

Date June 6, 2023

ADDENDUM NO. 1

To Project Bidding Documents for:
TV-23 Bio-Tech Classroom
Compton Community College

tBP Project. No. 21105.00

tBP/ARCHITECTURE

4611 Teller Avenue
Newport Beach, CA 92660
949/673-0300

TO: PROSPECTIVE BIDDERS

This Addendum forms a part of the Contract Documents and modifies the original approved Bidding Drawings. Acknowledge receipt of this Addendum in space provided on the Bid Form. Failure to acknowledge may subject Bidder to disqualification.

CHANGES TO THE SPECIFICATIONS.

1. GENERAL REQUIREMENT TABLE OF CONTENT
2. BID PROPOSAL FORM
3. EXHIBIT A - SITE LOGISTICS PLAN
4. SECTION 000110 TABLE OF CONTENTS
5. SECTION 010100 SCOPE OF WORK
6. SECTION 012100 ALLOWANCE
7. SECTION 271000 STRUCTURAL CABLING.
8. SECTION 283100 Deleted Specification Section in its entirety.

CHANGES TO DRAWINGS

1. SHEET T-2 **SHEET INDEX AND GENERAL INFORMAITON** - Drawing List Architectural sheets replace D-3 by A-3
2. SHEET AS-1-- **ENLARGED SITE PLAN** Added detail for parking sign, added notes clarifying scope at ADA parking Relocation of drinking fountain is shown. **See attached revised sheet.**
3. SHEET A1-1 **FLOOR/CEILING & INTERIOR ELEVATIONS** Corrected Construction Notes Added clear wire mold location, clarifying notes, 75% demo of the wall paneling drywall. IDF location. **See attached revised sheet.**
4. SHEET A-3 DETAILS. Removed one detail added and updated Drinking fountain relocation and details. **See attached revised sheet.**
5. SHEET P1-1 PLUMBING FLOOR AND SITE PLAN Relocation of drinking fountain was

added. **See attached revised sheet.**

6. SHEET E0-1 **See attached revised sheet.**
 - a. Revised floor box outlet symbol per attached revised Drawing E0-1.
 - b. Revised panel schedule "NP16" per attached revised Drawing E0-1
7. SHEET E1-1 **See attached revised sheet.**
 - a. Revised location of IDF cabinet per attached revised Drawing E1-1.
8. SHEET E2-1 **See attached revised sheet.**
 - a. Revised location of IDF cabinet per attached revised Drawing E2-1.
 - b. Extended raceways per attached revised Drawing E2-1.
 - c. Deleted three (3) receptacles on north wall of the room per attached revised Drawing E2-1.
9. ENGINEER CONSTRUCTION ESTIMATE \$180,000.00

---End of Addendum---

ATTACHMENTS

1. Full Size Documents 30" x 42" Drawings: (Total 7)

AS-1	ENLARGED SITE PLAN
A1-1	FLOOR/CEILING & INTERIOR ELEVATIONS
A-3	DETAILS
P1-1	PLUMBING FLOOR AND SITE PLAN
E0-1	GENERAL NOTES AND SYMBOL LIST
E1-1	SITE ELECTRICAL PLAN
E2-1	ELECTRICAL PLANS

2. Specifications (Total 7 ITEMS)

GENERAL REQUIREMENT TABLE OF CONTENT	
BID PROPOSAL FORM	
EXHIBIT A - SITE LOGISTICS PLAN	
SECTION 000110	TABLE OF CONTENTS
SECTION 010100	SCOPE OF WORK
SECTION 012100	ALLOWANCE
SECTION 271000	STRUCTURAL CABLING.

ELECTRICAL ENGINEER
FBA Engineering

GARY MOON
tBP Architecture

**COMPTON COMMUNITY COLLEGE DISTRICT
BIO-LAB TV 23**

DIVISION 01 - GENERAL REQUIREMENTS

01 01 00	Summary of Work.....	7
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01 23 00	Alternates.....	2
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01 29 00	Payment Procedures	5
01 30 40	Post Bid Interview.....	7
01 30 50	Construction Procedures Manual	45
01 31 00	Project Coordination	10
01 32 00	Acceleration of Work	3
01 33 00	Submittal Procedures	9
01 35 10	Alteration Project Procedures	4
01 42 00	References.....	4
01 43 80	Work Plan and Milestone Schedule.....	2
01 45 00	Quality Control.....	9
01 50 00	Temporary Facilities and Controls.....	10
01 62 00	Product Options.....	2
01 63 00	Product Substitution Procedures	5
01 70 00	Cleaning	4
01 72 20	Field Engineering	4
01 73 20	Cutting and Patching	4
01 74 00	Warranties and Guarantees	2
01 77 00	Closeout Procedures.....	6
01 78 20	Project Record Documents.....	5
01 78 50	Operating and Maintenance Data.....	7
01 81 00	Commissioning.....	4

END OF SECTION

COMPTON COMMUNITY COLLEGE DISTRICT

1. This Contractor will provide a \$30,000.00 Allowance which is to be included in the base bid. This allowance is to be used at the District's discretion.

**BID PROPOSAL
PROJECT: BIO-LAB TV 23 (“the Work”)**

Bidder Name	_____	
Bidder Representative(s)	Name and Title _____	
	Name and Title _____	
Bidder Representative(s) Contact Information	Email _____	Phone/Fax _____
	_____	(_____) Telephone _____
	_____	(_____) Fax _____
Bidder Mailing Address	Address _____	
	City/State/Zip Code _____	
California Contractors' License	Number _____	
	Classification and Expiration Date _____	

1. Bid Proposal.

1.1. Bid Proposal Amount. The undersigned Bidder proposes to furnish all labor, materials, tools, equipment and services necessary to complete in accordance with the Contract Documents for the above-described Work, for the base bid sum of:

_____ Dollars (\$_____).

The Bidder confirms that it has checked all of the above figures and understands that neither the District nor any of its agents, employees or representatives shall be responsible for any errors or omissions in this Bid Proposal.

Allowance. The Bidder and District acknowledge that the Bid Proposal Price set forth above includes an Allowance Amount in the aggregate amount of Thirty Thousand Dollars (\$30,000.00),

\$30,000.00	To be used at the District's Discretion

Although included in the Bid Proposal Price, Allowances belong solely to the District and shall be expended only upon written direction by the District, to be granted or denied in its sole discretion. Any Allowance amount not fully consumed shall belong solely to the District and shall be refunded to the District by a deductive change order.

By submitting this Bid Proposal, the Bidder confirms that the Bid Price proposed in Paragraph 1.1 is inclusive of all Allowances.

1.2. Acknowledgment of Bid Addenda. The Bidder confirms that this Bid Proposal incorporates and is inclusive of, all items or other matters contained in Bid Addenda issued by or on behalf of the District. Received, acknowledged and incorporated into this Bid Proposal the following

Addenda:

 (List Addenda)

 (Initials of Bidder's Representative)

- 1.3. Alternate Bid Items. If the bidding includes Alternate Bid Items, the Bidder's price proposal(s) for Alternate Bid Items is/are set forth in the form of Alternate Bid Item Proposal attached to this Bid Proposal. Price proposal(s) for Alternate Bid Item(s) will not form the basis for the District's award of the Contract unless an Alternate Bid Item is incorporated into the scope of Work of the Contract awarded.
2. Documents Accompanying Bid Proposal. The Bidder has submitted with this Bid Proposal the following: (i) Bid Security; (ii) Subcontractors List; (iii) Statement of Qualifications; (iv) Non-Collusion Affidavit; and (v) DIR Registration Verification. The Bidder acknowledges that if this Bid Proposal and the foregoing documents are not fully in compliance with applicable requirements set forth in the Call for Bids, the Instructions for Bidders and in each of the foregoing documents, the Bid Proposal may be rejected for non-responsiveness.
3. Award of Contract. Within five (5) days after notification of award of the Contract, the Bidder awarded the Contract shall execute and deliver to the District three original signature copies of the Contract in the form attached hereto along with: (i) Certificates of Insurance evidencing all insurance coverages required under the Contract Documents; (ii) the Performance Bond; (iii) the Labor and Material Payment Bond; (iv) the Certificate of Workers' Compensation Insurance; and (v) the Drug-Free Workplace Certificate. Failure of the Bidder awarded the Contract to strictly comply with the preceding may result in the District's recession of the award of the Contract and/or forfeiture of the Bidder's Bid Security. In such event, the District may, in its sole and exclusive discretion elect to award the Contract to the responsible Bidder submitting the next lowest priced Bid Proposal, or to reject all Bid Proposals.
4. Contractors' License. The Bidder certifies that: (i) it is duly licensed, in the necessary class(es), for performing the Work of the Contract Documents, as designated by the District; (ii) that such license shall be in full force and effect throughout the duration of the performance of the Work under the Contract Documents; and (iii) that all Subcontractors providing or performing any portion of the Work are and shall remain properly licensed to perform or provide such portion of the Work.
5. Agreement to Bidding Requirements and Attorneys' fees. The undersigned Bidder acknowledges and confirms its receipt, review and agreement with, the contractual requirements set forth in this Bid Proposal and the Contract Documents. By executing this Bid Proposal herein below, the Bidder expressly acknowledges and agrees that if the Bidder institutes any legal or equitable proceedings in connection with this Bid Proposal and the District is named as a party thereto, the prevailing party(ies) shall recover from the other party(ies), as costs, all attorneys' fees and costs incurred in connection with any such proceeding, including any appeal arising therefrom. This provision shall constitute a binding attorneys' fee agreement in accordance with and pursuant to California Civil Code §1717 which shall be enforceable against the Bidder and the District. This attorney fee provision shall be solely limited to legal or equitable proceedings arising out of a bid protest or the bidding process and shall not extend to or have any force and effect on the Contract for the Work or to modify the terms of the Contract Documents for the Work.
6. Acknowledgment and Confirmation. The undersigned Bidder acknowledges its receipt, review and understanding of the Drawings, the Specifications and other Contract Documents pertaining

to the proposed Work. By submitting this Bid Proposal, the undersigned Bidder certifies that the Contract Documents are, in its opinion, adequate, feasible, accurate and complete for the Bidder to complete the Work in a workmanlike manner within the Contract Time and for the price proposed herein. The undersigned Bidder warrants and represents to the District that it has, or has available, all necessary equipment, personnel, materials, facilities and technical and financial ability to complete the Work for the amount bid herein, within the Contract Time and in accordance with the Contract Documents.

Dated: _____

By: _____
(Signature of Bidder's Authorized Officer or Representative)

(Typed or Printed Name)

Title: _____

**SECTION 00 01 10
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PROCUREMENT AND CONTRACTING REQUIREMENTS

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SPECIFICATIONS

DIVISION 01 -- GENERAL REQUIREMENTS

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DIVISION 02 -- EXISTING CONDITIONS

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06 10 53 - Miscellaneous Rough Carpentry

06 20 00 - Finish Carpentry

06 41 00 - Architectural Wood Casework

DIVISION 07 -- THERMAL AND MOISTURE PROTECTION

07 92 00 - Joint Sealants

DIVISION 09 -- FINISHES

09 21 16 - Gypsum Board Assemblies

09 51 00 - Acoustical Ceilings

09 91 23 - Interior Painting

DIVISION 10 -- SPECIALTIES

10 14 23 - Panel Signage

DIVISION 12 -- FURNISHINGS

12 36 00 - Countertops

DIVISION 22 -- PLUMBING

See Drawings.

DIVISION 26 -- ELECTRICAL

26 05 00 - Common Work Results for Electrical

26 05 01 - Basic Electrical Materials and Methods

26 05 30 - Conduit and Wire

26 05 43 - Underground Ducts and Raceways for Electrical Systems

26 24 16 - Branch Circuit Panelboards and Terminal Cabinets

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27 10 00 - Structured Cabling (New Section)

Addendum 1

27 51 26 - Assistive Listening System

DIVISION 28 -- ELECTRONIC SAFETY AND SECURITY

28 31 00 - Intrusion Detection System (Deleted Section)

Addendum 1

DIVISION 31 -- EARTHWORK

See Drawings.

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DIVISION 32 -- EXTERIOR IMPROVEMENTS

See Drawings.

DIVISION 33 -- UTILITIES

See Drawings.

END OF SECTION

Compton Community College District Bio-Lab in TV-23, Tartar Village tBP/Architecture Project No. 21105.00	Addendum 1	Table of Contents 00 01 10 - 3
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COMPTON COMMUNITY COLLEGE DISTRICT

SECTION 01 01 00
SCOPE OF WORK

RFQ CCC-076
BIO-LAB TV 23

PART 1 - GENERAL

1.01 SECTION INCLUDES:

- A. Work Covered by Contract Documents
- B. Contract Method
- C. Contractor Use of Premises

1.02 WORK COVERED BY CONTRACT DOCUMENTS:

A. **Work Included:** The work to be performed by contractor shall conform to the requirements of all of Division 00 and Division 01 as well as the General Conditions, Special Conditions, and all related Specifications that pertain to this Bid Package scope of work, all sheets in Drawings and other related documents, and includes the furnishing of all supervision, labor, materials, tools, equipment, transportation, plan and services necessary therefore and incidental thereto to complete the project. The work shall consist of, but not be limited to, the following:

A.1. Demolition – Existing Conditions contractor has included all items listed below in their base bid:

- Asphalt cutting for trenching of utilities
- Remove and replace a minimum of three (3) 4' x 8' full sheets of ACX, not CDX, 3/4" plywood and all new replacement flooring (LVT)
- Contractor has included within their base bid a minimum of three (3) interior wall finishes replacement per the plan and specifications
- Post hole digging for ADA parking signs, to include relocating irrigation where necessary
- Exterior finishes (T-111 siding to match existing) of the portable building and restroom building that needs to either be replaced or repaired
- Drinking fountain relocation at the restroom building to allow sufficient space for guardrails
- Contractor will have sole responsibility of moving and installing three (3) bio cabinets located on campus at the district storage facility

A.2. Metals –

- Detail 18 calls for 2" x 2" metal bracket for countertop supports
- Wire mesh security for windows and between TV 22 and TV 23. Contractor to match existing installation including paint to match
- Installation of drinking fountain guardrails at restroom building and all backing requirements

COMPTON COMMUNITY COLLEGE DISTRICT

A.3. – Wood Plastics and Composites

- Contractor to confirm cabinet color availability per Note 12 on A1-1
- Tackable wall surface to match existing
- Drywall to match existing
- Contractor understands that three (3) interior walls will be stripped to allow for all required backing, electrical, plumbing and data (West, North, and East Walls)
- Backsplash to be 6" throughout

A.4. – Finishes

- Contractor to match existing wall assembly of drywall and acoustical panel
- Contractor understands all ceiling tiles are to be removed and replaced
- Exterior finishes that have been disrupted by construction to be painted to match existing

A.7. – Plumbing

- Install new eyewash and sink with water supply and sewer per plans and specifications
- Relocate existing drinking fountain to allow room for handrails at the restroom building

A.9. – Electrical

- Remove existing and install new underground electrical conductors as shown and described on Sheet E1-1, and as detailed and described on sheet E0-1. All equipment and connections shall be as described in the Symbol List, Anchorage Notes and General notes on sheet E0-1. Existing building ground shall be compared to existing ground, and made to comply with detail 1/E0-1 (Modular Building Grounding Detail).
- Furnish and Install New Electrical Panel with all required accessories and weatherproofing as detailed and described on the panel schedules and single lines shown on Sheet E0-1. Care is to be taken to damage as little as possible and exterior finished the installation and connection of the Panels.
- All through floor connections and floor boxes are to be conduited immediately under the existing joists and exposed to the exterior on the north side of the building. They are to be run exposed to the panel location on the east side of the building. All connections and conduits shall be as called for on sheet E0-1.
- All floor power and data boxes are to be per plans and specifications.
- All power and data locations are to be verified with actual OFCI equipment for exact location and alignment. This verification shall be done in drawing and or sketch form which is to be approved by the Architect before actual installation of conduits. Note, all interior walls in these locations is to be removed and the rough electrical installed and approved before reinstallation of new wall board, coverings and cabinets.

A.10. Division 27 Data and Low Voltage

- Contractor to provide new IDF cabinet within TV 23 as described on the electrical sheets. District will provide the switch.
- Contractor has sole responsibility to install 3" galvanized conduit from the IDF in TV 21 through the attic spaces of TV 21, TV 22 and TV 23 to the new IDF location on the northeast corner of TV 23. Contractor will include pull string, fiber, and exterior joint sealant
- Contractor has included all required 5400 Raceway. All other data to be in the wall or under the floor in ¾" conduit

COMPTON COMMUNITY COLLEGE DISTRICT

1. This Contractor is responsible to provide all electrical, framing, structural, low voltage, cutting, patching, painting, relocation of existing electrical and plumbing lines, final clean up to complete the scope of work shown on plans and/or specifications.
2. **This Contractor is to add an allowance of \$30,000 in their base bid.** The allowance shall be listed as a line item in the schedule of values. The allowance is to be utilized at the discretion of the District through the Construction Manager. The Construction Manager shall be informed of any additional work for validation and for authorization from the District to use the allowance or portion of the allowance to do the work. The Construction Manager will document the proposed work (via the AUR form) which will be performed on a time and material basis, not to exceed if such claim is valid. If this allowance is not exhausted by the end of this contractor's contract, a deductive change order will be prepared for any portion of the allowance not used. The allowance shall be listed as a line item on the contractor's schedule of values.
3. All work performed under this contract will be conducted under the Occupied Site Protocol. The buildings and area around TV 23 and the restroom building will be occupied during the construction schedule
4. The Contractor will also be required to provide continuous cleaning of the areas that are being worked in at the end of each day and protect the contents of the areas worked in.
5. The Contractor will ensure that all construction traffic does not impede into the student/staff parking areas. All construction traffic must have flagmen to ensure that there are no disturbances to the campus operations. Early morning (prior to 7AM) deliveries are preferred and /or Friday and Saturdays are better days for large trucks, crane activity, etc.
6. The District will be notified by the Contractor through the Construction Manager a minimum of 48 hours prior to any utility shut down necessary for the work.
7. Contractor storage yard and offices will be located on an existing site to be determined by Construction Manager and Contractor, if necessary.
8. Temporary Facilities: This Contractor will have sole responsibility for providing all required temporary services of toilets, water, safety, construction access, and temporary fencing for this contract. These temporary facilities include but are not limited to self-contained toilet units / sanitary facilities, temporary roads and paved areas, maintaining fire lane access at all times during construction, facilities for dewatering (from any source of water) and drains, project identification and temporary construction signage, trash disposal facilities, environmental protection, storm water control, tree and plant protection, pest control, barricades, traffic control flagman/flagmen with phone/radio, (daily at all points of delivery and/or exiting of materials, waste etc. as required), security, warning signs and lights, temporary enclosures, temporary partitions, temporary fire protection and fire extinguishers.
9. The following is additional information, instructions and detailed requirements for this Contractors scope of work as identified.
 - a. Provide all shop drawings and submittals so as to not cause any delays to any portion of the construction schedule and in compliance with Specification Section 01 43 80. All delays for not complying with the procurement schedule will be referred to delay claims by the District to the Contractor per the general conditions.

This Contractor is to adhere to the following submittal schedule shown as Calendar Days.

COMPTON COMMUNITY COLLEGE DISTRICT

1.	Executed contract.	Five (5) Days from the District's issuance of a Notice to Proceed.
2.	Submittal	Ten (10) Days from the District's issuance of a Notice to Proceed
3.	Shop Drawing Schedule	Ten (10) Days from the District's issuance of a Notice to Proceed
4.	Procurement schedule with all copies of purchase orders and subcontractor agreements.	Ten (10) Days from the District's issuance of a Notice to Proceed
5.	Manufacturing schedule with all long lead and special inspection requirements.	Ten (10) Days from the District's issuance of a Notice to Proceed
6.	Delivery schedule.	Ten (10) Days from the District's issuance of a Notice to Proceed
7.	Detailed construction schedule.	Ten (10) Days from the District's issuance of a Notice to Proceed
8.	Commissioning, Warranty, Closeout and punch list schedule.	Two (2) Days from the District's issuance of a Notice to Proceed.

10. Furnish and install all Demolition scope of work to include but not be limited to: all demolition work as shown on plans and/or as described in the specifications.

11. Furnish and install all Sheet Metal Flashing and Trim scope of work to include but not be limited to: sheet metal materials and fabrications, accessories, prefabricated components, fabrication, and all work, shown on plans and/or specifications.

12. Furnish and install all Firestopping scope of work to include but not be limited to: to complete the scope of work as shown on plans and/or specifications.

13. Furnish and install all Joint Sealants scope of work to include but not be limited to: complete the scope of work as shown on plans and/or specification.

14. Provide all seismic requirements, wall backing, strapping, wire attachments, uni-strut, and all blocking details scope of work on plans and/or specifications.

15. Provide all required sheet metal scope of work at all windows.

16. Provide all cutting, notching and core drilling necessary. Obtain written approval from Architect prior to performing any cutting, notching, core drilling or weakening of any structural member. All costs related to remedial work caused by damage to existing structure that causes a delay to the approved schedule due to unauthorized work will be borne by this contractor.

17. Damage to framing members beyond designed strength or damage to finish surfaces while installing all finishes per contract documents shall be repaired and/or replaced by this contractor without additional cost and without any delay to the construction schedule.

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18. Contractor is responsible for caulking, sealing, weatherproofing, and or building and floor penetrations that have been made.
19. Provide all special insulating, packing, sealing requirements for wall penetrations.
20. Provide all hoisting necessary for entire scope of work.
21. Provide all temporary access as required for the Contractor's entire scope of work. This includes, but is not limited to, scaffolding, catwalks, scissors lifts, pettibones, rigging, cranes, gang ways, etc
22. Provide all necessary seismic expansion joint assemblies scope of work for this bid package per plans and/or specified.
23. Contractor understands and has included in their base price all requirements to ensure that the restroom building remains operational during construction.

B. Existing Site Conditions: This Contractor shall make a thorough examination of the site to determine all existing conditions affecting the work prior to beginning any work under this bid package. All conflicts within the contract documents and existing conditions are to be brought to the attention of the Construction Manager during the bidding process by way of the pre-bid clarification form issued at the job walk. Any claims for changes in scope or claims for additional compensation will not be considered for this contractor's failure to notify the Construction Manager of such a conflict/discrepancy.

C. Location of Site: The site is located at:

Compton College
1111 E. Artesia Blvd.
Compton, CA 90221

GENERAL ITEMS

- a. This Contractor has reviewed the drawings and understands that this project is a General Contractor project.
- b. All costs for repairs due to this Contractor's negligence shall be borne by this Contractor without impact to the approved construction schedule and without additional cost to the District.
- c. Provide all shop drawings and submittals so as to not cause any delays to any portion of the construction schedule.
- d. Provide adequate penetrations, block outs, outlets, openings, cutouts, fixture locations, backing, and access panel openings.
- e. Continuous site cleanup of the construction site is mandatory. This includes sweeping, water removal, and litter/debris removal of the interior & exterior of the building and staging areas. This Contractor shall provide their own debris boxes/dumpsters for the duration of the project, and put debris in own debris boxes and remove said boxes from site at this contractor's own expense prior to the end of the work day or as directed by the Construction Manager. All debris boxes and containers shall be kept free of graffiti at all times. If this Contractor fails to perform daily clean up, the Construction Manager upon written notice to the Contractor shall order that clean up done at this Contractor's expense and adjust Contractors contract accordingly.
- f. This Contractor shall coordinate his work with that of other subcontractors and work by the District. All potential space conflicts are to be identified during the bidding and field investigation process. If a field

COMPTON COMMUNITY COLLEGE DISTRICT

space conflict is encountered, it shall be reworked or rerouted at no additional cost, and only a scope change by the Architect will be considered for contract price adjustment.

g. Request for Information – This Contractor shall make requests for information in writing to the construction manager as they relate to issues regarding interpretation and clarification of the plans and specifications. Construction manager will forward to Architect/District for response. All requests shall be made in a timely manner allowing for a five (5)-calendar day response time so as not to delay the work or overall schedule.

h. Revisions/Updating Contract Documents – This Contractor is responsible to immediately update all field and office sets of contract documents upon receipt of any revised instructions. This includes addenda, revised drawings, “RFI” responses, bulletins, etc. This Contractor shall insert, “cut and paste”, revise with red ink or other suitable methods denoting the most current construction documents. Payments to the contractor shall be withheld until drawings are updated.

i. Record Drawings – This Contractor shall maintain and update all changes in the work on the Construction Managers record drawing set in the field office. All entries must be made and reviewed by the Project Inspector on a daily basis. Payments to the contractor shall be withheld until drawings are updated.

j. Contractor Personnel – The district has complete authority to review and approve selection of this Contractor’s field and office personnel for this project. The district has authority to request replacement of any Contractor personnel for reasons determined by the District. This Contractor shall maintain the same approved personnel throughout the entire duration of the project at the District’s discretion. This Contractor will, at the time of award of work, furnish a list of persons assigned to the Project showing their titles and telephone numbers. Emergency telephone numbers shall also be provided for after hour use by the District. Failure to provide an adequate Project Manager or Superintendent shall result in an assessment of Construction Management costs levied to have the Construction Manager coordinate and manage contractors / subcontractor’s work. In no event shall Construction Manager be liable for any costs associated with this Contractor’s lack of supervision. This Contractor agrees to use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work.

k. Provide timely requests for clarifications and other information to allow reasonable response time and avoid delay to the construction schedule.

l. Schedule shall be in accordance with District approved construction milestone schedule and all subsequent revisions.

m. Provide punch list, punch list repairs/corrections, final clean up, and closeout for this bid package per contract construction schedule. Parties agree that delays to punch list, final clean up, and closeout would constitute a delay in project completion and, therefore, entitles the District to withhold and retain potential liquidated damages per the Contract Documents from this Contractor’s progress payments.

1.03 **CONTRACT METHOD:**

A. Construct the Work under a single Lump Sum Contract with a Schedule of Values.

1.04 **CONTRACTOR USE OF PREMISES:**

A. Contractor shall have use of the premises for the execution of the work as outlined in the staging / phasing plan in the drawings.

B. Work Week and Job Hours – Activities at the Project Site shall be conducted between the hours of 7:00 am and 7:00 pm, Monday through Friday, unless otherwise authorized by the District.

COMPTON COMMUNITY COLLEGE DISTRICT

- C. For the duration of this project, the contractor understands that the district hosts a farmer's market on Wednesday in the afternoon on the North side of Tarter Village. Contractor will vacate the premise by 1 pm to avoid disturbing the farmer's market.
- D. Coordinate use of the premises under the direction of the Construction Manager.
- E. Assume full responsibility for the protection and safekeeping of products and work under this Contract that are stored & installed on the site.
- F. This Contractor shall enforce that all persons working on the site use only non-permanent markers, tapes and tags to indicate construction techniques and instructions, on construction in progress, and on existing construction. This includes markings on exterior and interior of building and on walks, curbs, walls and other site surfaces. Where work is damaged or defaced by use of permanent marking devices, such work will be subject to cleaning, repair or replacement, as the Architect may require.
- G. Move any stored products under This Contractor's control that interferes with the operations of the Owner and/or any other Contractor that is on a separate contract.
- H. Obtain and pay for the use of additional storage or work areas needed for operations.
- I. Theft: If any person working on the contract should engage in theft of money, property, supplies, equipment, food, or any other item, whether from the District's personnel, students, facilities, employees, visitors, or from another of the Contractor's personnel or subcontractors, will be immediately and permanently dismissed from the site.
- J. All District property is drug free, alcohol free, weapons free and graffiti free. This Contractor shall enforce these rules to his crew, subcontractors and suppliers.
- K. All contractors shall be required to provide badges from their firm indicating employee identification while in District property. Contractor shall provide Dept. of Justice background checks with the state for all full-time Superintendents and Foremen for the project, and coordinate / provide all documentation necessary to the District through the Construction Manager. The Superintendent or Foreman shall be responsible for signing in all personnel under his/her authority every day and providing the sign-in sheet to the Construction Manager at the close of every business day. This cost shall be included in the Contractor's bid.

END OF SECTION

SECTION 27 10 00
STRUCTURED CABLING

PART 1 - GENERAL

1.01 SCOPE

- A. Work Included: All labor, materials, appliances, tools, equipment necessary for and incidental to performing all operations in connection with furnishing, delivery, and installation of the work of this Section, complete, as shown on the Drawings and/or specified herein. Work includes, but is not necessarily limited to the following:
 - 1. Examine all other Specifications Sections and Drawings for related work required to be included as work under Division 26.
 - 2. General Provisions and Requirements for electrical work.
 - 3. Section 27 53 00 Clock and Paging System.
- B. Provide Structured Cabling Infrastructure for the following systems:
 - 1. Computer Data Networks
 - 2. Telephone Voice Communications.
- C. Provide IDF rack and Category 6 connectors in outlet boxes and equipment racks as shown on Plans. Using the conduits and pathways shown on the Plans provide the following:
 - 1. Six strands of multimode fiber optic cable from MDF to a new IDF.
 - 2. Six strands of single mode fiber optic cable from MDF to a new IDF.
 - 3. One Category 6 copper cable from new IDF to each Category 6 connector shown on the Plans.
 - 4. Patch panels, patch cords, and accessories at existing MDF and new IDF as required to terminate all cables.
 - 5. Rack space for District-furnished network electronic equipment and file servers.

1.02 SUBMITTALS (ADDITIONAL REQUIREMENTS)

- A. Submit Manufacturer's standard catalog data for each component. The Manufacturer's data sheets shall be marked to indicate the specific item being proposed in cases where the sheet covers several types or sizes of items. The data sheet shall completely describe the proposed item. The submittal shall include a listing of the Outlet Rough-In Requirements for every device and equipment item.
- B. Provide proposed nameplate and outlet identification/color coding system. Indicate proposed identification naming sequence and methods, itemized for review.
- C. Submit Installer qualifications.
- D. Submit extended warranty statements from Manufacturer.

1.03 APPLICABLE STANDARDS

- A. Individual Component Production/Manufacturer Testing and Labeling.
 - 1. The equipment shall be UL listed, labeled, and approved for the application shown in the Contract Documents.
 - 2. ETL (USA) each network systems infrastructure component. Third party testing, documentation and certification for performance compliance of each component with the UL, ANSI, TIA and EIA Applicable Standards specified in the Contract Documents.
- B. The complete system material, equipment, testing, installation, workmanship and installed performance shall comply with the Mandatory Requirements and the Guideline/ Recommendation Requirements of the following latest published version, supplements, latest revision including Addendums and TSB. Both the mandatory and advisory criteria shall be included as Requirements of the Contract Documents:
 - 1. TIA 526 – Optical Power and loss measurements – multimode and single mode fiber.
 - 2. ANSI/TIA-568C – Commercial Building Telecommunications Standards.
 - 3. ANSI/TIA-569B – Commercial Building Standards for Telecommunications Pathways.
 - 4. ANSI/TIA-570A – Residential Telecommunications Standard.
 - 5. ANSI/TIA-598B – Optical Fiber Cabling Color-coding.
 - 6. ANSI/TIA-606A – Administrative Standard for Commercial Telecommunications Infrastructure.
 - 7. ANSI/TIA-607 – Commercial Buildings Grounding and Bonding Requirements for Telecommunications.
 - 8. FCC – FYU/FT6.
 - 9. ISO/IEC 11801
 - 10. California Electrical Code (CEC) including Articles 770 and 800 with ETL verified testing and local Code Jurisdictions.
 - 11. NECA/NEIS, National Electrical Contractors Association, National Electrical Installation Standards:
 - a. 301 – Standard for Installation and Testing for Fiber Optic.
 - b. 568 – Standard for Installing Building Telecommunications Bonding and Grounding.
 - c. 607 – Telecommunications
 - 12. Manufacturer's recommendations for the respective equipment.
- C. The entire completed Electronic Network Systems Infrastructure shall be tested and provide electronic data/network and telephone/voice multi-channel communications latest Revisions, Standards and Addendums for the following protocols:
 - 1. IEEE 802.3/ETHERNET latest revisions:
 - a. 10Mbps 10Base-T, 100Mbps 100Base-Tx, and 1000Mbps (1Gbps) 1000 Base-Tx for copper wire; 100-meter communications pathway distance.
 - b. 10Mbps 10Base-F1, 100Mbps 100Base-FX, 1000Mbps 1000Base-Lx-Sx and 10,000 Mbps (10Gbps) for fiber optics; 550-meter communications pathway distance, OM4 Standard.
 - c. IEEE-802.3 for Power Over Ethernet (POE) and Power Over Ethernet-Plus (POE Plus).

2. FDDI - Distributed data interface on fiber or copper wire, 100Mbps.
 3. 100VG – Any LAN
 4. TIA Serial and Bi-Directional RS-232 and RS-485, including Star-Hub repeaters.
 5. ANSI - TPPMD 55Mbps, 155Mbps and 622Mbps Asynchronous Transfer Mode - ATM.
- D. The complete telephone/voice infrastructure system shall be suitable for the telephone/voice analog and digital communications and VoIP protocols. The system shall be compatible with the telephone/voice equipment installed as part of the Contract.
- E. Installation of all infrastructure equipment, devices, splices, terminations, cables, outlets, etc. shall comply with Manufacturer's recommendations.

1.04 EQUIPMENT QUALIFICATIONS

A. Equipment

1. The Supplier of the equipment shall be the factory authorized Distributor and service facility for the brands of equipment and material provided.
2. Network systems, infrastructure, equipment, and materials shall all be the product of one of the individual same Manufacturers as follows. Typical unless specifically described otherwise:

Belden – 10GX Series; or CommScope-Systimax X10D Series;
 or AMP/Tyco – NetConnect Series.
 or Ortronics/Legrand – NetClear Series.

B. Installation Certification

1. Work and material for cables, cable terminations, outlets and related components for infrastructure systems shall be performed by Certified Installers. The Installer shall be certified by the Respective Product Manufacturers.
2. The Manufacturers of the indicated work and material shall provide an Installer education/training and certification program for the supplied products.
3. The Installers performing the Contract work for the indicated products shall have attended and successfully completed each of the respective Manufacturer's installation training education programs for the specified products.
4. Submit six copies of the Manufacturer's Certifications for each Installer performing the work. The submittal shall be approved by the Owner's Representative prior to initiating any related Contract Work.
5. Contract material installed, and work performed by Installers not complying with these Requirements shall be removed. Removal of work and material not in compliance with these Requirements shall be done at the Contractor's expense, without any additional cost to the Contract and without any additional Contract completion due date extensions. New material and work required to replace the non-complying removed work and material shall be provided at the Contractor's expense, without any additional cost to the Contract and without any additional Contract completion due date extensions.

C. Extended Material and Performance Warranties

1. In addition to the Warranty Requirements described elsewhere in the Contract Documents, provide the following extended material and performance warranties. The Warranty period shall be for not less than 20-years from the Contract Notice of Completion.
2. Warranty scope includes materials and performance for network cables and terminations, network workstation plug-in outlets, and patch panel plug-in outlets, cable splices, and connectors.
3. Repair or replace the defective material with new material at the project premises, to comply with the performance standards outlined in the Contract Documents during the Warranty period.
4. Submit seven copies of proposed Warranty statements, with Shop Drawing submittals.

