutes.</p> <p>b) After the Unit shuts OFF, change the RA NLL setpoint to be 10F above current RA temp. Overwrite one of the polled perimeter zone space temp. to be 1F above the space NLL heating setpoint, currently ____ F.</p> <p>c) Overwrite one of the polled perimeter zone space temp. to be 3F below the space NLL heating setpoint.</p> <p>D) CHANGE THE RA NLL SETPOINT TO BE WITHIN THE BIAS OR DEADBAND RANGE OF THE CURRENT RA TEMP.</p> <p>Return schedules, NLL RA setpoint and space overwritten values to normal.</p>	<p>a) When the schedule is met, does the Unit shut OFF?</p> <p>b) Verify that the Unit and boiler do not come ON.</p> <p>c) Verify that the Unit and boilers come ON, the heating coil valves operate normally and the economizer dampers are shut and exhaust fans are OFF.</p> <p>d) Verify that the Unit and boilers shut OFF.</p>	
<p>13 UNOCCUPIED NIGHT HIGH LIMIT MODE.</p>	<p>a) With Unit in normal mode, change the schedule so unoccupied mode will begin in 5 minutes.</p> <p>b) After the Unit shuts OFF, change the RA NLL setpoint to be 10 °F below the current RA temp. Overwrite one of the polled perimeter zone space temp. to be 1 °F above the space NLL heating setpoint, currently ____ °F (63 °F, default).</p> <p>c) Overwrite one of the polled perimeter zone space temp. to be 3 °F below the space NLL heating setpoint.</p> <p>D) CHANGE THE RA NLL SETPOINT TO BE WITHIN THE BIAS OR DEADBAND RANGE OF THE CURRENT RA TEMP.</p> <p>Return schedules, NLL RA setpoint and space overwritten values to normal.</p>	<p>a) When the schedule is met, does the Unit shut OFF?</p> <p>b) Verify that the Unit and boiler do not come ON.</p> <p>c) Verify that the Unit and boilers come ON, the heating coil valves operate normally and the economizer dampers are shut and exhaust fans are OFF.</p> <p>d) Verify that the Unit and boilers shut OFF.</p>	
<p>REVIEW</p>	<p>RETURN ALL CHANGED CONTROL PARAMETERS AND CONDITIONS TO THEIR PRE-TEST VALUES</p>	<p>Record approved differences for incorporation into project as-built record documents.</p>	

F. Functional Test

VAV Terminal Units

Related Tests: Boiler, Pumps, Exhaust Fans, Rooftop AC Unit, HVAC Controls

1. Participants

PARTY	PARTICIPATION

INDIVIDUAL FILLING OUT THIS FORM AND WITNESSING TESTING _____
DATE OF TESTING _____

2. Prerequisite Checklist

a. The following have been started up and startup reports and prefunctional checklists submitted and approved ready for functional testing:

- AHU-1 RT HVAC Package Unit Exhaust Fans
- B-1 Heating System Boiler HVAC Controls
- P-1, CP-1 Heating System Pumps

b. All control system functions for this and all interlocking systems are operable per contract documents, including final setpoints and schedules with sensor calibrations completed.

Controls Contractor Signature

Date

- c. Test and balance (TAB) completed and approved.
- d. All A/E punchlist items for this equipment corrected.
- e. Functional test procedures reviewed and approved by installing contractor.
- f. Operating schedule and setpoints attached.

3. **Sensor Calibration Checks.** Check the sensors listed below for calibration and adequate location.

-- NONE --

4. **Device Calibration Checks.** The actuators or devices listed below checked for calibration.

-- NONE --

5. Verification of Miscellaneous Prefunctional Checks

_____ Site checks of the prefunctional checklist and startup reports have been completed successfully.

Pass? Y / N _____

6. Functional Testing Record

a. VAV TU ID							
b. Reheat Coil?	YES	YES	YES	YES	NO	YES	YES
UNOCCUPIED PERIOD Is the zone temp within the setpoint range? _____ °F High (85 °F default) _____ °F Low (63 °F default) Is the damper closed? Is reheat coil valve closed? What is the discharge air temperature?							
UNOCCUPIED PERIOD Is the zone temp above night high limit? _____ °F (85 °F default) Is damper open? Is reheat coil valve closed? What is the discharge air temperature?							
UNOCCUPIED PERIOD Is the zone temp below night low limit? _____ °F (63 °F default) Is the damper at reheat position? Is the reheat coil valve open? What is the discharge air temperature?							
WARMUP PERIOD Is zone temp < occupied setpoint? Is the damper open? What is the discharge air temperature?							
OCCUPIED PERIOD Is the zone temp < heating setpoint? Is the damper @ reheat position? Is the reheat coil valve open?							
OCCUPIED PERIOD Is the zone temp > cooling setpoint? Does the damper modulate open? Is the reheat coil valve closed?							

OCCUPIED PERIOD Is the zone temp within the deadband? Is the damper at minimum cooling CFM? Is the reheat coil valve closed?							
---	--	--	--	--	--	--	--

7. Functional Testing Record (continued)

a. VAV TU ID				
b. Reheat Coil?	YES	NO	YES	YES
UNOCCUPIED PERIOD Is the zone temp within the setpoint range? _____ °F High (85 °F default) _____ °F Low (63 °F default) Is the damper closed? Is reheat coil valve closed? What is the discharge air temperature?				
UNOCCUPIED PERIOD Is the zone temp above night high limit? _____ °F (85 °F default) Is damper open? Is reheat coil valve closed? What is the discharge air temperature?				
UNOCCUPIED PERIOD Is the zone temp below night low limit? _____ °F (63 °F default) Is the damper at reheat position? Is the reheat coil valve open? What is the discharge air temperature?				
WARMUP PERIOD Is zone temp < occupied setpoint? Is the damper open? What is the discharge air temperature?				
OCCUPIED PERIOD Is the zone temp < heating setpoint? Is the damper @ reheat position? Is the reheat coil valve open?				
OCCUPIED PERIOD Is the zone temp > cooling setpoint? Does the damper modulate open? Is the reheat coil valve closed?				

<p>OCCUPIED PERIOD Is the zone temp within the deadband? Is the damper at minimum cooling CFM? Is the reheat coil valve closed?</p>				
--	--	--	--	--

8. Functional Testing Record *(continued)*

a. VAV TU ID			
b. Reheat Coil?	YES	NO	Notes
<p>UNOCCUPIED PERIOD Is the zone temp within the setpoint range? _____ °F High (85 °F default) _____ °F Low (63 °F default) Is the damper closed? Is reheat coil valve closed? What is the discharge air temperature?</p>			
<p>UNOCCUPIED PERIOD Is the zone temp above night high limit? _____ °F (85 °F default) Is damper open? Is reheat coil valve closed? What is the discharge air temperature?</p>			
<p>UNOCCUPIED PERIOD Is the zone temp below night low limit? _____ °F (63 °F default) Is the damper at reheat position? Is the reheat coil valve open? What is the discharge air temperature?</p>			
<p>WARMUP PERIOD Is zone temp < occupied setpoint? Is the damper open? What is the discharge air temperature?</p>			
<p>OCCUPIED PERIOD Is the zone temp < heating setpoint? Is the damper @ reheat position? Is the reheat coil valve open?</p>			
<p>OCCUPIED PERIOD Is the zone temp > cooling setpoint? Does the damper modulate open? Is the reheat coil valve closed?</p>			

OCCUPIED PERIOD			
Is the zone temp within the deadband?			
Is the damper at minimum cooling CFM?			
Is the reheat coil valve closed?			

- *The functional performance tests have been successfully completed.* **YES** **NO**
- *Trend logs have been successfully completed.* **YES** **NO**

END OF SECTION

SECTION 16995 – ELECTRICAL CONTROL SYSTEMS COMMISSIONING

PART 1 – GENERAL

1.01 DESCRIPTION

- A. The purpose of this section is to specify Division 16 responsibilities in the commissioning process, which are directed by the CA. Other electrical systems' testing is required under Section 16950, Testing.
- B. The systems to be commissioned are listed in Section 01810 Part 3.11.
- C. Commissioning requires the participation of Division 16 to ensure that all systems are operating in a manner consistent with the Contract Documents. The general commissioning requirements and coordination are detailed in Division 1. Division 16 shall be familiar with all parts of Division 1 and the commissioning plan issued by the CA and shall execute all commissioning responsibilities assigned to them in the Contract Documents.

1.02 RESPONSIBILITIES

- A. The commissioning responsibilities applicable to Division 16 are as follows (all references apply to commissioned equipment only):
 - 1. Include and itemize the cost of commissioning in the contract price.
 - 2. In each purchase order or subcontract written, include requirements for submittal data, commissioning documentation, O&M data and training.
 - 3. Attend a commissioning scoping meeting and other meetings necessary to facilitate the commissioning process.
 - 4. Contractors shall provide the CA with normal cut sheets and shop drawing submittals of commissioned equipment.
 - 5. Provide additional requested documentation, prior to normal O&M manual submittals, to the CA for development of start-up and functional testing procedures.
 - a. Typically this will include detailed manufacturer installation and start-up, operating, troubleshooting and maintenance procedures, full details of any owner-contracted tests, full factory testing reports, if any, and full warranty information, including all responsibilities of the Owner to keep the warranty in force clearly identified. In addition, the installation, start-up and checkout materials that are actually shipped inside the equipment and the actual field checkout sheet forms to be used by the factory or field technicians shall be submitted to the Commissioning Agent.
 - b. The Commissioning Agent may request further documentation necessary for the commissioning process.
 - c. This data request may be made prior to normal submittals.
 - 6. Provide a copy of the O&M manuals and submittals of commissioned equipment, through normal channels, to the CA for review and approval.

7. Contractors shall assist (along with the design engineers) in clarifying the operation and control of commissioned equipment in areas where the specifications, control drawings or equipment documentation is not sufficient for writing detailed testing procedures.
8. Provide limited assistance to the CA in preparing the specific functional performance test procedures as specified in Section 01810 and in this section. Subs shall review test procedures to ensure feasibility, safety and equipment protection and provide necessary written alarm limits to be used during the tests.
9. Develop a full start-up and initial checkout plan using manufacturer's start-up procedures and the prefunctional checklists from the CA for all commissioned equipment. Submit to CA for review and approval prior to startup. Refer to Section 01810 for further details on start-up plan preparation.
10. During the startup and initial checkout process, execute the electrical-related portions of the prefunctional checklists for all commissioned equipment.
11. Perform and clearly document all completed startup and system operational checkout procedures, providing a copy to the CA.
12. Address current A/E punch list items before functional testing.
13. Provide skilled technicians to execute starting of equipment and to execute the functional performance tests. Ensure that they are available and present during the agreed upon schedules and for sufficient duration to complete the necessary tests, adjustments and problem-solving.
14. Provide skilled technicians to perform functional performance testing under the direction of the CA for specified equipment in Section 01810 Part 3.11. Assist the CA in interpreting the monitoring data, as necessary.
15. Correct deficiencies (differences between specified and observed performance) as interpreted by the CA, CM and A/E and retest the equipment. See Section 01810 Part 3.07 for deficiency issue reporting and resolution recording methodology and responsibility.
16. Prepare O&M manuals according to the Contract Documents, including clarifying and updating the original sequences of operation to as-built conditions.
17. During construction, maintain as-built red-line drawings for all drawings and final CAD as-builts for contractor-generated coordination drawings. Update after completion of commissioning (excluding deferred testing).
18. Provide training of the Owner's operating staff using expert qualified personnel, as specified.
19. Coordinate with equipment manufacturers to determine specific requirements to maintain the validity of the warranty.
Provide startup for all lighting equipment.

1.03 RELATED WORK

- A. Refer to Section 01810, 16010, 16050, 16530, 16540, 16550, and 16950.
- B. Refer to Section 01810 Part 3.11 for systems to be commissioned and section 01810 Part 3.06 for functional testing requirements.

PART 2 – PRODUCTS

2.01 TEST EQUIPMENT

- A. Division 16 shall provide all test equipment necessary to fulfill the testing requirements of this Division.

- B. Refer to Section 01810 Part 2.01 for additional test equipment requirements.

PART 3 – EXECUTION

3.01 SUBMITTALS

- A. Division 16 shall provide submittal documentation relative to commissioning as required in 16010 Section 1.6.

3.02 STARTUP

- A. The electrical contractor shall follow the start-up and initial checkout procedures. Division 16 has start-up responsibility and is required to complete systems and sub-systems so they are fully functional, meeting the design objectives of the Contract Documents. The commissioning procedures and functional testing do not relieve or lessen this responsibility or shift that responsibility partially to the commissioning agent or Owner.
- B. Functional testing is intended to begin upon completion of a system. Functional testing may proceed prior to the completion of systems or sub-systems at the discretion of the CA and CM. Beginning system testing before full completion does not relieve the Contractor from fully completing the system, including all prefunctional checklists as soon as possible.

3.03 FUNCTIONAL PERFORMANCE TESTS

- A. Refer to Section 01810 Part 3.11 for a list of systems to be commissioned and to Part 3.01 for a description of the process.

3.04 TESTING DOCUMENTATION, NON-CONFORMANCE AND APPROVALS

- A. Refer to Section 01810 Part 3.05 for specific details on non-conformance issues relating to prefunctional checklists and tests.
- B. Refer to Section 01810 Part 3.07 for issues relating to functional performance tests.

3.05 OPERATION AND MAINTENANCE (O&M) MANUALS

- A. The following O&M manual requirements do not replace O&M manual documentation requirements elsewhere in these specifications.
- B. Division 16 shall compile and prepare documentation for all equipment and systems covered in Division 15 and deliver this documentation to the GC for inclusion in the O&M manuals, according to this section and Section 01730, prior to the training of owner personnel.
- C. The CA shall receive a copy of the O&M manuals for review.
- D. Review and Approvals. Review of the commissioning related sections of the O&M manuals shall be made by the A/E and by the CA. Refer to Section 01810 for details.

3.06 TRAINING OF OWNER PERSONNEL

- A. Electrical Contractor. The electrical contractor shall have the following training responsibilities:
1. Provide the CM with a training plan two weeks before the planned training.
 2. Provide designated Owner personnel with comprehensive orientation and training in the understanding of the systems and the operation and maintenance of each piece of lighting equipment including, but not limited to, occupancy sensors, photocells, dimmers, switches and control systems.
 3. Training shall normally start with classroom sessions followed by hands-on training on each piece of equipment, which shall illustrate the various modes of operation, including startup, shutdown, power failure, and repair, etc.
 4. During any demonstration, should the system fail to perform in accordance with the requirements of the O&M manual or sequence of operations, the system will be repaired or adjusted as necessary and the demonstration repeated.
 5. The appropriate trade or manufacturer's representative shall provide the instructions on each major piece of equipment. This person may be the start-up technician for the piece of equipment, the installing contractor or manufacturer's representative. Practical building operating expertise as well as in-depth knowledge of all modes of operation of the specific piece of equipment are required. More than one party may be required to execute the training.
 6. The electrical controls contractor shall attend sessions other than the controls training, as requested, to discuss the interaction of the controls system as it relates to the equipment being discussed.
 7. The training sessions shall follow the outline in the Table of Contents of the operation and maintenance manual and illustrate whenever possible the use of the O&M manuals for reference.
 8. Training shall include:
 - a. Use of the printed installation, operation and maintenance instruction material included in the O&M manuals.
 - b. A review of the written O&M instructions emphasizing safe and proper operating requirements, preventative maintenance, special tools needed and spare parts inventory suggestions. The training shall include start-up, operation in all modes possible, shut-down, seasonal changeover and any emergency procedures.
 - c. Discussion of relevant health and safety issues and concerns.
 - d. Discussion of warranties and guarantees.
 - e. Common troubleshooting problems and solutions.
 - f. Explanatory information included in the O&M manuals and the location of all plans and manuals in the facility.
 - g. Discussion of any peculiarities of equipment installation or operation.
 - h. The format and training agenda in The Electrical Commissioning Process, ASHRAE Guideline 1-1989R, 1996 is recommended.
 - i. Classroom sessions shall include the use of overhead projections, slides, video/audio-taped material as might be appropriate.
 9. Hands-on training shall include start-up, operation in all modes possible, including manual, shut-down and any emergency procedures and preventative maintenance for all pieces of equipment.
 10. The electrical contractor shall fully explain and demonstrate the operation, function and overrides of any local packaged controls, not controlled by the central control system.

11. Training shall occur after functional testing is complete, unless approved otherwise by the Project Manager.

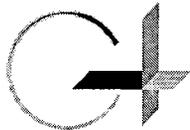
3.07 WRITTEN WORK PRODUCTS

- A. Written work products of Contractors will consist of the start-up and initial checkout plan described in Section 01810 and the filled out start-up, initial checkout and prefunctional checklists.

END OF SECTION

LEGEND:

-  = JUNCTION BOX
-  = GAS METER
-  = AREA DRAIN
-  SDCO = STORM DRAIN CLEAN OUT
-  FH = FIRE HYDRANT, SEE DETAIL 9496-GB/C9.4
-  FDC = FIRE DEPARTMENT CONNECTION, SEE DETAIL 1/C8.1
-  WM = WATER METER, SEE DETAIL 291-EA/C9.3
-  = GATE VALVE, SEE DETAIL 3684-B/C9.4
-  BPA = BACKFLOW PREVENTER ASSEMBLY, CITY STANDARD
DETAIL 408 & 410/L3.3. A
2
-  = SEWER BACKWATER PREVENTION SYSTEM
SEE DETAIL SD-15/C9.5
-  = CURB INLET
-  DDCV = DOUBLE DETECTOR CHECK VALVE, SEE DETAIL 2/C8.1
-  = BUBBLER BOX, SEE DETAIL 8/C8.0



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CA 94080 USA
650-871-0709

CITY OF SAN LEANDRO
SENIOR COMMUNITY CENTER

SCALE: NTS
JOB #: 06-210-18-116

PHASE II
UTILITY PLAN

SHEET TITLE
06-20-2008
DATE
DP (BKF)
BY

ADD-2
REVISION
AD2-1/C6.0-01
DRAWING

SEE LANDSCAPE PLANS FOR
JOINT SPACING AND FINISH

5" THK. CONC. SLAB REINF. W/
6X6 W1.5XW1.5 WELDED WIRE
MESH PLACED AT MID-DEPTH

JOINT-SEE
ARCH. PLANS

BLDG.

12"

12"

BLDG. S.O.G.
(SEE STRL. PLANS)

6" CL II AB
COMPACTED TO 95%

PAVEMENT SUBGRADE UPPER 6
INCHES COMPACTED TO 88% AT
2% ABOVE OPTIMUM SOIL CONTENT

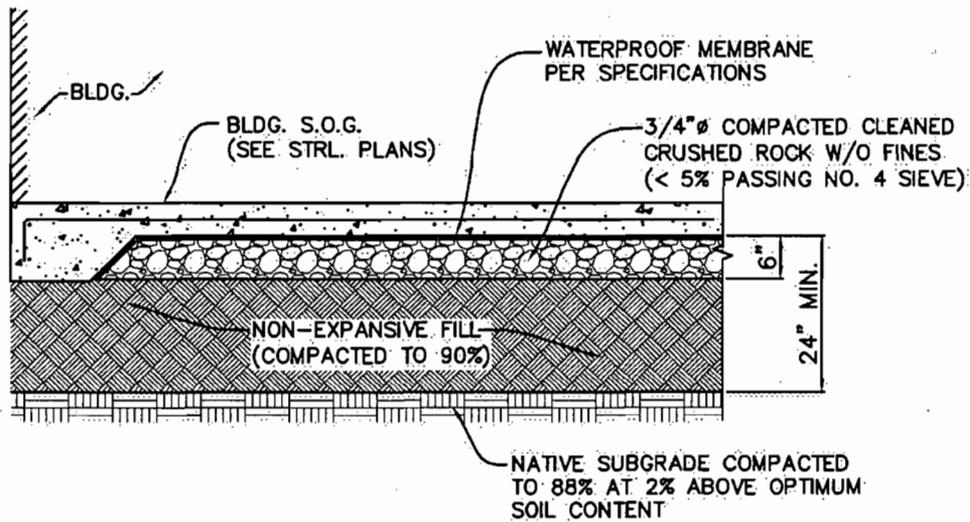
NOTE:

CONCRETE STRENGTH SHALL BE PER CITY
STANDARD DETAILS 100 AND 104.

NTS

9

EXTERIOR CONCRETE FLATWORK



NTS

10

BLDG. SLAB SECTION



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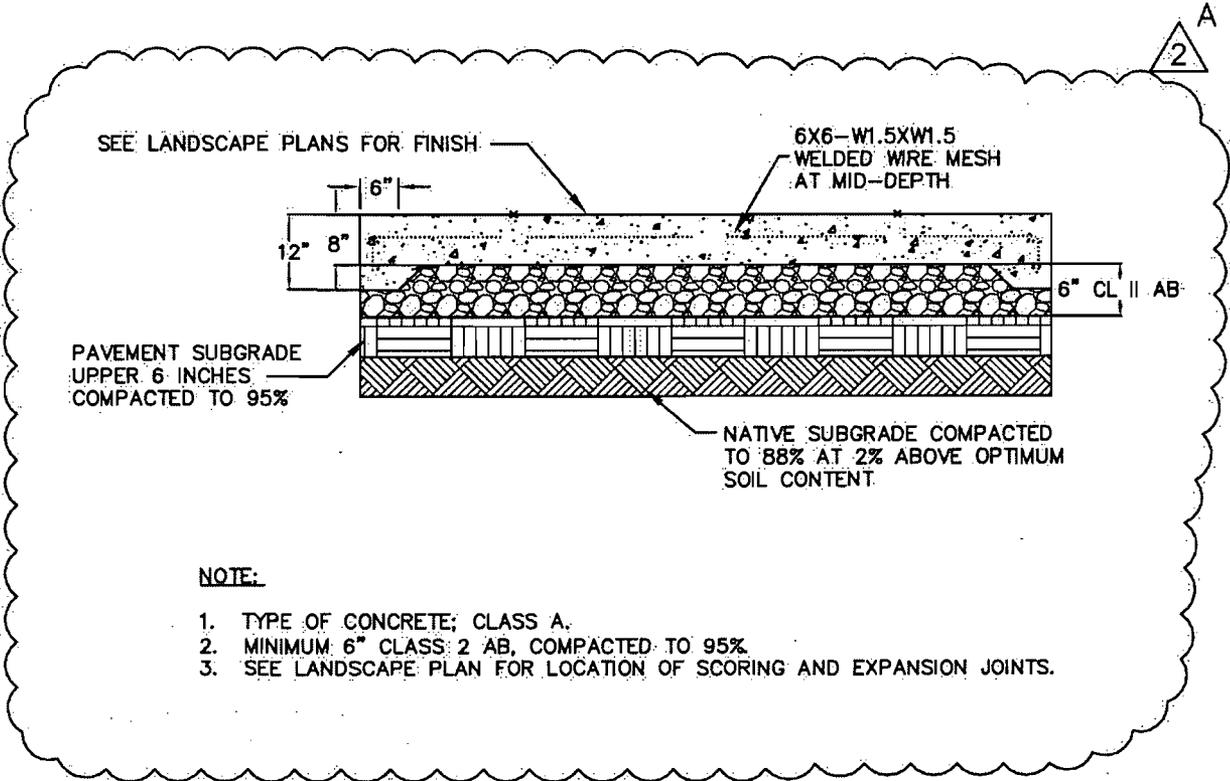
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JOB #: 06-210-18-116

PHASE II
DETAILS

SHEET TITLE
07-11-2008
DATE
DP (BKF)
BY

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AD2-9/C8.0-01
DRAWING

GROUP 4



NTS

4

APPROACH SLAB



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GROUP 4

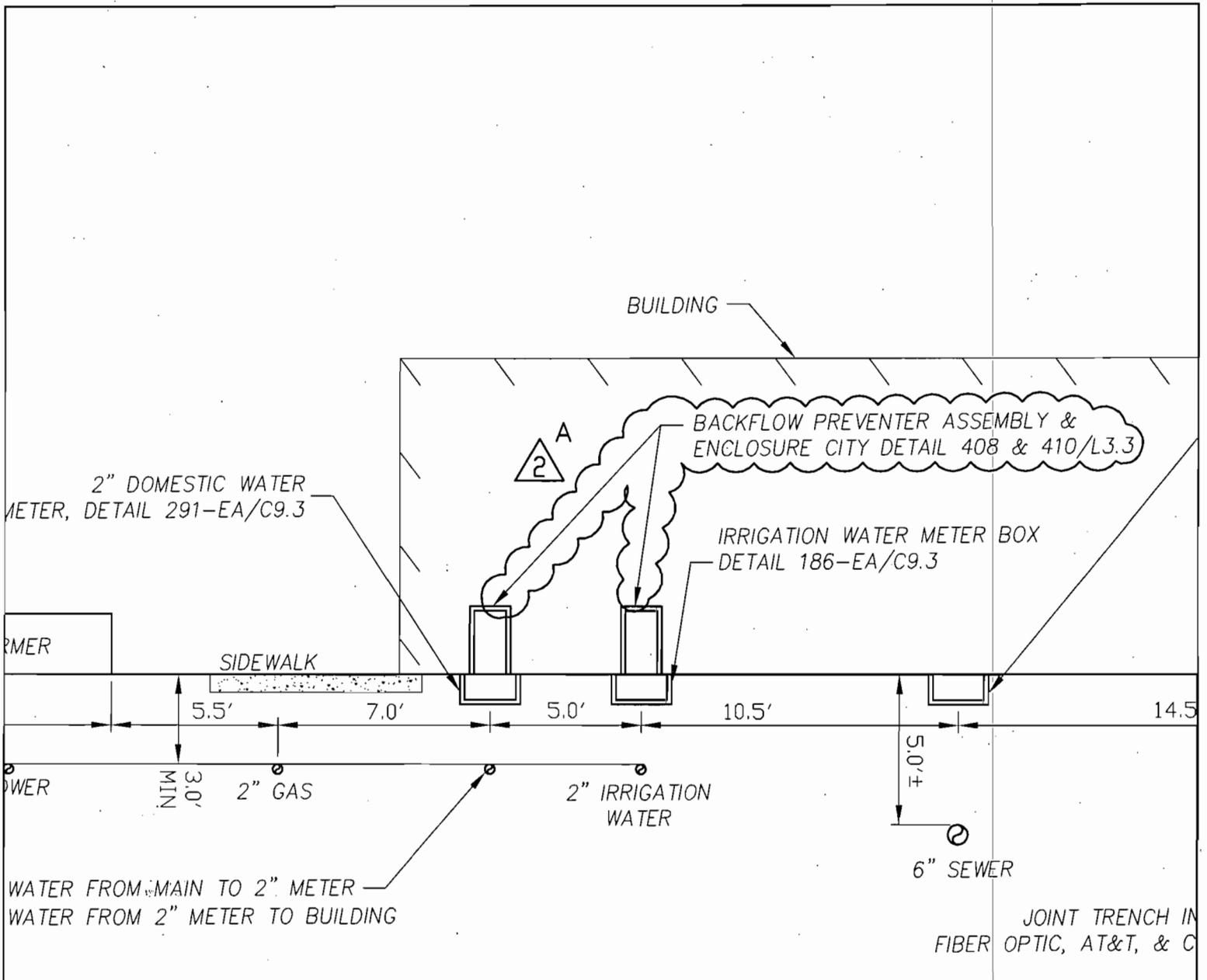
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SCALE: NTS
JOB #: 06-210-18-116

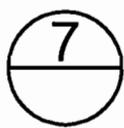
PHASE II
DETAILS

SHEET TITLE
07-11-2008
DATE
DP (BKF)
BY

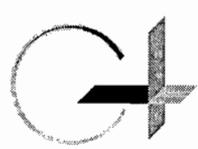
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REVISION
AD2-4/C8.0-02
DRAWING



SCALE: 1"=5'



UTILITY SECTION ALONG EAST 14TH ST.



