

ACCESSIBILITY

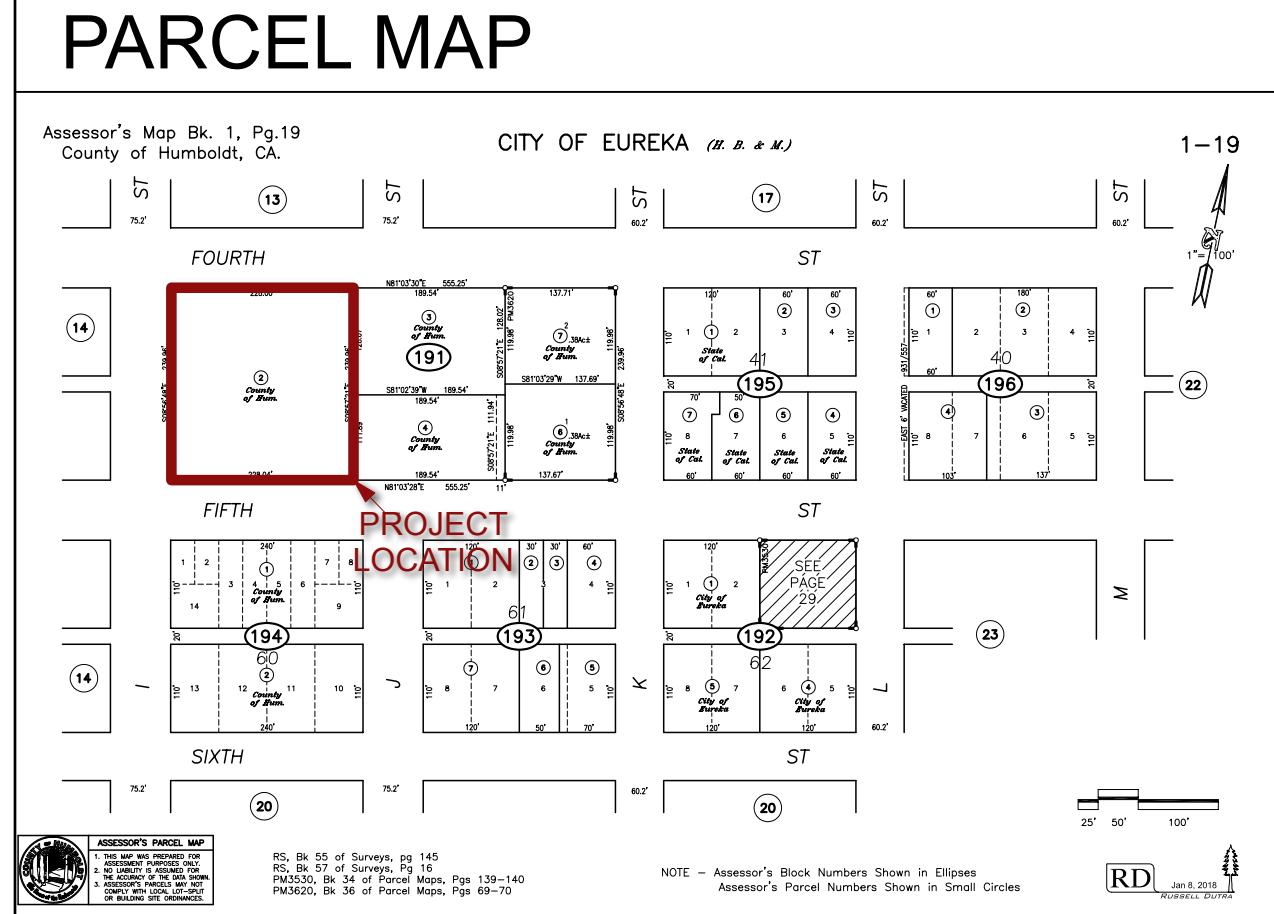
THE PROPOSED IMPROVEMENTS IN THIS PROJECT SHALL COMPLY WITH ALL PROVISIONS OF THE 2025 CA BUILDING CODE, CHAPTER 11B, FOR ALTERATIONS, AND 2010 ADA. IN RECENT YEARS THERE HAVE BEEN MULTIPLE ACCESSIBILITY RELATED PROJECTS INCLUDING, BUT NOT LIMITED TO, NEW ACCESSIBLE RESTROOMS, PARKING, SIGNAGE, AND OTHER IMPROVEMENTS. THE PROCESS OF CONSTRUCTION ACTIVITIES SHALL NOT REDUCE OR DIMINISH ACCESSIBILITY TO THE EXISTING BUILDING.

PROVIDE COMPLIANCE WITH 2025 CBC SECTION 11B-202.4 PATH OF TRAVEL REQUIREMENTS TO THE SPECIFIC AREA OF ALTERATION OR ADDITION. THE PRIMARY ACCESSIBLE PATH OF TRAVEL SHALL INCLUDE:

1. PRIMARY ENTRANCE TO THE BUILDING OR FACILITY.
-RESPONSE: EXISTING COMPLIANT.
2. TOILET AND BATHING FACILITIES SERVING THE AREA
-RESPONSE: SEE IMPROVEMENTS INCLUDED IN THIS PROJECT SCOPE.
3. DRINKING FOUNTAINS SERVING THE AREA.
-RESPONSE: NONE.
4. PUBLIC TELEPHONES SERVING THE AREA.
-RESPONSE: NONE.
5. SIGNS.
-RESPONSE: PROVIDE NEW TACTILE SIGNS AS INDICATED.

PORTABLE FIRE EXTINGUISHERS

- 1). OWNER SHALL PROVIDE ALL NECESSARY PERMANENT FIRE EXTINGUISHERS PER 2025 CA FIRE CODE, SECTION 906, WITH ALL FINAL LOCATIONS PER THE DETERMINATION OF THE AHJ. ANY TEMPORARY FIRE EXTINGUISHERS REQUIRED FOR THE PURPOSES OF CONSTRUCTION SITE SAFETY ARE THE RESPONSIBILITY OF THE CONTRACTOR.
- 2). FIRE EXTINGUISHERS NOT TO BE OBSTRUCTED OR OBSCURED FROM VIEW. IN LARGE ROOMS AND IN LOCATIONS WHERE VISUAL OBSCURING CANNOT BE COMPLETELY AVOIDED, PROVIDE SIGNAGE TO INDICATE LOCATION.
- 3). FIRE EXTINGUISHERS SHALL BE CONSPICUOUSLY LOCATED ALONG NORMAL PATHS OF TRAVEL WHERE THEY WILL BE READILY ACCESSIBLE AND IMMEDIATELY AVAILABLE IN THE EVENT OF A FIRE.
- 4). IT IS RECOMMENDED, WHERE POSSIBLE, PORTABLE FIRE EXTINGUISHERS ARE LOCATED ADJACENT TO MANUAL FIRE ALARM PULL STATIONS.
- 5). MAX. TRAVEL DISTANCE TO EXTINGUISHER = 75 FT MAX. MAX DISTANCE FROM COMMERCIAL KITCHEN EQUIPMENT = 30 FT.
- 6). EXTINGUISHERS LOCATED IN CONDITIONS SUBJECT TO PHYSICAL DAMAGE SHALL BE ADEQUATELY PROTECTED (E.G. FROM IMPACT, VIBRATION, ENVIRONMENT, ETC.)
- 7). BRACKET MOUNTING: WHERE INSTALLED ON A HANGER OR BRACKET, THEY SHALL BE THOSE SUPPLIED WITH THE EXTINGUISHER AND BE MOUNTED SECURELY PER MANUFACTURER INSTRUCTIONS.
- 8). HEIGHT: PORTABLE EXTINGUISHERS WEIGHING <40 LBS MAY BE INSTALLED WITH TOP OF EXTINGUISHER AT 5' AFF. HOWEVER, SET IT AT 48" AFF MAX TO COMPLY WITH ACCESSIBLE REACH RANGES AS DEFINED BY CBC CH.11B. AND ALSO SET SO BOTTOM EDGE IS NOT HIGHER THAN 28" AFF. THIS KEEPS THE EXTINGUISHER WITHIN THE CANE DETECTION AREA AND THUS ELIMINATES THE 4" MAX. PROJECTION REQUIREMENT.



DEFERRED SUBMITTALS

CONTRACTOR SHALL PROVIDE ALL RELEVANT DESIGN, ENGINEERING, AND DOCUMENTS AS REQUIRED FOR OBTAINING PERMIT FOR THE ITEMS LISTED BELOW. THE DESIGN AND ENGINEERING, WHERE REQUIRED, IS DELEGATED TO A QUALIFIED AND RESPONSIBLE PARTY. THE DEFERRED SUBMITTALS SHALL BE COMPLETED AND SIGNED BY THE RESPONSIBLE PARTY IN ACCORDANCE WITH 2025 CBC 107.3.4.1 DEFERRED SUBMITTALS. THE ARCHITECT OF RECORD WILL REVIEW THESE DEFERRED SUBMITTALS FOR THE LIMITED PURPOSES OF GENERAL CONFORMANCE WITH THE DESIGN INTENT. THE DEFERRED SUBMITTAL DESIGNER SHALL BE RESPONSIBLE FOR CODE COMPLIANCE, DIMENSIONS, QUANTITIES, AND TO SHOW THE SCOPE OF WORK WITH THE NECESSARY LEVEL OF CLARITY AND DETAIL TO FACILITATE CONSTRUCTION IN A COORDINATED MANNER.

WITHIN SIX (6) WEEKS OF ISSUE OF CONTRACT, SUBMIT SIGNED COPIES OF ALL DELEGATED DESIGN (DEFERRED SUBMITTAL) DOCUMENTS FOR REVIEW AND APPROVAL OF ARCHITECT, PROJECT ENGINEER OF RECORD, OWNER, AND AUTHORITIES HAVING JURISDICTION. CONTRACTOR SHALL INCLUDE ALL DESIGN, ENGINEERING, PLAN CHECK, PERMITTING, AND RELATED FEES AND EXPENSES IN THEIR CONTRACT AMOUNT.

1. FIRE SPRINKLER SYSTEM MODIFICATIONS TO ENSURE FULL COVERAGE OF ALL REMODELED AREAS. THE SHOP DRAWINGS SHALL BE SUBMITTED BY A LICENSED DESIGNER/ENGINEER AND CONFORM TO NFPA 13 WITH ALL CALIFORNIA AMENDMENTS. OBTAIN ALL REQUIRED DATA FROM THE EXISTING SYSTEM AND VERIFY ALL CONNECTION POINTS. SUBMIT COMPLETE CALCS, SHOP DRAWINGS, PRODUCT DATA SHEETS, AND ALL OTHER ITEMS REQUIRED FOR FIRE CODE COMPLIANCE INCLUDING ALL SUSPENSION AND BRACING ELEMENTS.
2. FIRE ALARM SYSTEM MODIFICATIONS TO ENSURE FULL COVERAGE OF ALL REMODELED AREAS. THE SYSTEM SHALL BE IN COMPLIANCE WITH NFPA 72, WITH ALL CALIFORNIA AMENDMENTS, AND CONNECTED TO EXISTING BUILDING FIRE ALARM CONTROL SYSTEM. SUBMIT COMPLETE CALCS, SHOP DRAWINGS, DIAGRAMS, PRODUCT DATA SHEETS, AND FIRE CODE COMPLIANCE.
3. SECURITY AND VIDEO SURVEILLANCE SYSTEM MODIFICATIONS TO ENSURE COVERAGE OF ALL REMODELED AREAS. INCLUDE CAMERAS AND MONITORING DEVICES PER OWNER TO WORK WITH THEIR EXISTING SYSTEM. COORDINATE WITH ELECTRICAL AS APPLICABLE. ALL CABLES AND WIRES SHALL BE CONCEALED.

GENERAL NOTES

1. THE CONSTRUCTION DOCUMENTS MAY INCLUDE BOTH DRAWINGS AND SPECIFICATIONS. THEY ARE COMPLEMENTARY DOCUMENTS. ANY INFORMATION SHOWN IN THE DRAWINGS AND/OR SPECIFICATIONS IS REQUIRED AS IF SHOWN IN BOTH. WORK ONLY FROM THE LATEST APPROVED AND PERMITTED PLANS AND SPECIFICATIONS.
2. WORK NOT SPECIFICALLY COVERED IN THE CONSTRUCTION DOCUMENTS SHALL, JUST THE SAME, BE REQUIRED IF IT IS REASONABLY INFERRABLE AS BEING NECESSARY OR APPROPRIATE TO PRODUCE THE INTENDED RESULTS COMPLETELY.
3. PROVIDE ACCESS TO THE COMPLETE CONSTRUCTION DOCUMENTS AND ANY ADDENDA TO ALL NECESSARY SUB-CONTRACTORS AND SUPPLIERS. SEPARATIONS OF SPECIFICATION SECTIONS AND DRAWING SHEETS ARE NOT TO BE CONSIDERED LIMITS OF WORK OF SEPARATE TRADES. THE CONSTRUCTION DOCUMENTS DO NOT DEFINE ANY SUCH LIMITS OF WORK BETWEEN TRADES; THIS RESPONSIBILITY IS SOLELY THAT OF THE CONTRACTOR.
4. VERIFY SITE CONDITIONS, TAKE FIELD MEASUREMENTS, AND CAREFULLY STUDY AND COMPARE CONSTRUCTION DOCUMENTS AND DRAWING SHEETS ARE NOT TO BE CONSIDERED LIMITS OF WORK OF SEPARATE TRADES. THE CONSTRUCTION DOCUMENTS DO NOT DEFINE ANY SUCH LIMITS OF WORK BETWEEN TRADES; THIS RESPONSIBILITY IS SOLELY THAT OF THE CONTRACTOR.
5. DIMENSIONS SHOWN ON DRAWINGS TAKE PRECEDENCE OVER SCALE ON DRAWINGS. DO NOT MANUALLY SCALE DRAWINGS. IF A DIMENSION IS NOT INDICATED, REQUEST ARCHITECT TO PROVIDE.
6. COMPLY WITH MANUFACTURER'S SUGGESTED INSTALLATION METHODS EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE OR WHERE PROHIBITED BY CODE REQUIREMENTS.
7. WORK AND MATERIAL IN THIS PROJECT MUST MEET THE REQUIREMENTS OF THE LATEST REGULATIONS OF AUTHORITIES HAVING JURISDICTION AND WITH RULES OF UTILITY COMPANIES FURNISHING SERVICES. THE DRAWINGS AND SPECIFICATIONS ARE NOT TO BE CONSTRUED AS PERMITTING WORK NOT IN CONFORMANCE WITH CODE REQUIREMENTS.
8. THE DESIGN, ADEQUACY, AND SAFETY OF ERECTION BRACING, SHORING, TEMPORARY SUPPORTS, SCAFFOLDING, AND CONSTRUCTION MEANS AND METHODS, IS THE RESPONSIBILITY SOLELY OF THE CONTRACTOR.
9. OCCUPATIONAL SAFETY AND HEALTH: CONSTRUCTION PROCESS IS GOVERNED, AT ALL TIMES, BY THE APPLICABLE PROVISIONS OF THE CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH ACT (CURRENT RULES). CAL/OSHA. SITE SAFETY IS THE RESPONSIBILITY SOLELY OF THE CONTRACTOR.
10. UPON DISCOVERY OR BEING MADE KNOWN OF A CONFLICT, ERROR, NONCONFORMITY, INCONSISTENCIES, OR DISCREPANCY IN THE CONSTRUCTION DOCUMENTS, PROVIDE IMMEDIATE NOTICE IN WRITING AS A REQUEST FOR INFORMATION (RFI) TO THE ARCHITECT. WITHHOLDING ANY SUCH KNOWN INFORMATION SHALL BE CONSIDERED BREACH OF CONTRACT.
11. THE ABOVE NOTES ARE COMMON REMINDERS, MANY OF WHICH ARE DESCRIBED IN MORE DETAIL, ALONG WITH OTHER REQUIREMENTS OF NO LESS IMPORTANCE, IN THE GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION.

SPECIAL INSPECTIONS

OWNER SHALL PROVIDE SERVICES OF A QUALIFIED PROFESSIONAL TO COMPLETE SPECIAL INSPECTIONS AND REPORTS TO BE SUBMITTED TO THE AHJ FOR ACCEPTANCE WHERE REQUIRED BY THE AHJ.

GENERAL CONTRACTOR SHALL COORDINATE WITH THE OWNER'S SPECIAL INSPECTOR, AS APPLICABLE.

BLDG SECTION DIAGRAM

AREA OF WORK

101 NORTH

5th STREET ENTRY

101 SOUTH

4th STREET ENTRY

CROSS SECTION DIAGRAM FACING WEST

5th FLOOR

4th FLOOR

3rd FLOOR

2nd FLOOR

1st FLOOR

GROUND FLOOR

BASEMENT

HAZARDOUS MATERIALS

1. COUNTY MAY BE REQUIRED TO OBTAIN A PERMIT FROM THE NORTH COAST UNIFIED AIR QUALITY MANAGEMENT DISTRICT (NCAUQMD) FOR NOTIFICATIONS OF DEMOLITION AND ASBESTOS ABATEMENT IN ACCORDANCE WITH NESHAP REGULATIONS.
2. COUNTY WILL CONTRACT WITH QUALIFIED HAZARDOUS MATERIALS SPECIALIST TO CONDUCT HAZARDOUS MATERIALS SURVEY REPORT FOR THE IMPACTED AREAS OF THE FACILITY FOR MATERIALS INCLUDING, BUT NOT LIMITED TO ASBESTOS, LEAD, PCB'S, HYDROCARBONS, REFRIGERANTS, MOLD, AND COMMON WASTES SUCH AS MERCURY LAMPS, BATTERIES, COATINGS, E-WASTE, AND OTHER SUCH PRODUCTS. COUNTY'S SPECIALIST TO PREPARE ABATEMENT SPECIFICATIONS IN ANTICIPATION OF THIS PROJECT'S PLANNED SELECTIVE DEMOLITION.
3. CONTRACTOR SHALL PROVIDE QUALIFIED ABATEMENT CONTRACTOR TO REMOVE ACM FROM THE WORK AREA. COMPLY WITH ALL ABATEMENT SPECIFICATIONS BY OTHERS, AS WELL AS ALL LAWS, REGULATIONS, AND STATUTES INCLUDING, BUT NOT LIMITED TO THE COUNTY OF HUMBOLDT, AND CAL-OSHA. THE ARCHITECT HAS NO RESPONSIBILITY FOR ANY SUCH COMPLIANCE REQUIREMENTS.
4. IF DURING THE COURSE OF THE WORK, ADDITIONAL MATERIALS ARE DISCOVERED THAT ARE SUSPECTED OF CONTAINING HAZARDOUS SUBSTANCES, STOP WORK AND CONSULT THE COUNTY.
5. AVAILABLE INFORMATION: SEE CONSOLIDATED ASBESTOS & LEAD IDENTIFICATION REPORT FOR HUMBOLDT COUNTY SHERIFF'S OFFICE, 826 4TH STREET, EUREKA, CA, SEPTEMBER 17, 2022, PROJECT # 220308-B, PREPARED BY BRUNELLE & CLARK CONSULTING, LLC, PO BOX 1138, ARCATA, CA 95518, 707-672-5345.

APPLICABLE CODES

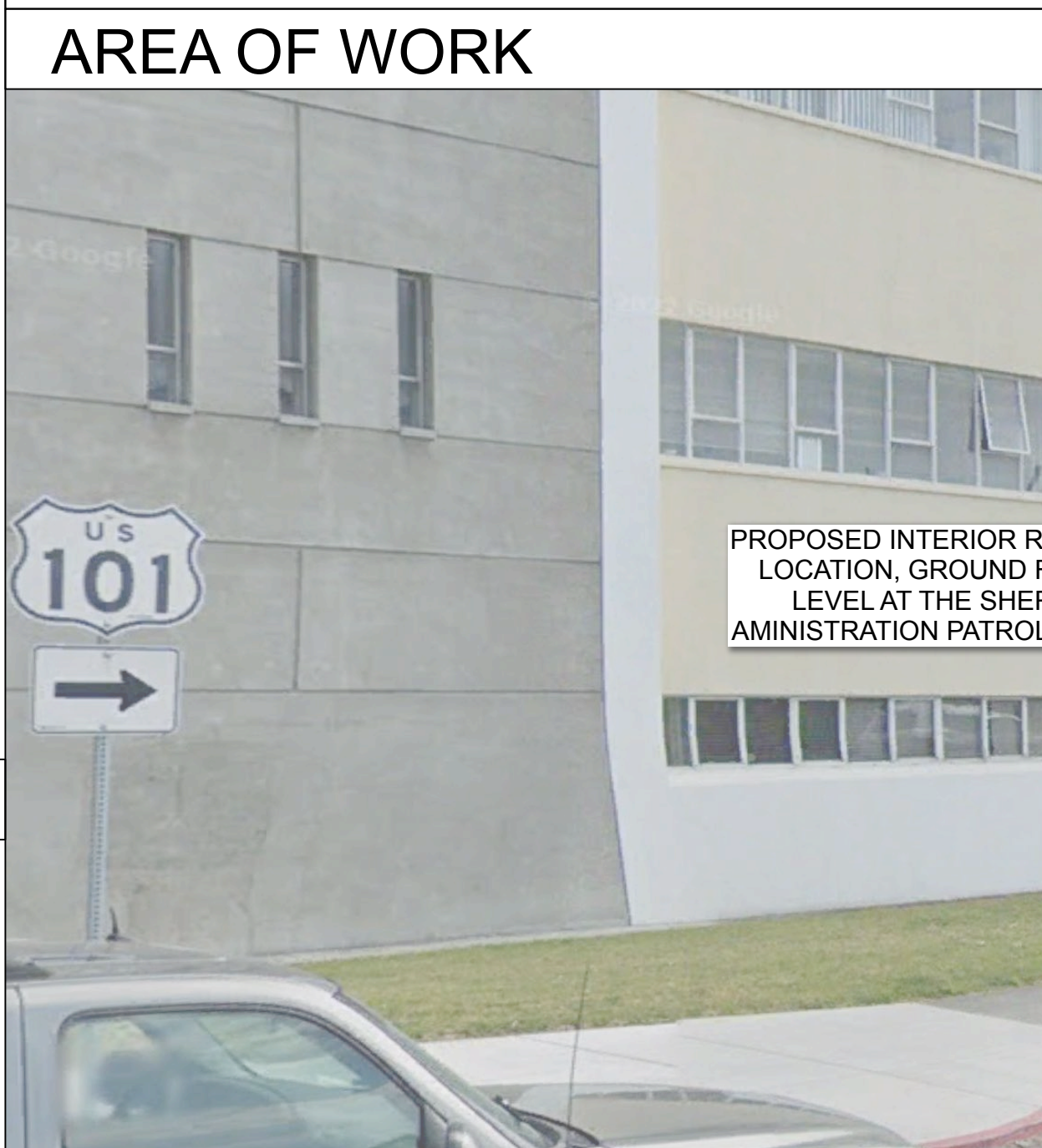
APPLICABLE CODES FOR ALL NEW WORK, AS CURRENTLY ADOPTED INCLUDING ALL ERATTA & SUPPLEMENTS:

- 2025 CA ADMINISTRATIVE CODE, TITLE 24, PART 1
- 2025 CA BUILDING CODE, TITLE 24, PART 2
- 2025 CA ELECTRICAL CODE, TITLE 24, PART 3
- 2025 CA MECHANICAL CODE, TITLE 24, PART 4
- 2025 CA PLUMBING CODE, TITLE 24, PART 5
- 2025 CA ENERGY CODE, TITLE 24, PART 6
- 2025 CA FIRE CODE, TITLE 24, PART 9
- 2025 CA EXISTING BLDG CODE, TITLE 24, PART 10
- 2025 CA GREEN BLDG STNDS CODE, TITLE 24, PART 11

NFPA 13-25 FIRE SPRINKLER SYSTEM (CA AMENDED)
NFPA 14-25 STANDPIPE & HOSE (CA AMENDED)
NFPA 24-25 FIRE SERVICE MAINS (CA AMENDED)
NFPA 72-25 FIRE ALARM CODE (CA AMENDED)
OTHER REFERENCED STANDARDS PER 2025 CBC CH.35

ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES & REGULATIONS, INCLUDING BUT NOT LIMITED TO:

- NESHAP ASBESTOS CLEARANCE MUST BE OBTAINED FOR ALL WORK PER CFR 40, PART 61, SUBPART M. NOTE THIS APPLIES TO ALL EXISTING BUILDINGS NO MATTER HOW RECENTLY THEY WERE CONSTRUCTED. CONTACT NORTH COAST UNIFIED AIR QUALITY MANAGEMENT DISTRICT, 707.443.3093. ALSO SEE HAZARDOUS MATERIALS NOTES ON THIS SHEET.



HAZARDOUS MATERIALS

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ZONING CODE

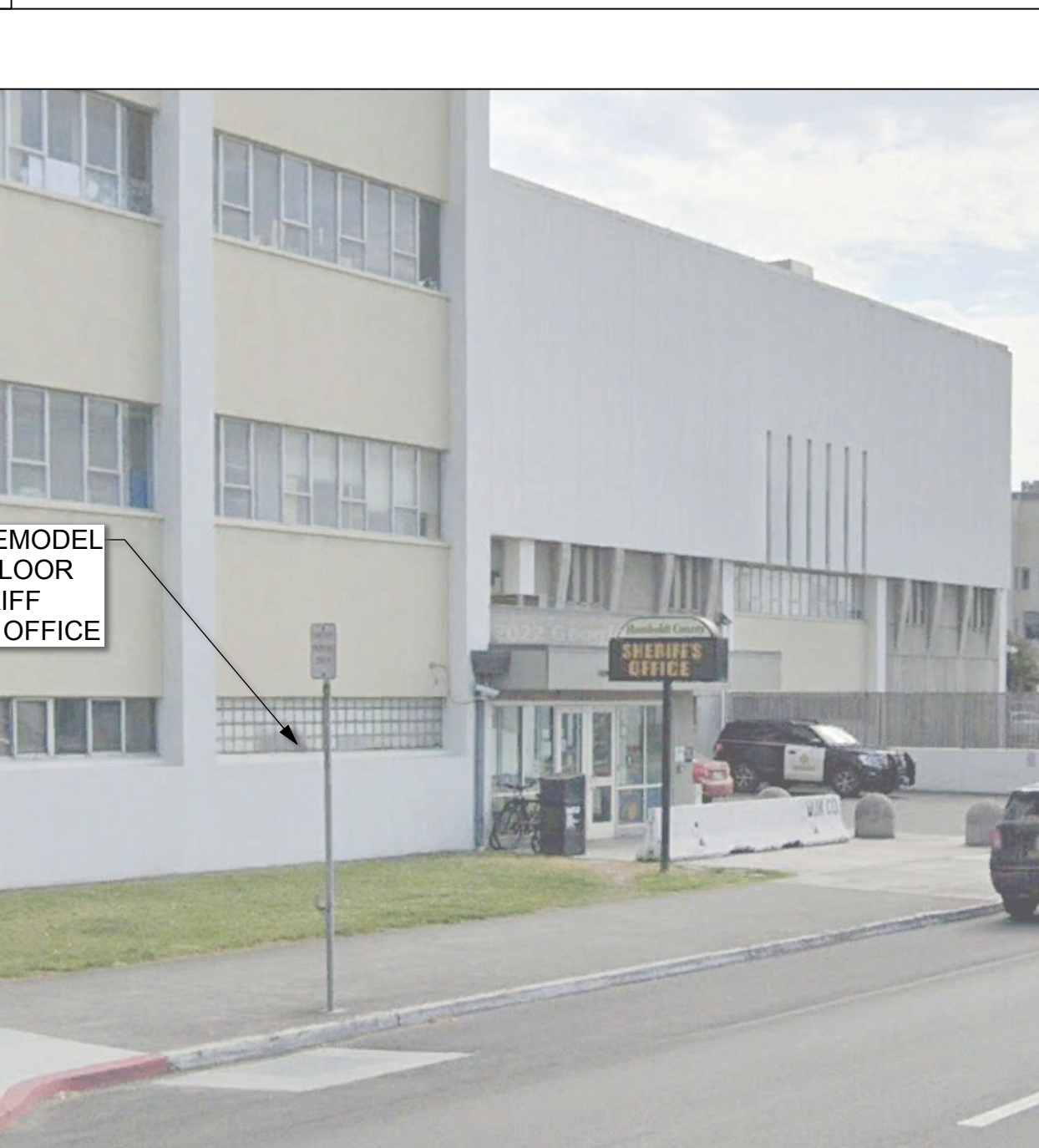
ASSESSOR PARCEL NUMBER: 001-191-002
SITE ADDRESS: 825 5th STREET
SITE CITY: EUREKA, CA
SITE ZIP: 95501

LOT SIZE: 1.32 (ASSESSED)
ZONING JURISDICTION: CITY OF EUREKA
ZONING: PUBLIC FACILITY

EXISTING USE: NO CHANGE

IN COASTAL ZONE (Y/N): N
ALQUIST-PRIOLO FAULT HAZARD ZONE: N
AIRPORT COMPATIBILITY ZONE: N
STATE FIRE RESPONSIBILITY AREA: N
FLOOD ZONE: N

LANDSCAPING: EXISTING, NO CHANGE
PARKING: EXISTING, NO CHANGE
LOADING: EXISTING, NO CHANGE
SIGNS: EXISTING, NO CHANGE



PROJECT DESCRIPTION

THE PROPOSED PROJECT INCLUDES INTERIOR REMODEL TO APPROXIMATELY 5 SPACES TOTALING 1,300 SF OF FLOOR AREA WITHOUT IMPACTING ONGOING SHERIFF OPERATIONS. THE PROJECT DOES NOT INCLUDE ANY CHANGE OF USE, EXPANSION OF USE, CHANGE OF EGRESS ROUTES. THERE ARE NO PROPOSED STRUCTURAL MODIFICATIONS. THE PROJECT INCLUDES ACCESSIBILITY BARRIER REMOVAL.

SUMMARY OF SCOPE:
INTERIOR REMODEL TO TOTALING APPROX. 1,300 SF IN THE EXISTING OCCUPIED OFFICE BUILDING:

- SELECTIVE DEMOLITION,
- NEW NON-BEARING PARTITION WALLS,
- NEW DOORS AND HARDWARE
- REMODEL (E) SINGLE ACCOMMODATION RESTROOM FOR ACCESSIBILITY
- MILLWORK AT THE BREAK ROOM & BRIEFING ROOM
- COUNTERTOP, CABINETS, AND SINK, LOCATING APPLIANCES AT KITCHENETTE
- NEW FLOORING,
- NEW GRID CEILING & PATCH/REPAIR EXISTING SECTIONS
- NEW INTERIOR WALL FINISHES,
- EGRESS COMPLIANCE,
- FIRE ALARM & FIRE SPRINKLER MODIFICATIONS (DESIGN-BUILD)

MECHANICAL SYSTEMS SCOPE:

- NEW CONTROLS AND VAV'S FOR REMODELED SPACES.
- NEW HEAD END CONTROLLER TO ALLOW FOR FUTURE REMODEL WORK TO BE INTEGRATED.
- REVISE DUCTING AND AIR BALANCE TO AREA BEING REMODELED.
- EXISTING DUCTWORK TO BE CLEANED & REUSED WHERE POSSIBLE.
- EXISTING ROOFTOP AIR HANDLERS AND CHILLERS TO REMAIN.

PLUMBING SYSTEMS SCOPE:

- REMOVE (E) SHOWER
- NEW SINK FOR BREAK ROOM TO BE CONNECTED TO EXISTING PLUMBING SYSTEMS.
- REMODEL (E) SINGLE ACCOMMODATION RESTROOM FIXTURES.

ELECTRICAL SYSTEMS SCOPE:

- NEW LIGHTING AND CONTROLS IN ALL REMODEL AREAS.
- ALL LIGHTING CONNECTED TO EXISTING EMERGENCY POWER CIRCUIT
- NEW WALL MOUNTED RECEPTACLES AND DATA JACKS AT LOCATIONS TO SERVE INTENDED USES AS SHOWN.

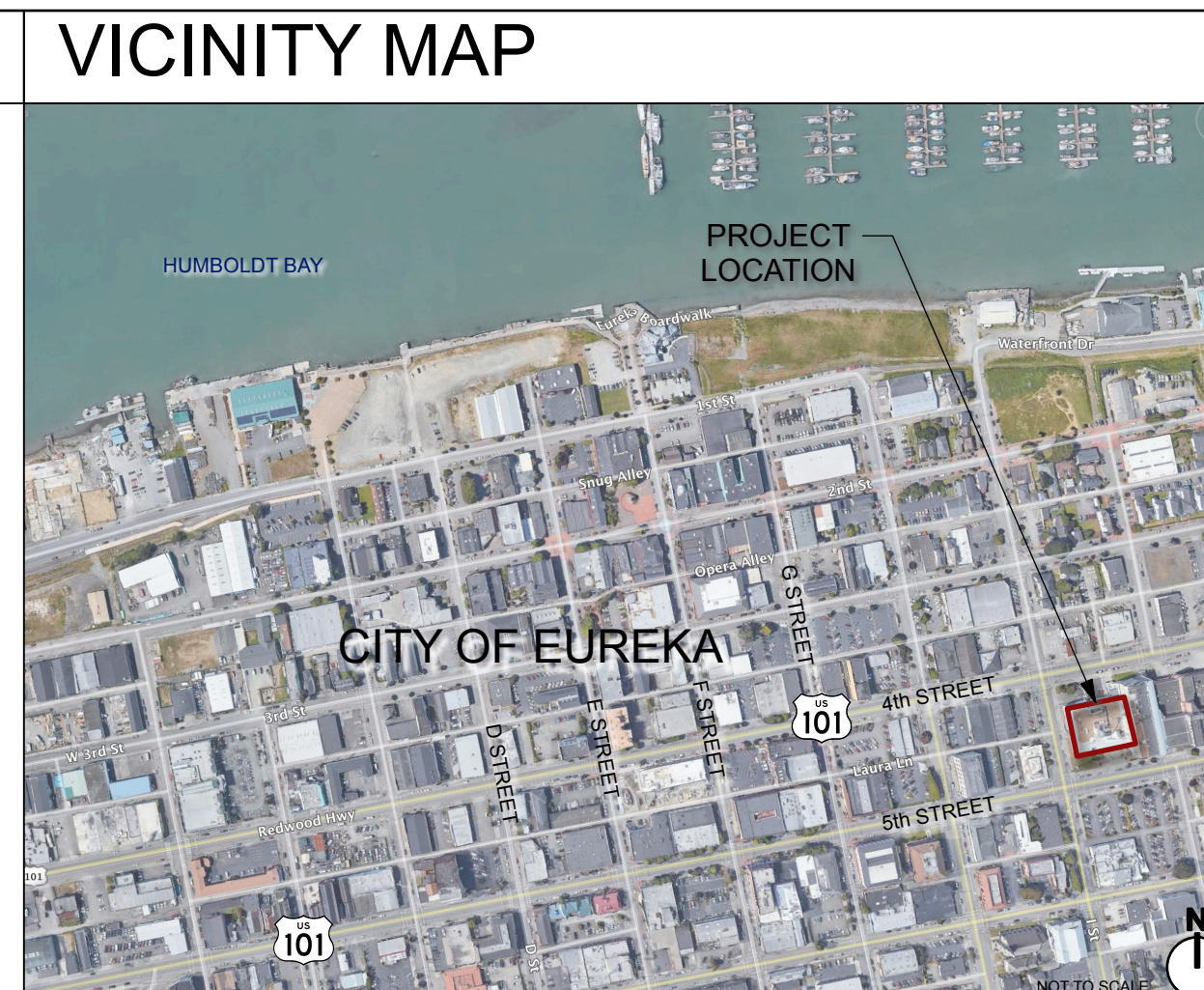
PHASING:
THE PROJECT REQUIRES THE CONTRACTOR TO PREPARE A PHASING PLAN THAT WILL ACCOMPLISH THE PROJECT GOALS. IT IS ASSUMED THE FIRST PHASE WILL INCLUDE THE CONFERENCE ROOM, SCOPE: BREAK ROOM, AND NEW OFFICE. THE SECOND PHASE WOULD INCLUDE THE BRIEFING ROOM REMODEL, WHICH WILL ALLOW THE COMPLETED CONFERENCE ROOM TO BE UTILIZED FOR BRIEFING FUNCTIONS UNTIL FINAL COMPLETION.

DUST:
CONTROL DUST AND VAPORS AT ALL TIMES.

NOISE:
WORK THAT GENERATES EXCESSIVE NOISE AND/OR VIBRATION MUST BE PERFORMED WHEN COURT IS NOT IN SESSION AND WHEN SHERIFF OFFICE IS NOT ENGAGED IN CRITICAL OPERATIONS THAT WOULD BE DISTURBED. THE SHERIFF OFFICE AREA IS OCCUPIED BY STAFF 24/7, THOUGH LESS NUMBERS DURING LATE HOURS.

HAZARDOUS MATERIALS

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PROJECT CONTACTS

OWNER CONTACT:
COUNTY OF HUMBOLDT
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CAO PROJECT MANAGER,
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SHERIFF OFFICE CONTACT:
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FACILITIES CONSTRUCTION MANAGER
HUMBOLDT COUNTY SHERIFF'S OFFICE
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OFFICE: 707-441-3023

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NATHANIEL@FRONTIERCE.COM
530-232-6160

ELECTRICAL ENGINEER:
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FRONTIER CONSULTING ENGINEERS
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REDDING, CA 96002
NATHANIEL@FRONTIERCE.COM
530-232-6160

CODE REVIEW

CONSTRUCTION TYPE: II (EXISTING)

USE GROUPS: GROUP B

FIRE SPRINKLER SYSTEM: YES, NFPA 13
FIRE ALARM SYSTEM: YES, NFPA 72

PORTABLE FIRE EXTINGUISHERS: OWNER RESPONSIBLE FOR MAINTAINING OR PROVIDING PER 2025 CA FIRE CODE, SECTION 906, WITH ALL FINAL LOCATIONS PER THE DETERMINATION OF THE AHJ. SEE ADDITIONAL FIRE EXTINGUISHER NOTES THIS SHEET. CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY FIRE EXTINGUISHERS ARE MAINTAINED ON-SITE FOR THE PURPOSES OF COMPLIANCE WITH 2025 CBC EXISTING BUILDING CODE CHAPTER 15 CONSTRUCTION SAFEGUARDS.

ALLOWABLE AREA FACTORS:

NOT USED

FRONTAGE INCREASE: NOT USED

OCCUPANT LOAD: NO CHANGE

SHEET INDEX

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| | A 5.1 | INTERIOR ELEVATIONS |
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| MECH | E 102 | ELECTRICAL SPECIFICATIONS |
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| | M 102 | TAB SPECIFICATIONS |
| | M 103 | CONTROL SPECIFICATIONS |
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| | M 210 | MECHANICAL PLANS |
| PLUMB | P 100 | PLUMBING LEGENDS & SCHEDULES |
| | P 101 | PLUMBING SPECIFICATIONS |
| | P 110 | PLUMBING DEMOLITION PLANS |
| | P 210 | PLUMBING PLANS |

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LICENSED ARCHITECT
GARRETT MCSORLEY
C-33283
RENEWAL DATE:
30 SEPT 2027
STATE OF CALIFORNIA

MCSORLEY ARCHITECTURE

garrett.mcsorley@gmail.com
PO Box 2472
McKinleyville, CA 95519
707.633.9283

PREPARED FOR:
Travis I. Smith
Project Manager
County of Humboldt – County Administrative Office – ADA Compliance Team
707-476-2388 Office
707-407-7932 Cell
CRS: 711, 825 5th Street,
Room 112, Eureka, CA 95501
tsmith@co.humboldt.ca.us

SHERIFF PATROL OFFICE REMODEL
COUNTY OF HUMBOLDT
826 4th STREET
EUREKA, CALIFORNIA 95501
APN: 001-191-002

PROJECT NUMBER: 2026-501

TITLE SHEET

Drawing Status:
FOR PERMIT APPROVAL

Issue Date:
23 Dec 2022

Revisions:

| | | |
|---|-------------|--------------------|
| 1 | 23 OCT 2023 | FOR B.O.S. REVIEW |
| 2 | 03 MAR 2026 | UPDATE & ADA RSTRM |
| 3 | 31 MAY 2026 | PRE-BID UPDATE |

Sheet No:
A1.1

SHEET NOTES:

1. SITE PLAN INCLUDED FOR GENERAL REFERENCE ONLY. NO SURVEYING HAS BEEN PROVIDED. MAY BE UTILIZED BY CONTRACTOR AS A BACKGROUND DRAWING FOR PREPARATION OF TEMPORARY SITE CONSTRUCTION PLAN & COORDINATION SUBMITTALS.



GARRETT MCSORLEY ARCHITECTURE

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SHERIFF PATROL OFFICE REMODEL

COUNTY OF HUMBOLDT

 826 4th STREET

 EUREKA, CALIFORNIA 95601

 APN: 001-191-002

SITE PLAN

Drawing Status: **FOR PERMIT APPROVAL**

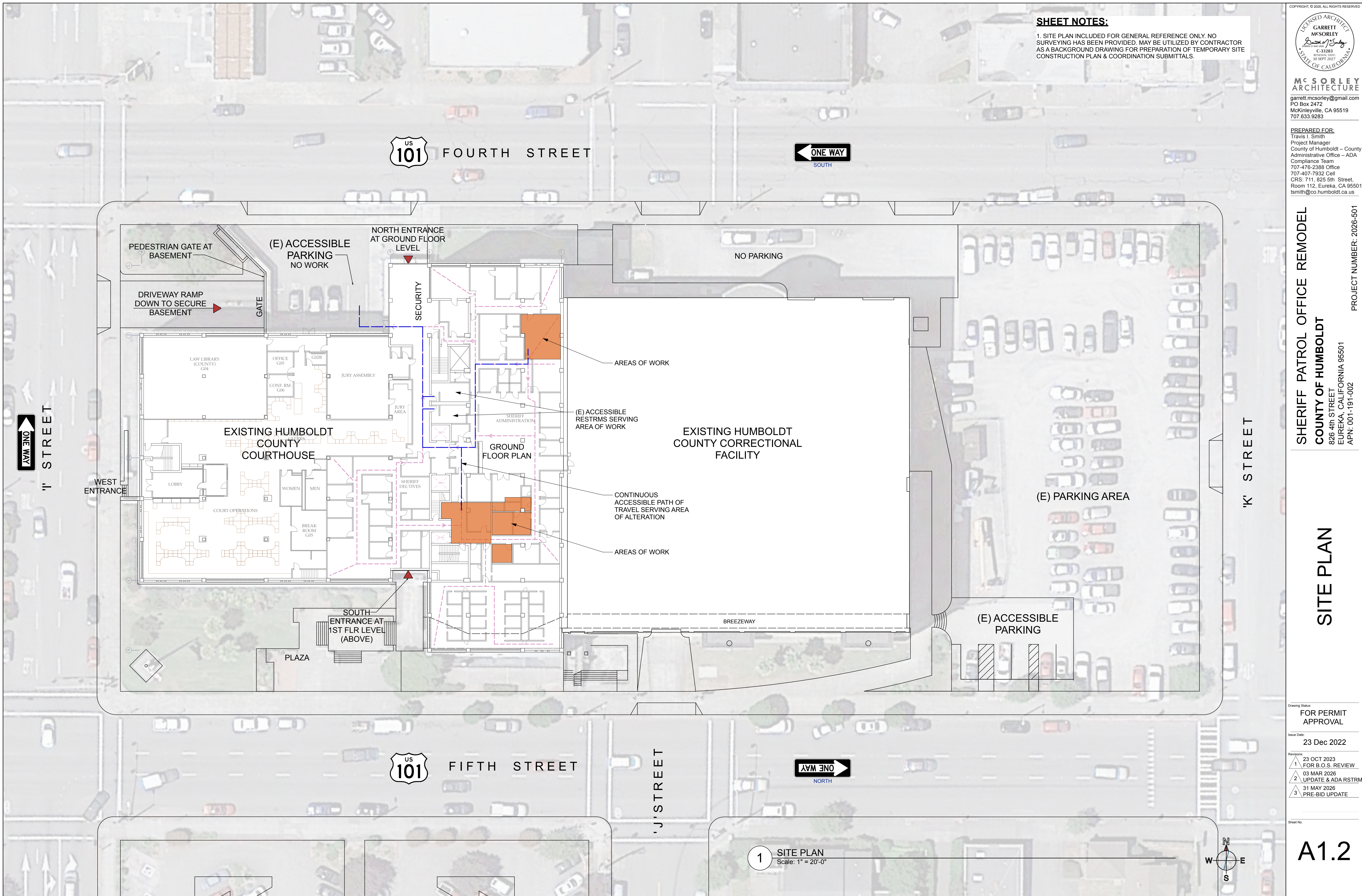
Issue Date: **23 Dec 2022**

Revisions:

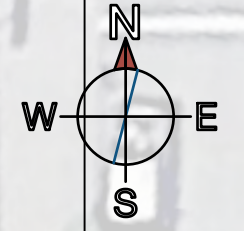
| | | |
|---|-------------|--------------------|
| 1 | 23 OCT 2023 | FOR B.O.S. REVIEW |
| 2 | 03 MAR 2026 | UPDATE & ADA RSTRM |
| 3 | 31 MAY 2026 | PRE-BID UPDATE |

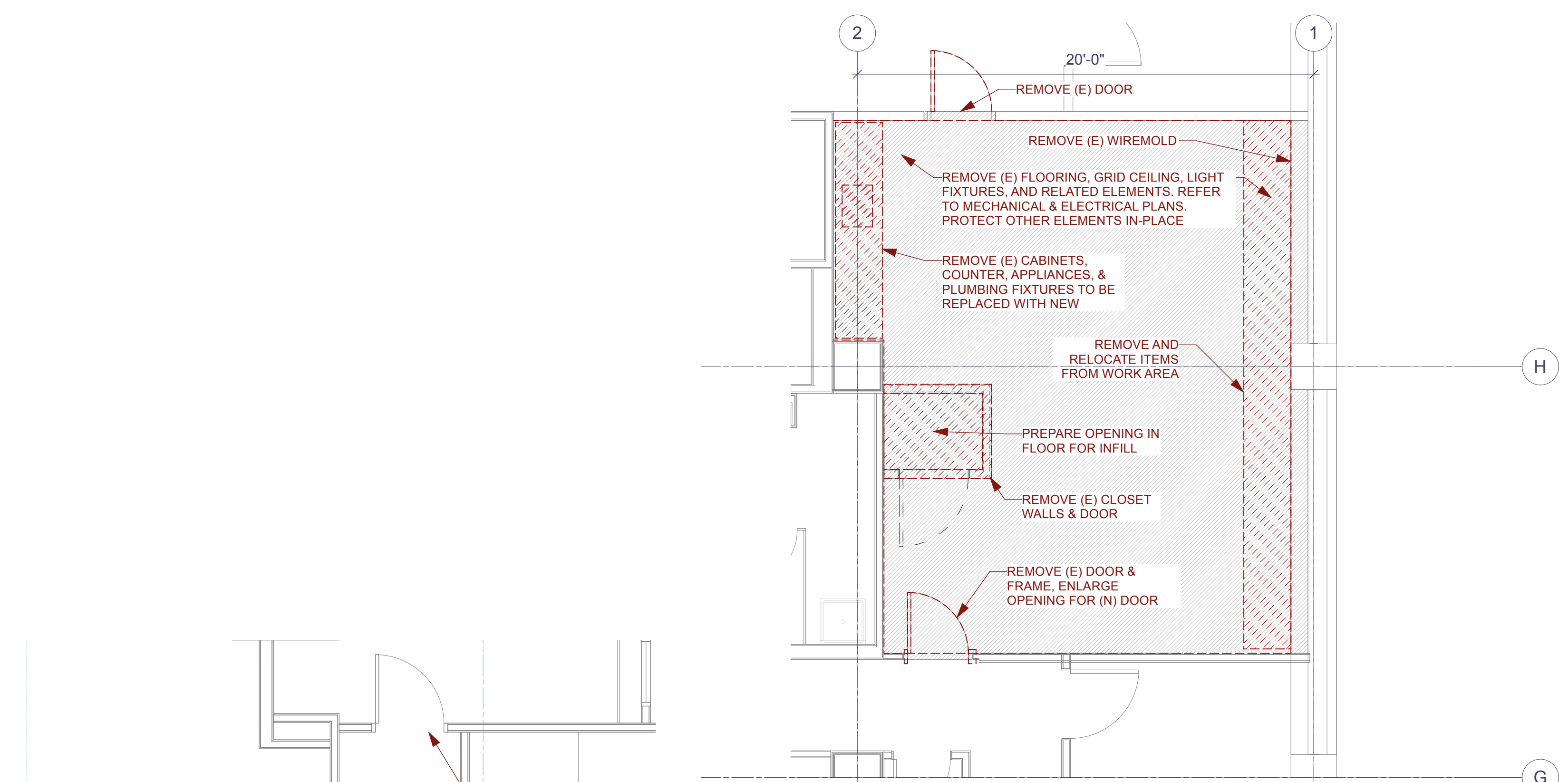
Sheet No.