1.05 ABBREVIATIONS

<u>Abbreviation</u>	<u>Terminology</u>
ACR	Attenuation to Cross Talk.
AHJ	Authority Having Jurisdiction.
Backbone.....	Circuit interconnections between MDF and IDF patch panel locations.
dB	Decibel.
dBm	Decibel referenced to a milliwatt.
Demarc.....	Demarcation location where operational control change occurs, or ownership change occurs.
ft.....	Feet.
GHz	Gigahertz.
Gbps	Gigabits per second.
Horizontal Connection, and/or Horizontal wiring.....	Circuit interconnections between individual workstations outlet location to respective IDF or MDF equipment rack patch panel.
IDF	Intermediate Distribution Frame (horizontal or vertical cross connect) for an individual building area/floor.
km.....	Kilometer-lkm.
kPSI.....	1000 pounds per square inch.
m	Meter = 39.37 inches.
Mbps	Megabits per second.
MDF.....	Main Distribution Frame (central/main cross connect) for multi-building site or for a single individual building.
MHz	Megahertz.
MIC	Micrometer
mm	Millimeter = 10 ⁻³ meter.
NEXT.....	Near end cross talk.
nm	Nanometer = 10 ⁻⁹ meter.
pF.....	Picofarad = 10 ⁻¹² farad.
Provide	Furnish, install, and connect.
RTDE.....	Equipment rack-mount fiber optic termination distribution enclosure, with fiber optic patch panel.

RMSE	Equipment rack mount fiber optic enclosure, splice only (without patch panel).
STP	Shielded individual twisted pairs copper wire.
ScTP	Shield Screened Twisted Pairs copper wire.
um	Micrometer = 10 ⁻⁶ meter.
USE	Universal Splice Enclosure.
UTP	Unshielded twisted pairs copper wire.
VoIP	Voice communications Over Internet Protocol.
WGNA.....	Wide Band Gigabit Networking Alliance.
Workstation or	Spaces remote from the MDF/IDF terminal room/closet,
Workstation location.....	where user equipment interacts and connects with the electronic systems infrastructure equipment connection outlet device.
WMIC.....	Wall Mount fiber optic cable Interface Cabinet.

1.06 MATERIALS AND METHODS

- A. Material and Labor not complying with the Contract Documents shall be removed by the Contractor from the Project Site. Material and labor complying with the Contract Documents shall be provided.
- B. All the cost to remove deficient work and material, provide work and material complying with the Contract Documents and the direct, indirect, incidental damages and Contract delays resulting from complying with these Requirements shall be the sole responsibility of the Contractor and shall be included in the bid price.
- C. System Performance Requirements
 1. The work, performance and type of materials provided as part of the Contract shall comply with the following ANSI/TIA-568C and related Standards for all Electronics Network Systems Infrastructure work and materials described in the Specifications and shown the Drawings:
 - a. Computer/data/voice network systems: Category-6A.
 2. The Electronic Network Systems Infrastructure system shall be based on “star-topology” for MDF to IDF backbone connections and workstation outlet to MDF/IDF horizontal connections.

PART 2 - PRODUCTS

2.01 FIBER OPTICS CABLES

- A. General
 1. Operating temperature range -20 degrees centigrade through +60 degrees centigrade. Cables shall be flame-retarding.
 2. Electronic network systems infrastructure cables that are not installed inside conduit raceways. Electronic network systems infrastructure cables that are installed in concealed spaces including plenums and non-plenums; access floors, ceiling spaces, walls, floor, etc., and/or installed without continuous raceways. The cable insulation and jacket shall be listed and labeled “Limited Combustible Cable” (LC or LCC) and shall comply with the latest published revision of all the following Additional Requirements.

- a. Limited combustible “FHC-25/50” per UL-2424.
 - b. NEC/CEC; CMP, additional listing/labeling where the installation location is an environmental air plenum, fiber optic “FHC-25/50-CMP and/or OFNP/OFCP”.
 - c. NFPA-90A; ceiling cavity plenums, wall cavity spaces and raised floor cavity plenums, limited-combustible.
 - d. NFPA-5000; defines combustible material including wire and cable.
 - e. NFPA-75 computer rooms and electronic equipment rooms.
 - f. NFPA-13; spaces containing “limited combustible loading”.
3. Cables shall qualify as 100% recyclable materials disposal, RoHS regulation complaint.
 4. All fibers in a multi-fiber cable shall be fully operational within the performance characteristics specified prior to and after the cable is installed. The use of spare fibers in the cable to compensate for defective fibers is not permitted. Defective cables shall be removed and replaced with fully functional cables at no additional cost to the Contract.
 5. Cables shall be UL listed, complying with National Electrical Code, ETL tested and certified to comply with Specified Requirements. ANSI/TIA/EIA-568C including related Standards, Amendments, and TSB.
 6. Each fiber shall be individually identified with factory color-coding or factory imprinted label. The outer cable jacket shall be imprinted with date, Manufacturer's model, and catalog number, along with Agency Listing Identification.
 7. Fiber optic cable shall be a product of the same Manufacturer, including portable patch cables.
 8. Cables installed in raceways or conduits below grade, through in-grade manholes or pull-boxes shall be rated for installation in water/wet locations.
 9. Provide overall outer jacket enclosing all fibers inside jacket. Cables containing less than seven fiber strands shall be provided with a color-coded outer jacket (red or orange).
 10. Multimode (50/125)
 - a. 50/125 fiber optic cables optical fibers, graded index multimode optical glass fibers, 50.0-micron fiber core and 125-micron fiber cladding, 0.2 numerical apertures. Optical fibers shall be 100 kPSI proof tested, with maximum 0.7-micron flaw size for dual operation at 850nm and 1300nm wave lengths.
 - b. Minimum bandwidth:

@ 850nm-wavelength	3500MHz per km length
@ 1300nm-wavelength	500MHz per km length
 - c. Maximum attenuation:

@ 850nm-wavelength	3.0dB @ 1km length
@ 1300nm-wavelength	1.0dB @ 1km length
 - d. Laser-optimized "OM4" optical multi-mode standards.
 11. Single mode:
 - a. Fiber optic cables optical fibers, (8.3/125) single mode optical glass fibers, 8.3-micron core fiber and 125-micron fiber cladding, 0.11 numerical apertures. Optical

fibers shall be 100-kPSI proof tested, with maximum 0.7-micron flaw size, for operation at 1310nm and 1550nm wavelengths.

- b. Maximum attenuation:
 - @ 1310nm- wavelength 0.5 dB @ 1km length
 - @ 1550nm- wavelength 0.4 dB @ 1km length
- c. Maximum dispersion
 - @ 1310nm- wavelength 2.8 ps/nm km length
 - @ 1550nm- wavelength 18.0 ps/nm km length
- d. Laser-optimized "OS1"/"OS2" optical single mode standards.

C. Indoor/Outdoor Cables

- 1. The cable shall be fungus resistant, UV resistant, moisture resistant for installation indoors with or without an enclosed raceway and outdoors in underground enclosed raceway/conduit and manholes/pullboxes continuously flooded with water, and in conduits exposed to the sun.
- 2. Each optical fiber shall be primary coated with 500-micron uniform acrylate tight buffered and with elastomeric uniform 900-micron diameter tight buffered, secondary coating. Aramid yarn strength member elements shall be tensioned and symmetrically and uniformly distributed around the fibers, along the length of the cable.
- 3. An overall cable jacket uniformly extruded directly around and mechanically interlocked with the optical fibers/strength members. The extruded jacket shall form internal helical cusped ridges that interlock with the optical fibers and strength members. The interlocking jacket shall not allow cable fibers to move axially within the cable jacket.
- 4. Cables containing more than 24-optical fibers shall be constructed with sub-cable fiber bundles. Each sub-cable bundle shall contain equal quantities of optical fibers, with a separate PVC jacket around each sub-cable. Sub-cable and sub-cable jacket construction shall match the overall Cable Requirements and Jacket Requirements.
- 5. The cable shall be UL listed and comply with CEC and NFPA Requirements for each installation location shown in the Contract Documents. ETL tested and certified to comply with or exceed Specified Requirements.
 - a. CEC -OFNR (Vertical Riser Type Locations) OFNP (UL FHC-25/50 LC Plenum Type Locations and locations where not continuously enclosed inside conduits for entire cable length).
 - b. CEC -OFNG (where continuously enclosed inside conduits for entire cable length).

2.02 FIBER OPTIC FIBER SPLICES

A. General

- 1. Fiber optic cable splices shall be UL listed, complying with National Electrical Code, ETL tested and certified to comply with or exceed Specified Requirements, ANSI/TIA/EIA – 568C including related Standards, Amendments and TSB.
- 2. Fiber optic splices shall be the product of the same Manufacturer.

B. Fusion Splicing

- 1. Fusion splicing shall be performed with equipment providing the following features:
 - a. Cleaving and cleaning optical fiber.

- b. Integral splice optimization verification system with local injection and detection.
 - c. Projection screen optics and fiber core alignment system.
 - d. Fiber cleaning/stripping.
 - e. Cleaning fiber ends and fusing fiber together with an electric arc.
2. Fusion splice insertion loss as measured at the completion of the splice shall be less than 0.1dB at specified cable wavelengths.

2.03 FIBER OPTIC FIBER CONNECTORS AND INTERCONNECTION COUPLERS

A. General

1. The connectors and interconnection couplers shall be compatible, maintain the same Performance Category rating, and be compatible with the corresponding fiber optic cable type attached to the connectors.
2. Fiber optic cable connectors and interconnection couplers shall be UL listed, complying with National Electrical Code, ETL tested and certified to comply with or exceed Specified Requirements. Connectors and couplers shall comply with ANSI/TIA/EIA-568C, related Standards, Amendments, TSB, and TIA/EIA-Fiber Optic Connector Intermateability Standard (FOCIS) documentation.
3. Fiber optic connectors and couplers shall be the product of the same Manufacturer.
4. Shall be UL listed and comply with UL94V-0.
5. Color code connectors for fiber optic cables to match the respective fiber optic strand/jacket color.

B. Fiber Optic Fiber Connectors

1. LC – Small Form Factor (SFF) termination connector
 - a. Ceramic oxide 1.25mm ferrule. Mechanical durability not less than 500-mating cycles. Insertion loss of mated connector shall be less than 0.3dB at specified wavelengths.
 - b. Strain relief boot, long boot type unless indicated otherwise, short or angled boot type to match the connector installation application. Provide dust cover cap for each connector.
 - c. Locking type to automatically align mating fibers in the fiber cable and prevent accidental rotation and pullout.

C. Fiber Optic Fiber Interconnection Couplers

1. Interconnection couplers shall be “like-to-like” compatible and shall provide “plug-in” coupling of two fiber optic cable connectors terminated with fiber optic fibers front-to-rear “in-line” together. The coupler shall provide interlocking, automatic optical self-alignment of two mating fiber optic connectors.
2. The centerline to centerline spacing of the interconnection couplers shall allow removal and insertion of portable patch cords, fiber cable connectors for both “single” and “duplex” type fiber adapter connectors without interfering with adjacent connectors.
3. Patch panel mounted interconnections couplers shall be factory pre-mounted to a modular nominal 0.09-inch-thick metal panel, couplers aligned and anchored on the plate.

- a. The metal panel shall be predrilled for standard EIA mounting in high-density 19-inch-wide metal patch panel frames.
4. Interconnection couplers in workstation outlets shall be installed in outlet boxes with cover plates.
5. Provide removable dust caps for the front side of each coupler.

2.04 FIBER OPTIC FIBER DISTRIBUTION ENCLOSURES

A. General

1. Fiber optic fiber distribution enclosures shall be UL listed, complying with National Electrical Code, ETL tested and certified to comply with or exceed Specified Requirements, ANSI/TIA/EIA – 568C including related Standards, Amendments and TSB.
2. Fiber optic fiber distribution enclosures shall be the product of the same Manufacturer.

B. Equipment Rack Mount Fiber Optic Termination Distribution Enclosure - RTDE

1. The RTDE enclosure shall be mounted in an EIA Standard 19-inches wide enclosed or open frame equipment rack assembly. The RTDE enclosure shall be metal, painted finish, Manufacturer's standard color.
2. The RTDE shall provide the following self-contained functions internal to the RTDE assembly.
 - a. Fiber cable termination.
 - b. Fiber cable "pig-tail" splicing.
 - c. Fiber cable patch panel.
 - d. Fiber Cable Management, training, and strain relief.
 - e. Individual fiber and patching port identification numbers, color-coding of incoming trunk and out-going distribution fiber ports.
 - f. Plug-in fiber optic interconnection couplers for port-to-port patching with portable fiber optic patch cords.
3. Fiber splice-drawers:
 - a. Horizontal sliding metal drawers adjustable to approximately 30-degree angle when fully open, and removable for easy access. Each drawer shall contain two fiber optic splice trays with tray holders.
 - b. Drawers shall stack vertically one above the other in the RTDE and allow sufficient slack in all fiber cables for removal of the drawer and splice trays.
 - c. Provide one sliding drawer and two splice tray assemblies for each group 24-individual fibers or fewer fibers per group) of fiber optic fibers terminated in the equipment rack, but in no case provide no fewer than two sliding drawers with splice tray assemblies in each RTDE.
4. Fiber cable patch panel
 - a. Metal panel shall provide a patch port for each fiber consisting of metal panel mounted fiber optic interconnection couplers for each fiber optic fiber indicated to be terminated at the RTDE.
 - b. The fiber optic fiber interconnection coupler shall be provided to match and be compatible with the fiber cable connectors. Quantity shall match quantity of terminated fibers, unless indicated otherwise on the equipment rack schedules.

- c. Nominal panel thickness 0.09 inches.
 - d. Provide a minimum of sixteen unused spaces for additional couplers in the patch panel.
5. Nominal height of the RTDE shall not be exceeded, as follows:
- | <u>Quantity of Patch Ports</u> | <u>Quantity of Splice Drawers</u> | <u>Nominal Height</u> |
|--------------------------------|-----------------------------------|-----------------------|
| 24 | 2 | 11 inches |
| 48 | 2 | 11 inches |
| 72 | 3 | 14 inches |
| 144 | 6 | 28 inches |
- C. Equipment rack mount fiber optic, splice only (for use only where fiber patch panel is not required) enclosure - RMSE
- 1. The RMSE enclosure shall mount in an EIA Standard 19-inches wide enclosed or open frame rack assembly. The enclosure shall be metal, painted finish, Manufacturer's standard color.
 - 2. The RMSE shall provide the following self-contained functions internal to the RMSE assembly:
 - a. Fiber cable splicing for "thru splicing" of fiber optic cables where the cables do not terminate in the equipment rack.
 - b. Fiber Cable Management, training, and strain relief.
 - 3. Fiber splice drawers
 - a. Horizontal sliding metal drawers adjustable to approximately 30-degree angle when fully open and removable for easy access. Each drawer shall contain two fiber optic splice trays with splice tray holders.
 - b. Drawers shall stack vertically one above the other in the RMSE and allow sufficient slack in all fiber cables for removal of the drawers and splice trays.
 - c. Provide one sliding drawer and two fiber optic splice tray assemblies for each group (24-individual fibers or fewer fibers per group) for fibers optic fiber routed through but not terminated in the equipment rack, but in any condition provide no fewer than two sliding drawers with splice tray assemblies in each RMSE.
 - 4. Nominal height of the RMSE shall not be exceeded, as follows:
- | <u>Quantity of Thru Splices</u> | <u>Quantity of Splice Drawers</u> | <u>Nominal Height</u> |
|---------------------------------|-----------------------------------|-----------------------|
| 24 | 2 | 4 inches |
| 48 | 2 | 4 inches |
| 72 | 4 | 8 inches |
| 96 | 4 | 8 inches |

2.05 COPPER WIRE CABLES (TWISTED PAIRS)

- A. General
 - 1. Conductors shall be copper wire, individually insulated and color-coded, with multiple conductors arrange in twisted pairs.
 - 2. An overall non-conductive jacket shall encase the copper wires and any shielding (where shielding is specified) shall also be encased by the jacket.

3. Cables shall be UL listed, complying with CEC – California Electrical Code, National Fire Protection Agency and NFPA Requirements for each installation location shown. ETL tested and certified to comply with or exceed Specified Requirements.
 - a. CEC – MPP/CMP, FHC-25/50 (plenum type locations and locations where not continuously enclosed inside conduit).
 - b. CEC – MPR/CMR (Vertical riser type locations).
 - c. ANSI/TIA-568C; including related Standards, Amendments, and TSB.
4. Electronic network systems infrastructure cables that are not installed inside conduit raceways. Electronic network systems infrastructure cables that are installed in concealed spaces including plenums and non-plenums; access floors, ceiling spaces, walls, floor, etc., and/or installed without continuous raceways. The cable insulation and jacket shall be listed and labeled “Limited Combustible Cable” (LC or LCC) and shall comply with the latest published revision of all the following Additional Requirements.
 - a. Limited combustible “FHC-25/50” per UL-2424.
 - b. CEC; CMP, additional listing/labeling where the installation location is an environmental air plenum, copper wire “FHC-25/50-CMP”.
 - c. NFPA-90A; ceiling cavity plenums, wall cavity spaces and raised floor cavity plenums, limited-combustible.
 - d. NFPA-5000; defines combustible material including wire and cable.
 - e. NFPA-75 computer rooms and electronic equipment rooms.
 - f. NFPA-13; spaces containing “limited combustible loading”.
5. Cables shall qualify as 100% recyclable materials disposal, RoHS regulation complaints.
6. Cables installed in air plenums, air handling spaces and cables installed without raceway or conduit shall also be UL listed and labeled for installation in air plenums.
7. The outer cable jacket shall be imprinted with date, Manufacturer’s model and catalog number and agency (AHJ) listing identification.
8. Cables installed in raceways or conduits below grade, through in-grade manholes and pullboxes shall be rated for installation in water/wet locations.
9. Copper wire Electronic Network Systems Infrastructure cable shall be a product of the same Manufacturer, including portable patch cables.
10. The outer jacket of cables with less than nine pairs of conductors shall be color-coded. The jacket color shall be different for each system type; multimedia; telephone/voice; computer/data network; and fiber cable jackets.
11. 300-volt RMS insulation material for each data conductor shall be the same material; shall be the same electrical characteristics and shall be the same dielectric constant, for all data conductors contained within the respective common cable jacket, along the entire installed length of the cable. Data cables employing differing insulation materials for individual data conductors contained within a common cable jacket are not acceptable and shall not be provided.
12. Propagation and “Skew” Rate
 - a. Skew rate (nominal velocity of propagation delay) between any twisted pair in a combination of four twisted pair conductors grouped in the same cable, shall not exceed 35-nano seconds between any wire pair contained in the conductor group,

and as required by the cable Category rating, over a cable length of 328-feet (100 meters), for all frequencies up to the cable maximum frequency rating.

b. Nominal velocity of propagation, exceeding 70% of the speed of light.

B. Category-6 Computer/Data Cables – UTP

1. Category-6 cables shall be tested and shall pass the ANSI/TIA test recommendations for Category-6.

2. Operation Characteristics:

a. Wire size 23AWG solid copper (23AWG stranded copper for portable patch cables)

b. Quantity of twisted pairs as indicated but in no case less than 4- twisted pairs

c. Impedance 100 OHM \pm 15%, 1-250MHz

d. Maximum Signal Attenuation Per 328-feet (100 meters).

2.0dB @ 1MHz
3.8dB @ 4MHz
5.3dB @ 8MHz
6.0dB @ 10MHz
7.6dB @ 16MHz
8.5dB @ 20MHz
9.5dB @ 25MHz
10.7dB @ 31.25MHz
15.4dB @ 62.5MHz
19.8dB @ 100MHz
29.0dB @ 200MHz
32.8dB @ 250MHz

e. Mutual Maximum Capacitance of Any Pair 5.0nF/100m

f. Worst Pair "NEXT" Loss per 328-feet (100 meters)

74.3dB @ 1MHz
65.3dB @ 4MHz
60.8dB @ 8MHz
59.3dB @ 10MHz
56.2dB @ 16MHz
54.8dB @ 20MHz
53.3dB @ 25MHz
51.9dB @ 31.25MHz
47.4dB @ 62.5MHz
44.3dB @ 100MHz
39.8dB @ 200MHz
38.3dB @ 250MHz

g. Blue in color.

2.06 COPPER WIRE OUTLET CONNECTORS

A. Connectors shall be Category 6 complying with ANSI/TIA 568C, female modular jack 8-position/contact "RJ-45" style, related Standards, Amendments.

B. Connectors shall comply with FCC part-68 Subpart F for gold plating.

C. Shall be UL listed and shall comply with UL94V-0.

D. Blue in color.

2.07 COPPER WIRE PATCH PANELS

A. General

1. Copper wire patch panels shall be UL listed, complying with California Electrical Code, ETL tested and certified to comply with or exceed Specified Requirements, ANSI/TIA/ EIA-568C including related Standards, Amendments and TSB.
2. Copper wire patch panels shall be the product of the same Manufacturer.

B. Equipment Rack Mounted Patch Panel

1. Standard EIA 19-inches wide metal panel, Manufacturers standard color. Pre-punched for copper wire outlet connectors. Panel shall mount on an EIA Standard 19 inches wide enclosed or open frame equipment rack assembly. Nominal 24-copper wire outlet connectors in a horizontal row, quantity of rows as required for total quantity of connectors. Provide not less than two spare empty rows for future copper wire outlet connectors.
2. The patch panel shall provide the following self-containing functions.
 - a. Copper wire cable termination including conductor/shield termination and strain relief.
 - b. Plug-in copper wire outlet connectors for port-to-port patching with copper wire portable patch cords.
3. Patch panel height shall be based on the quantity of copper wire outlet connectors described plus the specified space for future outlets and shall not exceed the following dimension height:

<u>Outlet Quantity</u>	<u>Nominal Patch Panel Height</u>
1-24	3.5 inches
25-48	7 inches
49-72	14 inches
73-96	21 inches

4. Horizontally mounted, cable support metal bracket shall be provided for each 24-outlet/connector groupings. The brackets shall be bolted to the equipment rack located at the backside of the patch panel; the brackets shall support and provide strain relief for each incoming copper wire cable connecting to the patch panel.
5. The copper wire connector installed in the patch panel shall be the same configuration, Manufacturer and type as the corresponding copper wire connector provided in the remote workstation outlet locations connecting to the respective patch panel outlet, unless indicated otherwise.

2.08 WORKSTATION OUTLETS

A. General

1. Engrave outlet cover plates with the port number corresponding to the port number at the respective terminal block, patch panel, or head-end equipment.
2. The outlet cover plates shall be factory pre-punched and formed to accommodate the installed outlet connector with attachment screws.

3. Workstation outlets shall be UL listed, complying with California Electrical Code, ETL Tested and Certified to comply with or exceed Specified Requirements, ANSI/TIA-568C including related Standards, Amendments and TSB.
 4. Workstation outlets shall be the product of the same Manufacturer.
- B. Computer/Data Workstation Copper wire Outlets
1. The outlets shall be the same configuration and type as the corresponding connector provided in the copper wire patch panel outlet, unless noted otherwise.
 2. ANSI/TIA-568C, and related Standards, Addendums and TSB.
 3. The copper wire outlet connectors for twisted pair wire connections in computer workstation outlets shall be universal outlet connector RJ-45 type.
- C. Outlet Boxes
1. General for Low Voltage Outlets Requirements
 - a. Shall be UL-approved and labeled for Life-Safety Appliances.
 - b. UL listed and label for low voltage CEC Class-2 wiring and devices.
 - c. Shall be adjustable to fit into the wall/ceiling and attach into the wall/ceiling thickness at each install location.
 - d. Provide cable "Strain-Relief" attachment and "Sharp-Edge" protection for each outlet cable connections.
 2. Wall mounted
 - a. Flush or surface and size wall mounted outlet box as indicated on the Drawings, but in no case less than 4.69-inches by 4.69-inches by 2.125-inches deep.
 - b. One or two gang wide extension ring for outlet box to extend outlet flush with finish surface, or as noted on the Drawings.
 - c. One or two gang wide cover plate, or as noted on the Drawings.
 3. Inside flush floor boxes and other locations where indicated in the Contract Documents.
 4. Low Voltage Outlets in Non-Fire Rated walls and ceilings
 - a. Outlets for low voltage devices installed (recessed into) walls or ceilings, only where the wall/ceiling is not fire-rated.
 - b. Provide the following for each outlet location
 - 1) Metal outlet box, enclosed type. All locations where one or more conduit(s) are required to connect to the outlet, then only metal outlet box shall be provided.
 6. Low Voltage outlet installed into accessible suspended ceiling with removable ceiling panels.
 - a. Support outlet independent of ceiling supports and ceiling.
 - b. Provide a minimum of three independent hanger wires for each outlet. Attach hanger wires to building structure above ceiling and to outlet.

2.09 EQUIPMENT RACK

- A. New rack in modular building shall be wall mounted swing out type, enclosed with lockable doors and vented side panels, 24-inches W. x 48-inches H. x 24-inches D.

- B. An equipment grounding bus, nominal 19-inches long, UL labeled as a ground terminal bus, shall be provided on each equipment rack.
- C. Cable management shall be provided to train and dress portable patch cords connecting between outlet connectors located in the equipment rack or in adjacent equipment racks.
- D. The assembly shall provide support for the weight of the equipment installed on the rack, but in no case less than 300-pounds of equipment.
- E. Provide Surge Protected plug strip inside rack
- F. Provide pre-drilled mounting holes the entire length of equipment vertical mounting frames, EIA-310D, 19-inches (nominal) wide standard spacing for indicated equipment. Racks shall provide 17.75-inches (nominal) equipment horizontal mounting space between vertical rails.
- G. Equipment racks shall be Manufacturer's standard rust inhibitor primer. Manufacturer's standard color finish paint over primer, unless noted otherwise.

2.10 PORTABLE PATCH CORDS

- A. General
 - 1. Provide portable patch cords for all copper wire cable infrastructure outlets:
 - a. For interconnecting electronic network equipment to electronic network workstation outlets.
 - b. For interconnecting equipment rack patch panel outlet patch locations with each other.
 - c. For interconnecting patch panel outlets equipment racks mounted hubs, switches, routers, telephone equipment, A/V equipment, and access control equipment, etc.
 - 2. Patch cords shall be factory assembled tested and certified with factory terminated plugs at each end. Field terminated portable patch cords shall not be permitted. Terminated plugs shall incorporate integral bending radius limiting molded "boots" and strain relief. Patch cord assemblies shall be rated for "heavy duty", "high abuse" service.
 - 3. Patch cords shall be UL listed, complying with CEC – California Electrical Code, ETL tested and certified to comply with or exceed Specified Requirements. ANSI/T1A 568C related Standards, Addendums and TSB.
 - a. CEC - MPP/CMP/CMR/CMG/MPG for copper wire twisted pair portable patch cords.
 - 4. Patch cords which are not installed shall be delivered to the Owner in cardboard boxes. The patch cords shall be neatly bundled and tied together. Mark each box with quantity and type of cords contained in the box.
 - 5. Patch cords shall comply with the same Cable Communication Performance Requirements, Protocol Requirements and Testing Requirements as the respective infrastructure cables and outlets to which the patch cords are intended to be connected (plug-in). Patch cords shall be the product of the same Manufacturer.
 - 6. The outer jacket of each portable patch cord shall be imprinted with date, Manufacturer's model and catalog number, and AHJ listing identification.
 - 7. Provide a permanent, visible, factory applied identification number on each end of each patch cord. The identification number shall be the same on each end. However, the numbers shall increase sequentially on each patch cord and shall be unique and not

duplicated on other patch cords. Permanently apply the identification numbers on the cable jacket or connectors.

B. Twisted Pairs, Copper Wire Portable Patch Cords

1. Twisted Pairs portable patch cords, general:
 - a. "Male" eight positions modular "RJ" male style jacks install on each end of the patch cord cable. The jack shall be provided with a rear "fin" to prevent the plug tab from snagging when pulled backwards through adjacent wiring.
RJ-45 style "male" jack, typical unless noted otherwise.
 - b. Patch cord cable shall be UTP ANSI-Category 6A rating, shall match respective premise wiring, 4-pair twisted, stranded copper individually insulated wires, thermoplastic jacket over all the wires.
 - c. Connectors shall comply with FCC 68.5 and Part 68 Subpart F.
 - d. Connectors UL listed and shall comply with UL-94V-O.
 - e. Contacts gold plated with not less than a 750 insertion/with drawl cycle rating.
2. Portable patch cord quantities and lengths for connecting port-to-port equipment rack patch panels
 - a. Patch cord quantity: Provide one complete patch cord assembly for each copper wire equipment workstation outlet patch port in the equipment rack patch panels. One-to-one straight through pin-to-pin wiring. Provide additional spare patch cords, quantity equal to 25% of the total quantity of patch cords provided for copper wire computer workstation outlets in the equipment rack patch panels. Cable jacket color shall be yellow:
 - b. Provide the following lengths of copper wire patch cables for copper wire equipment rack patch panel outlets.
 - 1) 2-feet long - 1/3 of total quantity
 - 2) 4-feet long - 1/3 of total quantity
 - 3) 6-feet long - 1/3 of total quantity
3. Portable patch cord quantities and lengths - for connection from equipment workstations to equipment workstation outlets, located remote from equipment racks.
 - a. Patch cord quantity: Provide one complete patch cord assembly for each copper wire workstation outlet located remote from the equipment rack patch panels. Provide additional spare patch cords, quantity equal to 15% of the total quantity of patch cords provided for each copper wire computer workstation outlet. Cable jacket's color shall be black.
 - 1) Infrastructure network outlet segments the pin-to-pin patch cord wiring configuration and jacks shall be compatible with the equipment protocol communications interface, and the respective workstation outlet.
 - b. Provide the following lengths of copper wire patch cables for equipment copper wire infrastructure network workstation outlets. The patch cords shall provide internal cross-over wiring to conform the pin-to-pin connections required between the equipment workstation outlet and the equipment protocol communications interface installed in the respective workstation equipment:
 - 1) 5 -feet long - 30% of total quantity
 - 2) 7 -feet long - 70% of total quantity

4. Portable patch cord quantities and lengths for connection from electronic equipment rack patch panel ports to equipment installed in equipment racks, such as HUB's, servers, switches, router, telephone and concentrator equipment ports. Cable jacket color shall be white.
 - a. Patch cord quantity: Provide one complete patch cord assembly for each copper wire outlet port located in electronic equipment. Provide additional spare patch cords, quantity equal to 25% of the total quantity of the equipment rack equipment ports.
 - 1) The pin-to-pin patch cord wiring configuration and jacks shall be compatible with the respective equipment and patch panel outlets as applicable.
5. Portable patch cord quantities and lengths for connection of equipment requiring customized pin-to-pin wiring configurations and/or customized port connector configurations. Cable jacket color shall be tan.
 - a. Patch cord quantity: Provide one complete patch cord assembly for each outlet port installation as part of the Contract and not identified in any other patch cord descriptions. The patch cords shall be customized and configured to comply with the respective Manufacturer recommendations.
 - b. Provide one patch cord for each port-to-port connection length as required for actual installation condition.
 - 1) Provide 100% spare but not less than one spare patch cord for each custom configuration.

PART 3 - EXECUTION

3.01 STRUCTURED CABLE TESTING (ADDITIONAL REQUIREMENTS)

- A. Fiber Optic Cable
 1. Channel link insertion losses (dB) OLTS.
 2. Channel loop-back attenuation (dB).
 3. Channel signature optical time domain reflectometer OTDR, for installation characterization testing (event and attenuation resolution dead zone at specified wavelengths, shall be less than 10-feet).
 4. Channel continuity and correct point-to-point matching terminals.
 5. Channel propagation delay and propagation speed.
 6. Channel fiber optic mapping, circuit length, and tracing.
- B. Copper Cables
 1. Test for Pass or Fail condition of each channel pathway link. Any Fail result shall be repaired or replaced.
 4. Provide all Test Equipment, Certified Testing Personnel, and setups. Shall comply with ANSI/TIA and Equipment Manufacturer's recommendations and Standards of Practice.
 5. Provide PDF copy of test report to Owner's Representative.
 6. The Contractor shall repair or replace equipment, cables, outlets, connectors, splices, terminations, etc. identified during testing as not complying with the Contract

Documents, without additional cost to the Contract. Retest all replaced or repaired components at Contractor's expense.

3.02 CABLE INSTALLATION

A. General

1. Cables connecting to equipment racks and terminal blocks shall be installed with not less than 6-feet of slack cable between the equipment rack/terminal block and terminal back board. The slack cable shall be coiled and supported on the backboard and/or cable tray.
2. Cables in terminal closets and terminal rooms shall be trained, dressed and racked on the plywood backboards. Provide cable, metal support arms and re-enterable type cable support rings not less than 12-inches on center mounted onto the plywood along the entire length of all cables.
3. Provide separate routing paths on plywood backboards for fiber optic cables, computer data and copper wire cables and telephone/voice copper wire cables and multimedia, audio/video, TV cables. Provide separate routing paths on plywood backboards for shielded copper wire cables and unshielded copper wire cables.
4. Cables shall be routed parallel to floors and walls. Do not route cables diagonally on backboards.

B. Cable Pulling Lubrication

1. Cable pulling lubricants shall be specifically approved by the Cable Manufacturer. The following lubricants shall be used where approved by the Cable Manufacturer.
 - a. Slip X -300, American Colliod Co.
 - b. Bishop #45, Bishop Electric.
 - c. MacLube CA51, MacProducts.
 - d. Minerallac H2B, - Minerallac Electric.
 - e. Winter grade #7437-PC, General Machine Products.
 - f. Gel-lube 7/5, Cable associates.
 - g. Polywater, A, C, G - American Polywater.
2. Lubricants shall be continuously applied as cable enters raceway.

C. Cable Installation:

1. Do not pull conductors until factory test reports have been submitted and reviewed.
2. The minimum bending radius for copper wire cables shall be ten times the cable outside diameter. The maximum pulling tension and minimum bending radius shall not violate Manufacturer's recommendations.
4. Cables installed in manholes and pullboxes on terminal backboards shall be installed on wall mounted cable support racks.
5. Provide a full 360-degree loop of cable around manhole and pullbox interiors.
6. The attachment of pulling devices directly to the cables shall be with individual split mesh basket grips. Direct connection for pulling cables to cable fibers and copper wires shall not occur. Securely tape cable ends to prevent moisture or pulling compound from penetrating cable.

7. The attachment of the pulling device to the cable basket grips shall be made through a swivel connector.
8. The Contractor shall ensure that the cables are fed straight into the raceway taking care to avoid short bends, sharp edges, and cable "crossovers".
9. All lashings used for temporary bunching of the individual cables shall be removed before the cables enter the raceway.
10. Cables shall be "pulled through" or pulled from a "center of run pull" without splices or terminations and minimize cable rolling tension. Lead-out the cables at all manholes, pullboxes and conduits taking care to feed them in again by hand for the next portion of the cable run.
11. For each cable-pull where a cable direction change is required, flexible feed-in tubes, pullout devices, multi-segmented sheaves etc. shall be used to insure proper cable pulling tensions and side wall pressures. Cables shall not be pulled directly around a short right-angle bend. Any device or surface the cable comes in contact with when under pull-in tension shall have a minimum radius 50% greater than the final specified minimum installed cable-bending radius. The maximum possible size radius sheaves and feed-in tubes, usable in the available working space, shall be provided in all situations, to insure the minimum possible cable sidewall pulling pressure. Do not use devices with multi-segment "roller" type sheaves.
12. Cable lengths over 50-feet shall be machine pulled not hand pulled into and through all raceways. Cables shall be pulled in a continuous, smooth operation without jerking or stop-start motion after initiation of pull. Maximum cable pulling speed shall be less than 50-feet per minute. Minimum cable pulling speed shall be greater than 15-feet per minute.
13. Cables shall be pulled straight into or out of the raceway without bends at the raceway entrance or exit. Pull in cable from the end having the sharpest bend (i.e., bend shall be closest to reel). Keep pulling tension to minimum by liberal use of lubricant, hand turning of reel, and slack feeding of cable into duct entrance. Employ not less than one man at reel and one at manhole or pull-hole during this operation. Cables shall be pulled directly from cable reels.
14. Cables shall be trained or racked in trenches, vaults, manholes and pull boxes with consideration given for the minimum specified bending radius of the cable and the possibility of cable movements due to load cycling. The cables shall be racked and supported in such a manner that adequate space is allowed for splicing and the cables shall always be fanned out from the duct or conduit so as not to cross other ducts, conduits or cables. To prevent damage from falling objects or personnel entering the manhole the cables shall not pass directly under the manhole opening.
15. Cable shall be supported in manholes, pullboxes and vaults a minimum of 18-inch on center with cable racks. Provide hot dip galvanized, T-slot racks and support arms. Secure cables to racks with porcelain supports for each cable on the racks. Loosely lash cables to racks. Splices shall be directly supported, on racks. Do not install cables more than one feeder on the same rack hook.
16. Cables shall be routed the long way around manhole, pull-hole, etc. with not less than a full 360-degree loop around the perimeter walls unless noted otherwise.