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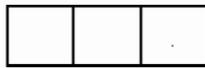
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JOB #:06-210-18-116

PHASE II
DETAILS

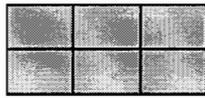
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06-20-2008
DATE
DP (BKF)
BY

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REVISION
AD2-2/C8.1-01
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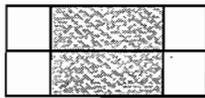
LAYOUT LEGEND



PEDESTRIAN CONCRETE PAVING
 FINISH: MEDIUM BROOM
 COLOR: STANDARD GREY



PEDESTRIAN TONED CONCRETE PAVING
 FINISH: MEDIUM BROOM
 COLOR: SAN DIEGO BUFF, DAVIS COLORS,
 (800) 356-4848 OR APPROVED EQUAL



PEDESTRIAN TONED CONCRETE PAVING
 FINISH: MEDIUM SANDBLAST
 COLOR: COBBLE STONE, DAVIS COLORS,
 (800) 356-4848 OR APPROVED EQUAL.



GROUP 4

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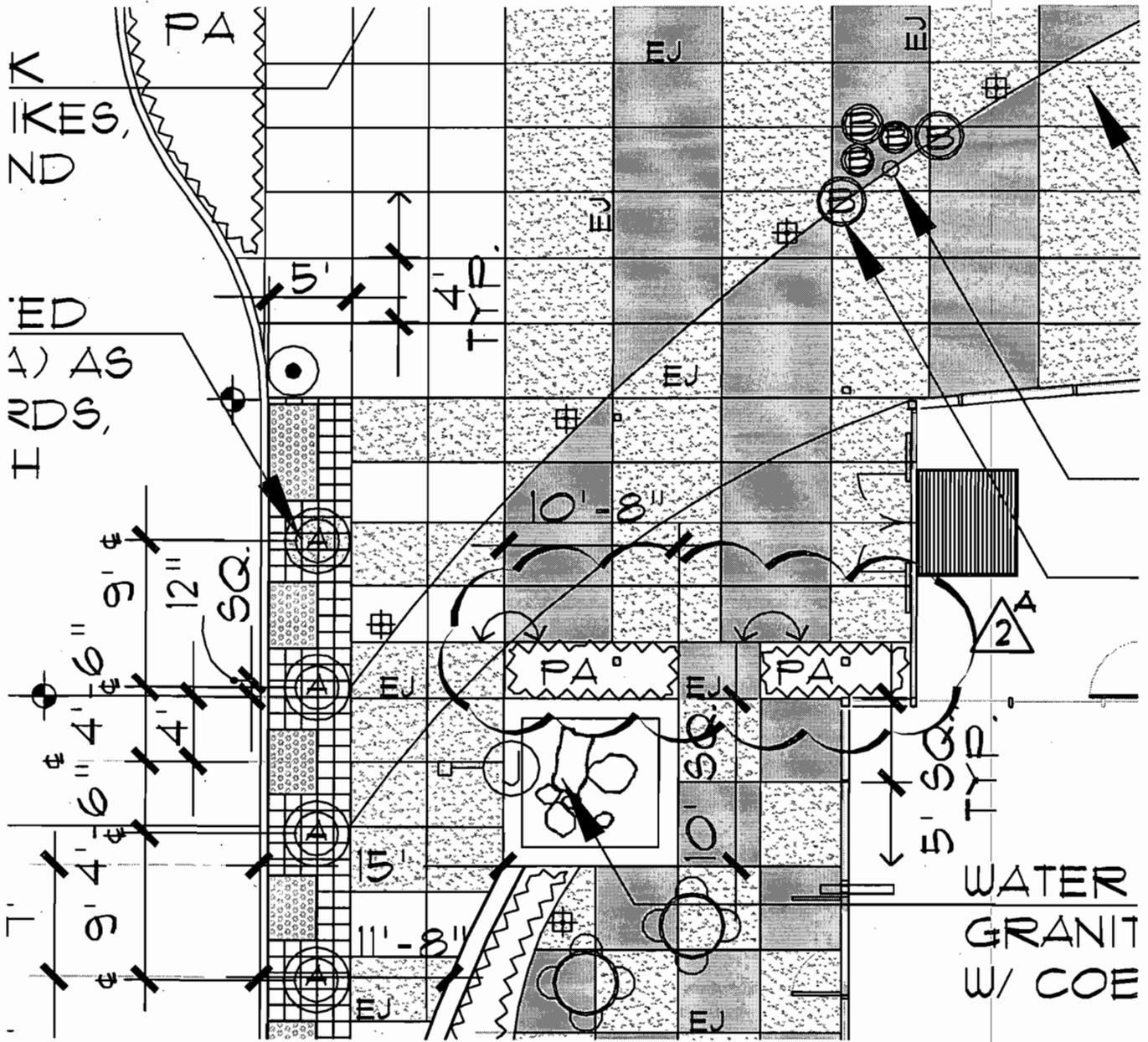
CITY OF SAN LEANDRO
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SCALE: N.T.S.
 JOB #: 06-210-18-116

CONCRETE COLORS
 L0.1 - NOTES & LEGEND

SHEET TITLE
 06-25-2008
 DATE
 KC
 BY

ADDENDUM 2
 REVISION
 AD2/L0.1-01
 DRAWING



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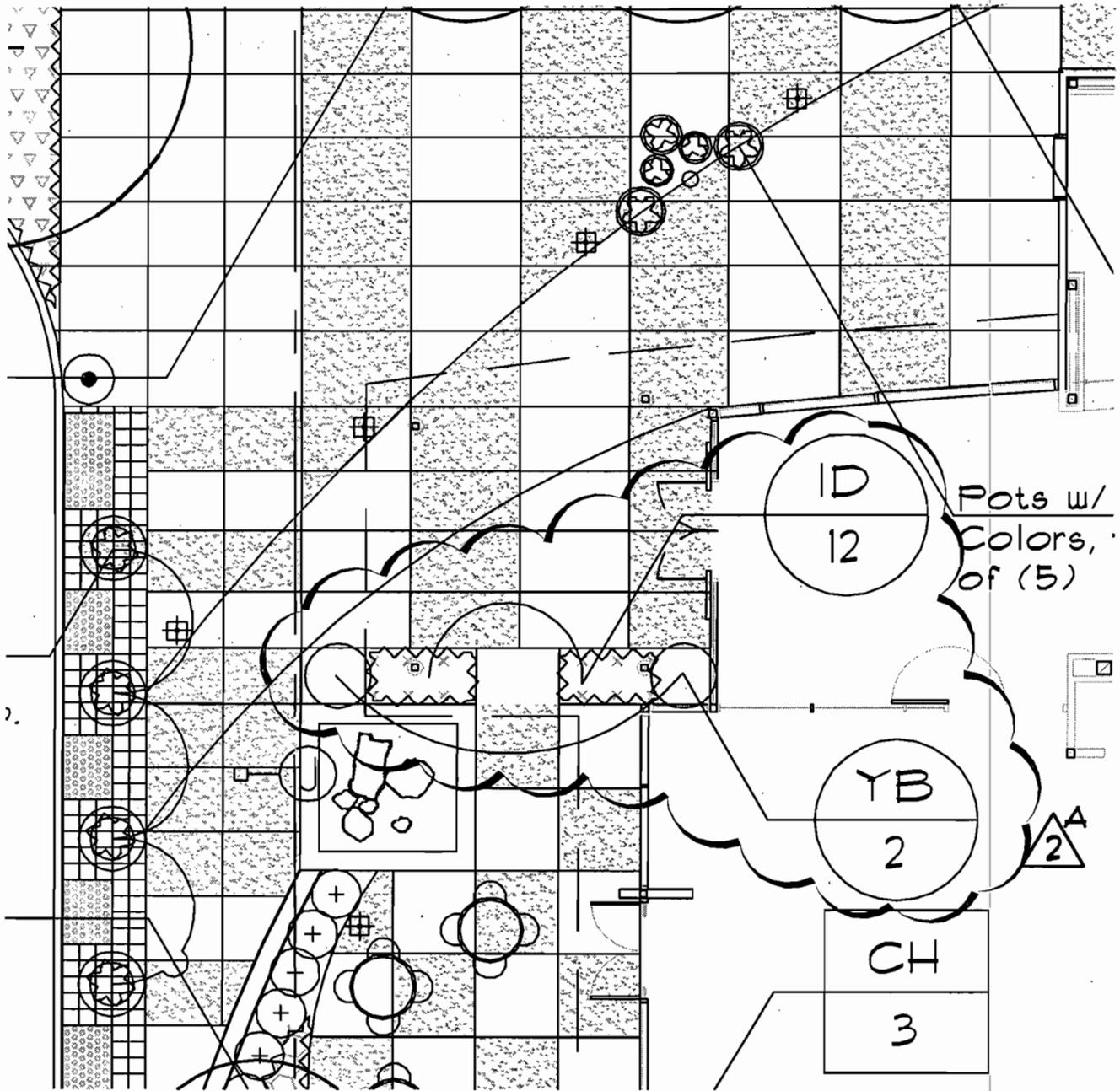
CITY OF SAN LEANDRO
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SCALE: 1"=10'
JOB #: 06-210-18-116

PLANTING AREA REDUCTION
L1.1 - LAYOUT PLAN

SHEET TITLE
06-25-2008
DATE
KC
BY

ADDENDUM 2
REVISION
AD2/L1.1-01
DRAWING



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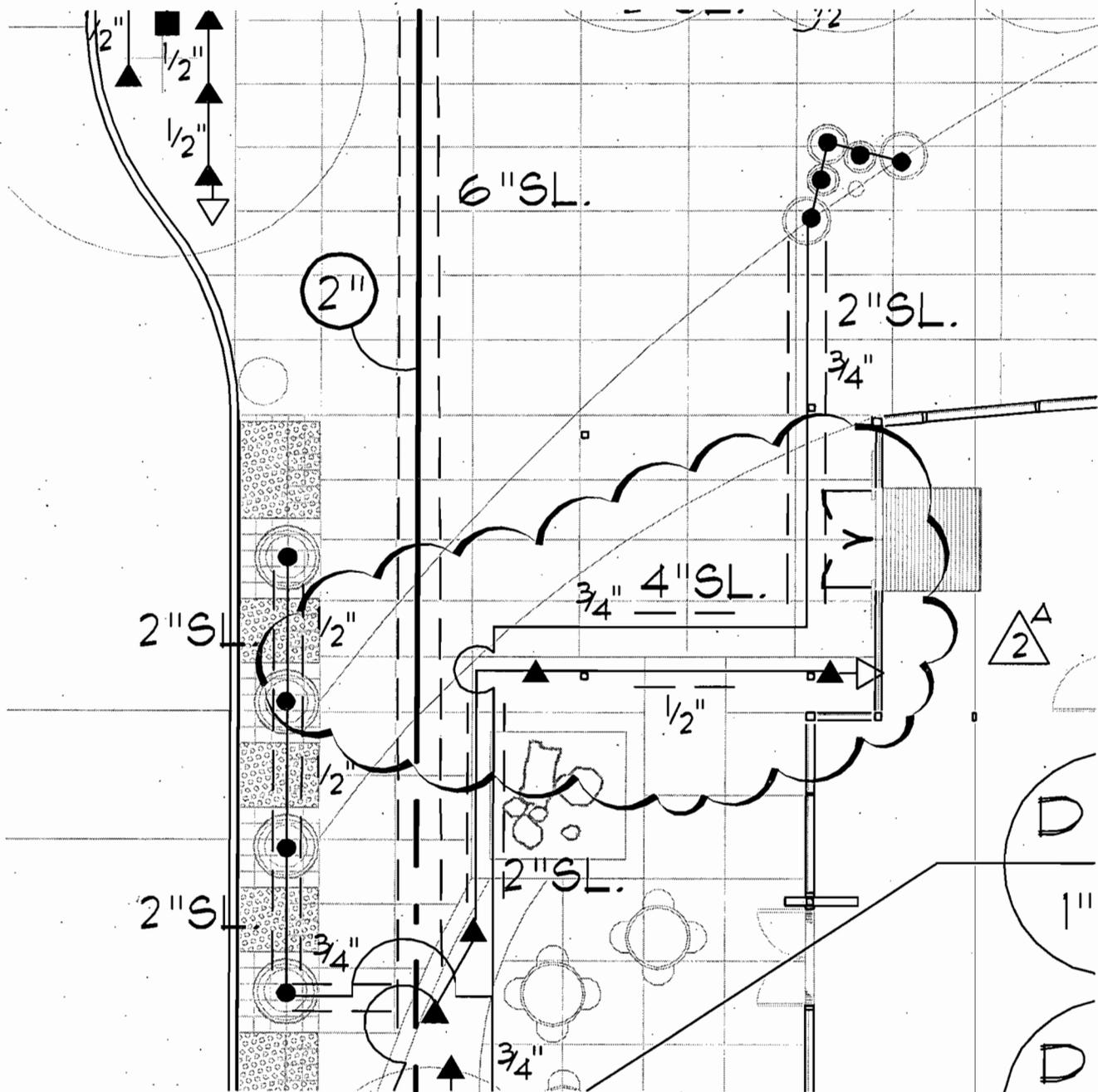
CITY OF SAN LEANDRO
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SCALE: 1"=10'
JOB #: 06-210-18-116

PLANTING REVISION
L2.1 - PLANTING PLAN

SHEET TITLE
06-25-2008
DATE
KC
BY

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REVISION
AD2/L2.1-01
DRAWING



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SCALE: 1"=10'
JOB #: 06-210-18-116

IRRIGATION REVISION
L3.1 - IRRIGATION PLAN

SHEET TITLE
06-25-2008
DATE
CS
BY

ADDENDUM 2
REVISION
AD2/L3.1-01
DRAWING

DOOR SCHEDULE (SEE A2.6 FOR DOOR SCHEDULE NOTES & LEGEND)

DOOR NO.	DOOR TYPE	NOMINAL DOOR DIMENSIONS					FRAME		GLAZING TYPE	LOUVER SIZE	LABELED ASSEMBLY	HDWR GROUP
		WIDTH	HEIGHT	THICK	MAT'L	FIN.	MAT'L	FIN.				
2A 112C	D	3'-0"	7'-0"	-	AL	PTD	AL	PTD	d	-	-	8
113	A	3'-0"	7'-0"	-	SC	STN	AL	PTD	b	-	-	19
113A	A	3'-0"	7'-0"	-	SC	STN	HM	PTD	-	-	-	15
113B	AA	3'-0"PR	7'-0"	-	SC	PTD	HM	PTD	-	-	-	11
2A 113C	D	3'-0"	7'-0"	-	AL	PTD	AL	PTD	d	-	-	8
114	DD	3'-0"PR	7'-0"	-	AL	PTD	AL	PTD	b	-	-	21
114A	AA	3'-0"PR	7'-0"	-	SC	PTD	HM	PTD	-	-	-	11
2A 114B	B	3'-6"	8'-10"	-	AL	PTD	AL	PTD	d	-	-	8
115	DD	3'-0"PR	7'-0"	-	AL	PTD	AL	PTD	b	-	-	21
115A	A	3'-0"	7'-0"	-	SC	PTD	HM	PTD	-	-	-	15
115B	AA	3'-0"PR	7'-0"	-	HM	PTD	HM	PTD	-	-	-	11
115C	A	3'-0"	7'-0"	-	HM	PTD	HM	PTD	-	-	-	8
2A 116	BB	3'-6"PR	8'-10"	-	AL	PTD	AL	PTD	b	-	-	9
116A	AA	3'-0"PR	7'-0"	-	SC	STN	HM	PTD	-	-	-	11
116B	E1	52'-11 1/4"	19'-0"	-	ST	FAB	ST	PTD	-	-	-	MFR
116C	E2	5'-6"	19'-0"	-	ST	FAB	ST	PTD	-	-	-	MFR
116D	E3	2'-3"	9'-0"	-	ST	FAB	ST	PTD	-	-	-	MFR
116E	AA	3'-0"PR	7'-0"	-	SC	PTD	HM	PTD	-	-	-	11
116F	BB	3'-0"PR	8'-10"	-	AL	PTD	AL	PTD	d	-	-	2
116G	BB	3'-0"PR	8'-10"	-	AL	PTD	AL	PTD	d	-	-	2
2A 117	BB	3'-6"PR	8'-10"	-	AL	PTD	AL	PTD	b	-	-	12
117A	A	2'-2"	7'-0"	-	SC	STN	HM	PTD	-	-	-	15
117B	A	3'-0"	7'-0"	-	SC	STN	HM	PTD	-	-	-	13
117C	A	3'-0"	7'-0"	-	SC	STN	HM	PTD	-	-	-	14
117D	A	3'-0"	7'-0"	-	SC	STN	HM	PTD	-	-	-	15
2A 117E	BB	3'-0"PR	8'-10"	-	AL	PTD	AL	PTD	d	-	-	2
117F	AA	3'-0"PR	7'-0"	-	SC	STN	HM	PTD	-	-	-	11
118	A	3'-6"	7'-0"	-	HM	PTD	HM	PTD	-	-	-	3
118A	AA	3'-0"PR	7'-0"	-	SC	STN	HM	PTD	b	-	-	16
118B	A	3'-6"	7'-0"	-	SC	PTD	HM	PTD	-	-	-	18
119	A	2'-2"	7'-0"	-	SC	PTD	HM	PTD	-	-	-	18
119A	AA	3'-0"PR	7'-0"	-	SC	STN	HM	PTD	b	-	-	16
119B	A	3'-0"	7'-0"	-	HM	PTD	HM	PTD	-	-	-	15
2A 119C	A	3'-0"	7'-0"	-	AL	PTD	AL	PTD	-	-	-	6
120	A	3'-0"	7'-0"	-	SC	STN	HM	PTD	-	-	-	17
121	A	3'-0"	7'-0"	-	SC	STN	HM	PTD	-	-	-	15
125	A	3'-0"	7'-0"	-	SC	STN	HM	PTD	-	-	-	17
126	A	3'-0"	7'-0"	-	SC	STN	HM	PTD	-	-	-	18
127	A	3'-0"	7'-0"	-	SC	STN	HM	PTD	-	-	-	20
127A	A	3'-0"	7'-0"	-	SC	STN	HM	PTD	-	-	-	20
128	A	3'-0"	7'-0"	-	HM	PTD	HM	PTD	-	-	-	7
2A 128A	A	3'-0"	7'-0"	-	HM	PTD	HM	PTD	-	-	1 HR	7
133	HH	4'-0"PR	6'-4"	-	GR	PTD	ST	PTD	-	-	-	5
133A	A	3'-0"	7'-0"	-	HM	PTD	HM	PTD	-	-	-	4
134	A	3'-0"	7'-0"	-	HM	PTD	HM	PTD	-	-	-	7
135	A	3'-0"	7'-0"	-	HM	PTD	HM	PTD	-	-	-	7
2A 136A	G	3'-0"	6'-4"	-	GR	PTD	ST	PTD	-	-	-	23
136B	G	3'-0"	6'-4"	-	GR	PTD	ST	PTD	-	-	-	23
136C	GG	3'-0"PR	6'-4"	-	GR	PTD	ST	PTD	-	-	-	-



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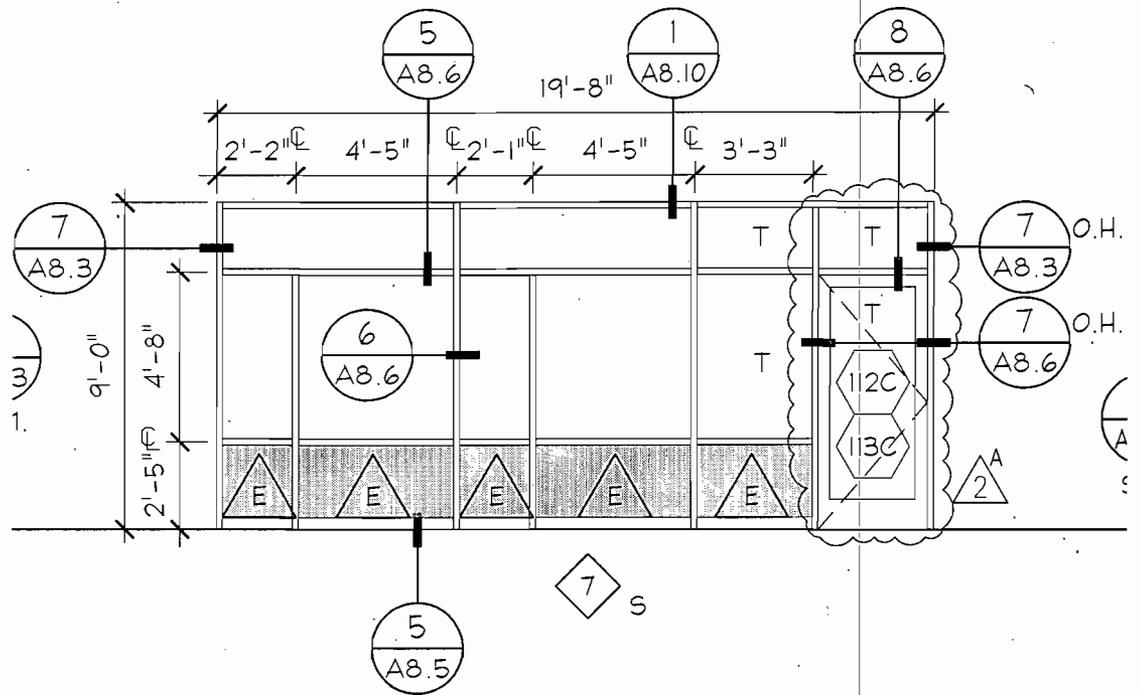
CITY OF SAN LEANDRO
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SCALE: N.T.S.
JOB #: 06-210-18-116

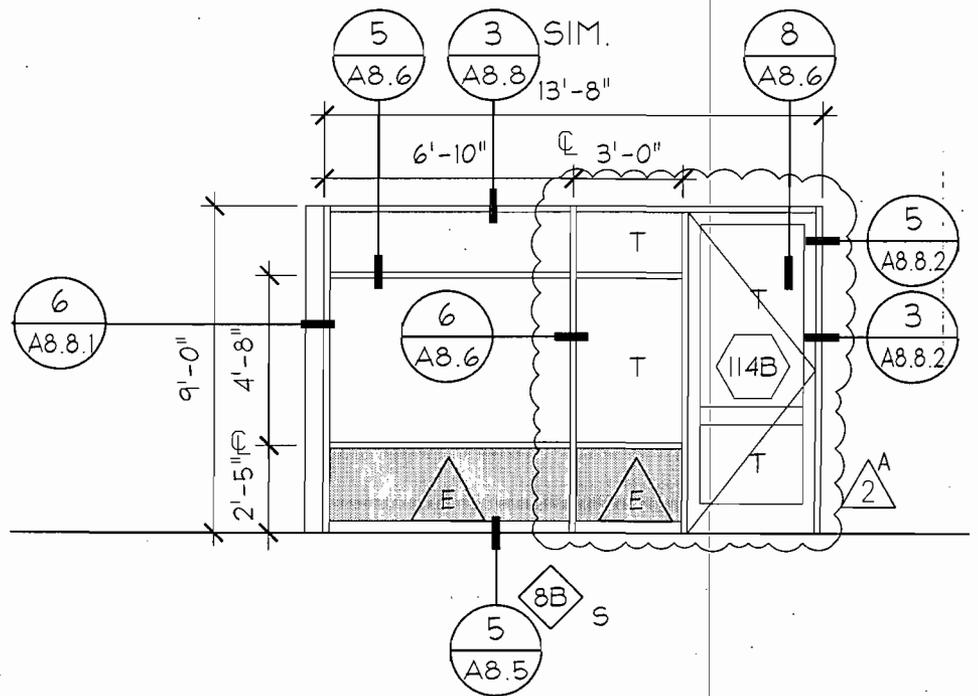
A2.5 DOOR TYPE AND SCHEDULE
DOOR REVISIONS

SHEET TITLE
06-25-2008
DATE
PA
BY

ADDENDUM 2
REVISION
AD2-A2.5-01
DRAWING



WINDOW SCHEDULE				
WINDOW NUMBER	GLASS TYPE	FRAME MATERIAL	FRAME FINISH	REMARKS
1A	A	ALUM	PTD	7 1/2" CURTAINWALL
1B	A	ALUM	PTD	AUTO DOOR STOREFRONT
2A	A	ALUM	PTD	CURTAINWALL
2B	A	ALUM	PTD	CURTAINWALL
3A	A	ALUM	PTD	CURTAINWALL
3B	A	ALUM	PTD	CURTAINWALL
4	A	ALUM	PTD	PUNCHED OPENING
5	A	HM	PTD	PUNCHED OPENING
6A	A	ALUM	PTD	CURTAINWALL
6B	A	ALUM	PTD	CURTAINWALL
7	A	ALUM	PTD	CURTAINWALL
8A	A	ALUM	PTD	CURTAINWALL
8B	A	ALUM	PTD	CURTAINWALL