A1.2

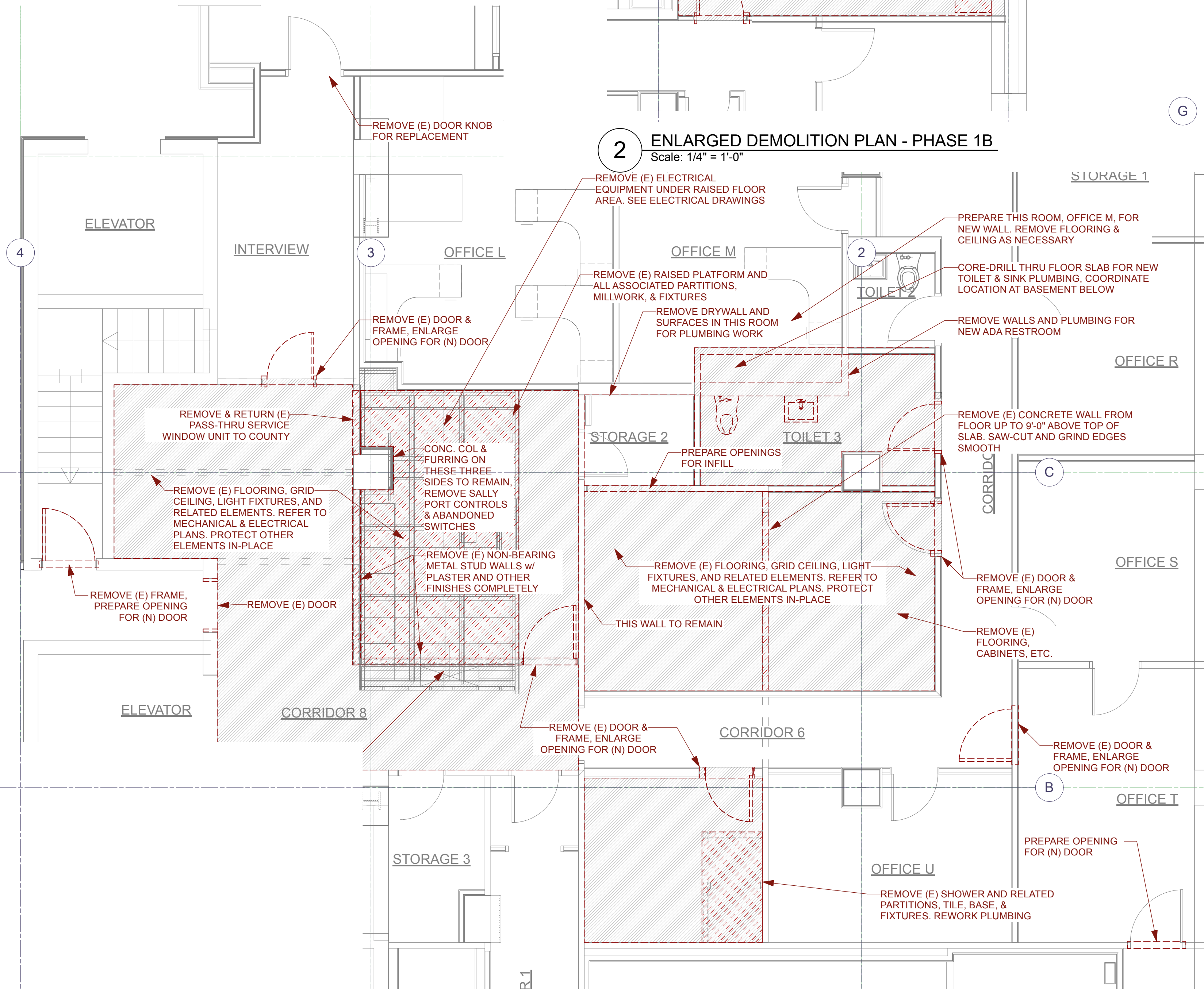


1 SITE PLAN
Scale: 1" = 20'-0"

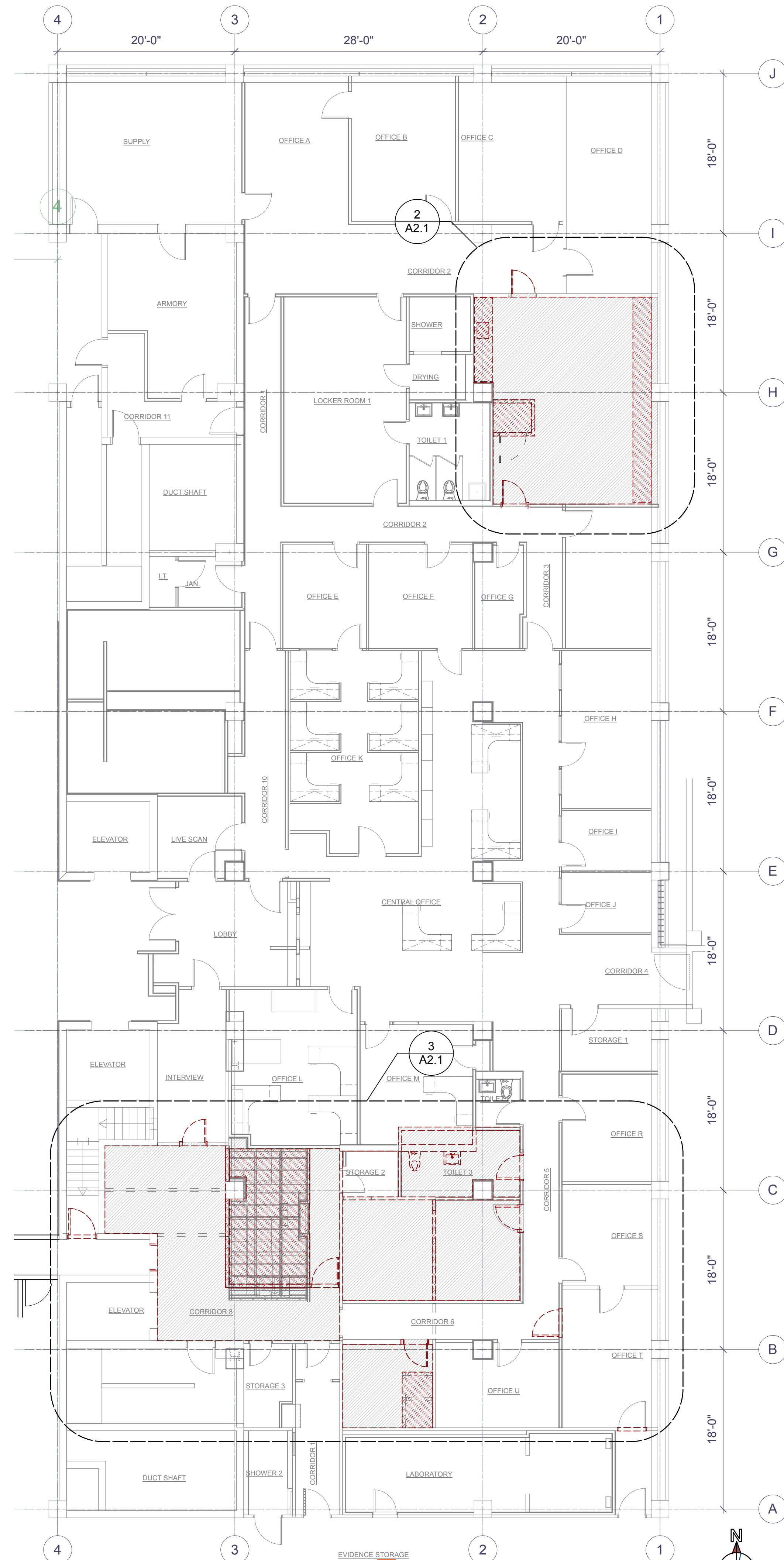




2 ENLARGED DEMOLITION PLAN - PHASE 1B
Scale: 1/4" = 1'-0"

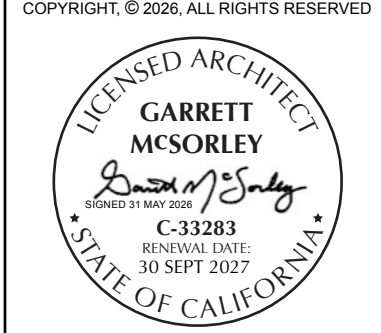


3 ENLARGED DEMOLITION PLAN - PHASE 1A
Scale: 1/4" = 1'-0"



1 OVERALL DEMOLITION PLAN - GRND FLR
Scale: 1/8" = 1'-0"

- DEMOLITION NOTES**
- SEE NOTES REGARDING HAZARDOUS MATERIALS ON SHEET A1.1.
 - CALL USA NORTH 811 UNDERGROUND SERVICE ALERT PRIOR TO ANY DIGGING, CUTTING, OR DRILLING.
 - VERIFY ALL EXISTING CONDITIONS IN FIELD PRIOR TO STARTING WORK. NOTIFY OWNER AND ARCHITECT IMMEDIATELY IF ANY DISCREPANCIES ARE DISCOVERED. EXERCISE DETAILED PRECAUTIONS IN THE PERFORMANCE OF THE WORK AND THE USE OF THESE DRAWINGS. ALL ISSUES OF SAFETY AND THE DESIGN OF ANY AND ALL TEMPORARY BRACING, SHORING, SCAFFOLDING, BARRICADES, SAFEGUARDS, OR OTHER ELEMENTS OR SEQUENCING THAT COMPOSES THE MEANS AND METHODS OF CONSTRUCTION IS SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.
 - REMOVE WASTE MATERIALS FROM THE SITE AND LEGALLY DISPOSE OF OR RECYCLE OF UNLESS INDICATED TO BE SALVAGED AND DELIVERED TO A LOCATION APPROVED BY THE OWNER. SEE HAZARDOUS MATERIALS NOTES ABOVE. UNLESS OTHERWISE INDICATED, DEMOLITION WASTE BECOMES PROPERTY OF THE CONTRACTOR. FULLY CLEAN SITE TO STATE OF NO LESS QUALITY THAN IT WAS PRIOR TO START OF WORK.
 - PROTECT EXISTING PROPERTY TO REMAIN. INSTALL DUST CONTROL MEASURES AT ALL EXISTING DUCT WORK OR VENTILATION SYSTEMS NOT OTHERWISE BEING REMOVED.
 - THE CONTRACTOR IS ADVISED TO APPROPRIATELY RECORD ALL EXISTING CONDITIONS PRIOR TO THE START OF WORK. CONTRACTOR SHALL HAVE USE OF THE WORK AREA DURING CONSTRUCTION ACTIVITIES.
 - INSPECT ALL UTILITIES AND VERIFY THAT THOSE TO BE MODIFIED OR REMOVED ARE PROPERLY SHUT-DOWN, LOCKED OUT, DISCONNECTED, OR CAPPED. NO ITEMS SHALL BE ABANDONED IN-PLACE UNLESS SPECIFICALLY APPROVED. WHERE ELECTRICAL DEVICES ARE TO BE REMOVED, PULL BACK WIRE TO THE SOURCE OR TO AN APPROVED JUNCTION BOX.
 - MAINTAIN PORTABLE FIRE EXTINGUISHERS ON SITE, READILY VISIBLE, AND AVAILABLE FOR USE THROUGHOUT CONSTRUCTION IN ACCORDANCE WITH CFC 3315.1 AND CFC 906.
 - DO NOT REMOVE ANY GRAVITY OR LATERAL LOAD BEARING ELEMENT. WHERE UNANTICIPATED ELEMENTS ARE ENCOUNTERED, DETERMINE THE EXTENT TO WHETHER SELECTIVE DEMOLITION ACTIVITIES MAY IMPACT THE STRUCTURAL INTEGRITY OF THE BUILDING. SUBMIT RFI FOR REVIEW BY OWNER & ARCHITECT OF EXISTING CONDITIONS WHERE THIS OCCURS. COMPLY WITH ALL PROVISIONS OF CBC SECTION 3303 DEMOLITION.
 - NOTIFY ARCHITECT IMMEDIATELY WHEN ENCOUNTERING CONDITIONS THAT DIFFER FROM APPROVED BUILDING PLANS.
 - REFER TO REQUIREMENTS FOR PREVENTION OF NOISE, DUST, OR OTHER POTENTIAL DISRUPTIONS TO THE EXISTING AND ONGOING OPERATIONS WITHIN THE FACILITY.
 - REFER TO MECH, ELEC, & PLUMBING PLANS FOR ADDITIONAL DEMOLITION REQUIREMENTS.



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95501 APN: 001-191-002

DEMOLITION PLANS

Drawing Status: **FOR PERMIT APPROVAL**

Issue Date: **23 Dec 2022**

Revisions:

| | |
|-------------|--------------------|
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| 03 MAR 2026 | UPDATE & ADA RSTRM |
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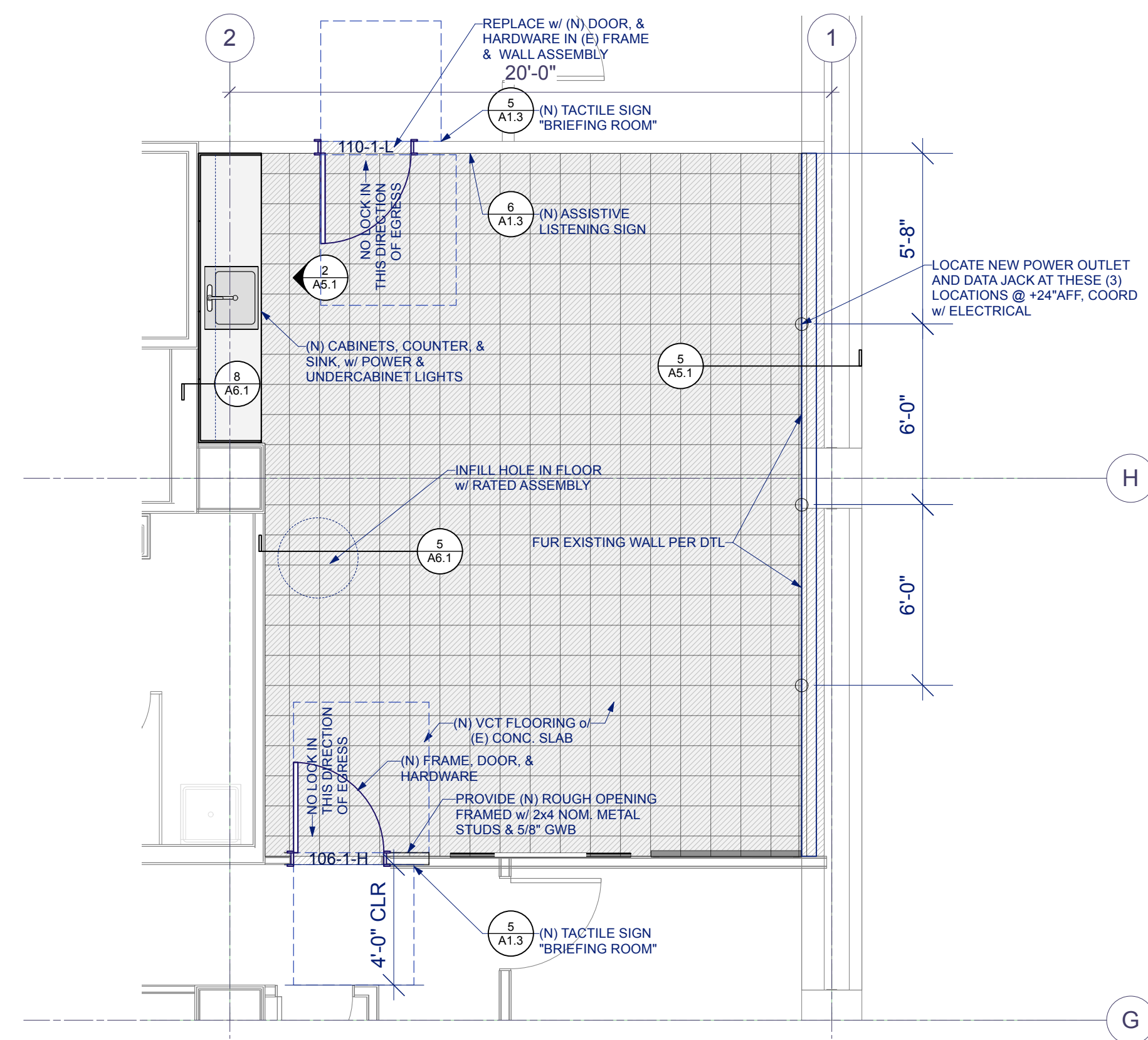
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A2.1

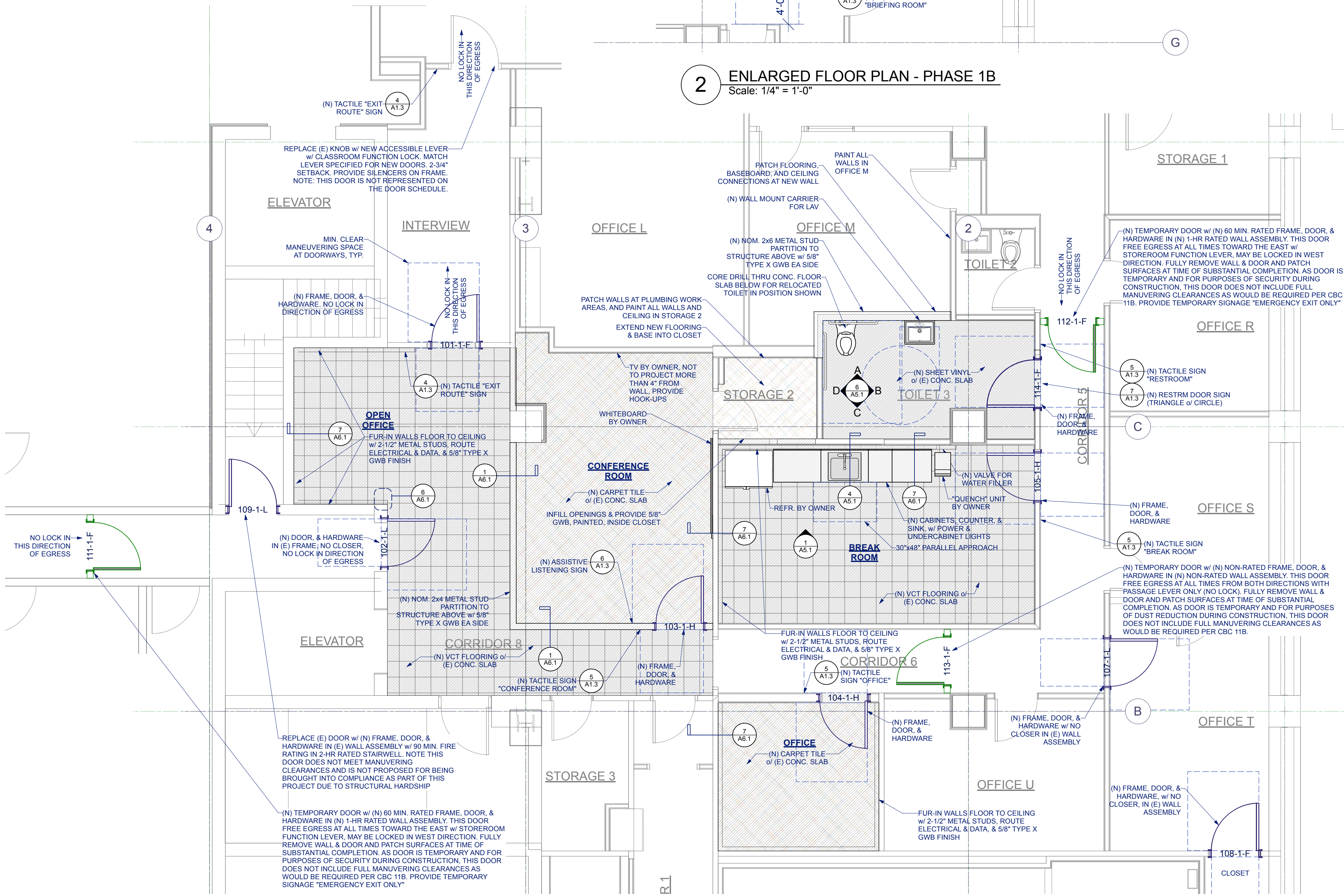
PROJECT NUMBER: 2026-501

FLOOR PLAN NOTES

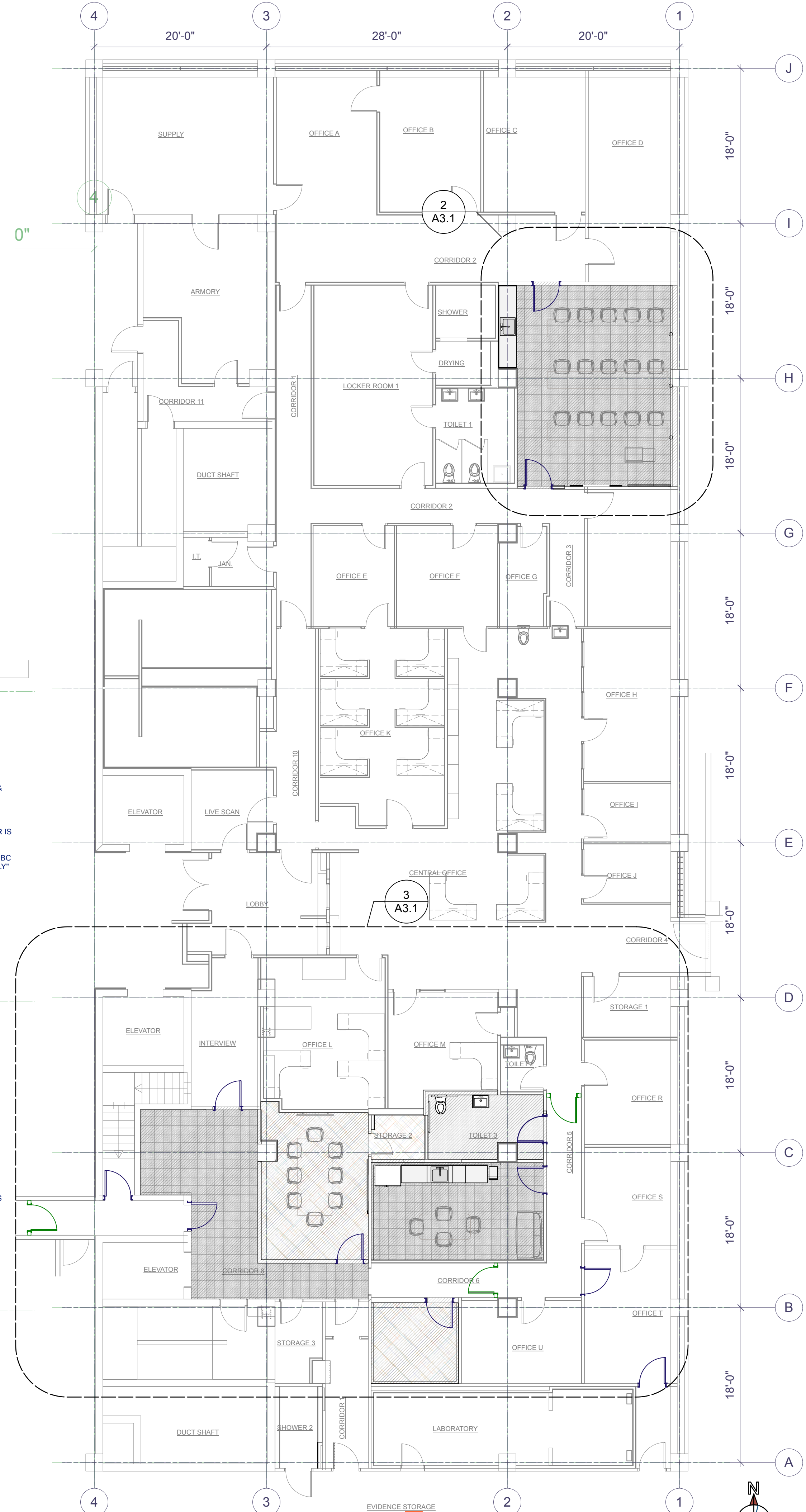
- REFER TO SHEET A7.1 FOR SCHEDULES AND FINISHES.
- COORDINATE LAYOUT WITH ELECTRICAL, MECHANICAL, AND PLUMBING.
- TEMPORARY WALLS AND DOORS INDICATED ARE TO BE INSTALLED TO UNDERSIDE OF (E) CEILING PRIOR TO SIGNIFICANT WORK IN THE AREAS IDENTIFIED. INCLUDE THEIR INSTALLATION AND ISSUE KEYS TO COUNTY PRIOR TO LATCH BEING INSTALLED. WHERE APPLICABLE, PROVIDE TEMPORARY SIGNAGE INDICATING WORK AREA SAFETY AND EMERGENCY EXIT ONLY WHERE DIRECTED BY FIRE CODE OFFICIAL AND CONSTRUCTION SITE SAFETY REGULATIONS. FULLY REMOVE TEMPORARY WALLS AND DOORS UPON SUBSTANTIAL COMPLETION IN THIS WORK AREA. PATCH AND FINISH SURFACES TO REMAIN.



2 ENLARGED FLOOR PLAN - PHASE 1B
Scale: 1/4" = 1'-0"



3 ENLARGED FLOOR PLAN - PHASE 1A
Scale: 1/4" = 1'-0"



1 OVERALL FLOOR PLAN - GRND FLR
Scale: 1/8" = 1'-0"



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PROPOSED FLOOR PLANS

Drawing Status: **FOR PERMIT APPROVAL**

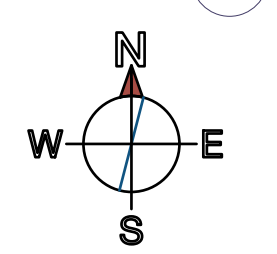
Issue Date: **23 Dec 2022**

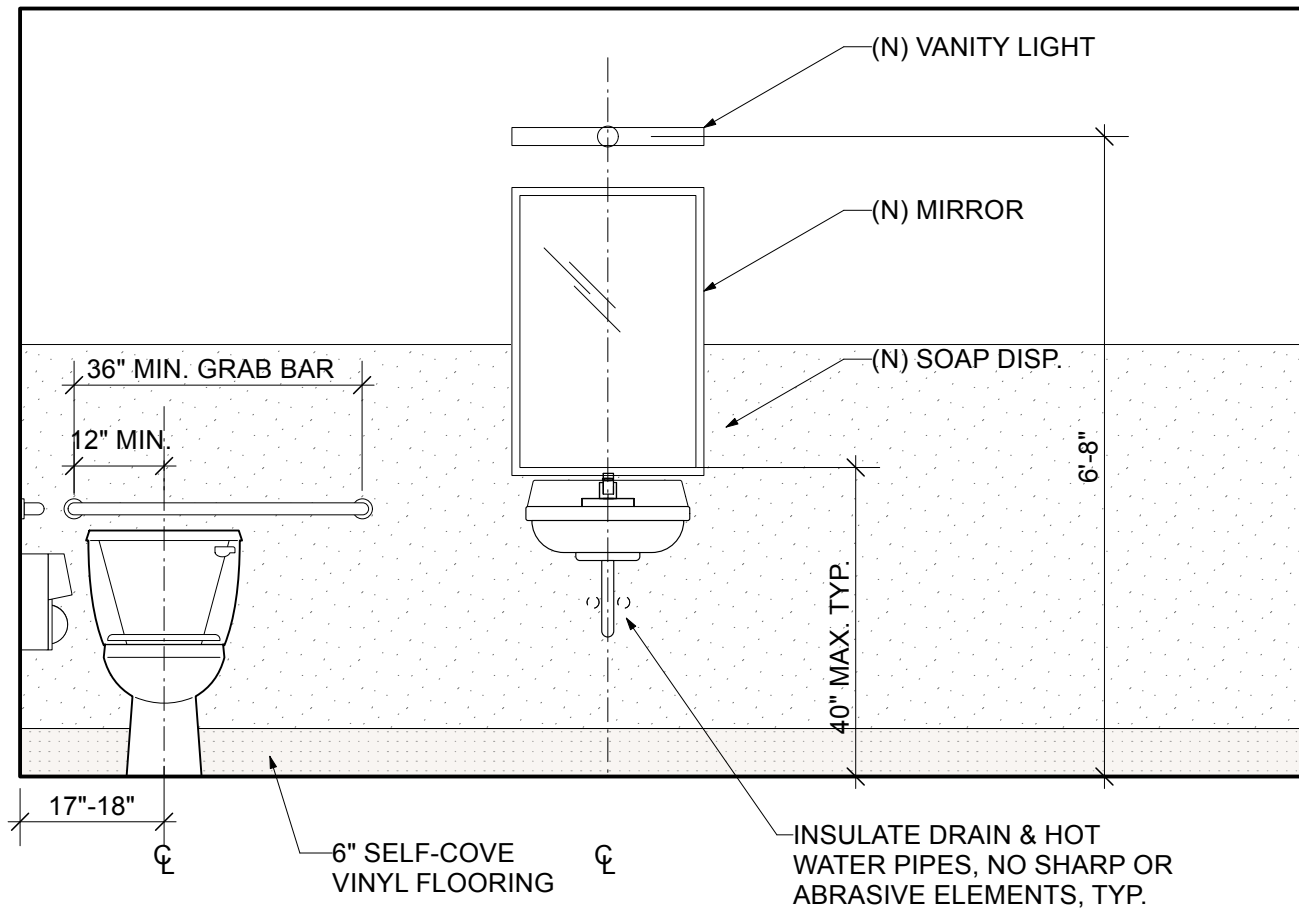
Revisions:

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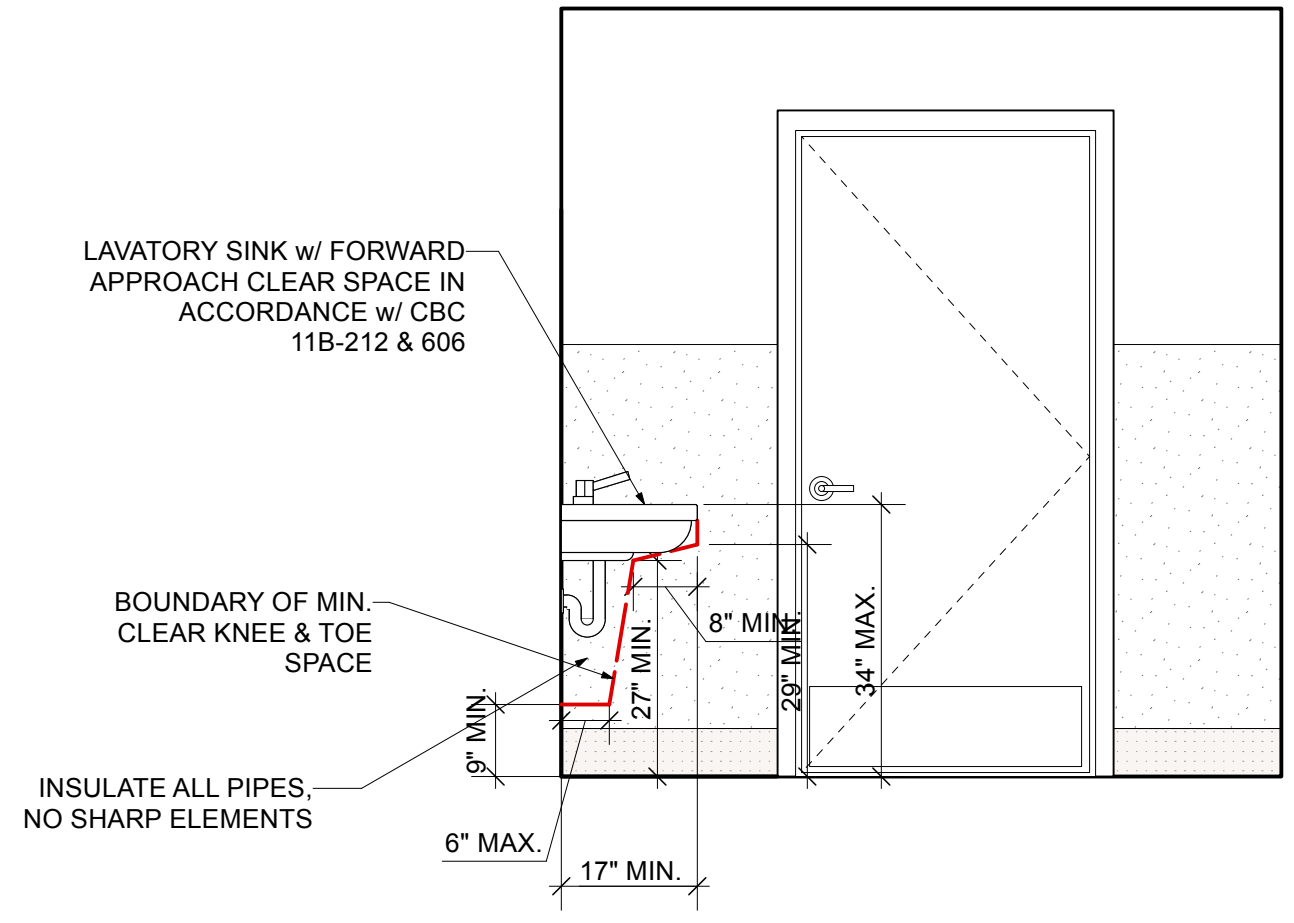
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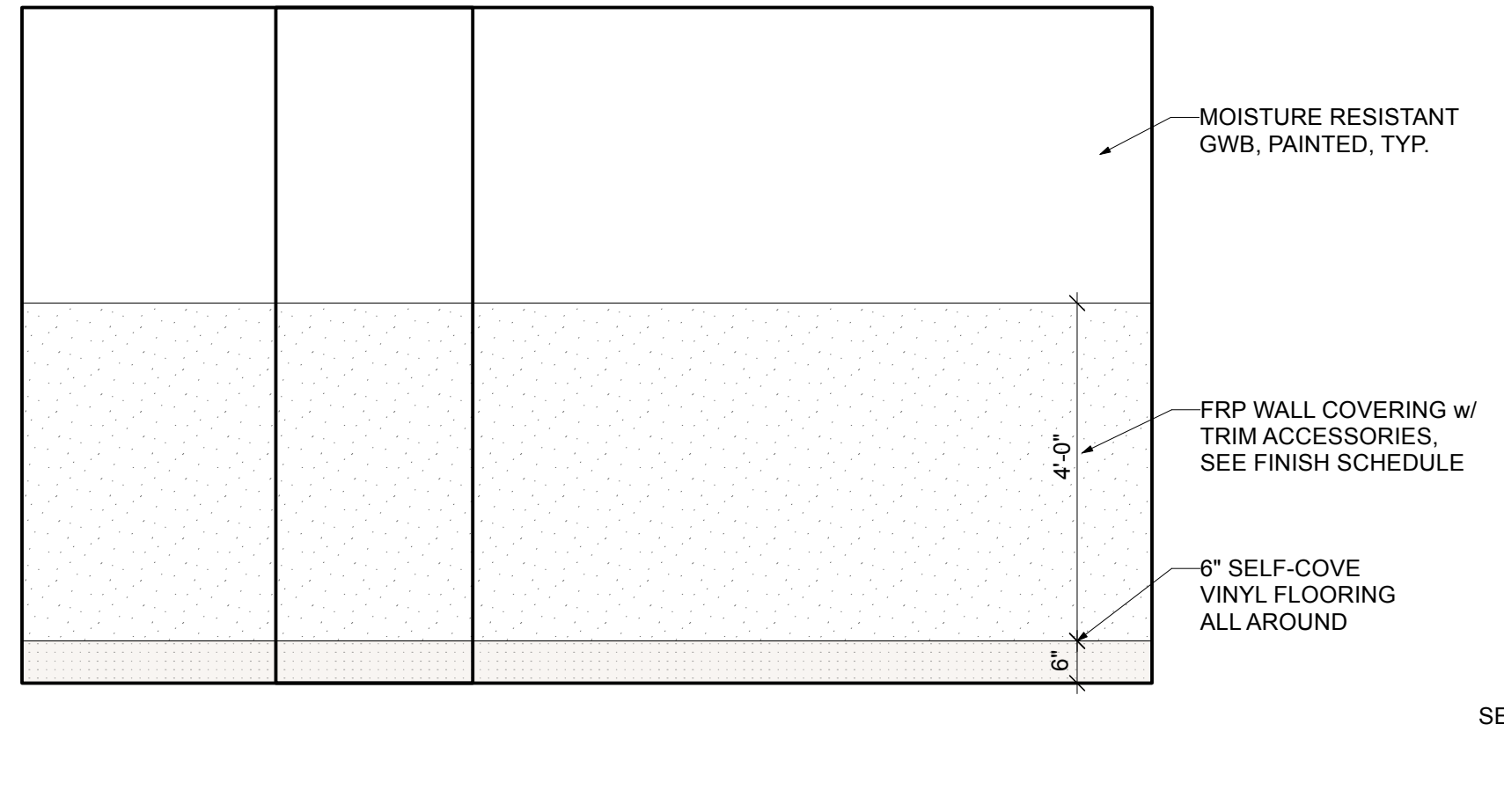




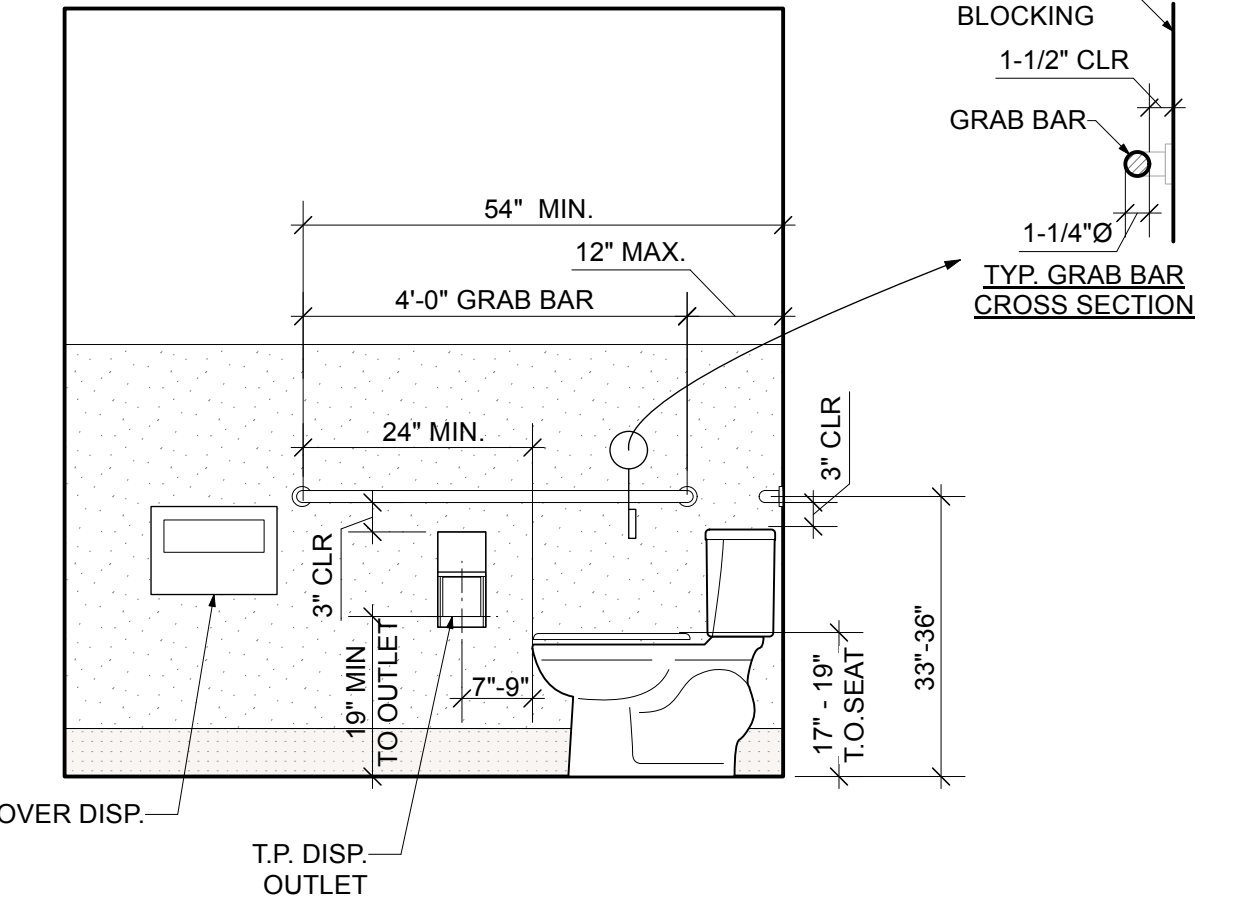
ELEVATION: A



ELEVATION: B



ELEVATION: C



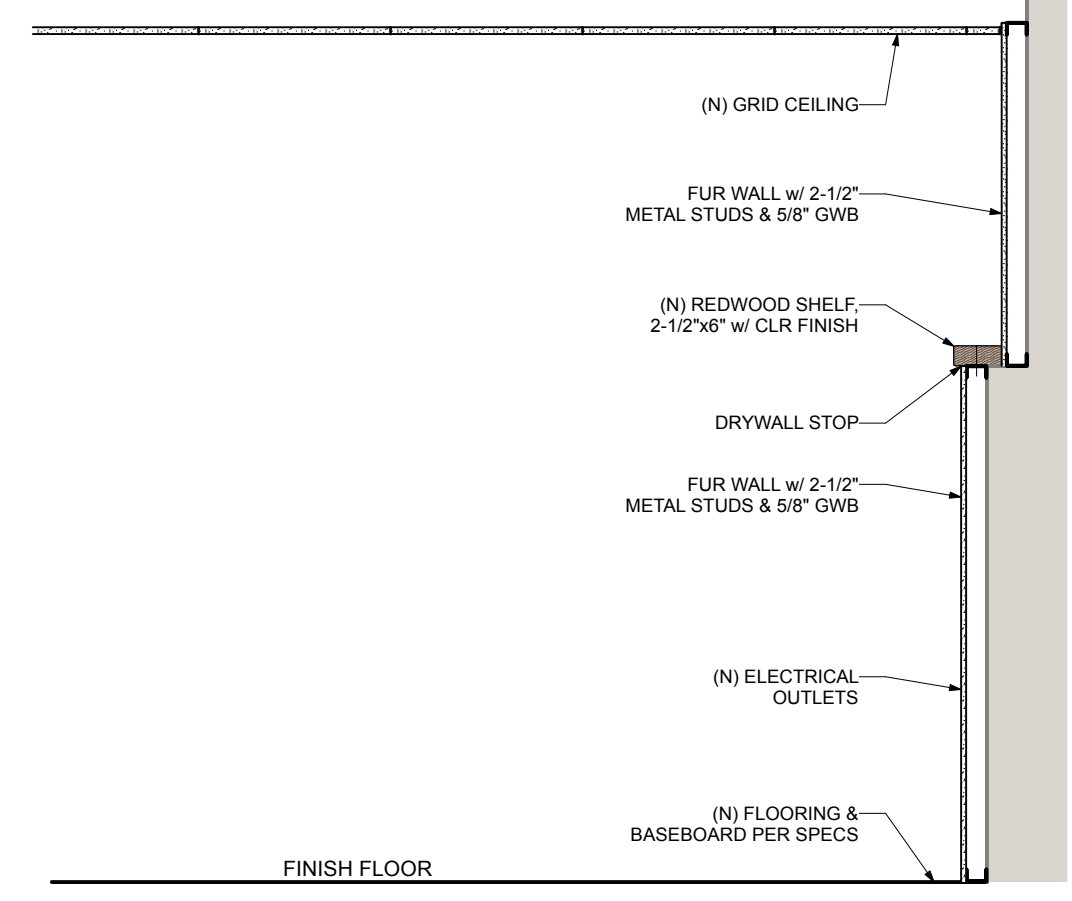
ELEVATION: D

6 RESTRM INT ELEVATIONS

1/2" = 1'-0"

RESTROOM NOTES:

- GRAB BARS:** INSTALL GRAB BARS PER CBC CH.11B, & MANUFR INSTNS. PROVIDE REINFORCEMENT IN WALLS. BASIS OF DESIGN: BOBRICK, FLANGED WITH CONCEALED FASTENERS, 18 GAUGE, TYPE 304 STAINLESS STEEL, 1-1/2" Ø, LENGTH PER DRAWINGS.
- DISPENSERS & RECEPTACLES:** PROVIDE STAINLESS STEEL ACCESSORIES PER DRAWINGS FOR FOLLOWING ITEMS, OR APPROVED EQUAL:
 - TOILET TISSUE DISPENSER: BOBRICK B-4288,
 - DROP-IN SOAP DISP: BOBRICK B-822,
 - PAPER TOWEL DISP w/ TRASH RECEPT: BOBRICK B-43944,
 - SEAT COVER DISP: BOBRICK B-4221,
 - MIRROR UNIT: BOBRICK B-165 2436 (24"x36"),
 - SANITARY NAPKIN RECEPT: B-4353
- SEE TYPICAL ACCESSIBILITY MOUNTING HEIGHTS AND RELATED DETAILS ON SHEET A6.2.



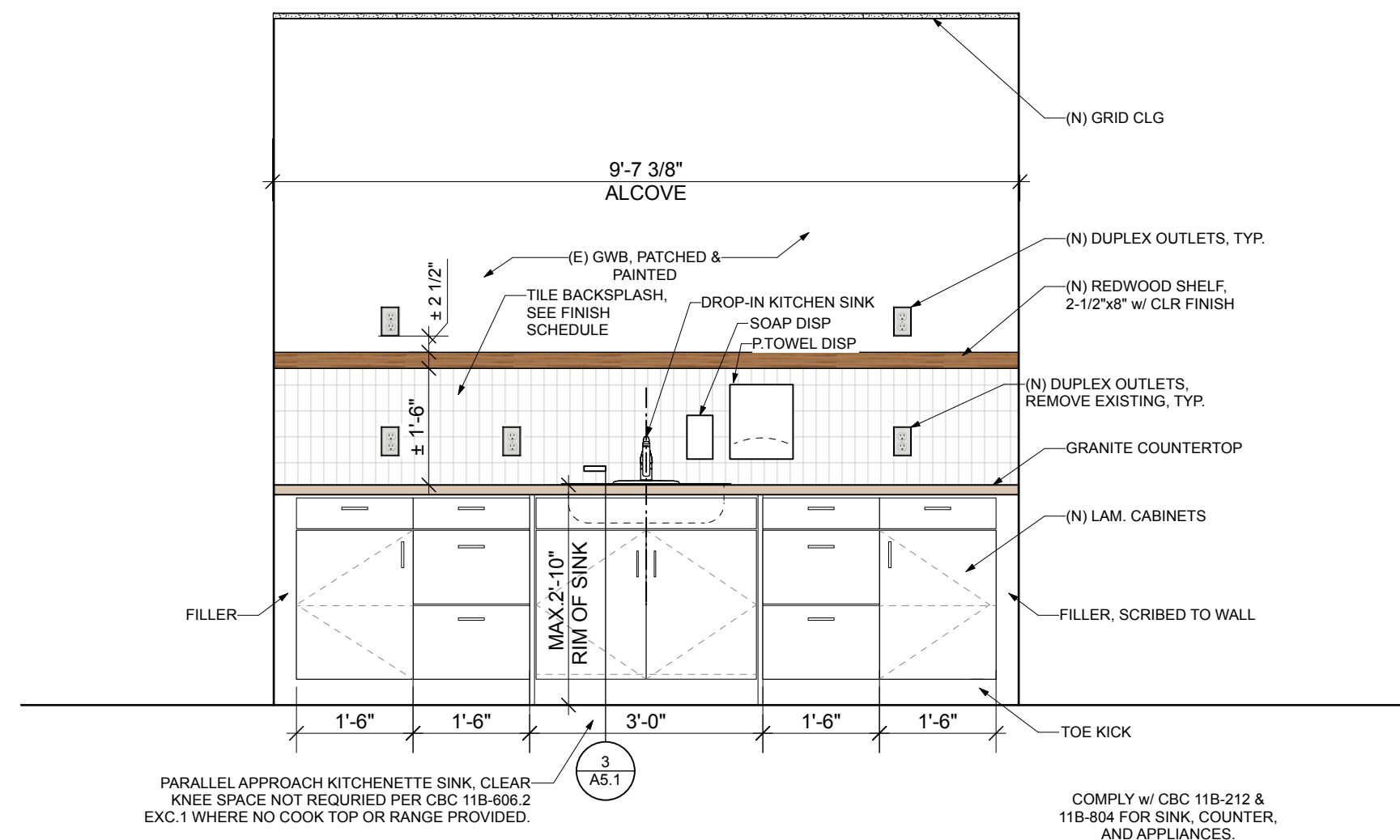
5 BRIEFING ROOM FURRED WALL

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

CONTROLS AND OUTLETS:

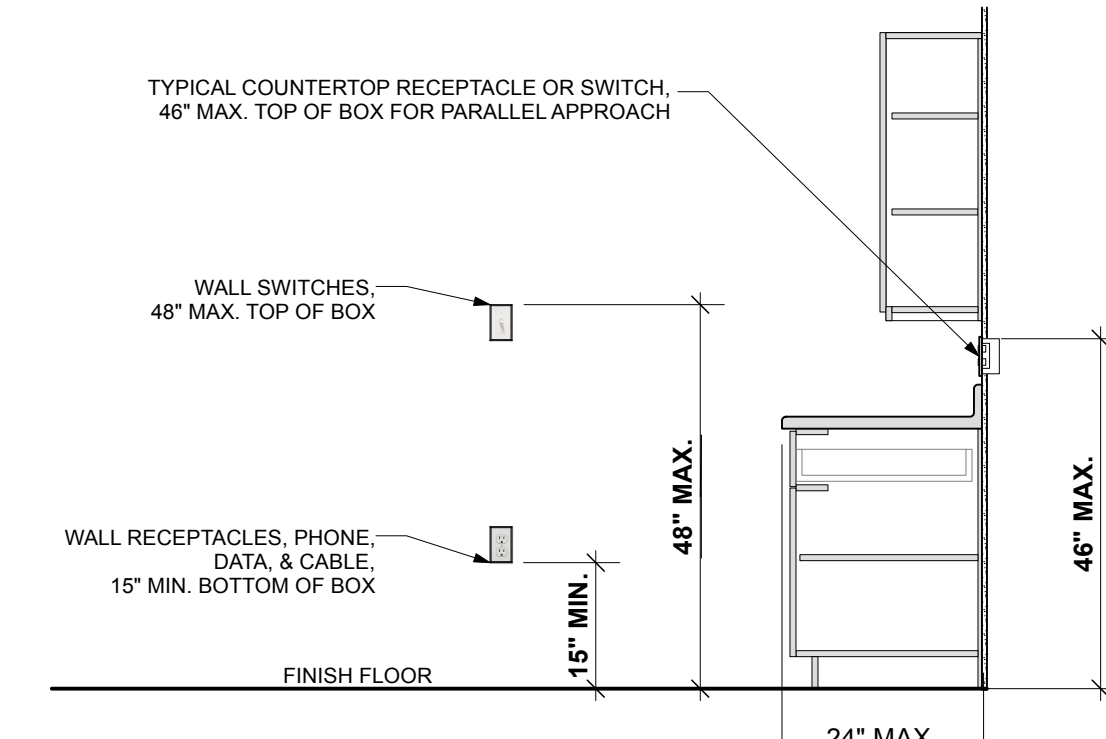
A. CONTROLS AND SWITCHES INTENDED TO BE USED BY THE OCCUPANT OF A ROOM OR AREA TO CONTROL LIGHTING AND RECEPTACLE OUTLETS, APPLIANCES OR COOLING, HEATING AND VENTILATING EQUIPMENT TO COMPLY WITH SECTION 11B-308 EXCEPT THE LOW REACH SHALL BE MEASURED TO THE BOTTOM OF THE OUTLET BOX AND THE HIGH REACH SHALL BE MEASURED TO THE TOP OF THE OUTLET BOX PER 11B-308.1.1.