17. Existing conductors shall be protected at all times when Contract Work occurs in the same area, including but not limited to pullboxes, vaults manholes, cable trenches etc. Provide temporary electrical insulating blankets and barriers over existing conductors to reduce the possibility of accidental mechanical damage to existing conductors.
18. Where cable tray is provided, all cables shall be routed and trained on the cable tray. The cables shall enter the cable tray and route along the tray prior to entering any equipment racks or computer works station outlets.
19. A dynamometer to measure pulling tension shall be used on all cable runs in excess 200-feet or with more than 180 degrees in bends. The actual pulling tension value shall be calculated and recorded for each pull.
20. Bends shall not be made in cable splices or terminations.
21. The portions of cables installed without raceways or cable tray supports shall be installed with metal "J-hook" cable supports.
 - a. The "J-hooks" shall provide multi-tiered "J" shaped hooks, with wide flat cable support base (0.5 inch wide minimum) and smooth rounded corners. Specifically designed for copper wire and fiber optic infrastructure cable support as manufactured by Erico Inc.
 - b. The individual "J-hook" attachment to the building structure shall be metal, "beam clamp", "hanger rod", clevis hanger styles as applicable for each attachment location.
 - c. Install "J-hooks" not more than 48-inches on center along the entire cable length and within 6 inches of each cable change in direction. Locations of "J-Hooks" and tension of cables shall insure between 4-inches and 6-inches of cable sag between adjacent hooks. Secure cables to "J-hooks" with re-enterable cable tie wraps. "J-hook" supported cables, bundle cables together with re-enterable tie wraps not less than 12-inches on center along the entire cable length.
 - d. Each J-hook shall not support more than twelve individual cables. Provide multiple "tiered" J-hooks for additional cable quantities at each location.
 - e. "Bridle rings" shall NOT be used to support cables.
 - f. Cables shall not lie directly on nor attach to ceilings, ceiling hangers, lighting fixtures, air ducts, piping, or equipment.
22. Re-enterable cable tie wraps shall be, "limited combustible" and air plenum rated, reusable, color-coded. Chemically and mechanically compatible with the respective cables and installation locations. Shall allow multiple open-close operations for securing cables.
23. Electronic network cables containing non-dielectric components shall be installed with a minimum separation from other electrical power conductors and equipment as follows:

<u>Equipment Type</u>	<u>Minimum Separation</u>
a. Lighting fixtures	12 inches
b. Electric motors, electric solenoids, electric Heaters	40 inches
c. Transformers	48 inches
d. Circuits over 100 volts to ground, in metallic raceways	5 inches
e. Circuits over 100 volts to ground, in non-metallic raceway or without any raceway	12 inches

- f. Circuits over 100 volts to ground, suspended on overhead pole lines 48 inches

D. Movement, Storage, and Handling of Cable:

1. Reels of cable shall not be dropped from any height, from trucks or other transporting equipment.
2. Lift and move cable reels using following methods:
 - a. Crane or boom type equipment-insert shaft (heavy rod or pipe) through reel hubs and lift with slings on shaft, with spreader or yoke to reduce or avoid sling pressure against reel head.
 - b. Forklift type of equipment may be used to move smaller, narrower width reels. Fork times should be placed so that lift pressure is on reel heads, not on cable, and shall reach all the way across reels so lift is against both reel heads.
 - c. Reels may be moved short distances by rolling. Reels shall be rolled in the direction indicated by arrows painted on reel heads. Surfaces over which the reels are to be rolled shall be solid clear of debris, and also clear of protruding stones, humps, etc. which might damage the cable if the reel straddles them.
3. Storage of reels of cable:
 - a. Cable ends shall be sealed prior to shipment to prevent moisture entry into cable. Cable ends shall remain sealed at all times including during installation. Where ends seals are removed, reseal cable ends by stripping cable finishes back 2-inch down to insulation. Then apply four layers of an insulating tape crisscross over the cable end and carry back at least 4-inches onto cable outer finish. Add a containing cover of two layers of vinyl electrical tape completely over the end seal.
 - b. Cable reels shall be shipped with factory applied lagging (protective cover) left in place until removal is absolutely necessary. Additional covering such as tarpaulin, plastic sheeting, etc. shall be used if cable is to be stored outdoors.
 - c. Store reels of cable on a firm surface, paved, or on planking to prevent settling into soft ground.
 - d. Use fencing or other barriers to protect cables and reels against damage by vehicles or other equipment moving about in the storage area.

3.03 CABLE SPLICES

A. General

1. Splice(s) in cables shall occur only in the following locations:
 - a. Pullboxes or manholes.
 - b. Terminal backboard, closets or rooms.
 - c. Equipment racks.
 - d. Wall mounted interface cabinet.
 - e. Do not splice cables in conduit, cable tray, raceways, or plenums.
2. Polarity and color-coding shall be maintained consistent through splices, terminations, and outlets for the entire electronic network system.
3. Cable splices in outdoor areas, manholes, pull holes shall be watertight, inside universal splice enclosures.

B. Copper Wire Splice

1. Copper wire extending from infrastructure workstation outlets to respective equipment rack patch panel outlets shall not be cut or broken and shall be continuous end to end.
2. Copper wire extending from telephone/voice workstation outlets to respective terminal blocks shall not be cut or broken and shall be continuous end to end.
3. Continuity of cable shields (where occurs), polarity and color-coding shall be maintained across all splices.
4. Copper wire splices shall be performed to maintain the data transmission rates specified for the entire respective system.

3.04 CABLE TERMINATIONS

A. General

1. Infrastructure workstation outlets connecting to ports in patch panels and terminal blocks shall be grouped together in the patch panel and terminal block by outlet function, room location and building area location (i.e., Group #1 Room #120 first floor; Group #2 Room 200 east wing, etc.). Each group shall be identified with engraved (etched) nameplates indicating grouping identification and individual port numbers.
2. Polarity and color-coding of cable connections at splices, terminations, and outlets shall be consistently maintained throughout the entire electronic network system.
3. Terminate all cables onto respective outlets connectors, interconnection couplers and terminals. Terminations shall comply with Manufacturer's recommendations, ANSI/TIA/EIA-568C related Standards, Amendments, and TSB.
4. Fiber optic cable fiber strands and copper wire cable conductors terminated at outlet locations shall be connected with a strain relief device attached to the cable jacket to prevent cable tension from being transmitted to the termination connectors.
5. Cable terminations shall be performed to maintain the data transmission rates specified for respective entire system.

B. Fiber Optic Terminations

1. Individual fiber optic fibers shall each be terminated with a fiber optic fiber connector. The connector for each fiber shall be "plugged" into separate fiber optic fiber inter-connection couplers on the rear of each respective outlet.
2. Each fiber optic termination ferrule shall be inspected, after completion of the termination, visually with a fiber optic inspection microscope and an interferometer, to insure fiber "undercut", "protruding" fiber, over polish and under polish of fiber termination ends does not exist in the finished termination ferrule.
3. Fiber optic cables terminated between two fiber optic patch panels located in separate equipment racks. The fibers shall be paired together (Duplex-Pair) for purposes of identification and connection transmit/receive pair. Each pair of connectors for fibers shall be "plugged" into separate, physically adjacent fiber optic fiber duplex-pair inter-connection couplers at each patch panel. The horizontal/vertical arrangement of paired patch panel fiber couplers shall match at both ends of the fiber cable.

4. Fiber optic cable fiber strands terminated at patch panels shall be installed with a minimum of 540 degrees of each fiber strand looped around the splice tray individual fiber "training" rings.
 5. Fiber optic cable connecting from infrastructure workstation outlet to a fiber optic patch panel.
 - a. The connectors for fibers shall be "plugged" into separate, physically adjacent fiber optic fiber interconnection couplers.
 - b. The patch panel coupler shall be color coded to identify the polarity of the transmitting and receiving optical fibers.
 6. Fiber optic cable connections at workstation outlets.
 - a. The connectors for fibers shall be "plugged" into separate physically adjacent fiber optic fiber interconnection couplers in the outlet.
- C. Copper Wire Terminations
1. Where occurs, the shield on metal shielded copper wire shall be terminated and connected to the shield grounding connection at each termination point.
 2. Twisted wire pairs shall not be untwisted for a length of more than 0.4 inches at any location and the cable jacket shall not be striped back not more than 0.5 inch at any location including splices and terminations.
 3. Unless specifically directed otherwise by the Owner's Representative, Pin assignment for wiring terminations shall comply with ANSI/TIA/EIA 568C type T568A or Type T568B as required for compatibility with the electronic network equipment. The termination type shall be consistent throughout the Project Contract area.
 4. Copper wire terminations shall be performed to maintain the transmission rates specified for the respective entire system.

3.05 IDENTIFICATION (ADDITIONAL REQUIREMENTS)

- A. Identification Tags shall include the following information:
1. Cable name as indicated on Drawings (i.e., HV1, F4, MSB3 etc.).
 2. Installation month and date (i.e., 3/92, 4/78 etc.).
 3. Conductor size conductor type (i.e., loose tube fiber; #24 AWG ScTP Category 5, 200-pair, telephone/voice etc.).
 4. Feeder taps to equipment or building shall also be identified with equipment name or building (i.e., library, SW1, Rack #21, etc.).
- B Identification Tags
1. Tags shall be ⅛-inch thick 98% lead, approximately 2-inches square with chamfered corners. Two holes shall be drilled for attachment to primary cable. Lettering shall be ⅛-inch high, engraved or die stamped. Attach tags to primary cables with two #14 AWG (THWN insulated) solid copper conductors "twist-tied", with insulated CAP wire-nut on the tie-wire ends, to cover sharp edges of tie-wire conductor.
 2. Alternate identification tags, at the Contractor's option in lieu of lead tags. Provide polypropylene tag holders with interchangeable, yellow polypropylene tag with black alphanumeric characters sets. Characters shall be approximately .25-inch high. As manufactured by Almetek Industries "EZTAG" - Ledgewood, New Jersey.

- C. Equipment and Outlet Naming Identification and color-coding shall comply with ANSI/TIA latest revision.
1. Naming method for equipment, outlets, and cables, where a position in the naming string is unused, provide multiple "*****" symbols.
Typical naming string "ADM-02-1141-PP17-1271"
 - a. "ADM" - Abbreviated Building Name or Number (i.e., Administration, B127, etc.).
 - b. "02" - Floor Level #2 or as applicable.
 - c. "1141" - Outlet, Equipment or Terminal Room/Closet name or room number as applicable.
 - d. "PP17" - Terminal Rack Patch Panel Identification.
 - e. "1271" - Individual Outlet or Port Identification.
 2. Connecting hardware color coding shall be as follows:
"Green" - Main central terminal location for entire site.
"White" - Distributed terminal locations other than the main terminal.
"Blue" - Horizontal wiring hardware systems for workstations.

END OF SECTION 27 10 00
060623/212299

LEGEND

- ▲ ACCESSIBLE ENTRY / EXIT
- ▨ EXISTING 20'-WIDE FIRE LANE
NOTE: CONTRACTORS TRAILOR OR WORK AREA SHALL NOT BLOCK ANY PORTION OF ANY FIRE LANE
- AREA OF WORK BOUNDARY LINE
- ⋯ PATH OF TRAVEL (SEE NOTE BELOW) DSA APP. NO.: 03-116878

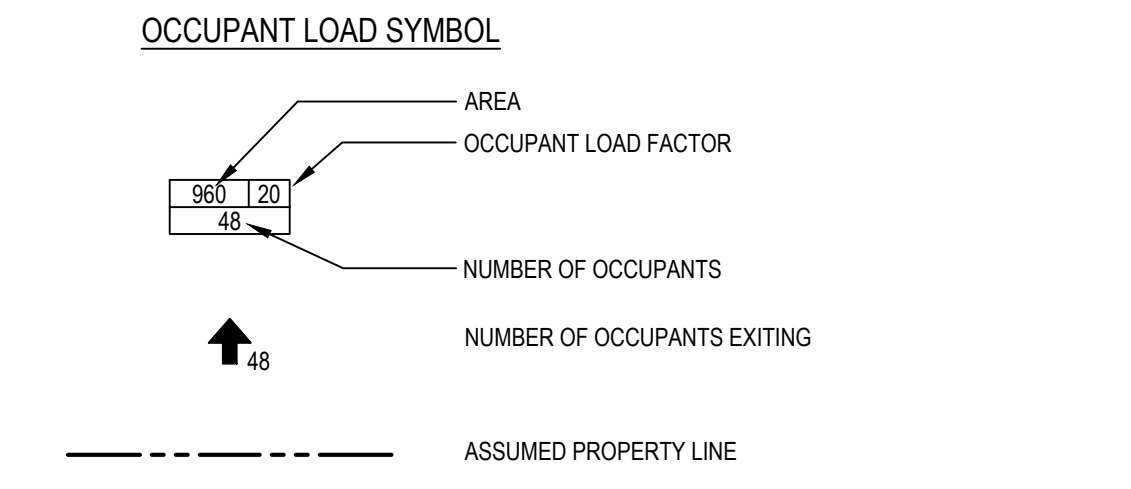
PATH OF TRAVEL DEFINITION

PATH OF TRAVEL (DSA-AC) AN IDENTIFIABLE ACCESSIBLE ROUTE WITHIN AN EXISTING SITE, BUILDING OR FACILITY BY MEANS OF WHICH A PARTICULAR AREA MAY BE APPROACHED, ENTERED AND EXITED, AND WHICH CONNECTS A PARTICULAR AREA WITH AN EXTERIOR APPROACH (INCLUDING SIDEWALKS, STREETS AND PARKING AREAS), AN ENTRANCE TO THE FACILITY, AND OTHER PARTS OF THE FACILITY.

- CBC 11B-302.1 FLOOR AND GROUND SURFACES SHALL BE STABLE, FIRM AND SLIP RESISTANT
- CBC 11B-302.2 CHANGES IN LEVEL OF 1/4" INCH HIGH MAXIMUM SHALL BE PERMITTED TO BE VERTICAL AND WITHOUT EDGE TREATMENT
- CBC 11B-303.3 CHANGES IN LEVEL BETWEEN 1/4" INCH HIGH MINIMUM AND 1/2" INCH HIGH MAXIMUM SHALL BE BEVELED WITH A SLOPE NOT STEEPER THAN 1:2.
- CBC 11B-307.2 OBJECTS WITH LEADING EDGES MORE THAN 27" INCHES, AND NOT MORE THAN 80" INCHES ABOVE THE FINISH FLOOR OR GROUND SHALL PROTRUDE 4" MAXIMUM HORIZONTALLY INTO THE CIRCULATION PATH.
- CBC 11B-403.3 THE RUNNING SLOPE OF WALKING SURFACES SHALL NOT BE STEEPER THAN 5% (1:20). THE CROSS SLOPE OF WALKING SURFACES SHALL NOT BE STEEPER THAN 2% (1:48).

DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE STATEMENT:
THE P.O.T. IN THESE CONSTRUCTION DOCUMENTS IS COMPLIANT WITH THE CURRENT APPLICABLE CALIFORNIA BUILDING CODE ACCESSIBILITY PROVISIONS FOR PATH OF TRAVEL REQUIREMENTS FOR ALTERATIONS, ADDITIONS, AND STRUCTURAL REPAIRS. AS PART OF THE DESIGN OF THIS PROJECT, THE P.O.T. WAS EXAMINED AND ANY ELEMENTS, COMPONENTS OR PORTIONS OF THE P.O.T. THAT WERE DETERMINED TO BE NON-COMPLIANT 1) HAVE BEEN IDENTIFIED AND 2) THE CORRECTIVE WORK NECESSARY TO BRING THEM INTO COMPLIANCE HAS BEEN IDENTIFIED WITHIN THE SCOPE OF THIS PROJECT'S WORK THROUGH DETAILS, DRAWINGS AND SPECIFICATIONS INCORPORATED INTO THESE CONSTRUCTION DOCUMENTS. ANY NON-COMPLIANT ELEMENTS, COMPONENTS OR PORTIONS OF THE P.O.T. THAT WILL NOT BE CORRECTED BY THIS PROJECT BASED ON VALUATION THRESHOLD LIMITATIONS OR A FINDING OF UNREASONABLE HARSHNESS ARE SO INDICATED IN THESE CONSTRUCTION DOCUMENTS.

DURING CONSTRUCTION, IF P.O.T. ITEMS WITHIN THE SCOPE OF THE PROJECT REPRESENTED AS CODE COMPLIANT ARE FOUND TO BE NON-COMPLIANT BEYOND REASONABLE CONSTRUCTION TOLERANCES THEY SHALL BE BROUGHT INTO COMPLIANCE WITH THE CBC AS A PART OF THIS PROJECT BY MEANS OF A CONSTRUCTION CHANGE DOCUMENT.

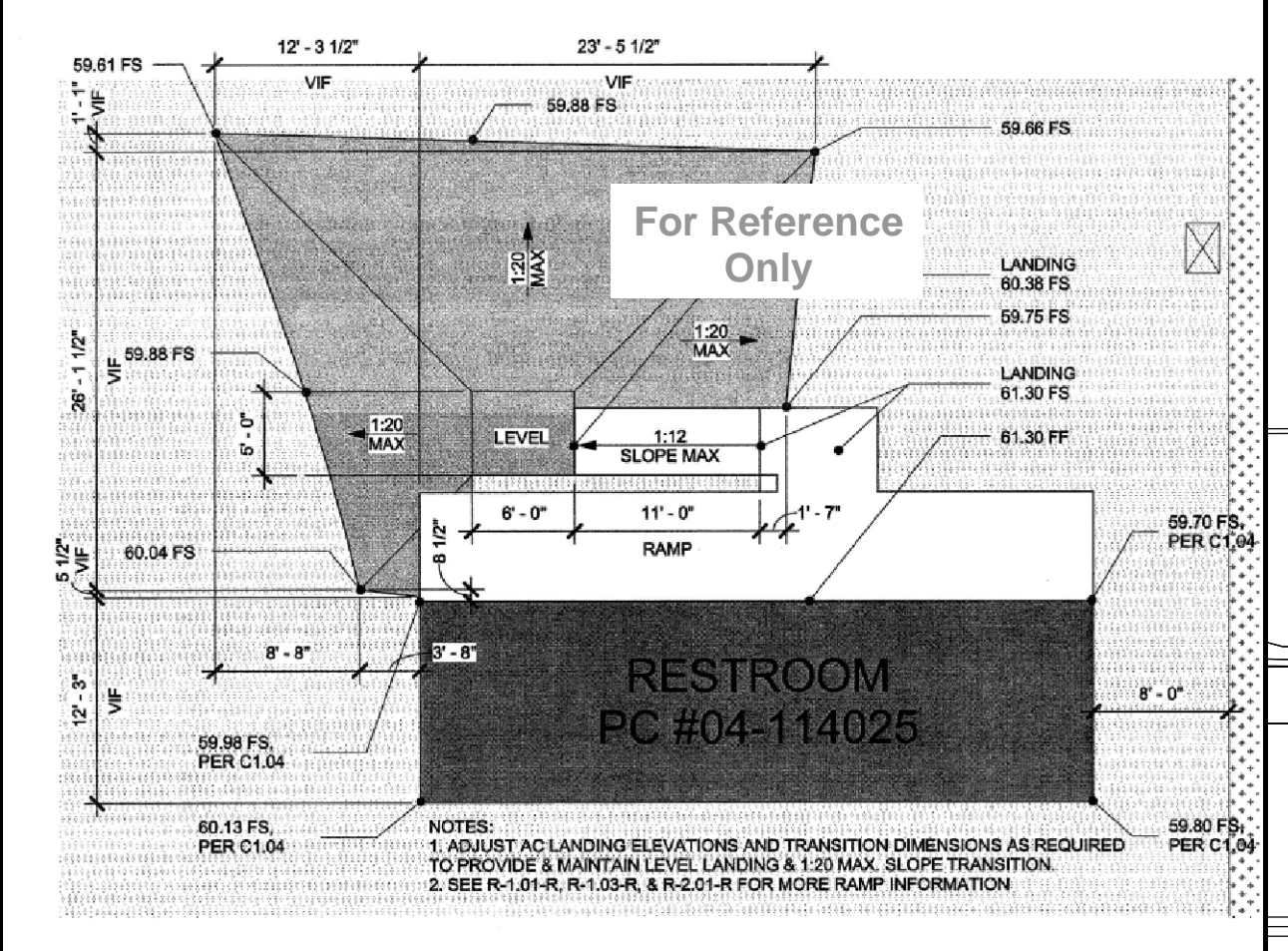


CODE ANALYSIS

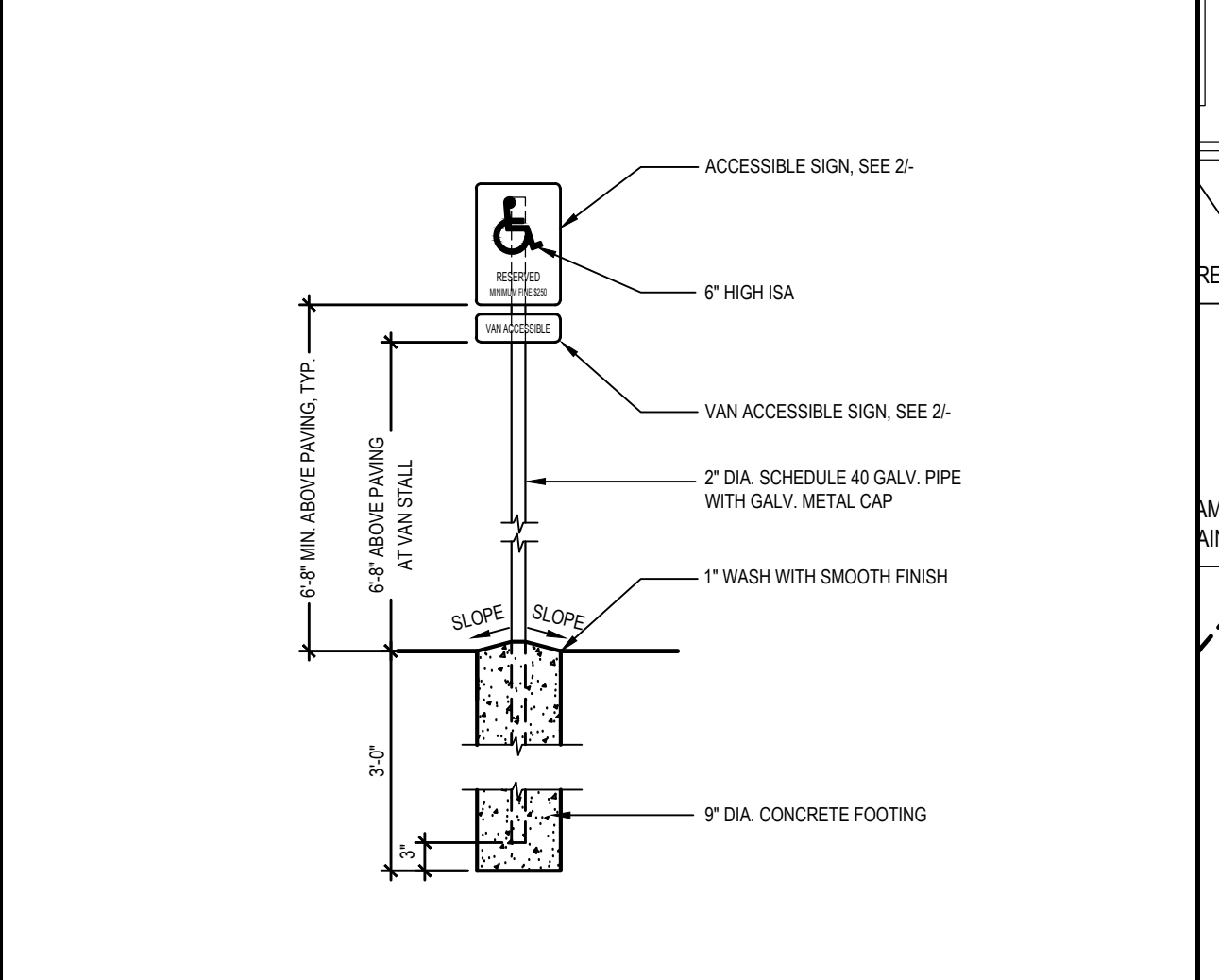
EXISTING PORTABLE BUILDINGS - GROUP 4
 OCCUPANCY GROUP: B
 OCCUPANT LOAD FACTOR: 20 (CLASSROOM) BUILDINGS 12 - 15
 50 (SCIENCE CLASSROOM) BUILDING 16
 212 OCCUPANTS
 CONSTRUCTION TYPE: TYPE V-B, NON-SPRINKLERED

ALLOWABLE HEIGHT PER TABLES 504.3, 504.4	ALLOWABLE	ACTUAL
NUMBER OF STORIES	2	1
BUILDING HEIGHT	40'-0"	14'-0"

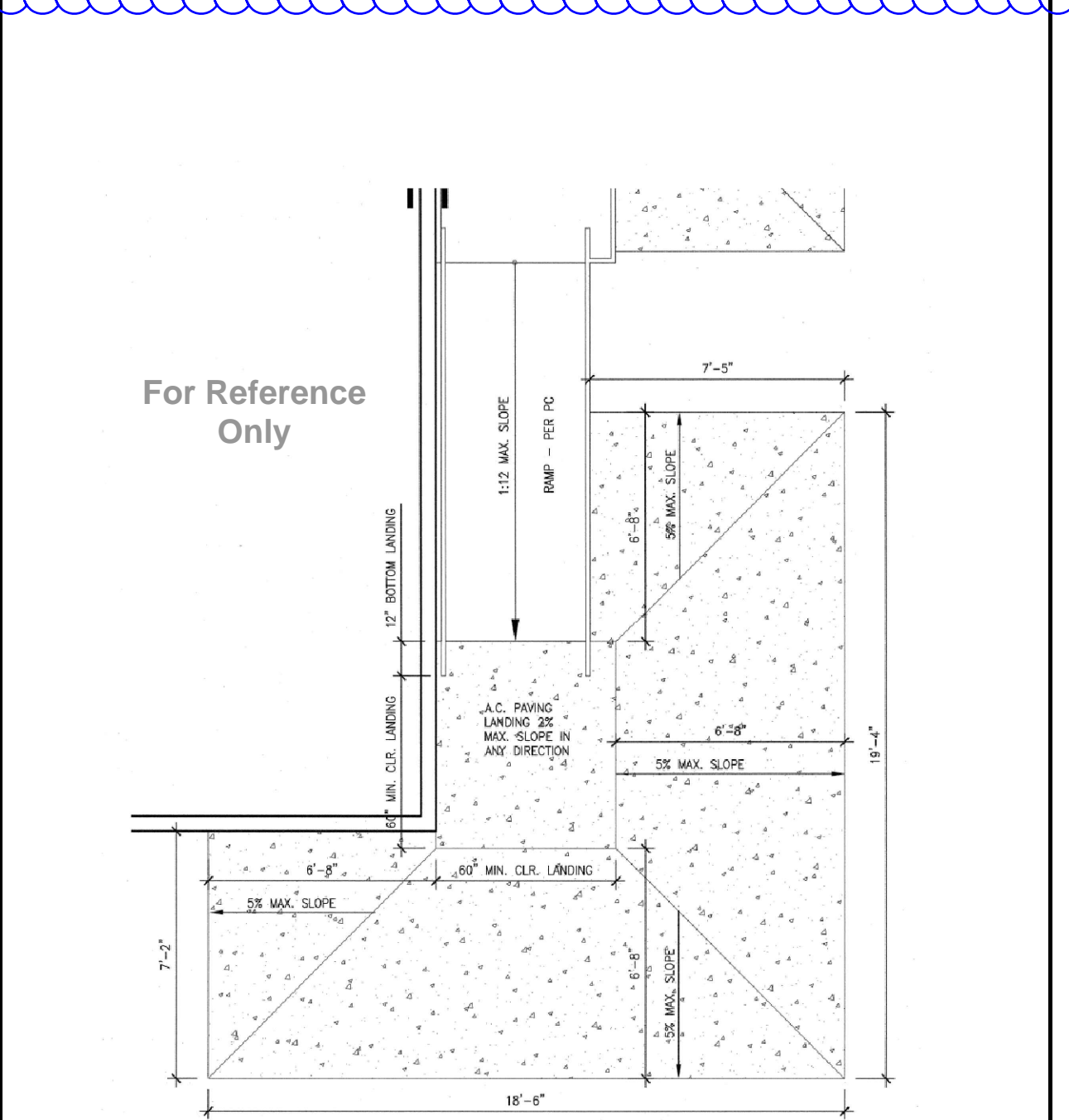
ALLOWABLE BUILDING AREA	
BASIC ALLOWABLE AREA A ₁ PER TABLE 506.2	9,000 S.F.
FRONTAGE INCREASE	NOT USED
TOTAL ALLOWABLE AREA A _{1a}	9,000 S.F.
BUILDING 12 (CLASSROOM)	960 S.F.
BUILDING 13 (CLASSROOM)	960 S.F.
BUILDING 14 (CLASSROOM)	960 S.F.
BUILDING 15 (CLASSROOM)	960 S.F.
BUILDING 16 (SCIENCE CLASSROOM)	960 S.F.
RESTROOM BUILDING	480 S.F.
ACTUAL BUILDING AREA	5,280 S.F.