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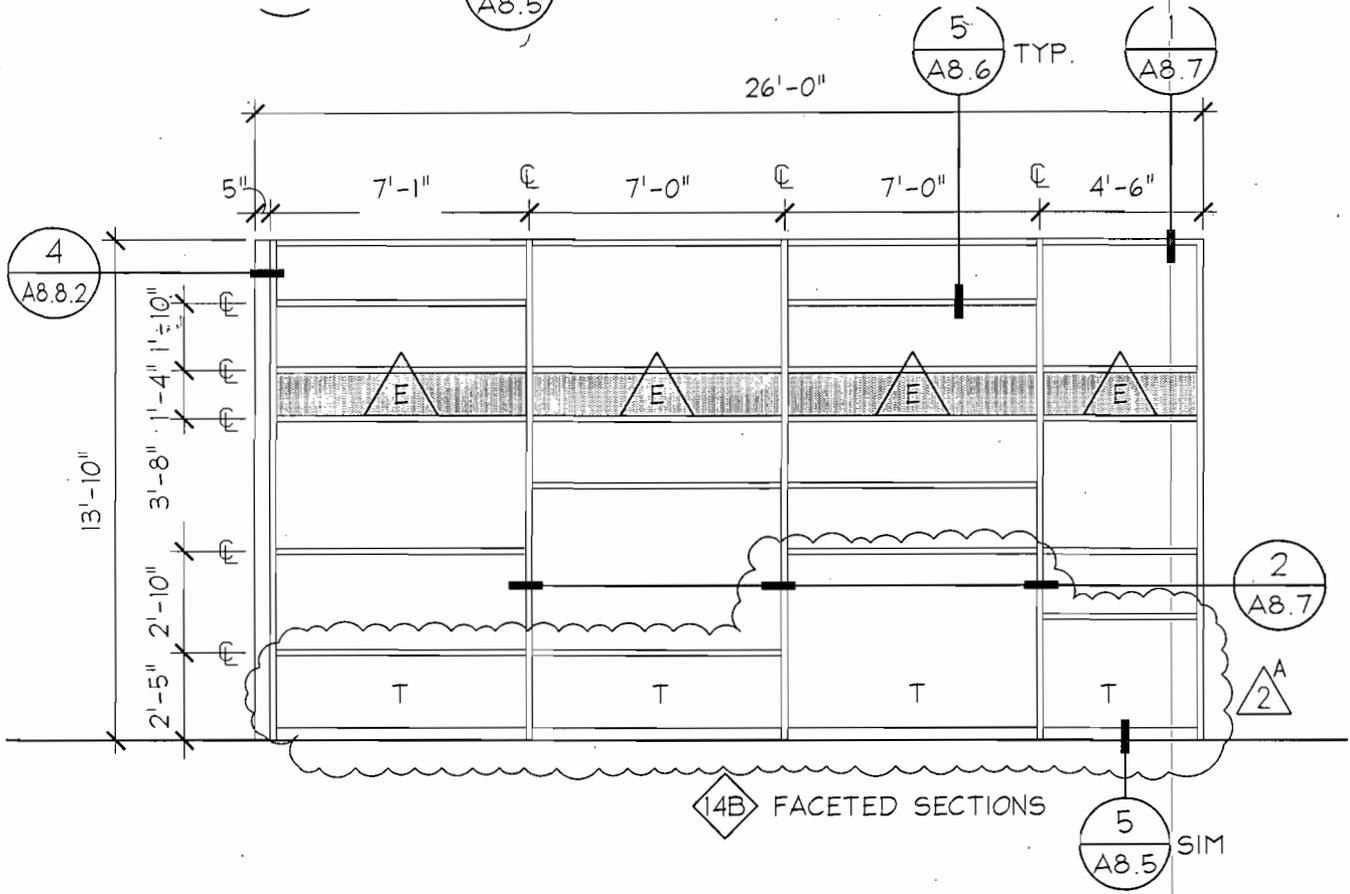
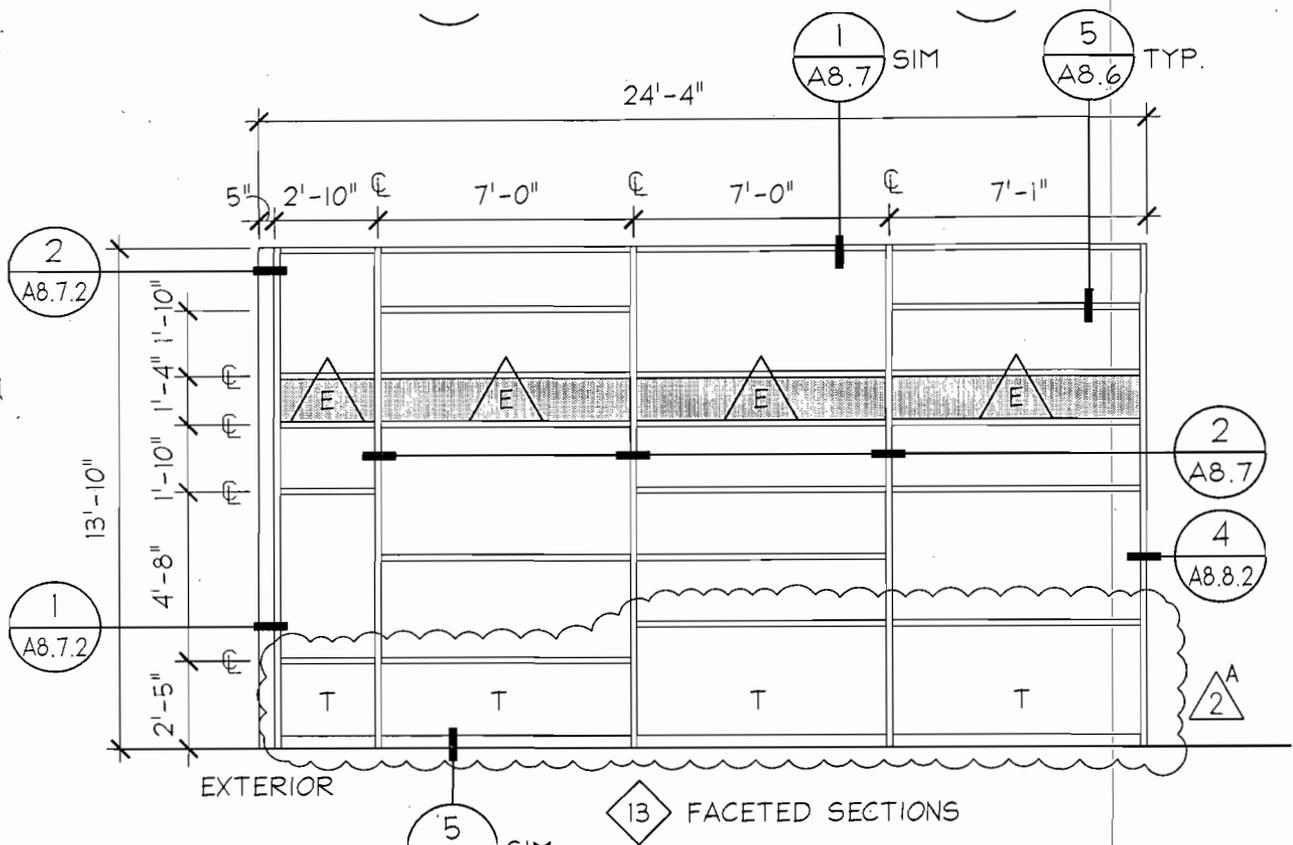
CITY OF SAN LEANDRO
SENIOR COMMUNITY CENTER

SCALE: 3/16" = 1'-0"
JOB #: 06-210-18-116

A2.7 WINDOW SCHEDULE
DOOR REVISION

SHEET TITLE
DATE
06-25-2008
PA
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ADDENDUM 2
REVISION
AD2-A2.7-01
DRAWING



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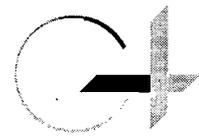
SCALE: 3/16" = 1'-0"
JOB #: 06-210-18-116

A2.8 WINDOW SCHEDULE
TEMPERED GLAZING
SHEET TITLE
06-25-2008
DATE
PA
BY

ADDENDUM 2
REVISION
AD2-A2.8-01
DRAWING

INTERIOR MATERIAL SCHEDULE

	CODE	MATERIAL	MANUFACTURER	DESCRIPTION	REMARKS
FLOOR	CT-1	CARPET TILE ACCENT 1	SHAW, D2K	TAILORED, 81761 MINK, ASHLAR INSTALLATION, TYP.	
	CT-2	CARPET TILE ACCENT 2	SHAW, D2K	BLOOM, 81761 MINK FIELD W/ 04750 OUT OF THE BLUE ACCENT, QUARTER TURN	
	CT-3A	CARPET TILE ACCENT 3A	SHAW, D2K	VIVID BLOOM, 81761 MINK FIELD W/ 04750 OUT OF THE BLUE, QUARTER TURN	
	CT-3B	CARPET TILE ACCENT 3B	SHAW, D2K	VIVID BLOOM, 81761 MINK FIELD W/ 04516 TOUCH OF GLAMOUR, QUARTER TURN	
	CT-4	CARPET TILE ACCENT 4	SHAW, D2K	VIVID BLOOM, 81750 CHARM FIELD W/ 04750 OUT OF THE BLUE, QUARTER TURN	
	CT-5	CARPET TILE ACCENT 5	SHAW, D2K	VIVID BLOOM, 81750 CHARM FIELD, QUARTER TURN	
	G	RECESSED WALK-OFF GRILL	ARDEN ARCH. SPECIALTIES	ENVIRONMENT II, G-218	WITH RECYCLED BUFFED RUBBER TREAD GRATE
	T-1	CERAMIC TILE FLOOR	DALTILE	NATURAL HUES, ECO-BODY, 4X4	WITH ABRASIVE, MUSHROOM -QH16
	E	EPOXY FLOOR/ BASE	SELBY UCRETE	SELBACLAD 425	269-M ALUMINUM GRAY
	WD-1	ENGINEERED WOOD FLOOR	PERMA GRAIN	TIMELESS SERIES 3, MAPLE NATURAL	PENNTHANE FINISH, 4" WIDTH
WD-2	HARDWOOD STRIP FLOOR	-	MAPLE	STAINED AND SEALED TO MATCH WD-1	
SC	SEALED CONCRETE	-	-	-	
M-1	MARMOLEUM FLOOR 1	FORBO	MINERAL	5711 SMOKY QUARTZ	
M-2	MARMOLEUM FLOOR 2	FORBO	MINERAL	5701 SERPENTINE	
M-3	MARMOLEUM FLOOR 3	FORBO	MINERAL	5702 MOONSTONE	
M-4	MARMOLEUM FLOOR 4	FORBO	REAL AUTHENTIC	3048 GRAPHITE	
BASE	R	RESILIENT BASE	BURKE MERCER	TYPE TS: BURKE BASE	217 CHARCOAL
	CT	CERAMIC TILE BASE	DALTILE	NATURAL HUES, ECO-BODY	MUSHROOM -QH16
	W	WOOD BASE	PER SPEC.	-	TO MATCH WD-1 STAIN & FINISH
WALL	WDR	WOOD DOOR	PER SPEC.	MAPLE, PLAIN SLICED	STAIN TO MATCH ARCHITECT'S SAMPLE
	FWP-1	FABRIC WRAPPED ACOUST. PANEL	INTERFACE FABRIC	FR701 STYLE 2100	750 CEMENT MIX
	FWP-2	PARTITION PANEL	INTERFACE FABRIC	FR701 STYLE 2100	750 CEMENT MIX
	P1	PAINT	PER SPEC.	TO MATCH BENJAMIN MOORE	936 MEADOW MIST
	P2	PAINT	PER SPEC.	TO MATCH BENJAMIN MOORE	941 SEASPRAY
	P3	PAINT	PER SPEC.	TO MATCH BENJAMIN MOORE	978 RACON HOLLOW
	P4	PAINT	PER SPEC.	TO MATCH BENJAMIN MOORE	483 HOME ON THE RANGE
	P5	PAINT	PER SPEC.	TO MATCH BENJAMIN MOORE	1567 NIGHT RAIN
	P6	PAINT	PER SPEC.	TO MATCH BENJAMIN MOORE	1610 FRENCH BERET
	S	SLATE WALL TILE	AMERICAN SLATE	SILVERGREY	3/8" EXTERIOR AND INTERIOR
T-2	CERAMIC TILE WALL	DALTILE	NATURAL HUES, ECO-BODY, 4X4	MUSHROOM -QH16	
T-3	CERAMIC TILE (ACCENT)	DALTILE	NATURAL HUES, ECO-BODY, 4X4	CINDER -QH08	
T-4	CERAMIC TILE (ACCENT)	DALTILE	NATURAL HUES, ECO-BODY, 4X4	REAL TEAL -QH66	
T-5	CERAMIC TILE (ACCENT)	DALTILE	NATURAL HUES, ECO-BODY, 4X4	SWEET PEA -QH28	
T-6	CERAMIC TILE (ACCENT)	DALTILE	NATURAL HUES, ECO-BODY, 4X4	EGGPLANT -QH51	
CEILING	A-1	2' X 2' ACOUSTICAL TILE	ARMSTRONG	ULTIMA TEGULAR W/FINE TEXTURE	BEVELED TEGULAR WITH 3/8" GRID
	A-2	2' X 2' ACOUSTICAL TILE @ KITCHEN	USG	CLIMAPLUS, CLEANROOM, W/SMOOTH TEXTURE, WASHABLE	BEVELED TEGULAR WITH 3/8" GRID
	M-1	CURVED METAL CEILING PANELS	CEILINGS PLUS	RADIANS, PERFORATED OB-14, 17% OPEN	GRAU FINISH, BLACK SOUNDTEX ACOUST. BACKING
	M-2	FLAT METAL CEILING PANELS (TYPE 1)	CEILINGS PLUS	ILLUSIONS, PERFORATED ST-14, 5% OPEN	ARBOREAL MAPLE WOOD VENEER, NATURAL SOUNDTEX ACOUST. BACKING
	M-3	FLAT METAL CEILING PANELS (TYPE 2)	CEILINGS PLUS	ILLUSIONS, PERFORATED ST-13, 20% OPEN	ARBOREAL MAPLE WOOD VENEER



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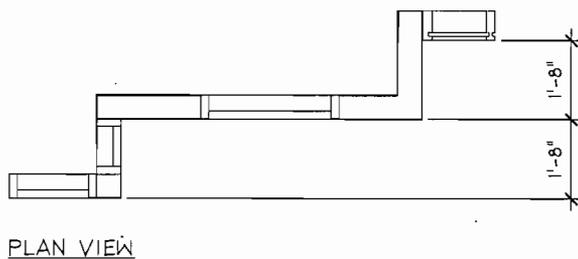
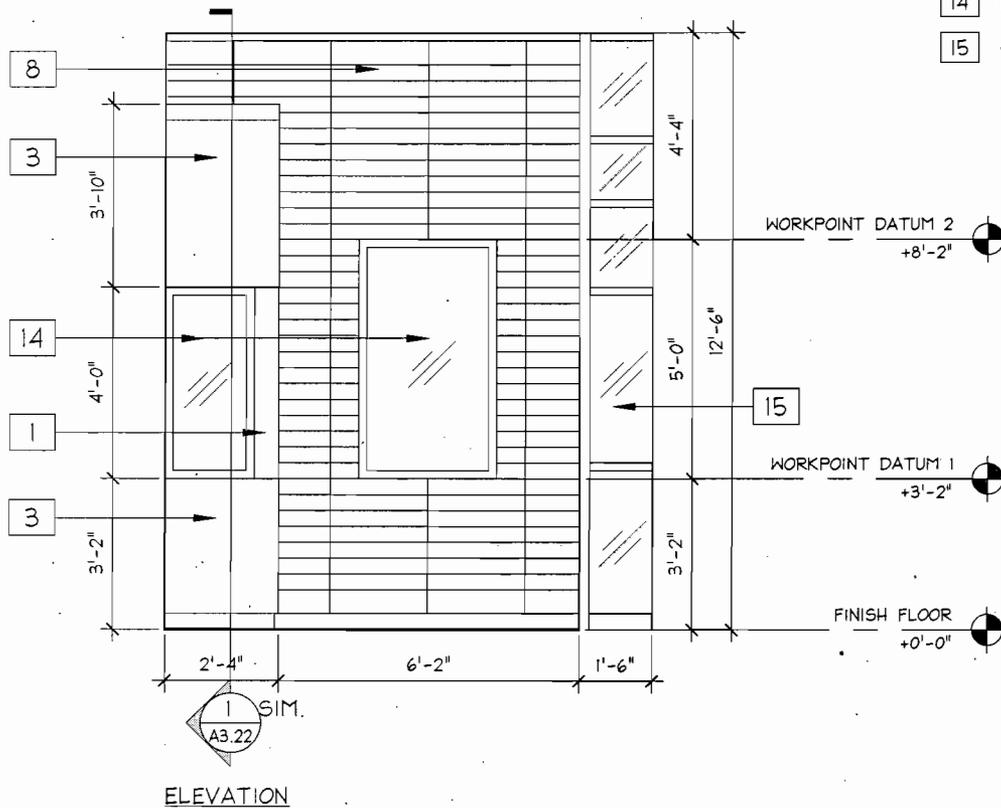
A2.11B FINISH AND MATERIAL SCHEDULE
SCHEDULE REVISION

SHEET TITLE
06-25-2008
DATE
PA
BY

ADDENDUM 2
REVISION
AD2-1/A2.11B-01
DRAWING

KEY NOTES:

- 1 INSULATED BRAKE METAL PANELS
- 3 PORTLAND CEMENT PLASTER
- 8 SLATE TILES, 4"X24"
- 14 PUNCHED OPENING
- 15 CURTAIN WALL



3 MOCK UP WALL A
 - SCALE: 1/4" = 1'-0"



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SCALE: 1/4" = 1'-0"
 JOB #: 06-210-18-116

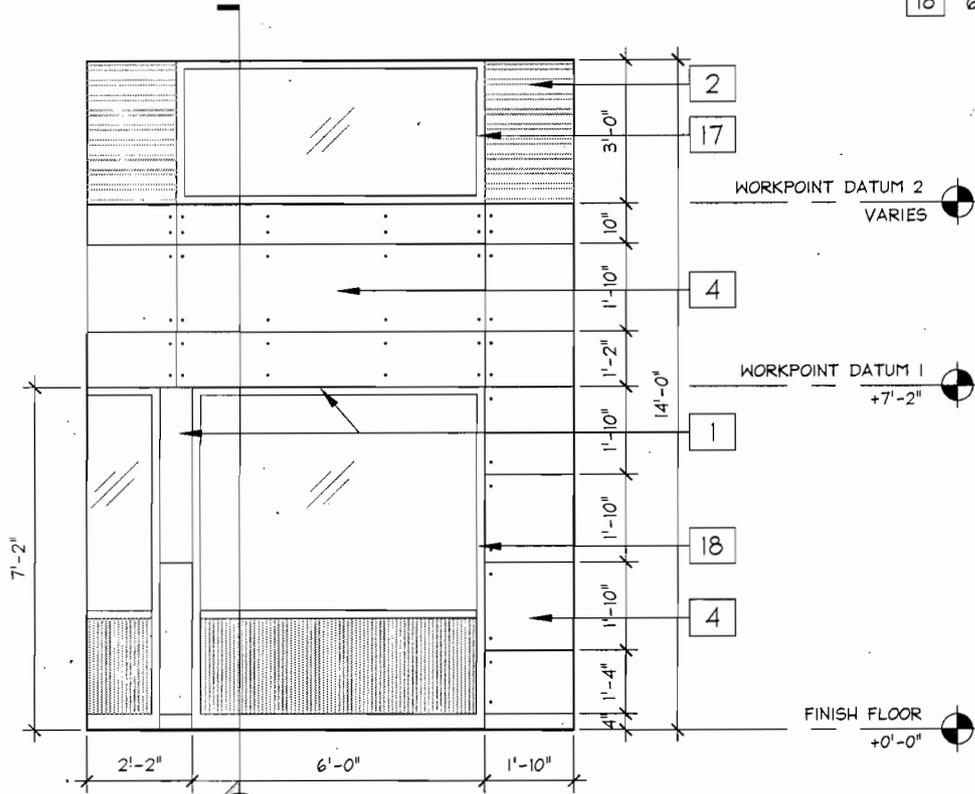
A3.2 EXTERIOR ELEVATIONS
 MOCK-UP WALL LAYOUT

SHEET TITLE
 06-25-2008
 DATE
 PA
 BY

ADDENDUM 2
 REVISION
 AD2-3/A3.2-01
 DRAWING

KEY NOTES:

- 1 INSULATED BRAKE METAL PANELS
- 2 CORRUGATED METAL SIDING
- 4 FIBER CEMENT BOARD PANELS
- 17 STOREFRONT SYSTEM
- 18 6" CURTAINWALL SYSTEM

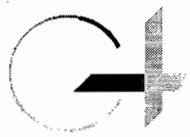


ELEVATION



PLAN VIEW

3 MOCK UP WALL B
SCALE: 1/4" = 1'-0"



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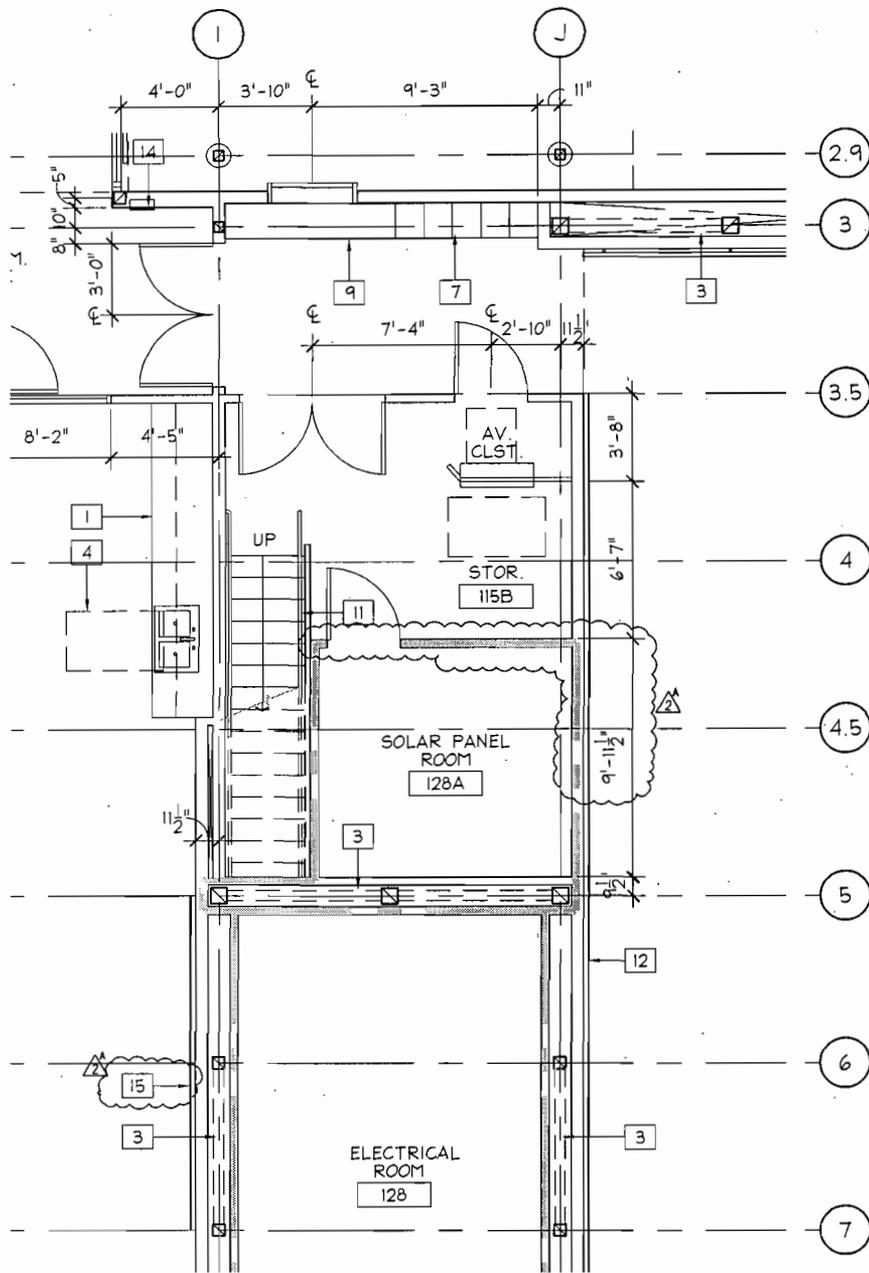
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SCALE: 1/4" = 1'-0"
JOB #: 06-210-18-116

A3.3 EXTERIOR ELEVATIONS
MOCK-UP WALL LAYOUT

SHEET TITLE
06-25-2008
DATE
PA
BY

ADDENDUM 2
REVISION
AD2-3/A3.3-01
DRAWING



KEY NOTES:

- 1 CASEWORK
- 2 FLOOR MOUNTED POWER/DATA OUTLET
- 3 BRACED FRAME, S.S.D.
- 4 30"X48" CLEAR SPACE
- 5 30"X60" CLEAR SPACE
- 6 60" WHEEL CHAIR TURNAROUND
- 7 CASEWORK CUBBIES, SEE A9.11
- 8 DANCE BARRE
- 9 CASEWORK BENCH, SEE A9.11
- 10 HI/LO DRINKING FOUNTAIN
- 11 STAIR TO E.O.C. STORAGE LOFT
- 12 WALL MIRROR, SEE INTERIOR ELEVATIONS
- 13 METAL GATE W/ STEEL COLUMNS
- 14 FIRE EXTINGUISHER CABINET
- 15 WHITE BOARD, 16'-0" X 48"

LEGEND:

1-HR FIRE BARRIER

1 ENLARGED FLOOR PLANS
SCALE: 1/8" = 1'-0"



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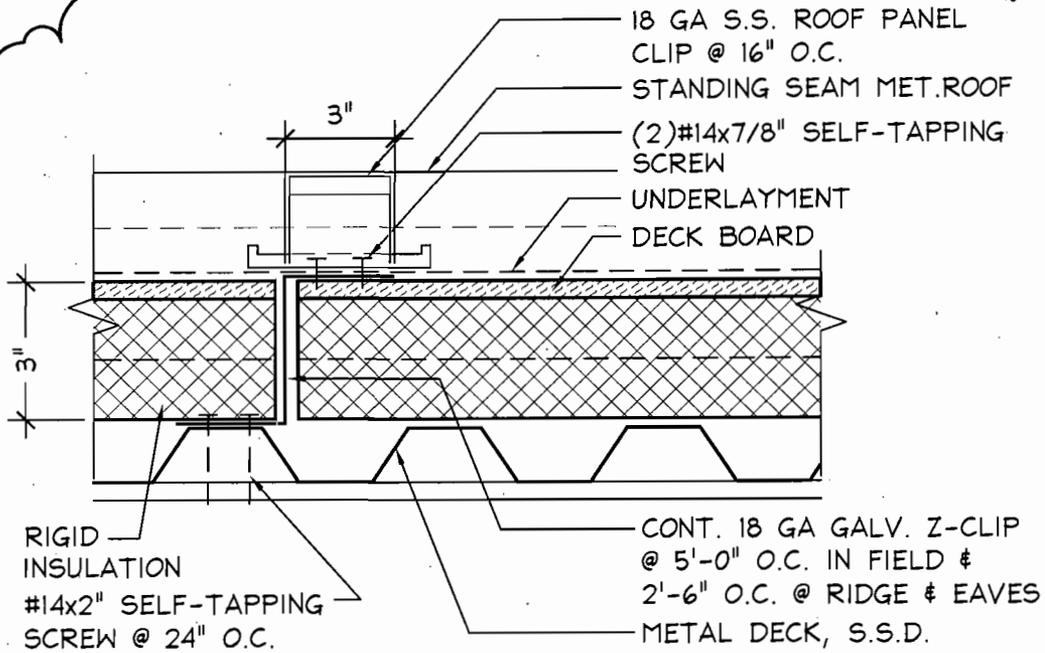
CITY OF SAN LEANDRO
SENIOR COMMUNITY CENTER