B. ELECTRICAL RECEPTACLE OUTLETS ON BRANCH CIRCUITS OF 30 AMPERES OR LESS AND COMMUNICATION SYSTEM RECEPTACLES SHALL COMPLY WITH SECTION 11B-308 EXCEPT THE LOW REACH SHALL BE MEASURED TO THE BOTTOM OF THE OUTLET BOX AND THE HIGH REACH SHALL BE MEASURED TO THE TOP OF THE OUTLET BOX PER 11B-308.1.2.



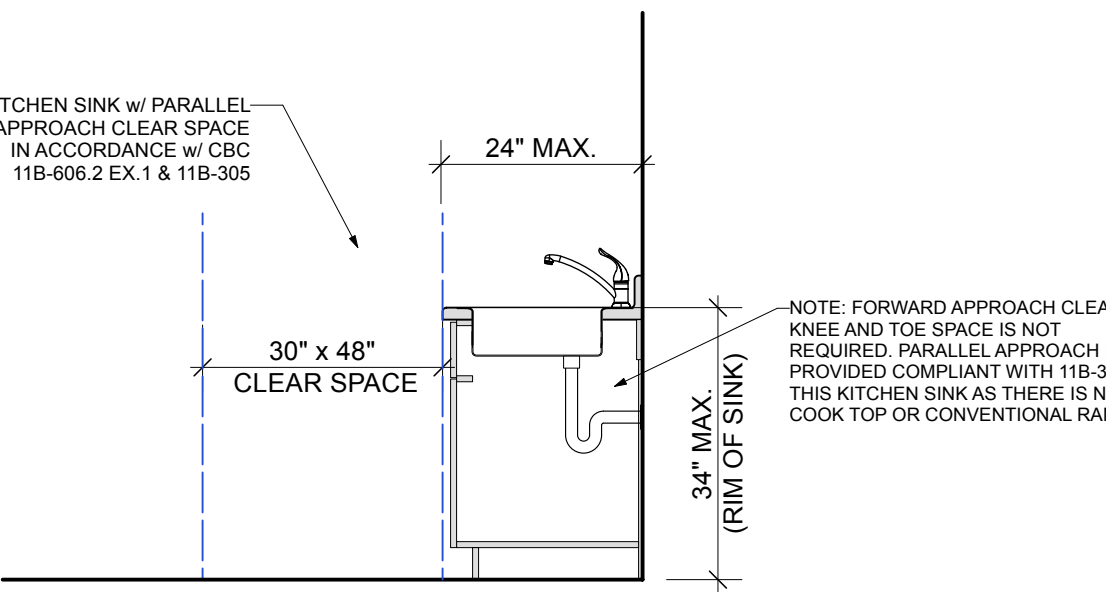
2 KITCHEN INTERIOR ELEVATIONS - BRIEFING ROOM

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



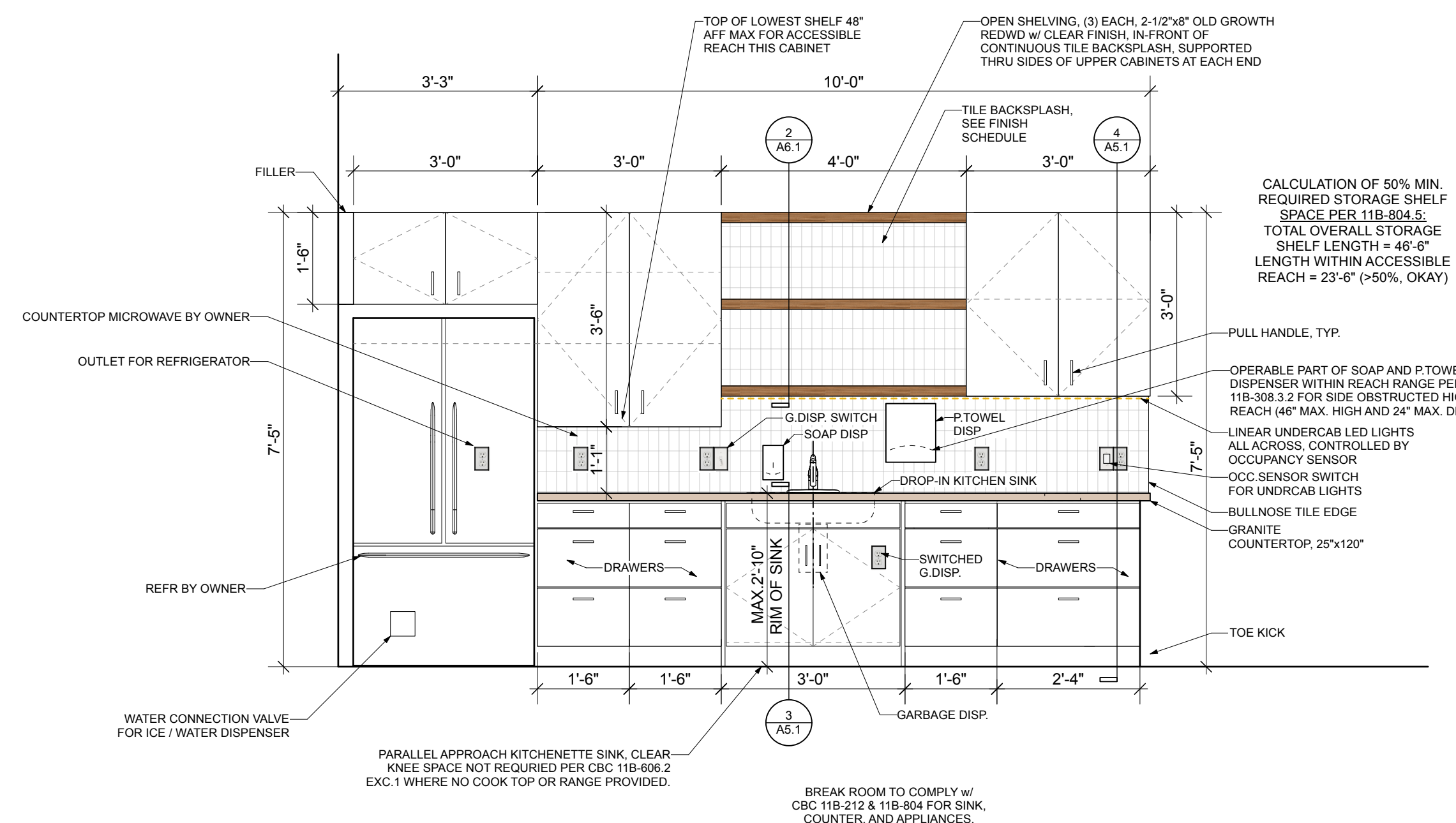
4 TYPICAL REACH HEIGHTS

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



3 KITCHENETTE SINK - PARALLEL APPROACH

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



1 KITCHEN INTERIOR ELEVATIONS - BREAK ROOM

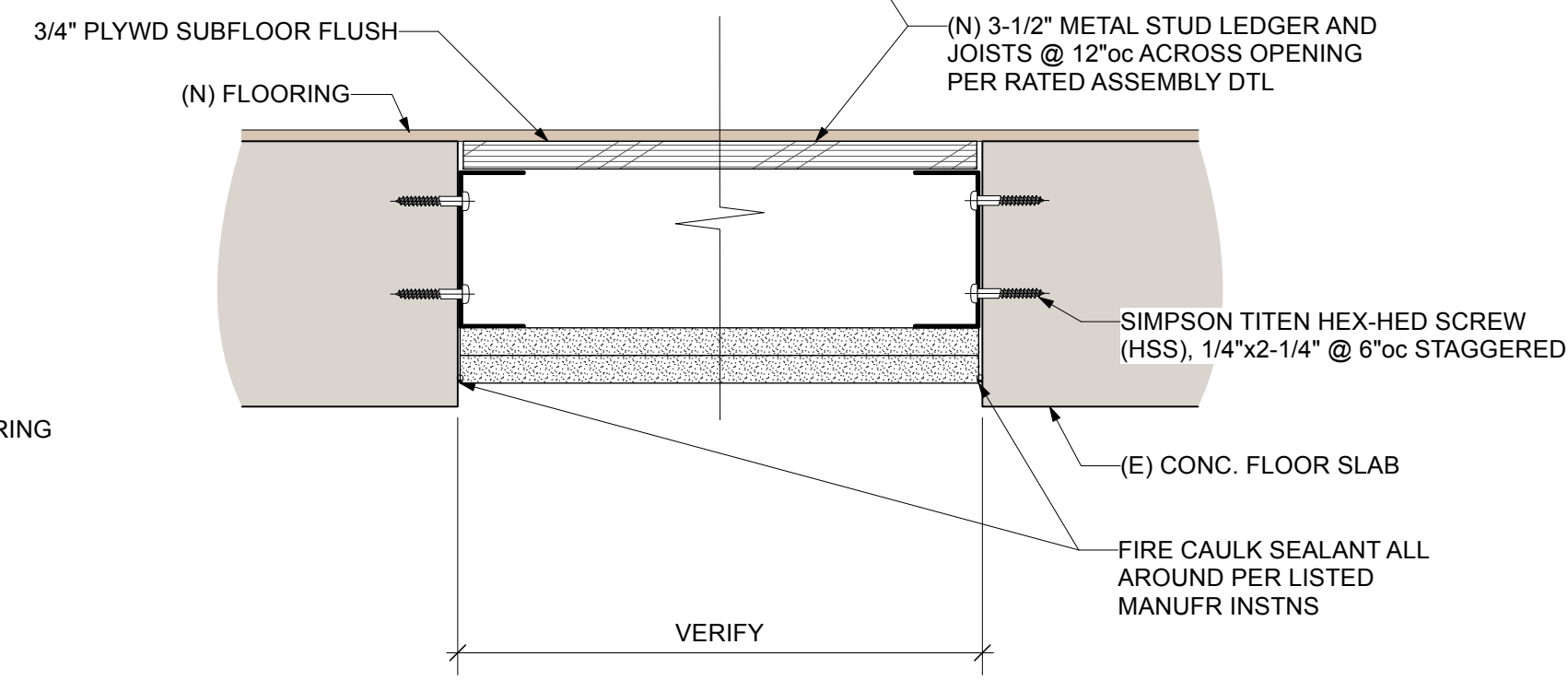
SCALE: 1/2" = 1'-0"

CALCULATION OF 50% MIN. REQUIRED STORAGE SHELF SPACE PER 11B-804.5

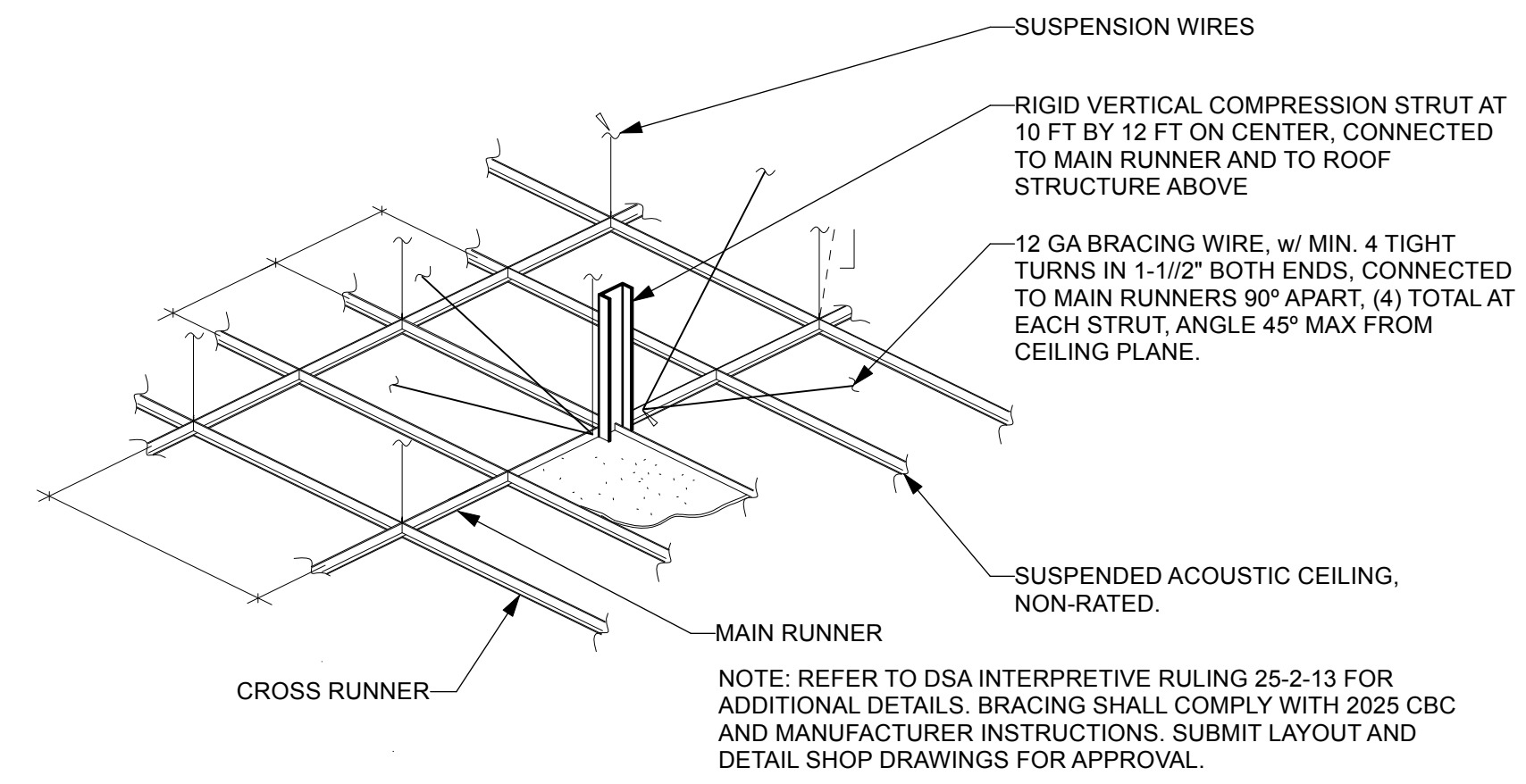
 TOTAL OVERALL STORAGE SHELF LENGTH = 46'-6"

 LENGTH WITHIN ACCESSIBLE REACH = 23'-6" (>50%, OKAY)

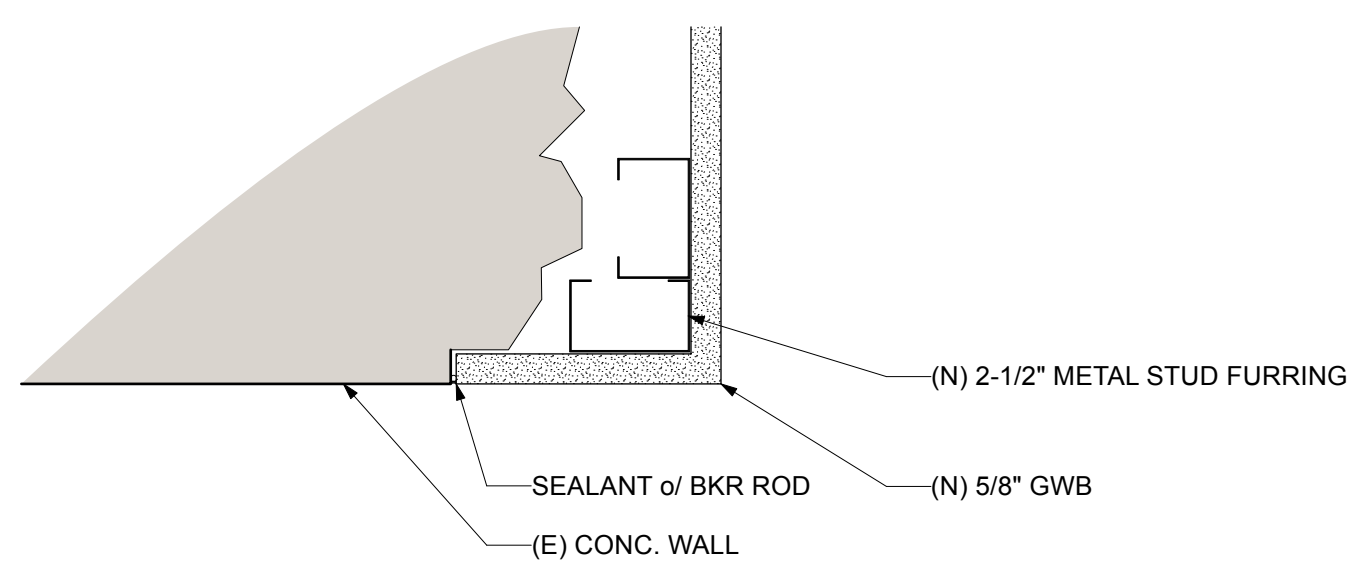
| | | |
|---|-----------------------|--------------------|
| GA FILE NO. FC 4503 | GENERIC | 1 HOUR FIRE |
| GYPSUM WALLBOARD, STEEL CHANNEL JOISTS, PLYWOOD FLOOR | | |
| <p>Base layer 1/2" type X gypsum wallboard applied at right angles to channel shaped, minimum 6" deep, 16 gage galvanized steel joists 24" o.c. with 1" Type S-12 drywall screws 24" o.c. Face layer 1/2" type X gypsum wallboard applied at right angles to joists with 1 1/4" Type S-12 drywall screws 12" o.c. at end joints and intermediate joints and 1 1/2" Type G screws 12" o.c. placed 3" back from either side of end joints and staggered 6" from Type S-12 screws at joint. Joints offset 24" from base layer joints.</p> <p>Floor of 3/4" T & G edge plywood applied at right angles to joists with 1 1/4" No. 6 Phillips head screws with 3/4" pilot tip 6" o.c. and end joints and 12" o.c. at intermediate joists.</p> | | |
| Approx. Ceiling Weight: | 4 psf | |
| Fire Test: | FM FC 205-1, 11-16-73 | |



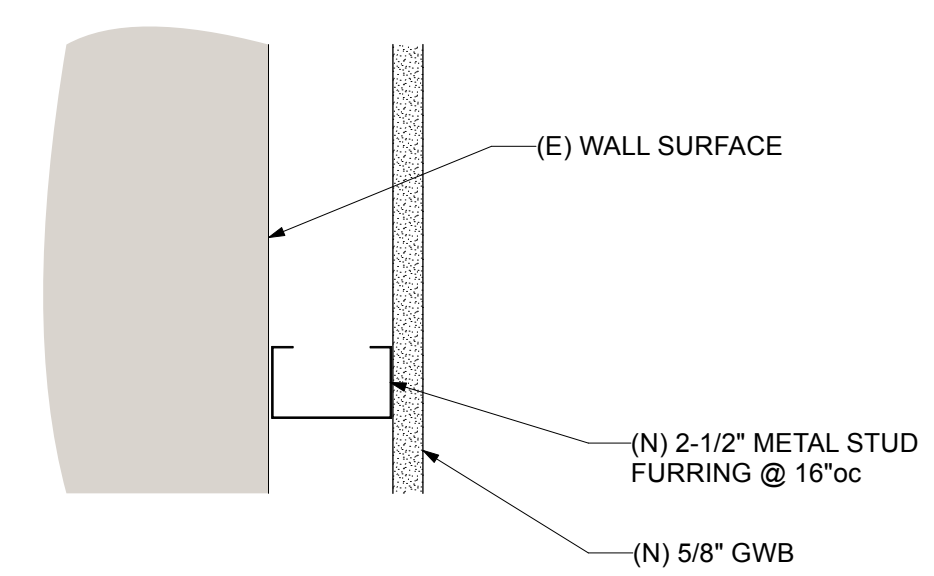
5 INFILL HOLE IN FLOOR @ BRIEFING RM
 Scale: 3" = 1'-0"



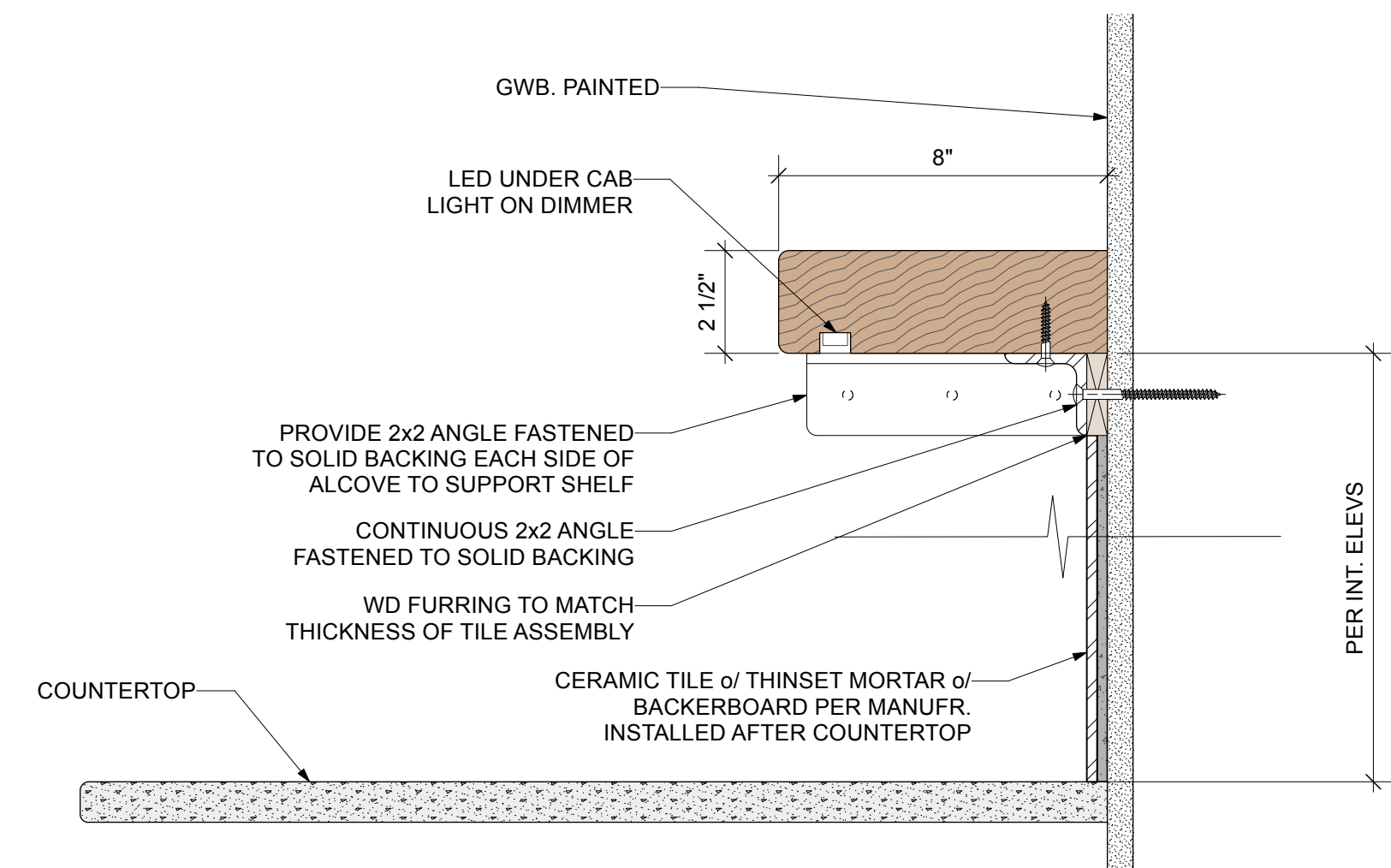
4 GRID CEILING DIAGRAM
 Scale: 1/2" = 1'-0"



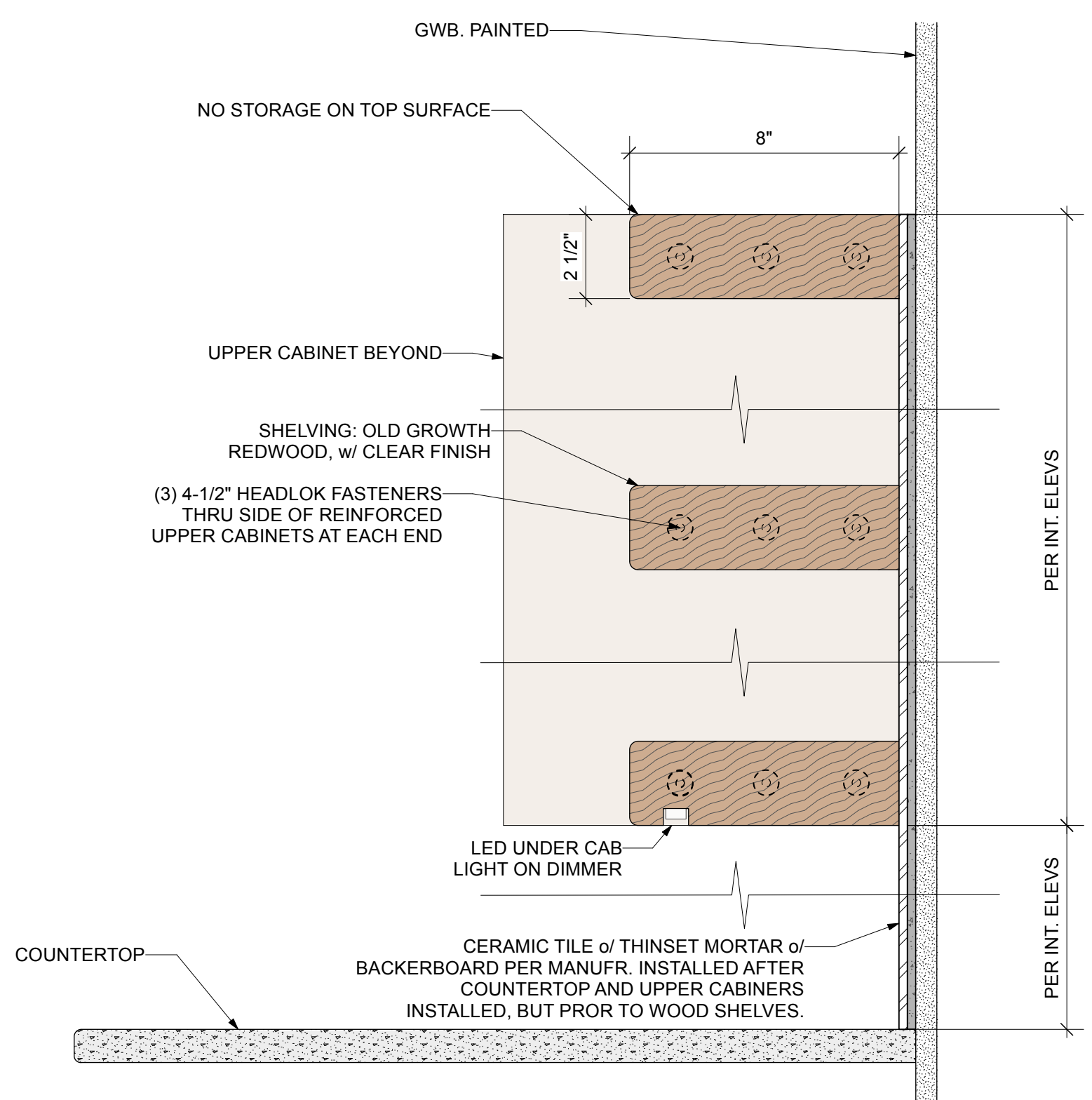
6 FURRED WALL CORNER @ OPEN OFFICE
 Scale: 3" = 1'-0"



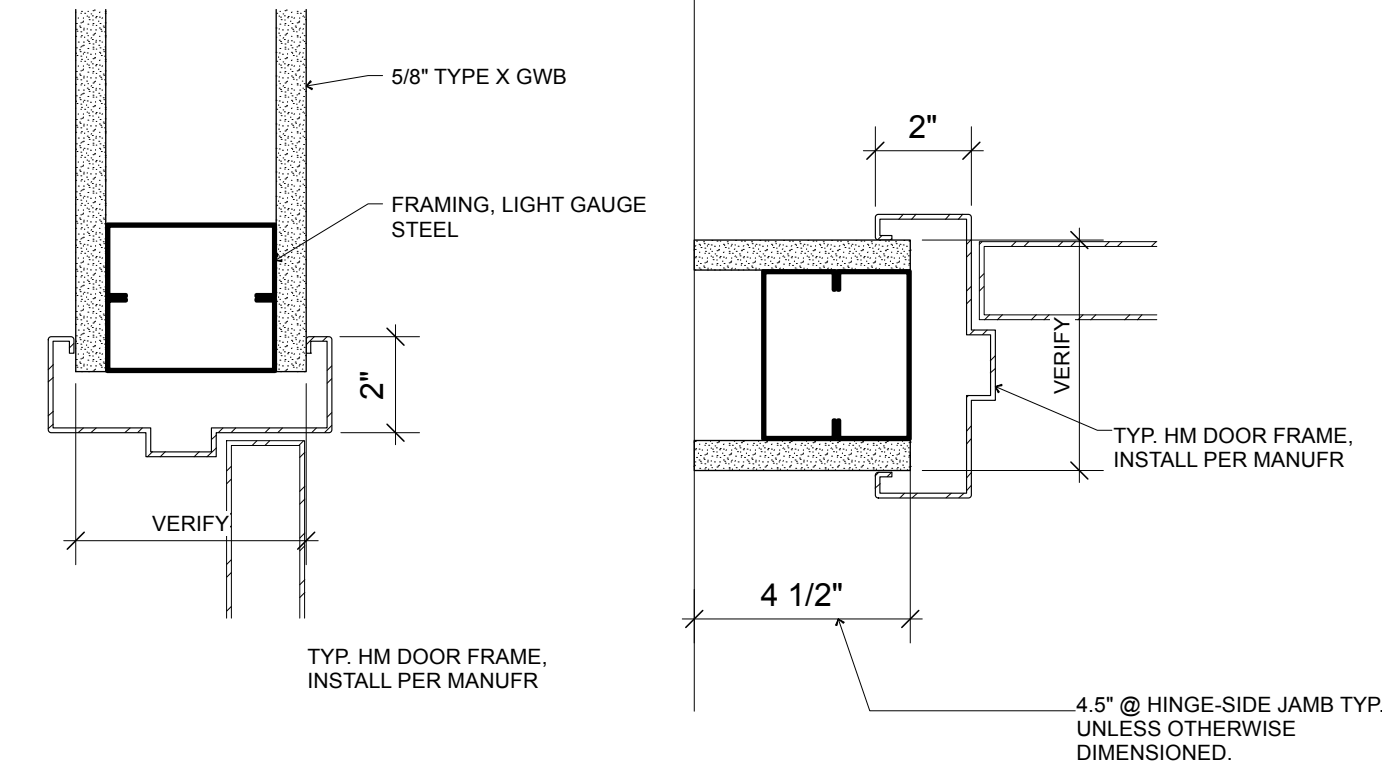
7 FURRED WALL
 Scale: 3" = 1'-0"



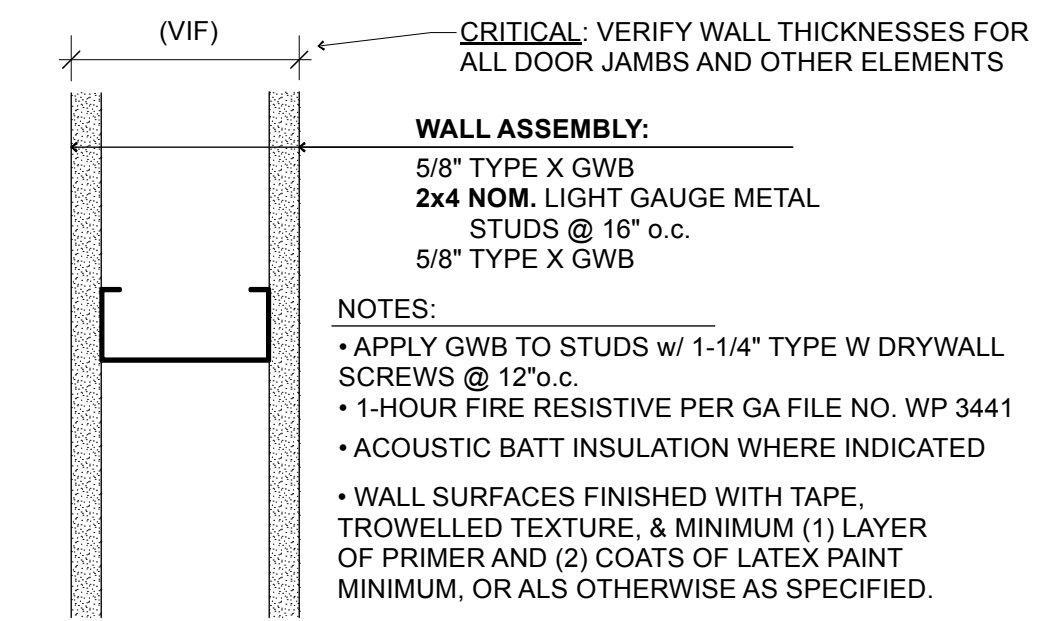
8 REDWOOD SHELF
 Scale: 3" = 1'-0"



2 REDWOOD SHELVING or TILE BACKSPLASH
 Scale: 3" = 1'-0"



3 HM DOOR HEAD & JAMB, TYP.
 Scale: 3" = 1'-0"



1 WALL ASSEMBLY: INTERIOR 2x4, 1-HR RATED
 Scale: 3" = 1'-0"



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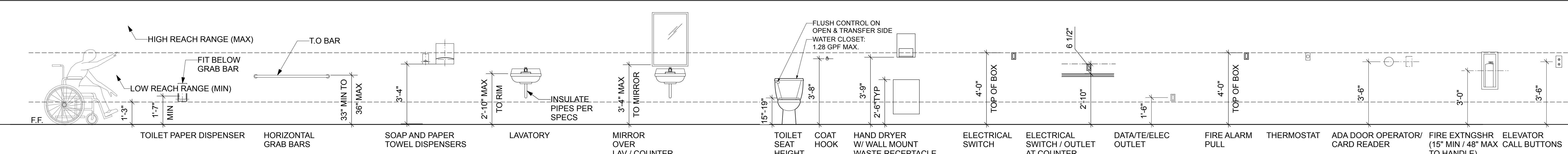
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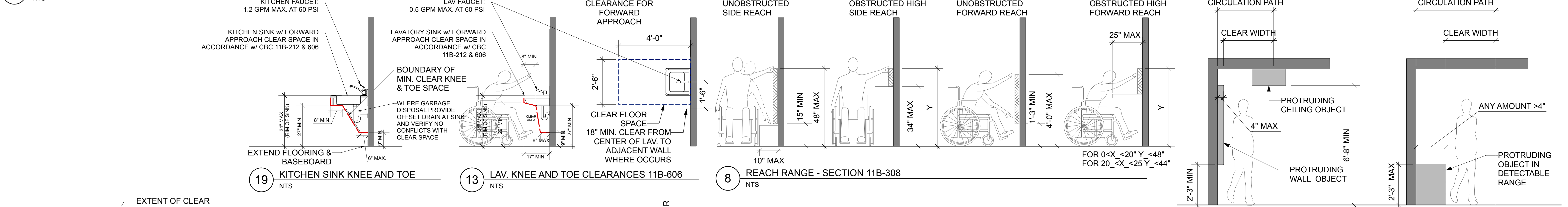
DETAILS ACCESSIBILITY

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A6.2



18 ACCESSIBLE MOUNTING HEIGHTS
NTS

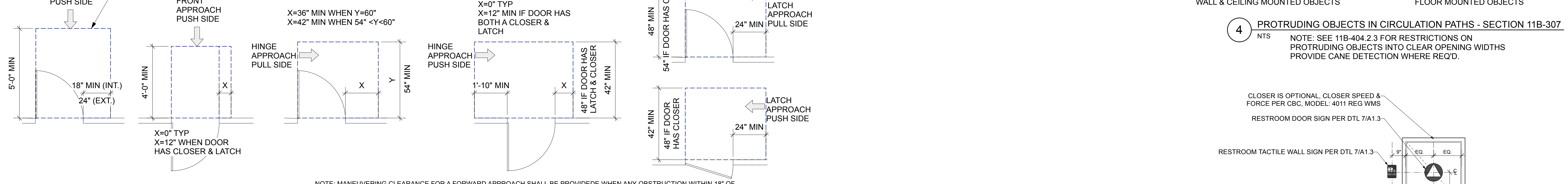


19 KITCHEN SINK KNEE AND TOE
NTS

13 LAV. KNEE AND TOE CLEARANCES 11B-606
NTS

8 REACH RANGE - SECTION 11B-308
NTS

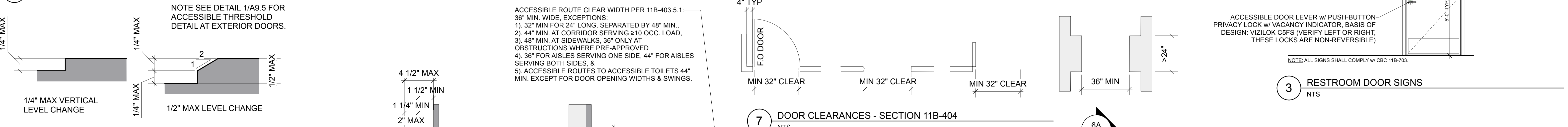
4 PROTRUDING OBJECTS IN CIRCULATION PATHS - SECTION 11B-307
NTS



16 DOOR CLEARANCES AT SWING DOORS - SECTION 11B-404
NTS

7 DOOR CLEARANCES - SECTION 11B-404
NTS

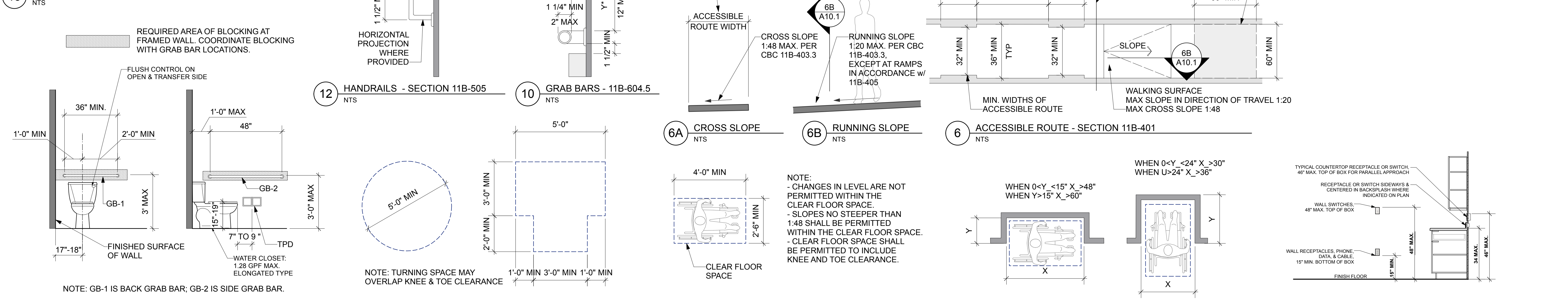
3 RESTROOM DOOR SIGNS
NTS



15 LEVEL CHANGES ON ACCESSIBLE ROUTE - SECTION 11B-302
NTS

7 DOOR CLEARANCES - SECTION 11B-404
NTS

6 ACCESSIBLE ROUTE - SECTION 11B-401
NTS



14 GRAB BAR, WATER CLOSET, & TOILET PAPER DISP. LOCATIONS
NTS

11 MIN. WHEELCHAIR TURNING SPACE - SECTION 11B-304
NTS

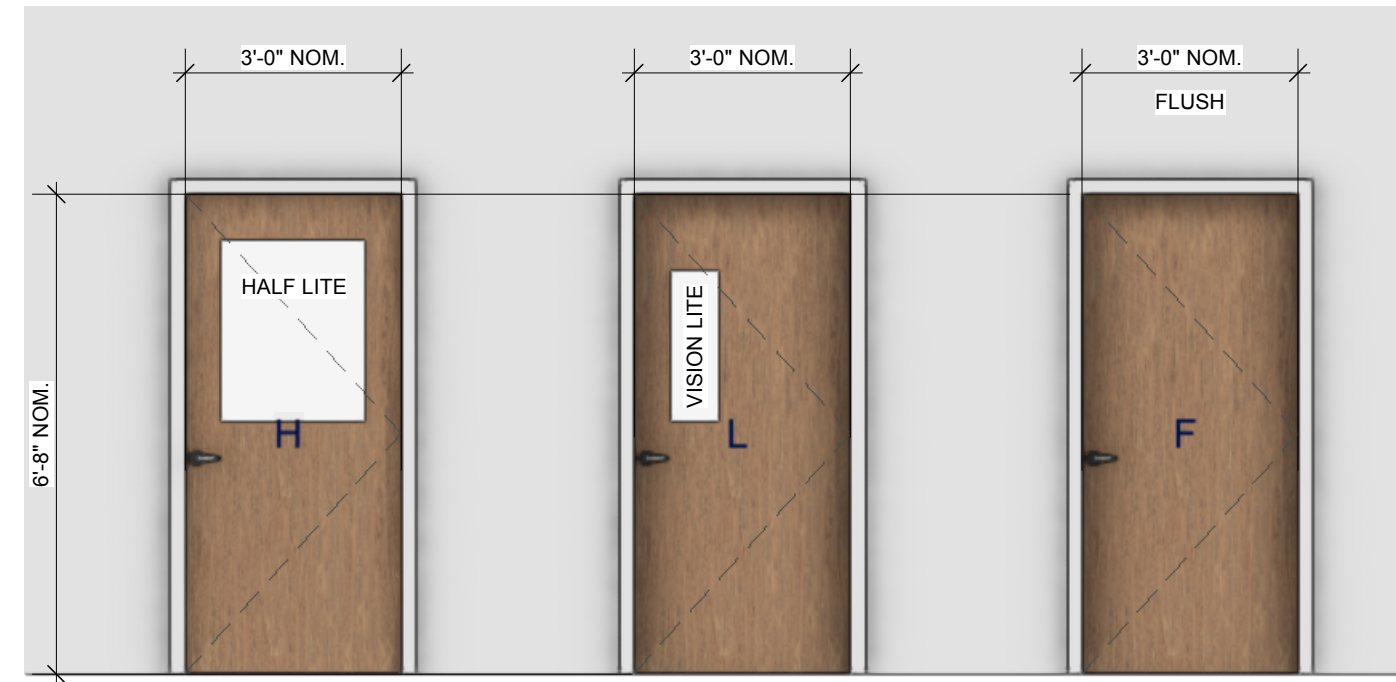
9 STANDARD CLEAR FLOOR SPACE - SECTION 11B-305
NTS

5 MANEUVERING CLEARANCE IN ALCOVE - SECTION 11B-305.7
NTS

1 TYP. OUTLETS & CONTROLS
NTS

DOOR SCHEDULE

| DOOR # | ELEV | WIDTH | HEIGHT | DOOR TYPE | FRAME | FIRE RATING | GLAZING | EXT. | INT. | KICK PLATE(S) | CLOSER | HARDWARE | NOTES |
|--------|------|-------|--------|-----------|-------|-------------|---------|-----------|------|---------------|--------|--------------------------------|---|
| 101 | -1 | -F | 3'0" | 6'8" | SCW | HM | 20 MIN | NONE | - | INT PUSH SIDE | YES | CLASSROOM LEVER | |
| 102 | -1 | -L | 3'0" | 6'8" | SCW | EXISTING | 20 MIN | VISION | - | INT PUSH SIDE | NO | PASSAGE LEVER | FIT NEW DOOR TO (E) HM FRAME |
| 103 | -1 | -H | 3'0" | 6'8" | SCW | HM | 20 MIN | HALF LITE | - | INT PUSH SIDE | YES | CLASSROOM LEVER | |
| 104 | -1 | -H | 3'0" | 6'8" | SCW | HM | 20 MIN | HALF LITE | - | INT PUSH SIDE | YES | CLASSROOM LEVER | |
| 105 | -1 | -H | 3'0" | 6'8" | SOW | HM | 20 MIN | HALF LITE | - | INT PUSH SIDE | YES | PASSAGE LEVER | |
| 106 | -1 | -H | 3'0" | 6'8" | SOW | HM | 20 MIN | HALF LITE | - | INT PUSH SIDE | YES | CLASSROOM LEVER | |
| 107 | -1 | -L | 3'0" | 6'8" | SOW | HM | 20 MIN | VISION | - | INT PUSH SIDE | NO | CLASSROOM LEVER | |
| 108 | -1 | -F | 3'0" | 6'8" | SCW | HM | 20 MIN | NONE | - | INT PUSH SIDE | NO | STOREROOM LEVER | |
| 109 | -1 | -L | 3'0" | 6'8" | SCW | HM | 90 MIN | VISION | - | INT PUSH SIDE | YES | PANIC DEVICE w/ PASSAGE LEVER | NOT ACCESSIBLE MANUEVERING DUE TO (E) STRUCTURAL |
| 110 | -1 | -L | 3'0" | 6'8" | SCW | EXISTING | 20 MIN | VISION | - | INT PUSH SIDE | YES | CLASSROOM LEVER | FIT NEW DOOR TO (E) HM FRAME |
| 111 | -1 | -F | 3'0" | 6'8" | SCW | HM | 60 MIN | NONE | - | INT PUSH SIDE | YES | STOREROOM LEVER | TEMPORARY DOOR DURING CONSTRUCTION |
| 112 | -1 | -F | 3'0" | 6'8" | SCW | HM | 60 MIN | NONE | - | INT PUSH SIDE | YES | STOREROOM LEVER | TEMPORARY DOOR DURING CONSTRUCTION |
| 113 | -1 | -F | 3'0" | 6'8" | SCW | HM | 60 MIN | NONE | - | INT PUSH SIDE | YES | PASSAGE LEVER | TEMPORARY DOOR DURING CONSTRUCTION |
| 114 | -1 | -F | 3'0" | 6'8" | SCW | HM | 20 MIN | NONE | - | INT PUSH SIDE | YES | INDICATOR LEVER (VIZILOK C5FS) | ACCESSIBLE RESTROOM DOOR & WALL SIGNS, SEE DTL 3/A6.2 |



DOOR, FRAME, AND HARDWARE NOTES:

- NEW INTERIOR SOLID CORE WOOD DOORS ("SCW" IN SCHEDULE) SHALL BE:
 SCW = FLUSH "OREGON DOOR" ALPC501 SERIES, OR EQUAL. 1-3/4" THICK 5-PLY ARCHITECTURAL GRADE, NAF PARTICLEBOARD CORE - HPDL-5, w/ NO ADDED UREA FORMALDEHYDE, w/ DECORATIVE LAMINATE FACE OVER HIGH DENSITY FIBERBOARD, MOUNTED IN A HOLLOW METAL FRAME. WHERE VISION GLAZING IS SPECIFIED PROVIDE CUT-OUT FOR 1/4" LAMINATED SAFETY GLASS w/ STANDARD LIGHT Moulding WVF-4 FLUSH TYPE, Moulding WOOD FINISH TO MATCH LAMINATE FINISH.
 LAMINATE FINISH: WILSONART, MANGALORE MANGO 7984-38, FINE VELVET FINISH, OR EQUAL.
- NEW INTERIOR DOOR FRAMES ("HM" IN SCHEDULE) SHALL BE STEELCRAFT SERIES F14, OR EQUAL. THEY SHALL BE 14 GAUGE, FOR STEEL STUD PARTITION CONSTRUCTION, ADJUSTABLE SILL ANCHORS, FACE OF FRAME 2" WIDE AND 1/2" RETURN, w/ STANDARD DOUBLE RABBET FRAME. PROVIDE GALVANIZED AND PRIMED, FULLY WELDED, PREP FOR HINGES, STRIKE, AND CLOSER REINFORCEMENT WHERE APPLICABLE. VERIFY JAMB DEPTH. EXCEPT WHERE FULL WEATHERSTRIP GASKET IS SPECIFIED, PROVIDE RUBBER SILENCERS AT ALL DOORS.
- WHERE NEW DOORS ARE TO BE INSTALLED AT EXISTING FRAMES, VERIFY AND PREP THE FRAME. PROVIDE COMPATIBLE HINGES, STRIKE PLATES, AND CLOSER HARDWARE PREPARATIONS SO THE NEW DOOR MAY BE PROPERLY MOUNTED AND INSTALLED ON THE EXISTING FRAME.
- NEW DOOR HARDWARE TO INCLUDE THE FOLLOWING BASIS OF DESIGN PRODUCTS, OR EQUAL:
 HINGES: IVES 5BB1 HW NRP. (3) EACH PER DOOR, 4.5 X 4.5 BALL BEARING, 5 KNUCKLE, NON-REMOVEABLE PIN, 652 FINISH.
 LEVER: SCHLAGE L9000 SERIES, FULL MORTISE, CONVENTIONAL 6-PIN KEYED, HANDED PER PLAN, TYPE 03 LEVER W/ TYPE A ROSE, 626 FINISH.
 LOCK FUNCTIONS:
 CLASSROOM: ANSI F32, TYPE L9071P. LATCHBOLT RETRACTED BY KNOB/LEVER FROM EITHER SIDE UNLESS OUTSIDE IS LOCKED BY KEY FROM EITHER SIDE. WHEN LOCKED, LATCHBOLT RETRACTED BY OUTSIDE KEY OR INSIDE KNOB/LEVER. AUXILIARY LATCH DEADLOCKS LATCHBOLT WHEN DOOR IS CLOSED. INSIDE LEVER ALWAYS FREE FOR IMMEDIATE EGRESS.
 PASSAGE: ANSI F01, TYPE L9010. LATCHBOLT RETRACTED BY LEVER/KNOB FROM EITHER SIDE AT ALL TIMES. INSIDE LEVER ALWAYS FREE FOR IMMEDIATE EGRESS.
 OFFICE: ANSI F04, TYPE L9050P. LATCHBOLT RETRACTED BY LEVER/KNOB FROM EITHER SIDE UNLESS OUTSIDE LEVER IS LOCKED BY KEY OR THUMBTURN. WITH OUTSIDE LOCKED, LATCHBOLT RETRACTED BY KEY OR INSIDE LEVER. OUTSIDE LEVER LOCKED UNTIL UNLOCKED BY THUMBTURN OR KEY. AUXILIARY LATCH DEADLOCKS LATCHBOLT WHEN DOOR IS CLOSED. INSIDE LEVER ALWAYS FREE FOR IMMEDIATE EGRESS.
 CLOSER: LCN 4040XP SERIES, STANDARD PLASTIC COVER, REGULAR ARM, ALUMINUM 689 FINISH. 5 LBS MAX. OPENING FORCE.
 DOOR STOP: FLOOR TYPE - TRIMCO 1214H, OR EQUAL. OR WALL BUMPER TYPE - IVES WS406 630 FINISH, OR EQUAL.
 KICK PLATE: IVES 8400 10 2LDWB-CS, OR EQUAL. STANDARD STAINLESS STEEL 630 FINISH.
 WEATHERSTRIP GASKET: PEMKO S44D, OR EQUAL. SILICON LOW CLOSING FORCE, DARK BRONZE.
- KEYING: SUBMIT KEYING PLAN FOR OWNER APPROVAL. USE EXISTING MASTER KEYING WHERE APPLICABLE.
- VERIFY ALL DOOR SWING-HANDS PER PLAN.
- DIMENSIONS SHOWN ARE NOMINAL DOOR SIZES, CONTRACTOR SHALL VERIFY ALL ROUGH-OPENING REQUIREMENTS. VERIFY WALL ASSEMBLY AND TOTAL THICKNESS FOR REQUIRED JAMB DEPTH AT EACH DOOR.
- ALL GLAZING IN DOORS AND SIDELITES IS LABELED SAFETY GLAZING. VISION PANELS DIMENSIONS IN SCHEDULE ARE FOR EXPOSED GLASS SIZE. PROVIDE TRIM KITS TO MATCH DOOR LAMINATE FINISH.
- LOUVERS SHALL BE STAINLESS STEEL, BASIS OF DESIGN ANEMOSTAT AFDL, OR EQ. INCLUDE FRAMED INSECT SCREEN ON INTERIOR.
- FIRE RESISTIVE RATED DOOR ASSEMBLIES INCLUDING FRAME, DOOR, GLAZING, AND HARDWARE SHALL COMPLY WITH CBC 716.
 1. DOOR AT 1-HR RATED CORRIDOR: 20 MIN.
 2. DOOR AT 2-HR RATED EXIT STAIR: 90 MIN.
- WHERE INDICATED PER PLAN AND/OR IN SECURITY SYSTEM SHOP DRAWINGS, PROVIDE FOB READER & ELECTRIC STRIKE. COORDINATE w/ SECURITY SYSTEM PROVIDER & PROVIDE ELECTRIC TO RELAY.
- DOORS IN SMOKE PARTITIONS SEPARATING ELEVATOR LOBBY FROM CORRIDORS OR OTHER SPACES SHALL COMPLY DOORS PROTECTING OPENINGS IN THE SMOKE PARTITIONS SHALL COMPLY WITH SECTIONS 710.5.2.2, 710.5.2.3 AND 716.2.6.1. DOORS IN SMOKE PARTITIONS SHALL MEET THE REQUIREMENTS FOR A SMOKE AND DRAFT CONTROL DOOR ASSEMBLY TESTED IN ACCORDANCE WITH UL 1784. THE AIR LEAKAGE RATE OF THE DOOR ASSEMBLY SHALL NOT EXCEED 3.0 CUBIC FEET PER MINUTE PER SQUARE FOOT [0.015424 M3/(S * M2)] OF DOOR OPENING AT 0.10 INCH (2.9 PA) OF WATER FOR BOTH THE AMBIENT TEMPERATURE TEST AND THE ELEVATED TEMPERATURE EXPOSURE TEST. INSTALLATION OF SMOKE DOORS SHALL BE IN ACCORDANCE WITH NFPA 105. DOORS IN SMOKE PARTITIONS SHALL BE SELF-CLOSING (WITH NON-HOLD-OPEN TYPE CLOSER), OR AUTOMATIC-CLOSING BY SMOKE DETECTION WITH A MAGNET DEVICE IN ACCORDANCE WITH SECTION 716.2.6.6. DOOR SHALL BE LATCHING THAT WILL SECURE THE DOOR WHEN IT IS CLOSED.

FLOOR SURFACE REQUIREMENTS:

ACCESSIBLE FLOOR AND GROUND SURFACES MUST BE STABLE, FIRM, AND SLIP RESISTANT. STABLE SURFACES RESIST MOVEMENT, WHILE FIRM SURFACES RESIST DEFORMATION BY APPLIED FORCES. ACCESSIBLE SURFACES REMAIN UNCHANGED BY EXTERNAL FORCES, OBJECTS, OR MATERIALS.

ACCESSIBLE SURFACES MUST BE SLIP RESISTANT TO MINIMIZE HAZARDS TO PEOPLE WITH DISABILITIES, ESPECIALLY THOSE WHO ARE AMBULATORY OR SEMI-AMBULATORY OR WHO USE CANES, CRUTCHES, AND OTHER WALKING AIDS. HOWEVER, THE STANDARDS DO NOT SPECIFY A MINIMUM LEVEL OF SLIP RESISTANCE (COEFFICIENT OF FRICTION) BECAUSE A CONSENSUS METHOD FOR RATING SLIP RESISTANCE REMAINS ELUSIVE. WHILE DIFFERENT MEASUREMENT DEVICES AND PROTOCOLS HAVE BEEN DEVELOPED OVER THE YEARS FOR USE IN THE LABORATORY OR THE FIELD, A WIDELY ACCEPTED METHOD HAS NOT EMERGED. SINCE RATING SYSTEMS ARE UNIQUE TO THE TEST METHOD, SPECIFIC LEVELS OF SLIP RESISTANCE CAN ONLY BE MEANINGFULLY SPECIFIED ACCORDING TO A PARTICULAR MEASUREMENT PROTOCOL. SOME FLOORING PRODUCTS ARE LABELED WITH A SLIP RESISTANCE RATING BASED ON A LABORATORY TEST PROCEDURE. APPLICATIONS AND FINISHES USED TO INCREASE A SURFACE MATERIAL'S SLIP RESISTANCE MAY REQUIRE CONTINUED MAINTENANCE OR RE-APPLICATION.

DOOR ACCESSIBILITY NOTES:

- DOOR ACCESSIBILITY (NOTE THAT GATES SHALL BE INCLUDED WHEREVER THE TERM "DOOR" IS USED):
- ALL DOORS THAT ARE PART OF AN ACCESSIBLE ROUTE SHALL COMPLY WITH THE FOLLOWING PER CBC 11B-404.
- CLEAR WIDTH OF PASSAGE DOORS SHALL BE 32 INCHES MIN. FROM FACE OF DOOR AND STOP AT 90° OPEN FOR SWING TYPE DOORS.
- DOORS NOT PROVIDING FULL USER PASSAGE MAY HAVE CLEAR WIDTH OF 20 INCHES MIN.
- NO PROJECTIONS INTO CLEAR OPENING LOWER THAN 34" AFF AND THOSE BETWEEN 34" AND 80" AFF SHALL NOT EXCEED 4 INCHES.
- DOOR CLOSERS AND STOPS MAY BE 78 INCHES MINIMUM AFF.
- MANUEVERING CLEARANCES SHALL COMPLY WITH 11B-404.2.4, SWINGING DOORS SHALL HAVE MIN. CLEARANCES PER TABLE 11B-404.2.4.1:

CBC TABLE 11B-404.2.4.1, MANUEVERING CLEARANCES AT MANUAL SWINGING DOORS AND GATES:

| TYPE OF USE | | MIN. MANUEVERING CLEARANCE | |
|---------------------|---------------|----------------------------|-----------------------|
| APPROACH DIRECTION: | SIDE OF DOOR: | PERPENDICULAR TO DOOR: | LATCH SIDE CLEARANCE: |
| FROM FRONT | PULL | 60" | 18" (5) |
| FROM FRONT | PUSH | 48" | 0" (1) |
| FROM HINGE SIDE | PULL | 60" | 36" |
| FROM HINGE SIDE | PUSH | 44" (2) | 22" (3) |
| FROM LATCH SIDE | PULL | 60" | 24" |
| FROM LATCH SIDE | PUSH | 44" (4) | 24" |

FOOTNOTES:

- ADD 12 INCHES IF BOTH CLOSER AND LATCH ARE PROVIDED.
- ADD 4 INCHES IF BOTH CLOSER AND LATCH ARE PROVIDED.
- BEYOND HINGS SIDE (NOT LATCH SIDE).
- ADD 4 INCHES IF CLOSER IS PROVIDED.
- ADD 6 INCHES AT EXTERIOR SIDE OF EXTERIOR DOORS.
- FLOOR OR GROUND SURFACES WITHIN MANUEVERING CLEARANCES SHALL COMPLY WITH 11B-302. SLOPES NOT STEEPER THAN 1:48 PERMITTED.
- THRESHOLDS AT EXTERIOR DOORS AND AT ANY INTERIOR DOOR SHALL BE 1/2" HIGH MAX AND COMPLY WITH 11B-302 AND 11B-303.
- CHANGES IN LEVEL AND THRESHOLDS MORE THAN 1/4" TO 1/2" SHALL BE BEVELED AT A SLOPE OF 1:2, PER CBC SEC. 11B-303.
- DOORS IN SERIES SHALL HAVE 48" MIN. PLUS WIDTH OF DOOR SWINGING INTO SPACE.
- HARDWARE: HANDLES, PULLS, LATCHES, LOCKS, & OTHER OPERABLE PARTS SHALL COMPLY WITH 11B-309.4
- HEIGHT OF OPERABLE PARTS SHALL BE 34" MIN. AND 44" MAX. AFF OR GROUND.
- CLOSERS SHALL BE ADJUSTED SO THAT FROM 90° OPEN TO POSITION OF 12° FROM LATCH IS 5 SECONDS MINIMUM.
- SPRING HINGES SHALL BE ADJUSTED SO THAT FROM 70° OPEN POSITION TO CLOSED POSITION IS 1.5 SECONDS MINIMUM.
- THE FORCE FOR PUSHING OR PULLING OPEN DOORS SHALL BE 5 POUNDS MAXIMUM, NOT INCLUDING FORCE TO RETRACT LATCH OR OTHER DEVICE.
 EXCEPTIONS: 1. AT REQUIRED FIRE DOORS, CONSULT AHJ FOR MIN. FORCE, AND MAX. FORCE SHALL NOT EXCEED 15 POUNDS.
 2. EXT. DOORS TO MACHINERY SPACES.
 3. WHEN AT A SINGLE LOCATION ONE OF EVERY EIGHT DOOR LEAFS IS A POWERED DOOR, SEE CODE SECTION FOR INFO.
- SWINGING DOORS WITHIN 10 INCHES OF FINISHED FLOOR OR GROUND MEASURED VERTICALLY SHALL HAVE SMOOTH SURFACE ON PUSH-SIDE. STAINLESS STEEL KICK-PLATE MAY BE PROVIDED AS AN ADAPTABLE FEATURE IF DOOR SURFACE IS NON-COMPLIANT.
- SMOOTH SURFACES MAY HAVE JOINTS WITHIN 1/16" OF PLANE AND MUST BE FREE OF SHARP OR ABRASIVE EDGES.
- DOORS, GATES, AND SIDE LIGHTS ADJACENT TO DOORS OR GATES, CONTAINING ONE OR MORE GLAZING PANELS THAT PERMIT VIEWING THROUGH THE PANELS SHOULD HAVE THE BOTTOM OF AT LEAST ONE GLAZED PANEL LOCATED 43 INCHES MAXIMUM ABOVE THE FINISH FLOOR PER 11B-404.2.11.

FINISH MATERIALS INDEX:

| TAG: | DESCRIPTION: | BASIS OF DESIGN PRODUCT (SUBSTITUTIONS PER OWNER APPROVAL): |
|------------------|---|--|
| FLOORS: | | |
| VCT | VINYL COMPOSITION TILE (AKA "LUXURY VINYL TILE" & "RESILIENT FLOOR TILE/PLANK") | ARMSTRONG NATURAL CREATIONS DIAMOND 10, 18"x18" 3.2 MM, RUNNING BOND PATTERN, ASPEN ELK NA365, FULLY ADHERED PER MANUF'R INSTNS w/ S-288 LOW EMITTING FLOORING ADHESIVE SYSTEM |
| SHEET VINYL | HOMOGENEOUS SHEET FLOORING | ARMSTRONG'S HOMOGENEOUS SHEET, NATRALIS, 0.08 INCHES 2.0 MM THICK, DIAMOND 10, 18"x18" 3.2 MM, MEDTONE CALMING GRAY H2006, FULLY ADHERED PER MANUF'R INSTNS w/ S-288 LOW EMITTING FLOORING ADHESIVE SYSTEM |
| CPT | CARPET TILE | PHILADELPHIA COMMERCIAL - RARE ESSENCE #54961, COLOR: FOOTING #00500 OR PER STANDARD SELECTIONS PER OWNER APPROVAL, 1/4 TURN, ADHERED PER MANUF'R INSTNS. PROVIDE CARPET BASE AT PERIMETER. |
| BASE: | | |
| RB | RUBBER BASE, 4" TALL, COVED | BURKE FLOORING 217 CHARCOAL, OR JOHNSONITE BASEWORKS 20 CHARCOAL, w/ HENRY 595 ADHESIVE |
| CPTB | CARPET BASE, TO MATCH ADJACENT CARPET TILES | PHILADELPHIA COMMERCIAL - MATCH FLOOR CPT, OR OWNER APPROVED |
| WALLS: | | |
| GWB | GYPSUM BOARD, TYPE X, PRIMED & PAINTED, WATER RESISTANT IN WET AREAS | TEXTURE: LEVEL 4 FINISH, SMOOTH, w/ PREP COAT, PRIME, & FINISH PAINTING |
| TILE | CERAMIC TILE, AT WALL BACKSPLASH IN KITCHENETTE AREA, w/ BACKER BOARD | CELINE 2"x6" VERTICAL MATTE PORCELAIN TILE, COLOR: GREIGE, VERTICAL, WHITE COLOR GROUT, bedrosians.com |
| FRP | FRP WALL COVERING AT RESTROOM | ACROVYN WALL COVERING, PETG, EGGSHELL, 0.05 IN THICK, WC-404 w/ MANUF'R STND TRIMS |
| CEILING: | | |
| GWB | GYPSUM BOARD, TYPE X, PRIMED & PAINTED, WATER RESISTANT IN WET AREAS | TEXTURE: LEVEL 4 FINISH, SMOOTH, w/ PREP COAT, PRIME, & FINISH PAINTING |
| ACT | ACOUSTIC TILE GRID SYSTEM, 2'x2' TILES | GRID: DONN DXL BY USG, FLAT WHITE, PANEL: ARMSTRONG ULTIMA HIGH-NRC SQUARE LAY-IN & BEVELED TEGULAR |
| PAINTING: | | |
| SHEEN | TYPICAL INTERIOR PAINTING OF WALLS, CEILINGS, DOOR FRAMES, ETC. | GWB SURFACES: SATIN FINISH. METAL DOOR FRAMES: SEMI-GLOSS. |
| PAINT COLORS | TYPICAL INTERIOR PAINTING OF WALLS, CEILINGS, DOOR FRAMES, ETC. NOTE COLORS ARE LISTED AS BY DUNN-EDWARDS. PROVIDE MATCH IF OTHER MANUF'R PROVIDED. | TYPICAL WALLS: DE6205 STUCCO TAN. ACCENT A: DET6214 PIGEON GRAY. ACCENT B: DET602 GRAY MONUMENT. |

NOTES:

- REFER TO DETAIL DRAWINGS, SPECIFICATIONS, AND SUBMITTAL PROCEDURES.
- VERIFY ALL FINISH PRODUCT OPTIONS INCLUDING COLOR, SIZE, THICKNESS, TEXTURE, AND GREEN BLDG CODE COMPLIANCE FOR VOC'S.
- VERIFY COMPLIANCE WITH CBC CH 8 INTERIOR FINISHES, PER TABLE 803.13: GROUP B INTERIOR EXIT STAIRS AND CORRIDORS = CLASS B MIN. AND OTHER ROOMS CLASS C MIN.
- REFER TO REFLECTED CEILING PLANS, INTERIOR ELEVATIONS, AND MILLWORK SHOP DRAWINGS FOR COORDINATION.

Drawing Status:

FOR PERMIT APPROVAL

Issue Date:

23 Dec 2022

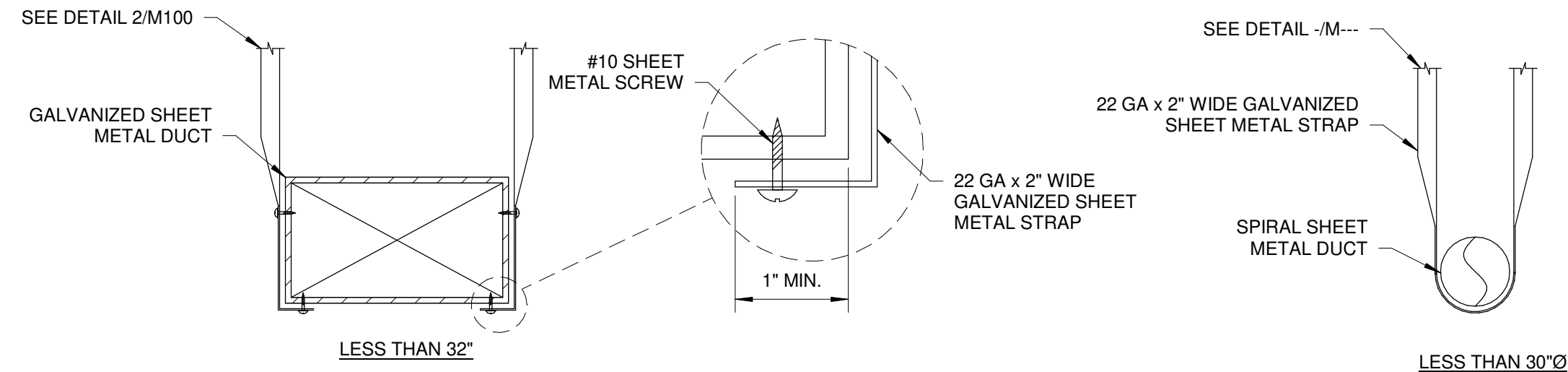
Revisions:

- 23 OCT 2023 FOR B.O.S. REVIEW
- 03 MAR 2026 UPDATE & ADA RSTRM
- 31 MAY 2026 PRE-BID UPDATE

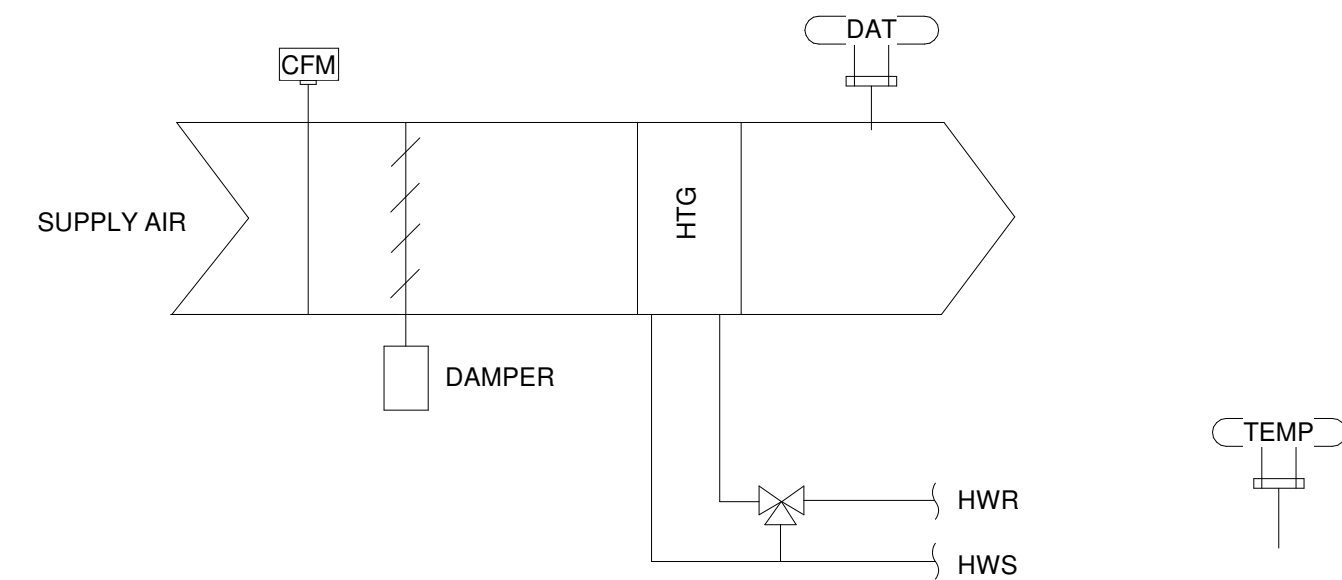
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A7.1

| MECHANICAL LEGEND | | |
|-------------------|---------------|---|
| SYMBOLS | ABBREVIATIONS | |
| | ABC | ABOVE CEILING |
| | AFF | ABOVE FINISHED FLOOR |
| □ AD | AD | ACCESS DOOR |
| | AL | ACOUSTIC LINED DUCT (DIM IS INTERNAL) |
| | AC | AIR CONDITIONING |
| | BHP | BRAKE HORSE POWER |
| | CFM | CUBIC FEET PER MINUTE |
| A 123 CFM | | DIFFUSER TAG |
| --- | D | DEMO |
| | DB | DRY BULB |
| | | DUCT (RECTANGULAR DUCT, DIMENSIONS IN INCHES) |
| | | DUCT (ROUND DUCT, DIAMETER IN INCHES) |
| | | DUCT DROP IN DIRECTION OF ARROW |
| | | DUCT RISE IN DIRECTION OF ARROW |
| | EER | ENERGY EFFICIENCY RATIO |
| | EAT | ENTERING AIR TEMPERATURE |
| | EA | EXHAUST AIR DUCT |
| | EF | EXHAUST FAN |
| | | EXHAUST GRILLE |
| | (E), EX | EXISTING |
| | ESP | EXTERNAL STATIC PRESSURE |
| | FPM | FEET PER MINUTE |
| | | FLEXIBLE DUCT |
| | FLA | FULL LOAD AMPS |
| | LAT | LEAVING AIR TEMPERATURE |
| | | LOUVERED DOOR |
| | MOCP | MAXIMUM OVER CURRENT PROTECTION |
| | MCA | MINIMUM CIRCUIT AMPACITY |
| | | MOTORIZED DAMPER |
| | (N) | NEW |
| | | NEW CONNECTION TO EXISTING |
| | OA | OUTSIDE AIR |
| 1 123 CFM | | REGISTER/GRILLE TAG |
| | (R), R | RELOCATE |
| | | REMOVE TO THIS POINT |
| | RA | RETURN AIR DUCT |
| | | RETURN GRILLE |
| | RL/RS | REFRIGERANT LINE SET |
| | SEER | SEASONAL ENERGY EFFICIENCY RATIO |
| | SD | SMOKE DETECTOR |
| | SA | SUPPLY AIR DUCT |
| | | SUPPLY DIFFUSER |
| | T'STAT | THERMOSTAT (48" AFF TOP OF BOX) |
| | TSP | TOTAL STATIC PRESSURE |
| | | TURNING VANES |
| | TYP | TYPICAL |
| | | UNDERCUT DOOR |
| | UG | UNDERGROUND |
| | VIF | VERIFY IN FIELD |
| | | VOLUME DAMPER - MANUAL OPERATION |
| | WB | WET BULB |



1 TYPICAL DUCT HANGER DETAILS
M100 NOT TO SCALE



**SEQUENCE OF OPERATIONS
VAVs TYPICAL FOR VAV G-06 - VAV G-11**

BUILDING AUTOMATION SYSTEM INTERFACE: THE BUILDING AUTOMATION SYSTEM (BAS) SHALL SEND THE CONTROLLER OCCUPIED AND UNOCCUPIED COMMANDS. IF COMMUNICATION IS LOST WITH THE BAS, THE VAV CONTROLLER SHALL OPERATE USING ITS LOCAL SETPOINTS.

OCCUPIED: WHEN THE UNIT IS IN THE OCCUPIED MODE THE VAV SHALL MAINTAIN THE SPACE TEMPERATURE AT THE ACTIVE OCCUPIED HEATING OR COOLING SETPOINT.

UNOCCUPIED: WHEN THE UNIT IS IN UNOCCUPIED MODE THE VAV CONTROLLER SHALL MAINTAIN THE SPACE TEMPERATURE AT THE UNOCCUPIED HEATING OR COOLING SETPOINT.

OCCUPIED BYPASS: MODE USED TO TEMPORARILY PLACE THE UNIT INTO THE OCCUPIED OPERATION. TENANTS SHALL BE ABLE TO OVERRIDE THE UNOCCUPIED MODE FROM THE SPACE SENSOR. THE OVERRIDE SHALL LAST FOR A MAXIMUM OF 4 HOURS (ADJ.). THE TENANTS SHALL BE ABLE TO CANCEL THE OVERRIDE FROM THE SPACE SENSOR AT ANY TIME. DURING THE OVERRIDE THE UNIT SHALL OPERATE IN OCCUPIED MODE.

REHEAT CONTROL: THE REHEAT SHALL BE ENABLED WHEN THE SPACE TEMPERATURE DROPS BELOW THE ACTIVE HEATING SETPOINT AND THE MINIMUM AIRFLOW REQUIREMENTS ARE MET. DURING REHEAT THE VAV SHALL OPERATE AT ITS MINIMUM HEATING AIRFLOW SETPOINT AND ENERGIZE THE HEAT AS FOLLOWS.

PROPORTIONAL HOT WATER REHEAT: IF THE SPACE TEMPERATURE IS BELOW THE HEATING SETPOINT THE HOT WATER REHEAT VALVE SHALL MODULATE AS REQUIRED TO MAINTAIN THE ACTIVE HEATING SETPOINT.

COOLING MODE: WHEN THE UNIT IS IN COOLING MODE, THE VAV CONTROLLER SHALL MAINTAIN THE SPACE TEMPERATURE AT THE ACTIVE COOLING SETPOINT. BASED ON THE VAV CONTROLLER OCCUPANCY MODE, THE ACTIVE COOLING SETPOINT SHALL BE ONE OF THE FOLLOWING:
 OCCUPIED COOLING SETPOINT 74.0 DEG. F
 UNOCCUPIED COOLING SETPOINT 65.0 DEG. F
 THE VAV SHALL USE THE MEASURED SPACE TEMPERATURE AND THE ACTIVE COOLING SETPOINT TO DETERMINE THE REQUESTED COOLING CAPACITY OF THE UNIT.

HEATING MODE: WHEN THE UNIT IS IN HEATING MODE, THE VAV CONTROLLER SHALL MAINTAIN THE SPACE TEMPERATURE AT THE ACTIVE HEATING SETPOINT. BASED ON THE VAV CONTROLLER OCCUPANCY MODE, THE ACTIVE HEATING SETPOINT SHALL BE ONE OF THE FOLLOWING:
 SETPOINT DEFAULT VALUE
 OCCUPIED HEATING SETPOINT 71.0 DEG. F
 UNOCCUPIED HEATING SETPOINT 60.0 DEG. F
 OCCUPIED STANDBY HEATING SETPOINT 67.0 DEG. F
 THE VAV CONTROLLER SHALL USE THE MEASURED SPACE TEMPERATURE AND THE ACTIVE HEATING SETPOINT TO DETERMINE THE REQUESTED HEATING CAPACITY OF THE UNIT.

VENTILATION CONTROL (FIXED): WHEN THE UNIT IS IN UNOCCUPIED MODE, THE VENTILATION AIRFLOW SETPOINT SHALL BE ZERO. WHEN THE UNIT IS IN OCCUPIED MODE, THE VENTILATION AIRFLOW SETPOINT SHALL EQUAL THE DESIGN OUTDOOR AIRFLOW.

SPACE SENSOR FAILURE: IF THERE IS A FAULT WITH THE OPERATION OF THE ZONE SENSOR AN ALARM SHALL BE ANNUNCIATED AT THE BAS. SPACE SENSOR FAILURE SHALL CAUSE THE VAV TO DRIVE THE DAMPER TO MINIMUM AIRFLOW IF THE VAV IS IN THE OCCUPIED MODE, OR DRIVE IT CLOSED IF THE VAV IS IN THE UNOCCUPIED MODE.

4 VAV BOX CONTROL SCHEMATIC
M100 NOT TO SCALE

| VAV BOX SCHEDULE | | | | | | | | | | | | | | |
|------------------|--------------|------------|--------------|-------|------------|-----------|------|-----|-------|-------------|---------|-----|------------|-------|
| ID | System | Room | Manufacturer | Model | Inlet Size | CFM Range | | MBh | Type | Reheat Coil | | GPM | Valve Type | Notes |
| | | | | | | Min. | Max. | | | EAT/LAT | EWT/LWT | | | |
| VAV G-06 | GROUND FLOOR | OFFICE | TITUS | PESV | 9 | 930 | 930 | 26 | 2-ROW | 55/80 | 140/120 | 2.8 | 3-WAY | 1-2 |
| VAV G-08 | GROUND FLOOR | BREAK ROOM | TITUS | PESV | 6 | 325 | 325 | 10 | 2-ROW | 55/80 | 140/120 | 1 | 3-WAY | 1-2 |
| VAV G-10 | GROUND FLOOR | BRIEFING | TITUS | PESV | 9 | 760 | 760 | 16 | 2-ROW | 55/80 | 140/115 | 1.3 | 3-WAY | 1-2 |
| VAV G-11 | GROUND FLOOR | CONFERENCE | TITUS | PESV | 9 | 560 | 560 | 21 | 2-ROW | 55/80 | 140/118 | 1.8 | 3-WAY | 1-2 |

- NOTES:
 1. PROVIDE WITH 1/2" INSULATION.
 2. PROVIDE WITH JOHNSON CONTROLS PNEUMATIC VAV CONTROLLER, CONNECT CONTROLLER TO EXISTING FACILITY INFRASTRUCTURE.

| AIR OUTLET SCHEDULE | | | | | | | | | |
|---------------------|--------------|-------|----------|-------------|-----------|-----------|----------|-----------|-------|
| ID | Manufacturer | Model | Mounting | Module Size | Face Size | Neck Size | Material | Finish | Notes |
| A | TITUS | TDC | LAY-IN | 24"x24" | 18"x18" | SEE PLAN | STEEL | #26 WHITE | 1 |

- NOTES:
 1. LOUVERED FACE SUPPLY DIFFUSER, 4-WAY THROW.

| AIR INLET SCHEDULE | | | | | | | | | |
|--------------------|--------------|-------|----------|-------------|-----------|-----------|----------|-----------|-------|
| ID | Manufacturer | Model | Mounting | Module Size | Face Size | Neck Size | Material | Finish | Notes |
| 1 | TITUS | 50F | LAY-IN | 24"x24" | 22"x22" | SEE PLAN | ALUMINUM | #26 WHITE | 1 |

- NOTES:
 1. EGGRATE RETURN GRILLE.

AIR BALANCE PROCEDURES

THIS PROJECT INCLUDES BALANCING FOR (E) AH-G1N AND (E) AH-G1S.

PRIOR TO COMMENCING WORK, PERFORM THESE MEASUREMENTS:

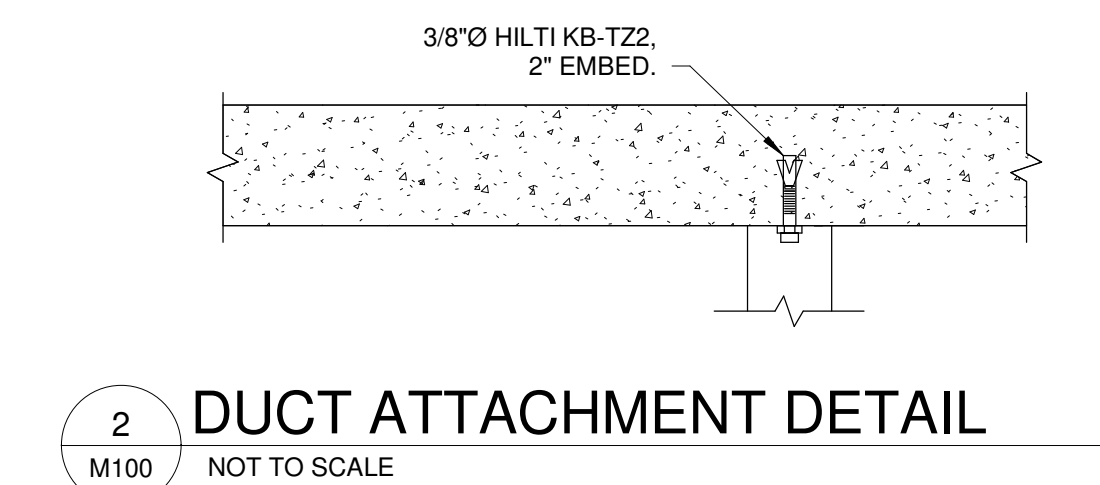
- MEASURE AIRFLOW AT ALL EXISTING CEILING SUPPLY DIFFUSERS, RETURN GRILLES, AND EXHAUST GRILLES, AS SHOWN ON M110.
- MEASURE AIR AT EXISTING SUPPLY AIR, RETURN AIR, AND EXHAUST AIR DUCTS IN LOCATIONS SHOWN (PITOT TUBE TRAVERSE), AS SHOWN ON M110.
- MEASURE AND RECORD THE TOTAL AIRFLOW, OUTSIDE AIRFLOW, FAN RPM, MOTOR RPM, MOTOR VOLTAGE, MOTOR BHP, SHEAVE SIZES, SHEAVE POSITION, VFD SPEED, STATIC PRESSURE PROFILE (INCLUDING ALL FILTERS, COILS, COMPONENTS), AND MOTOR NAMEPLATE DATA FOR THE SUPPLY FAN, RETURN FAN, AND EXHAUST FAN.
- ALL PREBALANCE MEASUREMENTS AND FAN DATA SHALL BE RECORDED IN A PREBALANCE REPORT AND SUBMITTED TO THE ARCHITECT/ENGINEER PRIOR TO ANY MODIFICATION WORK.

UPON COMPLETION OF INSTALLATION, PERFORM THE FOLLOWING WORK:

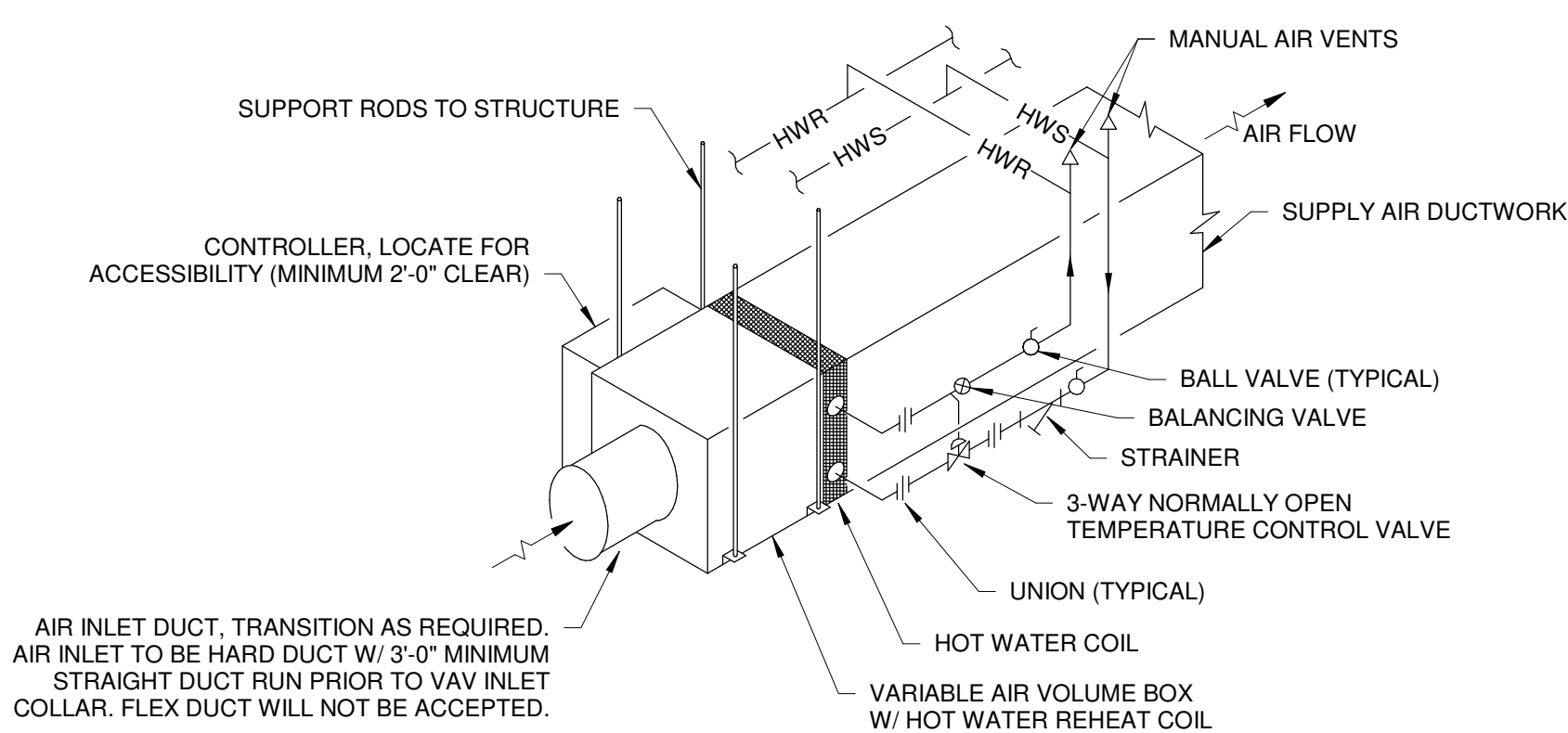
- BALANCE (E) AH-G1N AND (E) AH-G1S TO MATCH PRE CONSTRUCTION AIRFLOWS.
- FOR ALL ROOMS WHERE NO CHANGES ARE SHOWN, MAINTAIN AIRFLOW AT PRE-CONSTRUCTION VALUES THROUGHOUT THE DURATION OF THE PROJECT AS SHOWN ON M210.
- SUBMIT FINAL AIR BALANCE REPORT, INCLUDING ALL FINAL AIRFLOW TEST RESULTS AND PREVIOUSLY MEASURED PRE-CONSTRUCTION TEST RESULTS.

AIR BALANCE REQUIREMENTS

- IN ACCORDANCE WITH 2022 CMC 407.3, THE VENTILATION SYSTEMS SHALL BE BALANCED IN ACCORDANCE WITH THE LATEST EDITIONS OF STANDARDS PUBLISHED BY THE ASSOCIATED AIR BALANCING COUNCIL (AABC), THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB), OR THE TESTING, ADJUSTING AND BALANCING BUREAU (TABB). THE TEST AND BALANCE AGENCY MUST BE CERTIFIED BY ONE OF THESE AGENCIES.
- CONTRACTOR SHALL VERIFY THAT ALL SYSTEMS ARE COMPLETE AND OPERABLE BEFORE COMMENCING WORK. CONTRACTOR SHALL COORDINATE TESTING, ADJUSTING, AND BALANCING WORK WITH OTHER TRADES.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTMENTS AND/OR MODIFICATIONS AND ADDITIONS TO FAN AND MOTOR SHEAVES, BELTS, DAMPER LINKAGES AND SIMILAR ITEMS REQUIRED TO ACHIEVE THE DESIGN AIR QUANTITIES SPECIFIED AT NO ADDITIONAL COST TO THE OWNER.
- BALANCE ALL SUPPLY, RETURN, OUTSIDE AIR, AND EXHAUST AIR SYSTEMS TO ACHIEVE THE DESIGN QUANTITIES LISTED ON THE DRAWINGS. ADJUST ALL SYSTEMS TO WITHIN PLUS OR MINUS 5 PERCENT OF DESIGN AND ALL AIR INLETS AND OUTLETS TO WITHIN PLUS OR MINUS 10 PERCENT OF DESIGN. MEASURE AND RECORD TOTAL FAN AIRFLOWS, FAN SPEEDS, STATIC PRESSURE PROFILE ACROSS ALL MAJOR COMPONENTS, MOTOR ELECTRICAL CHARACTERISTICS, AND GENERAL OBSERVATIONS MADE DURING THE TEST AND BALANCE PROCESS.
- THE TAB AGENCY SHALL SUBMIT THREE (3) COPIES OF A COMPLETED AIR BALANCE REPORT. THE CONTRACTOR SHALL CERTIFY THAT ALL REPORTED DEFICIENCIES HAVE BEEN CORRECTED BY SIGNING THE FINAL BALANCE REPORT. ALL DEFICIENCIES SHALL BE CORRECTED AND FINAL BALANCE REPORT SUBMITTED PRIOR TO FINAL ACCEPTANCE OF THE PROJECT.



2 DUCT ATTACHMENT DETAIL
M100 NOT TO SCALE



AIR INLET DUCT, TRANSITION AS REQUIRED. AIR INLET TO BE HARD DUCT W/ 3'-0" MINIMUM STRAIGHT DUCT RUN PRIOR TO VAV INLET COLLAR. FLEX DUCT WILL NOT BE ACCEPTED.

3 VAV BOX PIPING DETAIL
M100 NOT TO SCALE



ALL IDEAS, DESIGNS, AND PLANS REPRESENTED BY THIS DRAWING ARE THE EXCLUSIVE PROPERTY OF FRONTIER CONSULTING ENGINEERS, INC. AND SHALL NOT BE REPRODUCED WITHOUT PRIOR WRITTEN PERMISSION. ANY UNAUTHORIZED REUSE OF THIS DRAWING SHEET OTHER THAN FOR THE PROJECT AND LOCATION SHOWN IS PROHIBITED.

LICENSE STAMP



CONSULTANTS

PROJECT NAME

SHERIFF OFFICE
REMODEL

FOR

HUMBOLDT COUNTY

826 4TH STREET
EUREKA, CA 95501

NO. REVISIONS DATE

1 Add ADA Restroom 11/21/25

SHEET TITLE

MECHANICAL LEGENDS
AND SCHEDULES

ISSUED FOR:

CONSTRUCTION
DOCUMENTS

DATE: 06/24/2024

DRAWN BY: JW

REVIEWED BY: NW

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

PROJECT NO: 2026-501

M100

MECHANICAL SPECIFICATION

PART 1 – GENERAL

- 1.1 INCLUDED
- A. THIS SECTION COVERS MECHANICAL WORK, COMPLETE. WORK INCLUDES FURNISHING, INSTALLING, CALIBRATING, ADJUSTING, TESTING, DOCUMENTING, AND STARTING UP EQUIPMENT IN ACCORDANCE WITH THESE SPECIFICATIONS, THE ACCOMPANYING PLANS, AND THE DIRECTIONS OF THE ENGINEER.

- 1.2 CODES AND STANDARDS
- A. ALL WORK SHALL BE DONE IN CODE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL BUILDING SAFETY CODES, ORDINANCES, AND REGULATIONS. ADDITIONALLY, ALL WORK SHALL CONFORM TO THE LATEST EDITIONS OF THE FOLLOWING STANDARDS:

- NATIONAL FIRE PROTECTION ASSOCIATION.
- CALIFORNIA MECHANICAL CODE.
- CALIFORNIA PLUMBING CODE.
- UNDERWRITERS LABORATORIES.
- TITLES 8, 17, 19, 21, 24 OF THE CALIFORNIA CODE OF REGULATIONS.
- CALIFORNIA ELECTRIC CODE.
- SMACNA STANDARDS.
- ASHRAE STANDARDS 55 AND 62.1.

- B. WHEN THE CONTRACT DOCUMENTS CALL FOR MATERIALS OR CONSTRUCTION OF A HIGHER STANDARD THAN IS REQUIRED BY THE ABOVE, THE CONTRACT DOCUMENT REQUIREMENTS SHALL TAKE PRECEDENCE OVER THE REQUIREMENTS OF THE APPLICABLE LAWS, ORDINANCES, RULES, OR REGULATIONS. NOTHING IN THE CONTRACT DOCUMENTS SHALL BE INTERPRETED AS PERMITTING WORK IN VIOLATION OF SAID LAWS, RULES, AND/OR REGULATIONS.
- C. THE CONTRACTOR FOR THIS WORK SHALL FURNISH, WITHOUT EXTRA CHARGE, ANY ADDITIONAL MATERIALS AND/OR LABOR AS MAY BE REQUIRED FOR COMPLIANCE WITH THESE LAWS, RULES, AND/OR REGULATIONS THROUGH SUCH MATERIALS AND/OR LABOR ARE NOT SPECIALLY SET FORTH IN THE CONTRACT DOCUMENTS.

1.3 LICENSING REQUIREMENTS

- A. ALL WORK OF DIVISION 22 AND 23 SHALL BE PERFORMED BY AN APPROPRIATELY LICENSED CONTRACTOR. THE LICENSES SHALL BE CURRENT, VALID THROUGH THE TERM OF THE CONTRACT AND IN THE NAME OF THE CONTRACTOR.