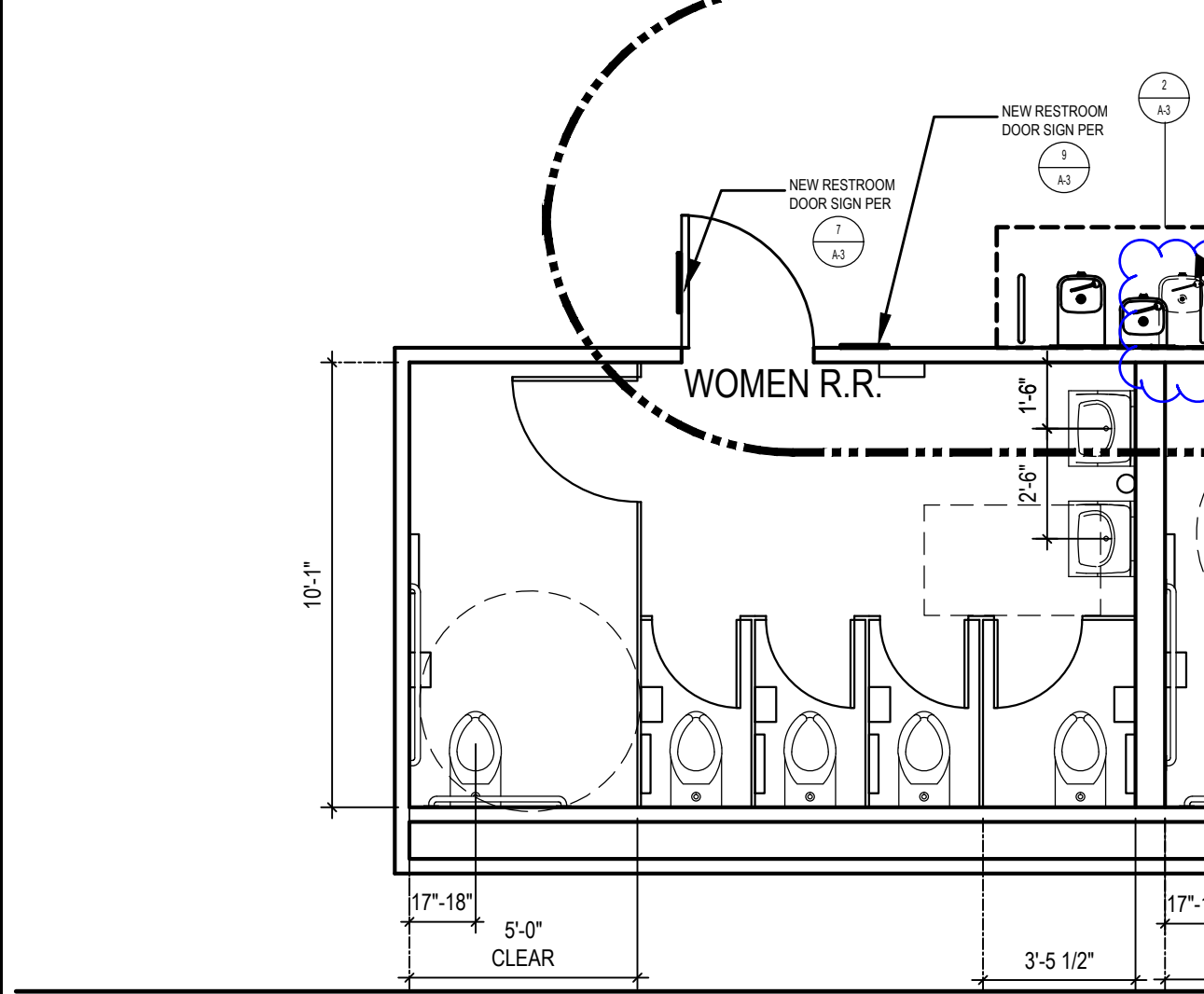
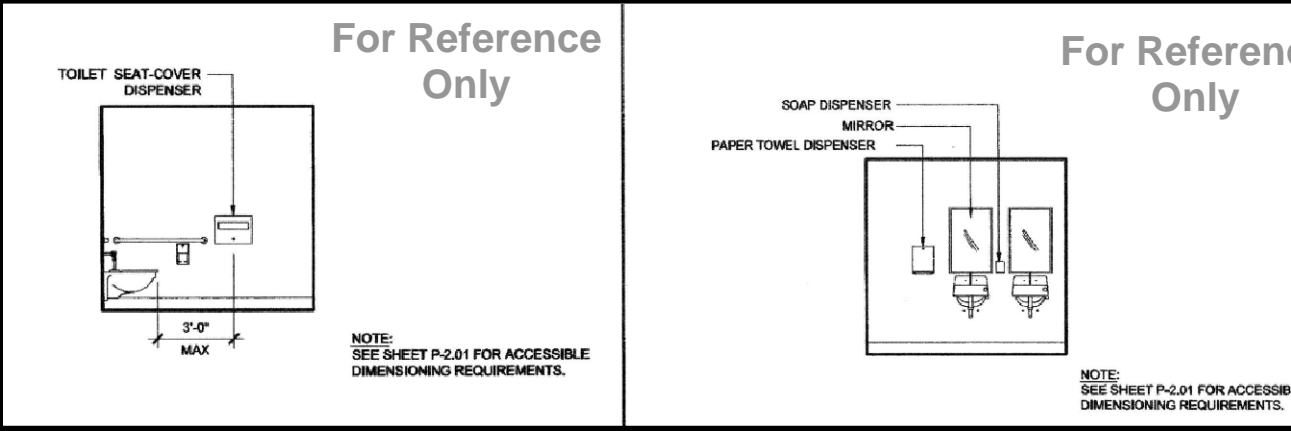
EXISTING R.R. ASPHALT LANDING TRANSITION (A# 03-116878)



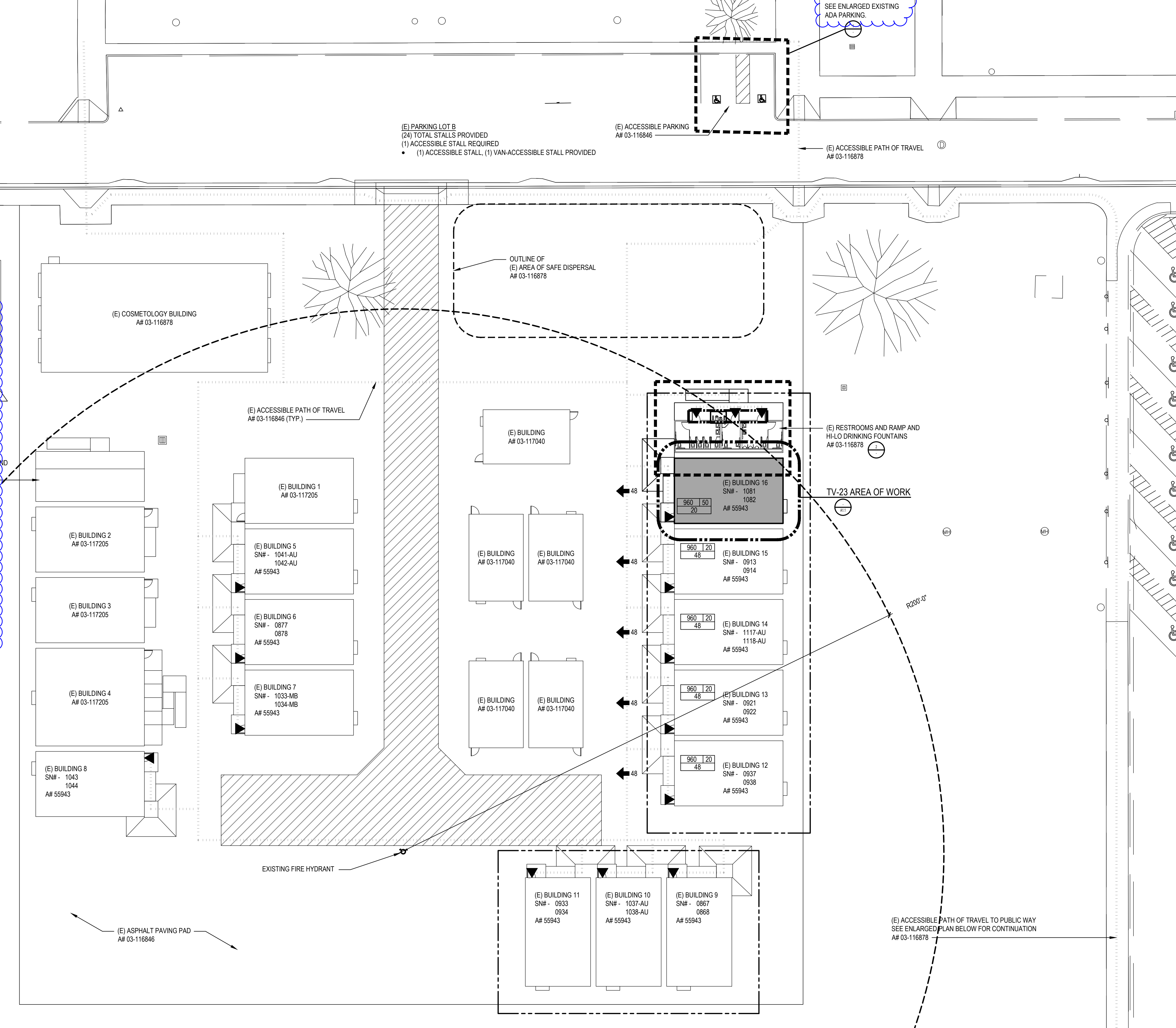
ACCESSIBLE PARKING STALL SIGN SCALE: 3/4" = 1'-0"



EXISTING ACCESSIBLE RAMP (APP# 03-116846)

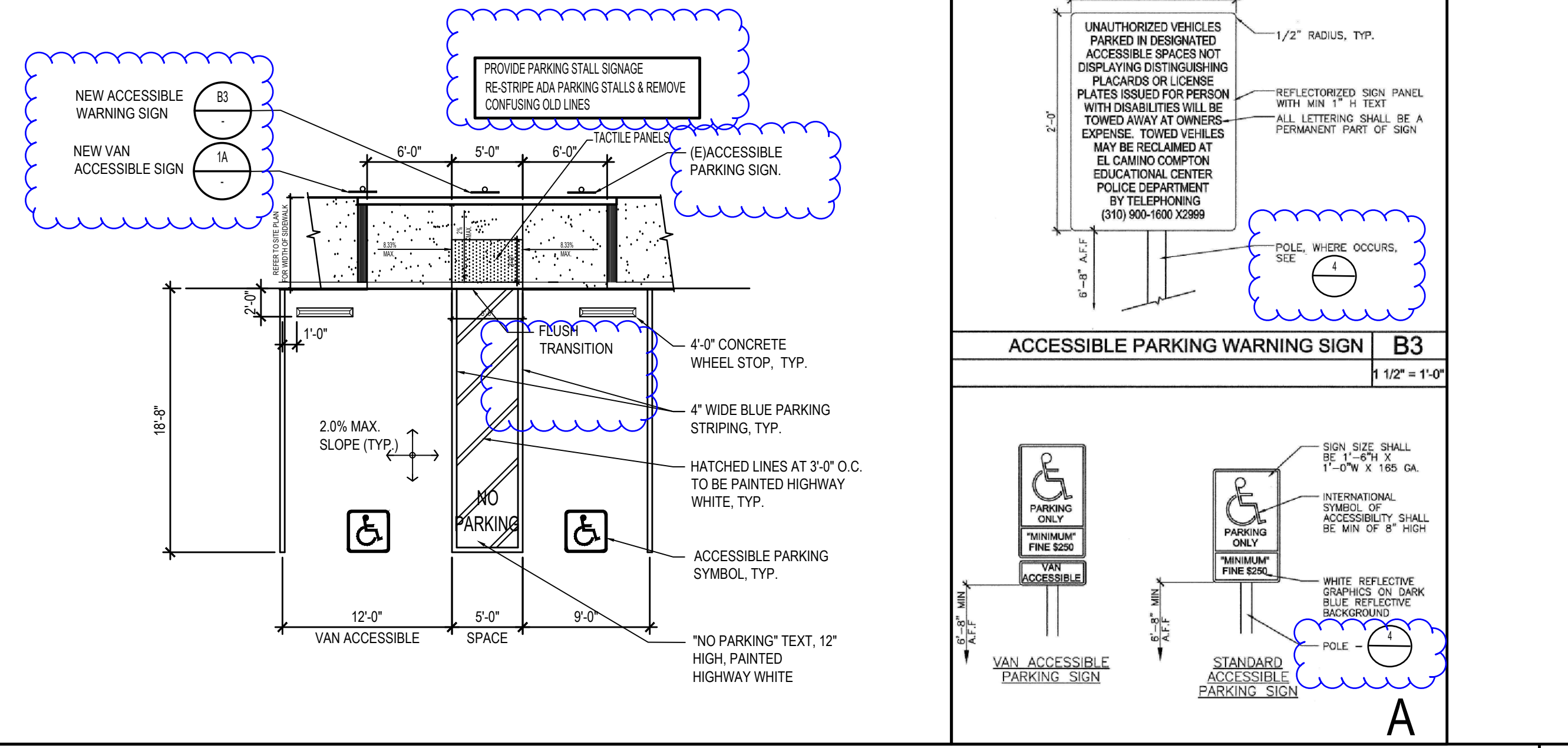


EXISTING RESTROOM BUILDING TV-24 FLOOR PLAN (APP# 03-116878)



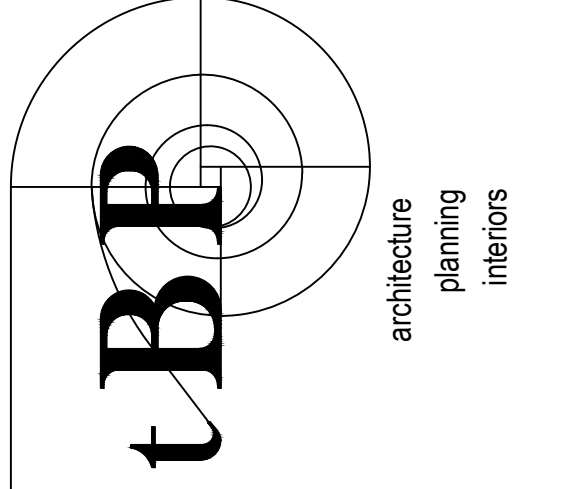
ENLARGED SITE PLAN

APP# 03-116878, # 03-116846, # 03-117449



EXISTING ACCESSIBLE PARKING (APP# 03-116846)

DIVISION OF THE STATE ARCHITECT
 355 SOUTH GRAND AVENUE, SUITE 2100
 LOS ANGELES, CA 90071
 ph: 213.897.3995 fx: 213.897.3159



DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE STATEMENT:
 THE P.O.T. IN THESE CONSTRUCTION DOCUMENTS IS COMPLIANT WITH THE CURRENT APPLICABLE CALIFORNIA BUILDING CODE ACCESSIBILITY PROVISIONS FOR PATH OF TRAVEL REQUIREMENTS FOR ALTERATIONS, ADDITIONS, AND STRUCTURAL REPAIRS. AS PART OF THE DESIGN OF THIS PROJECT, THE P.O.T. WAS EXAMINED AND ANY ELEMENTS, COMPONENTS OR PORTIONS OF THE P.O.T. THAT WERE DETERMINED TO BE NON-COMPLIANT 1) HAVE BEEN IDENTIFIED AND 2) THE CORRECTIVE WORK NECESSARY TO BRING THEM INTO COMPLIANCE HAS BEEN IDENTIFIED WITHIN THE SCOPE OF THIS PROJECT'S WORK THROUGH DETAILS, DRAWINGS AND SPECIFICATIONS INCORPORATED INTO THESE CONSTRUCTION DOCUMENTS. ANY NON-COMPLIANT ELEMENTS, COMPONENTS OR PORTIONS OF THE P.O.T. THAT WILL NOT BE CORRECTED BY THIS PROJECT BASED ON VALUATION THRESHOLD LIMITATIONS OR A FINDING OF UNREASONABLE HARSHNESS ARE SO INDICATED IN THESE CONSTRUCTION DOCUMENTS.

DURING CONSTRUCTION, IF P.O.T. ITEMS WITHIN THE SCOPE OF THE PROJECT REPRESENTED AS CODE COMPLIANT ARE FOUND TO BE NON-COMPLIANT BEYOND REASONABLE CONSTRUCTION TOLERANCES THEY SHALL BE BROUGHT INTO COMPLIANCE WITH THE CBC AS A PART OF THIS PROJECT BY MEANS OF A CONSTRUCTION CHANGE DOCUMENT.

CONSULTANT
COMPTON COLLEGE
Bio-Tech Classroom in TV23
 COMPTON COMMUNITY COLLEGE DISTRICT
 1111 E. ARTESIA BLVD.
 COMPTON, CA 90221

owner

IBP project number :	21105.00
file name:	
drawn by: wf	checked by:
date: 10/01/2023	
Rev. date: description:	
06/06/23	Addendum #1

THIS DRAWING AND THE DESIGN, SPECIFICATIONS, EGAS AND OTHER INFORMATION CONTAINED HEREIN CONSTITUTE UNPUBLISHED WORK OF ARCHITECTURE AND SHALL REMAIN THE PROPERTY OF ARCHITECTURE. IN RESPECTIVE NO PART THEREOF SHALL BE REPRODUCED, DISCLOSED, DISTRIBUTED, SOLD, PUBLISHED OR OTHERWISE USED IN ANY MANNER WITHOUT THE ADVANCED EXPRESS WRITTEN CONSENT OF ARCHITECTURE.

drawing title:
ENLARGED SITE PLAN

drawing no.:
AS-1
 drawing of

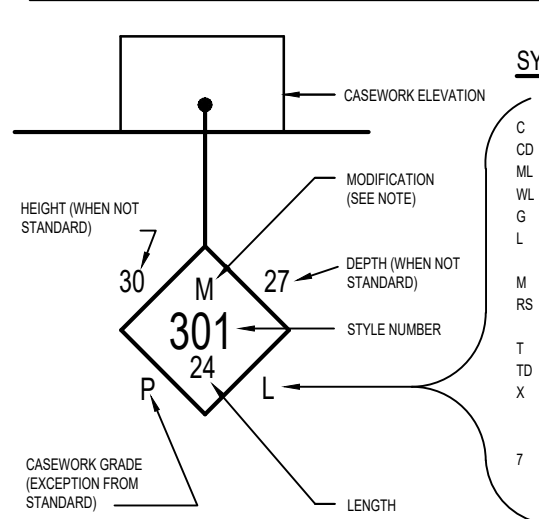
CASEWORK

- ONLY THOSE CABINETS CALLED OUT ON BUILDING INTERIOR ELEVATIONS AND FLOOR PLANS SHALL BE PROVIDED.
- DOOR SWINGS SHALL BE AS SHOWN ON INTERIOR ELEVATIONS. IF NOT ELUCIDATED, SWINGS SHALL BE AS SHOWN ON DETAIL SHEET ILLUSTRATIONS. SWINGS 90° INDICATED REVERSE SWING.
- ALL CABINET DIMENSIONS INDICATED ARE NOMINAL. OUTSIDE DIMENSIONS AND SHALL NOT BE EXCEEDED. PROVISION: CABINET BACKSET SHALL BE INCREASED IN ALL CASES FOLLOWING THE RULES FOR FULLER STOPS. IF IT IS DETERMINED TO BE PERMITTED ON DIMENSIONS OVER 48" FOR AN AND SMALLER DIMENSIONS, FOLLOWING IS APPLIED TO THE REVERSE DIMENSION OF ANY CABINETS AS ELUCIDATED PERMITTED.
- ACROSS SIDE OF CABINET WITH EDGE OF DOOR FRAME WHERE OCCURS.
- PAPER AND CHART STORAGE UNITS SHALL BE 27" DEEP UNLESS OTHERWISE NOTED.

COUNTERTOPS AND BACKSPLASHES

- WHERE BACKSPLASH IS INDICATED, IT SHALL BE 6" HIGH ON HORIZONTAL AREA & 6" HIGH OR TO UNDEREDGE OF UPPER CABINETS & 6" HIGH ABOVE INTERIOR ELEVATIONS. TOP MOUNTED TYPE: HANGING SQUARE TOP WITH SHELF EDGE.

SYMBOLS AND NOTATIONS FOR CABINETS



SYMBOL NOTATIONS

- C - DRAWER ON BACK
- D - DRAWER ON DOOR
- M - METAL LEGS TO REPLACE CASTERS
- N - REVERSE SWING OF DOOR FROM THAT SHOWN ON DETAIL SHEETS
- R - TICK BOARD ON DOOR
- T - TICK BOARD ON BACK
- U - SPECIAL DESIGN NOT ILLUSTRATED ON DETAIL SHEETS
- V - SATTS ON AND/OVER OTHER CONCRETE BASE UNIT TO MOVABLE UNITS

CASEWORK GRADES

- LAM - LAMINATED PLASTIC
- NO. 80 - HARDWOOD
- NO. 81 - COMPOSITION STONE
- LAM. GRADE - LAMINATED PLASTIC
- EP. RES. - EPOXY RESIN
- P - PREMIUM
- C - CUSTOM (TYPICAL GRADE UNLESS NOTED)
- E - ECONOMY
- L - LABORATORY

STYLE 324



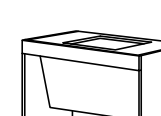
1/2 GLASS S & R DOORS

STYLE 254



DRAWER APRON 6" HIGH, EQUAL DRAWER WIDTHS

STYLE 157



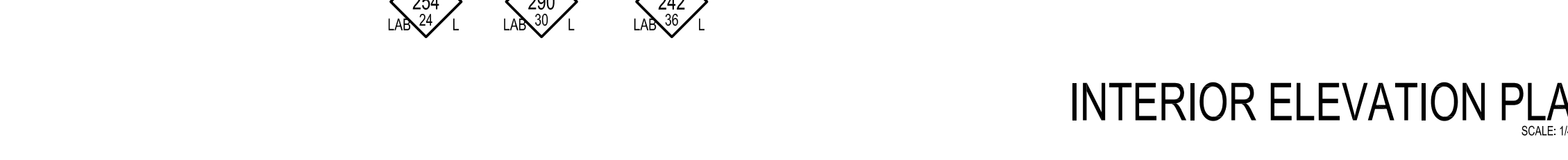
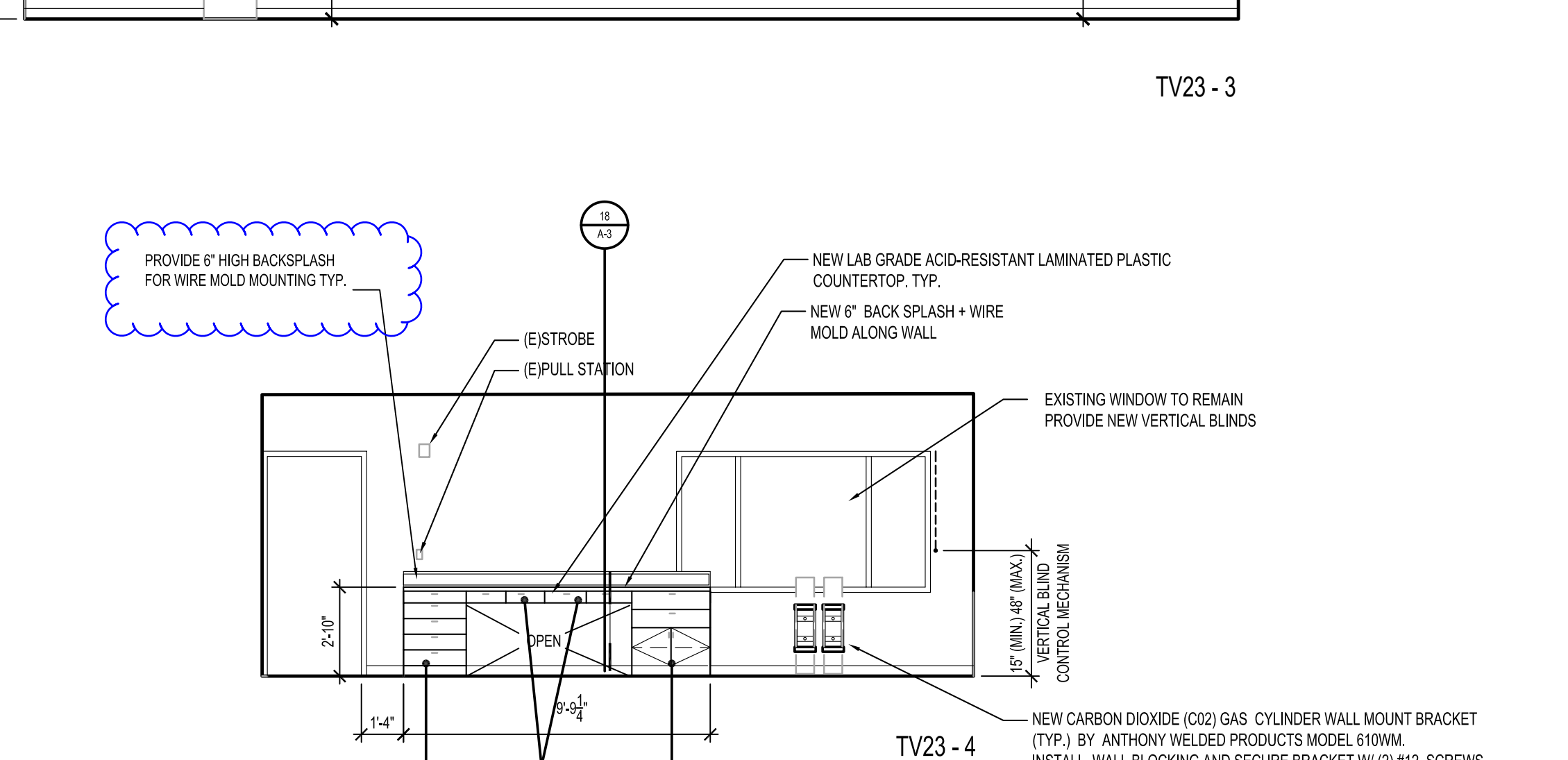
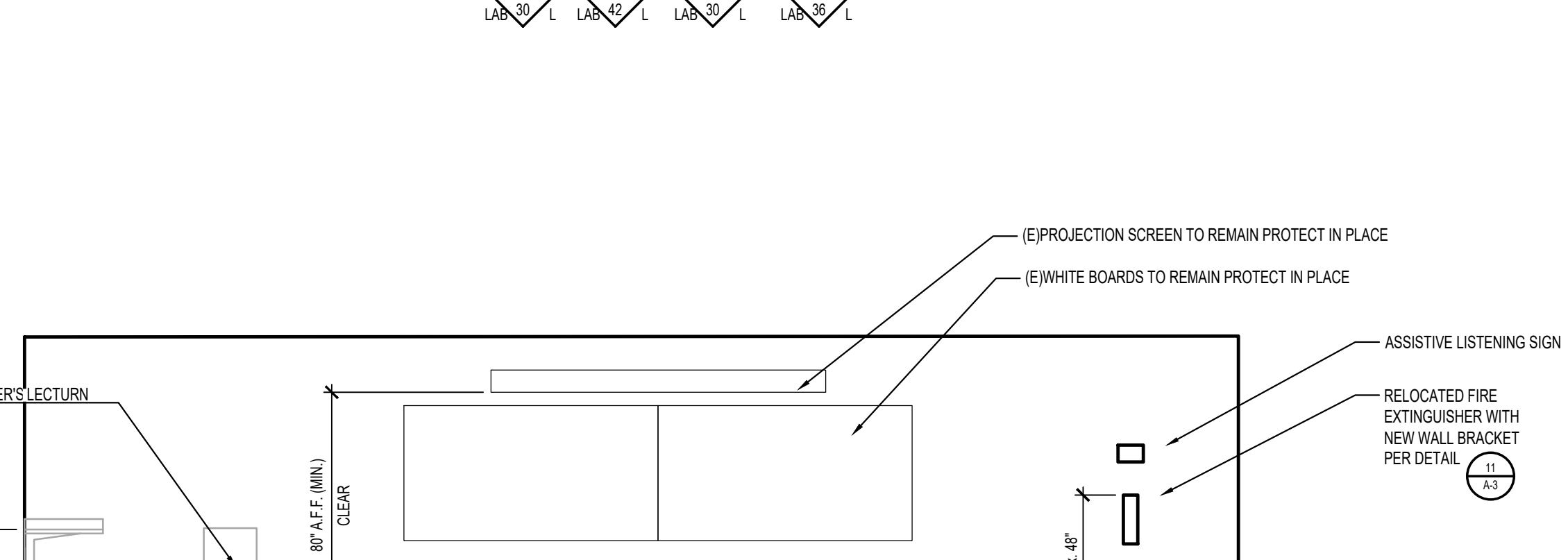
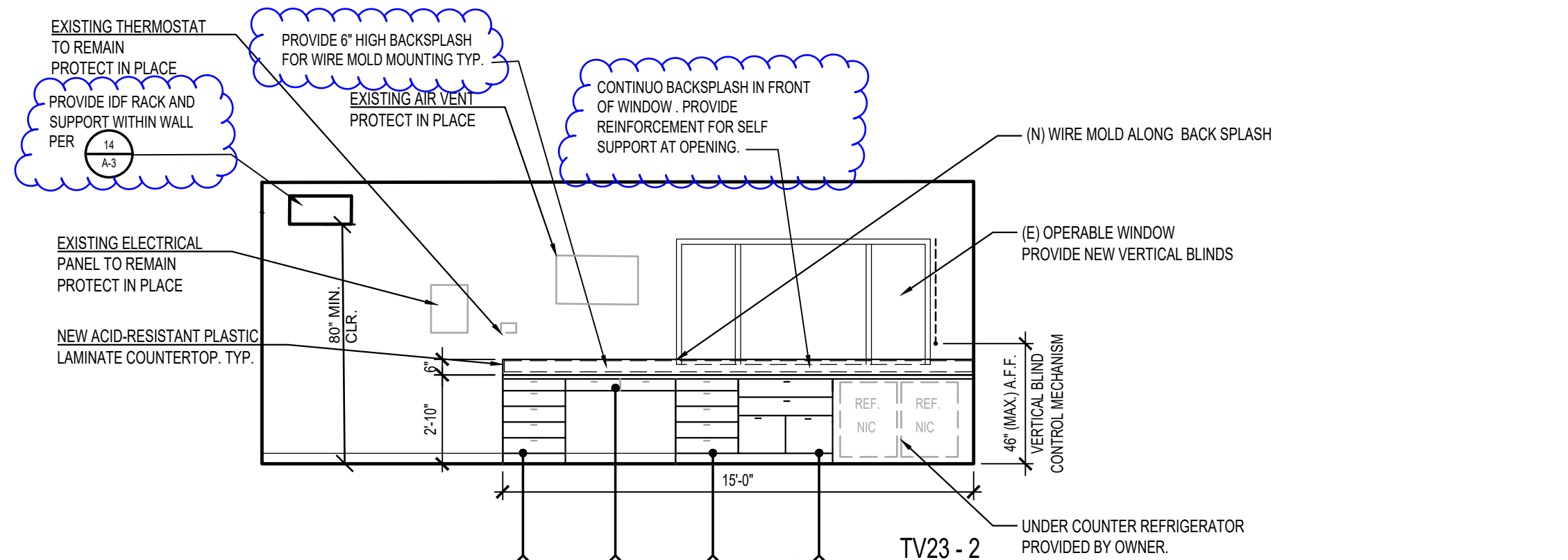
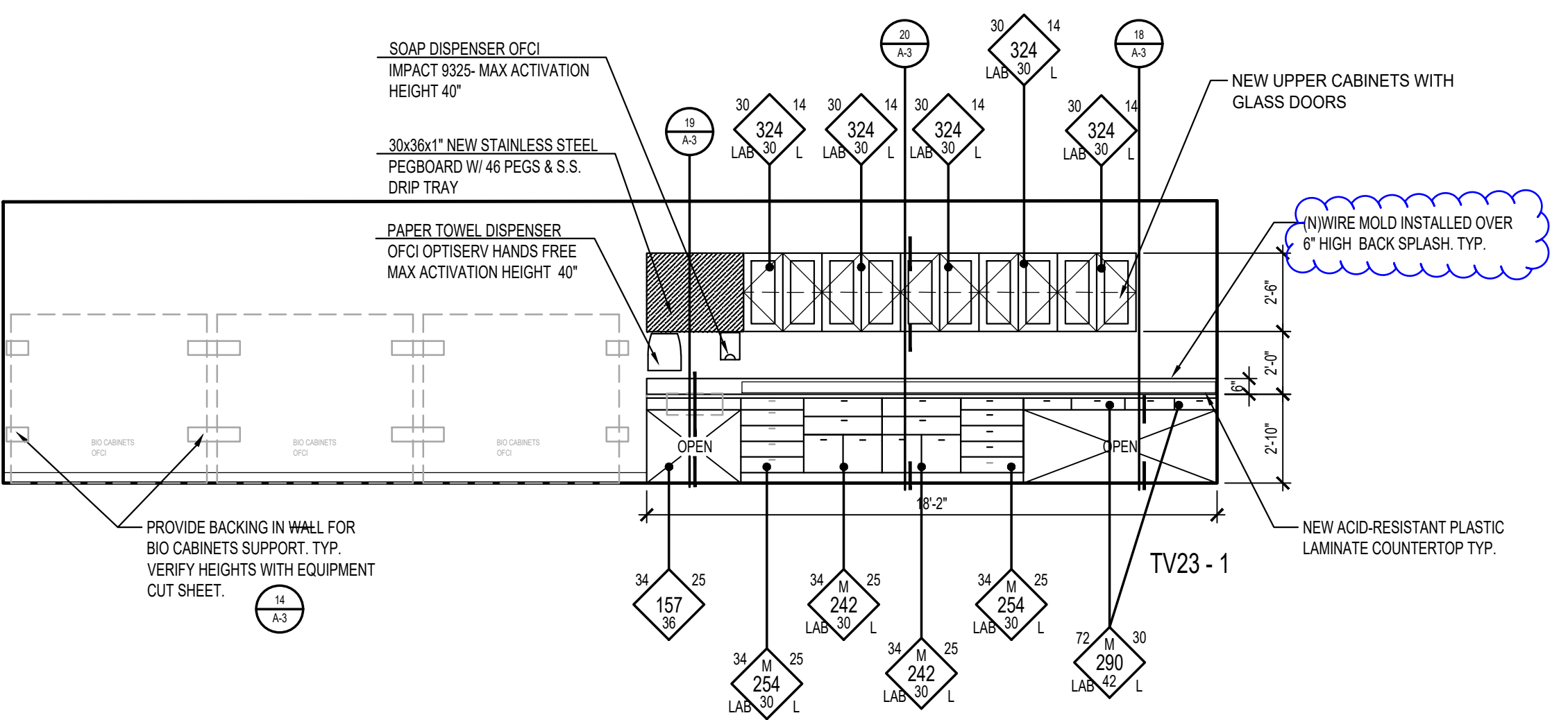
SINK / 6" EXPOSED APRON

STYLE 242

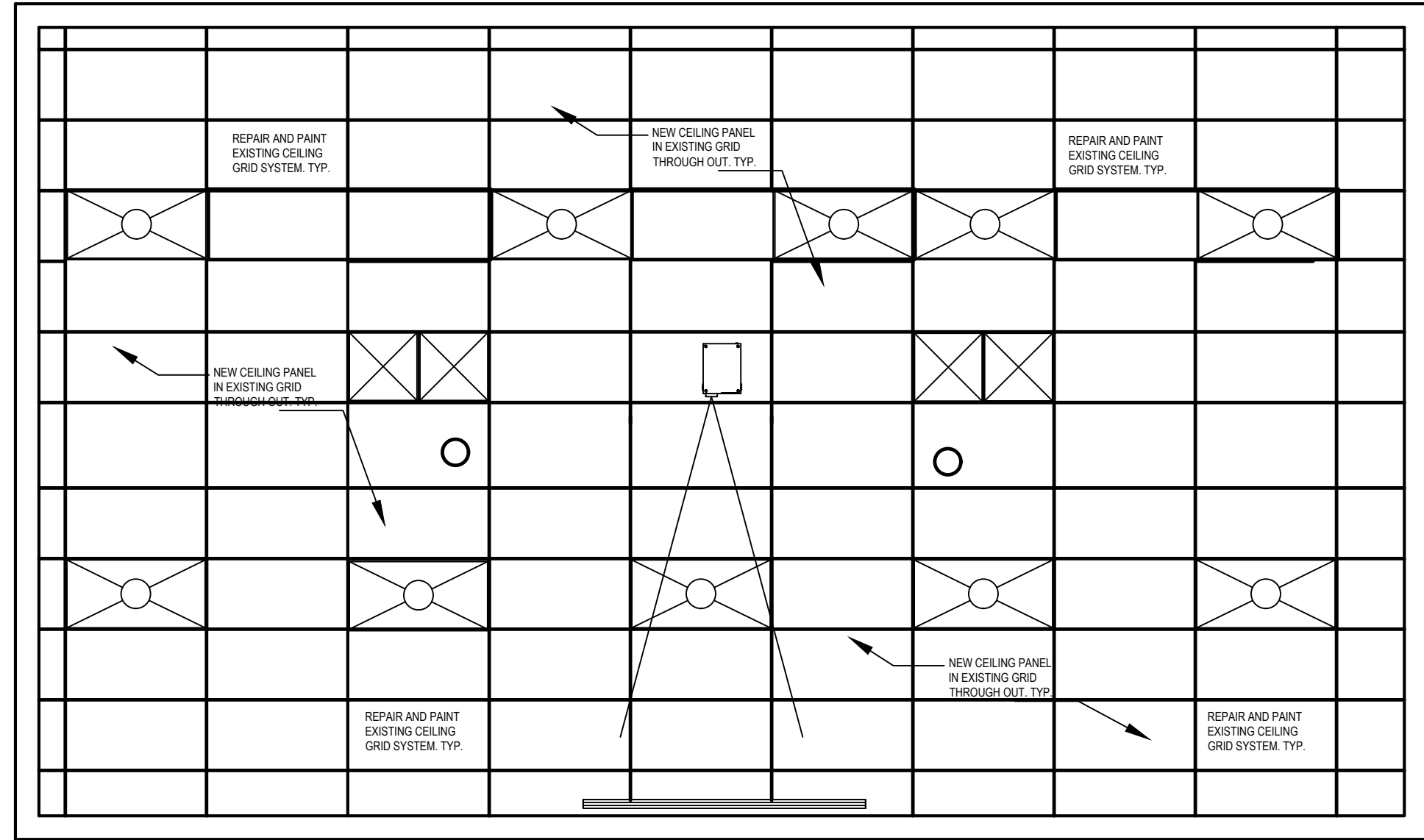


FILE DRAWERS W/ FULL EXTENSION SLIDES & FILE FOLLOWER OR HANGING SYSTEM

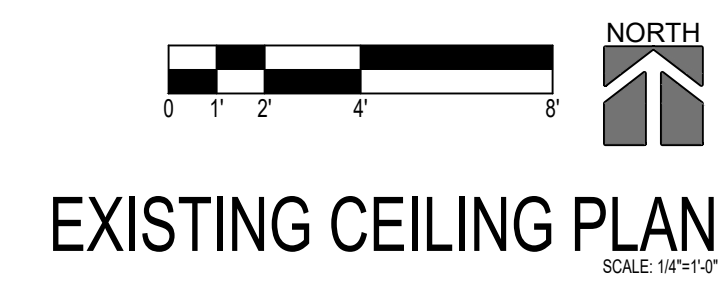
WIC CABINET DESIGN REFERENCE



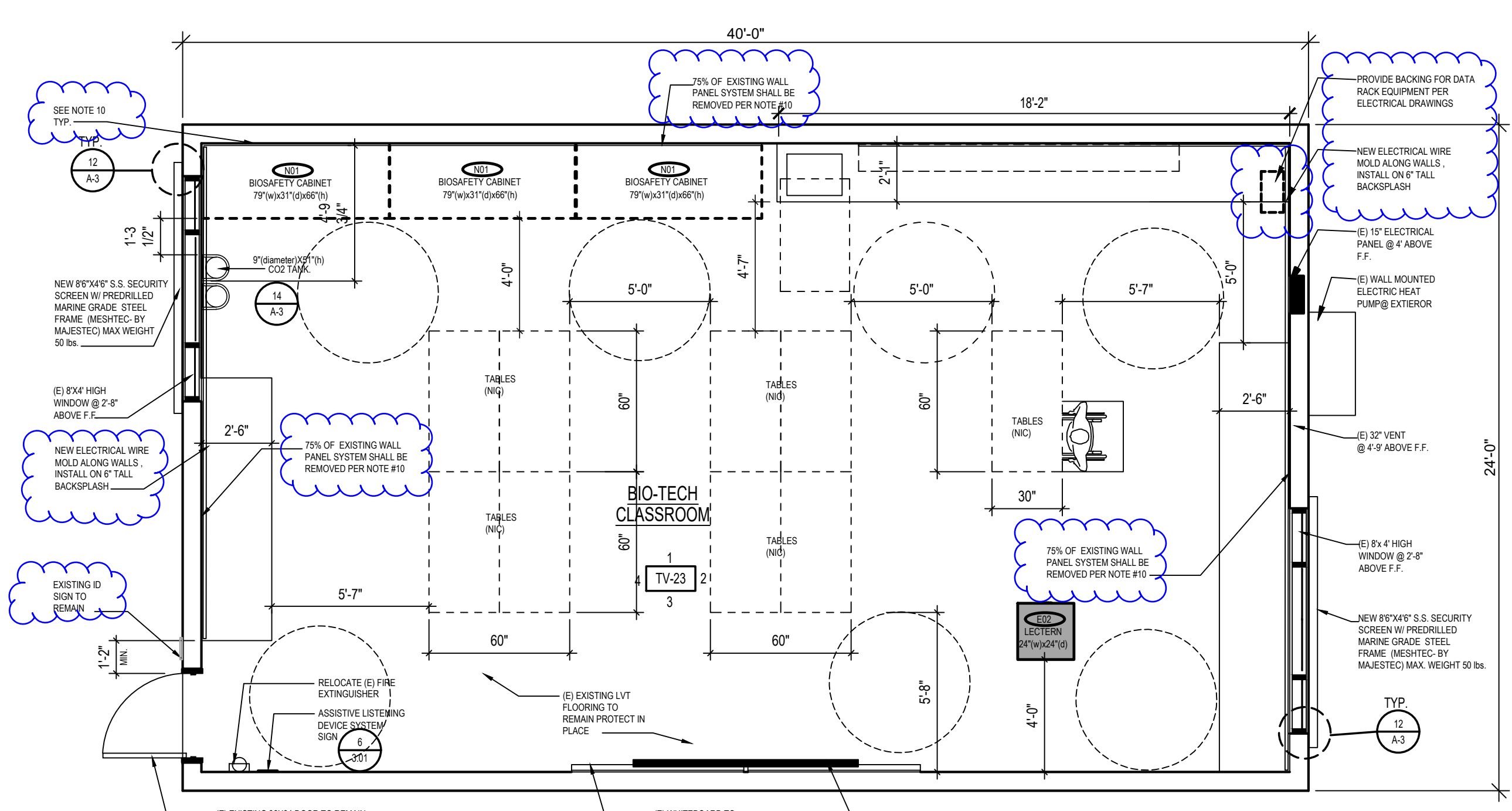
INTERIOR ELEVATION PLAN



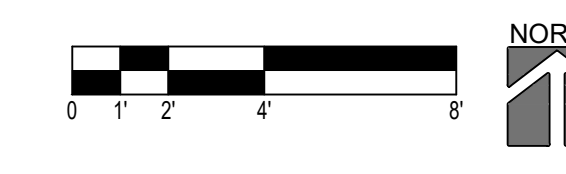
NOTE: NEW CEILING PANELS ON EXISTING CEILING GRID. LIGHT FIXTURES, PROJECTOR, SMOKE DETECTORS AND MECHANICAL GRILLS ARE TO REMAIN. PROTECT IN PLACE. SEE CONSTRUCTION NOTES FOR ADDITIONAL SCOPE OF WORK