SCALE: 1/8" = 1'-0"
JOB #: 06-210-18-116

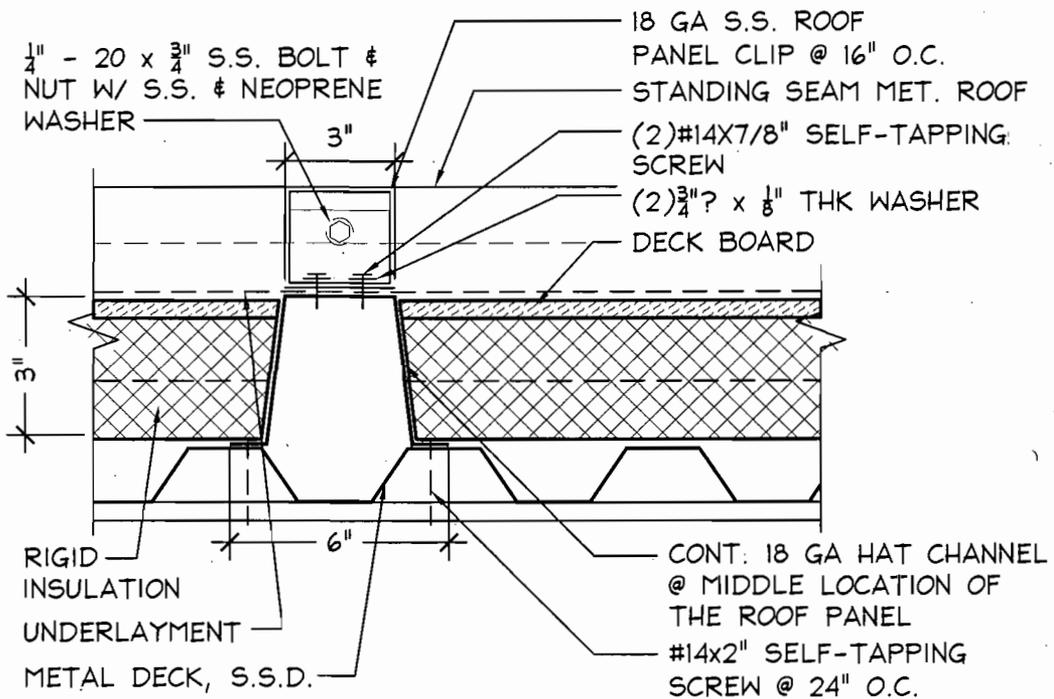
A4.4 ENLARGED FLOOR PLAN
SOLAR PANEL ROOM DIMENSION

SHEET TITLE
06-25-2008
DATE
PA
BY

ADDENDUM 2
REVISION
AD2-1/A4.4-01
DRAWING



TYPICAL SUPPORT



FIXED SUPORT @ MID-POINT OF SPAN

8 ROOF PANEL SUPPORT
 - SCALE: 3"=1'-0"



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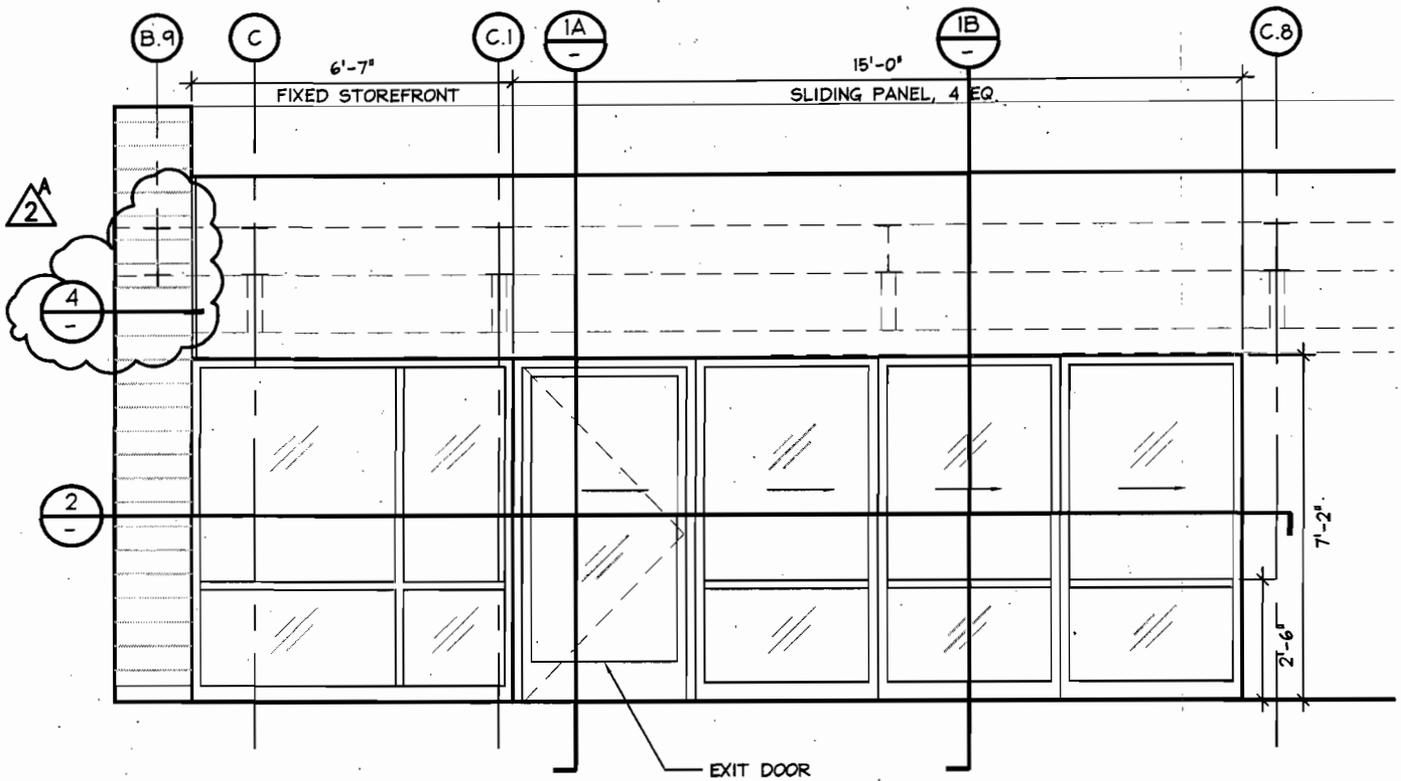
CITY OF SAN LEANDRO
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SCALE: N.T.S.
 JOB #: 06-210-18-116

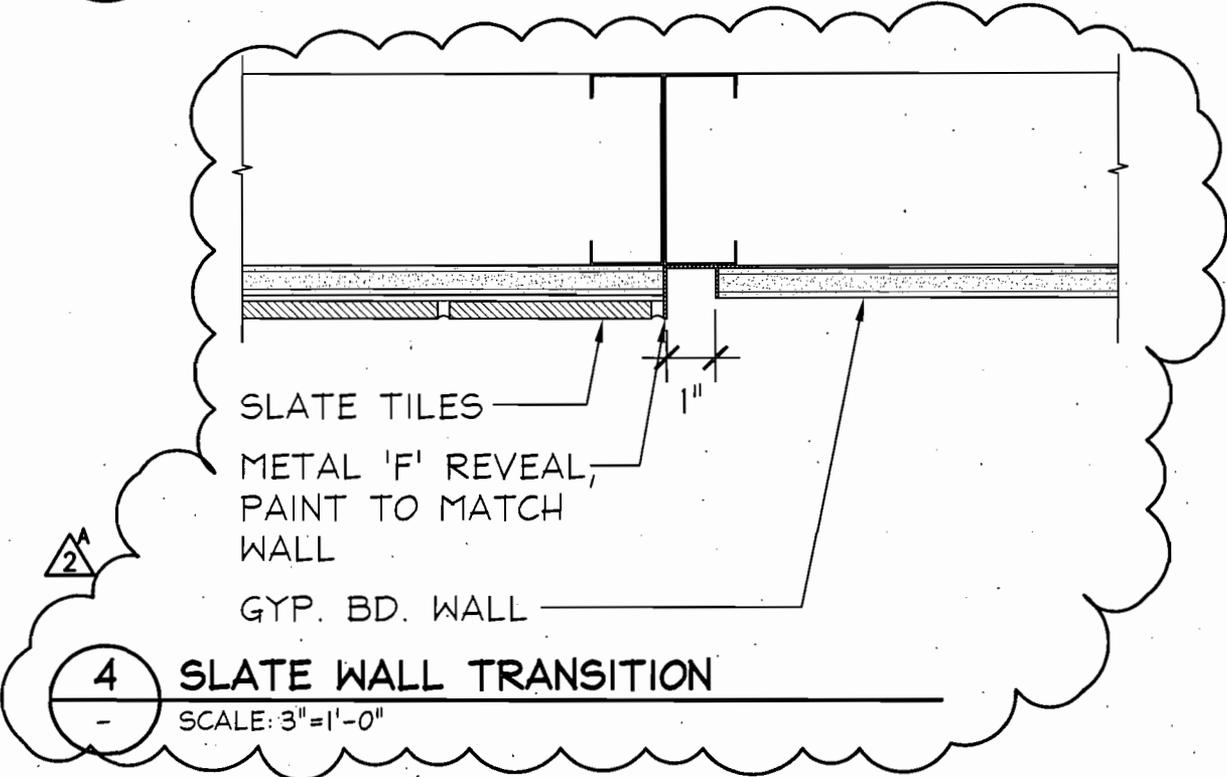
A8.13 EXTERIOR & ROOF DETAILS
 ROOF PANEL SUPPORT

SHEET TITLE
 06-25-2008
 DATE
 PA
 BY

ADDENDUM 2
 REVISION
 AD2-8/A8.13-01
 DRAWING



3 DOOR 110B ELEVATION & SECTION
 SCALE: 1/4" = 1'-0"



4 SLATE WALL TRANSITION
 SCALE: 3" = 1'-0"



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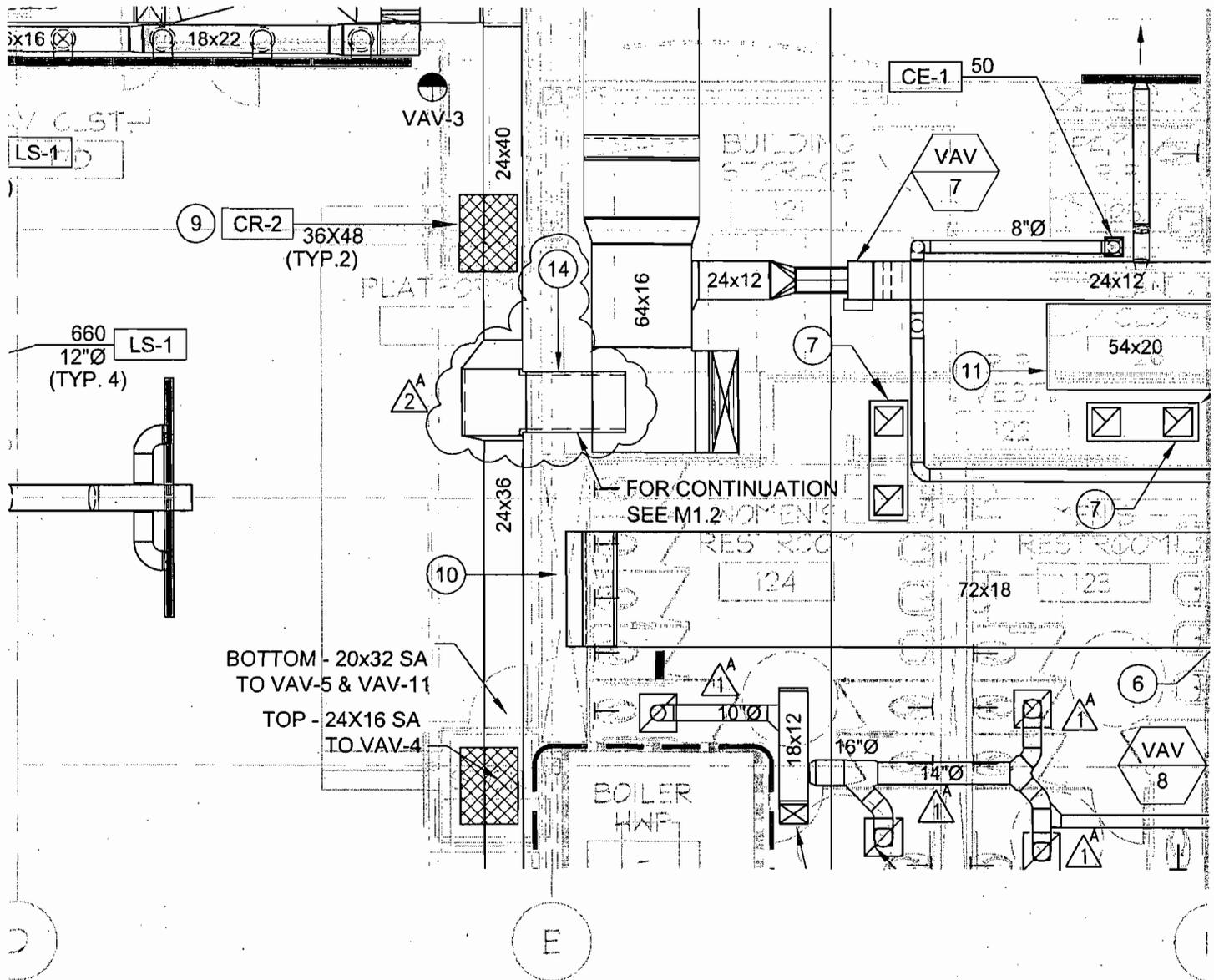
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SCALE: N.T.S.
 JOB #: 06-210-18-116

A9.9 INTERIOR DETAILS
 SLATE WALL TRANSITION

SHEET TITLE
 06-25-2008
 DATE
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ADDENDUM 2
 REVISION
 AD2-4/A9.9-01
 DRAWING



SHEET NOTES:

14 2" ACOUSTICAL LINING. ^A2



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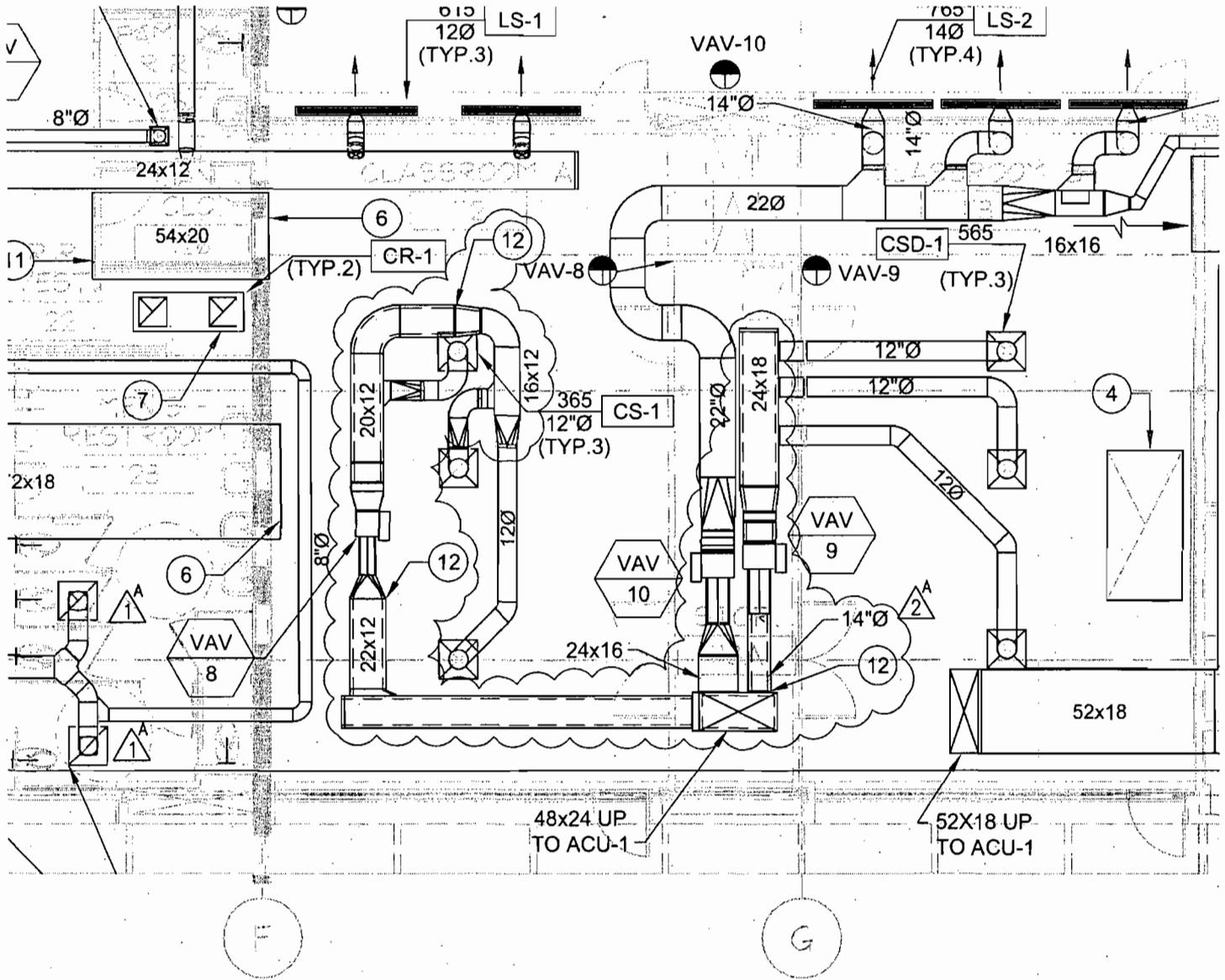
CITY OF SAN LEANDRO
SENIOR COMMUNITY CENTER

SCALE: 1/8" = 1'-0"
JOB #: 06-210-18-116

1ST FLOOR PLAN - HVAC PLAN A

SHEET TITLE
06-25-2008
DATE
GS
BY

ADDENDUM 2
REVISION
AD2-1/M1.1A-01
DRAWING



SHEET NOTES:

12 2" ACOUSTICAL LINING. ^A2

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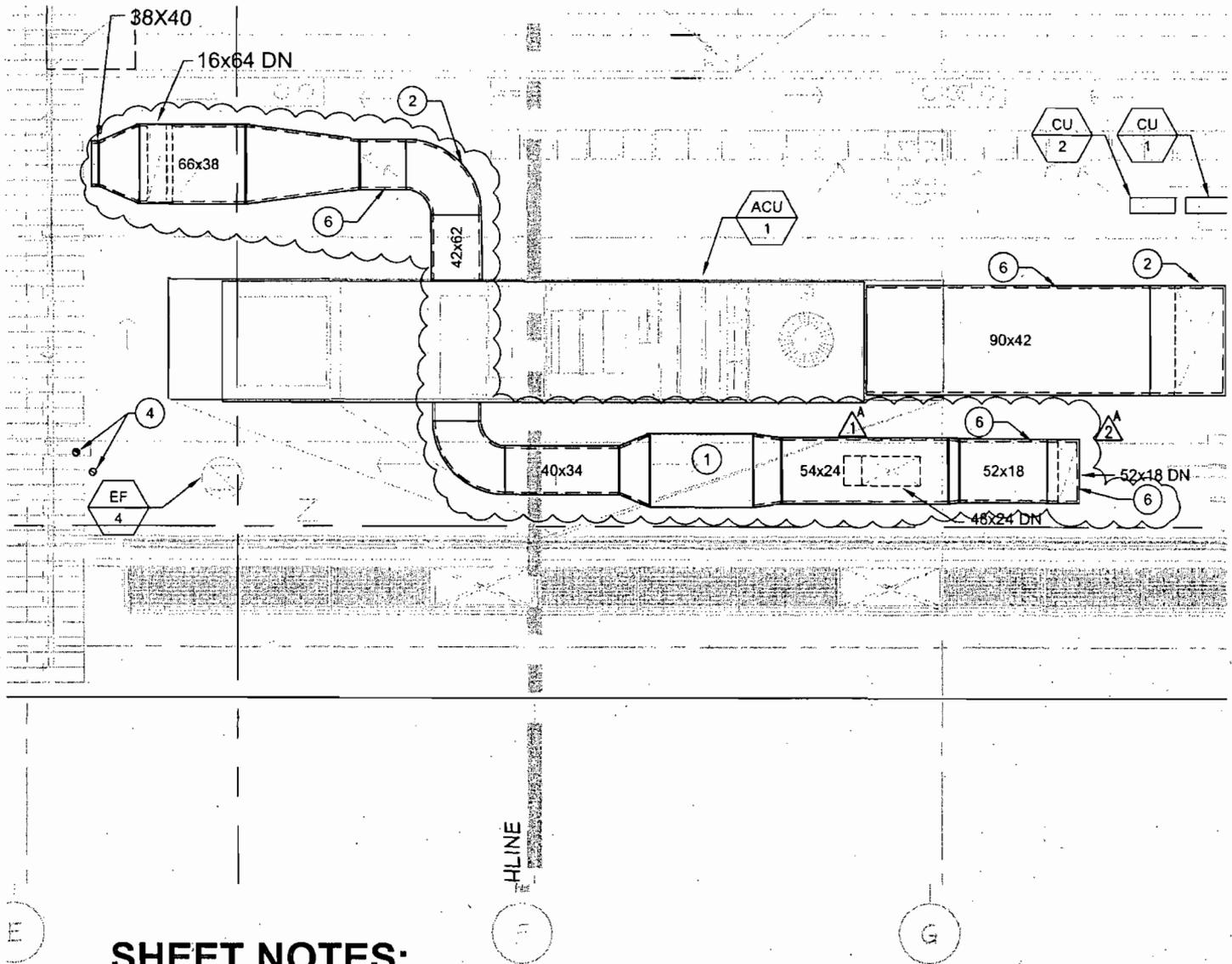
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SENIOR COMMUNITY CENTER

SCALE: 1/8" = 1'-0"

JOB #: 06-210-18-116

- 1ST FLOOR PLAN - HVAC PLAN B	
SHEET TITLE	ADDENDUM 2
DATE	REVISION
06-25-2008	AD2-1/M1.1B-02
GS	DRAWING
BY	



SHEET NOTES:

- ① DUCT SILENCER.
- ② ELBOW SILENCER, EQUAL PERFORMANCE TO 8-CENM-MV-FI BY VIBRO ACOUSTICS OR EQUAL. PRESSURE DROP 0.25"W.G. SIZED AT 1000FPM MAXIMUM.
- ③ SEE M1.1A FOR CONTINUATION.
- ④ 6" OUTLET AND INLET FLUE.
- ⑤ 4" FLUE FROM BELOW.
- ⑥ 2" ACOUSTICAL LINING.



GROUP 4

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SCALE: 3/32" = 1'-0"
JOB #: 06-210-18-116

- ROOF PLAN - HVAC

SHEET TITLE
06-25-2008
DATE
GS
BY

ADDENDUM 2
REVISION
AD2-1/M1.2-03
DRAWING

5

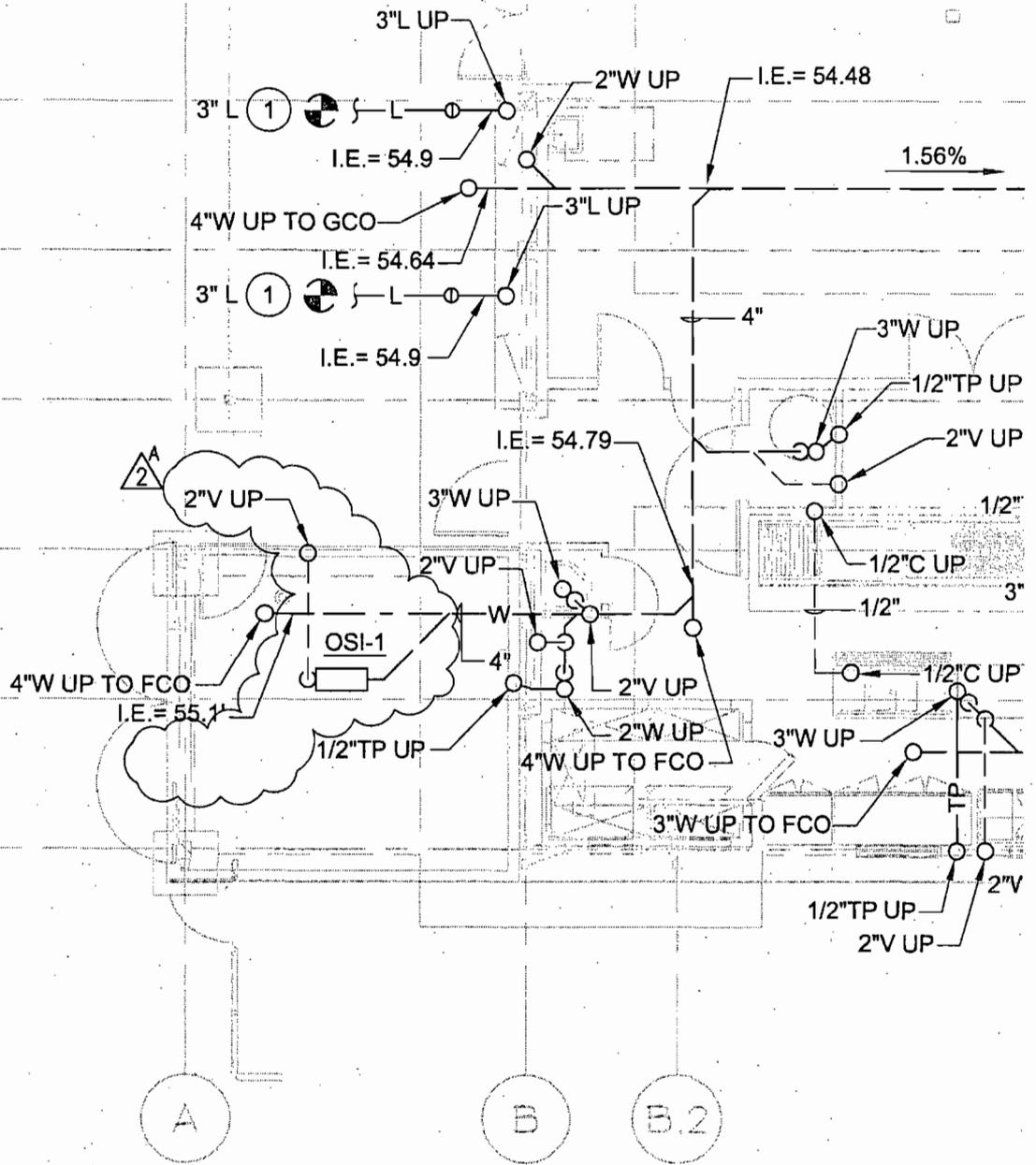
6

7

7.2

7.5

8



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GROUP 4

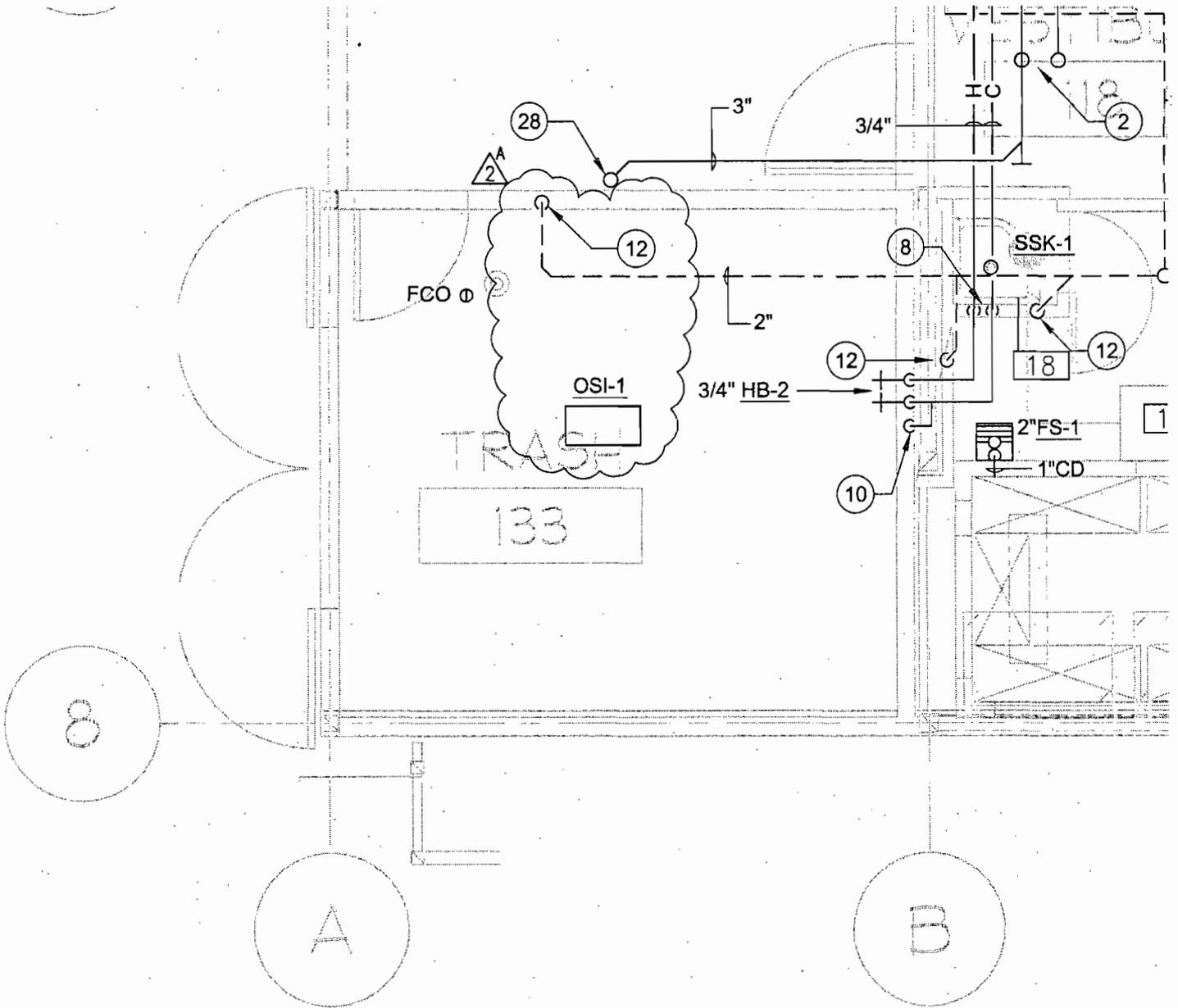
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SENIOR COMMUNITY CENTER

SCALE: 1/8" = 1'-0"
JOB #: 06-210-18-116

- FOUNDATION PLAN - PLUMBING
- AREA A

SHEET TITLE
DATE 06-25-2008
BY GS

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DRAWING
ADDENDUM 2
AD2-1/M2.0A-04



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SCALE: 1/4" = 1'-0"
JOB #: 06-210-18-116

- PARTIAL FLOOR PLAN
- KITCHEN

SHEET TITLE
06-25-2008
DATE
GS
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ADDENDUM 2
REVISION
AD2-1/M3.3-05
DRAWING

MISCELLANEOUS EQUIPMENT SCHEDULE

SYMBOL	DESCRIPTION
WH-1	WATER HEATER: A.O. SMITH CYCLONE, 94%%% EXTRA HIGH EFFICIENCY, MODEL BTH 150, 100 GAL. CAPACITY, 150,000 BTUH INPUT.
GI-1	GREASE INTERCEPTOR: THERMACO BIG DIPPER, POINT SOURCE AUTOMATIC GREASE REMOVABLE SYSTEM, # W-200-IS.
OSI-1	OIL/SEDIMENT INTERCEPTOR: ZURN Z1189-HD, HEAVY DUTY TRAFFIC COVER, 60 LBS. CAPACITY.
RP-1	DOMESTIC HOT WATER RECIRCULATING PUMP: GRUNDFOS # UP15-18SU, 1/25 MOTOR HP, 12 GPM @ .75 TDH, 115V-1PH-60HZ.
HB-1	HOSE BIBB, WOODFORD MODEL 44-VB-PC, LOOSE KEY, VACUUM BREAKER
HB-2	HOSE BIBB, WOODFORD MODEL B22, COMBINATION HOT AND COLD, VACUUM BREAKER
HB-3	HOSE BIBB, WOODFORD MODEL B65, WITH VACUUM BREAKER
MV-1	MIXING VALVE: POWERS MODEL 431 SUPPLY FIXTURE MIXING VALVE, 20.4 GPM @ 30 PSI. TOP INLETS/TOP OUTLET-WALL MOUNTED CABINET.