- ALL HVAC WORK, WHICH INCLUDES WARM AIR HEATING SYSTEMS AND WATER HEATING PUMPS, FIBERGLASS BLANKET-TYPE DUCT WRAP, REGISTERS, FLUES, HUMIDITY, AND THERMOSTATIC CONTROLS IN CONNECTION WITH THESE SYSTEMS, SHALL BE PERFORMED BY A C-20 – WARM-AIR HEATING, VENTILATING AND AIR-CONDITIONING CONTRACTOR.
- ALL HYDRONIC PIPING SYSTEMS SHALL BE PERFORMED BY A C-4 – BOILER, HOT WATER HEATING AND STEAM FITTING CONTRACTOR.
- ALL HYDRONIC PIPING INSULATION SHALL BE PERFORMED BY A C-2 – INSULATION AND ACOUSTICAL CONTRACTOR.

1.4 COOPERATION WITH OTHER TRADES

- A. COOPERATE FULLY WITH OTHER TRADES DOING WORK ON THE PROJECT AS MAY BE NECESSARY FOR THE PROPER COMPLETION OF THE PROJECT. REFER TO THE STRUCTURAL, PLUMBING, AND ELECTRICAL DRAWINGS FOR DETAILS OF THE BUILDING STRUCTURE AND EQUIPMENT INSTALLATION THAT WILL TEND TO OVERLAP, CONFLICT WITH OR REQUIRE COORDINATION WITH THE WORK OF THIS SECTION, AND SCHEDULE THIS WORK ACCORDINGLY.
- B. ANY WORK DONE WITHOUT REGARD FOR OTHER TRADES SHALL BE MOVED, REPLACED, OR REDONE AS REQUIRED, WITHOUT EXTRA CHARGES TO OWNER.

1.5 DIVISION OF WORK BETWEEN DIVISIONS 23 AND 26

- A. CLOSE COORDINATION BETWEEN THE ELECTRICAL AND MECHANICAL TRADES IS A PART OF THE WORK THAT IS REQUIRED BY THIS CONTRACT. NO ALLOWANCE WILL BE MADE FOR OMISSIONS BASED ON INCORRECTLY ASSUMING ANOTHER TRADE WILL BE PERFORMING YOUR WORK. CONFIRM YOUR SCOPE OF WORK WITH THE GENERAL CONTRACTOR.

- B. THE DIVISION OF RESPONSIBILITIES BETWEEN TRADES SUPPLYING EQUIPMENT IN OTHER DIVISIONS MAY BE DIFFERENT. FOR INSTANCE, DIVISION 26 CONTRACTOR MAY BE REQUIRED TO SUPPLY DISCONNECT SWITCHES AND STARTERS FOR NON-HVAC MECHANICAL EQUIPMENT SUPPLIED UNDER OTHER DIVISIONS.

C. DIVISION 23 RESPONSIBILITIES

- ASSUME RESPONSIBILITY FOR THE PROPER FUNCTIONING OF THE HVAC SYSTEMS IN THEIR ENTIRETY.
- FURNISH AND INSTALL ALL CONDUCTORS AND CONDUIT REQUIRED FOR CONTROL OF HVAC EQUIPMENT.
- MAKE ALL TERMINATIONS WITH THE EXCEPTION OF POWER CONDUCTORS.
- FURNISH AND INSTALL ALL CONTROL PANELS AND DEVICES TO PROVIDE A COMPLETE AND FUNCTIONAL CONTROLS SYSTEM, INCLUDING ALL CONTROLS TRANSFORMERS.
- FURNISH AND INSTALL MOTOR STARTERS FOR ALL EQUIPMENT SPECIFIED IN DIVISION 23.
- INSTALL DUCT SMOKE DETECTORS FURNISHED BY FIRE ALARM CONTRACTOR IN BUILDINGS WITH FIRE ALARM SYSTEMS.
- FURNISH AND INSTALL DUCT SMOKE DETECTORS IN BUILDINGS WITHOUT FIRE ALARM SYSTEMS.
- FURNISH AND INSTALL ALL CONTROL CONDUCTORS AND CONDUIT CONNECTING DUCT SMOKE DETECTORS TO SMOKE DAMPERS AND FAN START CONTROLS.
- ALL ELECTRICAL WORK PERFORMED UNDER DIVISION 23 SHALL CONFORM TO THE REQUIREMENTS OF DIVISION 26.

D. DIVISION 26 RESPONSIBILITIES

- FURNISH AND INSTALL ALL RACEWAYS, CONDUIT, DISCONNECT SWITCHES, AND CONDUCTORS NECESSARY FOR ELECTRICAL POWER SUPPLY.
- MAKE ALL POWER SUPPLY TERMINATIONS TO MOTORS, STARTERS, DISCONNECT SWITCHES, CONTROL TRANSFORMERS, AND OTHER MECHANICAL DEVICES.
- FIRE ALARM CONTRACTOR TO FURNISH DUCT SMOKE DETECTORS IN BUILDINGS WITH FIRE ALARM SYSTEMS.
- PROVIDE POWER TO ALL DUCT SMOKE DETECTORS AND SMOKE DAMPERS.
- COORDINATE ALL WORK WITH MECHANICAL CONTRACTORS.

1.6 AS-BUILT DRAWINGS

- A. A COMPLETE SET OF CONTRACT DRAWINGS SHALL BE MAINTAINED AT THE WORK SITE, AND ALL CHANGES IN THE WORK SHALL BE RECORDED ON THIS SET, ON A DAILY BASIS. THE FINAL AS-BUILT DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT FOR APPROVAL.

1.7 DESIGN DRAWINGS

- A. THE DRAWINGS INDICATE DIAGRAMMATICALLY THE GENERAL LAYOUT OF THE MECHANICAL SYSTEMS AND OTHER RELATED WORK. FIELD VERIFICATION OF SCALED DIMENSIONS TAKEN FROM THE DRAWINGS IS REQUIRED.

- B. THE CONTRACTOR SHALL REVIEW AND COMPARE THE ARCHITECTURAL, STRUCTURAL, PLUMBING, MECHANICAL, AND ELECTRICAL OWNER SUPPLIED EQUIPMENT DRAWINGS, AND ADJUST THEIR WORK TO BE IN CONFORMITY WITH THE CONDITIONS INDICATED THEREON. DISCREPANCIES BETWEEN DRAWINGS, BETWEEN DRAWINGS AND ACTUAL FIELD CONDITIONS, OR BETWEEN DRAWINGS AND SPECIFICATIONS, SHALL PROMPTLY BE BROUGHT TO THE ATTENTION OF THE ARCHITECT FOR A DETERMINATION OF THE MODIFICATIONS TO BE EFFECTED. IN THE EVENT THAT A MAJOR MODIFICATION IS REQUIRED, A CHANGE ORDER WILL BE PREPARED.

1.8 VERIFICATION OF EXISTING CONDITIONS AND DEMOLITION

- A. BEFORE INSTALLATION OF ANY NEW WORK, VERIFY THE LOCATION, SIZE, AND OTHER CONDITIONS AT ALL POINTS OF CONNECTION TO SERVICES OR OTHER EXISTING PIPING, AND AT ALL LOCATIONS WHERE NEW WORK WILL CROSS OR PASS NEAR EXISTING PIPING, ELECTRICAL, OR OTHER FACILITIES.

- B. REMOVE DUCTWORK, PIPING, CONTROLS, FIXTURES, AND EQUIPMENT THAT IS NOT TO REMAIN IN SERVICE AS SHOWN ON THE DRAWINGS OR AS REQUIRED. THIS INCLUDED THE REMOVAL OF ASSOCIATED APPURTENANCES AND SUPPORTS.

- C. PATCH, CAP, OR REPAIR EXISTING WORKS AFFECTED BY THIS DEMOLITION IN CONCEALED SPACES WITHIN SIX (6) INCHES OF A LIVE MAIN OR BRANCH.

- D. DELIVER REMOVED MATERIAL TO THE OWNER AS DIRECTED BY THE ARCHITECT. DISPOSE OF ALL OTHER REMOVED MATERIAL OFFSITE.

- E. INFORMATION SHOWN RELATIVE TO EXISTING SERVICES IS BASED UPON AVAILABLE RECORDS AND DATA DURING PREPARATION OF THE DRAWINGS, BUT SHALL BE VERIFIED. MAKE REASONABLE DEVIATIONS FOUND NECESSARY TO CONFORM TO ACTUAL LOCATIONS AND CONDITIONS, WITHOUT EXTRA CHARGE.

1.9 OPERATING AND MAINTENANCE INSTRUCTIONS

- A. FURNISH THREE SETS OF TYPEWRITTEN INSTRUCTIONS COVERING MAINTENANCE, ADJUSTMENT, AND OPERATION OF EACH PIECE OF APPARATUS, BOUND IN A HARD COVER LOOSE-LEAF BINDER. NEATLY OBFUSCATE OR CROSS OUT INAPPLICABLE DATA FROM MANUFACTURER'S LITERATURE. SUBMIT DATA TO THE ARCHITECT.

- B. OPERATING INSTRUCTIONS SHALL SHOW SEQUENCE OF OPERATIONS, LUBRICATION, CARE, AND MAINTENANCE REQUIREMENTS OF ALL EQUIPMENT. FINAL ACCEPTANCE OF THE WORK WILL NOT BE MADE UNTIL A SATISFACTORY SUBMISSION OF THIS MATERIAL IS RECEIVED AND APPROVED BY THE ARCHITECT.

- C. THE OWNER'S AUTHORIZED REPRESENTATIVE SHALL BE INSTRUCTED IN THE OPERATION AND SERVICING OF ALL HVAC & PLUMBING SYSTEMS.

1.10 ACCURACY OF DATA

- A. THE DATA GIVEN HEREIN AND ON THE DRAWINGS ARE AS EXACT AS COULD BE REASONABLY SECURED, BUT ABSOLUTE ACCURACY IS NOT GUARANTEED. EXACT LOCATIONS, DISTANCES, ELEVATIONS, ETC. WILL BE GOVERNED BY SHOP DRAWINGS, THE BUILDING ITSELF, AND ACTUAL FIELD CONDITIONS.

1.11 DELIVERY, STORAGE, AND HANDLING

- A. CONTRACTOR SHALL BE RESPONSIBLE FOR DELIVERY, STORAGE, PROTECTION, AND PLACING OF ALL EQUIPMENT AND MATERIALS. CONTRACTOR SHALL PROTECT THE WORK AND MATERIALS FROM DAMAGE DURING CONSTRUCTION. EQUIPMENT STORED AT THE JOB SITE SHALL BE PROTECTED FROM DUST, WATER, OR OTHER DAMAGE, AND BE COVERED IF EQUIPMENT IS EXPOSED TO WEATHER. PROTECT INTERIOR SURFACES OF EQUIPMENT AND PIPING SYSTEMS AGAINST ANY FOREIGN MATTER. CLEAN BOTH INSIDE AND OUTSIDE BEFORE PAINTING OR PLACING EQUIPMENT IN OPERATION. ANY ITEMS DAMAGED SHALL BE REPAIRED OR REPLACED, AT NO ADDITIONAL COST TO THE OWNER.

1.12 WARRANTIES

- A. EQUIPMENT WARRANTIES SHALL BE PROVIDED FOR ALL EQUIPMENT, WITH ALL NECESSARY INFORMATION FILLED IN, EXCEPT PURCHASE DATE, IN FAVOR OF THE OWNER.

- B. THE CONTRACTOR SHALL GUARANTEE THAT ALL WORK UNDER THIS SECTION IS FREE FROM DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF FILING THE NOTICE OF COMPLETION. REPLACEMENT OF DEFECTIVE WORK AND DAMAGE CAUSED TO WORK OF OTHER TRADES AS A RESULT OF SUCH DEFECTIVE WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND SHALL BE MADE AT NO COST TO THE OWNER.

1.13 ALTERNATIVE MATERIALS AND METHODS

- A. THESE PLANS AND SPECIFICATIONS DESCRIBE THE GENERAL SCOPE OF THE MECHANICAL SYSTEMS. THESE PLANS AND SPECIFICATIONS DO NOT PRECLUDE THE SUBMITTAL OF ALTERNATIVE METHODS OR MATERIALS. MANUFACTURER'S NAMES AND CATALOG NUMBERS ARE STATED TO IDENTIFY THE TYPE AND QUALITY OF THE EQUIPMENT OR MATERIALS REQUIRED FOR THE PROJECT.

- B. THE CONTRACTOR MAY SUBMIT SHOP DRAWINGS AND/OR TECHNICAL INFORMATION ON ALTERNATIVE EQUIPMENT, MATERIALS OR INSTALLATION DETAILS TO ACCOMPLISH THE INTENT OF THE PLANS AND SPECIFICATIONS. APPROVAL OF THE ALTERNATIVE EQUIPMENT, MATERIALS OR INSTALLATION DETAILS SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY FOR COMPLYING WITH THE INTENT OF THE PLANS AND SPECIFICATIONS. SUBMIT THE MANUFACTURER'S TECHNICAL INFORMATION, SHOP DRAWINGS, AND/OR WRITTEN DESCRIPTION OF ALTERNATIVE METHODS FOR EACH ITEM DESCRIBED BY MANUFACTURER'S NAME AND CATALOG NUMBER AND FOR EACH COMPONENT, EQUIPMENT, MATERIAL, OR INSTALLATION DETAIL REQUIRED.

PART 2 – PRODUCTS

2.1 GENERAL

- A. ALL MATERIALS, APPLIANCES, AND EQUIPMENT SHALL BE NEW AND BEST OF THEIR RESPECTIVE KINDS, FREE FROM DEFECTS, AND OF THE MAKE, BRAND, OR QUALITY SPECIFIED OR AS ACCEPTED BY THE ARCHITECT.

- B. WHEN TWO OR MORE UNITS OF MATERIALS OR EQUIPMENT OF THE SAME TYPE OR CLASS ARE REQUIRED, THESE UNITS SHALL BE PRODUCTS OF ONE MANUFACTURER.

- C. APPLY AND INSTALL ALL ITEMS IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS. REFER CONFLICTS BETWEEN MANUFACTURER'S INSTRUCTIONS AND THE CONTRACT DRAWINGS AND SPECIFICATIONS TO THE ARCHITECT FOR RESOLUTION.

2.2 THERMOSTATS

- A. ELECTRIC, SOLID-STATE, MICROCOMPUTER-BASED ROOM THERMOSTAT WITH THE FOLLOWING FEATURES:

- AUTOMATIC SWITCHING FROM HEATING TO COOLING.
- PREFERENTIAL RATE CONTROL TO MINIMIZE OVERTHOOT AND DEVIATION FROM SET POINT.
- SET UP FOR FOUR SEPARATE TEMPERATURES PER DAY.
- INSTANT OVERRIDE OF SET POINT FOR CONTINUOUS OR TIMED PERIOD FROM 1 HOUR TO 31 DAYS.
- SHORT-CYCLE PROTECTION.
- PROGRAMMING BASED ON EVERY DAY OF WEEK.
- SELECTION FEATURES INCLUDE DEGREE F OR DEGREE C DISPLAY, 12- OR 24-HOUR CLOCK, KEYBOARD DISABLE, REMOTE SENSOR, AND FAN ON/AUTO.
- BATTERY REPLACEMENT WITHOUT PROGRAM LOSS.
- THERMOSTAT DISPLAY FEATURES INCLUDE THE FOLLOWING:

- TIME OF DAY.
- ACTUAL ROOM TEMPERATURE.
- PROGRAMMED TEMPERATURE.
- PROGRAMMED TIME.
- DURATION OF TIMED OVERRIDE.
- DAY OF WEEK.
- SYSTEM MODE INDICATIONS INCLUDE "HEATING," "OFF," "FAN AUTO," AND "FAN ON."

- B. THERMOSTAT COVER CONSTRUCTION: HEAVY-DUTY, LOCKING THERMOSTAT GUARD, OF SOLID METAL TAMPERPROOF CONSTRUCTION.

- C. ACCURACY: PLUS OR MINUS 0.5 DEG. F AT CALIBRATION POINT.

- D. WIRE: TWISTED, SHIELDED-PAIR CABLE.

- E. CONTRACTOR SHALL FIELD VERIFY DIMENSIONS PRIOR TO ORDERING FAN AND CURB ADAPTOR.

2.3 DUCTWORK

- A. SHEET METAL DUCTWORK - RECTANGULAR

- DUCTS AND PLENUMS SHALL BE FABRICATED AND INSTALLED IN CONFORMANCE WITH THE LATEST EDITIONS OF: NFPA PAMPHLET NO. 90A; CALIFORNIA BUILDING CODE; CALIFORNIA MECHANICAL CODE AND THE SMACNA HVAC DUCT CONSTRUCTION STANDARDS (METAL AND FLEXIBLE). DUCTS AND PLENUMS SHALL BE CONSTRUCTED OF HOT DIPPED GALVANIZED MILD STEEL AND SHALL HAVE AIRTIGHT CLASS 'B' SEALS AT ALL TRANSVERSE JOINTS AND LONGITUDINAL SEAMS. TABLES AND FIGURES HEREINAFTER REFERENCED ARE FROM THE 2005 EDITION OF THE SMACNA HVAC DUCT CONSTRUCTION STANDARDS (METAL AND FLEXIBLE).
- RECTANGULAR DUCT CONSTRUCTION SHALL CONFORM TO TABLE 2-3. ALL TRANSVERSE JOINTS SHALL BE FLANGED PER TABLE 2-32; WITH CORNER CLOSURES OR "DUCT MATE" FLANGED CONNECTIONS WITH CORNER CLOSURES PER FIGURE 2-17. ELBOWS SHALL BE STANDARD RADIUS (TYPE RE 1) OR SQUARE THROAT WITH VANES (TYPE RE 2) PER FIGURE 4-2; WITH DOUBLE THICKNESS TURNING VANES PER FIGURES 4-3 AND 4-4. OFFSETS AND TRANSITIONS SHALL BE PER FIGURE 4-7. SUPPLY, RETURN, AND EXHAUST BRANCH CONNECTIONS SHALL BE PER FIGURE 4-5 OR 4-6. SPLITTERS SHALL NOT BE USED.
- LINED DUCTS SHALL BE FABRICATED SUCH THAT THE NET INSIDE DIMENSIONS EQUALS THE DUCT SIZES SHOWN ON THE DRAWINGS.

- B. SHEET METAL DUCTWORK – ROUND DUCTS SHALL BE SPIRAL, UNITED MCGILL OR EQUAL. ALL TRANSVERSE JOINTS AND LONGITUDINAL SEAMS SHALL HAVE CLASS "B" SEALS. ALL BRANCHES IN ROUND DUCT SYSTEMS SHALL BE MADE WITH FACTORY FABRICATED REDUCING WYE BRANCHES. DUCT TURNS SHALL BE MADE WITH STANDARD, FACTORY FABRICATED, THREE-PIECE ELBOWS.

- C. FLEXIBLE DUCTWORK – FLEXIBLE DUCTS SHALL BE FLEXMASTER "BM" OR APPROVED EQUAL. FLEXIBLE DUCTS SHALL BE USED ONLY WHERE SHOWN ON THE DRAWINGS, AND MAXIMUM LENGTH OF ANY GIVEN FLEXIBLE DUCT SHALL NOT EXCEED 5 FT. GALVANIZED SHEET METAL ELBOWS SHALL BE USED FOR TURNS GREATER THAN 45° ON FLEXIBLE DUCTS 10" AND LARGER. CONNECTIONS TO RECTANGULAR DUCTS SHALL BE MADE WITH "SPIN-IN" FITTINGS WITH AIR SCOOPS. THE INSTALLATION OF FLEXIBLE DUCTS SHALL CONFORM TO FIGURE 3-10, WITH THE EXCEPTIONS NOTED HEREIN.

- D. SUPPORTS – SUPPORTS FOR HORIZONTAL DUCTS AND PLENUMS SHALL BE FABRICATED PER FIGURES 5-5 AND 5-6 AND TABLES 5-1, 5-2, AND 5-3. THE MAXIMUM DISTANCE BETWEEN HANGERS SHALL BE EIGHT FEET FOR RECTANGULAR DUCTS AND TWELVE FEET FOR ROUND DUCTS. ATTACHMENTS TO THE STRUCTURE SHALL BE MADE WITH ADEQUATELY SIZED LAG BOLTS FOR STRAPHANGERS AND ADEQUATELY SIZED MACHINE BOLTS AND SIDE BEAM BRACKETS FOR ROD HANGERS. SUPPORTS FOR VERTICAL DUCTS SHALL BE BAND IRON STRAP OR ANGLE BRACKET TYPE PER FIGURES 5-8 AND 5-9.

- E. DUCT ACCESS DOORS: INCLUDING THOSE FOR REMOVING FILTERS, DUCT ACCESS DOORS SHALL BE AS DETAILED IN FIGURE 7-2 WITH SASH LOCKS, PIANO HINGES, AND GASKETS. ACCESS DOORS SHALL HAVE AN UNOBSTRUCTED FULL SWING.

2.4 DUCTWORK ACCESSORIES

- A. FLEXIBLE DUCT CONNECTIONS

- DURO-DYNE "METAL-FAB" WITH DUROIGN, VENTFABRICS "VENTGLASS," OR APPROVED EQUAL.
- INSTALL AT EACH POINT WHERE A BLOWER UNIT IS CONNECTED TO A DUCT. A MINIMUM CLEARANCE OF THREE INCHES BETWEEN THE DUCT AND THE SOURCE OF VIBRATION SHALL BE MAINTAINED. INSTALL PER FIGURE 2-17.

- B. SCREENS – INSTALL REMOVABLE BIRD SCREENS AT ALL OUTSIDE INTAKES AND EXHAUST AIR DISCHARGES. SCREENS SHALL BE FABRICATED FROM 1/2" X 14 GAUGE MESH SECURED IN FULL FRAMES. SCREENS AND FRAMES SHALL BE CONSTRUCTED OF THE SAME MATERIAL AS THE DUCT, HOOD, OR EQUIPMENT TO WHICH ATTACHED.

- A. JOINTS – TAPE ALL JOINTS AIRTIGHT USING HARDCAST TYPE "DT" PRESSURELESS TAPE AND "HD-20" ADHESIVE, PER MANUFACTURER'S DIRECTIONS.

- B. DAMPERS – PROVIDE BUTTERFLY OR MULTI-BLADE DAMPERS WHERE INDICATED ON THE DRAWINGS OR AS REQUIRED FOR BALANCING AIR QUANTITIES TO VALUES SHOWN WITHOUT GENERATING EXCESSIVE NOISE. PROVIDE DURO-DYNE "KS-385," OR APPROVED EQUAL, LOCKING QUADRANTS ON EACH MANUAL DAMPER. LOCATE DAMPERS IN FURRED CEILINGS NEAR ACCESS PANELS WHERE POSSIBLE.

- BUTTERFLY DAMPERS SHALL BE CONSTRUCTED AS PER FIGURE 7-4, FIGURE A, B, AND C IN THE DUCT MANUAL.
- MULTI-BLADE DAMPERS SHALL CONFORM TO FIGURE 7-5.
- BACK-DRAFT DAMPERS SHALL BE AIR BALANCE "AIR DYNAMIC" MODEL DY-1002-V, OR EQUAL.

2.5 INSULATION

- A. EXTERIOR OF DUCTWORK:

- UNLESS SPECIFIED TO BE LINED, ALL SHEET METAL SUPPLY AND RETURN DUCTS IN INDIRECTLY CONDITIONED SPACES SHALL BE INSULATED ON THE OUTSIDE WITH JOHNS MANVILLE "MICROLITE XG" FLEXIBLE FIBERGLASS BLANKET-TYPE DUCT WRAP, WITH FACTORY APPLIED FSK ALUMINUM FOIL FACING, WITH A COMPOSITE UL RATING OF 25/50, MINIMUM R-6 INSTALLED.
- UNLESS SPECIFIED TO BE LINED, ALL SHEET METAL SUPPLY AND RETURN DUCTS IN UNCONDITIONED SPACES SHALL BE INSULATED ON THE OUTSIDE WITH JOHNS MANVILLE "MICROLITE XG" FLEXIBLE FIBERGLASS BLANKET-TYPE DUCT WRAP, WITH FACTORY APPLIED FSK ALUMINUM FOIL FACING, WITH A COMPOSITE UL RATING OF 25/50, MINIMUM R-8 INSTALLED.
- ALL OUTSIDE AIR DUCTWORK BETWEEN BUILDING OUTSIDE AIR INLET AND HVAC UNIT OR HEAT/ENERGY RECOVERY VENTILATOR SHALL BE INSULATED ON THE OUTSIDE WITH JOHNS MANVILLE "MICROLITE XG" FLEXIBLE FIBERGLASS BLANKET-TYPE DUCT WRAP, WITH FACTORY APPLIED FSK ALUMINUM FOIL FACING, WITH A COMPOSITE UL RATING OF 25/50, MINIMUM R-4 INSTALLED.
- EXHAUST DUCTWORK WITHIN 10 FEET OF TERMINATION POINT AND BETWEEN ANY HEAT/ENERGY RECOVERY VENTILATOR AND EXHAUST TERMINATION SHALL BE INSULATED ON THE OUTSIDE WITH JOHNS MANVILLE "MICROLITE XG" FLEXIBLE FIBERGLASS BLANKET-TYPE DUCT WRAP, WITH FACTORY APPLIED FSK ALUMINUM FOIL FACING, WITH A COMPOSITE UL RATING OF 25/50, MINIMUM R-4 INSTALLED.

- B. INTERIOR OF DUCTWORK:

- DUCT LINING SHALL BE INSTALLED IN SUPPLY AND RETURN DUCTS AND PLENUMS WHERE NOTED ON THE DRAWINGS. LINING SHALL BE JOHNS MANVILLE "PERMACOTELINACOUSTIC R" RIGID FIBERGLASS BOARD FOR PLENUMS AND "PERMACOTELINACOUSTIC HP" FIBERGLASS DUCT LINER FOR DUCTS. 1" THICK, UNLESS OTHERWISE NOTED, WITH FIRE RESISTANT COATING. DUCT LINER SHALL MEET ASTM C 1071, WITH AIR SURFACE COATED WITH ACRYLIC COATING TREATED WITH EPA REGISTERED ANTI-MICROBIAL AGENT PROVE TO RESIST MICROBIAL GROWTH AS DETERMINED BY ASTM G 21 AND G 22. INSULATION WITH TORN OR BROKEN COATING SHALL BE REMOVED AND REPLACED. LOOSE CORNERS, EDGES, AND BUTT JOINTS WILL NOT BE ACCEPTED.
- ALL EXPOSED EXTERIOR SUPPLY AND RETURN DUCTWORK SHALL HAVE MINIMUM 2" INTERIOR INSULATION, AS SPECIFIED IN THIS SECTION.
- MAXIMUM VELOCITY: 5,000 FT/MIN.
- FASTENERS: DUCT LINER GALVANIZED STEEL PINS, WELDED OR MECHANICALLY FASTENED.
- DEVELOPED SMOKE DENSITY SHALL NOT EXCEED 50. FLAME SPREAD RATING SHALL NOT EXCEED 25.

2.6 REFRIGERATION PIPING AND APPURTENANCES

- A. REFRIGERANT PIPING SHALL BE TYPE "ACR" DE-OXIDIZED HARD TEMPER COPPER TUBE, ASTM B280.

- B. MECHANICAL JOINTS ON REFRIGERANT PIPING SYSTEMS ARE PROHIBITED. ALL REFRIGERANT PIPING JOINTS SHALL BE BRAZED. USE LEAD-FREE, SILVER SOLDER, MINIMUM 15% SILVER CONTENT.

- C. PIPE FITTINGS SHALL BE WROUGHT-COPPER WITH SOLDERED JOINTS, ASME B16.22.

- D. FLEXIBLE CONNECTIONS SHALL BE BRONZE, DOUBLE BRAIDED, SWEAT SOLDER ENDS.

- E. MOISTURE/LEAK INDICATORS (SIGHT GLASSES) SHALL BE COLOR CHANGE MOISTURE INDICATION TYPE, REPLACEABLE ELEMENT, FILTER SCREEN AND PAD, SWEAT SOLDER ENDS; SPORLAN "SEE-ALL," HENRY, OR EQUAL.

- F. CHARGING AND PURGE VALVES SHALL BE FORGED BRASS, DIAPHRAGM PACKLESS, GLOBE TYPE, ANGLE OR STRAIGHT THROUGH, ONE END SOLDER, ONE END FLARE; HENRY 623 AND 643 SERIES, SPORLAN OR EQUAL.

- G. SOLENOID VALVES SHALL BE FORGED BRASS, EXTENDED END CONNECTIONS, SOLDER ENDS, MOLDED COIL; SPORLAN "E" SERIES OR EQUAL. COMPLY WITH ARI 760 & UL 429.

- H. FILTER DRIERS SHALL BE REPLACEABLE MEDIA, ANGLE TYPE; HENRY "DRI-COR" OR EQUAL; ARI 730.

- I. THERMOSTATIC EXPANSION VALVES SHALL HAVE FORGED BRASS BODY, STAINLESS STEEL SEATS AND PINS, ODF SOLDER CONNECTIONS, EXTERNAL EQUALIZER; ARI 750.

- J. OUTDOOR CONDENSING UNITS SHALL HAVE A FLEXIBLE PIPING SECTION AT THE OUTDOOR UNIT.

2.7 ACCESS PANELS

- A. WHERE CONSTRUCTION IS NOT INHERENTLY ACCESSIBLE, PROVIDE ADEQUATELY SIZED AND CONVENIENTLY LOCATED ACCESS DOORS IN CEILINGS, WALLS, AND FURRING FOR SERVICING VALVES, EQUIPMENT, ETC. DOORS SHALL BE DELIVERED TO THE GENERAL CONTRACTOR FOR INSTALLATION.

- B. FIRE RATED: INRYCO/MILCOR, U.L. LISTED, "B" LABEL, 1 1/2 HOUR RATING. MINIMUM SIZE SHALL BE 12" X 12". PROVIDE LARGER SIZES WHERE REQUIRED. LOCKS SHALL BE FLUSH SCREWDRIVER OPERATED.

- C. DRYWALLED SURFACES: INRYCO/MILCOR, STYLE DW, PRIME COATED STEEL. MINIMUM SIZE SHALL BE 12" X 12". PROVIDE LARGER SIZES WHERE REQUIRED. LOCKS SHALL BE FLUSH SCREWDRIVER OPERATED.

- D. CONCRETE AND TILED SURFACES: INRYCO/MILCOR, STYLE M, PRIME COATED STEEL, EXCEPT ACCESS PANELS INSTALLED IN TILED SURFACES SHALL BE STAIN FINISH STAINLESS STEEL. MINIMUM SIZE SHALL BE 12" X 12". PROVIDE LARGER SIZES WHERE REQUIRED. LOCKS SHALL BE FLUSH SCREWDRIVER OPERATED.

- E. PLASTERED SURFACES: INRYCO/MILCOR, STYLE K, PRIME COATED STEEL. MINIMUM SIZE SHALL BE 12" X 12". PROVIDE LARGER SIZES WHERE REQUIRED. LOCKS SHALL BE FLUSH SCREWDRIVER OPERATED.

PART 3 – EXECUTION

3.1 EQUIPMENT STARTUP

- A. NOTIFY THE OWNER'S REPRESENTATIVE A MINIMUM OF TWO WEEKS PRIOR TO EQUIPMENT STARTUP DATE TO ALLOW FOR OWNER'S PERSONNEL TO BE PRESENT DURING STARTUP.

- B. MANUFACTURER MUST PROVIDE A SERVICE TECHNICIAN TO SUPERVISE RIGGING OF THE UNITS TO ENSURE PROPER FIT.

- C. UNIT MUST BE CHECKED OUT, TESTED AND PLACED INTO OPERATION BY THE INSTALLING CONTRACTOR UNDER THE SUPERVISION OF AN AUTHORIZED REPRESENTATIVE OF THE FACTORY.

- D. DURING STARTUP, THE FULL FUNCTIONALITY OF THE EQUIPMENT SHALL BE DEMONSTRATED TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE, INCLUDING HEATING, MECHANICAL COOLING, ECONOMIZER COOLING, ZONE MODULATION, AND ALL EMERGENCY SHUTDOWN FEATURES.

3.2 EQUIPMENT, GENERAL REQUIREMENTS

- A. EQUIPMENT SHALL OPERATE QUIETLY AND WITHOUT OBJECTIONABLE VIBRATION. SUCH PROBLEMS, OTHER THAN FROM EQUIPMENT OPERATING AT OPTIMUM CONDITIONS, SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND SHALL BE ELIMINATED AT THE DIRECTION OF THE ARCHITECT.

- B. INSTALL EQUIPMENT TO PROVIDE GOOD APPEARANCE, EASY ACCESS, AND ADEQUATE SPACE TO ALLOW REPLACEMENT AND MAINTENANCE. PROVIDE BASES, SUPPORTS, ANCHOR BOLTS, AND OTHER ITEMS REQUIRED TO ACHIEVE THIS. INSTALLATION SHALL BE LEVEL, ABOVE MOISTURE LEVEL, AND ADEQUATELY BRACED.

- C. THOROUGHLY LUBRICATE EQUIPMENT BEFORE OPERATING. REPAIR OF DAMAGE RESULTING FROM FAILURE TO COMPLY WITH THIS REQUIREMENT SHALL BE THE CONTRACTOR'S RESPONSIBILITY.

- D. CONNECTIONS TO PIPING SHALL BE SECURED AND PROPERLY ALIGNED AND ALL UTILITY AND CONTROL CONNECTIONS SHALL BE PROPERLY ISOLATED FROM THE BUILDING STRUCTURE BY MEANS OF VIBRATION ISOLATORS AND FLEXIBLE CONNECTIONS. ANY EQUIPMENT NOT MEETING THIS REQUIREMENT WILL BE MODIFIED AND REINSTALLED AT NO EXPENSE TO THE OWNER.

- E. MOVE EQUIPMENT INTO BUILDING THROUGH AVAILABLE OPENINGS. DISMANTLE EQUIPMENT WHERE NECESSARY TO ACCOMPLISH THIS. AFTER REASSEMBLY, TEST EQUIPMENT TO VERIFY ITS SATISFACTORY OPERATING CONDITION.

3.3 DUCTWORK

- A. ALL DUCTWORK SHALL BE INSTALLED WITHIN SPACES PROVIDED WHERE POSSIBLE. DUCTS SHALL BE INSTALLED TO LINE AND GRADE, FLUSH TO STRUCTURE WITH SPECIFIED HANGERS AND SUPPORTS, INSULATED, AND VIBRATION ISOLATED, WHERE REQUIRED.

- B. EACH SECTION OF SUPPLY AIR DUCTWORK SHALL BE CLEANED AT THE SHOP. DUST AND OIL FREE. USING A DEGREASING AGENT AND DETERGENT AND SEALED AIRTIGHT AT BOTH ENDS WITH VISQUEEN AND TAPE. SUPPLY DUCTS SHALL BE ADDITIONALLY CLEANED WITH A DISINFECTING SOLUTION. ENDS OF ALL SUPPLY AND INTERNALLY INSULATED EXHAUST DUSTS SHALL BE KEPT SEALED UNTIL THE TIME THEY ARE JOINED. WHEN DUCT SECTIONS ARE JOINED, WIPE DOWN ALL INTERIOR SURFACES WITH A CLEAN TACK CLOTH. IF TACK CLOTH SHOWS ANY DUST, THEN RE-CLEAN DUCT AS DESCRIBED ABOVE. THE INTENT IS THAT NO FOREIGN MATTER BE ALLOWED TO ENTER THE DUCTWORK AT ANY TIME AFTER FACTORY CLEANING AND DURING CONSTRUCTION.

3.4 CONTROLS

- A. THIS CONTRACTOR SHALL PROVIDE ALL REQUIRED CONTROL COMPONENTS, INCLUDING BUT NOT LIMITED TO THERMOSTATS, TEMPERATURE SENSORS, STATIC PRESSURE SENSORS, HUMIDITY DAMPERS, DAMPER ACTUATORS, VALVE ACTUATORS, UNITARY CONTROLLERS, RELAYS, AND LOW-VOLTAGE WIRING, SUCH THAT THE OWNER IS PROVIDED WITH A FULLY FUNCTIONAL CONTROL SYSTEM.

- B. WHERE WORK IS PERFORMED IN AN EXISTING BUILDING, THIS CONTRACTOR SHALL INTEGRATE ALL CONTROL MODIFICATIONS INTO THE EXISTING BUILDING CONTROL SYSTEM, IF APPLICABLE. SPECIFIC REQUIREMENTS SHALL BE COORDINATED WITH OWNER AND APPROVED BY ARCHITECT PRIOR TO INSTALLATION.

- C. INSTALLATION OF THE SYSTEM SHALL BE MADE UNDER THE SUPERVISION OF THE MANUFACTURER OF THE EQUIPMENT, OR HIS FACTORY AUTHORIZED REPRESENTATIVE.

- D. ROOM THERMOSTATS SHALL BE INSTALLED IN THE LOCATIONS INDICATED ON THE CONTRACT DRAWINGS. FINAL LOCATIONS SHALL BE COORDINATED WITH OWNER'S MAINTENANCE PERSONNEL AND SHALL BE INSTALLED IN LOCATIONS WHICH SHALL PROVIDE REPRESENTATIVE TEMPERATURES FOR THE ADJACENT AREAS.

- E. LOW VOLTAGE CONTROL WIRING AND CONDUIT SHALL BE INSTALLED IN ACCORDANCE WITH REQUIREMENTS OF DIVISION 26.

3.5 INSULATION

- A. EXTERIOR DUCTWORK:

- THE INSULATION SHALL BE CUT LONGER THAN THE PERIMETER OF THE DUCT TO PROVIDE 2" STAPLE LAP AND MINIMUM COMPRESSION AT THE CORNERS. ALL JOINTS SHALL BE LAPPED 2" AND STAPLED WITH OUTWARD CLINCHING STAPLES 2" ON CENTER. THE INSULATION SHALL BE MECHANICALLY FASTENED TO THE UNDERSIDE OF ALL DUCTS 24" WIDE OR MORE USING CUP-HEAD PINS, WELD PINS, OR STICK PINS WITH SPEED CLIPS 18" ON CENTER. ALL JOINTS AND PENETRATIONS OF THE VAPOR BARRIER JACKET SHALL BE SEALED WITH A MINIMUM 3" WIDE MATCHING PRESSURE SENSITIVE TAPE. PRESSURE-SENSITIVE TAPE SHALL BE FIRMLY RUBBED IN PLACE IMMEDIATELY AFTER APPLICATION USING A "SQUEEGEE" TYPE TOOL.
- WHEN A VAPOR SEAL IS REQUIRED, TWO COATS OF VAPOR RETARDER MASTIC REINFORCED WITH ONE LAYER OF 4" WIDE, OPEN WEAVE GLASS FABRIC MAY BE USED IN LIEU OF PRESSURE-SENSITIVE TAPE. MASTIC SHALL BE BRUSHED ONTO JOINT AND GLASS FABRIC UNTIL THE FABRIC IS FILLED. MASTICS SHALL BE APPLIED IN ACCORDANCE WITH APPLICATION INSTRUCTIONS ON THE CONTAINER.

- B. INTERIOR DUCT LINER

- APPLY TO THE INSIDE FACE OF DUCTS, COATED SIDE FACING AIR STREAM. FASTEN USING FIRE RETARDANT ADHESIVE MEETING ASTM C 9169, AND SECURE WITH MECHANICAL LINER FASTENERS AT 24" MAXIMUM O.C., BOTH DIRECTIONS. PIN LENGTH SHOULD BE SUCH AS TO LIMIT COMPRESSION OF LINER.
- EXPOSED EDGES MUST BE FACTORY OR FIELD COATED. FOR SYSTEMS OPERATING AT 4000 FPM OR HIGHER, A METAL NOSING MUST BE INSTALLED ON ALL LINER LEADING EDGES. INSULATION WITH TORN OR BROKEN COATINGS SHALL BE REMOVED OR REPLACED. LOOSE CORNERS, EDGES, AND BUTT JOINTS WILL NOT BE ACCEPTED.

- C. REFRIGERANT PIPING

- THE INSULATION SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. ALL JOINTS AND SEAMS SHALL BE SEALED WITH WATERPROOF VAPOR RETARDANT ADHESIVE. ALL PIPES EXPOSED TO THE WEATHER SHALL BE COATED WITH ALUMINUM JACKETING TO PROTECT THE INSULATION FROM ULTRA-VIOLET RADIATION IN ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED INSTRUCTIONS.

3.6 TEST, INSPECTIONS

- A. MAKE ALL NECESSARY CONTROL ADJUSTMENTS AND BALANCING OF AIR AND WATER FLOWS. OPERATE THE ENTIRE SYSTEM FOR A PERIOD OF TIME NOT LESS THAN THREE (3) WORKING DAYS FOR THE PURPOSE OF PROVING SATISFACTORY PERFORMANCE. DURING THIS PERIOD, INSTRUCT SUCH PERSONS AS THE OWNER AND/OR ARCHITECT MAY DESIGNATE IN THE PROPER OPERATION OF THE SYSTEMS. SHOULD FURTHER ADJUSTMENT PROVE NECESSARY, OPERATING TESTS SHALL BE REPEATED UNTIL A SATISFACTORY TEST IS OBTAINED.

- B. THIS CONTRACTOR SHALL NOT ALLOW OR CAUSE ANY WORK OF THIS SECTION TO BE COVERED OR ENCLOSED UNTIL IT HAS BEEN INSPECTED, TESTED, AND APPROVED BY THE ARCHITECT AND THE AUTHORITY HAVING JURISDICTION OVER THE WORK. SHOULD ANY OF THIS WORK BE ENCLOSED OR COVERED UP BEFORE SUCH INSPECTION, TESTING, AND APPROVAL, THIS CONTRACTOR SHALL UN

TAB SPECIFICATION

PART 1 GENERAL

1.1 SCOPE

- A. PROVIDE ALL SUPERVISION, PERSONNEL, INSTRUMENTS, CALIBRATION, EQUIPMENT, AND ALL OTHER MATERIALS NECESSARY TO PERFORM BALANCING AND TESTING, AND COMPILER TEST DATA INCLUDING CALCULATIONS AND SERVICES NECESSARY FOR THE HEATING, VENTILATING, AND AIR CONDITIONING SYSTEMS FOR THIS PROJECT, ALL IN ACCORDANCE WITH THE PROJECT DRAWINGS AND SPECIFICATIONS AND AS SPECIFIED HEREIN.

1.2 GENERAL

- A. MECHANICAL CONTRACTOR WILL EMPLOY A TESTING, ADJUSTING, AND BALANCING (TAB) AGENCY THAT IS CERTIFIED BY ASSOCIATED AIR BALANCING COUNCIL (AABC), NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB), OR TESTING, ADJUSTING, AND BALANCING BUREAU (TABB).
- B. THE TAB AGENCY SHALL BE RESPONSIBLE FOR INSPECTING, BALANCING, ADJUSTING, TESTING, AND LOGGING THE DATA OF THE PERFORMANCE OF FANS, ALL DAMPERS IN THE DUCT SYSTEMS, ALL AIR DISTRIBUTION DEVICES, AND THE FLOWS OF WATER THROUGH ALL COILS.
- C. EXISTING EQUIPMENT, UNLESS SPECIFICALLY MENTIONED OTHERWISE, SHALL NOT IN THE SCOPE OF THE TAB WORK.
- D. A COMPLETELY OPERABLE SYSTEM SHALL BE PLACED INTO OPERATION EACH DAY DURING TESTING AND BALANCING.
- E. THE TAB AGENCY SHALL UTILIZE INSTRUMENTATION WHICH MEETS THE REQUIREMENTS OF ASHRAE 111, SECTION 5, "INSTRUMENTATION".
- F. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CERTIFYING IN WRITING THAT THE SYSTEM, AS SCHEDULED FOR BALANCING, IS OPERATIONAL AND COMPLETE. COMPLETENESS SHALL INCLUDE NOT ONLY THE PHYSICAL INSTALLATION, BUT THE MECHANICAL CONTRACTOR'S CERTIFICATION THAT THE PRIME MOVERS ARE INSTALLED IN GOOD WORKING ORDER, AND THAT FULL LOAD PERFORMANCE HAS BEEN PRELIMINARY TESTED UNDER THE CERTIFICATION OF THE MECHANICAL CONTRACTOR, BEFORE ANY TESTING AND BALANCING IS STARTED, A COMPLETE REPORT SHALL BE SENT TO THE TAB AGENCY BY THE MECHANICAL CONTRACTOR.
- G. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING ALL MODIFICATIONS TO RECERTIFY DISCREPANCIES REPORTED BY THE TAB CONTRACTOR AS INDICATING NON-COMPLIANCE WITH THE CONTRACT DOCUMENTS. BY COMPLETING THE WORK ON TIME, THE MECHANICAL CONTRACTOR SHALL PROVIDE SUFFICIENT TIME BEFORE THE COMPLETION DATE SO THAT BALANCING CAN BE ACCOMPLISHED.
- H. IF CONSTRUCTION DEFICIENCIES ARE ENCOUNTERED WHICH PRECLUDE OBTAINING OPTIMUM CONDITIONS, THE DEFICIENCIES WILL BE RECORDED AND GIVEN TO THE OWNER'S REPRESENTATIVE. THE TAB AGENCY IS ADVISED THAT DEFICIENCIES IN THE HVAC CONSTRUCTION ARE OFTEN ENCOUNTERED DURING FINAL TAB SERVICES, AND SHOULD INCLUDE IN THE BID AN AMOUNT DEEMED ADVISABLE TO COMPENSATE FOR TIME IN IDENTIFYING THE DEFICIENCIES.

1.3 SERVICES

- A. THE TAB AGENCY WILL BALANCE, TEST, AND ADJUST THE SYSTEMIC COMPONENTS TO OBTAIN OPTIMUM CONDITIONS IN EACH CONDITIONED SPACE IN THE BUILDING. IF CONSTRUCTION DEFICIENCIES ARE ENCOUNTERED WHICH PRECLUDE OBTAINING OPTIMUM CONDITIONS, THE DEFICIENCIES WILL BE RECORDED AND GIVEN TO THE OWNER'S REPRESENTATIVE. THE TAB AGENCY IS ADVISED THAT DEFICIENCIES IN THE HVAC CONSTRUCTION ARE OFTEN ENCOUNTERED DURING FINAL TAB SERVICES, AND SHOULD INCLUDE IN THE BID AN AMOUNT DEEMED ADVISABLE TO COMPENSATE FOR TIME IN IDENTIFYING THE DEFICIENCIES.
- B. THE REPORT SHALL BE COMPLETE WITH LOGS, DATA, AND RECORDS AS REQUIRED HEREIN AND ALL LOGS, DATA, AND RECORDS SHALL BE TYPED, PRODUCED, ON WHITE BOND PAPER, AND BOUND, TRANSMIT FOUR COPIES DIRECTLY TO THE OWNER'S REPRESENTATIVE TO BE DISTRIBUTED TO THE MECHANICAL CONTRACTOR, CONTROLS CONTRACTOR, ENGINEER, AND RECORD FILE.
- C. THE REPORT SHALL CONTAIN THE FOLLOWING GENERAL DATA IN A FORMAT SELECTED BY THE TAB AGENCY FOR CLARITY AND EASE OF REFERENCE.

1. PROJECT TITLE.
2. PROJECT LOCATION.
3. PROJECT ARCHITECT (FIRM NAME AND ADDRESS).
4. PROJECT MECHANICAL ENGINEER (NAME).
5. TAB FIELD TEST ENGINEER (NAME).
6. TAB AGENCY (FIRM NAME AND ADDRESS).
7. INCLUSIVE DATES TESTS WERE PERFORMED AND DATE OF REPORT.
8. CALIBRATION CERTIFICATES OF EACH INSTRUMENT USED ALONG WITH SPECIFIC ID NUMBERS (I.E., SERIAL NUMBERS).

1.4 SUBMITTALS

- A. SUBMITTAL NO. 15950 (1) – TAB AGENDA

1. THE TAB CONTRACTOR SHALL SUBMIT A COMPLETE AGENDA, WHICH SHALL OUTLINE IN FULL THE TESTING METHODS AND LOCATIONS FOR EACH HVAC SYSTEM AND/OR DEVICE THAT IS WITHIN THE SCOPE OF THE TAB WORK. THE AGENDA SHALL REPRESENT THE TOTAL SYSTEM BALANCE REPORT, LESS FIELD TEST DATA. AREAS OF INTENDED FIELD TEST INPUTS SHALL BE REPRESENTED BY FULLY LABELED BLANK SPACES.
2. THE TAB AGENDA SHALL ALSO INDICATE THE PROPOSED TEST METHODS, INSTRUMENTATION DEVICES AND ALL APPLICABLE CALIBRATION CERTIFICATES.