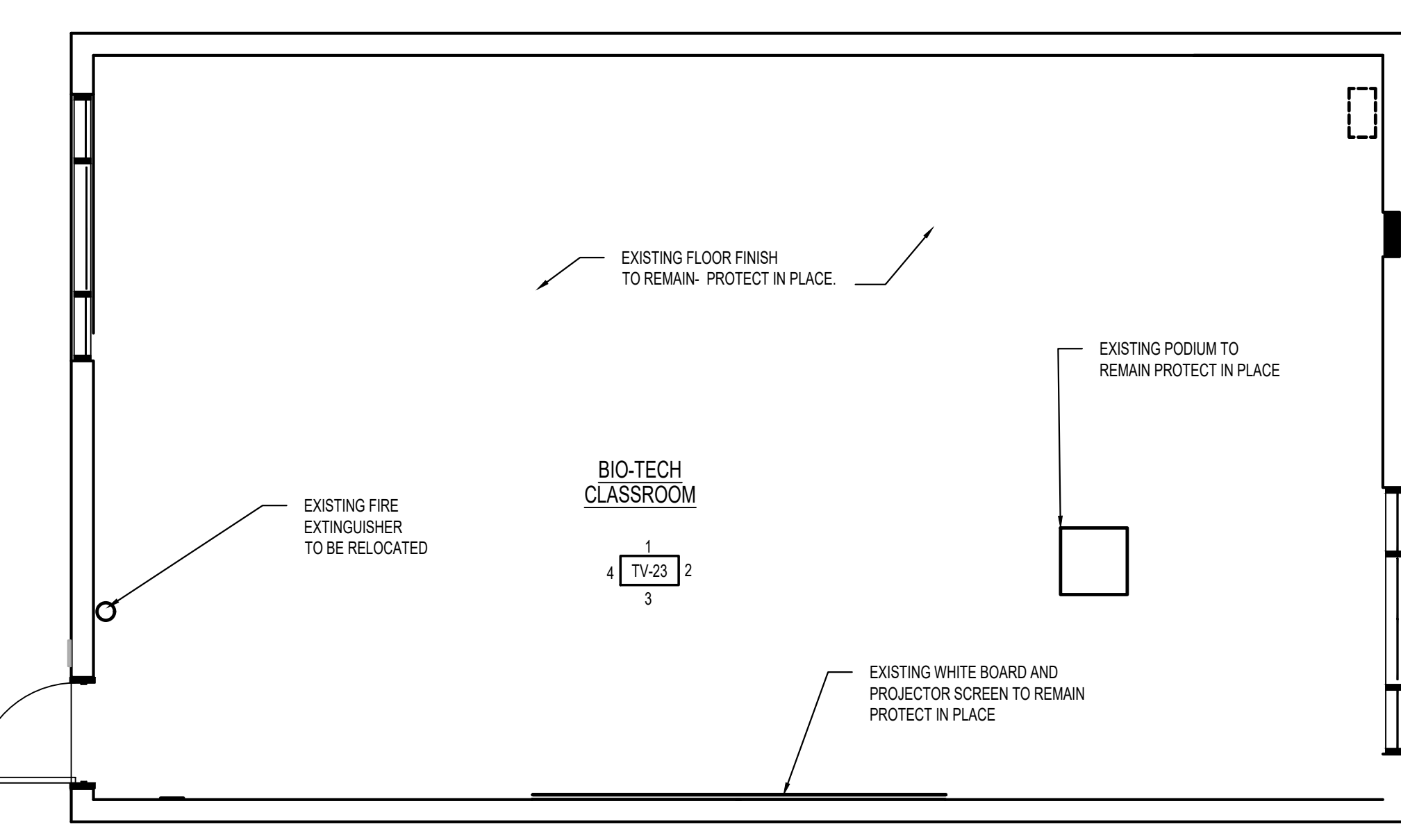
EXISTING CEILING PLAN



NOTE: SEE CONSTRUCTION NOTES FOR ADDITIONAL SCOPE OF WORK. PROVIDE A MINIMUM OF 2 WIRELESS RECHARGEABLE ASSISTED LISTENING DEVICES WHICH SHALL BE HEARING AID COMPATIBLE PER CBC 11B-219.3 - SEE ADDITIONAL INFORMATION IN ELECTRICAL SPECIFICATION SECTION 275126 "PORTABLE ASSISTIVE LISTENING SYSTEM"



FLOOR PLAN



NOTE: REMOVE CEILING TILE THOUGH OUT - PROTECT SUSPENDED GRID IN PLACE



EXISTING FLOOR PLAN

CONSTRUCTION NOTES

- REFER TO SHEET T-2 FOR ADDITIONAL GENERAL NOTES, ABBREVIATIONS, APPLICABLE CODES AND DRAFTING SYMBOLS.
- CONTRACTOR MUST REPAIR, PATCH AND FINISH ALL SURFACES AFFECTED BY THE IMPROVEMENTS AND UPGRADE.
- PATCH/REPAIR EXISTING WALLS, CEILINGS, AND FLOOR AFFECTED WITH WORK INDICATED IN THESE DOCUMENTS INCLUDING STRUCTURAL, PLUMBING, AND ELECTRICAL SYSTEMS.
- WHERE PATCHED FINISH MATERIALS, NEW AND EXISTING ARE MET, THESE CONDITIONS MUST BE CLEANED AND/OR REPAIRED TO MEET THE REQUIREMENTS OF THIS CONTRACT TO LOOK LIKE NEW CONDITION INSTEAD OF REPAIRED.
- CONTRACTOR MUST COORDINATE SIMULTANEOUS SCOPE IDENTIFIED IN THE PLUMBING AND ELECTRICAL DRAWINGS.
- THE EXISTING LVT FLOORING IS RELATIVE NEW SO PROTECT IN PLACE. IF ANY PARTIAL FLOOR AREA IS NEEDED TO BE REMOVED FOR ELECTRICAL, PLUMBING OR OTHER WORK SCOPE PURPOSES REPLACE WITH NEW TO MATCH EXISTING.
- PAINT DOOR AND FRAME INTERIOR AND EXTERIOR TO MATCH EXISTING.
- THE EXISTING DOOR COMPLIES WITH THE REQUIREMENTS OF THE LATEST EDITION OF THE CALIFORNIA BUILDING CODE
 - EXIT DOOR SHALL BE OPERABLE FROM THE INSIDE WITHOUT THE USE OF A KEY OR ANY SPECIAL KNOWLEDGE OR EFFORT.
 - HAND ACTIVATED DOOR OPENING HARDWARE SHALL BE CENTERED BETWEEN 34" AND 44" ABOVE FINISH FLOOR. PANIC HARDWARE SHALL BE 36" TO 44" ABOVE FINISH FLOOR.
 - DEAD BOLTS ARE NOT PERMITTED UNLESS OPERABLE WI A SINGLE EFFORT LEVER TYPE HARDWARE.
- RE-INSTALL ALL ITEMS REMOVED FROM WALLS SHOWN AS EXISTING TO REMAIN IF THESE WERE REQUIRED TO BE REMOVED FOR OTHER REASONS.
- 75% OF THE INTERIOR WALL PANELING SYSTEMS WILL NEED TO BE REMOVED TO ADD BACKING IN FRAMING TO PERFORM ELECTRICAL AND PLUMBING SCOPE WORK. THESE PANELS CAN BE REUSE IF THEY LOOK AS ORIGINALLY DOCUMENTED BY THE ARCHITECT. OTHERWISE REPLACE BY NEW TO MATCH PANELING SYSTEM, VINYL COVERING AND FLOOR BASE.
- PAINT EXISTING CEILING GRID-OFF WHITE.
- COUNTER TOPS ARE LAB-GRADE PLASTIC LAMINATED.
 - PL-1 WILSONART CHEMURE BLACK ALUCANTE 4806-07 AT COUNTERTOPS. VERIFY W/ ARCHITECT
 - PL-2 WILSONART FRENCH PEAR FOR VERTICAL SURFACES. CONFIRM W/ ARCHITECT
- ADA UPGRADES- REPLACE EXISTING RESTROOMS SIGNAGE PER 4.3
- ADA UPGRADES- RELOCATE EXISTING DRINKING FOUNTAIN & ADD WING GUARDS 2
- SEE EQUIPMENT LEGEND FOR ADDITIONAL CONTRACTOR SCOPE FOR INSTALLATION
- ALL FUTURE FURNITURE INSTALLED IN THIS ROOM MUST COMPLY WITH CBC 11B. PROVIDE 5% MIN. OF EACH TYPE TO MEET ADA REQUIREMENTS.

EQUIPMENT SCHEDULE

Mark	Type	Count	Dimensions
E02	LECTERN	1 (E)	24"(w)x24"(d)
N01	BIO SAFETY CABINET	3 OFCI	79"(w)x31"(d)x66"(h)
N08	BRACKET FOR CO2 TANK.	2 FCII	9"(diameter)x51"(h)

FINISHES NOTES

INTERIOR WALL AND CEILING FINISH MATERIALS SHALL BE CLASSIFIED IN ACCORDANCE WITH ASTM 84 OR UL 723. SUCH INTERIOR FINISH MATERIALS SHALL BE GROUPED IN THE FOLLOWING CLASSES IN ACCORDANCE WITH THEIR FLAME AND SMOKE-DEVELOPED INDEXES, REFERRING TO 803.1.1 (SEE EXCEPTION 803.1.2) AND CFC 803.1.

INTERIOR WALLS AND CEILING FINISHES SHALL BE CLASSIFIED BY OCCUPANCY PER TABLE 803.1.1 OR BE TESTED PER SECTION 803.1.2 (NFPA 286 CRITERIA).

TEXTILE AND VINYL WALL COVERINGS SHALL BE TESTED PER 803.1.3 ACCEPTANCE CRITERIA OF NFPA 265, OR PER 803.1.4 ACCEPTANCE CRITERIA TESTED TO ASTM E84 OR UL 723 CLASS FLAME SPREAD INDEX AND PROTECTED BY AN AUTOMATIC FIRE SPRINKLER SYSTEM PER 803.1.1.2.

EXCEPTION: 803.2 MATERIALS LESS THAN 0.036" THICK APPLIED DIRECTLY NEED NOT BE

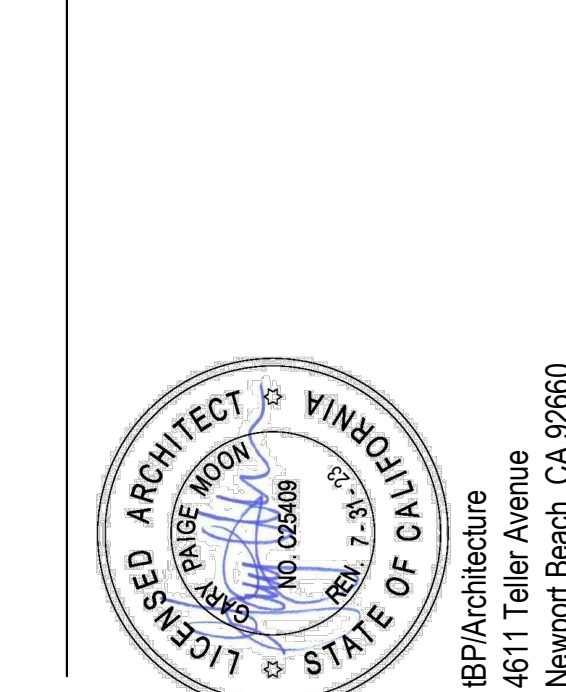
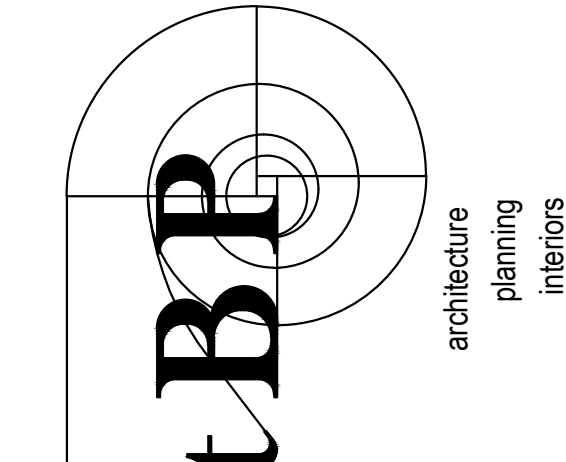
INTERIOR FLOOR FINISHES SHALL COMPLY WITH SECTION 804.

DECORATIVE TRIM & MATERIALS SHALL COMPLY WITH SECTION 806.

THERMAL AND ACOUSTICAL INSULATION SHALL COMPLY WITH SECTION 719.

CALIFORNIA REQUIRES ALL FABRIC USED IN PUBLIC PLACES TO BE REGISTERED WITH THE STATE FIRE MARSHAL AND COMPLY WITH TITLE 19 REQUIREMENTS OF THE CALIFORNIA CODE OF REGULATIONS.

DIVISION OF THE STATE ARCHITECT
355 SOUTH GRAND AVENUE, SUITE 2100
LOS ANGELES, CA 90071
ph: 213.897.3995 fax: 213.897.3159

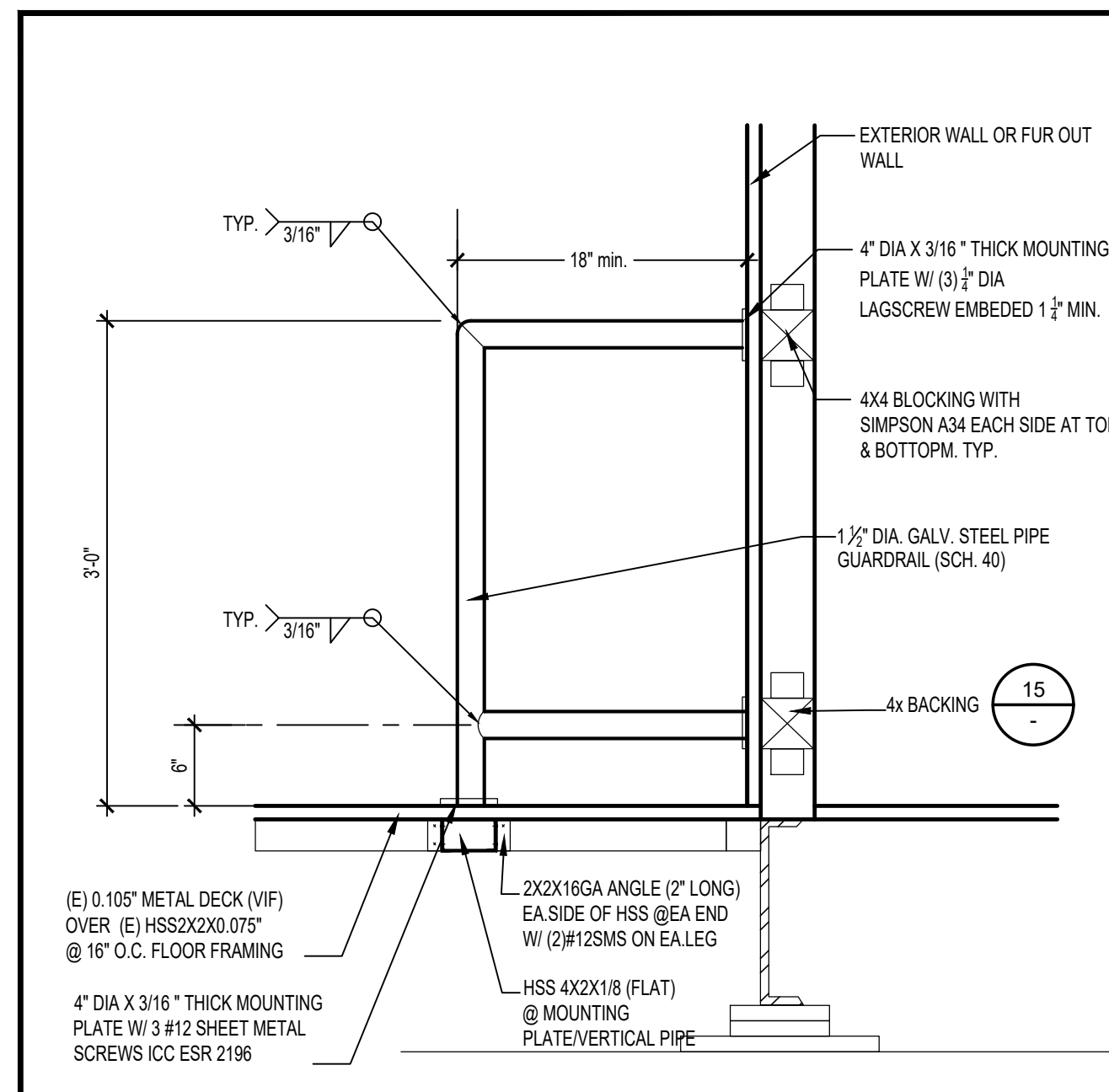


BBP Architecture
401 T Teller Avenue
Newport Beach, CA 92660
ph: 949.732.0300 tx: 949.732.3895

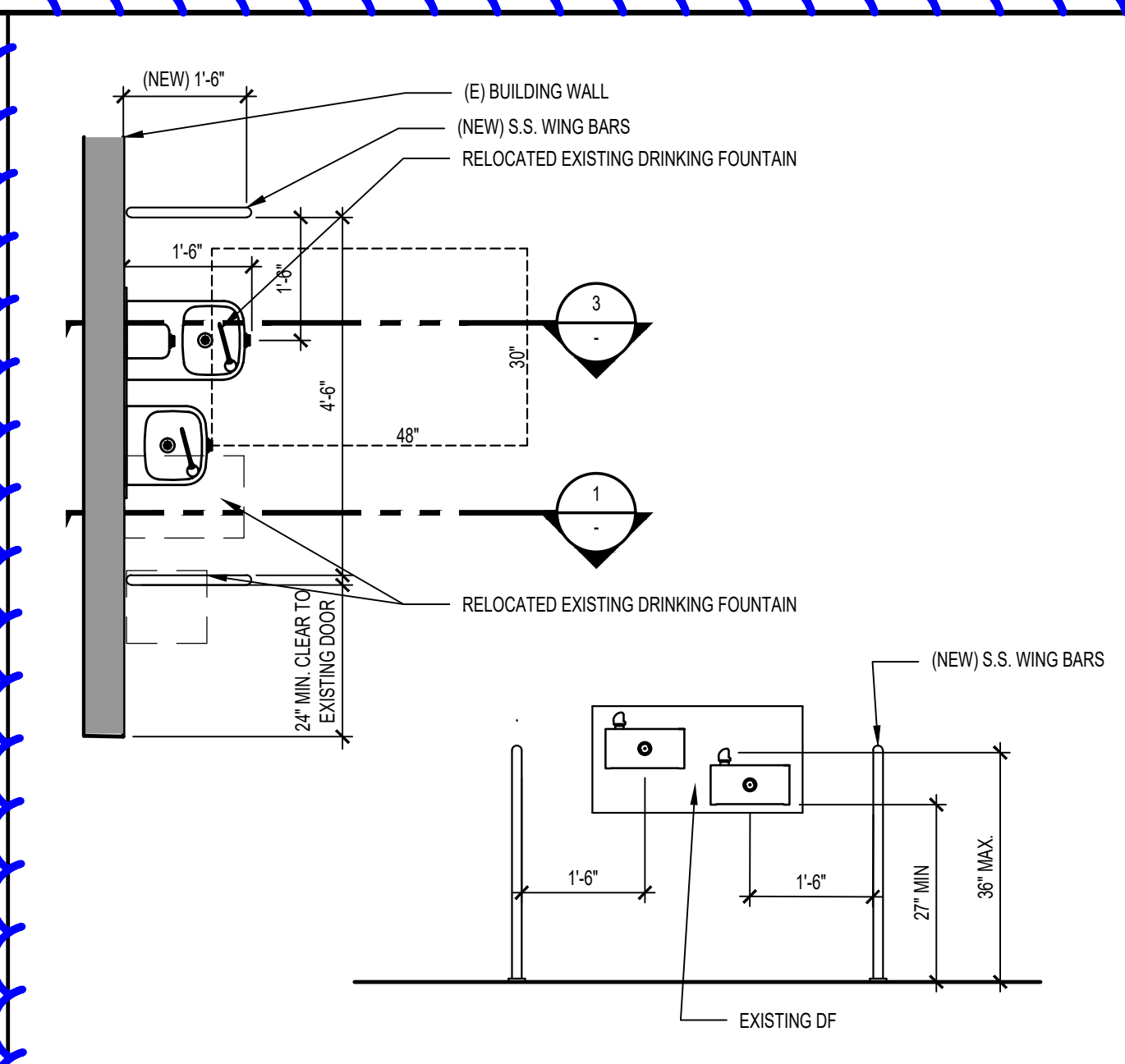
COMPTON COLLEGE
Bio-Tech Classroom in TV23
COMPTON COMMUNITY COLLEGE DISTRICT
1111 E. ARTESIA BLVD.
COMPTON, CA 90221

owner
IBP project number : 21105.00
file name:
drawn by: checked by:
date: 10/01/2023
Rev. date: description:
06/06/23 Addendum #1

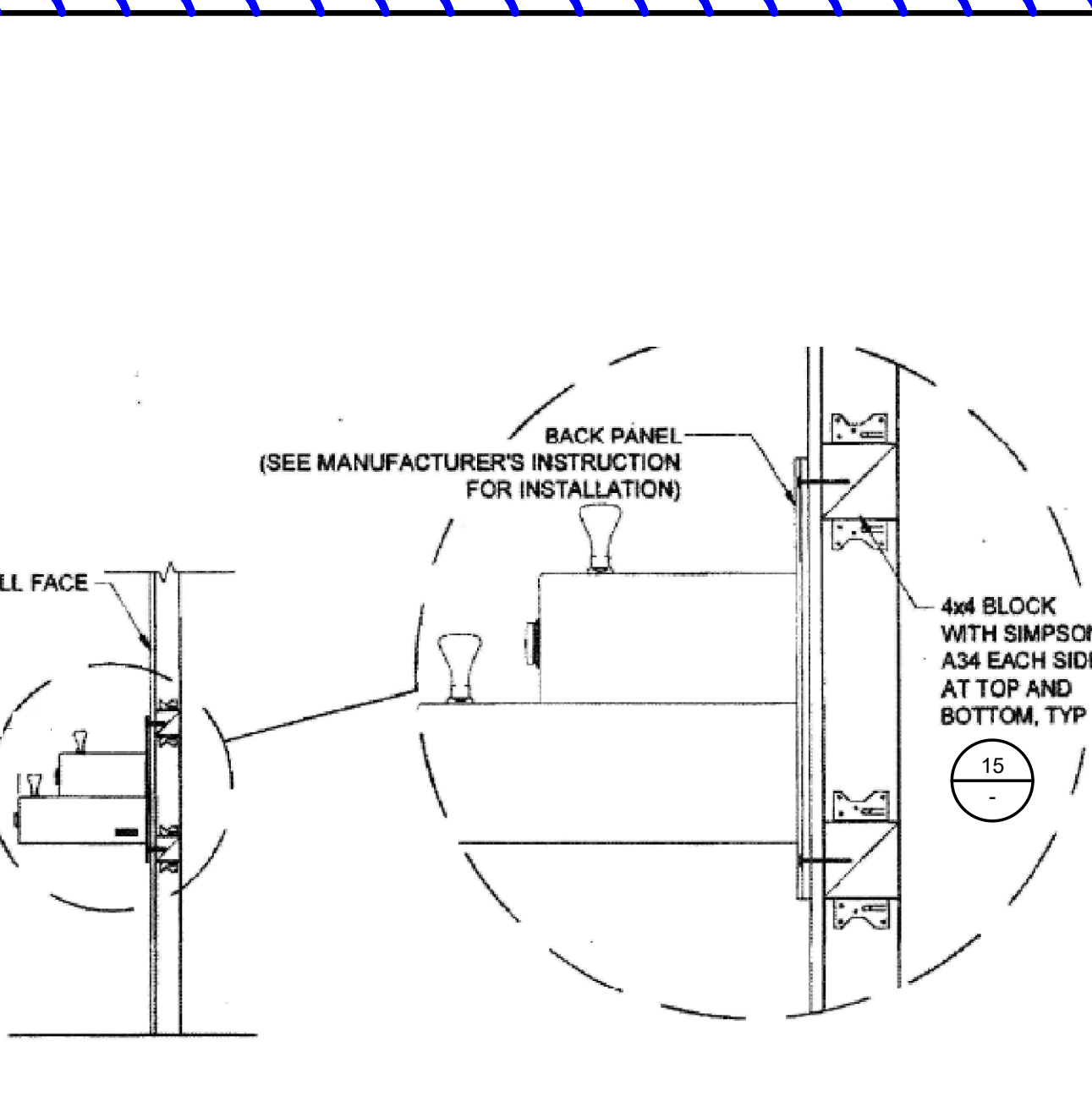
drawing title:
FLOOR / CEILING & INTERIOR ELEVATIONS
drawing no.:
A1-1
drawing of



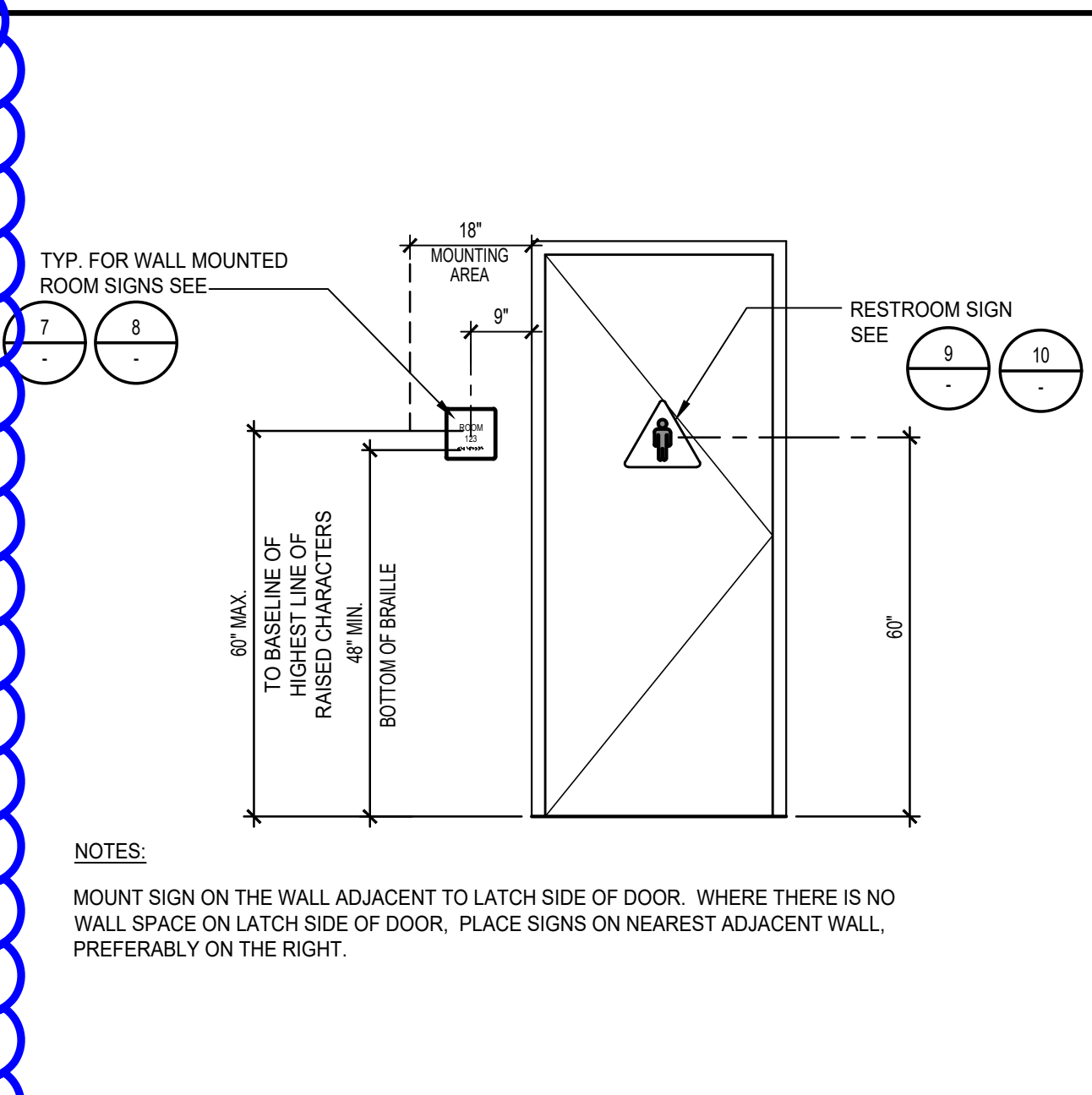
DRINKING FOUNTAIN NEW WING GUARDS
SCALE: 1/2" = 1'-0"



RELOCATE D.F. ADD NEW WING RAILS
SCALE: 1/2" = 1'-0"



DRINKING FOUNTAIN MOUNTING DETAIL
SCALE: 1/2" = 1'-0"



SIGNAGE LOCATION LEGEND
SCALE: 1/2" = 1'-0"

TYPICAL SIGNAGE NOTES

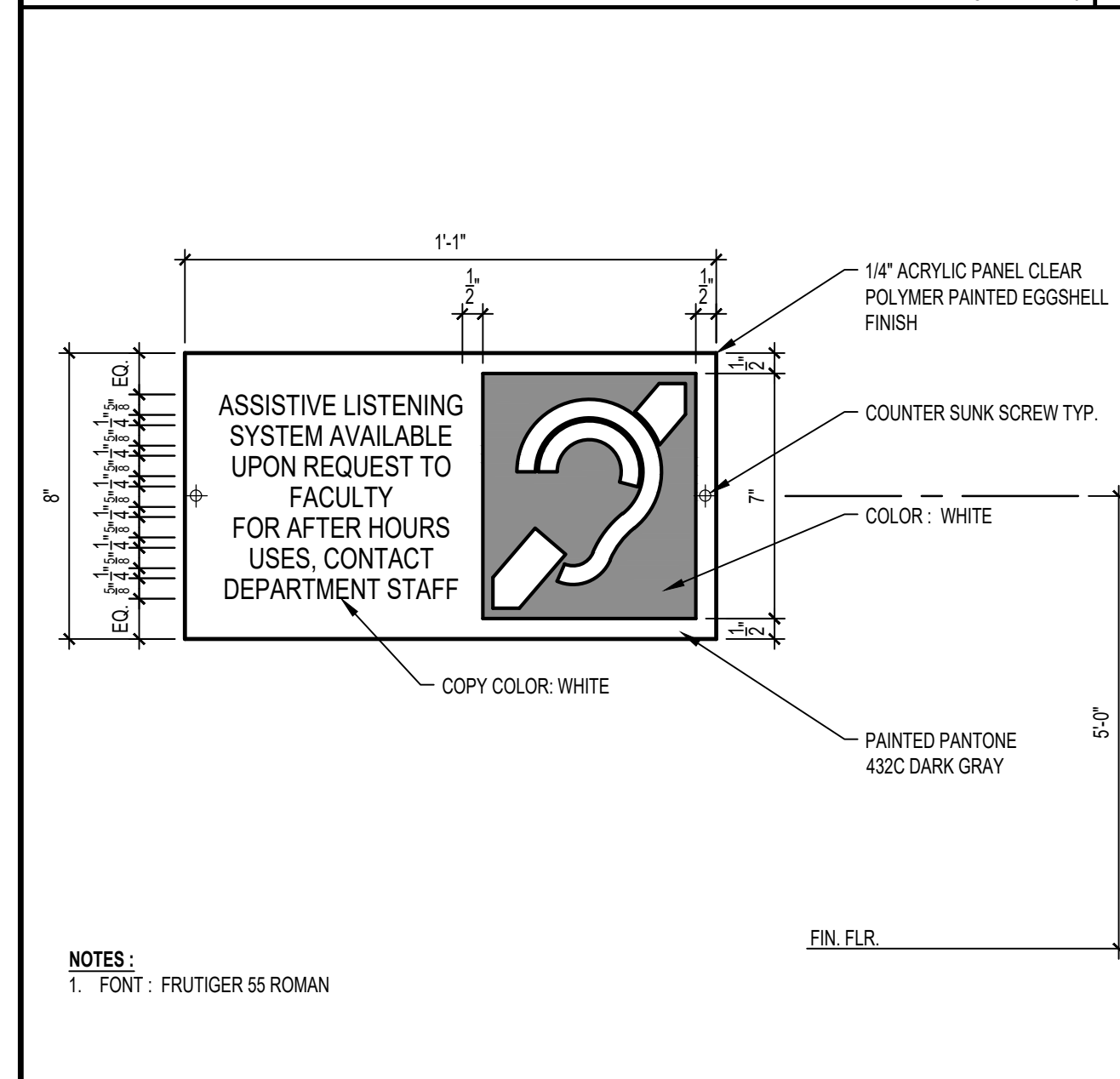
- TACTILE CHARACTER TYPE: TACTILE CHARACTERS ON SIGNS SHALL BE RAISED 1/32" MINIMUM AND SHALL BE SANIS SERIF UPPERCASE CHARACTERS ACCOMPANIED BY CONTRACTED (GRADE 2) BRAILLE. CBC SECTION 11B-703.2.
- TACTILE CHARACTER SIZE: RAISED CHARACTERS SHALL BE A MINIMUM OF 5/8" AND A MAXIMUM OF 2" HIGH. CBC SECTION 11B-703.2.
- FINISH AND CONTRAST: CONTRAST BETWEEN CHARACTERS, SYMBOLS AND THEIR BACKGROUND MUST BE 70% MINIMUM AND HAVE A NON-GLARE FINISH. CBC SECTION 11B-703.2.
- PROPORTIONS: RAISED CHARACTERS ON SIGNS SHALL BE SELECTED FROM FONTS WHERE THE WIDTH OF THE UPPERCASE LETTER "O" IS 80% MINIMUM AND 110% MAXIMUM OF THE HEIGHT OF THE UPPERCASE LETTER "T". STROKE THICKNESS OF THE UPPERCASE LETTER "I" SHALL BE 15% MAXIMUM OF THE HEIGHT OF THE CHARACTER. CBC SECTION 11B-703.2.
- BRAILLE: CONTRACTED (GRADE 2) BRAILLE SHALL BE USED WHEREVER BRAILLE IS REQUIRED IN OTHER PORTIONS OF THESE STANDARDS. DOTS SHALL BE 1/16" ON CENTERS IN EACH CELL WITH 2/10" SPACE BETWEEN CELLS. MEASURED FROM THE SECOND COLUMN OF DOTS IN THE FIRST CELL TO THE FIRST COLUMN OF DOTS IN THE SECOND CELL. DOTS SHALL BE RAISED A MINIMUM OF 1/16" ABOVE THE BACKGROUND. BRAILLE DOTS SHALL BE DOMED OR ROUNDED. CBC SECTION 11B-703.3.