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GROUP 4

CITY OF SAN LEANDRO
SENIOR COMMUNITY CENTER

SCALE: NONE
JOB #: 06-210-18-116

- SCHEDULES

SHEET TITLE

06-25-2008

DATE

GS

BY

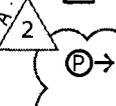
ADDENDUM 2

REVISION

AD2-1/M5.3-06

DRAWING

SYMBOLS LIST

- a  b WALL MOUNTED SWITCH TYPE INFRARED OCCUPANCY SENSOR; UP 48" U.O.N.; WATTSTOPPER #PW-100 (SINGLE) AND #PW-200 (DUAL) AS NOTED BY LETTERS ADJACENT. SET TO FIXED 30 MINUTE TIME DELAY AND MAX. SENSITIVITY
- a  b WALL MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR; UP 48" U.O.N.; WATTSTOPPER #DW-100 (SINGLE) AND #DW-200 (DUAL) AS NOTED BY LETTERS ADJACENT. SET TO FIXED 30 MINUTE TIME DELAY AND MAX. SENSITIVITY
-  WALL MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR, DENSE WIDE ANGLE LENS; WATTSTOPPER #DT-200. SEE MOUNTING DETAIL 1/E5.6, TYPICAL, U.O.N.
-  WALL MOUNTED PASSIVE INFRARED OCCUPANCY SENSOR, DENSE WIDE ANGLE LENS; WATTSTOPPER #CX-100. SEE MOUNTING DETAIL 1/E5.6, TYPICAL, U.O.N.
-  10 CEILING MOUNTED ULTRASONIC OCCUPANCY SENSOR WITH POWER PACK. NUMBER ADJACENT INDICATES AREA OF COVERAGE. (5=500 SQ.FT., 10=1000 SQ.FT., 20=2000 SQ.FT.) WATTSTOPPER #UT-305-1, UT-305-2, UT-305-3
-  CEILING MOUNTED PASSIVE INFRARED OCCUPANCY SENSOR; WATTSTOPPER #CX-105
-  OCCUPANCY SENSOR POWER PACK MOUNTED IN CONCEALED ACCESSIBLE LOCATION WATTSTOPPER #BZ-100
-  2  DAYLIGHT CONTROL PHOTOCELL; WATTSTOPPER #LS-290C. ARROW INDICATES AIMING POSITION FOR PLACEMENT OF SENSOR, SEE DETAIL 2/E5.6
-  2  EMERGENCY LIGHTING CONTROL MODULE; WATTSTOPPER #ELCU
-  2  DAYLIGHTING CONTROL DIMMER WALL SWITCH; WATTSTOPPER #LS-5C
-   DAYLIGHTING DIMMING CONTROL MODULE POWER PACK; WATTSTOPPER #BT-203. PROVIDE AN UNSWITCHED HOT TO THE POWER PACK FROM THE NEAREST LIGHTING CIRCUIT
-  2  DAYLIGHTING DIMMING CONTROL MODULE; WATTSTOPPER #LCD-203, U.O.N.
-  4  LUTRON GRAFIK-EYE 4-SCENE REMOTE STATION #SG-4PSN-WH-EGN
-  2  LUTRON GRAFIK-EYE 2-BUTTON REMOTE STATION #SG-2BN-WH-EGN
-  LUTRON INFRARED PARTITION SENSOR-TRANSMITTER AND RECEIVER, #GRX-IRPS-WH - SEE 2/E5.3



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CENTER
SCALE: NONE
JOB #: 06-210-18-116



SYMBOLS LISTS,
DRAWING LIST

SHEET TITLE
06-25-08
DATE
LN
BY

ADD 2
REVISION
ADD2-E0.1-01
DRAWING

LUMINAIRE SCHEDULE

FE1D DESCRIPTION: PENDANT MOUNTED FLUORESCENT DIRECT/INDIRECT FIXTURE WITH DIE FORMED STEEL BODY, INJECTION MOLDED ENDCAPS, AND STEEL BAFFLES. LENGTH AS INDICATED ON THE DRAWINGS. ELECTRONIC 0-10V DIMMING BALLAST, WHITE INTERNAL REFLECTORS WITH FULLY ADJUSTABLE AIRCRAFT CABLE SUPPORT.

MANUFACTURER: FINELITE #S4-LENGTH-2T8-SC (0-10V DIMMING)-91W-120-FA

BALLAST: 0-10V DIMMING

LAMPS: (2) F32T8/835

WATTAGE: 59

VOLTAGE: 120

REMARKS:

2

FF1 DESCRIPTION: RECESSED COMPACT FLUORESCENT DOWNLIGHT WITH FORMED STEEL CONSTRUCTION HOUSING, SEMI-SPECULAR CLEAR ALZAK REFLECTOR, AND BAR HANGERS.

MANUFACTURER: PRESCOLITE #CFT832HEB-STF802H-SS-B24

BALLAST: ELECTRONIC

LAMPS: (1) CFTR32/835

WATTAGE: 34

VOLTAGE: 120

REMARKS:

2

FF1D DESCRIPTION: SIMILAR TO TYPE FF1 EXCEPT WITH 0-10V DIMMING BALLAST.

MANUFACTURER: PRESCOLITE #CFT832HEB-DM-STF802H-SS-B24

BALLAST: 0-10V DIMMING

LAMPS: (1) CFTR32/835

WATTAGE: 34

VOLTAGE: 120

REMARKS:



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COMMUNITY
CENTER
SCALE: NONE
JOB #: 06-210-18-116



LUMINAIRE SCHEDULE

SHEET TITLE
06-25-08
DATE
LN
BY

ADD 2
REVISION
ADD2-E0.3-01
DRAWING

LUMINAIRE SCHEDULE



DESCRIPTION: RECESSED COMPACT FLUORESCENT DOWNLIGHT WITH 8" SQUARE APERTURE, FORMED STEEL CONSTRUCTION HOUSING, AND SEMI-SPECULAR CLEAR REFLECTOR. 0-10V DIMMING BALLAST FOR USE ON DAYLIGHT HARVESTING SYSTEM.

MANUFACTURER: KRAMER #KL-8-SQ-2-42PLT-SGC-FF-120-(0-10V DIMMING)

BALLAST: 0-10V DIMMING

LAMPS: (2) CFTR42/835

WATTAGE: 88

VOLTAGE: 120

REMARKS: LOBBY

FG1D

DESCRIPTION: SIMILAR TO TYPE FG1 EXCEPT WITH 0-10V DIMMING BALLAST.

MANUFACTURER: PRESCOLITE #CFT832HEB-DM-STF802H-SS-WW-524.

BALLAST: 0-10V DIMMING

LAMPS: (1) CFTR32/835

WATTAGE: 34

VOLTAGE: 120

REMARKS:



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GROUP 4

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JOB #: 06-210-18-116



LUMINAIRE SCHEDULE

SHEET TITLE
06-25-08
DATE
LN
BY

ADD 2
REVISION
ADD2-E0.3-02
DRAWING

LUMINAIRE SCHEDULE

FX1D DESCRIPTION: PENDANT MOUNTED LINEAR FLUORESCENT FIXTURE WITH INDIRECT/DIRECT DISTRIBUTION. DIE FORMED STEEL HOUSING WITH PERFORATED DOWNLIGHT SHIELDING, DIE FORMED END CAPS. FULLY ADJUSTABLE AIRCRAFT CABLE SUSPENSION AND LENGTH AS INDICATED ON THE DRAWINGS. FINISH AS DIRECTED BY THE ARCHITECT. WHITE HIGH REFLECTANCE INTERNAL REFLECTORS. ELECTRONIC 0-10V DIMMING BALLAST.

MANUFACTURER: FINELITE #S15-LENGTH-2T8-SC (0-10V DIMMING)-120-FA

BALLAST: 0-10V DIMMING

LAMPS: (2) F32T8/835

WATTAGE: 59

VOLTAGE: 120

REMARKS:



FZ1 DESCRIPTION: POLE MOUNTED POST TOP COMPACT FLUORESCENT AREA LUMINAIRE; CAST ALUMINUM CONSTRUCTION, IMPACT RESISTANT TEMPERED CLEAR GLASS LENS WITH IES TYPE IV SEGMENTED OPTICAL SYSTEM, INTEGRAL BALLAST ON ONE PIECE TRAY, SINGLE FUSE IN HANDHOLE, CAST ALUMINUM FITTER ASSEMBLY SLIPS OVER 4" O.D. 12 FOOT STRAIGHT ROUND STEEL POLE, LUMINAIRE AND POLE FINISH SELECTED BY THE ARCHITECT.

MANUFACTURER: AAL #SLVT-H4-PL70-PR4 4R12-125-STD FINISH

BALLAST: INTEGRAL ELECTRONIC

LAMPS: (1) CFTR70/835

WATTAGE: 85

VOLTAGE: 120

REMARKS:



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LUMINAIRE SCHEDULE

SHEET TITLE
06-25-08

DATE
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ADD 2

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JOB #: 06-210-18-116



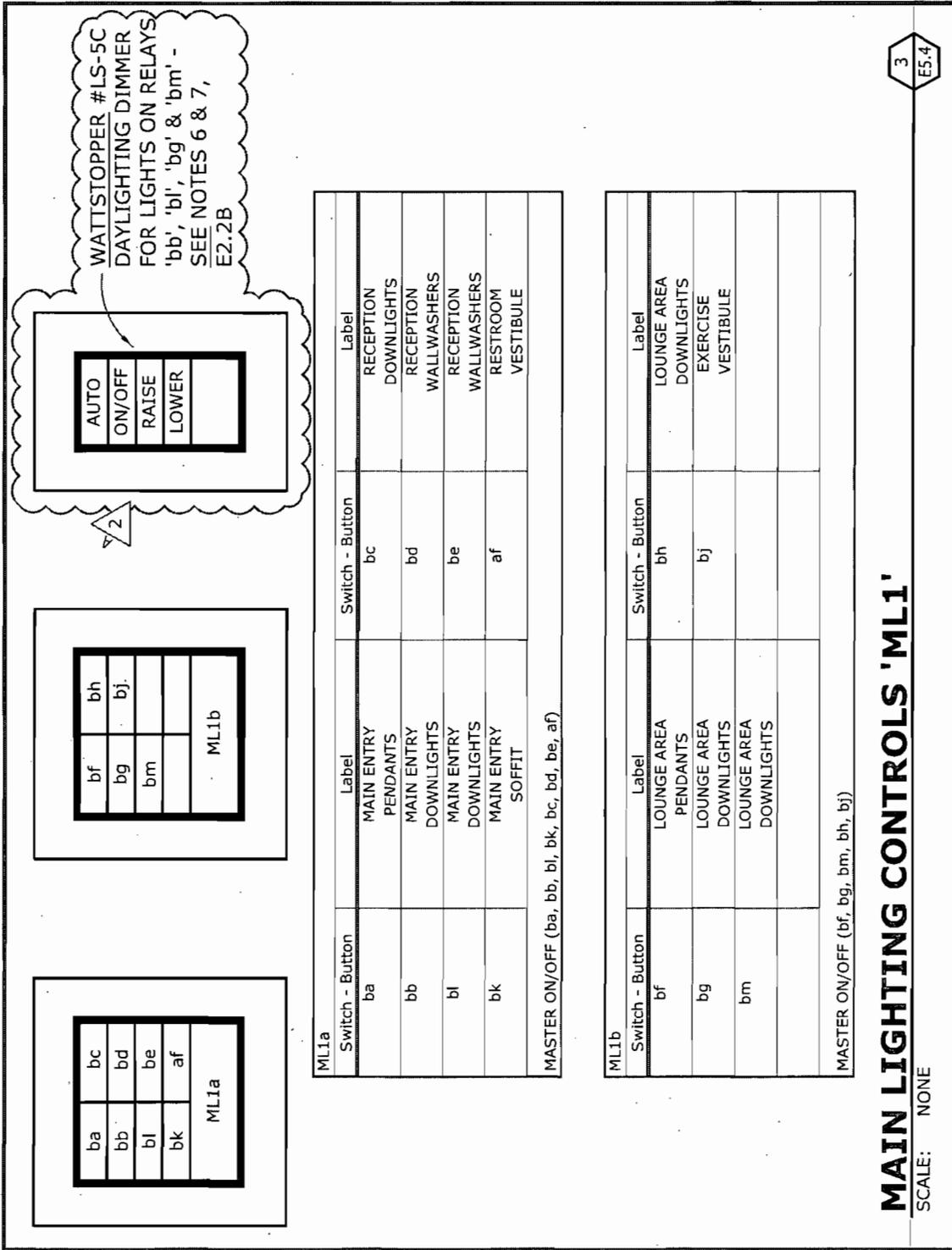
LIGHTING DIAGRAMS
AND DETAILS

SHEET TITLE
06-25-08

DATE
LN
BY

ADD 2

REVISION
ADD2-E5.4-01
DRAWING



LOW VOLTAGE RELAY LIGHTING CONTROL PANEL LCP1

ZONE/SWITCH DESIGNATION	RELAY NO.	LINE VOLTAGE CIRCUIT	LOAD VA	ROOM NAME / FIXTURE TYPE	MASTER SWITCH ZONE GROUP	NOTES	PROGRAM CHANNEL
aa	1	LD-12	195	STAFF WORKSTATIONS			
ab	2	LD-12	195	STAFF WORKSTATIONS			
ac	3	LD-12	129	STAFF WORKSTATIONS			
ad*	4	LD-1	685	KITCHEN			
ae*	5	LD-1	370	KITCHEN			
af*	6	LD-5	258	RESTROOM VESTIBULE			
ag*	7	LD-5	187	WOMENS RESTROOM			
ah*	8	LD-5	113	WOMENS RESTROOM			
aj*	9	LD-5	74	MENS RESTROOM			
ak*	10	LD-5	187	MENS RESTROOM			
al	11	LD-10	909	ACTIVITY ROOM PENDANT			
am	12	LD-10	164	ACTIVITY ROOM TASK			
an	13			SPARE			
ap	14			SPARE			
aq	15	LD-3	129	TRASH			
ar	16	LD-7	148	MAIN HALL RAMP			
as*	17	LD-2	1406	ARTS AND CRAFTS			
at	18			ARTS AND CRAFTS			
au*	19	LD-4	974	EXERCISE			
av*	20	LD-6	1332	EXERCISE			
aw	21	LD-8	592	MEZZANINE LIGHTS			
ax	22	LD-7	39	MAIN HALL TASK			
ay	23	LD-7	74	MAIN HALL TASK			
az	24	LD-2	59	ARTS AND CRAFTS TASK			
ba	25	LD-10	570	MAIN ENTRY WEST PENDANTS			
bb*	26	LD-12	348	MAIN ENTRY WEST DOWNLIGHTS			
bc*	27	LD-12	240	RECEPTION AREA DOWNLIGHTS			
bd	28	LD-14	385	RECEPTION AREA WALLWASHER			
be	29	LD-14	385	RECEPTION AREA WALLWASHER			
bf	30	LD-16	570	LOUNGE AREA PENDANTS			
bg*	31	LD-18	812	LOUNGE AREA DOWNLIGHTS			
bh	32	LD-16	432	LOUNGE AREA DECORATIVE PENDANTS			
bj	33	LD-16	129	EXERCISE VESTIBULE			
bk	34	LD-10	172	MAIN ENTRY SOFFIT			
bl*	35	LD-12	348	MAIN ENTRY WEST DOWNLIGHTS - NL			
bm*	36	LD-18	348	LOUNGE AREA DOWNLIGHTS			
bn	37			SPARE			
bp	38			SPARE			
bq	39			SPARE			
br	40			SPARE			
S8	41	LD-35	200	FLAGPOLE LIGHTS		1	
S7	42	LD-37	172	EXTERIOR SIGN LIGHTS		1	
S6	43	LD-37	360	GARDEN BOLLARDS		1	
S5	44	LD-35	740	SITE BOLLARDS		1	
S4	45	LD-35	200	WALKWAY POST TOP		1	
S3	46	LD-35	200	WALKWAY POST TOP		2	
S2*	47	LD-33	973	EXTERIOR BUILDING LIGHTS		1	
S1*	48	LD-31	605	EXTERIOR BUILDING LIGHTS		2	

NOTES:

- 1 PROVIDE AN ASTRO-DIAL MASTER CHANNEL; ASTRO-ON, TIMECLOCK-OFF.
RELAYS NOTED SHALL BE AUTOMATICALLY CONTROLLED BY THE RESPECTIVE ASTRO CHANNEL FOR EXTERIOR CONTROL.
- 2 PROVIDE AN ASTRO-DIAL MASTER CHANNEL; ASTRO-ON, ASTRO-OFF.
RELAYS NOTED SHALL BE AUTOMATICALLY CONTROLLED BY THE RESPECTIVE ASTRO CHANNEL FOR EXTERIOR CONTROL.

* ROUTE RELAY THROUGH LIGHTING TRANSFER SWITCH. SEE DETAIL 1/E5.3



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GROUP 4

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COMMUNITY
CENTER
SCALE: NONE
JOB #: 06-210-18-116



LIGHTING DIAGRAMS
AND DETAILS

SHEET TITLE
06-25-08

DATE
LN
BY

ADD 2

REVISION
ADD2-E5.6-01
DRAWING

LOW VOLTAGE RELAY LIGHTING CONTROL PANEL LCP2

ZONE/SWITCH DESIGNATION	RELAY NO.	LINE VOLTAGE CIRCUIT	LOAD VA	ROOM NAME / FIXTURE TYPE	MASTER SWITCH ZONE GROUP	NOTES	PROGRAM CHANNEL
ca	1	LA-1	200	ROOF RECEPT SEASONAL LTG			
cb	2	LA-3	200	ROOF RECEPT SEASONAL LTG			
cc	3	LA-5	200	ROOF RECEPT SEASONAL LTG			
cd	4	LA-7	200	ROOF RECEPT SEASONAL LTG			
ce	5	LA-9	200	ROOF RECEPT SEASONAL LTG			
cf	6	LA-11	200	ROOF RECEPT SEASONAL LTG			
cg	7	LA-13	200	ROOF RECEPT SEASONAL LTG			
ch	8	LA-15	200	ROOF RECEPT SEASONAL LTG			
cj	9	LA-17	200	ROOF RECEPT SEASONAL LTG			
ck	10	LA-19	200	ROOF RECEPT SEASONAL LTG			
cl	11	LA-21	200	ROOF RECEPT SEASONAL LTG			
cm	12	LA-23	200	ROOF RECEPT SEASONAL LTG			
cn	13	LA-25	200	ROOF RECEPT SEASONAL LTG			
cp	14	LA-27	200	ROOF RECEPT SEASONAL LTG			
cq	15	LA-29	200	ROOF RECEPT SEASONAL LTG			
cr	16	LA-31	200	ROOF RECEPT SEASONAL LTG			
cs	17			SPARE			
ct	18			SPARE			
cu	19			SPARE			
cv	20			SPARE			
cw	21			SPARE			
cx	22			SPARE			
cy	23			SPARE			
cz	24			SPARE			

NOTES:

- 1 PROVIDE AN ASTRO-DIAL MASTER CHANNEL; ASTRO-ON, TIMECLOCK-OFF.
RELAYS NOTED SHALL BE AUTOMATICALLY CONTROLLED BY THE RESPECTIVE ASTRO CHANNEL FOR EXTERIOR CONTROL.
- 2 PROVIDE AN ASTRO-DIAL MASTER CHANNEL; ASTRO-ON, ASTRO-OFF.
RELAYS NOTED SHALL BE AUTOMATICALLY CONTROLLED BY THE RESPECTIVE ASTRO CHANNEL FOR EXTERIOR CONTROL.



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JOB #: 06-210-18-116



LIGHTING DIAGRAMS
AND DETAILS

SHEET TITLE
06-25-08

DATE
LN
BY

ADD 2

REVISION
ADD2-E5.6-02
DRAWING



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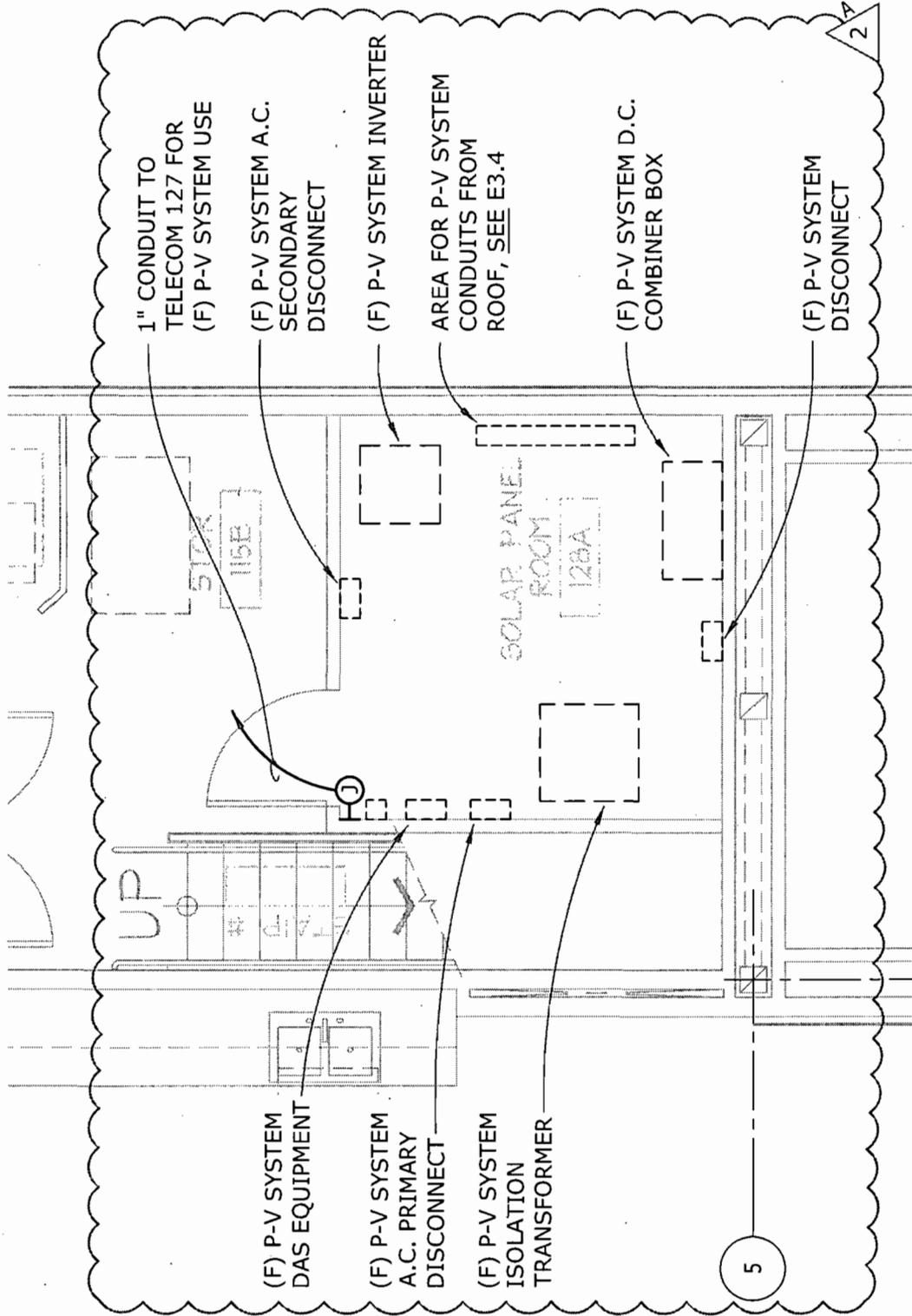
SAN LEANDRO
SENIOR
COMMUNITY
CENTER
SCALE: AS NOTED
JOB #: 06-210-18-116