- B. SUBMITTAL NO 15950 (2) – TAB REPORT

1. PROVIDE TEST AND BALANCE REPORT AS INDICATED HEREIN.

1.5 AIR SYSTEMS REQUIREMENTS

- A. IN ADDITION TO THE ABOVE DATA IN ITS APPROPRIATE FORMAT, THE TEST AND BALANCE REPORT SHALL INCLUDE THE FOLLOWING DATA:

1. AIR HANDLING UNITS (EXISTING AND NEW)
 - a. MANUFACTURER AND MODEL.
 - b. SIZE.
 - c. MOTOR HP, VOLTAGE, PHASE, CYCLES, FULL LOAD AMPS.
 - d. LOCATION AND LOCAL IDENTIFICATION DATA.
 - e. IDENTIFICATION TAG LISTED IN SCHEDULES ON DRAWINGS AND SPECIFICATIONS.
 - f. SUPPLY AIRFLOW (CFM) AND EXHAUST AIRFLOW (CFM), WHERE APPLICABLE.
 - g. FAN RPM.
 - h. MOTOR CURRENT READINGS AT EACH FAN.
 - i. INLET AND OUTLET STATIC PRESSURE FROM SUPPLY FAN AND EXHAUST FAN (IF APPLICABLE). THESE READINGS SHALL BE RELATED TO THE FAN CURVE.
 - j. STATIC PRESSURE DIFFERENTIAL ACROSS EACH COIL AND FILTER SECTION.
 - k. ENTERING AIR AND LEAVING AIR TEMPERATURES (DBWB) IN 100% COOLING MODE.
 - l. ENTERING AIR AND LEAVING AIR TEMPERATURES (DB) IN 100% HEATING MODE.
 - m. OUTDOOR AIR PERCENTAGE SETTING.
 - n. OUTDOOR AIRFLOW IN ECONOMIZER MODE (IF APPLICABLE).
 - o. OUTDOOR AIRFLOW IN DEMAND CONTROL VENTILATION MODE (IF APPLICABLE).
2. ROOF EXHAUST FANS
 - a. MANUFACTURER AND MODEL.
 - b. SIZE.
 - c. MOTOR HP, VOLTAGE, PHASE, CYCLES, FULL LOAD AMPS.
 - d. LOCATION AND LOCAL IDENTIFICATION DATA.
 - e. IDENTIFICATION TAG LISTED IN SCHEDULES ON DRAWINGS AND SPECIFICATIONS.
 - f. EXHAUST AIRFLOW (CFM).
 - g. FAN RPM.
 - h. MOTOR CURRENT READINGS AT EACH FAN.
3. PUMPS (EXISTING HOT WATER PUMP AND CHILLED WATER PUMP IN BUILDING 800)
 - a. MANUFACTURER AND MODEL.
 - b. SIZE.
 - c. MOTOR HP, VOLTAGE, PHASE, CYCLES, FULL LOAD AMPS.
 - d. LOCATION AND LOCAL IDENTIFICATION DATA.
 - e. IDENTIFICATION TAG LISTED IN SCHEDULES ON DRAWINGS AND SPECIFICATIONS.
 - f. SUCTION PRESSURE (PSI).
 - g. DISCHARGE PRESSURE (PSI).
 - h. MOTOR RPM.
 - i. MOTOR CURRENT READINGS AT EACH PUMP.
 - j. WATER FLOW (GPM).

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 GENERAL PROCEDURES

- A. DURING THE BALANCING, THE TEMPERATURE REGULATION SHALL BE ADJUSTED FOR PROPER RELATIONSHIP BETWEEN CONTROLLING INSTRUMENTS AND CALIBRATED. THE CORRECTNESS OF THE FINAL SETTING SHALL BE PROVED BY TAKING HOURLY READINGS FOR A PERIOD OF ONE SUCCESSIVE 8-HOUR DAY, IN A TYPICAL ROOM ON EACH SEPARATELY CONTROLLED ZONE, AFTER TENANT MOVES IN. THE TOTAL VARIATION SHALL NOT EXCEED 2 DEGREES FROM THE PRESET MEDIUM TEMPERATURE DURING THE TEMPERATURE SURVEY PERIOD. (THIS WILL BE DONE ONLY ON SYSTEMS THAT ARE TOTALLY OPERATIONAL).

3.2 AIR SYSTEMS PROCEDURES

- A. THE TAB AGENCY SHALL PERFORM THE FOLLOWING TESTS AND BALANCE THE AIR SYSTEMS IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS:

1. TEST AND ADJUST BLOWER AND MOTOR RPM TO DESIGN REQUIREMENTS.
2. TEST AND RECORD MOTOR FULL LOAD AMPERES AND CORRESPONDING VOLTAGE.
3. MAKE PITOT TUBE TRAVELER OF MAIN SUPPLY DUCTS AND OBTAIN DESIGN CFM AT FANS.
4. TEST AND RECORD SYSTEM STATIC PRESSURES, SUCTION AND DISCHARGE.
5. TEST AND ADJUST SYSTEM FOR DESIGN CFM OF OUTSIDE AIR.
6. TEST AND RECORD ENTERING AND LEAVING AIR DRY BULB TEMPERATURES OF ALL HEATING AND COOLING COILS.
7. TEST AND RECORD ENTERING AND LEAVING WET BULB TEMPERATURES OF ALL COOLING COILS.
8. ADJUST ALL MAIN SUPPLY AND RETURN AIR DUCTS TO PROPER DESIGN CFM. SYSTEM SUPPLY AIRFLOW, SYSTEM RETURN AIRFLOW, AND SYSTEM OUTDOOR AIRFLOW SHALL BE BALANCED TO WITHIN 5% OF THE DESIGN REQUIREMENT.
9. ADJUST ALL ZONES TO PROPER DESIGN CFM, SUPPLY AND RETURN.
10. TEST AND ADJUST EACH DIFFUSER, GRILLE TO REGISTER TO WITHIN 10% OF DESIGN REQUIREMENT.
11. EACH GRILLE, DIFFUSER, AND REGISTER SHALL BE IDENTIFIED AS TO LOCATION AND AREA.
12. SIZE, TYPE, AND MANUFACTURER OF DIFFUSERS, GRILLES, REGISTERS, AND ALL TESTED EQUIPMENT SHALL BE IDENTIFIED AND LISTED. MANUFACTURER'S RATINGS ON ALL EQUIPMENT SHALL BE USED TO MAKE REQUIRED CALCULATIONS.
13. READINGS AND TEST OF DIFFUSERS, GRILLES, AND REGISTERS SHALL INCLUDE REQUIRED FPM VELOCITY AND TEST RESULTANT VELOCITY, REQUIRED CFM AND TEST RESULTANT CFM AFTER ADJUSTMENTS.
14. TAB AGENCY SHALL CHECK ALL CONTROLS TO ENSURE THEY ARE OPERATING AS SPECIFIED. PROVIDE THE CONTROL CONTRACTOR WITH SPECIFIC SET POINTS.

3.3 TEMPERATURE CONTROL SYSTEM

- A. IN THE PROGRESS OF PERFORMING THE TAB WORK, THE TAB AGENCY SHALL:

1. WORK WITH THE CONTROLS CONTRACTOR TO ENSURE THE MOST EFFECTIVE TOTAL SYSTEM OPERATION WITHIN THE DESIGN LIMITATIONS, AND TO OBTAIN MUTUAL UNDERSTANDING OF INTENDED CONTROL PERFORMANCE.
2. VERIFY THAT ALL CONTROL DEVICES ARE PROPERLY CONNECTED.
3. VERIFY THAT ALL DAMPERS, VALVES, AND OTHER CONTROLLED DEVICES ARE OPERATED BY THE INTENDED CONTROLLER.
4. VERIFY THAT ALL DAMPERS AND VALVES ARE IN THE POSITION INDICATED BY THE CONTROLLER (OPEN, CLOSED, OR MODULATING).
5. VERIFY THAT THE INTEGRITY OF VALVES AND DAMPERS IN TERMS OF TIGHTNESS OF CLOSE-OFF AND FULL-OPEN POSITION. THIS INCLUDES DAMPERS IN MULTI-ZONE UNITS.
6. CHECK THAT ALL VALVES ARE PROPERLY INSTALLED IN THE PIPING SYSTEM IN RELATION TO DIRECTION OF FLOW AND LOCATION.
7. VERIFY THE CALIBRATION OF ALL CONTROLLERS.
8. VERIFY THE PROPER APPLICATION OF ALL NORMALLY OPEN AND NORMALLY CLOSED VALVES.
9. CHECK THE LOCATIONS OF ALL THERMOSTATS AND HUMIDISTATS FOR POTENTIAL ERRATIC OPERATION FROM OUTSIDE INFLUENCES SUCH AS SUNLIGHT, DRAFTS, OR COLD WALLS.
10. CHECK THE LOCATIONS OF ALL SENSORS TO DETERMINE WHETHER THEIR POSITION WILL ALLOW THEM TO SENSE ONLY THE INTENDED TEMPERATURES OR PRESSURES OF THE MEDIA. CONTROLS CONTRACTOR WILL RELOCATE AS DEEMED NECESSARY BY THE TAB AGENCY.
11. CHECK THE SEQUENCE OF OPERATION FOR ANY CONTROL MODE IS IN ACCORDANCE WITH APPROVED SHOP DRAWINGS. VERIFY THAT ONLY MINIMUM SIMULTANEOUS HEATING AND COOLING OCCURS. OBSERVE THAT HEATING CANNOT TAKE PLACE UNTIL THE COOLING ZONE OF VALVE IS COMPLETELY CLOSED.
12. VERIFY THAT ALL CONTROLLER SET POINTS MEET THE DESIGN INTENT.
13. CHECK ALL DAMPERS FOR FREE TRAVEL.
14. VERIFY THE OPERATION OF ALL INTERLOCK SYSTEMS.
15. PERFORM ALL SYSTEM VERIFICATION TO ASSURE THE SAFETY OF THE SYSTEM AND ITS COMPONENTS.

- B. A SYSTEMATIC CHECK OF THE ABOVE REQUIREMENTS SHALL BE INCLUDED IN THE FINAL TAB REPORT.

3.4 WATER PROCEDURES

- A. THE VARIOUS CIRCULATING SYSTEMS SHALL BE FLUSHED, CLEANED, FILLED, PURGED OF AIR, AND PUT INTO OPERATION BY THE MECHANICAL CONTRACTOR BEFORE NOTIFYING THE TAB AGENCY IN WRITING TO DO THE HYDRONIC BALANCING.

- B. THE FLOW OF WATER THROUGH ALL COILS SHALL BE ADJUSTED BY MANIPULATING VALVES UNTIL THE RATED PRESSURE DROP ACROSS EACH COILS OBTAINED. ON THOSE WITH THREE-WAY VALVES, THE RATED PRESSURE DROP SHALL FIRST BE ADJUSTED WITH THE 3-WAY VALVES SET SO THAT ALL WATER FLOWS THROUGH THE COILS IN EACH OF THE SEVERAL SYSTEMS AND THE TEMPERATURE DIFFERENTIAL BETWEEN INLET AND OUTLET SHALL BE DETERMINED TO BE IN ACCORDANCE WITH IT RATING. THE BYPASS VALVES SHALL THEN BE ADJUSTED ON EACH COIL UNTIL AN EQUAL PRESSURE DROP BETWEEN SUPPLY AND RETURN CONNECTIONS IS OBTAINED WITH THE THREE-WAY VALVES SET TO BYPASS ALL COILS IN EACH OF THE SEVERAL SYSTEMS.

1. **PHASE ONE:** THE BALANCE ENGINEER OR TECHNICIAN SHALL PREPARE THE WATER SYSTEMS FOR BALANCING IN THE FOLLOWING MANNER:

- a. OPEN ALL VALVES TO FULL OPEN POSITION. CLOSE COIL BYPASS STOP VALVES. SET MIXING VALVE TO FULL COIL FLOW.
- b. REQUEST REMOVAL AND CLEANING OF ALL STRAINERS BY CONTRACTOR, IF NOT DONE.
- c. EXAMINE WATER IN SYSTEM AND DETERMINE IF WATER HAS BEEN TREATED AND CLEANED.
- d. CHECK PUMP ROTATION.
- e. CHECK ALL AIR VENTS AT HIGH POINTS OR WATER SYSTEMS AND DETERMINE ALL ARE INSTALLED AND OPERATING FREELY.
- f. SET ALL TEMPERATURE CONTROLS SO ALL COOLING ARE CALLING FOR FULL COOLING. THIS SHOULD CLOSE ALL AUTOMATIC BYPASS VALVES. FOLLOW SAME PROCEDURE WHEN BALANCING HOT WATER COILS. SET SO COILS ARE CALLING FOR FULL HEATING.
- g. CHECK OPERATION OF AUTOMATIC BYPASS VALVES.
- h. COMPLETE AIR BALANCE MUST HAVE BEEN ACCOMPLISHED BEFORE ACTUAL WATER BALANCE BEGINS.

2. **PHASE TWO:** THE BALANCE ENGINEER OR TECHNICIAN SHALL PROCEED WITH SECOND PHASE OF WATER BALANCE AS FOLLOWS:

- a. SET CHILLED WATER AND HOT WATER PUMPS TO PROPER DELIVERY.
- b. VERIFY WATER FLOW OF CHILLED WATER FROM CENTRAL PLANT.
- c. VERIFY WATER FLOW OF HOT WATER FROM CENTRAL PLANT.
- d. VERIFY SUPPLY WATER TEMPERATURES AND RETURN WATER TEMPERATURES OF CENTRAL SYSTEM AND COORDINATE WITH CENTRAL PLANT TO RESET TO CORRECT DESIGN TEMPERATURES.
- e. CHECK WATER TEMPERATURE AT INLET SIDE OF COOLING AND HEATING COILS. NOTE RISE OR DROP OF TEMPERATURES FROM SOURCE.
- f. PROCEED TO BALANCE EACH HOT WATER COIL.
- g. UPON COMPLETION OF FLOW READINGS AND ADJUSTMENTS AT COILS, MARK PERMANENTLY ALL SETTINGS AND RECORD DATA.

3. **PHASE THREE:** UPON COMPLETION OF PHASE 1 AND 2, THE BALANCE TECHNICIAN SHALL PROCEED WITH PHASE 3 AS FOLLOWS:

- a. AFTER ADJUSTMENTS TO COILS ARE MADE, RECHECK SETTINGS AT THE PUMPS AND CENTRAL SUPPLY AND READJUST, IF REQUIRED.
- b. INSERT PRESSURE GAUGES, READ PRESSURE DROP THROUGH COIL AT SET FLOW RATE ON CALL FOR FULL COOLING AND FULL HEATING. SET PRESSURE DROP ACROSS BYPASS VALVE TO MATCH COIL FULL FLOW PRESSURE DROP. THIS PREVENTS UNBALANCED FLOW CONDITIONS WITH COILS ARE ON FULL BYPASS (WITH 3-WAY VALVES).
- c. RECORD AND CHECK THE FOLLOWING ITEMS AT EACH COOLING AND HEATING COIL:

1. INLET WATER TEMPERATURES.
2. LEAVING WATER TEMPERATURES.
3. PRESSURE DROP AT EACH COIL.
4. PRESSURE DROP ACROSS BYPASS VALVE.

- d. RECORD AND CHECK THE FOLLOWING ITEMS AT EACH PUMP:

1. PUMP OPERATING SUCTION AND DISCHARGE PRESSURE AND FINAL TDH.
2. RATED AND ACTUAL RUNNING AMPERAGE OF PUMP MOTOR AND CORRESPONDING VOLTAGE.

3.5 DUCT LEAKAGE TEST

- A. ALL SUPPLY, RETURN, EXHAUST, AND OUTSIDE AIR DUCTWORK SHALL BE TESTED FOR LEAKS, USING NECESSARY INSTRUMENTS BEFORE INSULATING ANY DUCTWORK.

- B. DUCTWORK SHALL BE LEAK-TESTED IN ACCORDANCE WITH SMACNA HVAC AIR DUCT LEAKAGE TEST MANUAL. REPRESENTATIVE SECTIONS TOTALING NOT LESS THAN 10 PERCENT OF THE TOTAL INSTALLED DUCT AREA SHALL BE TESTED, WHERE THE TESTED 10 PERCENT FAILS TO COMPLY WITH THE REQUIREMENTS OF THIS SECTION, THEN 40 PERCENT OF THE TOTAL INSTALLED DUCT AREA SHALL BE TESTED, WHERE THE TESTED 40 PERCENT FAILS TO COMPLY WITH THE REQUIREMENTS OF THIS SECTION, THEN 100 PERCENT OF THE TOTAL INSTALLED DUCT AREA SHALL BE TESTED.

- C. THE MAXIMUM PERMITTED LEAKAGE SHALL BE DETERMINED IN ACCORDANCE WITH CMC 603.9.2.

- D. THE TEST AND BALANCE REPORT SHALL INCLUDE THE RESULTS OF THE DUCT LEAKAGE TEST FOR THE ENGINEER'S REVIEW.

3.6 TEST AND BALANCE REPORT

- A. THE REPORT SHALL CONTAIN THE FOLLOWING DATA:

1. A LISTING OF THE MEASURED AIR QUANTITIES AT EACH OUTLET CORRESPONDING TO THE TEMPERATURE TABULATION SPECIFIED ABOVE.
2. AIR QUANTITIES AT EACH RETURN AND EXHAUST AIR HANDLING DEVICE (ONLY IF DUCTED RETURN SYSTEMS).
3. STATIC PRESSURE READINGS ENTERING AND LEAVING EACH SUPPLY, RETURN AND EXHAUST FAN, FILTER, AND COIL OF THE SYSTEM. THESE READINGS SHALL BE RELATED TO FAN CURVES IN TERMS OF CFM HANDLED.
4. WATER PRESSURE READINGS AT GAUGE CONNECTIONS. PRESSURE READINGS AT COILS AND PUMPS SHALL BE RELATED TO COILS AND PUMP CURVES IN TERMS OF GPM HANDLED.
5. MOTOR CURRENT READINGS AT EACH FAN AND PUMP. THE VOLTAGES AT THE TIME OF THE READINGS SHALL BE LISTED.

3.7 FINAL ACCEPTANCE

- A. AT THE TIME OF FINAL INSPECTION, THE BALANCING AGENCY SHALL RECHECK, IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE, SPECIFIC AND RANDOM SELECTIONS OF DATA, I.E., WATER AND AIR QUANTITIES, RECORDED IN THE CERTIFIED REPORT.

- B. POINTS AND AREAS FOR RECHECK SHALL BE SELECTED BY THE OWNER'S REPRESENTATIVE.

- C. MEASUREMENT AND TEST PROCEDURES SHALL BE THE SAME AS APPROVED FOR WORK FORMING BASIS OF CERTIFIED REPORT.

- D. SELECTIONS FOR RECHECK, SPECIFIC PLUS RANDOM, WILL NOT NORMALLY EXCEED 25% OF THE TOTAL NUMBER TABULATED IN THE REPORT, EXCEPT THAT SPECIAL AIR SYSTEMS MAY REQUIRE A COMPLETE RECHECK FOR SAFETY REASONS.

- E. IF RANDOM TESTS ELICIT A MEASURED FLOW DEVIATION OF 10% OR MORE FROM THAT RECORDED IN THE CERTIFIED REPORT ON 10% OR MORE OF THE SELECTED RECHECK STATIONS, THE REPORT SHALL BE AUTOMATICALLY REJECTED. IN THE EVENT THE REPORT IS REJECTED, ALL SYSTEMS SHALL BE READJUSTED AND TESTED, NEW DATA RECORDED, NEW CERTIFIED REPORT SUBMITTED, AND NEW INSPECTION TESTS MADE, ALL AT NO ADDITIONAL COST TO THE OWNER.

- F. FOLLOWING FINAL ACCEPTANCE OF THE CERTIFIED REPORT BY THE OWNER'S REPRESENTATIVE, THE SETTINGS OF ALL VALVES, SPLITTER, DAMPERS, AND OTHER ADJUSTMENT DEVICES SHALL BE PERMANENTLY MARKED BY THE TAB AGENCY, SO THAT ADJUSTMENT CAN BE RESTORED IF DISTURBED AT ANY TIME. DEVICES SHALL NOT BE MARKED UNTIL AFTER FINAL ACCEPTANCE.

END OF SECTION



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LICENSE STAMP



CONSULTANTS

PROJECT NAME

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M102

CONTROL SPECIFICATION

PART 1 – GENERAL

1.1 WORK INCLUDED

- A. FURNISH ALL LABOR, MATERIALS, EQUIPMENT, AND SERVICE NECESSARY TO MODIFY THE EXISTING ENERGY MANAGEMENT SYSTEM (EMS) FOR A COMPLETE AND OPERATIVE NEW EMS SYSTEM, UTILIZING DIRECT DIGITAL ELECTRONIC CONTROLS AS SHOWN ON THE DRAWINGS AND AS SPECIFIED HEREIN.
- B. ALL LABOR, MATERIAL, EQUIPMENT, AND SOFTWARE NECESSARY TO MEET THE LISTED FUNCTIONS OF THE EMS AS SPECIFIED HEREIN AND AS SHOWN ON THE DRAWINGS SHALL BE INCLUDED.
- C. CONTROL WIRING, EXCEPT FOR POWER WIRING, NECESSARY FOR TEMPERATURE CONTROL SYSTEMS IS COVERED IN THIS SECTION.

1.2 STARTUP, OPERATING, AND MAINTENANCE SERVICE

- A. THE MANUFACTURER'S FIELD SERVICES REPRESENTATIVE SHALL FURNISH TECHNICAL DIRECTION AS REQUIRED TO ENSURE PROPER STARTUP, OPERATION, AND MAINTENANCE OF THE EQUIPMENT.
- B. OPERATION AND MAINTENANCE TRAINING OF THE OWNER'S STAFF SHALL BE PROVIDED. NOT LESS THAN 4 HOURS OF TRAINING SHALL BE PROVIDED AT TIMES CONVENIENT TO THE OWNER.

1.3 OPERATION AND MAINTENANCE MANUALS

- A. PROVIDE FIVE COPIES OF OPERATION AND MAINTENANCE MANUALS.
- B. MATERIAL SHALL BE CLEAN AND FILED UNDER DIVIDERS WITH HEADINGS IN ACCORDANCE WITH THE SPECIFICATION ITEM TITLE.

1.4 WARRANTY

- A. THE WORK AND MATERIALS COVERED IN THIS SECTION SHALL BE GUARANTEED FOR A PERIOD OF 1 YEAR FROM THE DATE OF ACCEPTANCE THEREOF AGAINST DEFECTIVE MATERIAL, DESIGN, AND WORKMANSHIP.

PART 2 – PRODUCTS

2.1 SYSTEM, GENERAL

- A. ALL COMPONENTS USED SHALL BE SERVICEABLE, REPAIRABLE, AND REPLACEABLE BY QUALIFIED TEMPERATURE CONTROL TECHNICIANS USING NONPROPRIETARY PARTS, TOOLS, AND INSTRUMENTS.

2.2 TEMPERATURE CONTROL MATERIAL

- A. ELECTRIC DAMPER ACTUATORS
 - 1. ELECTRIC DAMPER ACTUATORS SHALL BE GEAR OR HYDRAULIC TYPE AS SCHEDULED.
 - 2. ACTUATORS SHALL BE PROPERLY SIZED TO PROVIDE SUFFICIENT TORQUE TO POSITION THE DAMPER THROUGHOUT ITS OPERATING RANGE.
 - 3. SPRING RETURN ACTUATORS SHALL BE USED WITH OUTSIDE AIR AND RELIEF AIR DAMPERS.
- B. MOTORIZED CONTROL DAMPERS
 - 1. MOTORIZED CONTROL DAMPERS SHALL BE PARALLEL BLADE FOR TWO-POSITION CONTROL AND OPPOSED BLADE FOR PROPORTIONAL CONTROL APPLICATIONS.
 - 2. DAMPERS SHALL BE BLACK ENAMEL FINISH, GALVANIZED, WITH NYLON BEARINGS.
 - 3. BLADE EDGE AND TIP SEALS SHALL BE INCLUDED FOR ALL DAMPERS.
 - 4. BLADES SHALL BE 16 GAUGE, MINIMUM, AND 10 INCHES WIDE, MAXIMUM THE FRAME SHALL BE WELDED CHANNEL IRON.
 - 5. DAMPERS WITH BOTH DIMENSIONS UNDER 18 INCHES MAY HAVE STRAP IRON FRAMES.
- C. CONTROL VALVES
 - 1. SHALL BE TWO-WAY OR THREE-WAY PATTERN AS SHOWN.
 - 2. CONSTRUCTED FOR TIGHT SHUTOFF.
 - 3. SHALL OPERATE SATISFACTORILY AGAINST SYSTEM PRESSURES AND DIFFERENTIALS.
 - 4. VALVES WITH SIZES UP TO AND INCLUDING 2 INCHES SHALL BE SCREWED.
 - 5. 2 1/2 INCH AND LARGER VALVES SHALL BE FLANGED CONFIGURATION.
 - 6. CONTROL VALVES SHALL BE SIZED FOR A MAXIMUM PRESSURE DROP OF 4.0 PSIG AT RATED FLOW (EXCEPT AS NOTED).
- D. TEMPERATURE CONTROL PANELS (TCP)
 - 1. FURNISH NEMA 1 (INTERIOR) OR NEMA 4 (EXTERIOR) TEMPERATURE CONTROL PANEL OF CODE GAUGE STEEL WITH LOCKING DOORS, FOR MOUNTING AND DEVICES AS SHOWN.
 - 2. THEY SHALL MEET ALL APPLICABLE REQUIREMENTS OF TITLE 24, CALIFORNIA ADMINISTRATIVE CODE.
 - 3. ALL CONTROLLERS, RELAYS, SWITCHES, ETC., FOR EQUIPMENT LOCATED IN MECHANICAL EQUIPMENT ROOMS SHALL BE MOUNTED IN A TOP, AS SHOWN ON THE DRAWINGS.
 - 4. TEMPERATURE SETTINGS, ADJUSTMENTS, AND CALIBRATION SHALL BE DONE AT THE TOP.
 - 5. ALL ELECTRIC DEVICES WITHIN A CONTROL PANEL SHALL BE FACTORY WIRED.
 - 6. PROVIDE ENGRAVED, LAMINATED PLASTIC NAMEPLATES IDENTIFYING ALL DEVICES MOUNTED ON THE FACE OF THE CONTROL PANEL.
 - 7. A COMPLETE SET OF RELATED "AS-BUILT" CONTROL DRAWINGS SHALL BE FURNISHED IN EACH CONTROL PANEL.
- E. ELECTRONIC THERMOMETERS
 - 1. SHALL HAVE 2 PERCENT ACCURACY AND 1 1/2 DEGREES REPEATABILITY.
 - 2. SHALL BE MOUNTED ON THE TEMPERATURE CONTROL PANELS AS SHOWN ON THE TEMPERATURE CONTROL DIAGRAMS.

- 1. FURNISH NEMA 1 (INTERIOR) OR NEMA 4 (EXTERIOR) TEMPERATURE CONTROL PANEL OF CODE GAUGE STEEL WITH LOCKING DOORS, FOR MOUNTING AND DEVICES AS SHOWN.
- 2. THEY SHALL MEET ALL APPLICABLE REQUIREMENTS OF TITLE 24, CALIFORNIA ADMINISTRATIVE CODE.
- 3. ALL CONTROLLERS, RELAYS, SWITCHES, ETC., FOR EQUIPMENT LOCATED IN MECHANICAL EQUIPMENT ROOMS SHALL BE MOUNTED IN A TOP, AS SHOWN ON THE DRAWINGS.
- 4. TEMPERATURE SETTINGS, ADJUSTMENTS, AND CALIBRATION SHALL BE DONE AT THE TOP.
- 5. ALL ELECTRIC DEVICES WITHIN A CONTROL PANEL SHALL BE FACTORY WIRED.
- 6. PROVIDE ENGRAVED, LAMINATED PLASTIC NAMEPLATES IDENTIFYING ALL DEVICES MOUNTED ON THE FACE OF THE CONTROL PANEL.
- 7. A COMPLETE SET OF RELATED "AS-BUILT" CONTROL DRAWINGS SHALL BE FURNISHED IN EACH CONTROL PANEL.

2.3 GENERAL PRODUCT DESCRIPTION

- A. THE ENERGY MANAGEMENT SYSTEM SHALL BE CAPABLE OF INTEGRATING MULTIPLE BUILDING FUNCTIONS, INCLUDING EQUIPMENT SUPERVISION AND CONTROL, ALARM MANAGEMENT, ENERGY MANAGEMENT, AND HISTORICAL DATA COLLECTION AND ARCHIVING.
- B. THE ENERGY MANAGEMENT SYSTEM SHALL CONSIST OF THE FOLLOWING:
 - 1. STAND-ALONG DDC PANELS.
 - 2. STAND-ALONE APPLICATION-SPECIFIC CONTROLLERS (ASCS).
 - 3. PORTABLE OPERATOR'S TERMINALS.
- C. THE SYSTEM SHALL BE MODULAR IN NATURE AND SHALL PERMIT EXPANSION OF BOTH CAPACITY AND FUNCTIONALITY THROUGH THE ADDITION OF SENSORS, ACTUATORS, STAND-ALONG DDC PANELS, AND OPERATOR DEVICES.
- D. SYSTEM ARCHITECTURAL DESIGN ELIMINATES DEPENDENCE UPON ANY SINGLE DEVICE FOR ALARM REPORTING AND CONTROL EXECUTION.
- E. EACH DDC PANEL SHALL OPERATE INDEPENDENTLY BY PERFORMING ITS OWN SPECIFIED CONTROL, ALARM MANAGEMENT, OPERATOR I/O, AND HISTORICAL DATA COLLECTION.
- F. THE FAILURE OF ANY SINGLE COMPONENT OR NETWORK CONNECTION SHALL NOT INTERRUPT THE EXECUTION OF CONTROL STRATEGIES AT OTHER OPERATIONAL DEVICES.
- G. STAND-ALONE DDC PANELS SHALL BE ABLE TO ACCESS ANY DATA FROM OR SEND CONTROL COMMANDS AND ALARM REPORTS DIRECTLY TO ANY OTHER DDC PANEL OR COMBINATION OF PANELS ON THE NETWORK WITHOUT DEPENDENCE UPON A CENTRAL PROCESSING DEVICE.
- H. STAND-ALONE DDC PANELS SHALL ALSO BE ABLE TO SEND ALARM REPORTS TO MULTIPLE-OPERATOR WORKSTATIONS WITHOUT DEPENDENCE UPON A CENTRAL PROCESSING DEVICE.

2.4 NETWORKING/COMMUNICATIONS

- A. THE DESIGN OF THE EMS NETWORK OPERATOR WORKSTATIONS AND STAND-ALONE DDC PANELS, AS SHOWN ON THE DRAWINGS.
- B. INHERENT IN THE SYSTEM'S DESIGN SHALL BE THE ABILITY TO EXPAND OR MODIFY THE NETWORK.
- C. LOCAL AREA NETWORK:
 - 1. WORKSTATION DDC PANEL SUPPORT
 - a. DDC PANELS SHALL DIRECTLY RESIDE ON A LOCAL AREA NETWORK SUCH THAT COMMUNICATIONS MAY BE EXECUTED DIRECTLY BETWEEN CONTROLLERS, DIRECTLY BETWEEN WORKSTATIONS, AND BETWEEN CONTROLLERS AND WORKSTATIONS ON A PEER-TO-PEER BASIS.

2. DYNAMIC DATA ACCESS

- a. ALL OPERATOR DEVICES, EITHER NETWORK RESIDENT OR CONNECTED VIA DIAL-UP MODEMS, SHALL HAVE THE ABILITY TO ACCESS ALL POINT STATUS AND APPLICATION REPORT DATA OR EXECUTE CONTROL FUNCTIONS FOR ANY AND ALL OTHER DEVICES VIA THE LOCAL AREA NETWORK.
- b. ACCESS TO DATA SHALL BE BASED UPON LOGICAL IDENTIFICATION OF BUILDING EQUIPMENT.
- c. ACCESS TO SYSTEM DATA SHALL NOT BE RESTRICTED BY THE HARDWARE CONFIGURATION OF THE ENERGY MANAGEMENT SYSTEM.
- d. THE HARDWARE CONFIGURATION OF THE EMS NETWORK SHALL BE TOTALLY TRANSPARENT TO THE USER WHEN ACCESSING DATA OR DEVELOPING CONTROL PROGRAMS.

- 3. GENERAL NETWORK DESIGN SHALL INCLUDE THE FOLLOWING PROVISIONS:
 - a. HIGH-SPEED DATA TRANSFER RATES FOR ALARM REPORTING, QUICK REPORT GENERATION FROM MULTIPLE CONTROLLERS, AND UPLOAD/DOWNLOAD EFFICIENCY BETWEEN NETWORK DEVICES. THE MINIMUM BAUD RATE SHALL BE 2.5 MEGABAUD.
 - b. SUPPORT OF ANY COMBINATION OF CONTROLLERS AND OPERATOR WORKSTATIONS DIRECTLY CONNECTED TO THE LOCAL AREA NETWORK. A MINIMUM OF 50 DEVICES SHALL BE SUPPORTED ON A SINGLE LOCAL AREA NETWORK.
 - c. DETECTION AND ACCOMMODATION OF SINGLE OR MULTIPLE FAILURES OF EITHER WORKSTATIONS, DDC PANELS, OR THE NETWORK MEDIA. THE NETWORK SHALL INCLUDE PROVISIONS FOR AUTOMATICALLY RECONFIGURING ITSELF TO ALLOW ALL OPERATIONAL EQUIPMENT TO PERFORM THEIR DESIGNATED FUNCTIONS AS EFFECTIVELY AS POSSIBLE IN THE EVENT OF SINGLE OR MULTIPLE FAILURES.
 - d. MESSAGE AND ALARM BUFFERING TO PREVENT INFORMATION FROM BEING LOST.
 - e. ERROR DETECTION, CORRECTION, AND RETRANSMISSION TO GUARANTEE DATA INTEGRITY.
 - f. DEFAULT DEVICE DEFINITION TO PREVENT LOSS OF ALARMS OR DATA, AND ENSURE ALARMS ARE REPORTED AS QUICKLY AS POSSIBLE IN THE EVENT AN OPERATOR DEVICE DOES NOT RESPOND.
 - g. COMMONLY AVAILABLE, MULTIPLE-SOURCED NETWORKING COMPONENTS AND PROTOCOLS SHALL BE USED TO ALLOW THE EMS TO COEXIST WITH OTHER NETWORKING APPLICATIONS, SUCH AS OFFICE AUTOMATION. MAP, ETHERNET, IBM TOKEN RING, AND ARCNET ARE ACCEPTABLE TECHNOLOGIES.
 - h. USE OF AN INDUSTRY STANDARD IEEE 802.X PROTOCOL. COMMUNICATIONS MUST BE OF A DETERMINISTIC NATURE TO ENSURE CALCULABLE PERFORMANCE UNDER WORST-CASE NETWORK LOADING.
 - i. SYNCHRONIZATION OF THE REAL-TIME CLOCKS IN ALL DDC PANELS SHALL BE PROVIDED.

2.5 STAND-ALONE DDC PANELS

- A. GENERAL
 - 1. STAND-ALONE DDC PANELS SHALL BE MICROPROCESSOR-BASED, MULTITASKING, MULTIUSER, REAL-TIME, DIGITAL CONTROL PROCESSORS.
 - 2. EACH STAND-ALONE DDC PANEL SHALL CONSIST OF MODULAR HARDWARE, WITH PLUG-IN ENCLOSED PROCESSORS, COMMUNICATION CONTROLLERS, POWER SUPPLIES, AND INPUT/OUTPUT MODULES.
 - 3. A SUFFICIENT NUMBER OF CONTROLLERS SHALL BE SUPPLIED TO FULLY MEET THE REQUIREMENTS OF THIS SPECIFICATION AND THE ATTACHED POINT LIST.

2.6 SYSTEM SOFTWARE FEATURES

- A. GENERAL
 - 1. ALL NECESSARY SOFTWARE TO FORM A COMPLETE OPERATING SYSTEM AS DESCRIBED IN THIS SPECIFICATION SHALL BE PROVIDED.
 - 2. THE SOFTWARE PROGRAMS SPECIFIED IN THIS SECTION SHALL BE PROVIDED AS AN INTEGRAL PART OF THE DDC PANEL AND SHALL NOT BE DEPENDENT UPON ANY HIGHER-LEVEL COMPUTER FOR EXECUTION.

2.7 APPLICATIONS-SPECIFIC CONTROLLERS, HVAC APPLICATIONS

- A. EACH STAND-ALONE DDC CONTROLLER SHALL BE ABLE TO EXTEND ITS PERFORMANCE AND CAPACITY THROUGH THE USE OF REMOTE APPLICATION-SPECIFIC CONTROLLERS (ASCS).
- B. THE OPERATOR INTERFACE TO ANY ASC POINT DATA OR PROGRAMS SHALL BE THROUGH ANY NETWORK-RESIDENT PC WORKSTATION OR ANY PC OR PORTABLE OPERATOR'S TERMINAL THAT IS CONNECTED TO ANY DDC PANEL IN THE NETWORK.
- C. POWER FAIL PROTECTION
 - 1. ALL SYSTEM SET POINTS, PROPORTIONAL BANDS, CONTROL ALGORITHMS, AND ANY OTHER PROGRAMMABLE PARAMETERS SHALL BE STORED SUCH THAT A POWER FAILURE OF ANY DURATION DOES NOT NECESSITATE REPROGRAMMING THE CONTROLLER.
- D. APPLICATION DESCRIPTION
 - 1. VAV TERMINAL UNIT CONTROLLERS
 - a. VAV TERMINAL UNIT CONTROLLER SHALL SUPPORT, BUT NOT BE LIMITED TO, THE CONTROL OF THE FOLLOWING CONFIGURATIONS OF VAV BOXES TO ADDRESS CURRENT REQUIREMENTS, AS DESCRIBED IN THE EXECUTION PORTION OF THIS SPECIFICATION, AND FOR FUTURE EXPANSION:
 - 1. SINGLE DUCT ONLY (COOLING ONLY OR COOLING WITH REHEAT)
 - 2. FAN POWERED (PARALLEL/SIDE POCKET, SERIES/OFF LOGIC)
 - 3. DUAL DUCT (CONSTANT VOLUME, VARIABLE VOLUME)
 - 4. SUPPLY/EXHAUST
 - b. VAV TERMINAL UNIT CONTROLLERS SHALL SUPPORT THE FOLLOWING TYPES OF POINT INPUTS AND OUTPUTS:
 - 1. PROPORTIONAL COOLING OUTPUTS
 - 2. BOX AND BASEBOARD HEATING OUTPUTS (PROPORTIONAL, OR ONE TO THREE STAGES)
 - 3. FAN CONTROL OUTPUT (ON/OFF LOGIC, OR PROPORTIONAL SERIES FAN LOGIC)
 - c. THE MODES OF OPERATION SUPPORTED BY THE VAV TERMINAL UNIT CONTROLLERS SHALL MINIMALLY INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:
 - 1. DAY/WEEK SCHEDULE
 - 2. COMFORT/OCCUPANCY MODE
 - 3. ECONOMY MODE (STANDBY MODE, UNOCCUPIED, ETC.)
 - 4. TEMPORARY OVERRIDE MODE
 - d. OCCUPANCY-BASED STANDBY/COMFORT MODE CONTROL
 - 1. EACH VAV TERMINAL UNIT CONTROLLER SHALL HAVE A PROVISION FOR OCCUPANCY-SENSING OVERRIDES.
 - 2. BASED UPON THE CONTACT STATUS OF EITHER A MANUAL WALL SWITCH OR AN OCCUPANCY-SENSING DEVICE, THE VAV TERMINAL UNIT CONTROLLER SHALL AUTOMATICALLY SELECT EITHER STANDBY OR COMFORT MODE TO MINIMIZE THE HEATING AND COOLING REQUIREMENTS, WHILE SATISFYING COMFORT CONDITIONS.
 - e. CONTINUOUS ZONE TEMPERATURE HISTORIES
 - 1. EACH VAV TERMINAL UNIT CONTROLLER SHALL AUTOMATICALLY AND CONTINUOUSLY MAINTAIN A HISTORY OF THE ASSOCIATED ZONE TEMPERATURE TO ALLOW USERS TO QUICKLY ANALYZE SPACE COMFORT AND EQUIPMENT PERFORMANCE FOR THE PAST 24 HOURS.
 - 2. A MINIMUM OF TWO SAMPLES PER HOUR SHALL BE STORED.
 - f. ALARM MANAGEMENT
 - 1. EACH VAV TERMINAL UNIT CONTROLLER SHALL PERFORM ITS OWN LIMIT AND STATUS MONITORING AND ANALYSIS TO MAXIMIZE NETWORK PERFORMANCE BY REDUCING UNNECESSARY COMMUNICATIONS.

b. UNITARY CONTROLLERS SHALL SUPPORT THE FOLLOWING TYPES OF POINT INPUTS AND OUTPUTS:

- 1. ECONOMIZER SWITCHOVER INPUTS
 - a. DRY BULB
 - b. OUTDOOR AIR ENTHALPHY
 - c. DIFFERENTIAL TEMPERATURE
 - d. BINARY INPUT FROM A SEPARATE CONTROLLER
- 2. ECONOMIZER OUTPUTS
 - a. INTEGRATED ANALOG, WITH MINIMUM POSITION
 - b. BINARY OUTPUT TO ENABLE SELF-CONTAINED ECONOMIZER ACTUATOR
 - c. HEATING AND COOLING OUTPUTS
 - d. ONE TO THREE STAGES
 - e. ANALOG OUTPUT, WITH TWO-PIPE LOGIC
 - f. REVERSING VALVE LOGIC FOR HEAT PUMPS
- 3. FAN OUTPUT
 - a. ON/OFF LOGIC CONTROL
- c. UNITARY CONTROLLERS SHALL SUPPORT THE FOLLOWING LIBRARY OF CONTROL STRATEGIES TO ADDRESS THE REQUIREMENTS OF THE SEQUENCES DESCRIBED IN THE EXECUTION PORTION OF THIS SPECIFICATION, AND FOR FUTURE EXPANSION:
 - 1. DAILY/WEEKLY SCHEDULES
 - 2. COMFORT/OCCUPANCY MODE
 - 3. ECONOMY MODE
 - a. STANDBY MODE/ECONOMIZER AVAILABLE
 - b. UNOCCUPIED/ECONOMIZER NOT AVAILABLE
 - c. SHUTDOWN
 - d. LIGHTING LOGIC INTERLOCK TO ECONOMY MODE
 - 4. TEMPORARY OVERRIDE MODE
 - a. TEMPORARY COMFORT MODE (OCCUPANCY-BASED CONTROL)
 - b. BOOST (OCCUPANT WARMER/COOLER CONTROL)
- d. OCCUPANCY-BASE STANDBY/COMFORT MODE CONTROL
 - 1. EACH UNITARY CONTROLLER SHALL HAVE A PROVISION FOR OCCUPANCY-SENSING OVERRIDES.
 - 2. BASED UPON THE CONTACT STATUS OF EITHER A MANUAL WALL SWITCH OR AN OCCUPANCY-SENSING DEVICE, THE UNITARY CONTROLLER SHALL AUTOMATICALLY SELECT EITHER STANDBY OR COMFORT MODE TO MINIMIZE THE HEATING AND COOLING REQUIREMENTS, WHILE SATISFYING COMFORT CONDITIONS.
- e. CONTINUOUS ZONE TEMPERATURE HISTORIES
 - 1. EACH UNITARY CONTROLLER SHALL AUTOMATICALLY AND CONTINUOUSLY MAINTAIN A HISTORY OF THE ASSOCIATED ZONE TEMPERATURE TO ALLOW USERS TO QUICKLY ANALYZE SPACE COMFORT AND EQUIPMENT PERFORMANCE FOR THE PAST 24 HOURS. A MINIMUM OF TWO SAMPLES PER HOUR SHALL BE STORED.
- f. ALARM MANAGEMENT
 - 1. EACH UNITARY CONTROLLER SHALL PERFORM ITS OWN LIMIT AND STATUS MONITORING AND ANALYSIS TO MAXIMIZE NETWORK PERFORMANCE BY REDUCING UNNECESSARY COMMUNICATIONS.

3. AHU CONTROLLERS

- a. AHU CONTROLLERS SHALL SUPPORT, BUT NOT BE LIMITED TO, THE FOLLOWING CONFIGURATIONS OF SYSTEMS TO ADDRESS CURRENT REQUIREMENTS, AS DESCRIBED IN THE EXECUTION PORTION OF THIS SPECIFICATION, AND FOR FUTURE EXPANSION:
 - 1. LARGE AIR HANDLING UNITS
 - a. MIXED AIR – SINGLE PATH
 - b. MIXED AIR – DUAL PATH
 - c. 100-PERCENT SINGLE PATH
 - d. 100-PERCENT DUAL PATH
 - b. AHU CONTROLLERS SHALL SUPPORT ALL OF THE NECESSARY POINT INPUTS AND OUTPUTS TO PERFORM THE SPECIFIED CONTROL SEQUENCES IN A TOTALLY STAND-ALONE FASHION.
 - c. AHU CONTROLLERS SHALL HAVE A LIBRARY OF CONTROL ROUTINES AND PROGRAM LOGIC TO PERFORM THE SEQUENCES OF OPERATION, AS SPECIFIED IN THE EXECUTION PORTION OF THIS SPECIFICATION.
 - d. OCCUPANCY-BASED STANDBY/COMFORT MODE CONTROL
 - 1. EACH AHU CONTROLLER SHALL HAVE A PROVISION FOR OCCUPANCY-SENSING OVERRIDES.
 - 2. BASED UPON THE CONTACT STATUS OF EITHER A MANUAL WALL SWITCH OR AN OCCUPANCY-SENSING DEVICE, THE AHU CONTROLLER SHALL AUTOMATICALLY SELECT EITHER STANDBY OR COMFORT MODE TO MINIMIZE THE HEATING AND COOLING REQUIREMENTS, WHILE SATISFYING COMFORT CONDITIONS.
- e. CONTINUOUS ZONE TEMPERATURE HISTORIES
 - 1. EACH AHU CONTROLLER SHALL AUTOMATICALLY AND CONTINUOUSLY MAINTAIN A HISTORY OF THE ASSOCIATED ZONE TEMPERATURE TO ALLOW USERS TO QUICKLY ANALYZE SPACE COMFORT AND EQUIPMENT PERFORMANCE FOR THE PAST 24 HOURS.
 - 2. A MINIMUM OF TWO SAMPLES PER HOUR SHALL BE STORED.
- f. ALARM MANAGEMENT
 - 1. EACH AHU CONTROLLER SHALL PERFORM ITS OWN LIMIT AND STATUS MONITORING AND ANALYSIS TO MAXIMIZE NETWORK PERFORMANCE BY REDUCING UNNECESSARY COMMUNICATIONS.

PART 3 – EXECUTION

3.1 GENERAL

- A. WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER BY CRAFTSMAN SKILLED IN THE PARTICULAR TRADE. WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PLANS, SPECIFICATIONS, MANUFACTURER'S RECOMMENDATIONS, AND THE BEST PRACTICE IN THE TRADE. COMPLETED WORK SHALL PRESENT A NEAT AND FINISHED APPEARANCE.
- B. COORDINATE WORK WITH THE OWNER AND THE WORK OF OTHER TRADES TO AVOID CONFLICTS, ERRORS, DELAYS, AND UNNECESSARY INTERFERENCE DURING CONSTRUCTION.
- C. ALL THERMOSTATS OR TEMPERATURE SENSORS IN THE CONDITIONED SPACE SHALL HAVE BLANK LOCKING COVERS. FURNISH CAST ALUMINUM GUARDS WHERE SHOWN ON THE PLANS.
- D. IDENTIFY EACH ITEM MOUNTED ON THE FACE OF A CONTROL PANEL WITH AN ENGRAVED, PHENOLIC LABEL (1/4-INCH HIGH ENGRAVED LETTERS, MINIMUM). IDENTIFY EACH ITEM OF CONTROL EQUIPMENT (EXCEPT ROOM SENSORS AND THERMOSTATS) WITH STAMPED TAPE FIRMLY ATTACHED TO EQUIPMENT.
- E. ALL CONTROL ADJUSTMENTS SHALL BE ACCESSIBLE WITHOUT USE OF A LADDER.
- F. THERMOSTATS OR SENSORS MOUNTED ON OUTSIDE WALLS SHALL BE MOUNTED ON 1-INCH MINIMUM THICKNESS RIGID FIBERGLASS INSULATING BASE (OR EQUAL).
- G. ALL THERMAL SENSORS IN WATER LINES SHALL BE THE DIRECT-IMMERSION TYPE, INSTALLED THROUGH A "DIRECT-IMMERSION FITTING" CONSISTING OF AN ISOLATION VALVE AND TEFLON PACKING.

3.2 PROTECTION DURING CONSTRUCTION

- A. THROUGHOUT THE CONTRACT, PROVIDE PROTECTION FOR MATERIALS AND EQUIPMENT AGAINST LOSS OR DAMAGE AND FROM THE EFFECTS OF WEATHER.
- B. PRIOR TO INSTALLATION, STORE ITEMS TO BE INSTALLED IN INDOOR LOCATIONS.
- C. ITEMS SUBJECT TO CORROSION UNDER DAMP CONDITIONS AND ITEMS CONTAINING INSULATION, SUCH AS TRANSFORMERS, MOTORS, AND CONTROLS, SHALL BE STORED IN INDOOR, HEATED, DRY LOCATIONS.
- D. FOLLOWING INSTALLATION, PROTECT MATERIALS, EQUIPMENT, AND INSULATION FROM CORROSION, PHYSICAL DAMAGE, AND MOISTURE.
- E. CAP CONDUIT RUNS DURING CONSTRUCTION WITH MANUFACTURED SEALS.