2 1/10" SPACE BETWEEN CELLS (LETTERS)

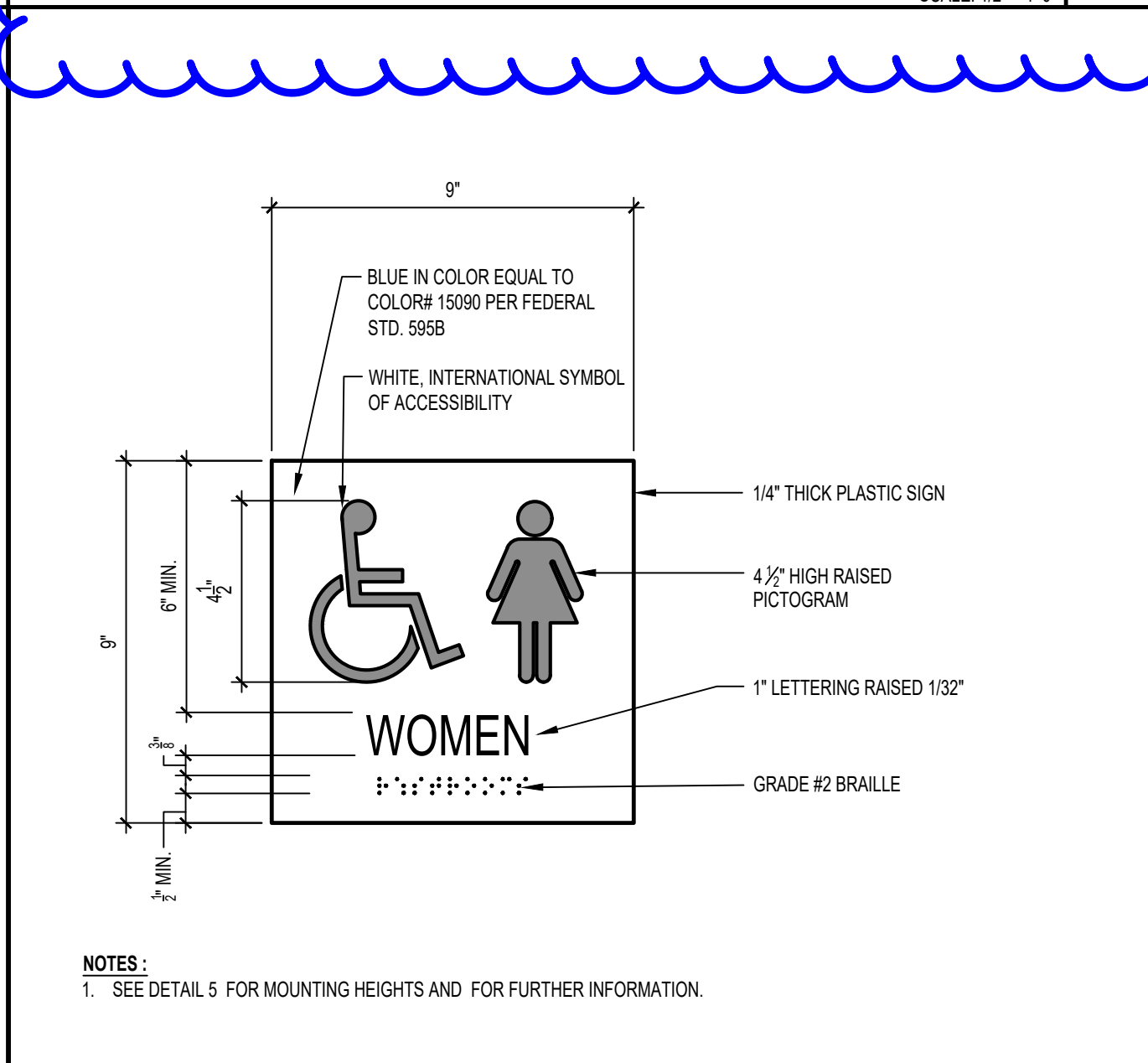
CALIFORNIA GRADE 2 BRAILLE SHALL BE USED WHEREVER BRAILLE IS REQUIRED. INDIVIDUAL BRAILLE DOTS SHALL EACH BE DISTINCT AND SEPARATE. EACH DOT SHALL BE ROUNDED OR DOMED IN LIEU OF SQUARE SIDED AND FLAT TAPPED.

1/10" BY 1/10" GRID

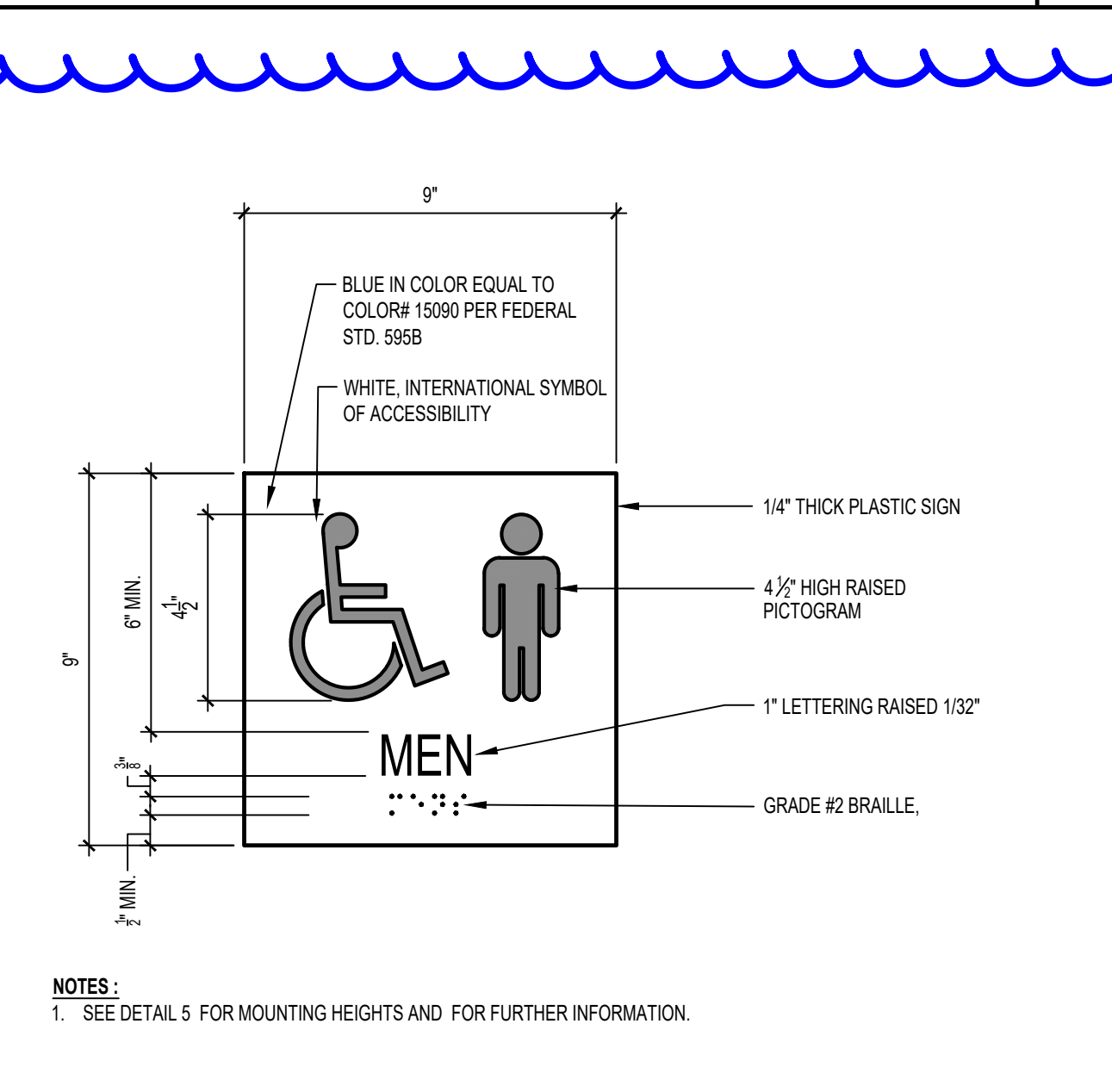
6. MOUNTING HEIGHT AND LOCATION: SIGNS WITH RAISED CHARACTERS AND BRAILLE SHALL BE LOCATED 48" MINIMUM TO THE BASELINE OF THE LOWEST LINE OF BRAILLE AND 60" MAXIMUM TO THE BASELINE OF THE HIGHEST LINE OF RAISED CHARACTERS ABOVE THE FINISH FLOOR OR GROUND SURFACE. MOUNTING LOCATION SHALL BE DETERMINED SO THAT A PERSON MAY APPROACH WITHIN 2' OF SIGNAGE WITHOUT ENCOUNTERING PROTRUDING OBJECTS OR STANDING WITHIN THE SWING OF A DOOR. CBC SECTION 11B-703.4.



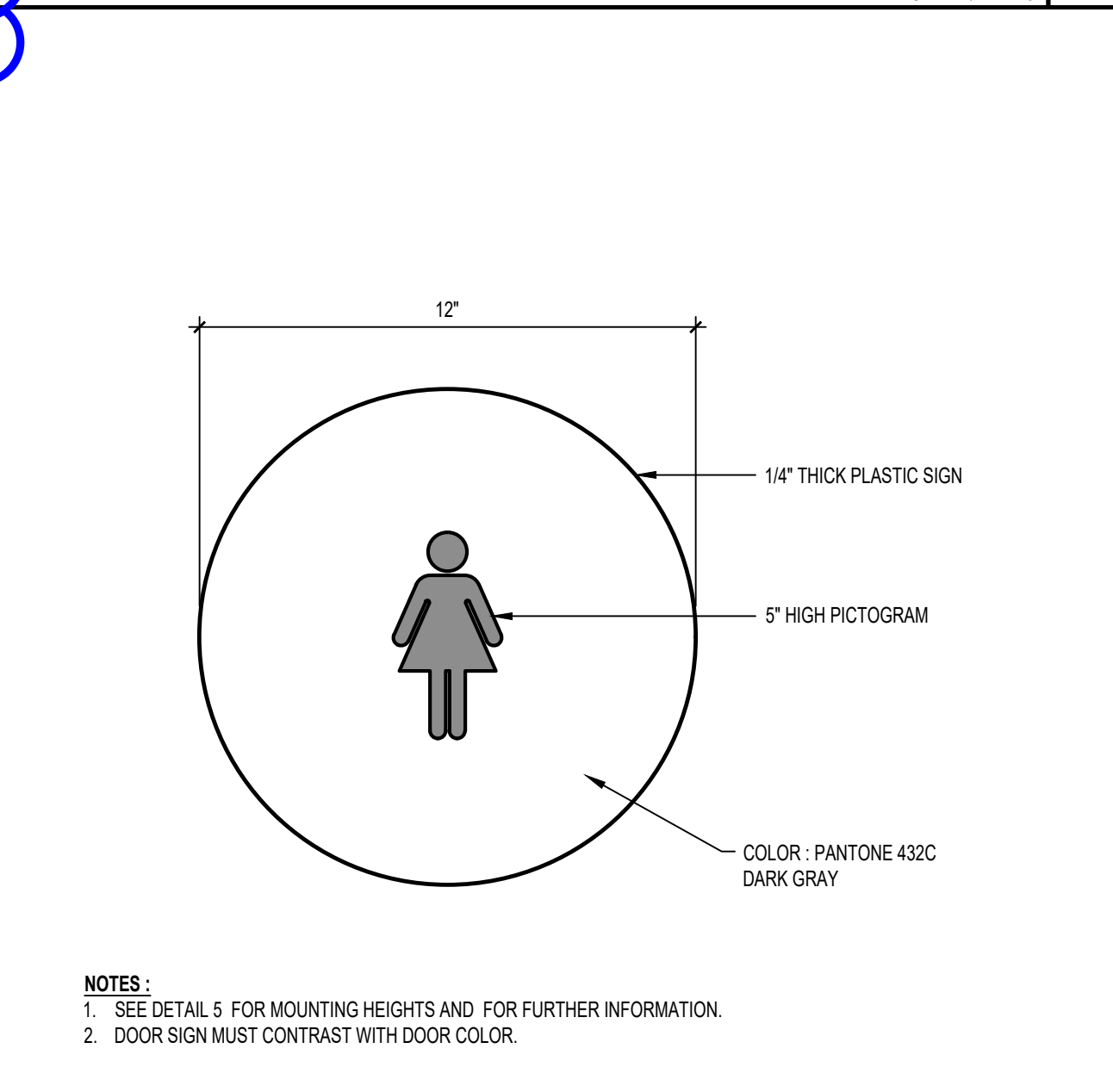
ASSISTIVE-LISTENING DEVICE SIGNAGE
SCALE: 3/4" = 1'-0"



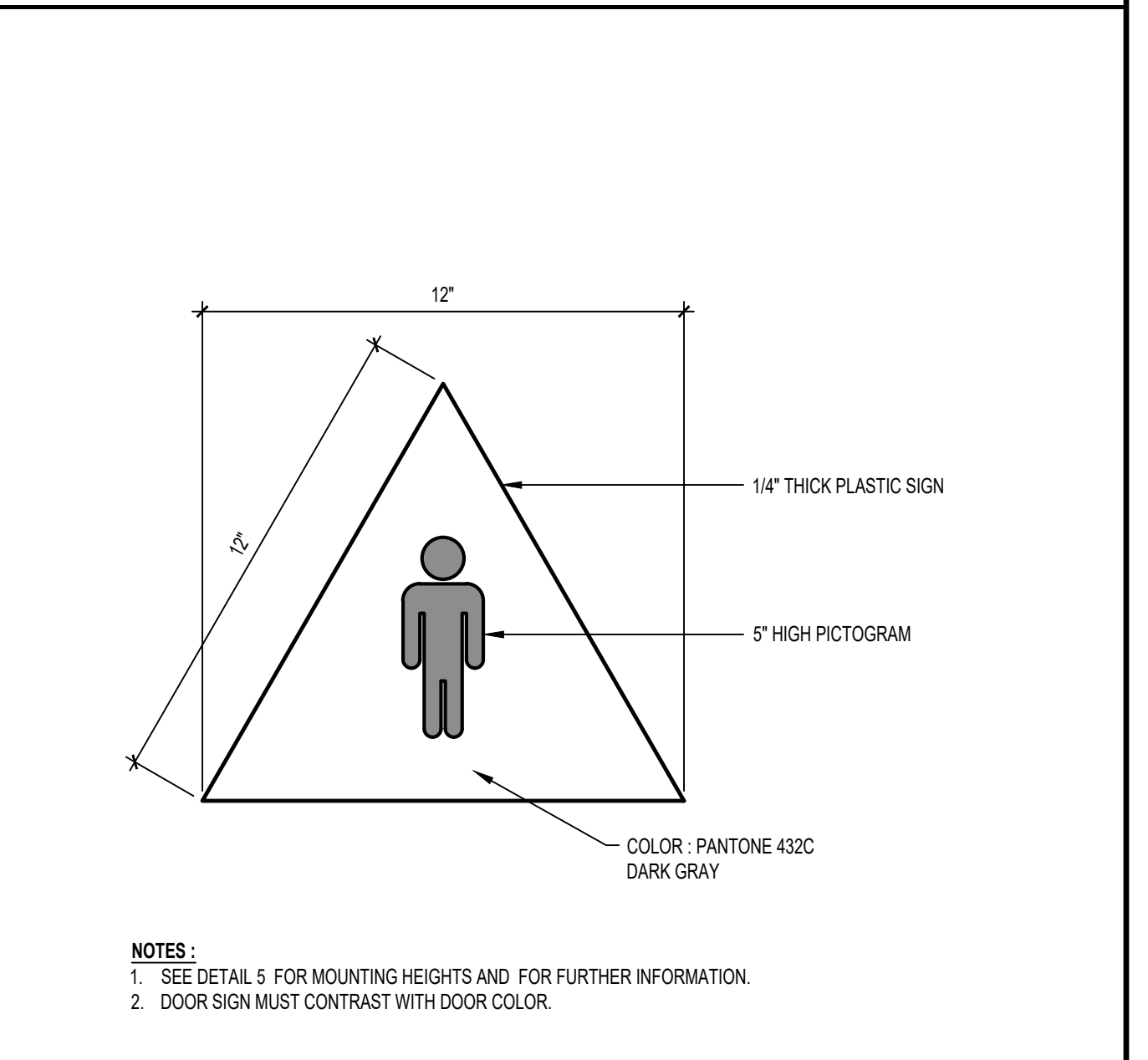
WALL-MOUNTED WOMEN TOILET ROOM SIGNAGE
SCALE: 3/4" = 1'-0"



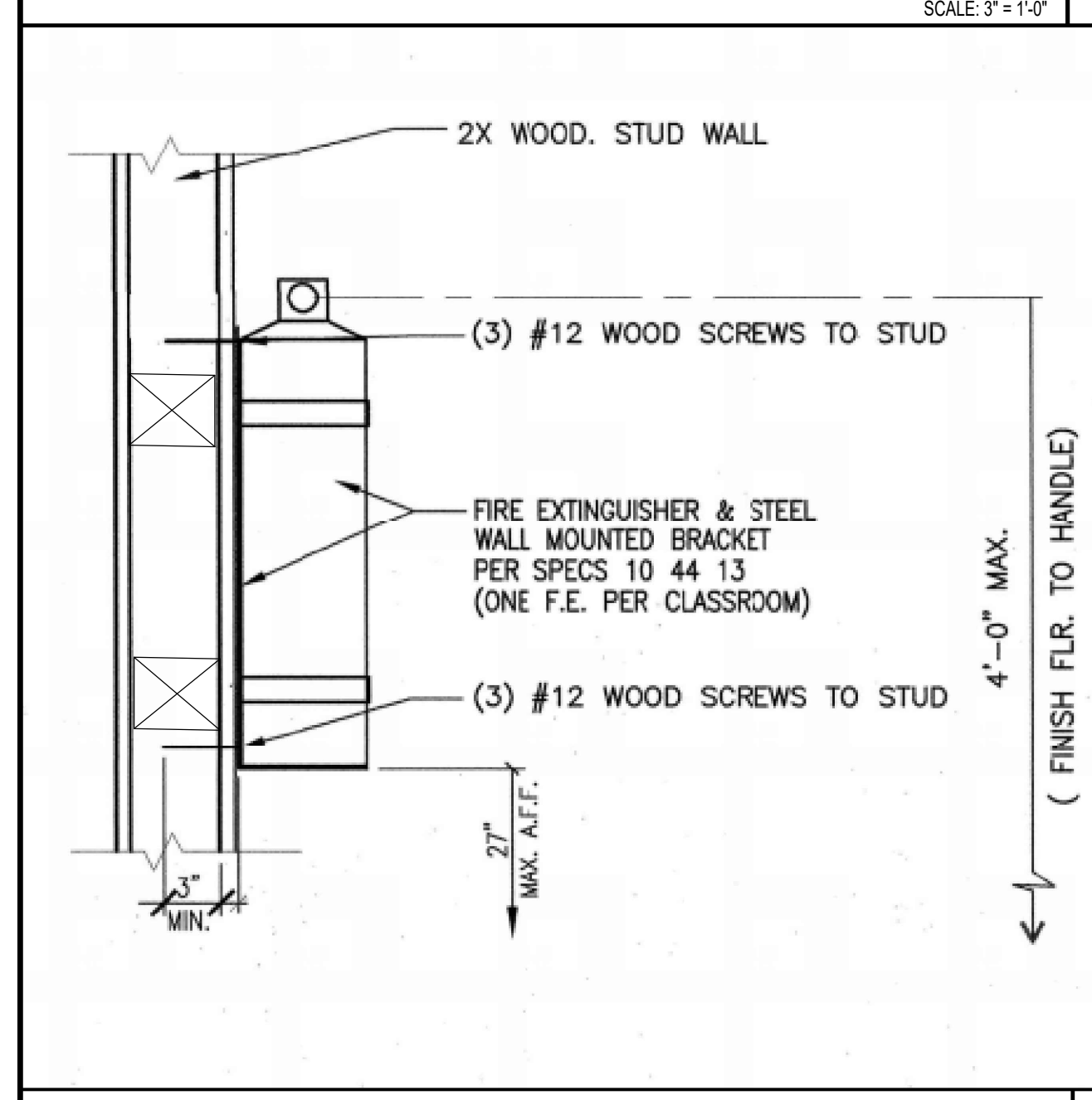
WALL-MOUNTED MEN TOILET ROOM SIGNAGE
SCALE: 3/4" = 1'-0"



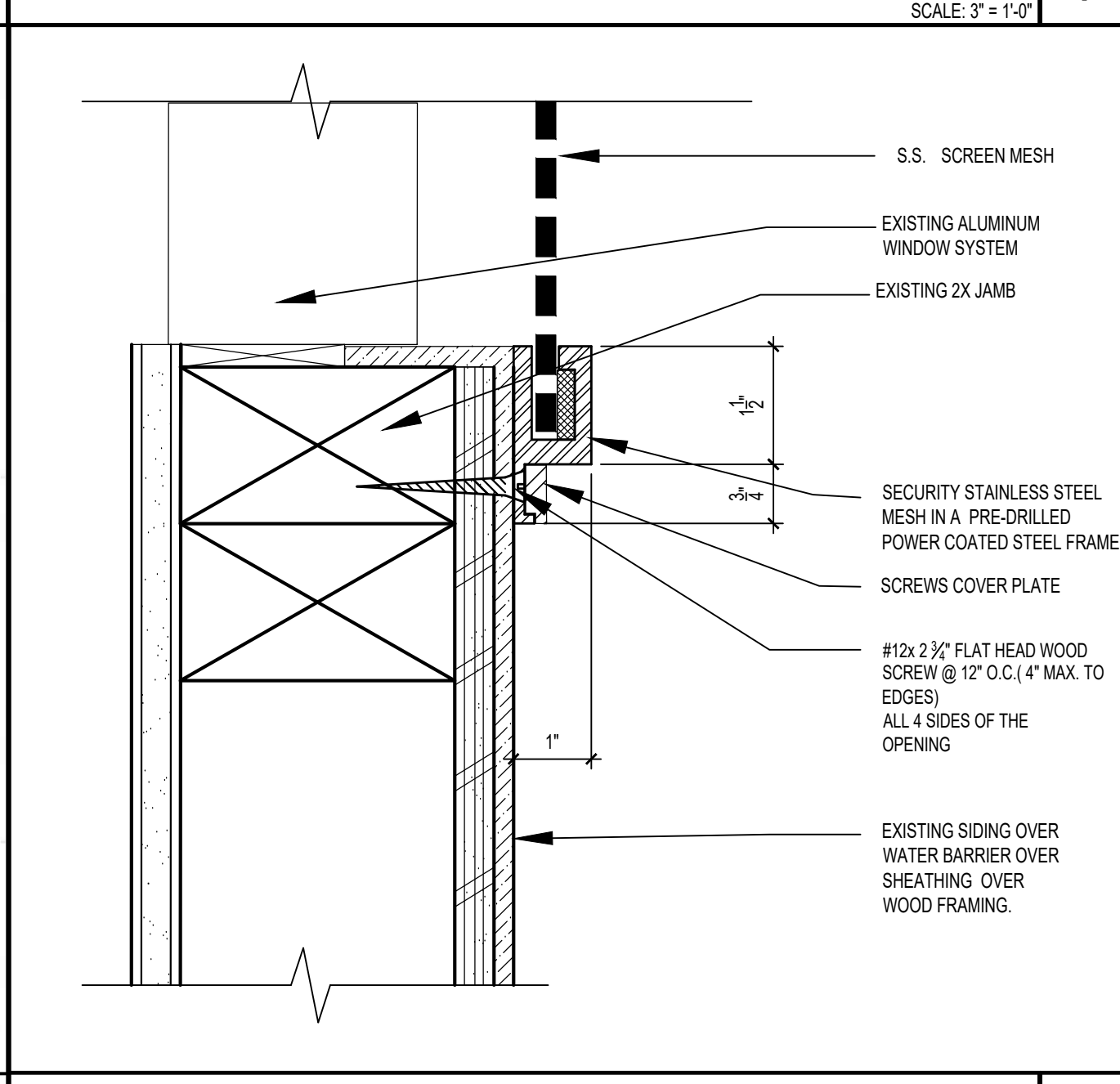
DOOR-MOUNTED WOMEN TOILET RM. SIGNAGE
SCALE: 3/4" = 1'-0"



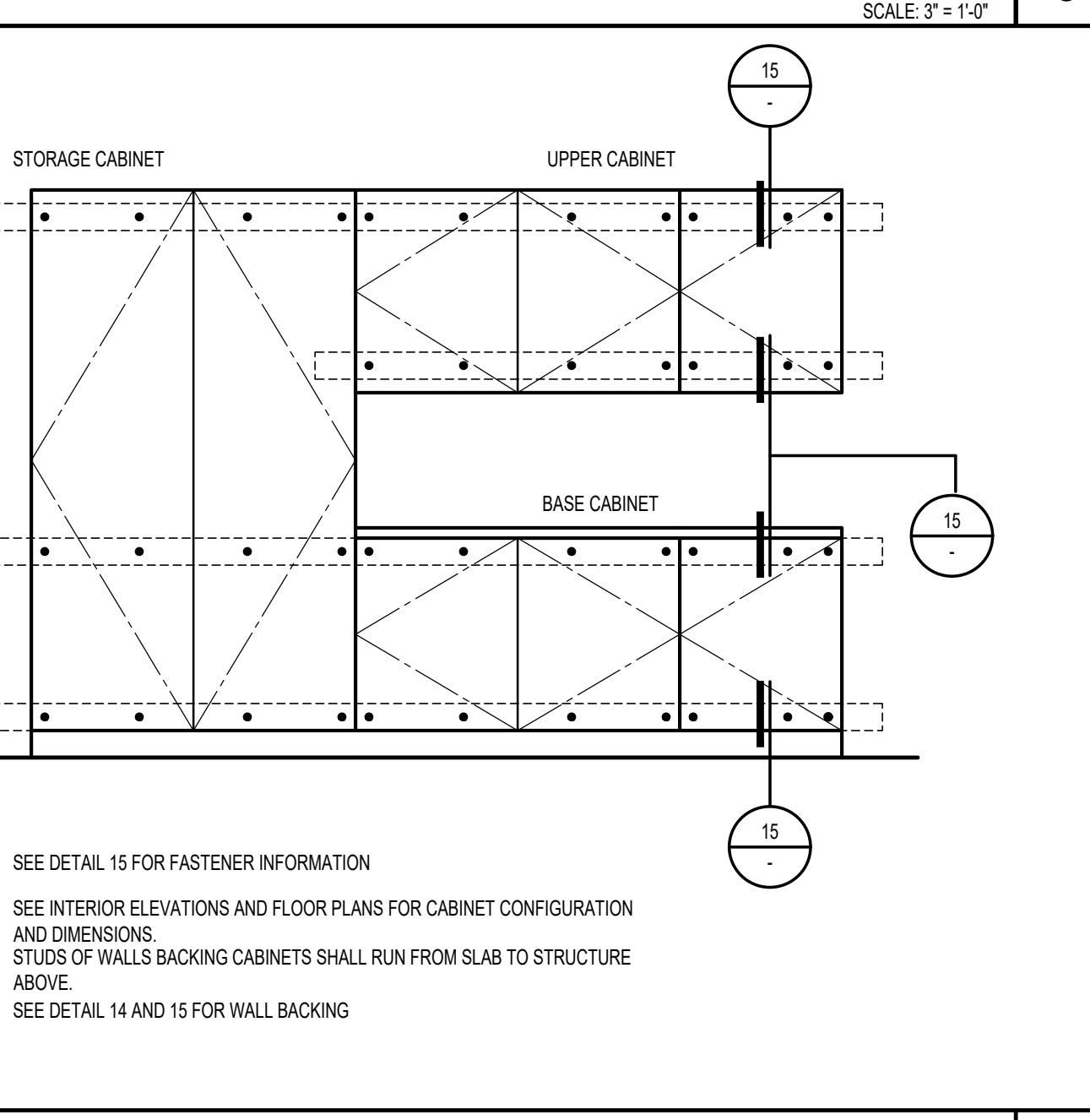
DOOR-MOUNTED MEN TOILET RM. SIGNAGE
SCALE: 3/4" = 1'-0"



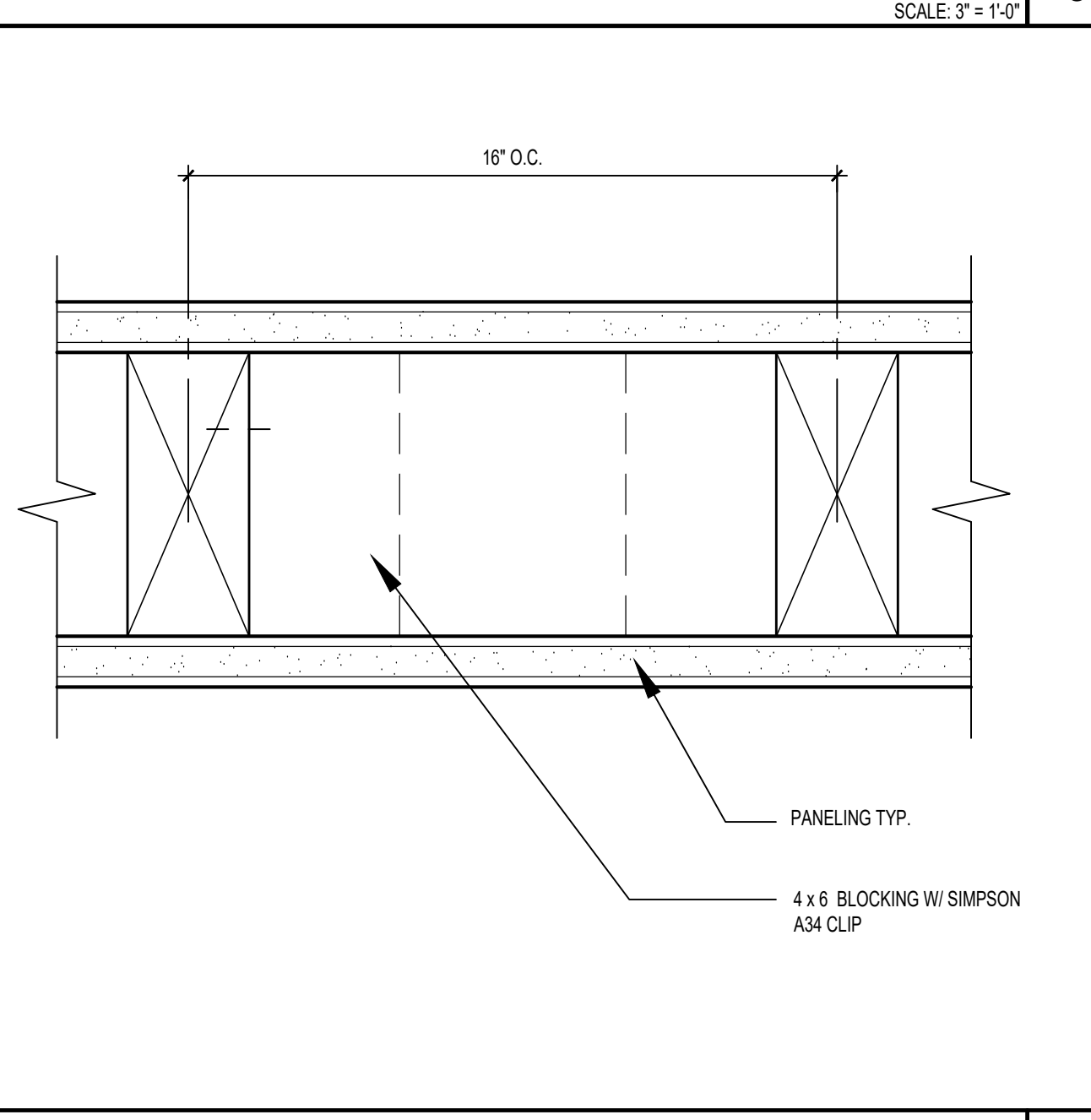
FIRE EXTINGUISHER WALL BRACKET
SCALE: 3/4" = 1'-0"