PARTIAL PLAN - SOLAR
PANEL ROOM 128A

SHEET TITLE
06-25-08
DATE
TV
BY

ADD 2
REVISION
ADD2-3/E4.1-01
DRAWING



PARTIAL PLAN - SOLAR PANEL ROOM 128A

SCALE: 1/4" = 1'-0"
FILE: ... 19XFP01 (05-07-08)

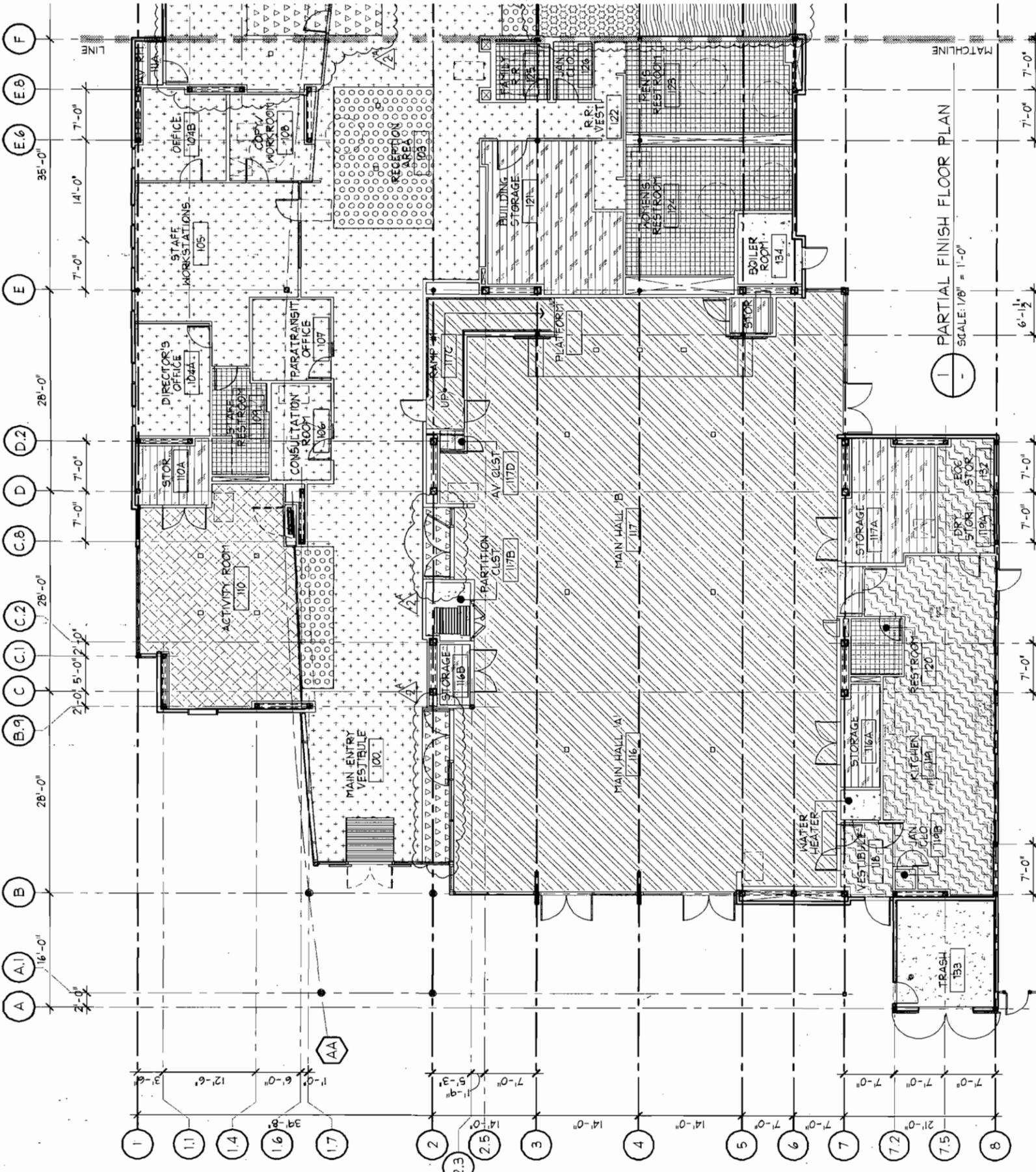


SHEET NOTES:

1. SEE SHEET A2.11A & B FOR FINISH SCHEDULE

LEGEND:

	CARPET TILE: CT-1
	CARPET TILE: CT-2
	CARPET TILE: CT-3A
	CARPET TILE: CT-3B
	CARPET TILE: CT-4
	CARPET TILE: CT-5
	RECESSED WALK-OFF GRILL
	EPOXY COATING: E-1
	ENGINEERED WOOD FLOOR: MD-1
	HARDWOOD STRIP FLOOR: MD-2
	SEALED CONCRETE: SC-1
	TILE: T-1
	MARMOLEUM: M-1
	MARMOLEUM: M-2
	MARMOLEUM: M-3
	MARMOLEUM: M-4



PARTIAL FINISH FLOOR PLAN
SCALE: 1/8" = 1'-0"

A2.12A
SHEET 52 OF 310
JOB NO. 06-210-18-116
SCALE
DWG. 3194 CASE 901

CITY OF SAN LEANDRO
SAN LEANDRO SENIOR COMMUNITY CENTER
PARTIAL FINISH FLOOR PLAN

NO.	DATE	REVISION
1	01/19/08	BD SET
2	06/17/08	ADDENDUM 1
3	06/25/08	ADDENDUM 2
4		
5		

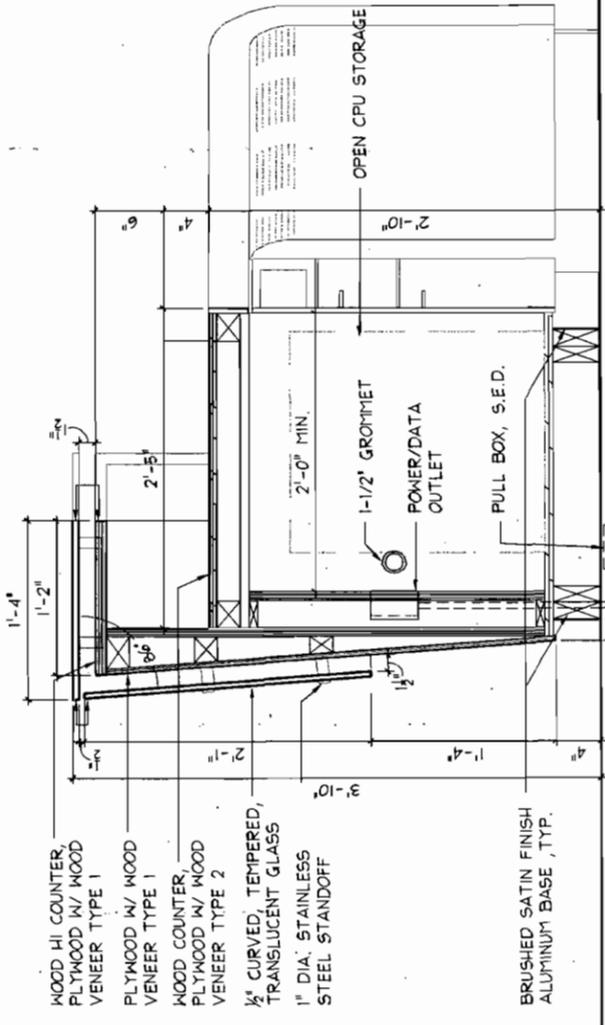
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 DRAWN BY: _____ DATE: _____
 PROJECT MGR: _____ DATE: _____
 TRANS ADMIN: _____ DATE: _____
 SENIOR ENGR: _____ DATE: _____
 APPROVED BY: _____ DATE: _____

BEFORE YOU DIG, CALL UNDERGROUND SERVICE ALERT (USA) AT 800-4-A-SHIELD. IT IS YOUR RESPONSIBILITY TO DETERMINE THE LOCATION OF ALL UNDERGROUND UTILITIES. THESE SHOWN REPRESENT THE INFORMATION PROVIDED TO THE CITY OF SAN LEANDRO AT THE TIME OF PREPARATION. THE CITY OF SAN LEANDRO IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS INFORMATION.

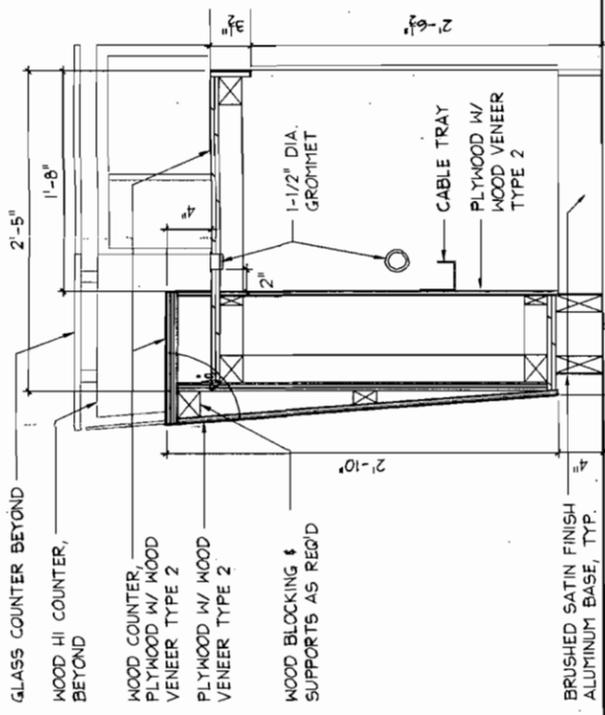
CITY ENGINEER, R.C.E. No. 34870



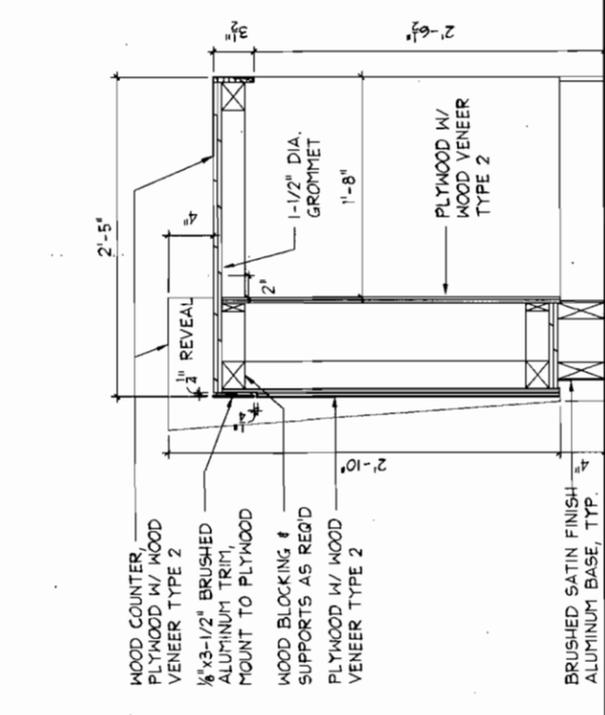
GROUP 4
ARCHITECTURE
RESEARCH + PLANNING, INC.
711 HINDEN AVENUE
50 SAN FRANCISCO
CA 94106 USA
650-871-0709



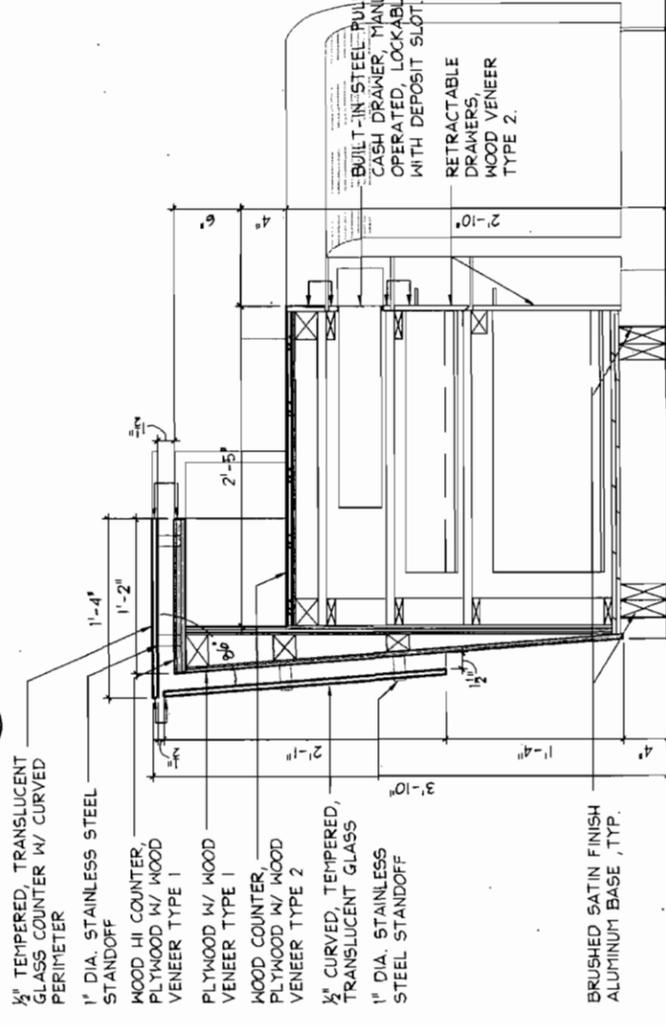
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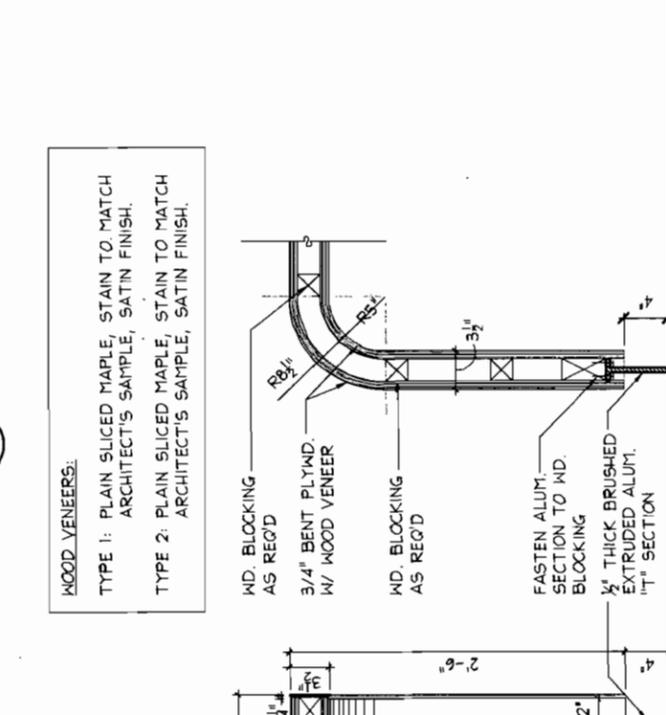
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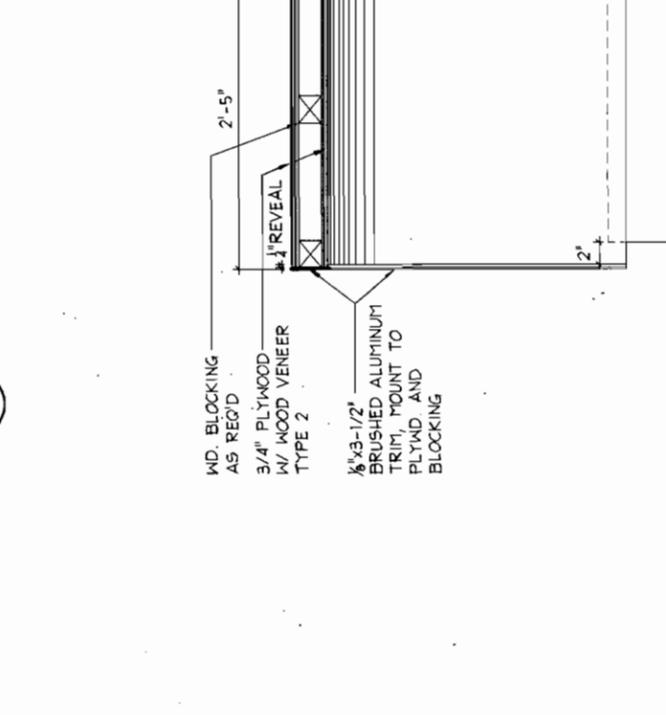
ID RECEPTION DESK SECTION
 SCALE: 1/2"=1'-0"



IA RECEPTION DESK SECTION
 SCALE: 1/2"=1'-0"



2 COUNTER LEG SECTION
 SCALE: 1/2"=1'-0"



3 COUNTER SECTION
 SCALE: 1/2"=1'-0"

CITY OF SAN LEANDRO
 SAN LEANDRO SENIOR COMMUNITY CENTER
 INTERIOR CASEWORK
 DETAILS

NO.	DATE	REVISION
1	05/19/08	BD SET
2	06/17/08	ADDENDUM 1
3	06/15/08	ADDENDUM 2
4	-	-
5	-	-

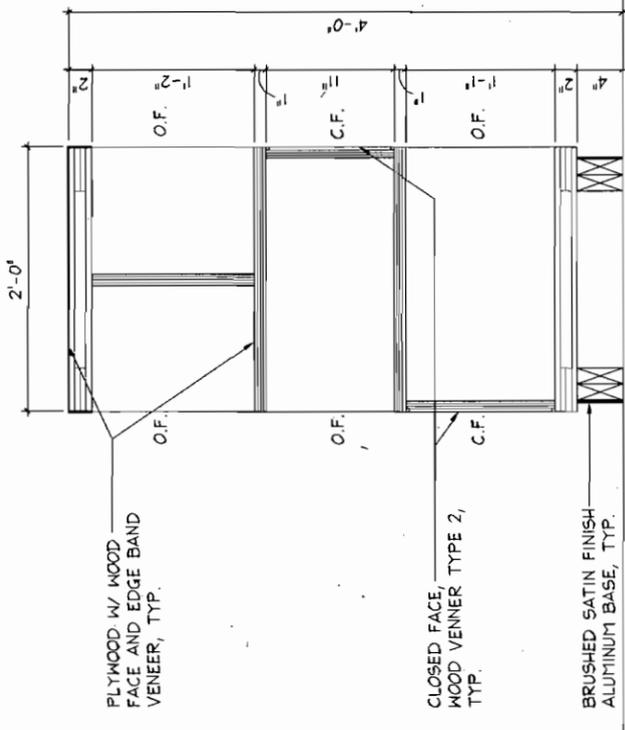
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 DRAWN BY: _____ DATE: _____
 PROJECT MGR: _____ DATE: _____
 TRANS ADMIN: _____ DATE: _____
 SENIOR ENGR: _____ DATE: _____
 APPROVED BY: _____ DATE: _____

CITY ENGINEER, R.E.C. No. 34870

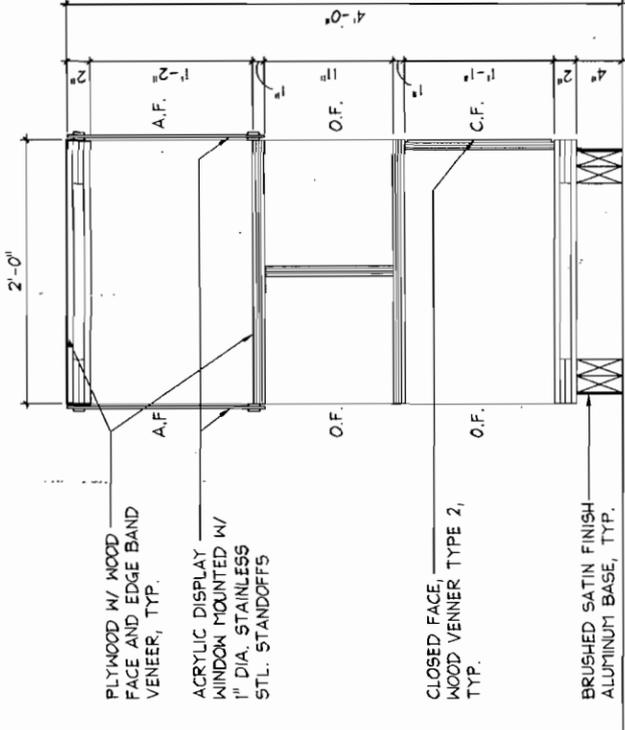


GROUP 4
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 PLANNING, I.A.C.
 2111 HUNTER AVENUE
 SO. SAN FRANCISCO
 CA 94080 USA
 650-871-0709

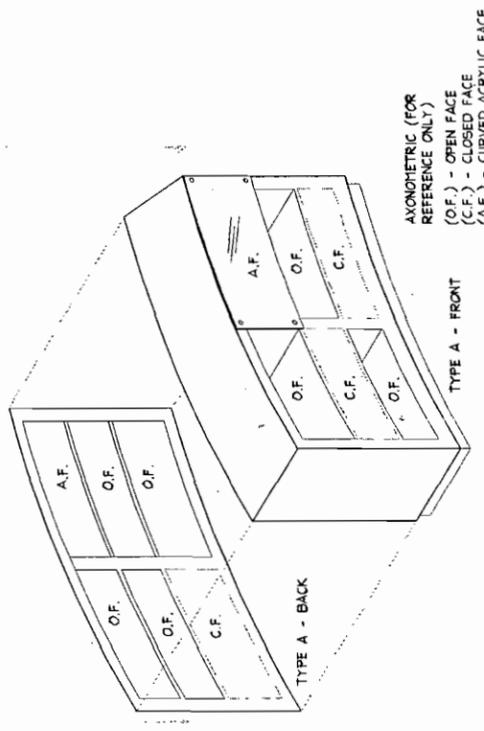
BEFORE YOU DIG, CALL BEFORE YOU DRILL. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE EXISTENCE AND LOCATION OF ALL UNDERGROUND UTILITIES. BEST INFORMATION AVAILABLE AT THE TIME OF SAN LEANDRO CITY OF THIS INDICATION.



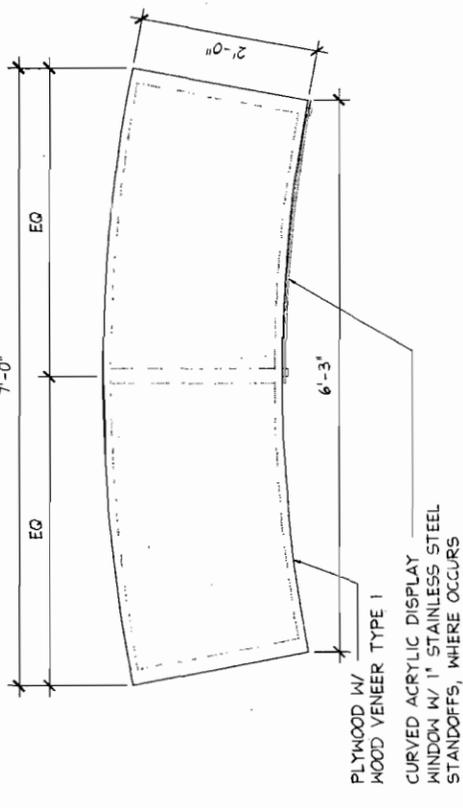
4A BOOKSHELF SECTION
SCALE: 1/2"=1'-0"



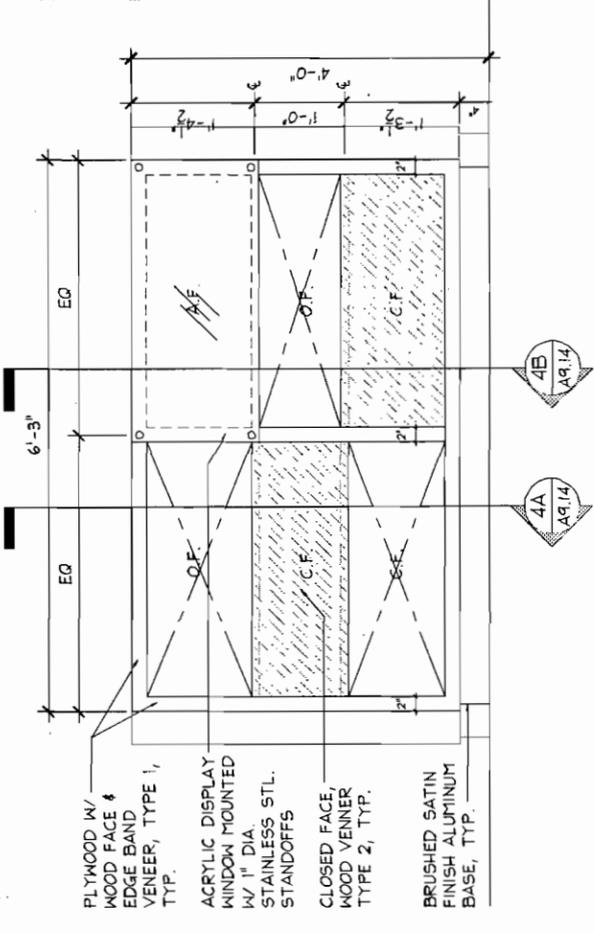
4B BOOKSHELF SECTION
SCALE: 1/2"=1'-0"



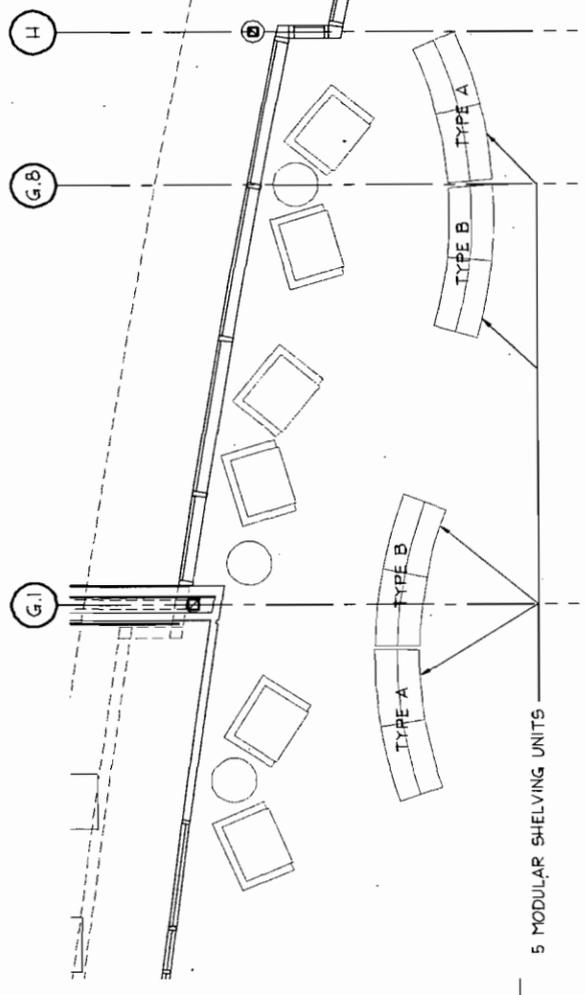
2 BOOKSHELF TYPE A
SCALE: N.T.S.