F. KEEP OPENINGS IN BOXES OR EQUIPMENT CLOSED DURING CONSTRUCTION.

- G. PROVIDE TEMPORARY HEATING SOURCE FOR ELECTRICAL EQUIPMENT IN DAMP LOCATIONS OR LOCATIONS SUBJECT TO CONDENSATION, INCLUDING TRANSFORMERS, MOTORS, AND CONTROLS, UNTIL CONSTRUCTION IS COMPLETE AND EQUIPMENT IS ENERGIZED.

3.3 MATERIAL AND EQUIPMENT INSTALLATION

- A. FOLLOW THE MANUFACTURER'S INSTALLATION RECOMMENDATIONS UNLESS OTHERWISE INDICATED.
- B. FOLLOW THE ENGINEER'S DECISION, AT NO ADDITIONAL COST TO THE OWNER, WHEREVER ANY CONFLICT ARISES BETWEEN THE MANUFACTURER'S INSTRUCTION, STATE, OR OTHER CODES AND REGULATIONS, AND THESE CONTRACT DOCUMENTS.
- C. KEEP COPY OF THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AVAILABLE ON THE JOBSITE FOR REVIEW AT ALL TIMES.
- D. INSTALL FREESTANDING EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, UNLESS NOTED OTHERWISE, MOUNT FREESTANDING EQUIPMENT ON A 3 1/2 INCH CONCRETE PAD.
- E. SECURE MOTOR CONTROL CENTERS (MCCS) AND OTHER FREESTANDING EQUIPMENT RIGIDLY TO FLOORS TO MOUNTING PADS WITH ANCHOR BOLTS, EXPANSION SHIELDS, OR OTHER APPROVED MEANS.
- F. GROUT MOUNTING CHANNELS PROVIDED WITH MCCS INTO THE FLOOR OR MOUNTING PADS, UNLESS THE MCCS ARE FIRMLY ANCHORED WITH THE SPECIFIED CONCRETE ANCHORS, IN WHICH CASE THE CHANNELS ARE NOT REQUIRED.

3.4 CUTTING AND PATCHING

- A. DO NOT CUT OR NOTCH ANY STRUCTURAL MEMBER OR BUILDING SURFACE WITHOUT SPECIFIC APPROVAL OF THE ENGINEER.
- B. WHERE POSSIBLE, AVOID ANY CUTTING, CHANNELING, CHASING, OR DRILLING OF FLOORS, WALLS, PARTITIONS, CEILINGS, PAVING, OR OTHER SURFACES.
- C. USE CLAMPS AND CHANNEL WHERE REQUIRED FOR THE INSTALLATION, SUPPORT, OR ANCHORAGE OF CONDUIT, RACEWAYS, OR OTHER ELECTRICAL MATERIALS AND EQUIPMENT.
- D. FOLLOWING SUCH WORK, RESTORE SURFACES NEATLY TO NEW CONDITION USING SKILLED CRAFTSMEN OF THE TRADES INVOLVED, AT NO ADDITIONAL COST TO THE OWNER.

3.5 CLEANING AND TOUCHUP PAINTING

- A. KEEP THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIAL OR RUBBISH.
- B. UPON COMPLETION OF WORK, REMOVE MATERIALS, SCRAPS, AND DEBRIS FROM THE PREMISES AND FROM THE INTERIOR AND EXTERIOR OF ALL DEVICES AND EQUIPMENT.
- C. REFINISH DAMAGED SURFACES TO NEW CONDITION USING SKILLED CRAFTSMEN OF THE TRADES INVOLVED, AT NO ADDITIONAL COST TO THE OWNER.

3.6 INSTALLATION

- A. ELECTRICAL WORK
 - 1. ALL TEMPERATURE CONTROL AND INTERLOCK WIRING SHALL BE PLENUM-RATED CABLE.
 - 2. POWER OR INTERLOCK WIRING SHALL BE RUN IN SEPARATE CONDUIT FORM SENSOR WIRING.
 - 3. WIRING SHALL CONFORM TO THE NATIONAL ELECTRICAL CODE.
 - 4. ALL WIRING OF ANY NATURE IN CONNECTION WITH TEMPERATURE CONTROL SYSTEM, REGARDLESS OF VOLTAGE, INCLUDING TEMPERATURE CONTROL WIRING, INTERLOCKING, AND THE LIKE, SHALL BE INCLUDED IN THE AIR CONDITIONING WORK.

END OF SECTION



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LICENSE STAMP



CONSULTANTS

PROJECT NAME

SHERIFF OFFICE REMODEL

FOR

HUMBOLDT COUNTY

826 4TH STREET
EUREKA, CA 95501

NO. REVISIONS DATE

SHEET TITLE

CONTROL SPECIFICATIONS

ISSUED FOR:

CONSTRUCTION DOCUMENTS

DATE: 06/24/2024

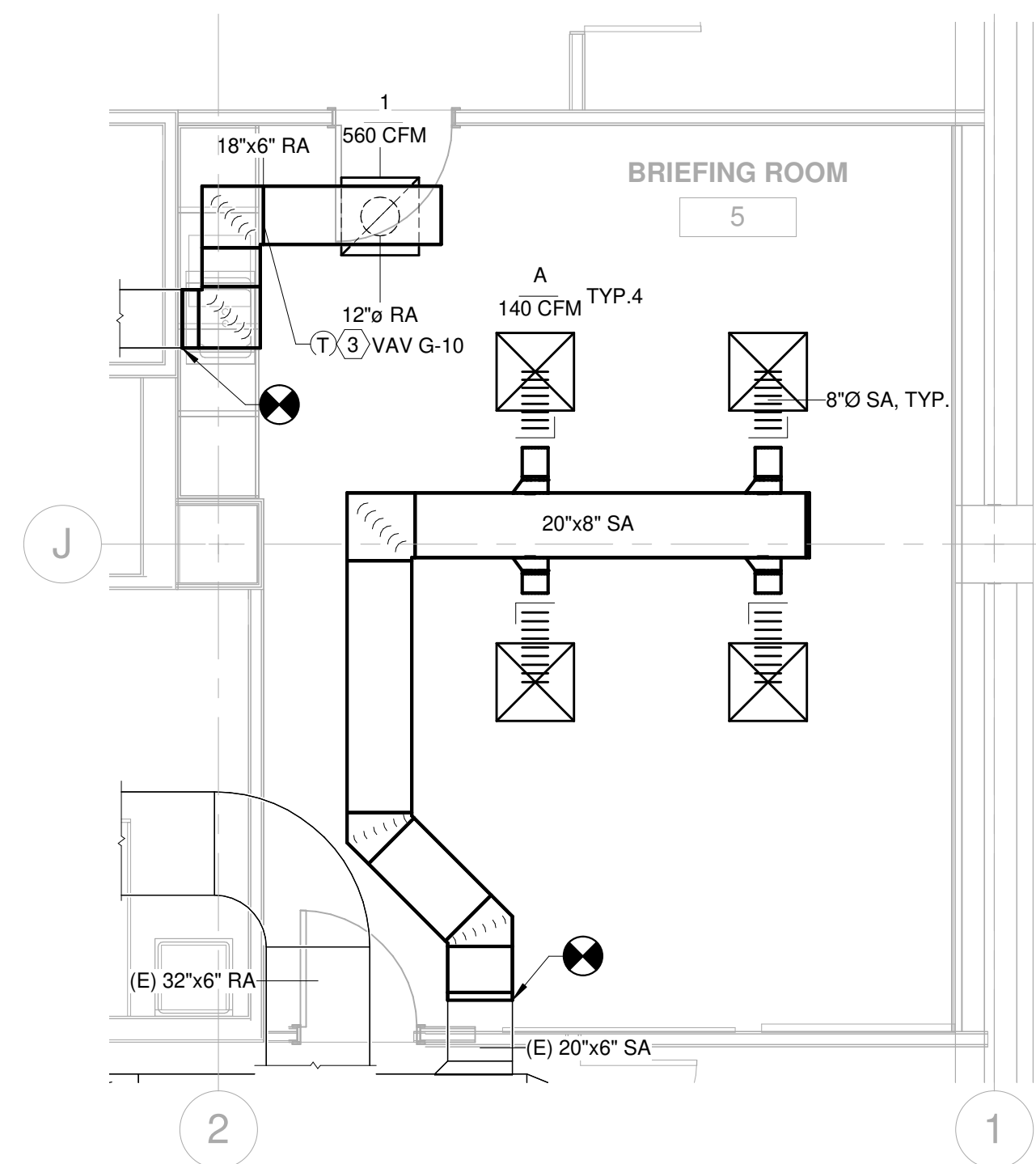
DRAWN BY: JW

REVIEWED BY: NW

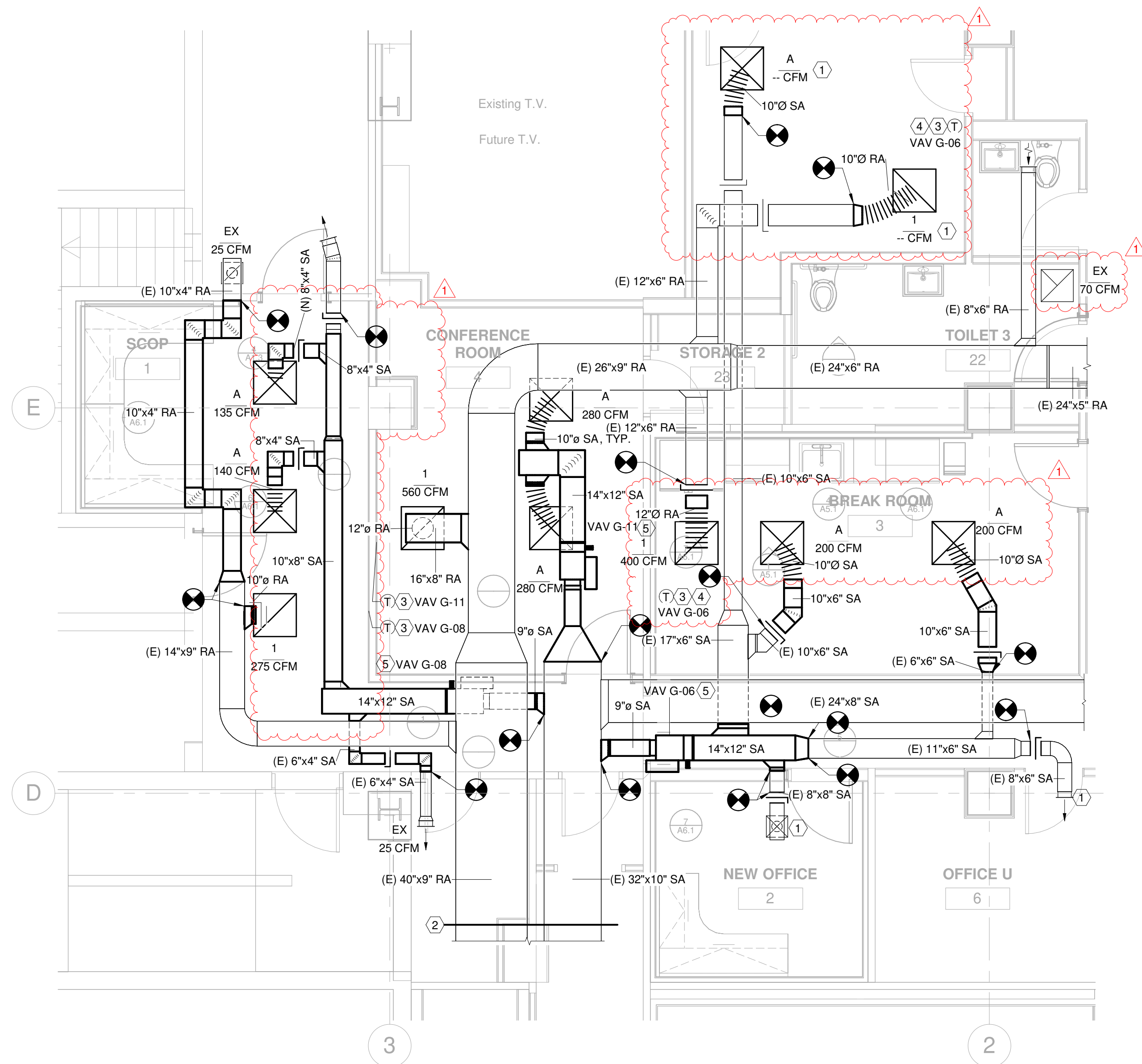
SCALE:

PROJECT NO: 2026-501

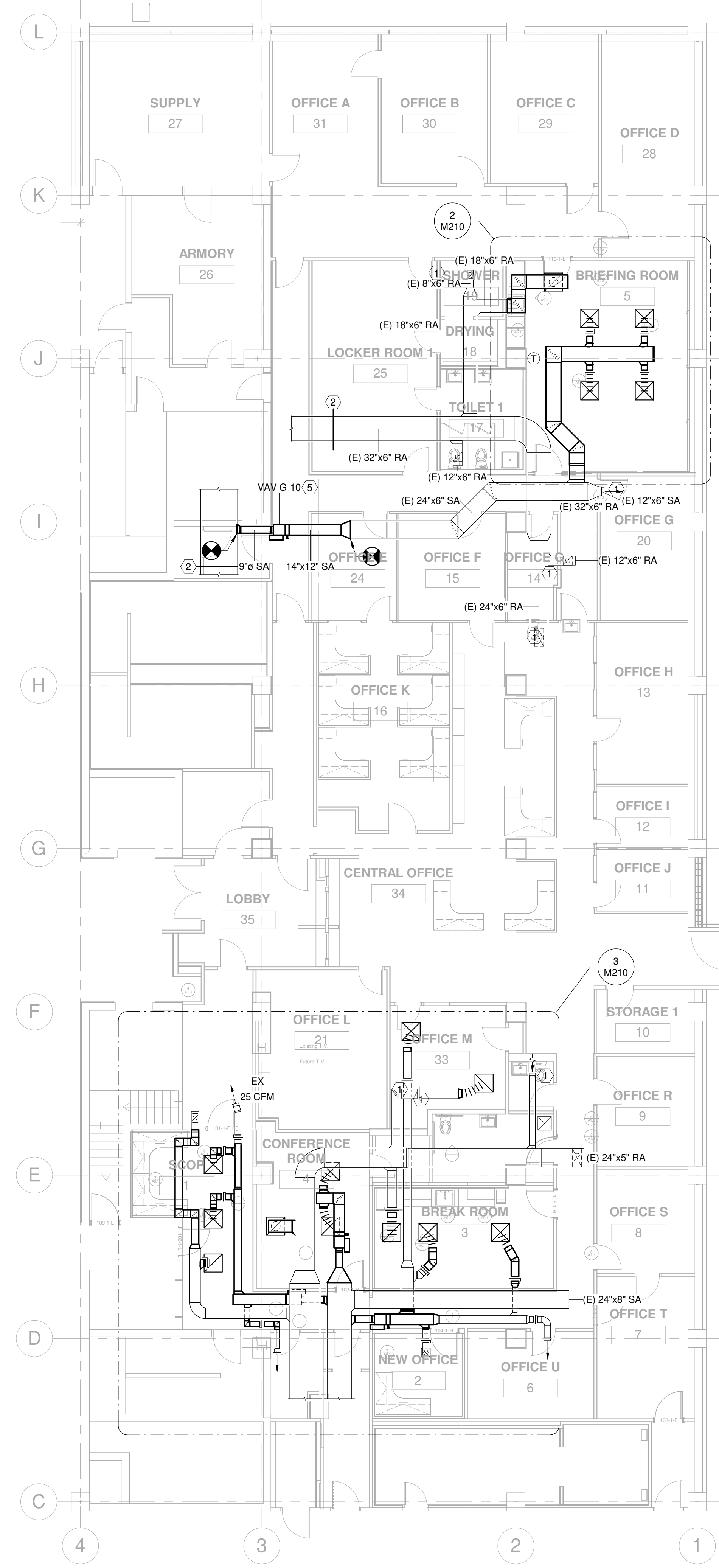
M103



2 ENLARGED MECHANICAL PLAN - PHASE 1B
M210 1/4" = 1'-0"



3 ENLARGED MECHANICAL PLAN - PHASE 1A
M210 1/4" = 1'-0"



1 OVERALL MECHANICAL PLAN
M210 1/8" = 1'-0"

- KEYED NOTES:
- 1 BALANCE REGISTER TO MATCH PRE-CONSTRUCTION VALUE.
 - 2 MEASURE AIRFLOW USING PITOT TUBE TRAVERSE AT THIS LOCATION PER AIR BALANCE PROCEDURES ON M100. BALANCE SYSTEM TO MATCH PRE-CONSTRUCTION VALUE. ADJUSTED FOR THE CHANGES INDICATED AT NEW AIR TERMINALS.
 - 3 MOUNT TEMPERATURE SENSOR 48" ABOVE FINISHED FLOOR. COORDINATE FINAL LOCATION WITH OWNER.
 - 4 THE AVERAGE TEMPERATURE READING OF THE TWO VAV G-06 TEMPERATURE SENSORS SHALL BE USED TO CONTROL VAV G-06.
 - 5 RECONNECT TO EXISTING HYDRONIC HOT WATER PIPING



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LICENSE STAMP

CONSULTANTS

PROJECT NAME
SHERIFF OFFICE
REMODEL

FOR
HUMBOLDT COUNTY

826 4TH STREET
EUREKA, CA 95501

| NO. | REVISIONS | DATE |
|-----|------------------|----------|
| 1 | Add ADA Restroom | 11/21/25 |

SHEET TITLE
MECHANICAL PLANS

ISSUED FOR:
CONSTRUCTION
DOCUMENTS

DATE: 06/24/2024
DRAWN BY: JW
REVIEWED BY: NW
SCALE: As indicated
PROJECT NO: 2026-501

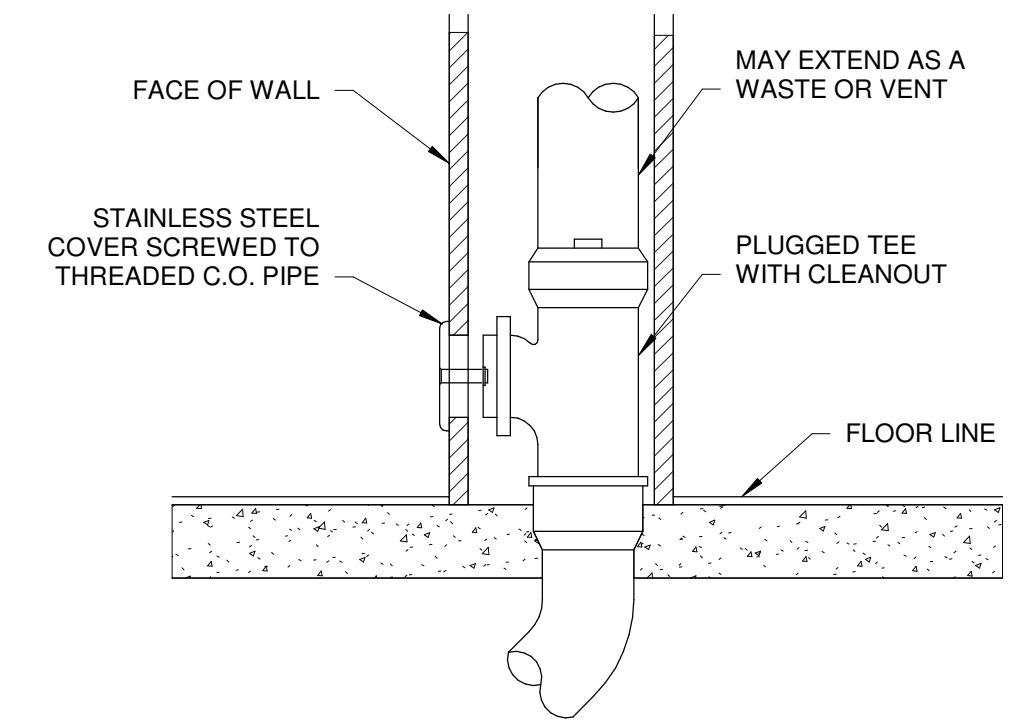
M210

| PLUMBING LEGEND | | |
|-----------------|---------------|-------------------------------|
| SYMBOLS | ABBREVIATIONS | |
| | ABC | ABOVE CEILING |
| | BFP | BACKFLOW PREVENTER |
| | BG | BELOW GRADE |
| | BS | BELOW SLAB |
| | CW | COLD WATER SUPPLY |
| | CD | CONDENSATE DRAIN |
| | CDO | CONDENSATE DRAIN OVERFLOW |
| | | CONNECTION TO BOTTOM OF PIPE |
| | | CONNECTION TO TOP OF PIPE |
| | D | DEMO |
| | | DOMESTIC COLD WATER |
| | | DOMESTIC HOT WATER |
| | DN | DOWN |
| | DIW | DOWN IN WALL |
| | E, EX | EXISTING |
| | | FLANGE |
| | FCO | FLOOR CLEAN OUT |
| | FD | FLOOR DRAIN |
| | FS | FLOOR SINK |
| | GSM | GALVANIZED SHEET METAL |
| | GCO | GRADE CLEAN OUT |
| | GW | GREASE WASTE |
| | HB | HOSE BIB |
| | HW | HOT WATER SUPPLY |
| | HWR | HOT WATER RECIRC |
| | N | NEW |
| | | NEW CONNECTION TO EXISTING |
| | OH | OVERHEAD |
| | | PIPE CAP |
| | | PIPE TURNED DOWN |
| | | PIPE TURNED UP |
| | | PRESSURE GAUGE |
| | | PRESSURE REGULATOR |
| | | P-TRAP |
| | | RELIEF VALVE |
| | | REMOVE TO THIS POINT |
| | SS | SANITARY SEWAGE (BELOW GRADE) |
| | SOV | SHUT-OFF VALVE |
| | SK | SINK |
| | | STRAINER |
| | | THERMOMETER |
| | TMV | THERMOSTATIC VALVE |
| | TP | TRAP PRIMER |
| | | TRIPLE DUTY VALVE |
| | UG | UNDERGROUND |
| | | UNION |
| | UIW | UP IN WALL |
| | UR | URINAL |
| | V | VENT |
| | VTR | VENT TO ROOF |
| | WC | WATER CLOSET |
| | WHA | WATER HAMMER ARRESTER |
| | WCO | WALL CLEANOUT |

| PLUMBING FIXTURE SCHEDULE | | | | | |
|---------------------------|-----------|----------------|---|----------|-----------------|
| ID | Make | Model No. | Description | Mounting | Material |
| WC-1 | -- | -- | EXISTING WATER CLOSET TO BE REUSED. | FLOOR | -- |
| L-1 | -- | -- | EXISTING LAVATORY TO BE REUSED. PROVIDE NEW CHICAGO FAUCETS H-T11H-63ABCPT SENSOR FAUCET, 12 VOLT DC, LONG TERM POWER SUPPLY BACKUP, 0.5 GPM, SINGLE HOLE. CONTRACTOR SHALL DETERMINE WETHER DECK ACCESSORY PLATE IS REQUIRED. MOUNT ALL PIPING AND ACCESSORIES AS HIGH AS POSSIBLE UNDER LAVATORY. COORDINATE POWER REQUIREMENTS WITH ELECTRICIAN. | COUNTER | -- |
| SK-1 | JUST MFG. | SLADA1921A65-J | SINGLE BOWL STAINLESS STEEL SINK WITH 3 HOLES ON 4" CENTERS PUNCH. REAR CENTER WASTE OUTLET, CHICAGO FAUCETS 786-GN2FC369ABCP, 1.5 GPM LAMINAR FLOW, 5-1/4" RIGID/SWING GOOSENECK SPOUT, 8" FIXED CENTERS, CHICAGO 1013-ABCP ANGLE STOPS, 1/2" INLET, 3/8" COMPRESSION OUTLET. LOOSE KEY OPERATED. MOUNT TO MEET ADA REQUIREMENTS. PROVIDE WITH ZURN 1070XL ASSE 1070 LISTED MIXING VALVE. DIMENSIONS: 22" X 19-1/2" X 6-1/2" | COUNTER | STAINLESS STEEL |
| WB-1 | GUY GRAY | SSMIB6AB | ICEMAKER OUTLET BOX WITH 1/2" INLET CONNECTION, QUARTER TURN HAMMER ARRESTER VALVE. | WALL | STAINLESS STEEL |

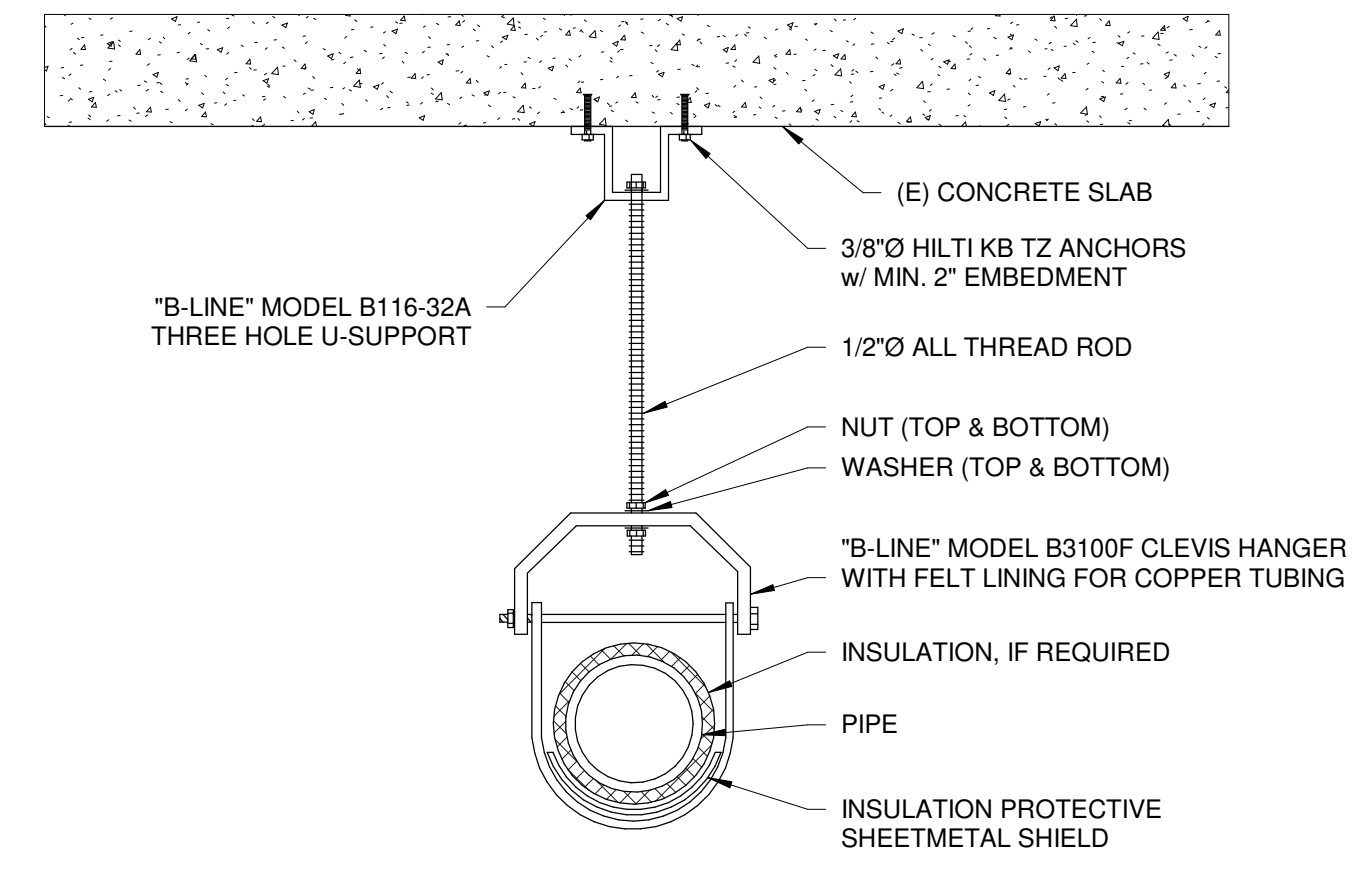
| PLUMBING FIXTURE CONNECTION SCHEDULE | | | | | | | |
|--------------------------------------|--------------|------------|-------|--------|--------|------|--|
| ID | Description | Accessible | Waste | Vent | CW | HW | |
| WC-1 | WATER CLOSET | YES | 4" | 2" | 1-1/2" | -- | |
| L-1 | LAVATORY | YES | 2" | 1-1/2" | 1/2" | 1/2" | |
| SK-1 | SINK | YES | 2" | 1-1/2" | 1/2" | 1/2" | |
| WB-1 | WALL BOX | NO | -- | -- | 1/2" | -- | |

| PIPING MATERIALS SCHEDULE | | | | |
|---------------------------|------------------------|------|-----------------------------------|--|
| Service | Location | Size | Material | Notes |
| WASTE & VENT | INTERIOR, AFF | ALL | STANDARD WEIGHT HUBLESS CAST IRON | SLOPED AT 1/4" PER FOOT |
| | INTERIOR, BELOW SLAB | | STANDARD WEIGHT HUBLESS CAST IRON | |
| CW / HW | INTERIOR, ABOVE GROUND | ALL | TYPE "L" COPPER | PEX PIPING NOT ACCEPTABLE; INSULATE PER SECTION 22 00 00 |
| | INTERIOR, BELOW SLAB | ALL | TYPE "K" COPPER | |



NOTES:
 1. POSITION PIPE TO AVOID OBSTRUCTIONS TO CLEAN-OUTS.
 2. PROVIDE C.O. AT ALL VERTICAL SANITARY/VENT STACKS.

1 WALL CLEAN-OUT DETAIL
 P100 NOT TO SCALE



2 PIPE HANGER DETAIL
 P100 NOT TO SCALE



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LICENSE STAMP



CONSULTANTS

PROJECT NAME

SHERIFF OFFICE
 REMODEL

FOR

HUMBOLDT COUNTY

826 4TH STREET
 EUREKA, CA 95501

| NO. | REVISIONS | DATE |
|-----|------------------|----------|
| 1 | Add ADA Restroom | 11/21/25 |

SHEET TITLE

PLUMBING LEGENDS
 AND SCHEDULES

ISSUED FOR:
 CONSTRUCTION DOCUMENTS

| | |
|--------------|--------------|
| DATE: | 06/24/2024 |
| DRAWN BY: | JW |
| REVIEWED BY: | NW |
| SCALE: | 1/8" = 1'-0" |
| PROJECT NO: | 2026-501 |

P100

PLUMBING SPECIFICATION

PART 1 – GENERAL

- 1.1 INCLUDED
- A. THIS SPECIFICATION ESTABLISHES THE REQUIRED STANDARDS FOR ALL LABOR, MATERIALS, EQUIPMENT, AND WORKMANSHIP IN CONNECTION WITH THE FURNISHING, FABRICATION, AND INSTALLATION OF "PLUMBING."
- 1.2 CODES AND STANDARDS
- A. ALL WORK SHALL BE DONE IN CODE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL BUILDING SAFETY CODES, ORDINANCES, AND REGULATIONS. ADDITIONALLY, ALL WORK SHALL CONFORM TO THE LATEST EDITIONS OF THE FOLLOWING STANDARDS:
- NATIONAL FIRE PROTECTION ASSOCIATION.
 - CALIFORNIA MECHANICAL CODE.
 - CALIFORNIA PLUMBING CODE.
 - UNDERWRITERS LABORATORIES.
 - TITLES 8, 17, 19, 21, 24 OF THE CALIFORNIA CODE OF REGULATIONS.
 - CALIFORNIA ELECTRIC CODE.
- B. WHEN THE CONTRACT DOCUMENTS CALL FOR MATERIALS OR CONSTRUCTION OF A HIGHER STANDARD THAN IS REQUIRED BY THE ABOVE, THE CONTRACT DOCUMENT REQUIREMENTS SHALL TAKE PRECEDENCE OVER THE REQUIREMENTS OF THE APPLICABLE LAWS, ORDINANCES, RULES, OR REGULATIONS. NOTHING IN THE CONTRACT DOCUMENTS SHALL BE INTERPRETED AS PERMITTING WORK IN VIOLATION OF SAID LAWS, RULES, AND/OR REGULATIONS.
- C. THE CONTRACTOR FOR THIS WORK SHALL FURNISH, WITHOUT EXTRA CHARGE, ANY ADDITIONAL MATERIALS AND/OR LABOR AS MAY BE REQUIRED FOR COMPLIANCE WITH THESE LAWS, RULES, AND/OR REGULATIONS THOUGH SUCH MATERIALS AND/OR LABOR ARE NOT SPECIALLY SET FORTH IN THE CONTRACT DOCUMENTS.
- 1.3 LICENSING REQUIREMENTS
- A. ALL PLUMBING SYSTEMS SHALL BE INSTALLED BY A C-36 PLUMBING CONTRACTOR. PLUMBING SYSTEMS INCLUDE: WASTE REMOVAL AND CONNECTION OF ON-SITE WASTE DISPOSAL SYSTEMS; PIPING, STORAGE TANKS, AND VENTING FOR SUPPLY OF GASES AND LIQUIDS FOR ANY PURPOSE; ALL GAS APPLIANCES, FLUES, AND GAS CONNECTIONS; WATER AND GAS PIPING FROM THE OWNER'S SIDE OF UTILITY METER TO THE STRUCTURE OR FIXED WORKS; INSTALLATION OF ANY TYPE OF EQUIPMENT TO HEAT WATER OR FLUIDS TO A SUITABLE TEMPERATURE; AND MAINTENANCE AND REPLACEMENT OF THE ITEMS DESCRIBED ABOVE, INCLUDING HEALTH AND SAFETY DEVICES.
- B. ALL HYDRONIC PIPING SYSTEMS SHALL BE INSTALLED BY A C-4 – BOILER, HOT WATER HEATING AND STEAM FITTING CONTRACTOR.
- C. ALL PLUMBING AND HYDRONIC PIPING INSULATION SHALL BE PERFORMED BY A C-2 – INSULATION AND ACOUSTICAL CONTRACTOR.
- 1.4 COOPERATION WITH OTHER TRADES
- A. COOPERATE FULLY WITH OTHER TRADES DOING WORK ON THE PROJECT AS MAY BE NECESSARY FOR THE PROPER COMPLETION OF THE PROJECT. REFER TO THE STRUCTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR DETAILS OF THE BUILDING AND EQUIPMENT INSTALLATION THAT WILL TEND TO OVERLAP, CONFLICT WITH OR REQUIRE COORDINATION WITH THE WORK OF THIS SECTION, AND SCHEDULE THIS WORK ACCORDINGLY.
- B. ANY WORK DONE WITHOUT REGARD FOR OTHER TRADES SHALL BE MOVED, REPLACED, OR REDONE AS REQUIRED, WITHOUT EXTRA CHARGES TO OWNER.
- 1.5 AS-BUILT DRAWINGS
- A. A COMPLETE SET OF CONTRACT DRAWINGS SHALL BE MAINTAINED AT THE WORK SITE, AND ALL CHANGES IN THE WORK SHALL BE RECORDED ON THIS SET, ON A DAILY BASIS. THE FINAL AS-BUILT DRAWINGS SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR APPROVAL.
- 1.6 DRAWINGS
- A. THE DRAWINGS INDICATE DIAGRAMMATICALLY THE GENERAL LAYOUT OF THE PLUMBING SYSTEMS AND OTHER RELATED WORK. FIELD VERIFICATION OF SCALED DIMENSIONS TAKEN FROM THE DRAWINGS IS REQUIRED.
- B. THE CONTRACTOR SHALL REVIEW AND COMPARE THE ARCHITECTURAL, STRUCTURAL, PLUMBING, MECHANICAL, AND ELECTRICAL DRAWINGS AND ALL OWNER SUPPLIED EQUIPMENT DRAWINGS, AND ADJUST THEIR WORK TO BE IN CONFORMITY WITH THE CONDITIONS INDICATED THEREON. DISCREPANCIES BETWEEN DRAWINGS, BETWEEN DRAWINGS AND ACTUAL FIELD CONDITIONS, OR BETWEEN DRAWINGS AND SPECIFICATIONS, SHALL PROMPTLY BE BROUGHT TO THE ATTENTION OF THE ARCHITECT FOR A DETERMINATION OF THE MODIFICATIONS TO BE EFFECTED. IN THE EVENT THAT A MAJOR MODIFICATION IS REQUIRED, A CHANGE ORDER WILL BE PREPARED.
- 1.7 VERIFICATION OF EXISTING CONDITIONS AND DEMOLITION
- A. BEFORE INSTALLATION OF ANY NEW WORK, VERIFY THE LOCATION, SIZE, AND OTHER CONDITIONS AT ALL POINTS OF CONNECTION TO SERVICES OR OTHER EXISTING PIPING, AND AT ALL LOCATIONS WHERE NEW WORK WILL CROSS OR PASS NEAR EXISTING PIPING, ELECTRICAL, OR OTHER FACILITIES.
- B. PATCH, CAP, OR REPAIR EXISTING WORKS AFFECTED BY THIS DEMOLITION IN CONCEALED SPACES WITHIN SIX (6) INCHES OF A LIVE MAIN OR BRANCH.
- C. DELIVER REMOVED MATERIAL TO THE OWNER AS DIRECTED BY THE ARCHITECT. DISPOSE OF ALL OTHER REMOVED MATERIAL OFFSITE.
- D. INFORMATION SHOWN RELATIVE TO EXISTING SERVICES IS BASED UPON AVAILABLE RECORDS AND DATA DURING PREPARATION OF THE DRAWINGS, BUT SHALL BE VERIFIED. MAKE REASONABLE DEVIATIONS FOUND NECESSARY TO CONFORM TO ACTUAL LOCATIONS AND CONDITIONS, WITHOUT EXTRA CHARGE.
- E. THE DATA GIVEN HEREIN AND ON THE DRAWINGS ARE AS EXACT AS COULD BE REASONABLY SECURED, BUT ABSOLUTE ACCURACY IS NOT GUARANTEED. EXACT LOCATIONS, DISTANCES, ELEVATIONS, ETC. WILL BE GOVERNED BY SHOP DRAWINGS, THE BUILDING ITSELF, AND ACTUAL FIELD CONDITIONS.
- 1.8 DELIVERY, STORAGE, AND HANDLING
- A. CONTRACTOR SHALL BE RESPONSIBLE FOR DELIVERY, STORAGE, PROTECTION, AND PLACING OF ALL EQUIPMENT AND MATERIALS.
- CONTRACTOR SHALL PROTECT THE WORK AND MATERIALS FROM DAMAGE DURING CONSTRUCTION. EQUIPMENT STORED AT THE JOB SITE SHALL BE PROTECTED FROM DUST, WATER, OR OTHER DAMAGE, AND BE COVERED IF EQUIPMENT IS EXPOSED TO WEATHER. PROTECT INTERIORS OF NEW EQUIPMENT AND PIPING SYSTEMS AGAINST ENTRY OF FOREIGN MATTER. CLEAN BOTH INSIDE AND OUTSIDE BEFORE PAINTING OR PLACING EQUIPMENT IN OPERATION.
 - ANY ITEMS DAMAGED SHALL BE REPAIRED OR REPLACED, AT NO ADDITIONAL COST TO THE OWNER.
- B. CLEANLINESS OF PIPING AND EQUIPMENT SYSTEMS
- EXERCISE CARE IN STORAGE AND HANDLING OF EQUIPMENT AND PIPING MATERIAL TO BE INCORPORATED IN THE WORK. REMOVE DEBRIS ARISING FROM CUTTING, THREADING, AND WELDING OF PIPING.
 - PIPING SYSTEMS SHALL BE FLUSHED, BLOWN, OR PIGGED AS NECESSARY TO DELIVER CLEAN SYSTEMS.
 - CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ALL COSTS, DAMAGE, AND DELAY ARISING FROM FAILURE TO PROVIDE CLEAN SYSTEMS.
- 1.9 WARRANTIES
- A. EQUIPMENT WARRANTIES SHALL BE PROVIDED FOR ALL EQUIPMENT, WITH ALL NECESSARY INFORMATION FILLED IN, EXCEPT PURCHASE DATE, IN FAVOR OF THE OWNER.
- B. THE CONTRACTOR SHALL GUARANTEE THAT ALL WORK UNDER THIS SECTION IS FREE FROM DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF FILING THE NOTICE OF COMPLETION. REPLACEMENT OF DEFECTIVE WORK AND DAMAGE CAUSED TO WORK OF OTHER TRADES AS A RESULT OF SUCH DEFECTIVE WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND SHALL BE MADE AT NO COST TO THE OWNER.
- 1.10 ALTERNATIVE MATERIALS AND METHODS
- A. THESE PLANS AND SPECIFICATIONS DESCRIBE THE GENERAL SCOPE OF THE MECHANICAL SYSTEMS. THESE PLANS AND SPECIFICATIONS DO NOT PRECLUDE THE SUBMITTAL OF ALTERNATIVE METHODS OR MATERIALS. MANUFACTURER'S NAMES AND CATALOG NUMBERS ARE STATED TO IDENTIFY THE TYPE AND QUALITY OF THE EQUIPMENT OR MATERIALS REQUIRED FOR THE PROJECT.

- B. THE CONTRACTOR MAY SUBMIT SHOP DRAWINGS AND/OR TECHNICAL INFORMATION ON ALTERNATIVE EQUIPMENT, MATERIALS OR INSTALLATION DETAILS TO ACCOMPLISH THE INTENT OF THE PLANS AND SPECIFICATIONS. APPROVAL OF THE ALTERNATIVE EQUIPMENT, MATERIALS OR INSTALLATION DETAILS SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY FOR COMPLYING WITH THE INTENT OF THE PLANS AND SPECIFICATIONS. SUBMIT THE MANUFACTURERS' TECHNICAL INFORMATION, SHOP DRAWINGS, AND/OR WRITTEN DESCRIPTION OF ALTERNATIVE METHODS FOR EACH ITEM DESCRIBED BY MANUFACTURER'S NAME AND CATALOG NUMBER AND FOR EACH COMPONENT, EQUIPMENT, MATERIAL, OR INSTALLATION DETAIL REQUIRED.

PART 2 – PRODUCTS

- 2.1 UNIONS
- A. STEEL PIPE UNIONS SHALL BE MALLEABLE IRON, 150LB., GROUND JOINT, GRINNELL FIG. 463.
- B. COPPER PIPE UNIONS SHALL BE SOLDERED JOINT, NIBCO SERIES 633 OR 733, MUELLER, OR EQUAL.
- C. DIELECTRIC UNIONS SHALL BE EP CO OR EQUAL.
- 2.2 VALVES, SPECIALTIES
- A. BALL VALVES, POTABLE WATER UP TO 2"; NIBCO T-585-80-LF, LEAD-FREE SILICON BRONZE BODY, "RING BALL," FULL PORT, TWO PIECE, LEVER HANDLE, 125 LB.
- B. BALL VALVES, POTABLE WATER OVER 2"; NIBCO T-580-80-LF, LEAD-FREE SILICON BRONZE BODY, "RING BALL," CONVENTIONAL PORT, TWO PIECE, LEVER HANDLE, 125 LB.
- C. CHECK VALVES, POTABLE WATER: NIBCO T-480-LF, LEAD-FREE SILICON BRONZE BODY, INLINE LIFT TYPE, TEFLON SEAT, AND DISCS, SPRING ACTUATED, 125 LB. NIBCO T-413-Y-LF, LEAD-FREE SILICON BRONZE BODY, Y-PATTERN LIFT TYPE, CLASS 200.
- D. RELIEF VALVES: WATER HEATER TEMPERATURE/PRESSURE RELIEF VALVE, WATTS, M&M, OR EQUAL WITH ASME RATING, AND AGA CERTIFIED DESIGN. SET AT 125 PSI AND 210°F.
- E. BACKFLOW PREVENTERS (WHERE SHOWN ON THE DRAWINGS OR REQUIRED BY LOCAL CODE): REDUCED PRESSURE TYPE: 1/4" TO 2" – WILKINS #975-XLMS SERIES, 2 1/2" TO 10" – WILKINS #375 SERIES.
- F. WATER PRESSURE REGULATING VALVES: WILKINS 500 YBSR SERIES. INSTALL WHERE PRESSURE TO BUILDING EXCEEDS 70 PSI.
- 2.3 CLEANOUTS
- A. CLEANOUTS IN MEMBRANE DAMP-PROOFED FLOORS SHALL HAVE FLASHING FLANGE AND MEMBRANE CLAMPS. PLUGS SHALL BE BRONZE, WITH CAST IRON BODY FERRULE FOR CAST IRON PIPE.
- B. FLOOR CLEANOUTS (FCO): ZURN ZN 1400-HD, "LEVEL-TROL" ADJUSTABLE CLEANOUTS, DURA-COATED CAST IRON WITH GAS AND WATER-TIGHT ABS TAPERED THREAD PLUG, AND ROUND SCORIATED TOP, ADJUSTABLE TO FINISHED FLOOR.
- C. GRADE CLEANOUTS (GCO): ZURN Z-1474-IN OR EQUAL JR SMITH. HOUSING TO BE DURA-COATED CAST IRON BODY WITH INTEGRAL ANCHOR FLANGE AND SCORIATED COVER WITH LIFTING DEVICE. CLEANOUTS IN UNPAVED AREAS SHALL BE SET IN 18" X 18" X 4" CONCRETE PADS.
- D. WALL CLEANOUTS (WCO): CAST IRON PIPE: ZURN Z-1441, DURA-COATED WITH GAS AND WATER-TIGHT BRONZE, TAPER THREAD PLUG AND ROUND SMOOTH STAINLESS STEEL ACCESS COVER WITH SECURING SCREW.
- 2.4 SLEEVES, WALL PLATES
- A. SERVICE PIPE THROUGH EXTERIOR WALL, ROOFS: CRANE STYLE BC WALL AND CEILING PLATES; CHROME PLATED AT FINISHED ROOMS.
- B. PIPES THROUGH, UNDER FOOTINGS: 18 GAUGE IRON SLEEVES TWO DIAMETERS LARGER THAN PIPE, CAST IN CONCRETE, ANNULAR SPACE FILLED WITH MASTIC OR PLASTIC BITUMINOUS CEMENT.
- C. PIPES THROUGH FIRE RATED WALLS SHALL BE PROTECTED WITH FIRE RETARDANT MASTIC AS DETAILED ON THE DRAWINGS. INSTALLATION SHALL BE IN FULL ACCORDANCE WITH THE REQUIREMENTS OF THE UL SYSTEM NUMBER. HILTI OR APPROVED EQUAL.
- D. WALL AND CEILING PLATES: CRANE STYLE BC OR EQUAL; CHROME PLATED AT FINISHED ROOMS.
- E. PIPES THROUGH FLOORS, INTERIOR CONCRETE WALLS, AND THROUGH FIRE RATED WALL AND SMOKE STOP PARTITIONS: 18 GAUGE IRON SLEEVES, TWO DIAMETERS LARGER THAN PIPE, ANNULAR SPACE FILLED WITH 3M BRAND FIRE BARRIER CP-25 CAULK.
- F. PIPES THROUGH 1-HOUR WALLS SHALL BE PROTECTED WITH FIRE RETARDANT MASTIC AS DETAILED ON THE DRAWINGS. INSTALLATION SHALL BE IN FULL ACCORDANCE WITH THE REQUIREMENTS OF THE UL SYSTEM NUMBER. HILTI OR APPROVED EQUAL.
- 2.6 ACCESS DOORS
- A. WHERE CONSTRUCTION IS NOT INHERENTLY ACCESSIBLE, PROVIDE ADEQUATELY SIZED AND CONVENIENTLY LOCATED ACCESS DOORS IN CEILING, WALLS, AND FURRING FOR SERVICING VALES, EQUIPMENT, ETC.
- B. ACCESS DOORS SHALL BE KARP, MILCOR, OR EQUAL, PRIME COATED STEEL FOR ALL SURFACES EXCEPT CERAMIC TILE, 12" X12" MINIMUM SIZE AS REQUIRED. LOCKS SHALL BE FLUSH, SCREWDRIVER OPERATED.
- STYLE KDW FOR GYPSUM BOARD SURFACES.
 - STYLE PL FOR PLASTER SURFACES.
 - STYLE 210 FOR ACQUATIC TILE SURFACES.
 - STYLE DSC 214-M SATIN FINISH STAINLESS STEEL AT CERAMIC TILE SURFACES.
 - STYLE "FIRE RATED" AT RATED CEILINGS AND WALLS.
- 2.7 PIPE INSULATION
- A. INSULATE ALL HOT WATER SUPPLY PIPING, ALL HOT WATER RETURN PIPING, ALL COLD WATER SUPPLY PIPING IN EXTERIOR WALLS OR UNCONDITIONED SPACES WITH MANVILLE "MICRO-LOK" 650, FIBERGLASS, CERTAINTED, OR EQUAL, RIGID FIBERGLASS ONE-PIECE PIPE INSULATION WITH AND ALL PURPOSE JACKET. JACKETS SHALL BE CONSTRUCTED OF HIGH DENSITY, WHITE KRAFT BONDED TO ALUMINUM FOIL WITH FIBERGLASS YARN, WITH A PRESSURE SENSITIVE CLOSURE SYSTEM.
- B. ALL INSULATION SHALL HAVE COMPOSITE (INSULATION, JACKET, AND ADHESIVE USED TO ADHERE THE JACKET TO THE INSULATION) FIRE AND SMOKE HAZARD RATINGS AS TESTED UNDER PROCEDURE ASTM E-84, NFPA 255 OR UL 723, NOT EXCEEDING: FLAME SPREAD –25, SMOKE DEVELOPED –50.
- C. INSERTS SHALL BE INSTALLED AT OUTSIDE HANGERS, INSERTS BETWEEN THE PIPE AND PIPE HANGERS SHALL CONSIST OF RIGID PIPE INSULATION OF THICKNESS EQUAL TO THE ADJOINING INSULATION. INSERTS SHALL NOT BE LESS THAN 10" LONG FOR PIPE SIZES THROUGH 2 1/2" AND NOT LESS THAN 12" LONG FOR PIPES LARGER THAN 2 1/2".
- D. METAL SHIELDS SHALL BE APPLIED BETWEEN HANGERS OR SUPPORTS AND THE PIPE INSULATION. SHIELDS SHALL BE FORMED TO FIT THE INSULATION AND SHALL EXTEND UP TO THE CENTERLINE OF THE PIPE AND THE LENGTH SPECIFIED FOR HANGER INSERTS.
- E. INSULATION THICKNESS SHALL BE AS FOLLOWS:
- ALL PIPING 1" AND SMALLER: 1"
 - ALL PIPING 1 1/4" AND LARGER: 1 1/2"
- 2.8 FIXTURES
- A. THE QUANTITY AND LOCATION OF FIXTURES SHALL BE TAKEN FROM THE ARCHITECTURAL AND PLUMBING DRAWINGS, PROVIDE ADEQUATE SUPPORTS AND ALL STANDARD TRIM NORMALLY FURNISHED FOR FIXTURES. ALL ENAMEL SHALL BE ACID RESISTING. TRAPS, UNLESS OTHERWISE NOTED SHALL BE 17 GAUGE BRASS TUBING, CHROME PLATED WHEN EXPOSED.
- B. EXCEPT AS OTHERWISE SHOWN, PROVIDE 1/2" STEEL BACKING PLATES, 36" WIDE BY 12" HIGH MINIMUM SIZE, SECURED TO A MINIMUM OF THREE STUDS BY WELDING, OR WITH 1/4" X 2 1/2" LAG SCREWS FOR ALL WALL HUNG FIXTURES FOR WHICH NO OTHER MEANS OF SUPPORT IS SPECIFIED.
- C. STOPS AND SUPPLIES: PROVIDE STOPS FOR ALL FIXTURES, UNLESS OTHERWISE SPECIFIED, STOPS EXPOSED AT LAVATORIES AND SIMILAR FIXTURES SHALL BE CHICAGO #1016-ABCP, CHROME PLATED, LOOSE KEY. CONCEALED STOPS SHALL BE CHICAGO #1771.
- D. ALL FIXTURES SHALL MEET OR EXCEED THE REQUIREMENTS OF THE CALIFORNIA ADMINISTRATIVE CODE, TITLE 24, PART 5.
- E. TRAP PRIMERS SHALL BE INSTALLED FOR ALL FLOOR DRAINS; PRECISION PLUMBING PRODUCTS MODEL P2-500 AUTOMATIC TRAP PRIMER, CORROSION RESISTANT BRASS, PISTON OPERATED.