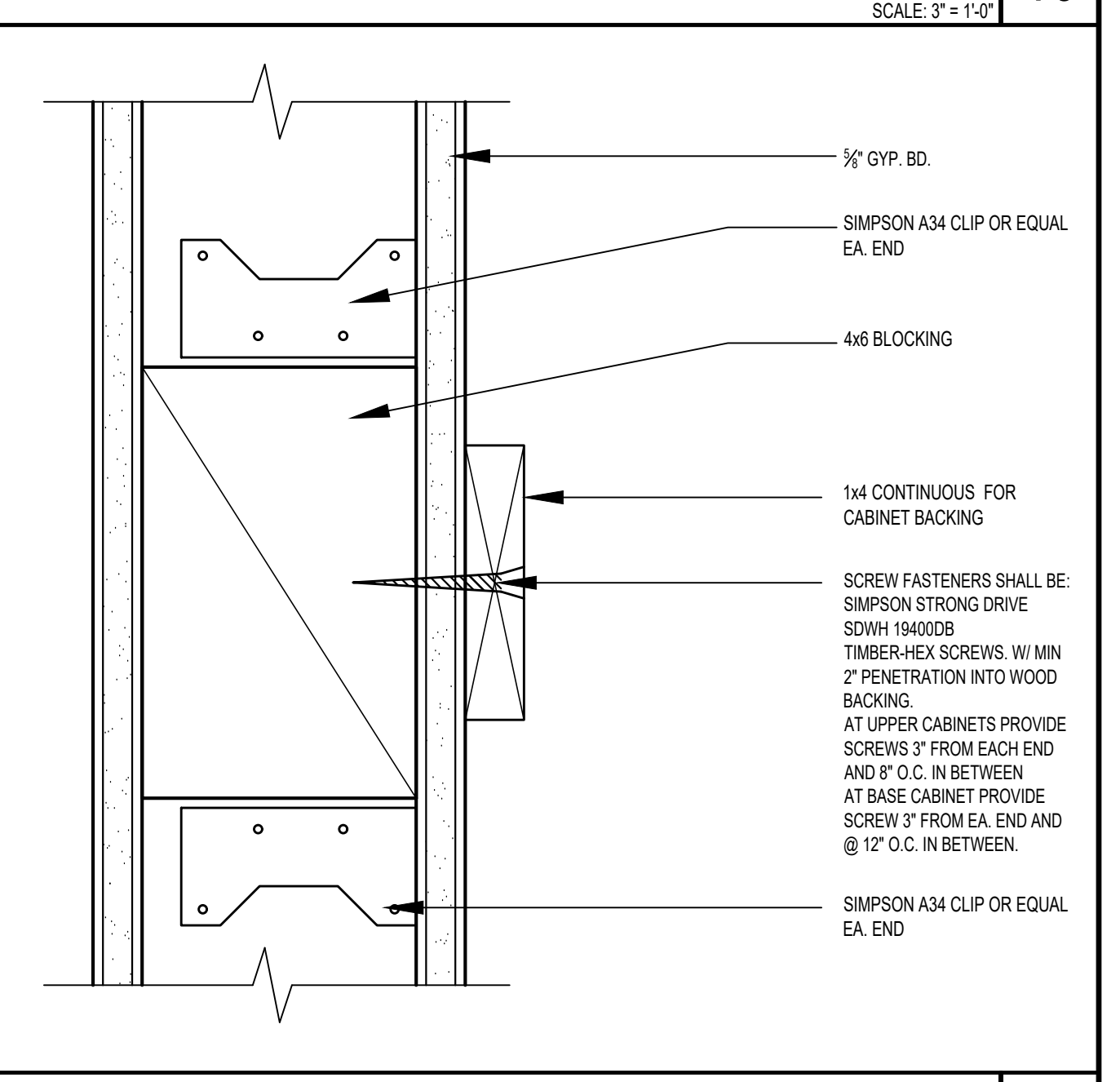
WINDOW SECURITY SCREEN AT WALL
SCALE: HALF



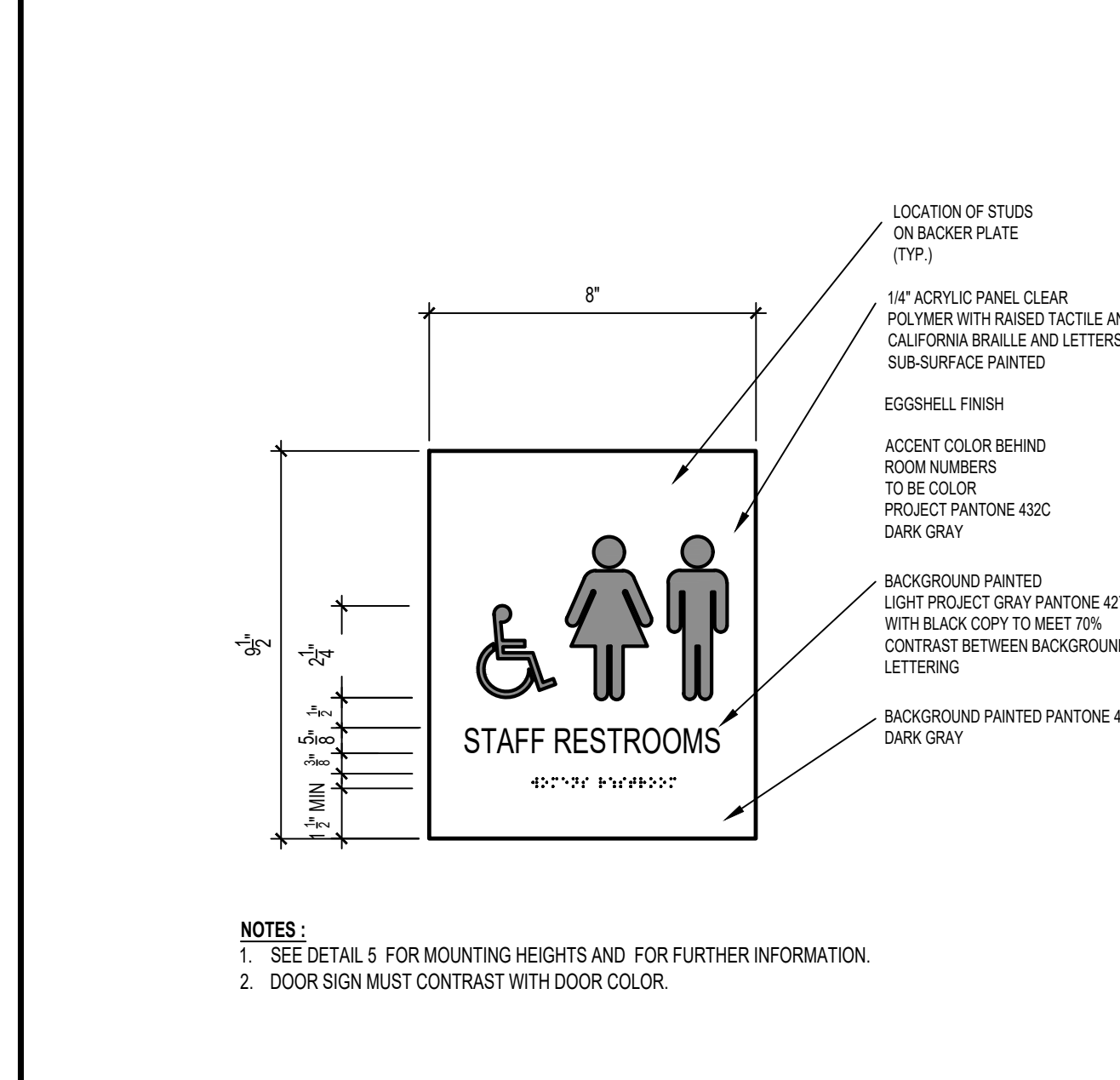
BACKING AND ANCHORAGE DETAIL
SCALE: 1/2" = 1'-0"



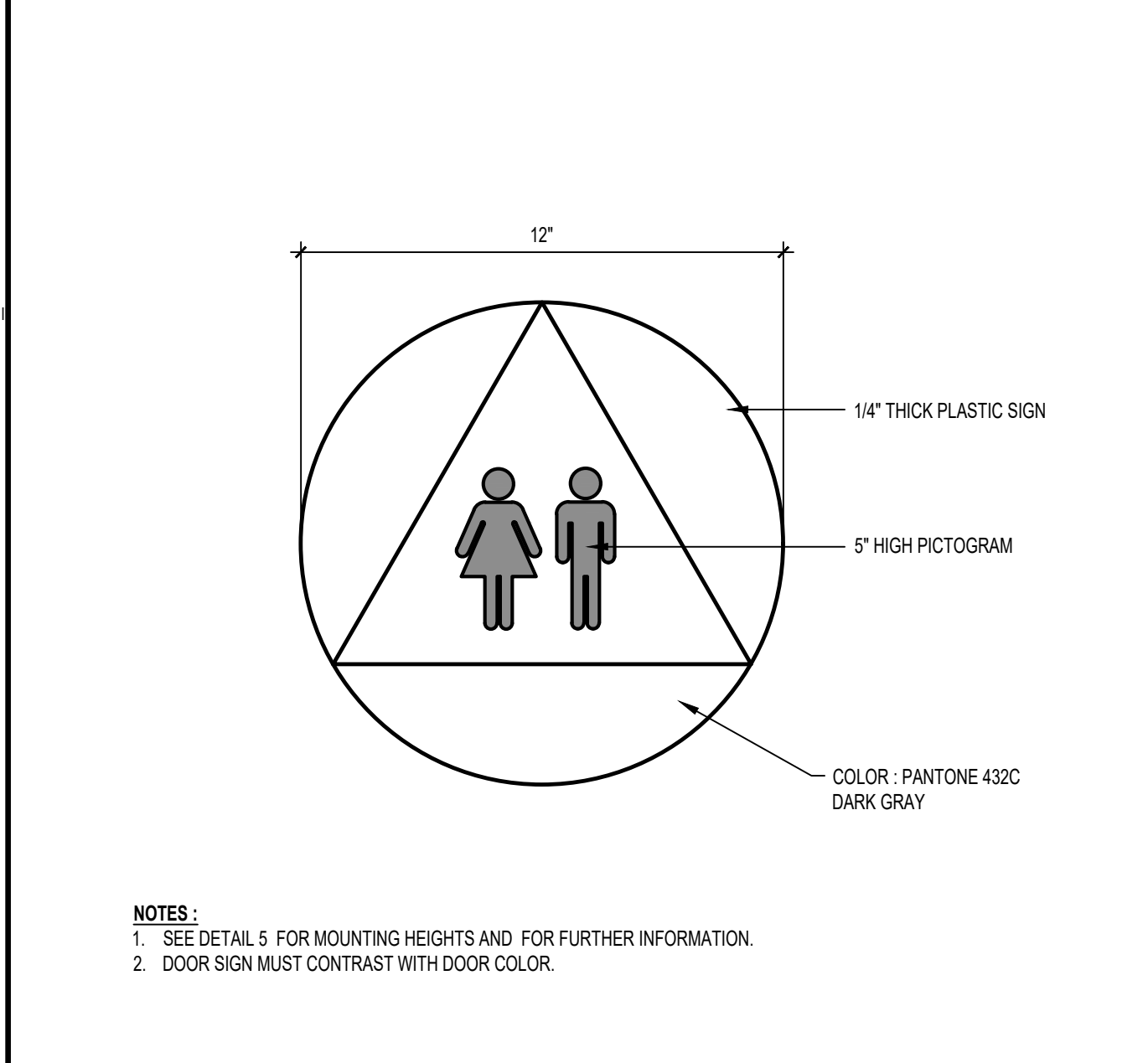
WALL BACKING PLAN
SCALE: HALF



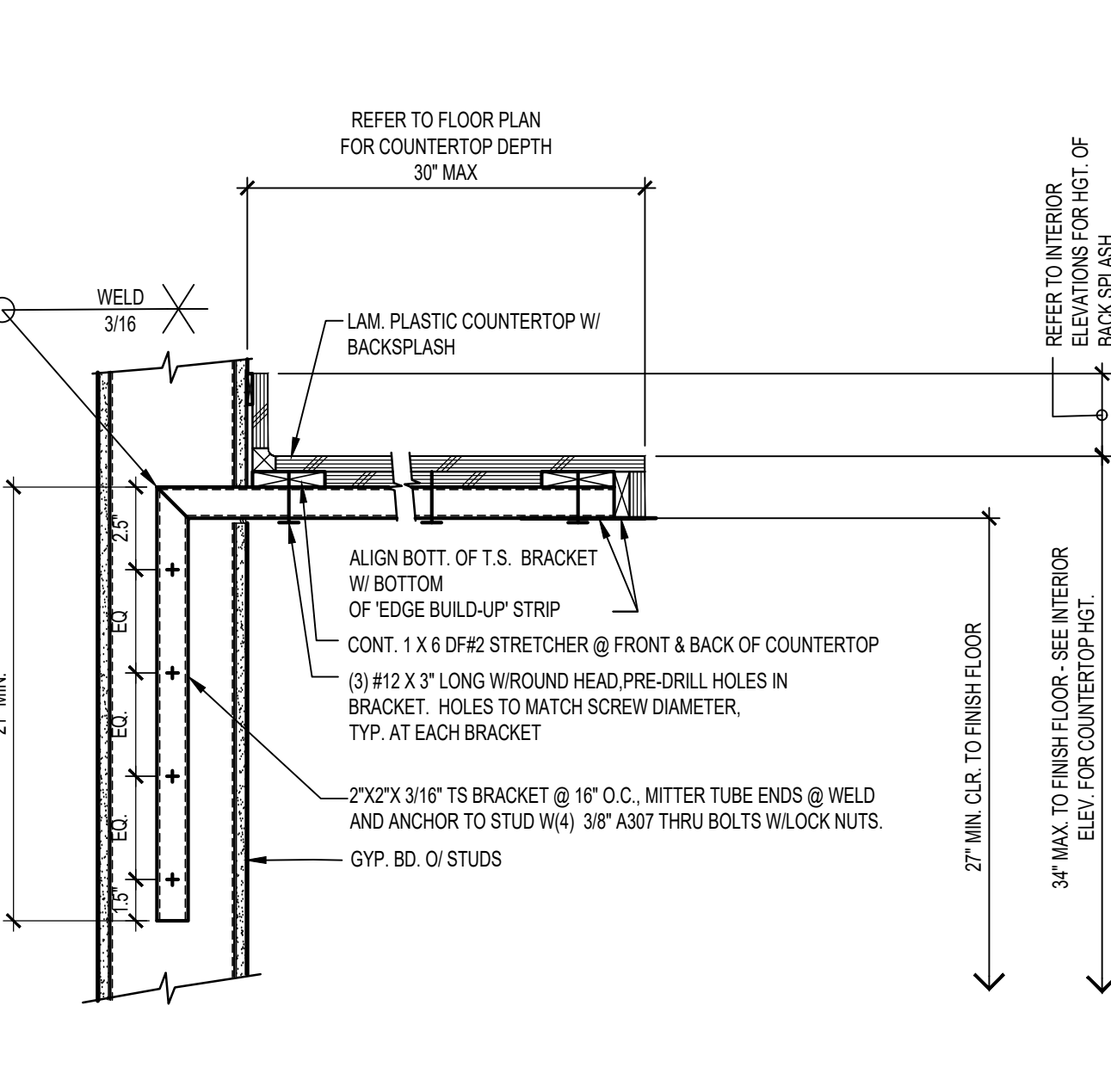
WALL BACKING DETAIL
SCALE: HALF



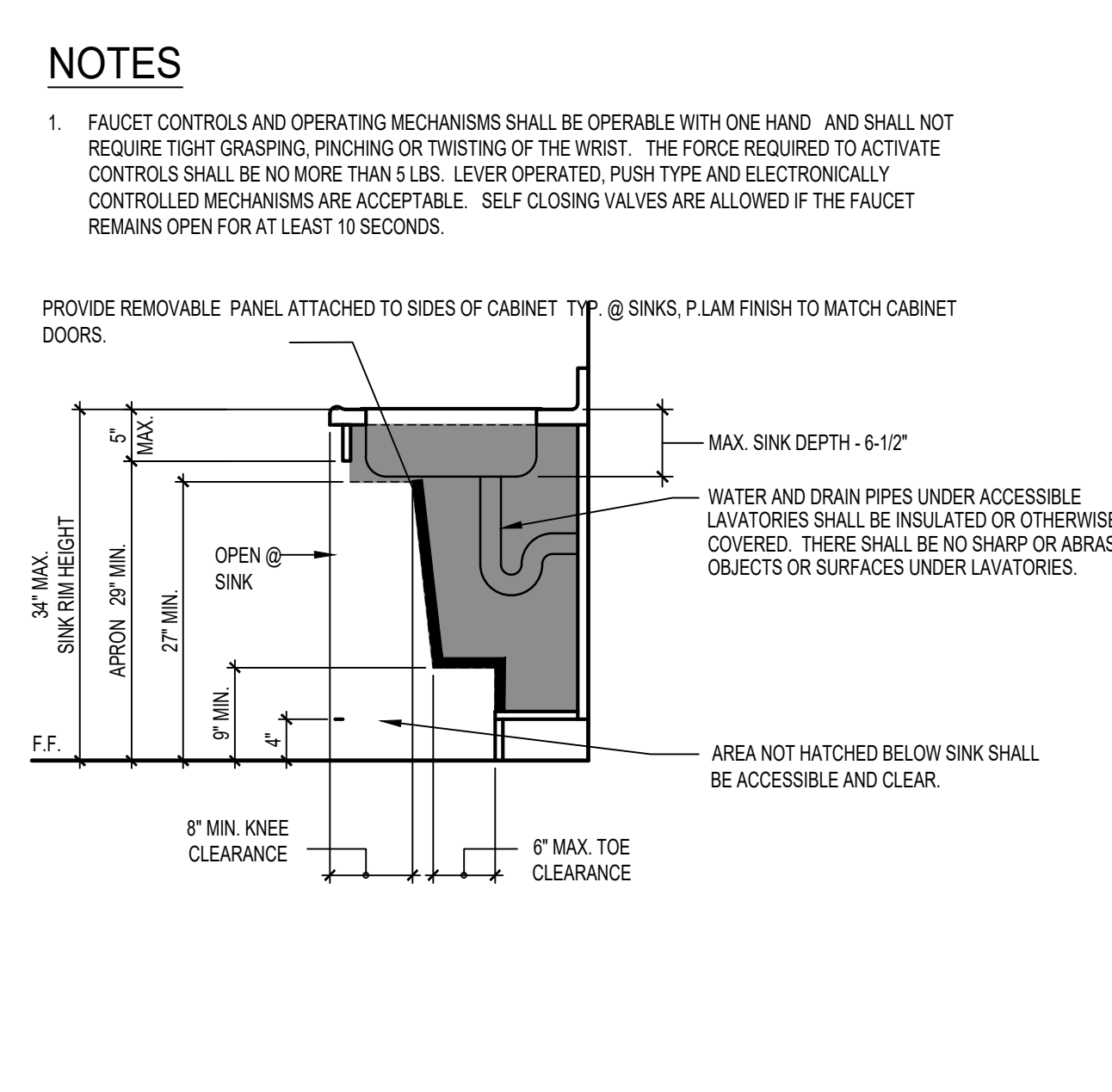
WALL MOUNTED TOILET ROOM SIGN
SCALE: 3/4" = 1'-0"



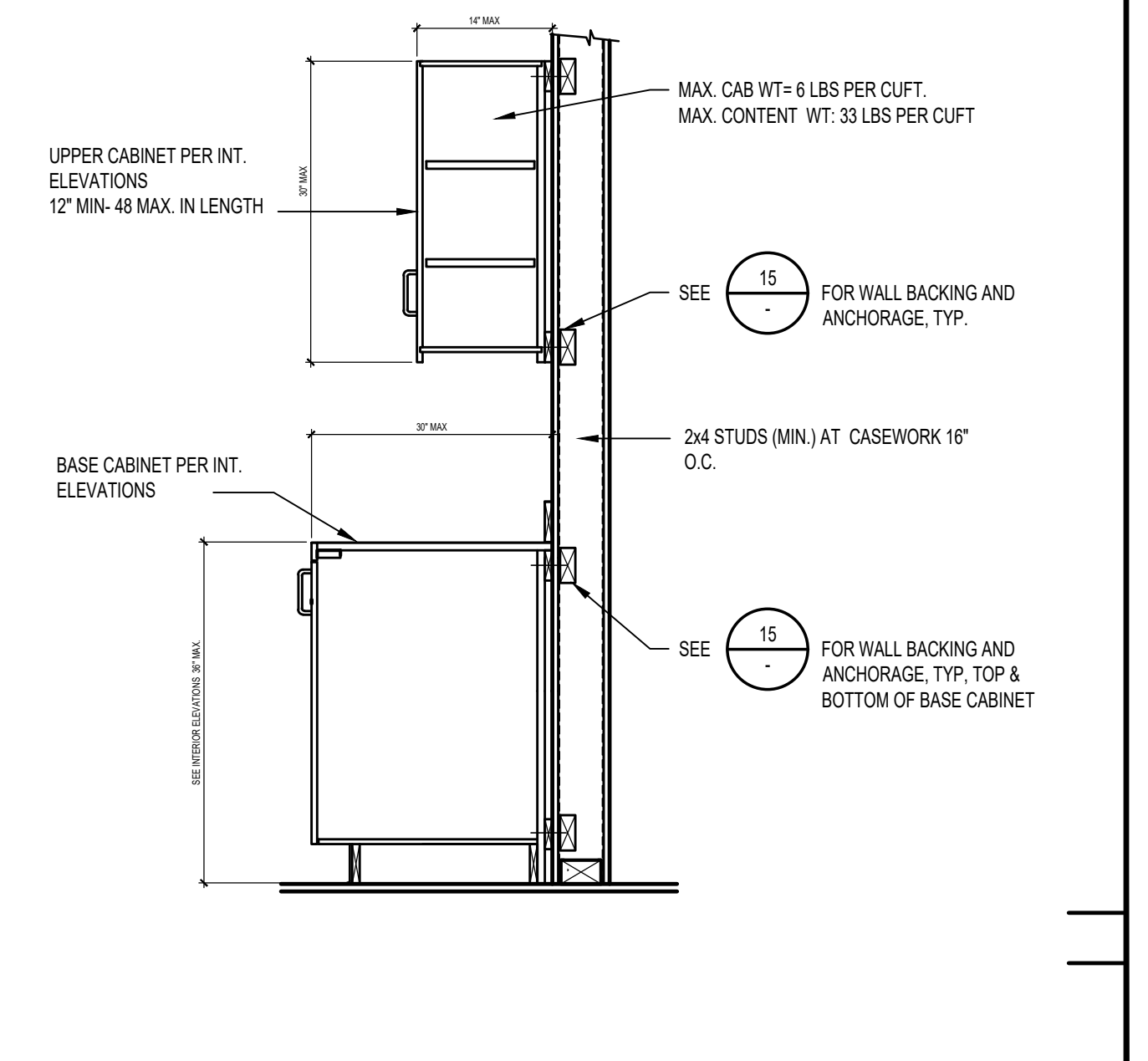
DOOR MOUNTED TOILET ROOM SIGN
SCALE: 3/4" = 1'-0"



LAM. PLASTIC COUNTERTOP DETAIL
SCALE: 1/2" = 1'-0"



ACCESSIBLE SINK SECTION
SCALE: 3/4" = 1'-0"



TYPICAL CASEWORK ANCHORAGE
SCALE: 3/4" = 1'-0"

DIVISION OF THE STATE ARCHITECT
355 SOUTH GRAND AVENUE, SUITE 2100
LOS ANGELES, CA 90071
ph: 213.897.3995 fx: 213.897.3159

agency

BPP
architecture
planning
interiors

LOCKED ARCHITECT & INTERIORS
4611 Teller Avenue
Newport Beach, CA 92660
ph: 949.673.0300 fx: 949.732.3995

architect

consultant

COMPTON COLLEGE
Bio-Tech Classroom in TV23

COMPTON COMMUNITY COLLEGE DISTRICT
1111 E. ARTESIA BLVD.
COMPTON, CA 90221

owner

iBP project number : 21105.00

file name:

drawn by: checked by:

date: 10/01/2023

Rev: date: description:

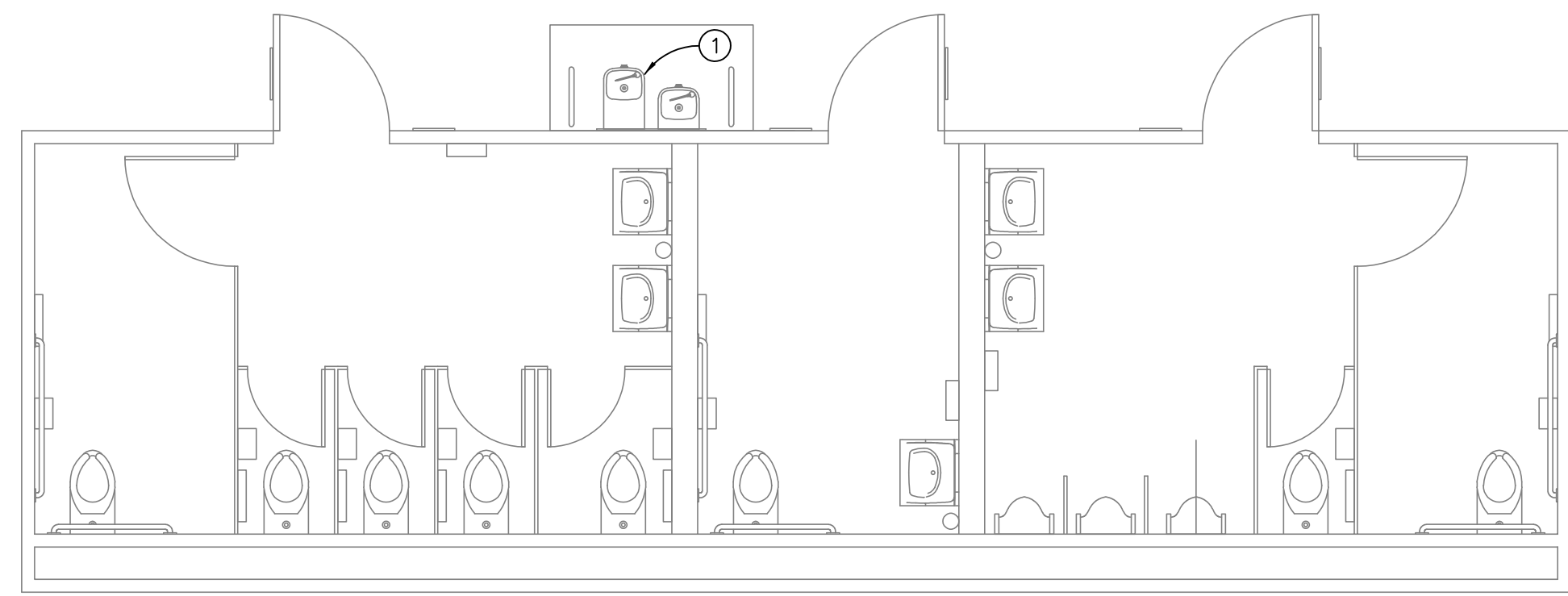
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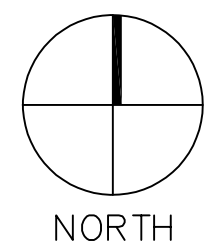
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DETAILS

drawing no.:
A-3

drawing of

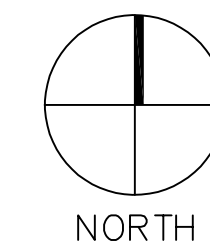
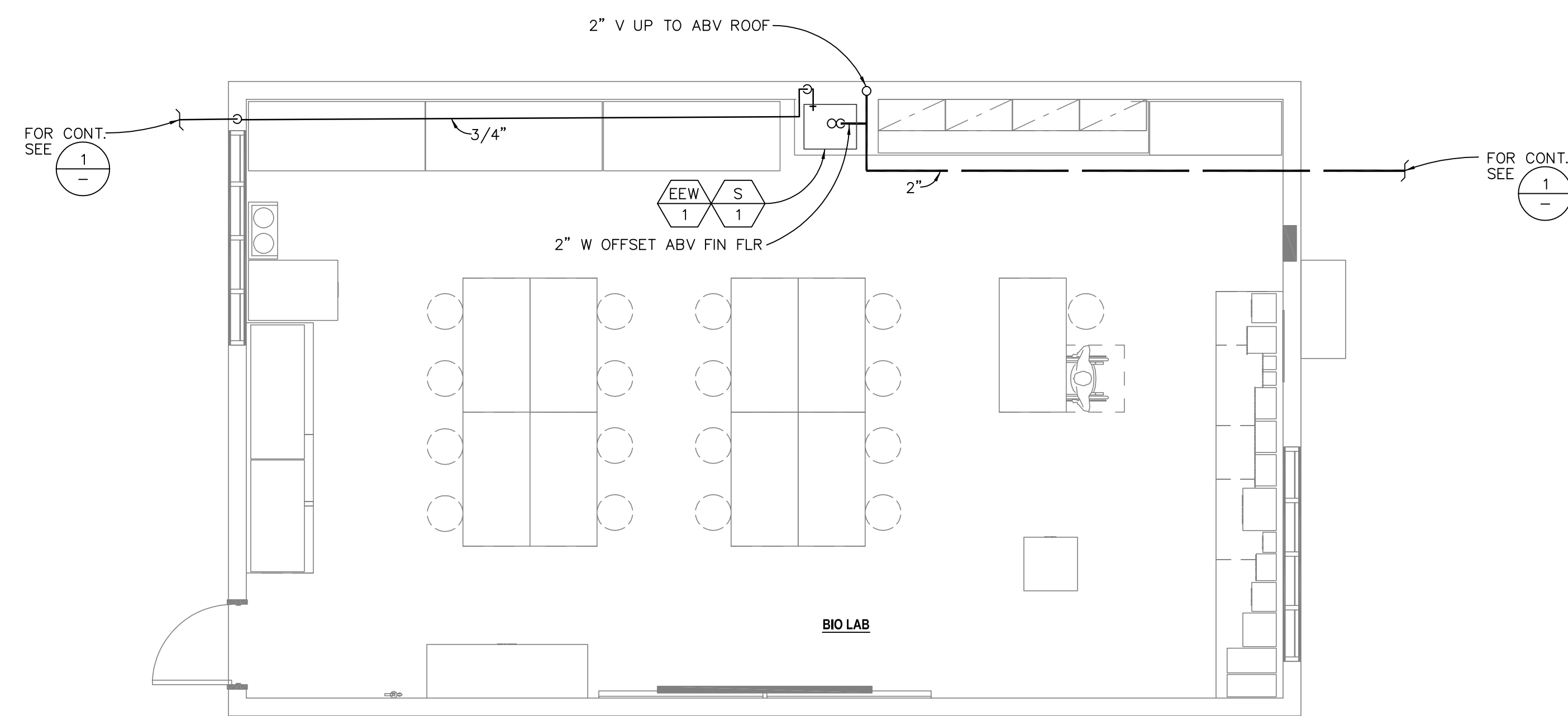


CONSTRUCTION KEY NOTES:
 ① EXISTING HIGH/LOW DRINKING FOUNTAIN TO BE RELOCATED. CONTRACTOR SHALL ROUGH-IN AND CONNECT TO EXISTING SERVICES FOR RELOCATED DRINKING FOUNTAIN.



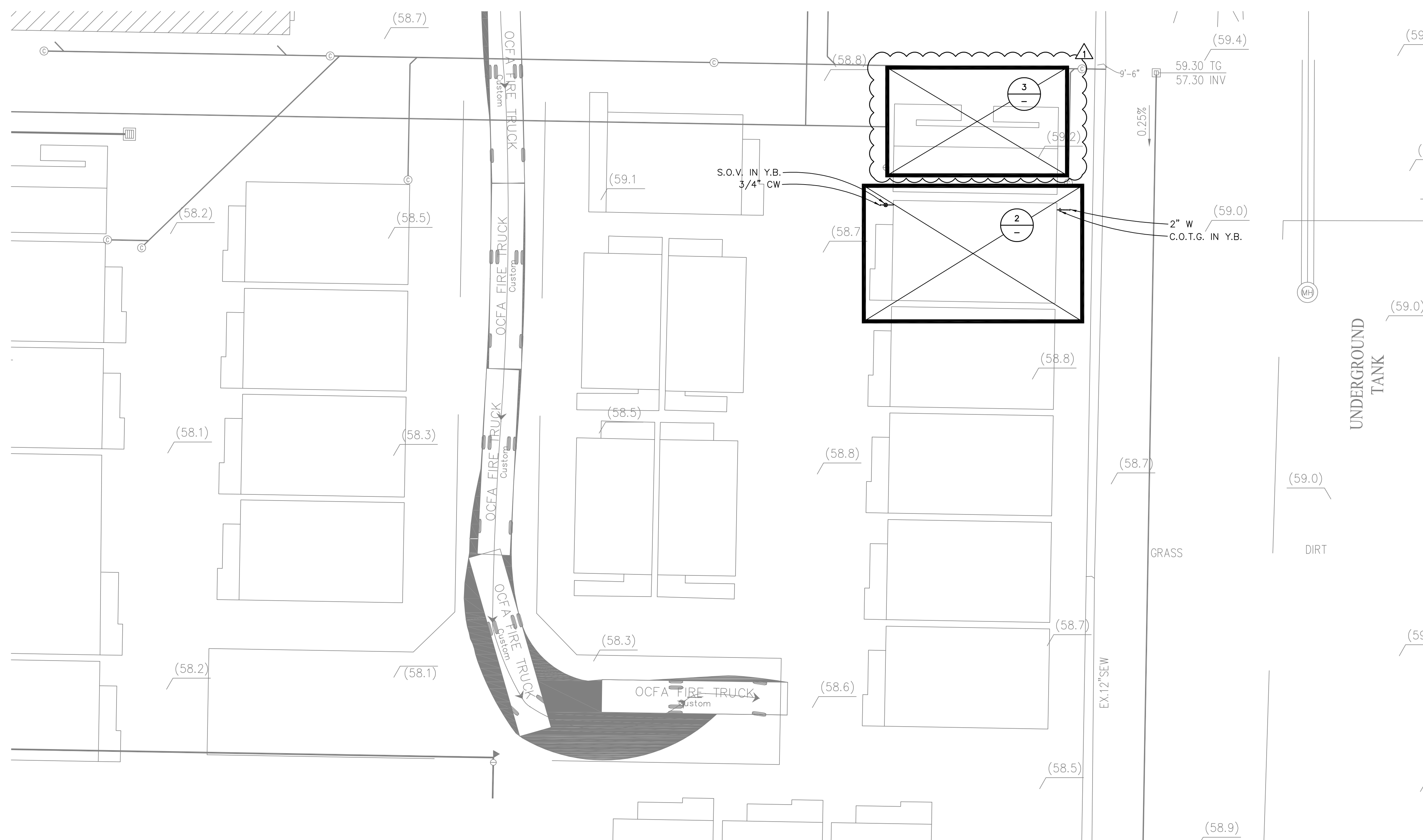
PLUMBING ENLARGED PLAN

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

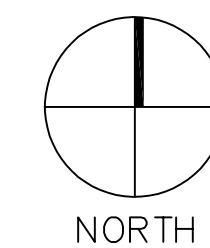


PLUMBING ENLARGED PLAN

SCALE
1/4"=1'-0" 2



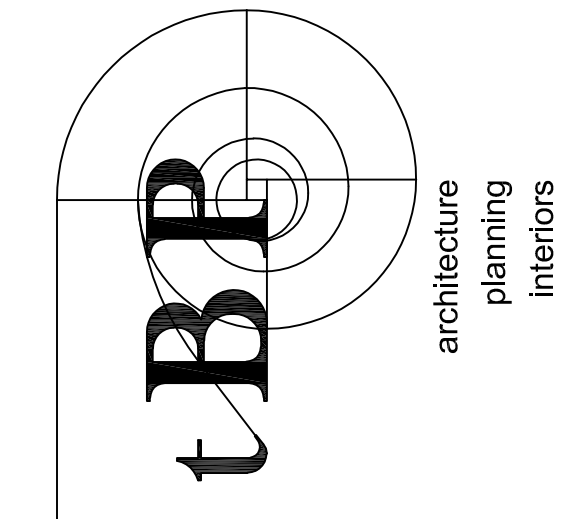
CONSTRUCTION NOTES:
 1. FOR CONTINUATION OF ALL UTILITIES SEE CIVIL ENGINEERING DRAWINGS.
 2. BEFORE COMMENCEMENT OF WORK, THE CONTRACTOR SHALL VERIFY THE EXACT LOCATIONS, ELEVATIONS AND CHARACTERISTICS OF ALL UTILITIES AND PIPING BY PHYSICAL EXCAVATION, AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT OF ANY DISCREPANCIES.
 3. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING UTILITIES AND POINTS OF CONNECTION PRIOR TO BIDDING PROJECT.