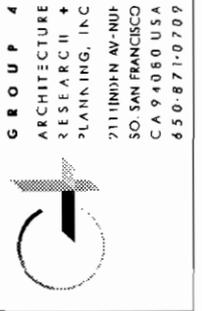
5 TYPICAL BOOKSHELF PLAN A#B
SCALE: 1"=1'-0"



3 BOOKSHELF TYPE (A) ELEVATION
SCALE: 1"=1'-0"



1 BOOKSHELF PLAN
SCALE: 1/4"=1'-0"



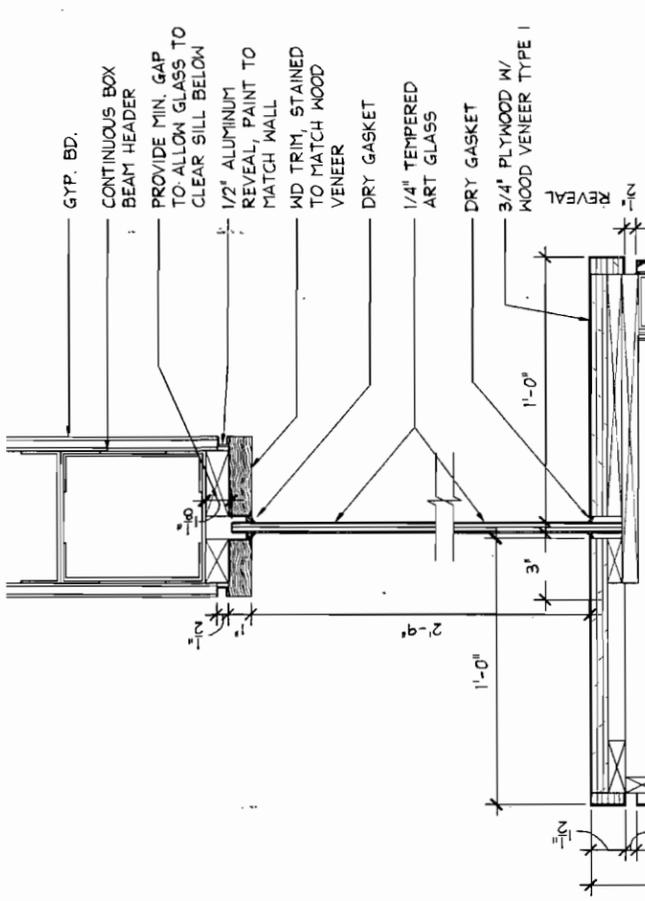
NO.	DATE	REVISION
1	06/07/08	BD SET
2	06/17/08	ADDENDUM 1
3	06/25/08	ADDENDUM 2
4	-	-
5	-	-

DESIGNED BY	DATE
DRAWN BY	DATE
PROJECT MGR.	DATE
TRANS. ADMIN.	DATE
SENIOR ENGR.	DATE
APPROVED BY	DATE

CITY OF SAN LEANDRO
SAN LEANDRO SENIOR COMMUNITY CENTER
INTERIOR CASEWORK
DETAILS

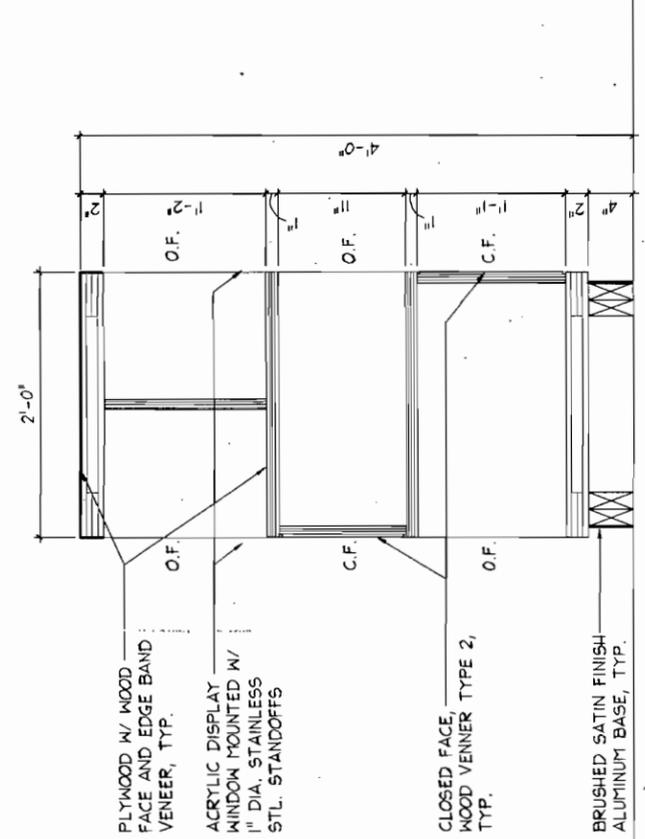
A9.14
 SHEET 152 OF 310
 JOB NO. 06-210-18-116
 SCALE _____
 DWG. 3284 CASE 901

DATE: 06/25/08 11:51 AM
 PROJECT: 06-210-18-116
 SHEET: 152 OF 310
 TITLE: SAN LEANDRO SENIOR COMMUNITY CENTER - INTERIOR CASEWORK - DETAILS

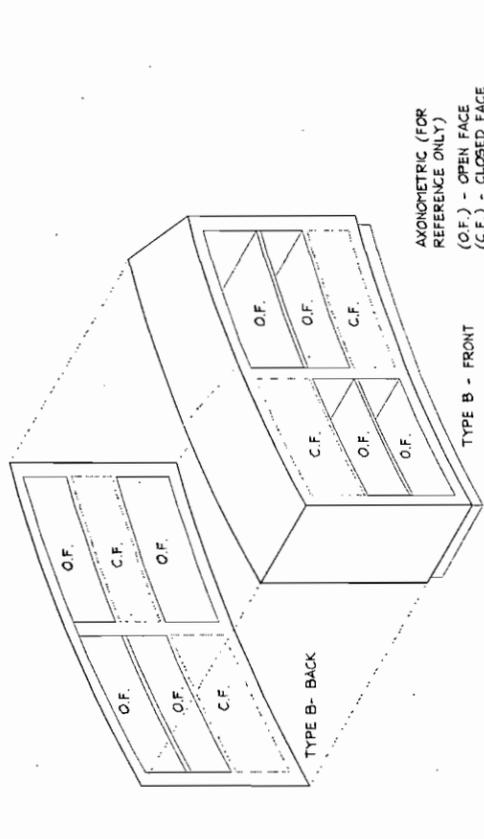


1 CASEWORK @ FRAMELESS ART GLASS
SCALE: 3/8"=1'-0"

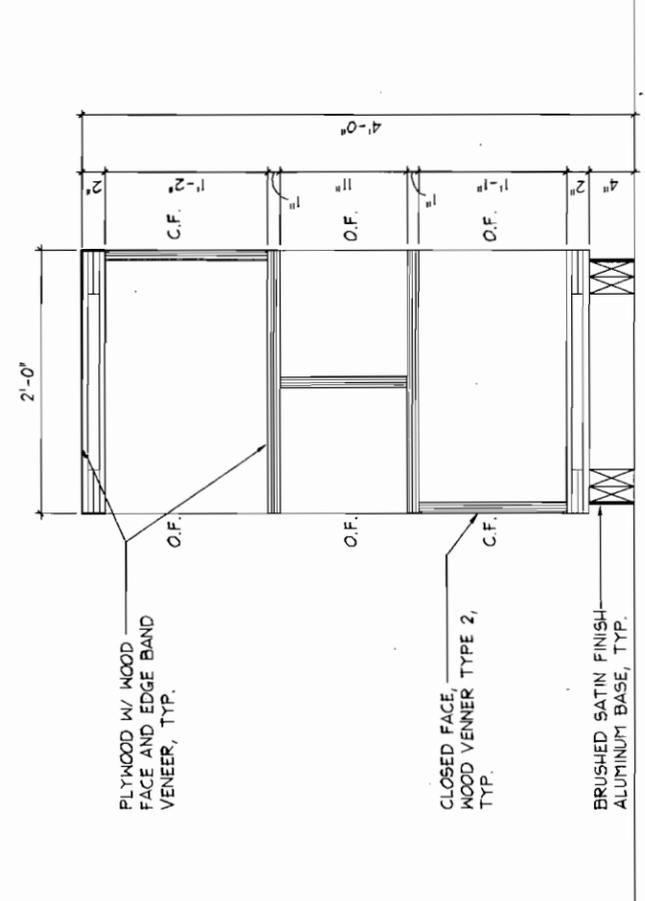
NOTE: PROVIDE WD. VENEER FINISH ON ALL EXPOSED SURFACES, TYP.



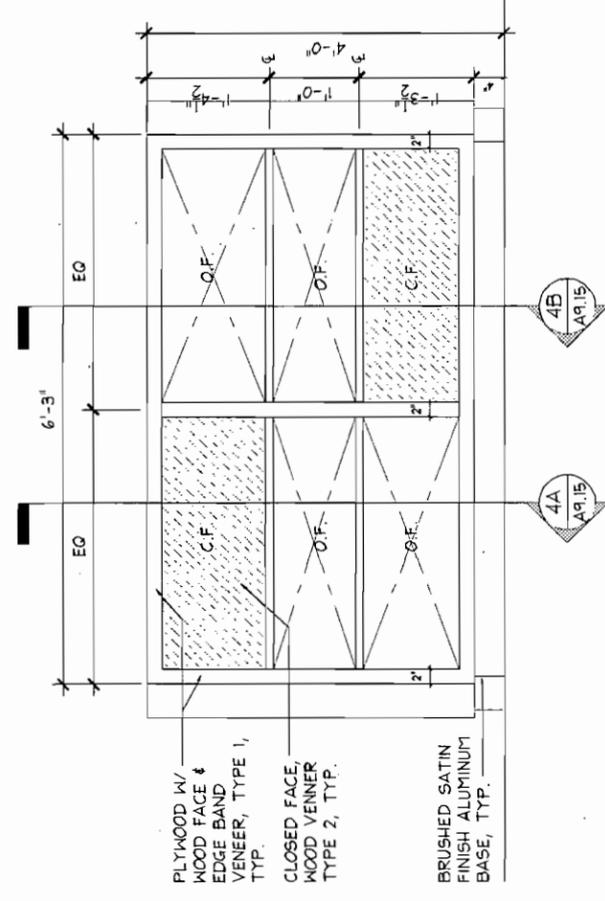
2 BOOKSHELF TYPE (A) ELEVATION
SCALE: 1/8"=1'-0"



3 TYPICAL BOOKSHELF PLAN A/B
SCALE: 1/8"=1'-0"



4A BOOKSHELF SECTION
SCALE: 1/2"=1'-0"



4B BOOKSHELF SECTION
SCALE: 1/2"=1'-0"

CITY OF SAN LEANDRO
SAN LEANDRO SENIOR COMMUNITY CENTER
INTERIOR CASEWORK
DETAILS

NO.	DATE	REVISION	DESIGNED BY	DATE
1	08/09/08	BID SET	DRAWN BY	DATE
2	06/17/08	ADDENDUM 1	PROJECT MGR.	DATE
3	06/25/08	ADDENDUM 2	TRANS. ADMIN.	DATE
4			SENIOR ENGR.	DATE
5			APPROVED BY:	DATE

CITY ENGINEER, S.C.E. No. 34870



GROUP 4
ARCHITECTURE
RESEARCH +
PLANNING, INC.
2111 HINDEN AVENUE
S.O. SAN FRANCISCO
CA 94060 USA
650-871-0709

DATE: 06.20.08
DRAWN BY: [Signature]
PROJECT MGR.: [Signature]
TRANS. ADMIN.: [Signature]
SENIOR ENGR.: [Signature]
APPROVED BY: [Signature]

GENERAL SHEET NOTES

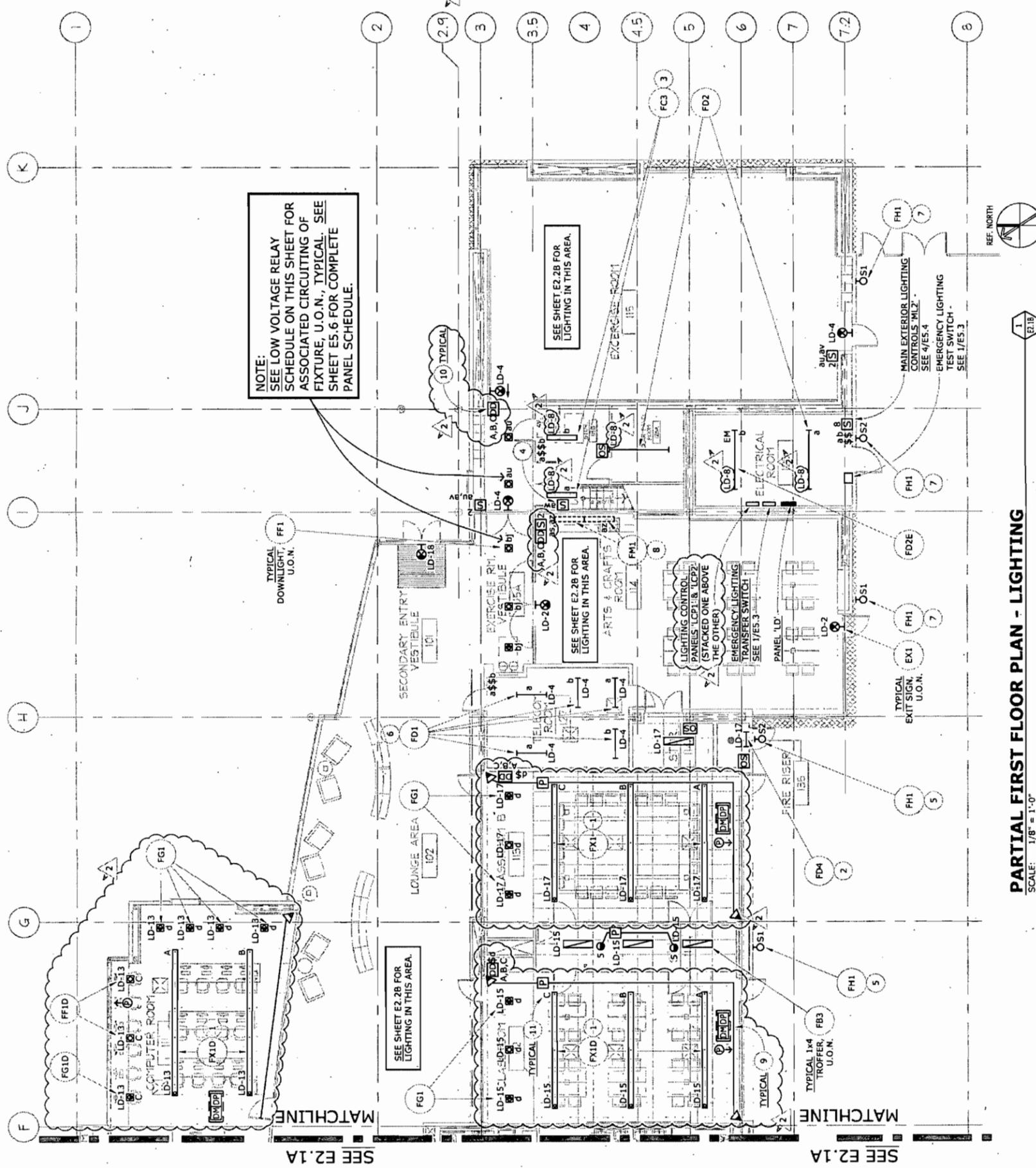
A. EMERGENCY LIGHTING WILL BE SERVED BY A GENERATOR.

NUMBERED SHEET NOTES

- PENDANT MOUNTED AT 8'-0" A.F.F.
- MOUNT ON WALL ABOVE DOOR HEADER.
- SURFACE MOUNTED TO UNDERSIDE OF DECK CEILING.
- LABEL SWITCH 'UPPER MEZZANINE LIGHTS'. SEE E2.2B FOR LIGHTING LAYOUT.
- WALL MOUNTED AT 8'-0" A.F.F. TO BOTTOM OF LUMINAIRE.
- VERIFY EXACT LOCATION WITH AV CONTACTOR.
- WALL MOUNTED AT 10'-0" A.F.F. TO BOTTOM OF LUMINAIRE.
- UNDERCABINET LIGHT - SEE DETAIL 4/E7.6.
- MOUNT DIMMING MODULE AND DIMMING POWER PACK IN A WATSTOPPER #LS-E12 ENCLOSURE ABOVE ACCESSIBLE CEILING.
- DAYLIGHTING DIMMER WALL SWITCH, TYPICAL. ADJACENT LETTERS INDICATE SEPARATELY CONTROLLED DAYLIGHTING ZONES.
- INDICATES DAYLIGHTING CONTROL ZONE.

LV RELAY LTG CONTROL PNL LCP1

ZONE/FUNCTION	RELAY	LINE VOLTAGE	LOAD	ROOM NAME / FEATURE TYPE
08	1	LD-12	195	STAFF WORKSTATIONS
08	2	LD-12	195	STAFF WORKSTATIONS
08	3	LD-12	179	STAFF WORKSTATIONS
08*	4	LD-1	685	KITCHEN
08*	5	LD-1	370	KITCHEN
08*	6	LD-5	258	RESTROOM VESTIBULE
08*	7	LD-5	187	WOMENS RESTROOM
08*	8	LD-5	113	WOMENS RESTROOM
08*	9	LD-5	74	MENS RESTROOM
08*	10	LD-5	187	MENS RESTROOM
08*	11	LD-10	909	ACTIVITY ROOM PENDANT
08*	12	LD-10	164	ACTIVITY ROOM TASK
08	13			SPARE
08	14			SPARE
08	15	LD-3	129	TRASH
08	16	LD-7	148	MAIN HALL RAMP
08*	17	LD-2	1408	ARTS AND CRAFTS
08	18			ARTS AND CRAFTS
08*	19	LD-4	974	EXERCISE
08*	20	LD-6	1332	EXERCISE
08*	21	LD-6	592	MEZZANINE LIGHTS
08	22	LD-7	39	MAIN HALL TASK
08	23	LD-7	74	MAIN HALL TASK
08	24	LD-2	59	ARTS AND CRAFTS TASK
08	25	LD-10	570	MAIN ENTRY WEST PENDANTS
08*	26	LD-12	348	MAIN ENTRY WEST DOWNLIGHTS
08*	27	LD-12	240	RECEPTION AREA DOWNLIGHTS
08	28	LD-14	385	RECEPTION AREA WALLWASHER
08	29	LD-14	385	RECEPTION AREA DOWNLIGHTS
08*	30	LD-16	570	LOUNGE AREA WALLWASHER
08*	31	LD-18	812	LOUNGE AREA DOWNLIGHTS
08	32	LD-16	432	LOUNGE AREA DECORATIVE PENDANTS
08	33	LD-16	129	EXERCISE VESTIBULE
08	34	LD-10	172	MAIN ENTRY SOFFIT
08*	35	LD-12	348	MAIN ENTRY WEST DOWNLIGHTS - N.
08*	36	LD-18	348	LOUNGE AREA DOWNLIGHTS
08	37			SPARE
08	38			SPARE
08	39			SPARE
08	40			SPARE
08	41	LD-35	200	FLAGPOLE LIGHTS
08	42	LD-37	172	EXTERIOR SIGN LIGHTS
08	43	LD-37	360	GARDEN BOLLARDS
08	44	LD-35	740	SITE BOLLARDS
08	45	LD-35	200	WALKWAY POST TOP
08	46	LD-35	200	WALKWAY POST TOP
08	47	LD-33	973	EXTERIOR BUILDING LIGHTS
08*	48	LD-31	605	EXTERIOR BUILDING LIGHTS



CITY OF SAN LEANDRO

SAN LEANDRO SENIOR COMMUNITY CENTER

PARTIAL FIRST FLOOR PLAN - LIGHTING

E2.1B

SHEET 229 OF
JOB NO. 06-210-18-116
SCALE AS NOTED
DWG. 3361 CASE 901

NO.	DATE	REVISION	DESIGNED BY	DATE
1	05/19/08	BID SET	PROJECT MGR.	DATE
2	06/17/08	ADDENDUM 1	TRANS. ADMIN.	DATE
3	06/25/08	ADDENDUM 2	SENIOR ENGR.	DATE
4			APPROVED BY:	DATE
5			CITY ENGINEER, R.C.E. No. 34870	DATE

BEFORE YOU BID, CALL UNDERGROUND SERVICE ALERT (1-800-227-2800) TO DETERMINE THE EXISTENCE AND LOCATION OF ALL UTILITIES IN THE PROJECT AREA. THE BEST INFORMATION AVAILABLE AT THE TIME OF PREPARATION OF THESE PLANS, NO GUARANTEE IS MADE AS TO THE ACCURACY OF THIS INFORMATION.

GROUP 4

ARCHITECTURE
RESEARCH +
PLANNING, INC
211 LINDEN AVENUE
SO. SAN FRANCISCO
CA 94080 USA
650-871-0709

CITY OF SAN LEANDRO
INCORPORATED 1857

OMAHONY & MYER
ELECTRICAL ENGINEERING AND LIGHTING DESIGN
4940 REDWOOD HWY., SUITE 245
SAN RAFAEL, CALIFORNIA 94903
(415) 492-0620/FAX (415) 479-9662
www.omahonyandmyer.com

REGISTERED PROFESSIONAL ENGINEER IN ELECTRICAL ENGINEERING
No. 14738
EXPIRES 12/31/08
ELECTRICAL ENGINEER
STATE OF CALIFORNIA

PARTIAL FIRST FLOOR PLAN - LIGHTING
SCALE: 1/8" = 1'-0"
FILE: ... 19XFP01 + 19XRCP + 19XRP02 + 19XGRID (05-09-08) + SLSC-FS-B1(05-07-08)

NOTE:
SEE LOW VOLTAGE RELAY
SCHEDULE ON THIS SHEET FOR
ASSOCIATED CIRCUITING OF
FIXTURE, U.O.N., TYPICAL. SEE
SHEET E5.6 FOR COMPLETE
PANEL SCHEDULE.

SEE SHEET E2.2B FOR
LIGHTING IN THIS AREA.

SEE SHEET E2.2B FOR
LIGHTING IN THIS AREA.

LIGHTING CONTROL
PANELS (LCP1, LCP2)
(STACKED ONE ABOVE
THE OTHER)

SEE E2.1A

SEE E2.1A

GENERAL SHEET NOTES

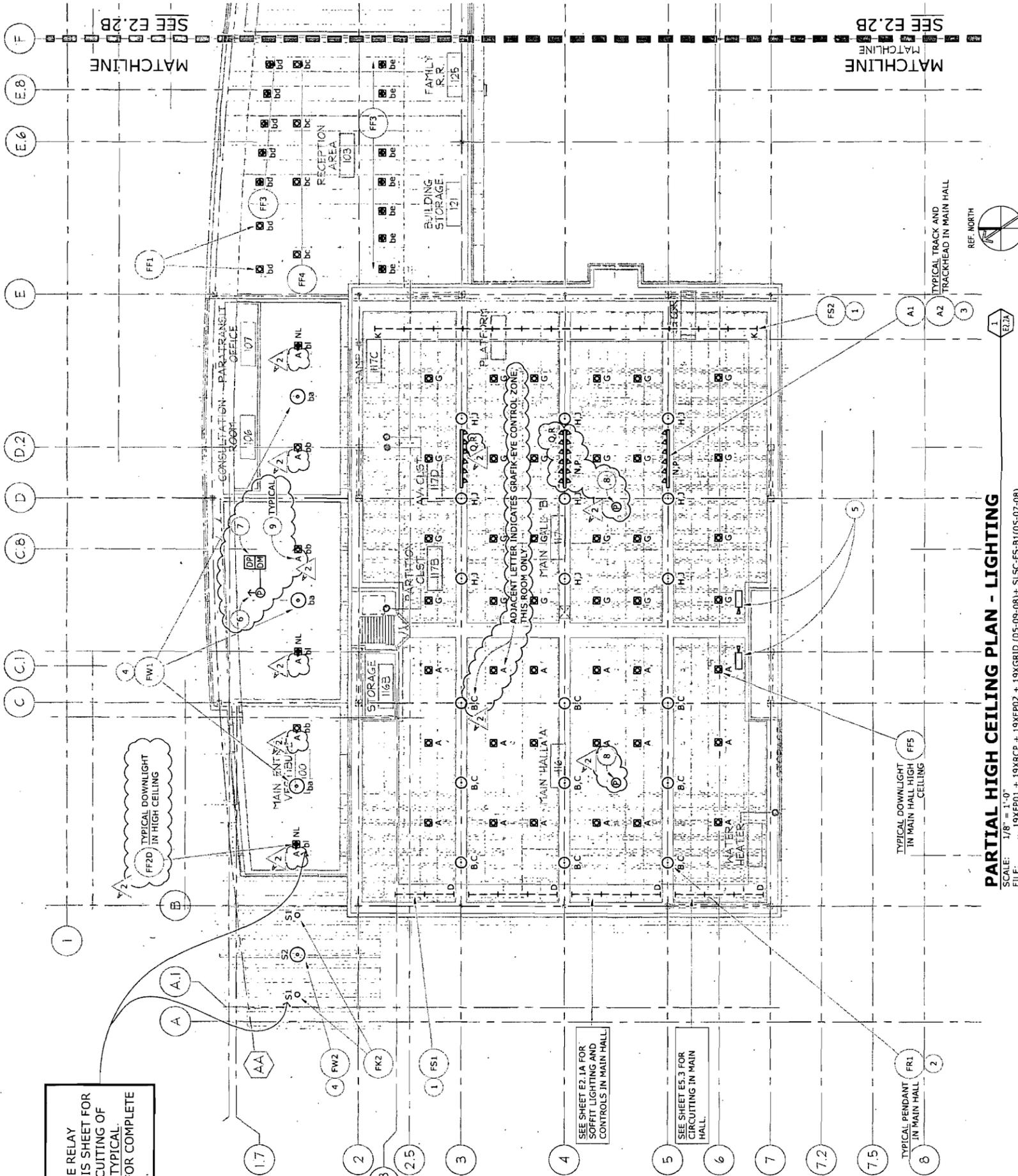
- A. EMERGENCY LIGHTING WILL BE SERVED BY A GENERATOR.
- B. COORDINATE EXACT LUMINAIRE LOCATIONS AT THE HIGH ROOF WITH THE CEILING CONTRACTOR. VERIFY WITH ARCHITECT.

NUMBERED SHEET NOTES

- 1 MOUNTED ABOVE WALL.
- 2 MOUNTED AT VARIOUS HEIGHTS. S.A.D.
- 3 MOUNTED BETWEEN CEILING PANELS.
- 4 S.A.D. FOR MOUNTING HEIGHTS.
- 5 DIMMING SYSTEM PARTITION SENSOR - SEE Z/ES.3.
- 6 MOUNT DAYLIGHT CONTROL PHOTOCELL ON ROOF IN WEATHERPROOF BOX. PASS & SEYMOUR # WP823 WITH # 3703 U.V. STABILIZED POLYCARBONATE LENS. VERIFY WITH MANUFACTURER FOR INSTALLATION INSTRUCTIONS. CONNECT PHOTOCELL TO CONTROLLER AND POWER PACK. SEE DETAIL 3/ES.6. THE DAYLIGHT CONTROLLER SHALL CONTROL INTERIOR LIGHTS AS FOLLOWS:
CONTROLLER ZONE 1: DOWNLIGHTS ON RELAYS 'bb' and 'bi'.
CONTROLLER ZONE 2: DOWNLIGHTS ON RELAYS 'bg' AND 'bm'.
(SHOWN ON E2.2B).
- 7 MOUNT DAYLIGHTING DIMMING CONTROL MODULE AND DAYLIGHTING POWER PACK IN A WATSTOPPER # LS-E12 ENCLOSURE ABOVE ACCESSIBLE CEILING AND CONNECT COMPLETE TO DAYLIGHTING PHOTOCELL ON ROOF. SEE NOTE 6.
- 8 CEILING MOUNTED DAYLIGHT SENSOR USED IN CONJUNCTION WITH GRAFIK-EYE DIMMING CONTROLS; LUTRON # MW-PS-WH. SEE Z/ES.3.
- 9 INDICATES DAYLIGHTING CONTROL ZONE.