SITE PLAN

SCALE
1"=20'-0" 1

DIVISION OF THE STATE ARCHITECT
 335 SOUTH GRAND AVENUE, SUITE 2100
 LOS ANGELES, CA 90071
 ph: 213.897.3995 fx: 213.897.3159



tBP/Architecture
 4611 Teller Avenue
 Newport Beach, CA 92660
 ph: 949.673.0300 fx: 949.732.3895



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Bio Lab Classroom in TV23
 COMPTON COMMUNITY COLLEGE DISTRICT
 1111 E. ARTESIA BLVD.
 COMPTON, CA 90221

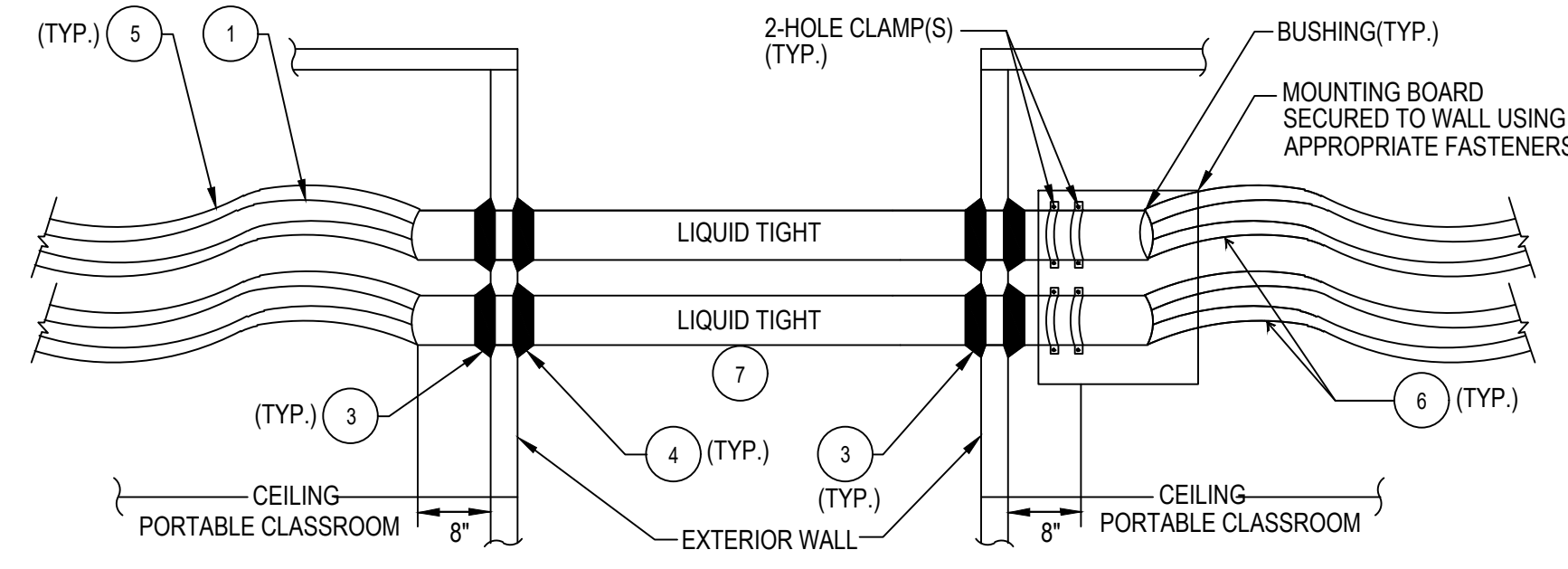
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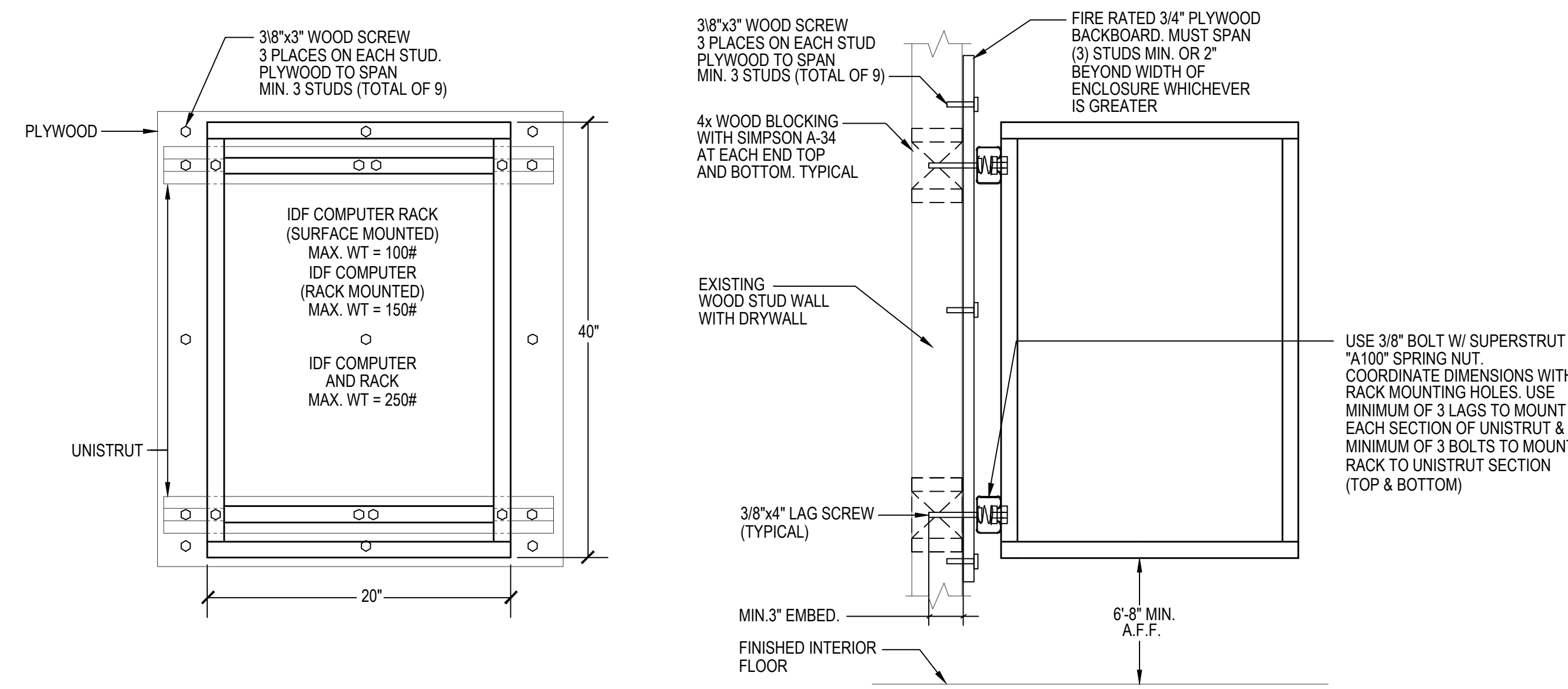
drawing title:
PLUMBING FLOOR AND SITE PLAN

drawing no.:
P1-1
 drawing of

- 1 FIRESTOP SLEEVES WITH STI'S SPEC PUTTY(#SSP100) OR EQUAL, IN AND AROUND CABLES AT BOTH ENDS PER MANUFACTURER'S DIRECTIONS.
- 2 1/2" BEAD 30-YEAR SILICONE CAULK(CLEAR) INTERIOR WALL TYPICAL. DO NOT BOLT/CLAMP THIS SIDE.
- 3 SILICONE CAULK PUSHED INTO BOTH WALL VOIDS FOR A WEATHER/TIGHT SEAL.
- 4 1/2" BEAD 50-YEAR SILICONE CAULK(CLEAR) EXTERIOR WALL TYPICAL. DO NOT BOLT/CLAMP.
- 5 CABLES TO BE SUPPORTED WITHIN 24" OF BUSHING. PROVIDE SLACK FOR SEISMIC EXPANSION.
- 6 MAINTAIN MINIMUM 2" BEND RADIUS FOR CABLES PROVIDE SLACK FOR SEISMIC EXPANSION.
- 7 CONTRACTOR MAY INSTALL LIQUID TIGHT SIDE BY SIDE WITH MINIMUM 2" SEPARATION.



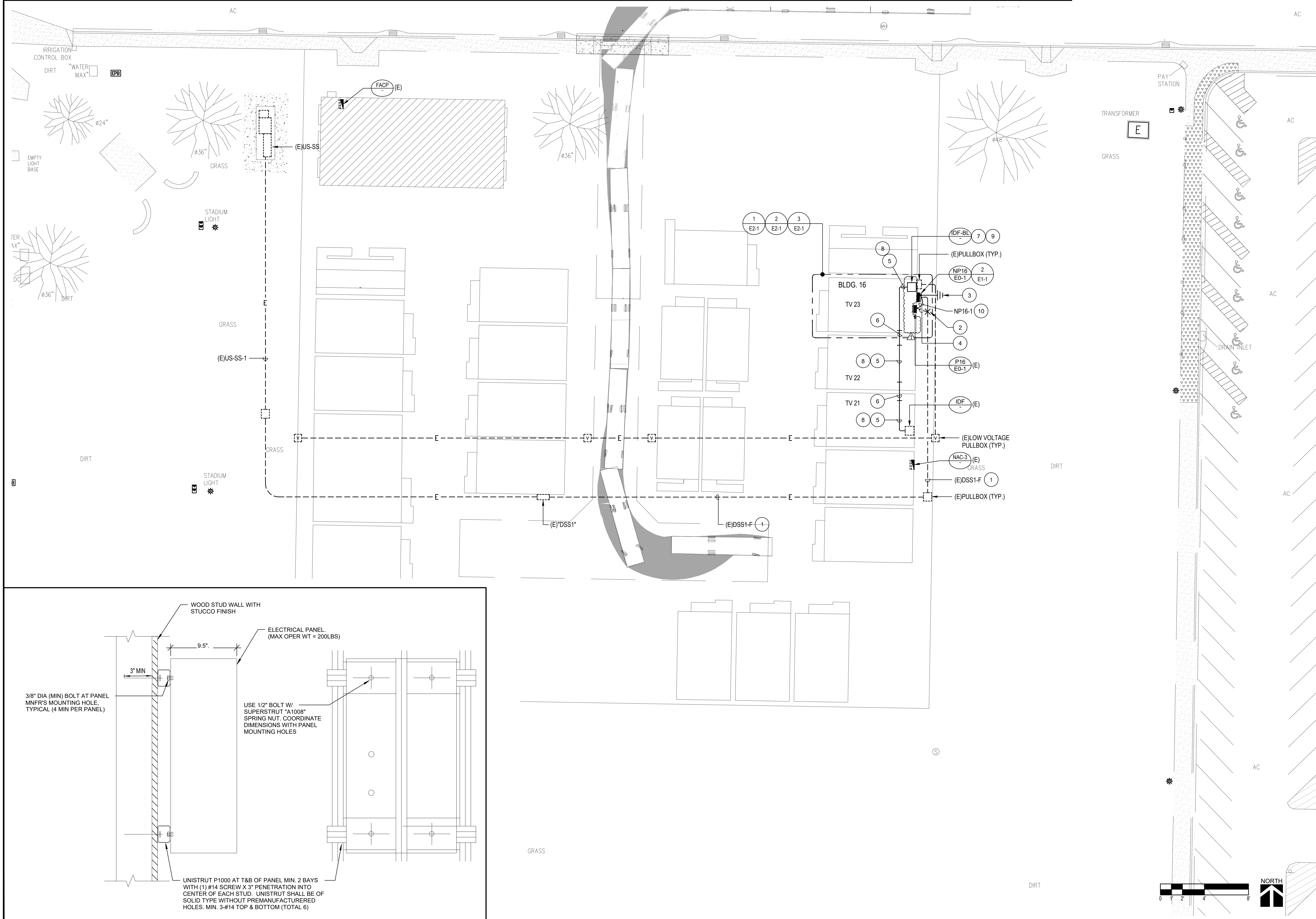
MODULAR BUILDING CONDUIT SLEEVE DETAIL SCALE: N.T.S. 3



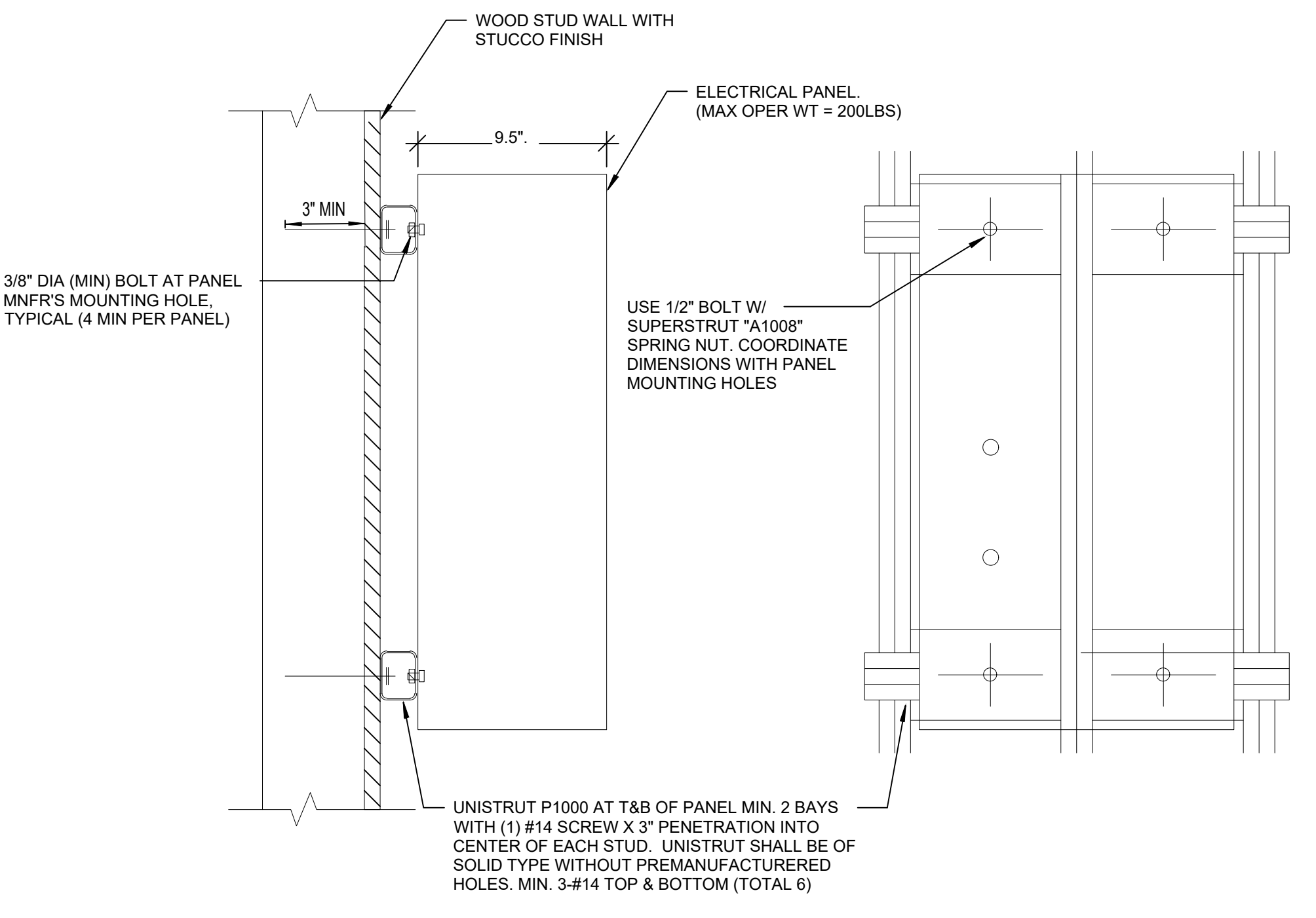
SURFACE MOUNT IDF ANCHORAGE SCALE: N.T.S. 4

PLAN NOTES

- 1 REMOVE EXISTING POWER CONDUCTORS AND INSTALL NEW CONDUCTORS IN EXISTING CONDUIT. SEE SINGLE LINE DIAGRAM SHEET E0-1.
- 2 INTERCEPT AT EXISTING FEEDER AND REROUTE TO NEW PANEL.
- 3 PROVIDE NEW PANEL'S GROUNDING SYSTEM PER DETAIL 1/E0-1.
- 4 DISCONNECT AND REMOVE CONNECTION FROM EXISTING PANEL.
- 5 PROVIDE 2" CONDUIT IN CEILING SPACE OF THE BUILDING FOR ROUTING NEW FIBER OPTIC CABLE FROM EXISTING IDF TO NEW IDF.
- 6 PROVIDE ONE(1) 2" CONDUIT SLEEVE PER DETAIL "3/E1-1" FROM EXISTING IDF.
- 7 PROVIDE 24"Wx24"Hx30"D DATA CABINET WALL MOUNTED WITH ALL ACCESSORIES, PATCH PANELS, WIRE MANAGEMENT AND ALL REQUIRED ITEMS. THE SWITCHES SHALL BE OFCI. THE CABINET SHALL BE HOFFMAN ACCESSPLUS DOUBLE HINGE SERIES OR APPROVED EQUAL.
- 8 PROVIDE 12 STRAND SINGLE MODE FIBER OPTIC CABLE FOR NEW IDF.
- 9 REFER TO DETAIL "4/E1-1" ON THIS SHEET FOR INSTALLATION NEW IDF CABINET.
- 10 PROVIDE NEW CONNECTION FROM NEW PANEL TO EXISTING PANEL.

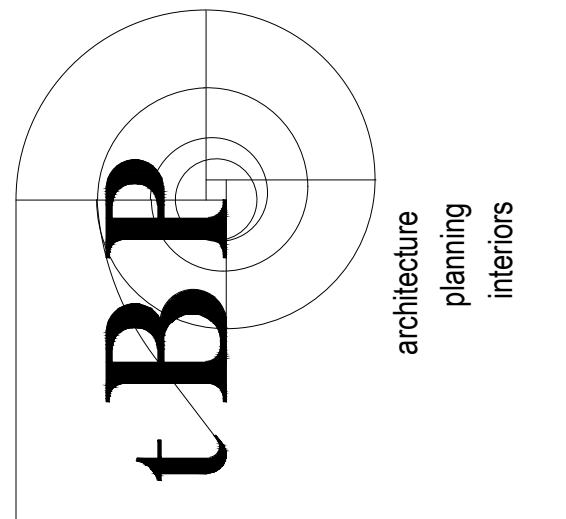


SITE ELECTRICAL PLAN SCALE: 1"=20'-0" 1

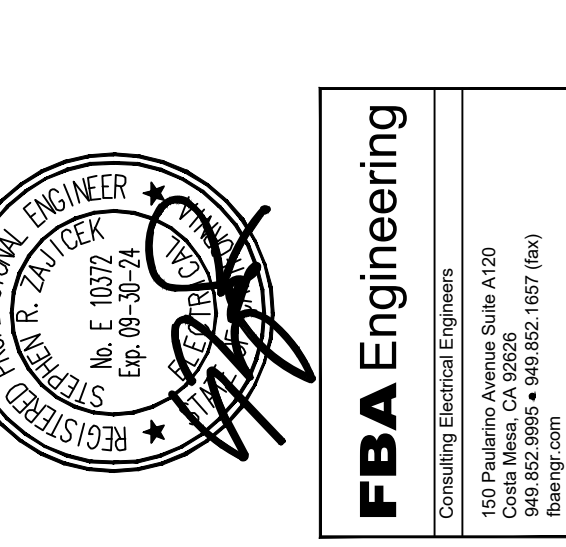


SURFACE MOUNTING EQUIPMENT ANCHORAGE DETAIL SCALE: N.T.S. 2

DIVISION OF THE STATE ARCHITECT
355 SOUTH GRAND AVENUE, SUITE 2100
LOS ANGELES, CA 90071
ph: 213.897.3995 fx: 213.897.3159



IBP/Architecture
4611 Teller Avenue
Newport Beach, CA 92660
ph: 949.873.0300 fx: 949.732.3695



consultant

COMPTON COLLEGE
Bio-Tech Classroom in TV23
COMPTON COMMUNITY COLLEGE DISTRICT
1111 E. ARTESIA BLVD.
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owner

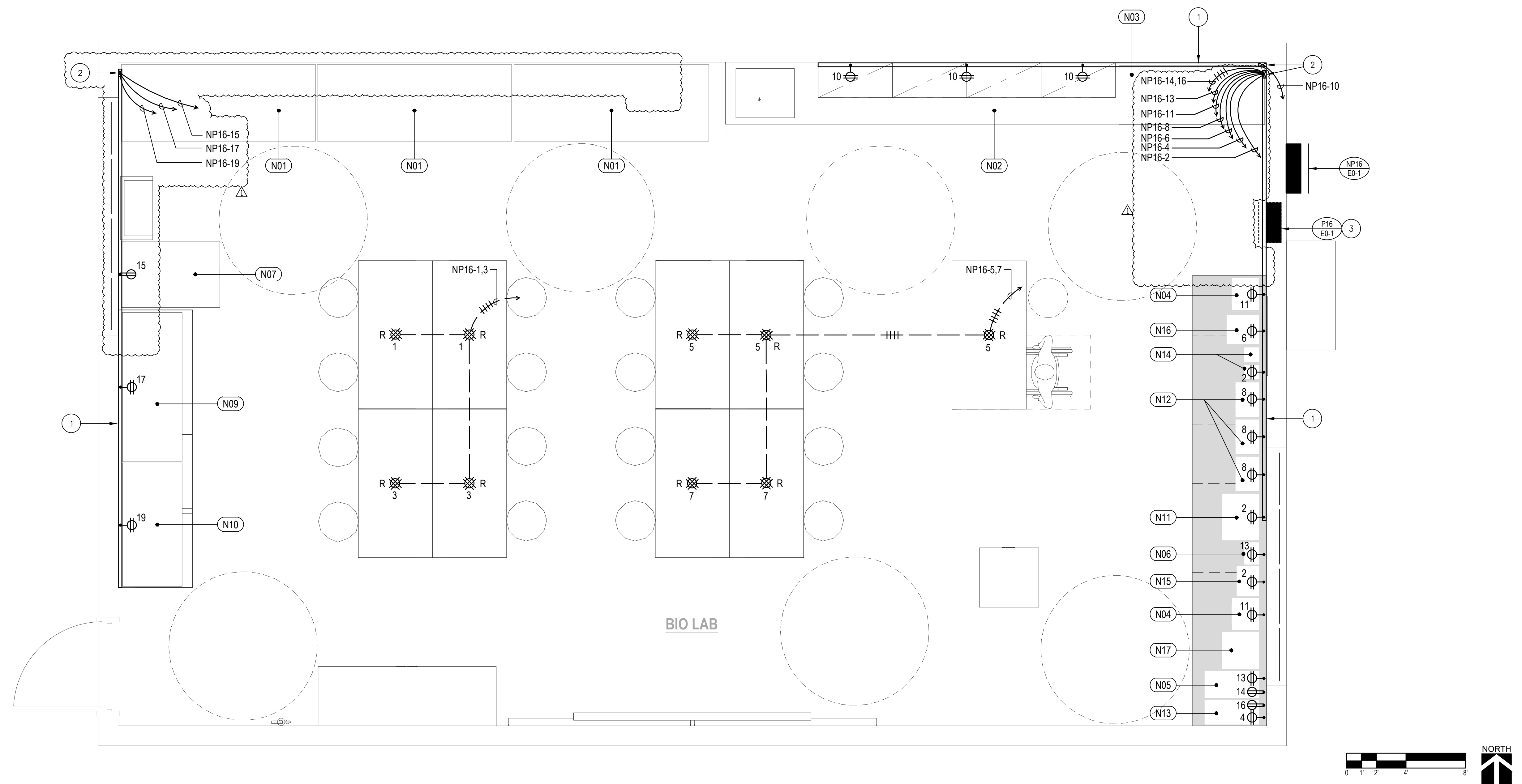
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SITE ELECTRICAL
PLAN

drawing no.:
E1-1
drawing of

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- PLAN NOTES**
- TWO (2) SECTION ALUMINUM RACEWAY SYSTEM FOR ROUTING POWER, DATA AND AUDIOVISUAL CABLING COMPLETE WITH POWER, DATA OUTLETS, DEVICE BRACKETS AND OTHER ACCESSORIES, WIREMOLD 5400 OR EQUAL. PROVIDE FITTINGS AND VERTICAL WIRE WAY AND AUDIOVISUAL WHERE CHANGE OF ELEVATION IS REQUIRED PER FIELD CONDITIONS. LOCATE DUPLEX POWER OUTLETS FOR EACH STATION AS INDICATED ON THE DRAWINGS.
 - EXTEND RACEWAY WALL MOUNTED AND VERTICALLY TO CEILING SPACE.
 - EXISTING PANEL TO REMAIN. PROVIDE NEW CIRCUIT BREAKER FOR SERVICE TO NEW PANEL NP16 PER SINGLE LINE DIAGRAM, SHEET ED-1.

DIVISION OF THE STATE ARCHITECT
355 SOUTH GRAND AVENUE, SUITE 2100
LOS ANGELES, CA 90071
ph: 213.897.3995 fx: 213.897.3159

agency

tBP
architecture
planning
interiors

tBP/Architecture
4611 Teller Avenue
Newport Beach, CA 92660
ph: 949.673.0300 fx: 949.732.3695

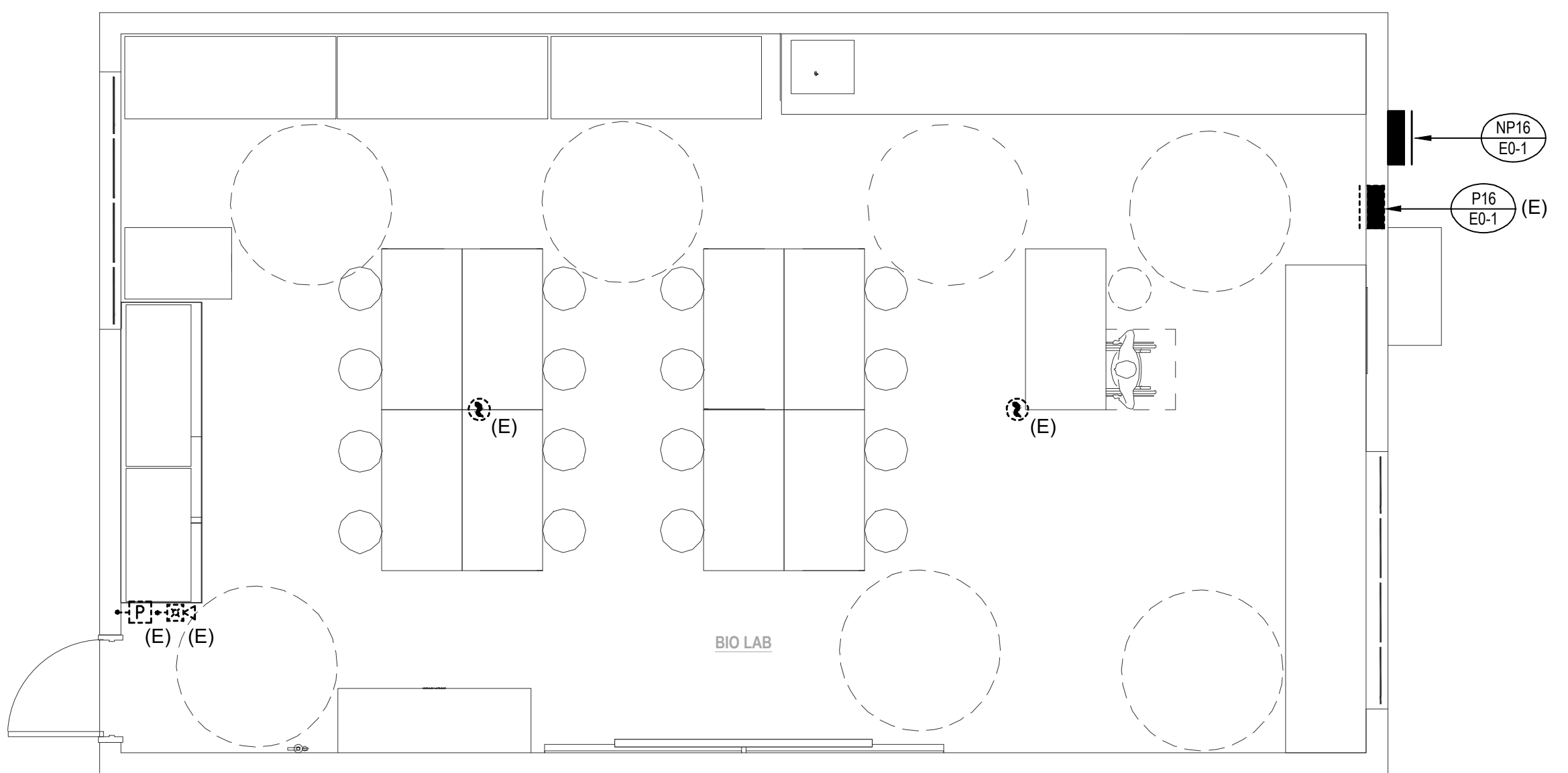
architect

FBA Engineering
Consulting Electrical Engineers
1500 Palmdale Avenue, Suite A120
Palmdale, CA 91356
ph: 805.209.9100 e: info@fba-engineering.com
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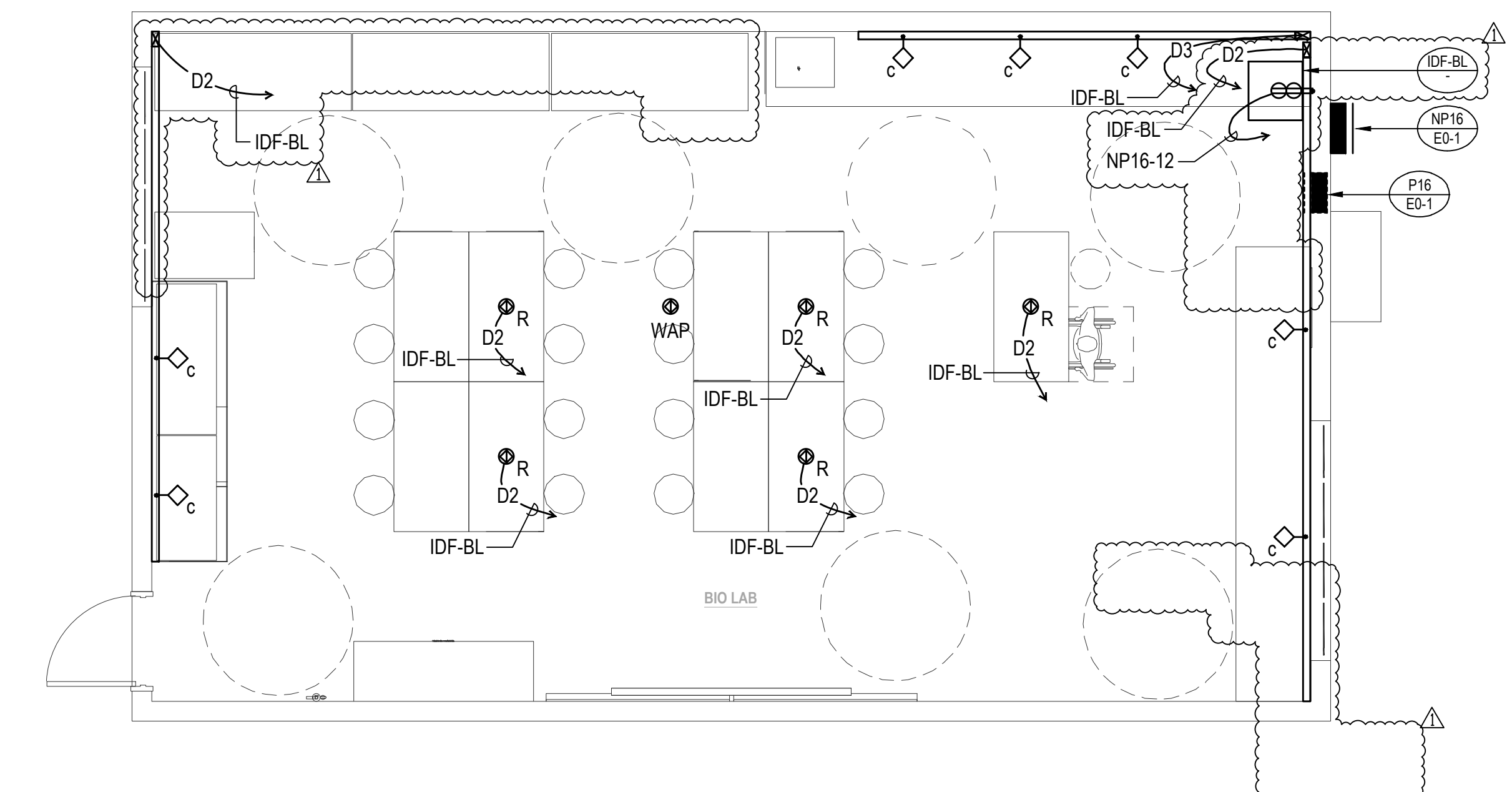
consultant

BIO LAB ELECTRICAL PLAN SCALE: 1/2"=1'-0" 1

ALL FIRE ALARM DEVICES SHOWN ON THIS PLAN WERE INSTALLED UNDER # 03-117449 AND ARE EXISTING TO BE PROTECTED IN PLACE.



SYMBOL	DESCRIPTION	MANUFACTURER	MODEL NO.	DSA NO.	NOTES
(E)	EXISTING FIRE ALARM CONTROL PANEL AT COSMETOLOGY	SIMPLEX	4100 9114	A#03-117449	TO REMAIN
(E)	EXISTING ID NET NAC EXPANDER	SIMPLEX	4009 9201		TO REMAIN
(E)	EXISTING SMOKE DETECTOR	SIMPLEX	4098 9714		TO REMAIN
(E)	EXISTING SMOKE DETECTOR BASE	SIMPLEX	4098 9792		TO REMAIN
(E)	EXISTING MANUAL PULL STATION	SIMPLEX	4099 9201		TO REMAIN
(E)	EXISTING HORN/STROBE WALL	SIMPLEX	4906 9127		TO REMAIN



BIO LAB FIRE ALARM PLAN SCALE: 1/4"=1'-0" 3

BIO LAB SIGNAL PLAN SCALE: 1/4"=1'-0" 2

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1111 E. ARTESIA BLVD.
COMPTON, CA 90221

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E2-1
drawing of