LV RELAY LTG CONTROL PNL LCP1

ZONE/SWITCH DESIGNATION	RELAY CIRCUIT	LINE VOLTAGE	LOAD VA	ROOM NAME / FIXTURE TYPE
ab	1	LD-12	195	STAFF WORKSTATIONS
ab	2	LD-12	195	STAFF WORKSTATIONS
ac	3	LD-12	129	STAFF WORKSTATIONS
ac*	4	LD-1	685	KITCHEN
ae*	5	LD-1	370	KITCHEN
af*	6	LD-5	258	RESTROOM VESTIBULE
ag*	7	LD-5	187	WOMENS RESTROOM
ah*	8	LD-5	113	WOMENS RESTROOM
ai*	9	LD-5	74	MENS RESTROOM
aj*	10	LD-5	187	MENS RESTROOM
ak	11	LD-10	909	ACTIVITY ROOM PENDANT
am	12	LD-10	164	ACTIVITY ROOM TASK
an	13			SPARE
ao	14			SPARE
ap	15	LD-3	128	TRASH
aq	16	LD-7	148	MAIN HALL RAMP
ar	17	LD-2	1408	ARTS AND CRAFTS
as*	18	LD-2	1408	ARTS AND CRAFTS
at	19	LD-4	974	EXERCISE
au*	20	LD-8	1332	MEZZANINE LIGHTS
av*	21	LD-8	592	MEZZANINE LIGHTS
ax	22	LD-7	39	MAIN HALL TASK
ay	23	LD-7	74	MAIN HALL TASK
az	24	LD-2	59	ARTS AND CRAFTS TASK
ba	25	LD-10	570	MAIN ENTRY WEST PENDANTS
bb*	26	LD-12	348	RECEPTION AREA DOWNLIGHTS
bc*	27	LD-12	240	RECEPTION AREA DOWNLIGHTS
bd	28	LD-14	385	RECEPTION AREA WALLWASHER
be	29	LD-14	385	RECEPTION AREA WALLWASHER
bf	30	LD-16	570	LOUNGE AREA PENDANTS
bg*	31	LD-18	812	LOUNGE AREA DOWNLIGHTS
bh	32	LD-16	432	LOUNGE AREA DECORATIVE PENDANTS
bi	33	LD-16	129	EXERCISE VESTIBULE
bj	34	LD-10	172	MAIN ENTRY SOFFIT
bk	35	LD-12	348	MAIN ENTRY WEST DOWNLIGHTS - NL
bl*	36	LD-18	348	LOUNGE AREA DOWNLIGHTS
bm*	37			SPARE
bn	38			SPARE
bo	39			SPARE
bp	40			SPARE
bq	41	LD-35	200	FLAGPOLE LIGHTS
br	42	LD-37	172	EXTERIOR SIGN LIGHTS
bs	43	LD-37	360	EXTERIOR SIGN LIGHTS
bt	44	LD-35	740	SITE BOLLARDS
bu	45	LD-35	200	WALKWAY POST TOP
bv	46	LD-35	200	WALKWAY POST TOP
bw	47	LD-33	973	EXTERIOR BUILDING LIGHTS
bx	48	LD-31	605	EXTERIOR BUILDING LIGHTS



NOTE:
SEE LOW VOLTAGE RELAY SCHEDULE ON THIS SHEET FOR ASSOCIATED CIRCUITING OF FIXTURE, U.O.N., TYPICAL. SEE SHEET ES.6 FOR COMPLETE PANEL SCHEDULE.

GENERAL SHEET NOTES

- A. EMERGENCY LIGHTING WILL BE SERVED BY A GENERATOR.
- B. COORDINATE EXACT LUMINAIRE LOCATIONS AT THE HIGH ROOF WITH THE CEILING CONTRACTOR. VERIFY WITH ARCHITECT.

NUMBERED SHEET NOTES

- 1 MOUNTED ABOVE WALL.
- 2 MOUNTED AT VARIOUS HEIGHTS. S.A.D.
- 3 MOUNTED BETWEEN CEILING PANELS.
- 4 S.A.D. FOR MOUNTING HEIGHTS.
- 5 DIMMING SYSTEM PARTITION SENSOR - SEE Z/ES.3.
- 6 MOUNT DAYLIGHT CONTROL PHOTOCELL ON ROOF IN WEATHERPROOF BOX. PASS & SEYMOUR # WP823 WITH # 3703 U.V. STABILIZED POLYCARBONATE LENS. VERIFY WITH MANUFACTURER FOR INSTALLATION INSTRUCTIONS. CONNECT PHOTOCELL TO CONTROLLER AND POWER PACK. SEE DETAIL 3/ES.6. THE DAYLIGHT CONTROLLER SHALL CONTROL INTERIOR LIGHTS AS FOLLOWS:
CONTROLLER ZONE 1: DOWNLIGHTS ON RELAYS 'bb' and 'bi'.
CONTROLLER ZONE 2: DOWNLIGHTS ON RELAYS 'bg' AND 'bm'.
(SHOWN ON E2.2B).
- 7 MOUNT DAYLIGHTING DIMMING CONTROL MODULE AND DAYLIGHTING POWER PACK IN A WATSTOPPER # LS-E12 ENCLOSURE ABOVE ACCESSIBLE CEILING AND CONNECT COMPLETE TO DAYLIGHTING PHOTOCELL ON ROOF. SEE NOTE 6.
- 8 CEILING MOUNTED DAYLIGHT SENSOR USED IN CONJUNCTION WITH GRAFIK-EYE DIMMING CONTROLS; LUTRON # MW-PS-WH. SEE Z/ES.3.
- 9 INDICATES DAYLIGHTING CONTROL ZONE.

LV RELAY LTG CONTROL PNL LCP1

ZONE/SWITCH DESIGNATION	RELAY CIRCUIT	LINE VOLTAGE	LOAD VA	ROOM NAME / FIXTURE TYPE
ab	1	LD-12	195	STAFF WORKSTATIONS
ab	2	LD-12	195	STAFF WORKSTATIONS
ac	3	LD-12	129	STAFF WORKSTATIONS
ac*	4	LD-1	685	KITCHEN
ae*	5	LD-1	370	KITCHEN
af*	6	LD-5	258	RESTROOM VESTIBULE
ag*	7	LD-5	187	WOMENS RESTROOM
ah*	8	LD-5	113	WOMENS RESTROOM
ai*	9	LD-5	74	MENS RESTROOM
aj*	10	LD-5	187	MENS RESTROOM
ak	11	LD-10	909	ACTIVITY ROOM PENDANT
am	12	LD-10	164	ACTIVITY ROOM TASK
an	13			SPARE
ao	14			SPARE
ap	15	LD-3	128	TRASH
aq	16	LD-7	148	MAIN HALL RAMP
ar	17	LD-2	1408	ARTS AND CRAFTS
as*	18	LD-2	1408	ARTS AND CRAFTS
at	19	LD-4	974	EXERCISE
au*	20	LD-8	1332	MEZZANINE LIGHTS
av*	21	LD-8	592	MEZZANINE LIGHTS
ax	22	LD-7	39	MAIN HALL TASK
ay	23	LD-7	74	MAIN HALL TASK
az	24	LD-2	59	ARTS AND CRAFTS TASK
ba	25	LD-10	570	MAIN ENTRY WEST PENDANTS
bb*	26	LD-12	348	RECEPTION AREA DOWNLIGHTS
bc*	27	LD-12	240	RECEPTION AREA DOWNLIGHTS
bd	28	LD-14	385	RECEPTION AREA WALLWASHER
be	29	LD-14	385	RECEPTION AREA WALLWASHER
bf	30	LD-16	570	LOUNGE AREA PENDANTS
bg*	31	LD-18	812	LOUNGE AREA DOWNLIGHTS
bh	32	LD-16	432	LOUNGE AREA DECORATIVE PENDANTS
bi	33	LD-16	129	EXERCISE VESTIBULE
bj	34	LD-10	172	MAIN ENTRY SOFFIT
bk	35	LD-12	348	MAIN ENTRY WEST DOWNLIGHTS - NL
bl*	36	LD-18	348	LOUNGE AREA DOWNLIGHTS
bm*	37			SPARE
bn	38			SPARE
bo	39			SPARE
bp	40			SPARE
bq	41	LD-35	200	FLAGPOLE LIGHTS
br	42	LD-37	172	EXTERIOR SIGN LIGHTS
bs	43	LD-37	360	EXTERIOR SIGN LIGHTS
bt	44	LD-35	740	SITE BOLLARDS
bu	45	LD-35	200	WALKWAY POST TOP
bv	46	LD-35	200	WALKWAY POST TOP
bw	47	LD-33	973	EXTERIOR BUILDING LIGHTS
bx	48	LD-31	605	EXTERIOR BUILDING LIGHTS

PARTIAL HIGH CEILING PLAN - LIGHTING
SCALE: 1/8" = 1'-0"
FILE: ... 19XFP01 + 19XRCP + 19XFR02 + 19XGRID (05-09-08) + SISC-FS-81 (05-07-08)

GENERAL SHEET NOTES

- A. EMERGENCY LIGHTING WILL BE SERVED BY A GENERATOR.
- B. COORDINATE EXACT LUMINAIRE LOCATIONS AT THE HIGH ROOF WITH THE CEILING CONTRACTOR. VERIFY WITH ARCHITECT.

NUMBERED SHEET NOTES

- 1 MOUNTED ABOVE WALL.
- 2 MOUNTED AT VARIOUS HEIGHTS. S.A.D.
- 3 MOUNTED BETWEEN CEILING PANELS.
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CONTROLLER ZONE 2: DOWNLIGHTS ON RELAYS 'bg' AND 'bm'.
(SHOWN ON E2.2B).
- 7 MOUNT DAYLIGHTING DIMMING CONTROL MODULE AND DAYLIGHTING POWER PACK IN A WATSTOPPER # LS-E12 ENCLOSURE ABOVE ACCESSIBLE CEILING AND CONNECT COMPLETE TO DAYLIGHTING PHOTOCELL ON ROOF. SEE NOTE 6.
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bw	47	LD-33	973	EXTERIOR BUILDING LIGHTS
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PARTIAL HIGH CEILING PLAN - LIGHTING
SCALE: 1/8" = 1'-0"
FILE: ... 19XFP01 + 19XRCP + 19XFR02 + 19XGRID (05-09-08) + SISC-FS-81 (05-07-08)

GENERAL SHEET NOTES

- A. EMERGENCY LIGHTING WILL BE SERVED BY A GENERATOR.
- B. COORDINATE EXACT LUMINAIRE LOCATIONS AT THE HIGH ROOF WITH THE CEILING CONTRACTOR. VERIFY WITH ARCHITECT.

NUMBERED SHEET NOTES

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- 3 MOUNTED BETWEEN CEILING PANELS.
- 4 S.A.D. FOR MOUNTING HEIGHTS.
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CONTROLLER ZONE 2: DOWNLIGHTS ON RELAYS 'bg' AND 'bm'.
(SHOWN ON E2.2B).
- 7 MOUNT DAYLIGHTING DIMMING CONTROL MODULE AND DAYLIGHTING POWER PACK IN A WATSTOPPER # LS-E12 ENCLOSURE ABOVE ACCESSIBLE CEILING AND CONNECT COMPLETE TO DAYLIGHTING PHOTOCELL ON ROOF. SEE NOTE 6.
- 8 CEILING MOUNTED DAYLIGHT SENSOR USED IN CONJUNCTION WITH GRAFIK-EYE DIMMING CONTROLS; LUTRON # MW-PS-WH. SEE Z/ES.3.
- 9 INDICATES DAYLIGHTING CONTROL ZONE.

LV RELAY LTG CONTROL PNL LCP1

ZONE/SWITCH DESIGNATION	RELAY CIRCUIT	LINE VOLTAGE	LOAD VA	ROOM NAME / FIXTURE TYPE
ab	1	LD-12	195	STAFF WORKSTATIONS
ab	2	LD-12	195	STAFF WORKSTATIONS
ac	3	LD-12	129	STAFF WORKSTATIONS
ac*	4	LD-1	685	KITCHEN
ae*	5	LD-1	370	KITCHEN
af*	6	LD-5	258	RESTROOM VESTIBULE
ag*	7	LD-5	187	WOMENS RESTROOM
ah*	8	LD-5	113	WOMENS RESTROOM
ai*	9	LD-5	74	MENS RESTROOM
aj*	10	LD-5	187	MENS RESTROOM
ak	11	LD-10	909	ACTIVITY ROOM PENDANT
am	12	LD-10	164	ACTIVITY ROOM TASK
an	13			SPARE
ao	14			SPARE
ap	15	LD-3	128	TRASH
aq	16	LD-7	148	MAIN HALL RAMP
ar	17	LD-2	1408	ARTS AND CRAFTS
as*	18	LD-2	1408	ARTS AND CRAFTS
at	19	LD-4	974	EXERCISE
au*	20	LD-8	1332	MEZZANINE LIGHTS
av*	21	LD-8	592	MEZZANINE LIGHTS
ax	22	LD-7	39	MAIN HALL TASK
ay	23	LD-7	74	MAIN HALL TASK
az	24	LD-2	59	ARTS AND CRAFTS TASK
ba	25	LD-10	570	MAIN ENTRY WEST PENDANTS
bb*	26	LD-12	348	RECEPTION AREA DOWNLIGHTS
bc*	27	LD-12	240	RECEPTION AREA DOWNLIGHTS
bd	28	LD-14	385	RECEPTION AREA WALLWASHER
be	29	LD-14	385	RECEPTION AREA WALLWASHER
bf	30	LD-16	570	LOUNGE AREA PENDANTS
bg*	31	LD-18	812	LOUNGE AREA DOWNLIGHTS
bh	32	LD-16	432	LOUNGE AREA DECORATIVE PENDANTS
bi	33	LD-16	129	EXERCISE VESTIBULE
bj	34	LD-10	172	MAIN ENTRY SOFFIT
bk	35	LD-12	348	MAIN ENTRY WEST DOWNLIGHTS - NL
bl*	36	LD-18	348	LOUNGE AREA DOWNLIGHTS
bm*	37			SPARE
bn	38			SPARE
bo	39			SPARE
bp	40			SPARE
bq	41	LD-35	200	FLAGPOLE LIGHTS
br	42	LD-37	172	EXTERIOR SIGN LIGHTS
bs	43	LD-37	360	EXTERIOR SIGN LIGHTS
bt	44	LD-35	740	SITE BOLLARDS
bu	45	LD-35	200	WALKWAY POST TOP
bv	46	LD-35	200	WALKWAY POST TOP
bw	47	LD-33	973	EXTERIOR BUILDING LIGHTS
bx	48	LD-31	605	EXTERIOR BUILDING LIGHTS

PARTIAL HIGH CEILING PLAN - LIGHTING
SCALE: 1/8" = 1'-0"
FILE: ... 19XFP01 + 19XRCP + 19XFR02 + 19XGRID (05-09-08) + SISC-FS-81 (05-07-08)

GENERAL SHEET NOTES

- A. EMERGENCY LIGHTING WILL BE SERVED BY A GENERATOR.
- B. COORDINATE EXACT LUMINAIRE LOCATIONS AT THE HIGH ROOF WITH THE CEILING CONTRACTOR. VERIFY WITH ARCHITECT.

NUMBERED SHEET NOTES

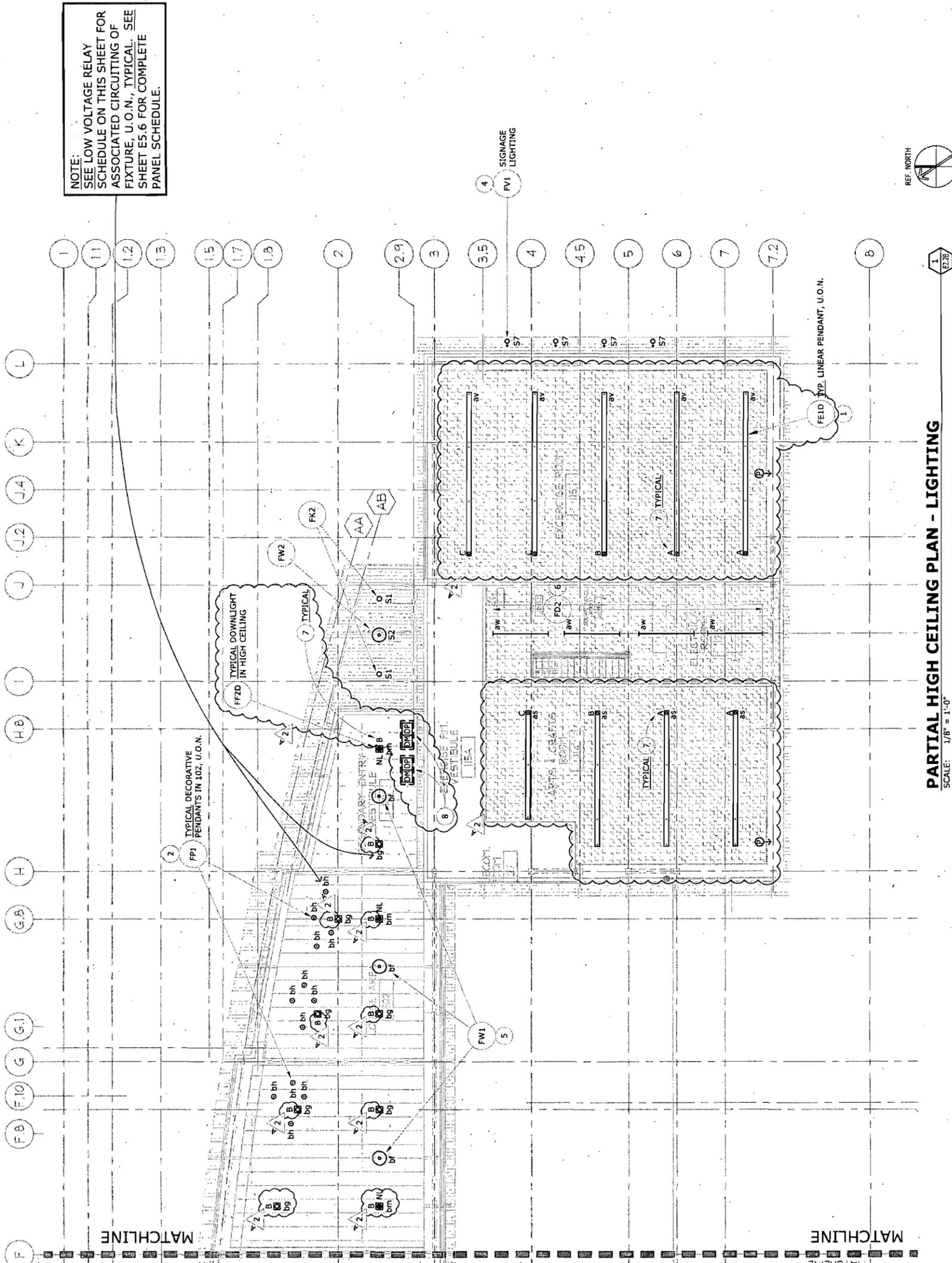
- 1 MOUNTED ABOVE WALL.
- 2 MOUNTED AT VARIOUS HEIGHTS. S.A.D.
- 3 MOUNTED BETWEEN CEILING PANELS.
- 4 S.A.D. FOR MOUNTING HEIGHTS.
- 5 DIMMING SYSTEM PARTITION SENSOR - SEE Z/ES.3.
- 6 MOUNT DAYLIGHT CONTROL PHOTOCELL ON ROOF IN WEATHERPROOF BOX. PASS & SEYMOUR # WP823 WITH # 3703 U.V. STABILIZED POLYCARBONATE LENS. VERIFY WITH MANUFACTURER FOR INSTALLATION INSTRUCTIONS. CONNECT PHOTOCELL TO CONTROLLER AND POWER PACK. SEE DETAIL 3/ES.6. THE DAYLIGHT CONTROLLER SHALL CONTROL INTERIOR LIGHTS AS FOLLOWS:
CONTROLLER ZONE 1: DOWNLIGHTS ON RELAYS 'bb' and 'bi'.
CONTROLLER ZONE 2: DOWNLIGHTS ON RELAYS 'bg' AND 'bm'.
(SHOWN ON E2.2B).
- 7 MOUNT DAYLIGHTING DIMMING CONTROL MODULE AND DAYLIGHTING POWER PACK IN A WATSTOPPER # LS-E12 ENCLOSURE ABOVE ACCESSIBLE CEILING AND CONNECT COMPLETE TO DAYLIGHTING PHOTOCELL ON ROOF. SEE NOTE 6.
- 8 CEILING MOUNTED DAYLIGHT SENSOR USED IN CONJUNCTION WITH GRAFIK-EYE DIMMING CONTROLS; LUTRON # MW-PS-WH. SEE Z/ES.3.
- 9 INDICATES DAYLIGHTING CONTROL ZONE.

LV RELAY LTG CONTROL PNL LCP1

ZONE/SWITCH DESIGNATION	RELAY CIRCUIT	LINE VOLTAGE	LOAD VA	ROOM NAME / FIXTURE TYPE
ab	1	LD-12	195	STAFF WORKSTATIONS
ab	2	LD-12	195	ST

SEE E2.2A

SEE E2.2A



NOTE:
SEE LOW VOLTAGE RELAY
SCHEDULE ON THIS SHEET FOR
ASSOCIATED CIRCUITING OF
FIXTURE, U.O.N., TYPICAL. SEE
SHEET E5.6 FOR COMPLETE
PANEL SCHEDULE.

GENERAL SHEET NOTES

A. EMERGENCY LIGHTING WILL BE SERVED BY A GENERATOR.
B. COORDINATE EXACT LUMINAIRE LOCATIONS AT THE HIGH ROOF WITH THE CEILING CONTRACTOR. VERIFY WITH ARCHITECT.

NUMBERED SHEET NOTES

- PENDANT MOUNTED AT 14'-0" A.F.F. TO BOTTOM OF LUMINAIRE.
- MOUNTED AT VARIOUS HEIGHTS. S.A.D.
- MOUNTED ABOVE WALL.
- MOUNTED TO UNDERSIDE OF EAVE AT OUTSIDE EDGE.
- S.A.D. FOR MOUNTING HEIGHT.
- CHAIN HUNG AT 7'-3" TO BOTTOM OF LUMINAIRE. COORDINATE WITH MECHANICAL DUCT LOCATIONS.
- INDICATES DAYLIGHTING CONTROL ZONE.
- MOUNT DIMMING MODULE AND DIMMING POWER PACK IN A WATERTIGHTER #1.5-1.2 ENCLOSURE ABOVE ACCESSIBLE CEILING AND LABEL ROOM 114 AND 'ROOM 115'

LV RELAY LTG CONTROL PNL LCP1

RELAY ZONE/SWITCH DESIGNATION	RELAY NO.	LINE VOLTAGE	LOAD VA	ROOM NAME / FIXTURE TYPE
ab	1	LD-12	195	STAFF WORKSTATIONS
ab	2	LD-12	195	STAFF WORKSTATIONS
ac	3	LD-12	129	STAFF WORKSTATIONS
ad*	4	LD-1	685	KITCHEN
ae*	5	LD-1	370	KITCHEN
af*	6	LD-5	258	RESTROOM VESTIBULE
ag*	7	LD-5	187	WOMENS RESTROOM
ah*	8	LD-5	113	WOMENS RESTROOM
ai*	9	LD-5	74	MENS RESTROOM
aj*	10	LD-5	187	MENS RESTROOM
ak*	11	LD-10	909	ACTIVITY ROOM PENDANT
al	12	LD-10	164	ACTIVITY ROOM TASK
am	13			SPARE
an	14			SPARE
ao	15	LD-3	129	TRASH
ap	16	LD-7	148	MAIN HALL RAMP
aq	17	LD-2	1406	ARTS AND CRAFTS
ar	18			ARTS AND CRAFTS
as	19	LD-4	974	EXERCISE
at	20	LD-6	1332	EXERCISE
au*	21	LD-8	592	MEZZANINE LIGHTS
av	22	LD-7	39	MAIN HALL TASK
aw	23	LD-7	74	MAIN HALL TASK
ax	24	LD-2	59	ARTS AND CRAFTS TASK
ay	25	LD-10	570	MAIN ENTRY WEST PENDANTS
az	26	LD-12	348	MAIN ENTRY WEST DOWNLIGHTS
ba*	27	LD-12	240	RECEPTION AREA DOWNLIGHTS
bb	28	LD-14	365	RECEPTION AREA WALLWASHER
bc	29	LD-14	365	RECEPTION AREA WALLWASHER
bd	30	LD-16	570	LOUNGE AREA PENDANTS
be	31	LD-16	812	LOUNGE AREA DOWNLIGHTS
bf	32	LD-16	432	LOUNGE AREA DECORATIVE PENDANTS
bg	33	LD-16	139	EXERCISE VESTIBULE
bh	34	LD-10	172	MAIN ENTRY SPITTE
bi	35	LD-12	348	MAIN ENTRY WEST DOWNLIGHTS - NL
bj	36	LD-18	348	LOUNGE AREA DOWNLIGHTS
bk	37			SPARE
bl	38			SPARE
bm	39			SPARE
bn	40			SPARE
bo	41	LD-35	200	FLAGPOLE LIGHTS
bp	42	LD-37	172	EXTERIOR SIGN LIGHTS
bq	43	LD-37	360	GARDEN BOLLARDS
br	44	LD-35	740	SITE BOLLARDS
bs	45	LD-35	200	WALKWAY POST TOP
bt	46	LD-35	200	WALKWAY POST TOP
bu	47	LD-33	973	EXTERIOR BUILDING LIGHTS
bv	48	LD-31	605	EXTERIOR BUILDING LIGHTS

CITY OF SAN LEANDRO

DESIGNED BY: _____ DATE: _____
 DRAWN BY: LN DATE: _____
 PROJECT MGR. DATE: _____
 TRANS. ADMIN. DATE: _____
 SENIOR ENGR. DATE: _____
 APPROVED BY: _____ DATE: _____
 CITY ENGINEER, R.C.E. No. 34870

GROUP 4
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 SAN RAFAEL, CALIFORNIA 94903
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 www.omahonyandmyer.com

REGISTERED PROFESSIONAL ENGINEER
 PETER J. CALABRIGANDER
 No. 14738
 STATE OF CALIFORNIA
 ELECTRICAL ENGINEER

REVISION

NO.	DATE	REVISION
1	05/19/08	BID SET
2	06/17/08	ADDENDUM 1
3	09/29/08	ADDENDUM 2
4	-	-
5	-	-

BEFORE YOU BID, CALL UNDERGROUND SERVICE ALERT (800) 222-7260 TO DETERMINE THE EXISTENCE AND LOCATION OF UTILITIES. THE INFORMATION AVAILABLE AT THE TIME OF PREPARATION OF THESE PLANS, NO GUARANTEE IS MADE AS TO THE ACCURACY OF THIS INFORMATION.

PARTIAL HIGH CEILING PLAN - LIGHTING
 SCALE: 1/8" = 1'-0"
 FILE: ...19XFP01 + 19XRCP + 19XGRD + 19XRP2 + 19XRF02 + 19XRF01(05-07-08) + SLSC-FS-B1(05-07-08)

E2.2B
 SHEET 231 OF _____
 JOB NO. 06-210-18-116
 SCALE AS NOTED
 DWG. 3363 CASE 901