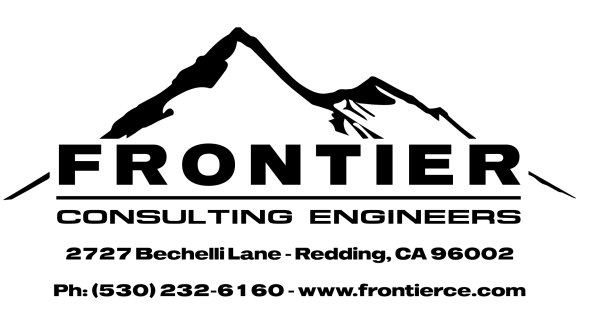
- F. ZURN "SHOKTROL," OR EQUAL, JR SMITH, STAINLESS STEEL BELLOWES, INSTALL WITH GATE VALVE SHUT-OFF AND ACCESS DOOR AT ALL FLUSH VALVES OR OTHER AUTOMATIC VALVES. A SINGLE UNIT SIZED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS MAY SERVE BATTERIES OF VALVES.
- 2.9 VALVE BOXES
- A. CHRISTY #F-08, COMPLETE WITH CONCRETE COVER AND REQUIRED EXTENSIONS. INDEX ALL COVERS "GAS" OR "WATER" AS REQUIRED FOR SERVICE USE.

PART 3 – EXECUTION

- 3.1 SURFACE CONDITIONS
- A. THIS CONTRACTOR SHALL BE HELD TO HAVE EXAMINED THE SITE AND COMPARED IT WITH THE CONTRACT DOCUMENTS, AND TO ADEQUATELY UNDERSTAND THE CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED. IN THE EVENT OF DISCREPANCY, THIS CONTRACTOR SHALL NOTIFY THE ARCHITECT AND PROCEED AS DIRECTED. THIS CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ALL EXISTING CONDITIONS, WHETHER OR NOT ACCURATELY DESCRIBED, AND NO ALLOWANCE SHALL SUBSEQUENTLY BE MADE ON HIS BEHALF FOR ANY ERROR, OMISSION, OR EXTRA EXPENSE DUE TO FAILURE OR NEGLECT TO MAKE SUCH EXAMINATION AND NOTIFICATION.
- 3.2 VIBRATION AND SOUND CONTROL
- A. MAKE ALL NECESSARY PROVISIONS TO PREVENT THE TRANSMISSION OF VIBRATION TO THE BUILDING STRUCTURE, INCLUDING FLEXIBLE PIPE CONNECTIONS TO MOTOR DRIVEN EQUIPMENT, RESILIENT MOUNTING FOR PIPING, AND SEALING OFF PIPE AND DUCT PENETRATIONS OF WALLS AND ROOF.
- 3.3 INSULATION
- A. INSULATION SHALL BE APPLIED IN COMPLETE ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS. ALL INSULATION SHALL BE APPLIED ON CLEAN, DRY SURFACES AND SHALL BE CONTINUOUS THROUGH WALL AND CEILING OPENING AND SLEEVES. ALL JOINTS SHALL BE FIRMLY BUTTED TOGETHER AND LONGITUDINAL JACKET LAPS AND BUTT STRIPS SHALL BE SMOOTHLY SECURED. SPECIFIED ADHESIVES, MASTICS, AND COATINGS SHALL BE APPLIED AT THE MANUFACTURER'S RECOMMENDED MINIMUM COVERAGE PER GALLON.
- 3.4 PIPING INSTALLATION, GENERAL REQUIREMENTS
- A. ALL PIPING SHALL BE CONCEALED IN FINISHED ROOMS, INSTALLED IN FURRED WALLS AND PARTITIONS. WHERE FURRED OR SUSPENDED CEILINGS OCCUR, PIPING SHALL BE INSTALLED IN THE CONCEALED SPACE AT POINTS ADJACENT TO BEAMS AND/OR OTHER STRUCTURAL MEMBERS, AND COORDINATED WITH DUCTWORK AND EQUIPMENT, WHERE EXPOSED PIPING OCCURS, IT SHALL BE INSTALLED PARALLEL TO OR AT RIGHT ANGLES TO BUILDING WALLS, UNLESS SPECIFICALLY SHOWN OTHERWISE ON THE DRAWINGS.
- B. INSTALLATION OF PIPING SHALL BE SUCH THAT DAMAGE CANNOT RESULT, THROUGH THERMAL EXPANSION OR CONTRACTION, TO PIPING, BUILDING, OR PIPE HANGERS AND SUPPORTS. ANCHORS SHALL BE INSTALLED AT MIDPOINTS OF THE LINE IN MAIN PIPING FOR THE PURPOSE OF LOCALIZING PIPE EXPANSION OR PREVENTION OF CREEPAGE.
- C. ALL PIPE LINES SHALL BE INSTALLED FREE FROM TRAPS AND AIR POCKETS. TRUE TO LINE AND GRADE, WITH SUITABLE SUPPORTS PROPERLY SPACED. ALL PIPING SHALL BE INSTALLED WITHOUT UNDUE STRESSES AND WITH PROVISION FOR EXPANSION AND CONTRACTION.
- D. ALL PIPING SHALL BE NEW AND FREE FROM FOREIGN SUBSTANCES. AMERICAN STANDARD PIPE THREADS SHALL BE USED FOR IPS THREADED WORK. JOINTS IN THREADED PIPING SHALL BE MADE UP WITH TEFLON TAPE APPLIED TO THE MALE THREADS ONLY. NO SCREWED PIPE JOINTS SHALL BE CAULKED OR PACKED WITH ROPE OR OTHER PACKING MATERIALS. PIPE SHALL BE FREE FROM TOOL MARKS, THREADS CUT ACCURATELY WITH NOT MORE THAN TWO (2) THREADS SHOWING BEYOND FITTING. FRICTION WRENCHES SHALL NOT BE USED WITH PLATED, POLISHED, OR SOFT METAL PIPING. ALL CHANGES IN PIPE SIZE SHALL BE MADE WITH REDUCING FITTING. BUSHINGS WILL NOT BE PERMITTED.
- E. NO WATER OR DRAINAGE PIPING SHALL PASS OVER ELECTRICAL EQUIPMENT UNLESS ADEQUATE PROTECTION IS PROVIDED TO PREVENT DAMAGE BY LEAKS OR CONDENSATION.
- F. ALL COPPER TUBING SHALL BE FORMED IN A WORKMANLIKE MANNER, IN ACCORDANCE WITH THE PIPE AND TUBE BENDING HANDBOOK OF THE COPPER AND BRASS RESEARCH ASSOCIATION. A TUBE BENDER GIVING SUPPORT TO THE PERIPHERY OF THE TUBE SHALL BE USED. THE TUBING SHALL BE PROTECTED AGAINST FLATTING OR OTHER INJURY.
- G. ALL COPPER CONNECTIONS AND JOINTS SHALL BE MADE IN ACCORDANCE WITH THE COPPER TUBE HANDBOOK, COPPER AND BRASS RESEARCH ASSOCIATION. NO SWAGED CONNECTIONS WILL BE PERMITTED. ALL VALVES, PUMPS, AND SIMILAR EQUIPMENT SHALL BE CONNECTED TO COPPER PIPING THROUGH UNION OR FLANGE ADAPTER FITTINGS.
- H. SHUT OFF VALVES SHALL BE PROVIDED IN ALL MAIN SERVICES, AND WHERE REQUIRED TO PERMIT PROPER SERVICING OF EQUIPMENT. VALVES OF ONE TYPE SHALL BE OF ONE MANUFACTURER.
- I. ALL VALVES SHALL BE OF THE SAME SIZE AS THE PIPELINES IN WHICH THEY ARE INSTALLED, UNLESS SPECIFICALLY SIZED ON THE DRAWINGS. ALL HAND CONTROLLED LINE VALVES SHALL BE BALL VALVES, EXCEPT WHERE THROTTLING CONTROL OR FREQUENT OPERATION IS REQUIRED, IN WHICH CASE GLOBE OR ANGLE VALVES SHALL BE USED. GLOBE VALVES IN HORIZONTAL LINES SHALL BE INSTALLED WITH STEM IN HORIZONTAL TO PERMIT LINE DRAINING. ALL GLOBE AND ANGLE VALVES SHALL BE INSTALLED TO CLOSE AGAINST PRESSURE. DISC VALVES SHALL HAVE DISCS SUITABLE FOR THE SERVICES FOR WHICH THEY ARE TO BE USED.
- J. PROVIDE PRIME COATED ESCUTCHEON PLATES AT ALL POINTS WHERE EXPOSED PING PENETRATES FINISHED WALL CEILINGS OR FLOORS.
- 3.5 INSTALLATION, PIPING
- A. FLASHING: ALL ROOF AND WALL PENETRATIONS SHALL BE FLASHED AND COUNTERFLASHED WATER TIGHT WITH 26 GAUGE SHEET METAL, EXCEPT AS NOTED. VENTS THROUGH ROOF SHALL BE FLASHED WITH SEMCO #100-4 LEAD FLASHING ASSEMBLIES. FLASHING SHALL EXTEND OVER TOP OF PIPE AND SHALL BE TURNED DOWN INSIDE TOP OF PIPE.
- B. SOIL, WASTE, VENT, DRAIN PIPING: SOIL, WASTE, AND VENT PIPING OCCURRING WITHIN THE BUILDING SHALL BE INSTALLED TO A UNIFORM MINIMUM GRADE OF 1/4" PER FOOT UNLESS OTHERWISE NOTED. VENT PIPING SHALL BE GRADED SO THAT ALL CONDENSATION SHALL FLOW DIRECTLY TO A SOIL OR WASTE LINE. CHANGES IN DIRECTION OF DRAINAGE PIPING SHALL BE ACCOMPLISHED BY THE USE OF APPROPRIATE DRAINAGE AND SANITARY FITTINGS. PROTECTION AGAINST BREAKAGE OF PIPING PASSING UNDER OR THROUGH WALLS SHALL BE PROVIDED USING SPECIFIED SLEEVES AND CAULKING. CLEANOUTS SHALL BE LOCATED WHERE INDICATED ON THE DRAWINGS; AT ALL HORIZONTAL OFFSETS; AT ENDS OF WASTE OR SEWER BRANCHES MORE THE 5' IN LENGTH; AT INTERVALS OF 100' IN STRAIGHT RUNS OF PIPING, OR AT CLOSER INTERVALS IF DIRECTED OR REQUIRED BY LOCAL CODE. LOCATION OF CLEANOUTS IN FINISHED SPACES SHALL BE APPROVED BY THE ARCHITECT PRIOR TO INSTALLATION.
- C. HOT AND COLD WATER SYSTEMS: DI-ELECTRIC UNIONS SHALL BE INSTALLED WHERE COPPER PIPE IS CONNECTED TO GALVANIZED STEEL PIPING OR STUB OUTS. CONNECTIONS FROM COPPER PIPE TO FIXTURE SUPPLY FITTINGS SHALL BE MADE WITH COPPER OR BRASS NIPPLES. ALL DOMESTIC WATER PIPING SHALL BE KEPT CLEAR OF THE BUILDING STRUCTURE, WHERE IT IS WITHIN 1' OF THE BUILDING STRUCTURE, IT SHALL BE WRAPPED WITH FELT (3/16" MINIMUM THICKNESS), TO THE GREATEST EXTENT POSSIBLE. DOMESTIC COLD WATER PIPING SHALL BE KEPT SEPARATED FROM HOT PIPING AND WHERE THERE IS A CHOICE SHALL BE RUN IN THE COOLEST PORTION OF THE AVAILABLE SPACE.
- D. PLUMBING FIXTURES: SPACE BETWEEN WALL MOUNTED FIXTURES AND WALL SURFACE SHALL BE NEATLY POINTED UP WITH SILICONE RUBBER COMPOUND OF COLOR MATCHING FIXTURE.
- E. EXCAVATION AND BACKFILL: PROVIDE ALL EXCAVATION, TRENCHING, AND BACKFILL IN CONNECTION WITH THE WORK OF THIS SECTION. EXCAVATION SHALL BE CARRIED TO 4" BELOW THE BOTTOM OF PIPES. PROVIDE A SAND BEDDING FOR ALL SLOPED DRAINAGE PIPING, AND PROVIDE SMOOTH UNIFORMLY GRADED BEDDING OF FIRM BUT YIELDING MATERIAL FOR ALL OTHER PIPING, CATCH BASINS, AND SIMILAR STRUCTURES. BACKFILL MATERIAL SHALL BE NON-CORROSIVE AND FREE FROM ALL FOREIGN MATERIAL THAT COULD DAMAGE PIPES. BACKFILL SHALL BE PLACED IN 6" LAYERS, EACH LAYER TAMPED, AND COMPACTED TO 95% OF MAXIMUM DRY DENSITY (ASTM D-1557-64T (C) COMPACTION TEST PROCEDURE).
- 3.6 TESTING, INSPECTIONS
- A. GENERAL
- THIS CONTRACTOR SHALL NOT ALLOW OR CAUSE ANY WORK OF THIS SECTION TO BE COVERED OR ENCLOSED UNTIL IT HAS BEEN INSPECTED, TESTED, AND APPROVED BY THE ARCHITECT AND THE AUTHORITIES HAVING JURISDICTIONS OVER THE WORK. SHOULD ANY OF THIS WORK BY ENCLOSED OR COVERED UP BEFORE SUCH INSPECTION, TESTING, AND APPROVAL, THIS CONTRACTOR SHALL UNCOVER THE WORK, HAVE THE NECESSARY INSPECTIONS, TESTS, AND APPROVALS MADE AND, AT NO EXPENSE TO THE OWNER, MAKE ALL REPAIRS NECESSARY TO THE WORK. THE WORK SHALL BE THAT OF OTHER CONTRACTORS THAT MAY HAVE BEEN DAMAGED, TO BE IN CONFORMITY WITH THE CONTRACT DOCUMENTS.

- B. TESTS
- THIS CONTRACTOR SHALL MAKE ALL TESTS REQUIRED BY ALL LOCAL, STATE, AND FEDERAL LAWS, CODES, ORDINANCES, AND REGULATIONS HAVING JURISDICTION OVER THIS WORK.
 - FURNISH ALL NECESSARY LABOR, MATERIALS, AND EQUIPMENT FOR CONDUCTING TESTS, AND PAY ALL EXPENSES IN CONNECTION THEREWITH. SHOULD LEAKS DEVELOP WHILE TESTING, REPAIRS SHALL BE MADE, AND TESTS SHALL BE REPEATED UNTIL A SATISFACTORY TEST IS OBTAINED.
 - WATER PIPING SHALL BY HYDROSTATICALLY TESTED FOR 6 HOURS AT 150 PSI. ALL EQUIPMENT SHALL BE TESTED WATER TIGHT AT UTILITY PRESSURE.
 - DRAINAGE AND VENT PIPING SHALL BE TESTED FOR 1 HOUR BY PLUGGING ALL OUTLETS AND FILLING THE PIPES WITH WATER TO THE TOP OF VERTICAL SECTIONS OF PIPES. NO LOSS OF WATER SHALL BE PERMITTED.
 - FOR PRESSURES ABOVE 14 INCHES WATER COLUMN, CONTRACTOR SHALL TEST ALL NEW GAS PIPING WITH AIR AT A MINIMUM PRESSURE OF 60 PSI FOR A DURATION OF FOUR HOURS WITH NO DISCERNIBLE REDUCTION IN PRESSURE. SHUTOFF VALVES MAY NOT BE USED FOR ISOLATION OF PIPING DURING TESTING, UNLESS THE VALVE AND VALVE-CLOSING MECHANISM ARE RATED FOR THE TEST PRESSURE.
 - FOR PRESSURES BELOW 14 INCHES WATER COLUMN, CONTRACTOR SHALL TEST ALL NEW GAS PIPING WITH AIR AT A MINIMUM PRESSURE OF 15 PSI FOR A DURATION OF FOUR HOURS WITH NO DISCERNIBLE REDUCTION IN PRESSURE. SHUTOFF VALVES MAY NOT BE USED FOR ISOLATION OF PIPING DURING TESTING, UNLESS THE VALVE AND VALVE-CLOSING MECHANISM ARE RATED FOR THE TEST PRESSURE.
 - UPON COMPLETION OF THE INSTALLATION, THE GAS UTILITY PROVIDER SHALL TEST ENTIRE PIPING SYSTEM, INCLUDING BOTH NEW AND EXISTING PIPING, TO ENSURE THAT THE SYSTEM IS SAFE TO BE PLACED IN SERVICE. CONTRACTOR SHALL BE RESPONSIBLE FOR BEING FAMILIAR WITH GAS UTILITY PROVIDER TESTING REQUIREMENTS AND ASSISTING WITH GAS UTILITY PROVIDER TEST PROCEDURES. ANY LEAKS OR DEFICIENCIES SHALL BE REPAIRED AT NO ADDITIONAL COST TO THE OWNER.
- 3.7 DOMESTIC WATER SYSTEM STERILIZATION
- A. UPON COMPLETION OF THIS WORK, THE DOMESTIC WATER SYSTEM SHALL BE THOROUGHLY FLUSHED, STERILIZED, AND REFUSHED. STERILIZATION AND REFUSHING SHALL BE PERFORMED USING THE FOLLOWING PROCEDURE.
- ALL WORK SHALL BE PERFORMED IN THE PRESENCE OF THE INSPECTOR.
 - INTRODUCE CHLORINE OR A SOLUTION OF SODIUM HYPOCHLORITE, FILLING THE LINES SLOWLY AND SUPPLYING THE STERILIZATION AGENT AT A RATE OF 50 PARTS OF CHLORINE PER MILLION, AS DETERMINED BY RESIDUAL CHLORINE TESTS AT THE ENDS OF ALL BRANCHES, OPEN AND CLOSE ALL VALVES WHILE THE SYSTEM IS BEING CHLORINATED TO INSURE UNIFORM DISTRIBUTION.
 - AFTER THE STERILIZING AGENT HAS BEEN APPLIED FOR 24 HOURS, TEST FOR RESIDUAL CHLORINE AT THE ENDS OF THE BRANCHES. IF LESS THAN 5 PPM IS INDICATED, REPEAT THE STERILIZATION PROCEDURE.
 - WHEN TESTS SHOW AT LEAST 5 PPM OF RESIDUAL CHLORINE, FLUSH OUT THE SYSTEM UNTIL ALL TRACES OF THE CHEMICAL ARE REMOVED.
- B. AFTER A PERIOD OF 48 HOURS MINIMUM, BACTERIOLOGICAL TESTS, USING SAMPLES FROM AT LEAST 3 REPRESENTATIVE POINTS SHALL BE MADE BY RECOGNIZED TESTING AGENCY, WHO SHALL CERTIFY TO THE ARCHITECT THAT THE SYSTEM IS BACTERIOLOGICALLY SAFE AND AT LEAST EQUAL IN SAFETY TO THAT OF THE PRINCIPAL WATER SUPPLY. THE LABORATORY REPORT AND CERTIFICATION SHALL BE TRANSMITTED TO THE ARCHITECT AND OWNER.

END OF SECTION



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CONSULTANTS

PROJECT NAME

SHERIFF OFFICE
REMODEL

FOR

HUMBOLDT COUNTY

826 4TH STREET
EUREKA, CA 95501

| NO. | REVISIONS | DATE |
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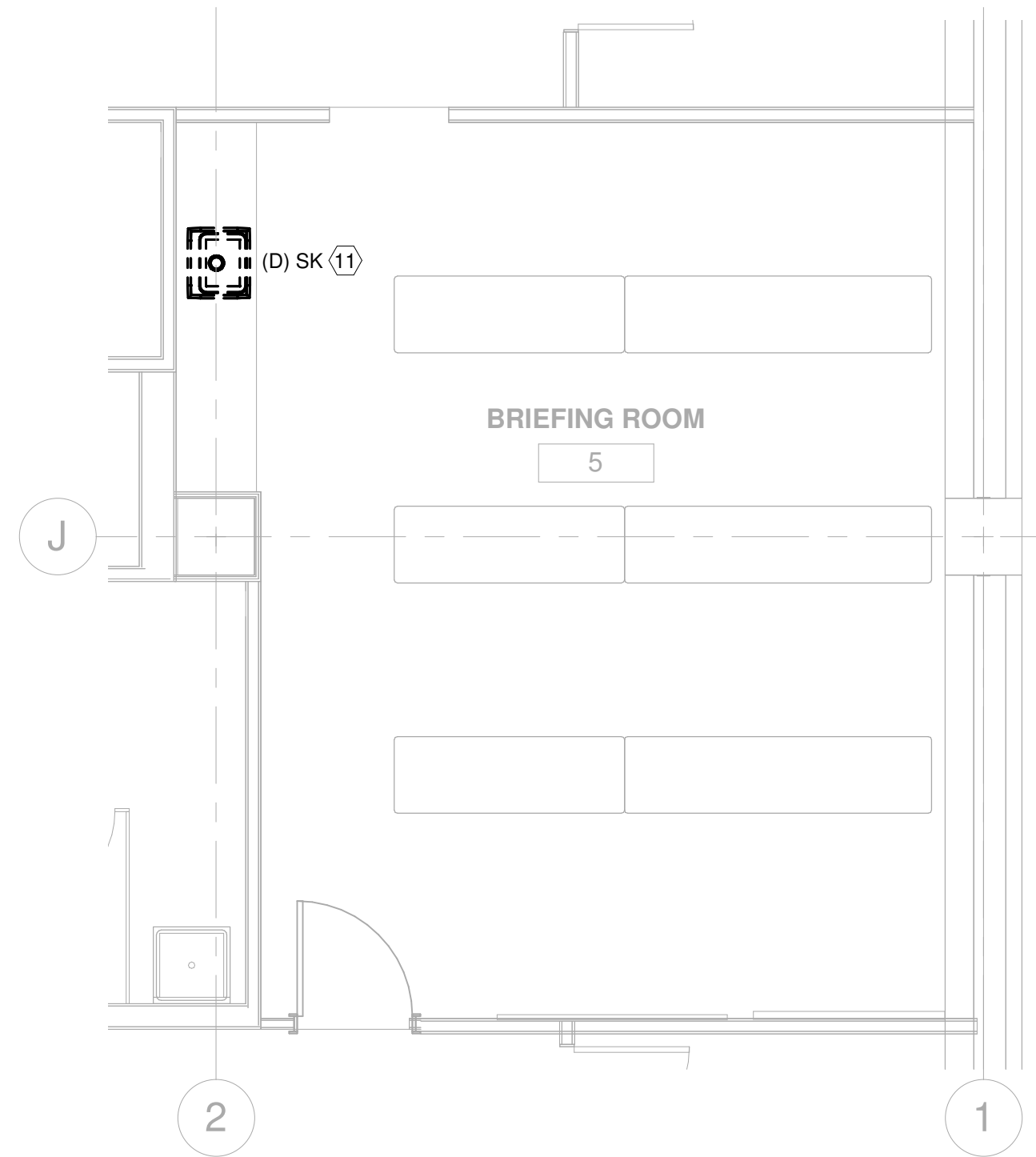
SHEET TITLE

PLUMBING
SPECIFICATIONS

ISSUED FOR:
**CONSTRUCTION
DOCUMENTS**

| | |
|--------------|------------|
| DATE: | 06/24/2024 |
| DRAWN BY: | JW |
| REVIEWED BY: | NW |
| SCALE: | |
| PROJECT NO: | 2026-501 |

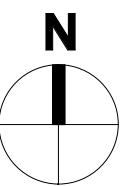
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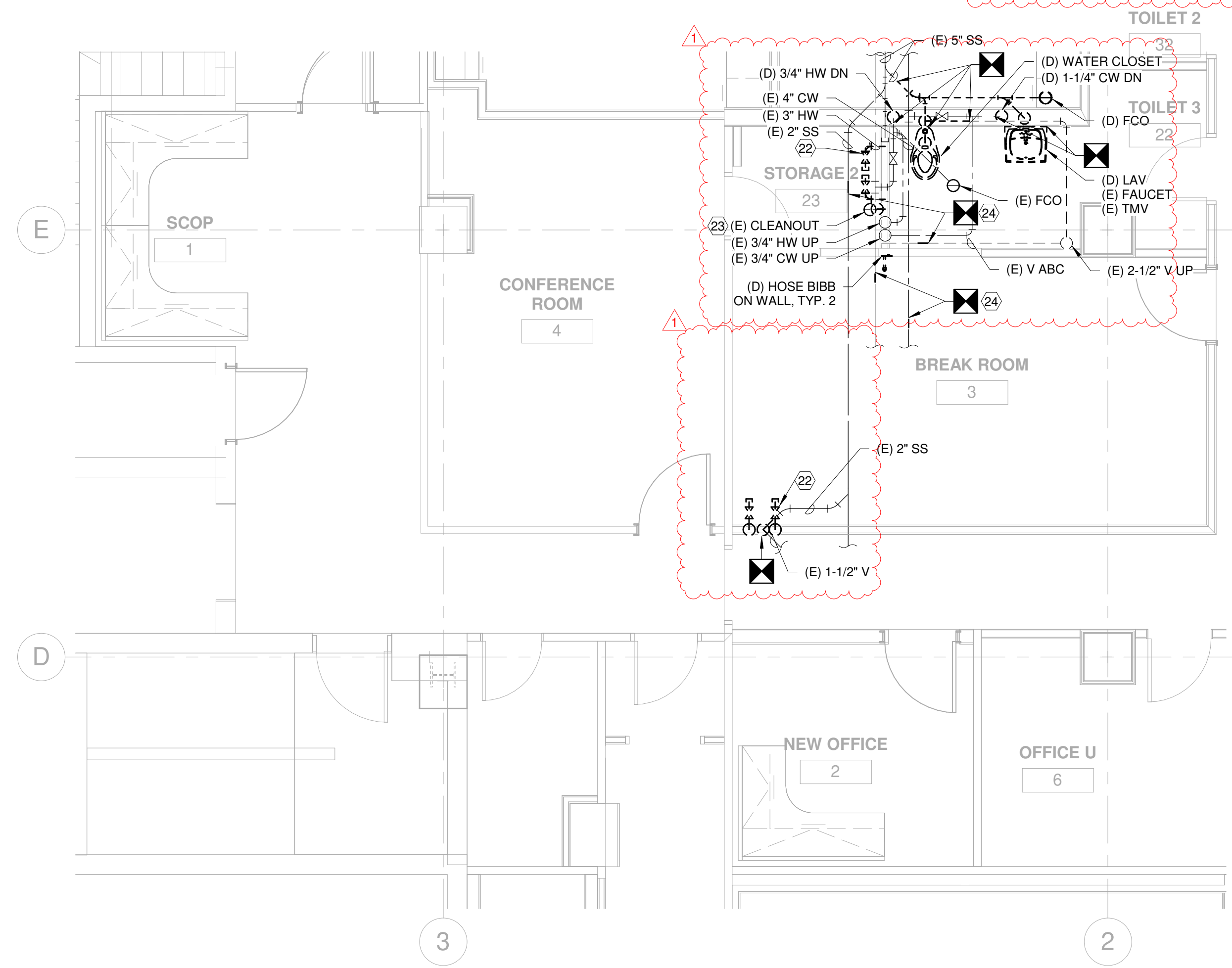
KEYED NOTES:

- (11) REMOVE EXISTING SINK IN CASEWORK. CAP ALL PIPING AT WALL AND PREPARE FOR INSTALLATION OF NEW SINK. PREPARE WALL FOR INSTALLATION OF NEW CLEANOUT.

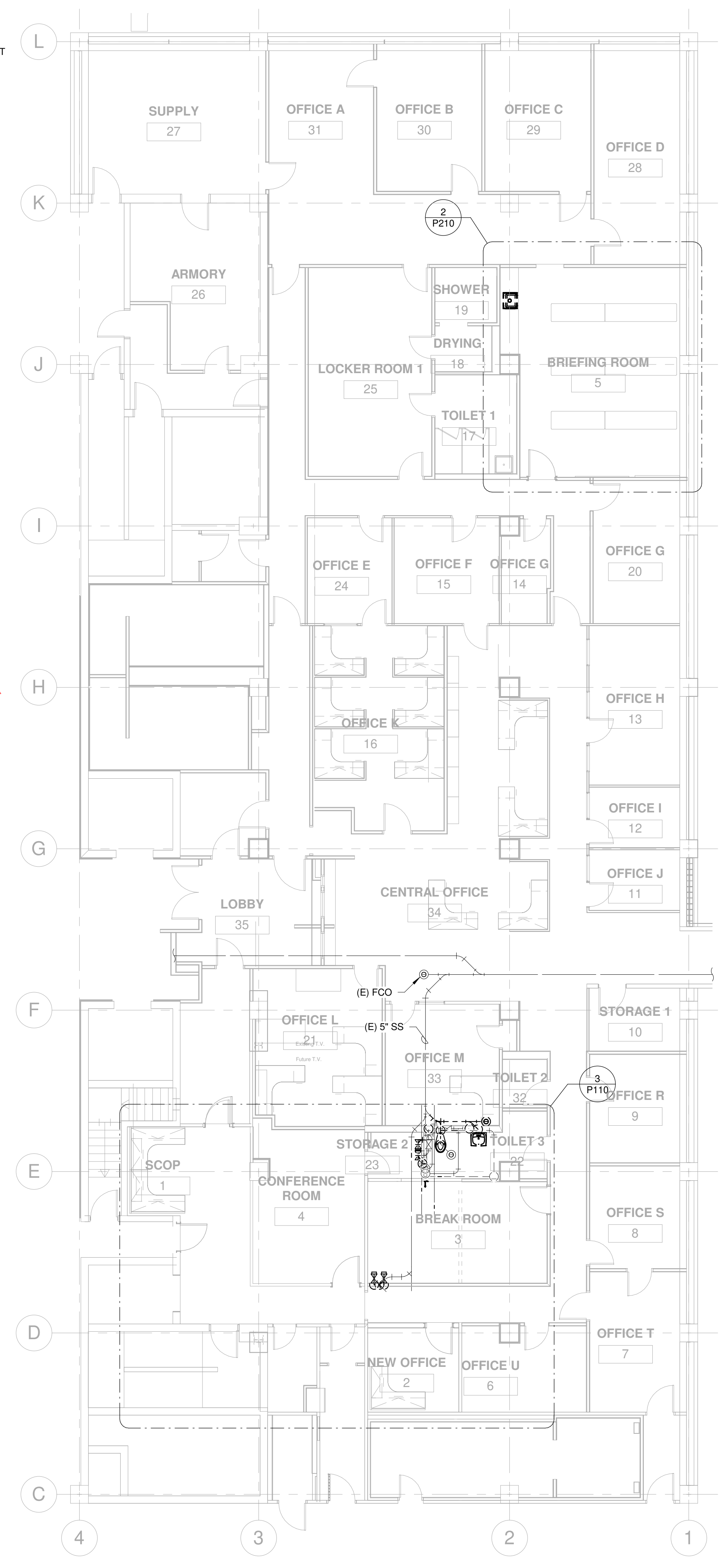
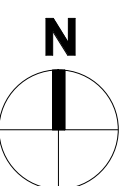
2 ENLARGED PLUMBING DEMOLITION PLAN - PHASE 1B
 P110 1/4" = 1'-0"



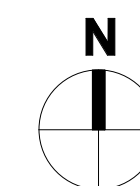
- GENERAL NOTES:**
- (21) REMOVE ABANDONED CONDENSATE DRAIN. VERIFY STATE OF ABANDONEMENT PRIOR TO REMOVAL.
 - (22) REMOVE ABANDONED VALVES AND CAP PIPING IN WALL.
 - (23) BRING EXISTING CLEANOUT DOWN TO FINISHED FLOOR LEVEL.
 - (24) DEMO PIPING AS REQUIRED AND PREPARE FOR CONNECTION TO NEW SINK.



3 ENLARGED PLUMBING DEMOLITION PLAN - PHASE 1A
 P110 1/4" = 1'-0"



1 OVERALL PLUMBING DEMOLITION PLAN
 P110 1/8" = 1'-0"



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LICENSE STAMP



CONSULTANTS

PROJECT NAME

**SHERIFF OFFICE
 REMODEL**

FOR

HUMBOLDT COUNTY

**826 4TH STREET
 EUREKA, CA 95501**

| NO. | REVISIONS | DATE |
|-----|------------------|----------|
| 1 | Add ADA Restroom | 11/21/25 |

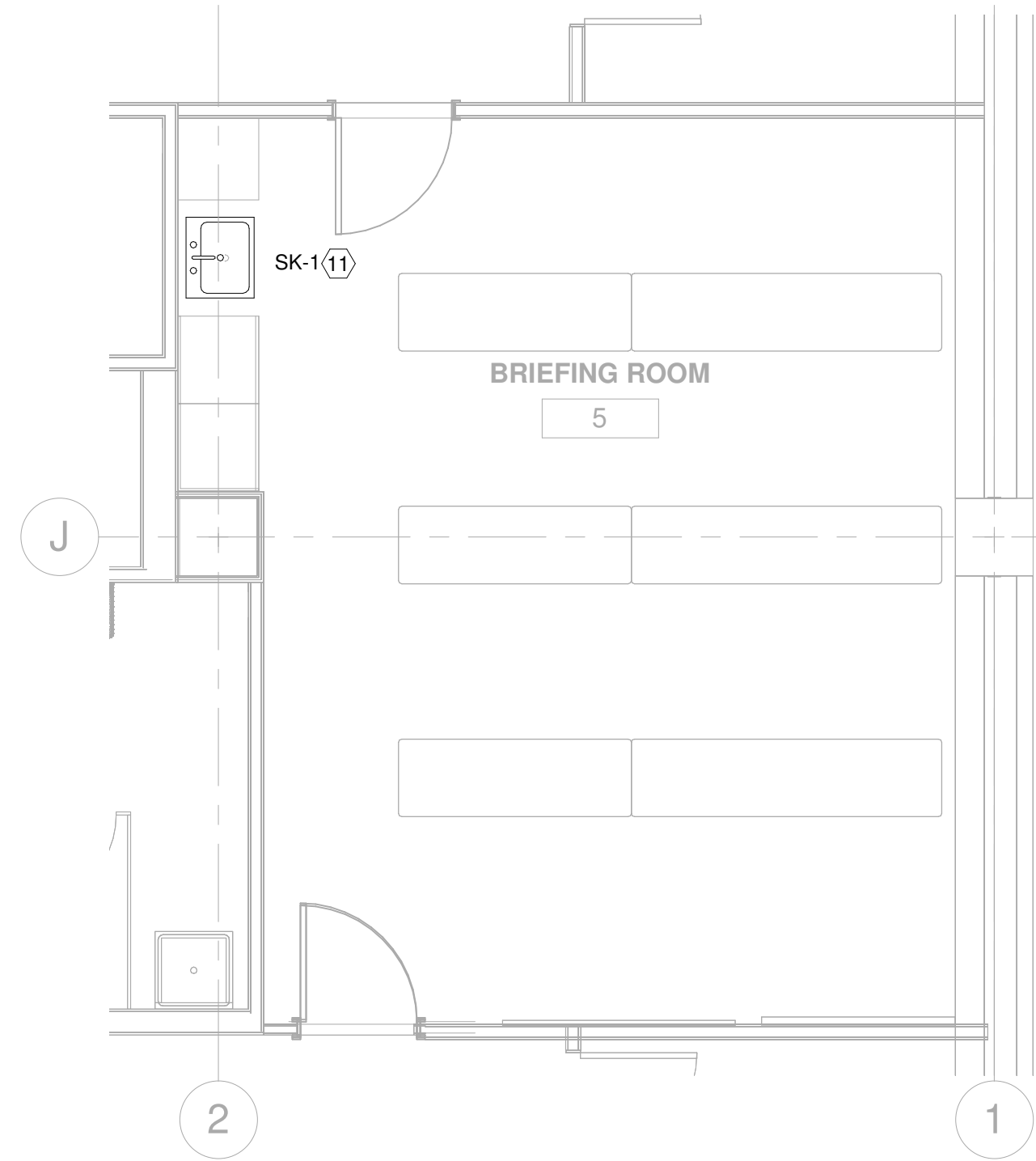
SHEET TITLE

**PLUMBING DEMOLITION
 PLANS**

ISSUED FOR:
**CONSTRUCTION
 DOCUMENTS**

DATE: 06/24/2024
 DRAWN BY: JW
 REVIEWED BY: NW
 SCALE: As indicated
 PROJECT NO: 2026-501

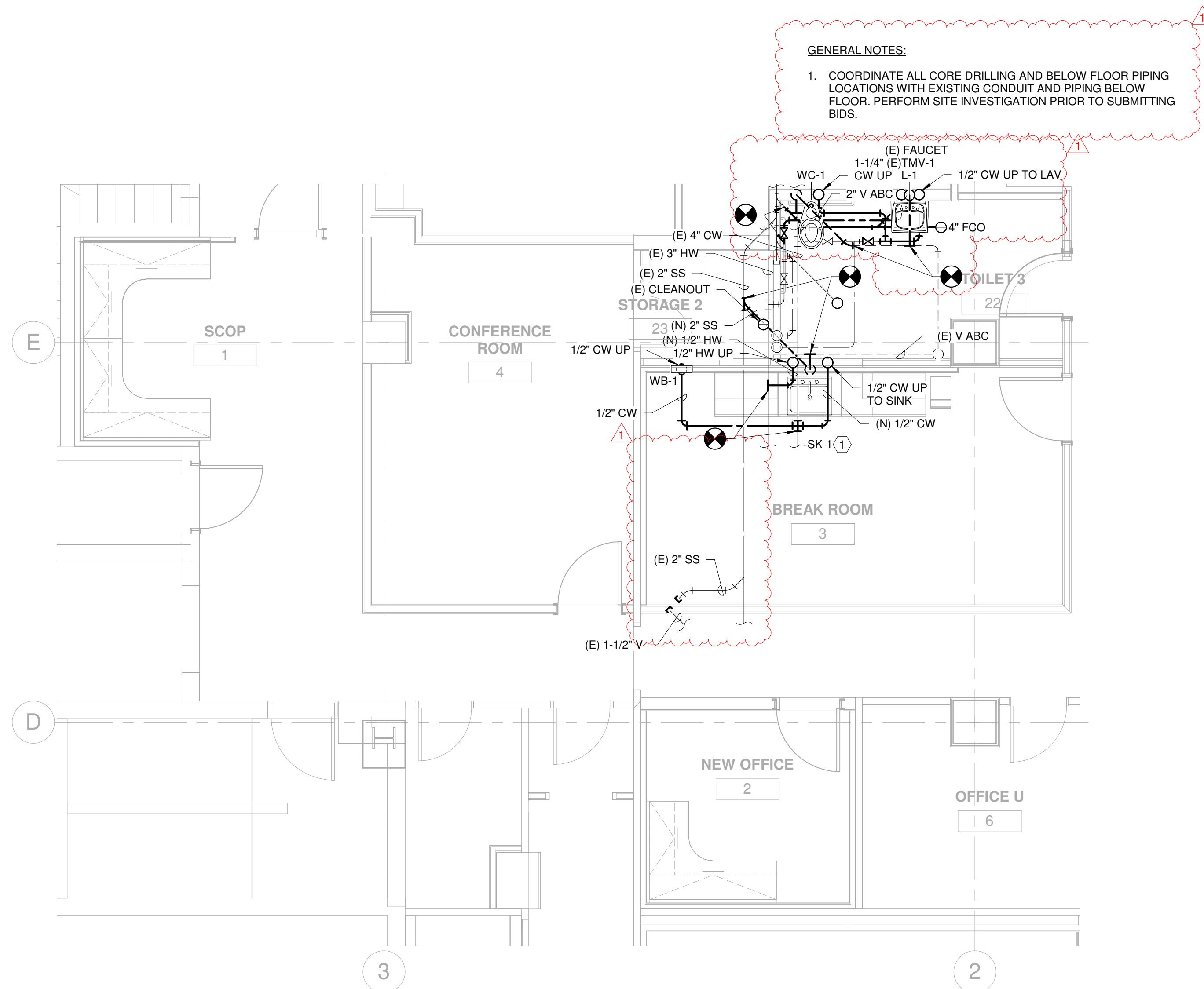
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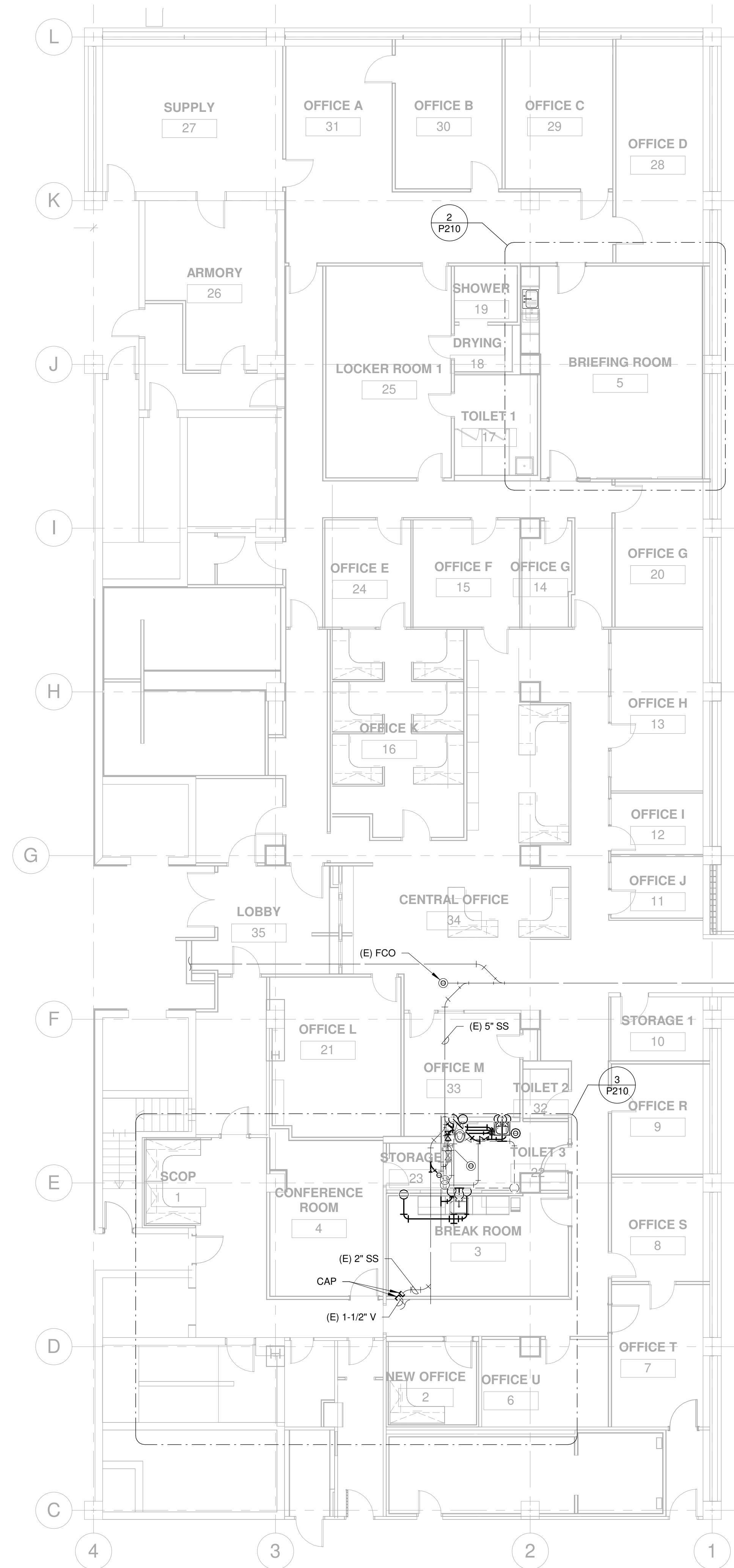
KEYED NOTES:

- ① CONNECT NEW SINK INTO EXISTING HOT WATER, COLD WATER, WASTE, AND VENT PIPING IN WALL. IF WALL CLEANOUT IS NOT PRESENT BELOW SINK, PROVIDE WITH NEW WALL CLEANOUT PER DETAIL 1/P100.

2 ENLARGED PLUMBING PLAN - PHASE 1B
 P210 1/4" = 1'-0"



3 ENLARGED OVERALL PLUMBING PLAN - PHASE 1A
 P210 1/4" = 1'-0"



1 OVERALL PLUMBING PLAN
 P210 1/8" = 1'-0"

KEYED NOTES:

- ① CONNECT NEW SINK INTO EXISTING HOT WATER, COLD WATER, WASTE, AND VENT PIPING PER PLAN. SIZE PIPING PER FIXTURE CONNECTION SCHEDULE. PROVIDE WITH NEW WALL CLEANOUT PER DETAIL 1/P100.



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CONSULTANTS

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SHERIFF OFFICE REMODEL

FOR

HUMBOLDT COUNTY

826 4TH STREET
 EUREKA, CA 95501

| NO. | REVISIONS | DATE |
|-----|------------------|----------|
| 1 | Add ADA Restroom | 11/21/25 |

SHEET TITLE

PLUMBING PLANS

ISSUED FOR:
CONSTRUCTION DOCUMENTS

| | |
|--------------|--------------|
| DATE: | 06/24/2024 |
| DRAWN BY: | JW |
| REVIEWED BY: | NW |
| SCALE: | As indicated |
| PROJECT NO: | 2026-501 |

P210

ELECTRICAL LEGEND

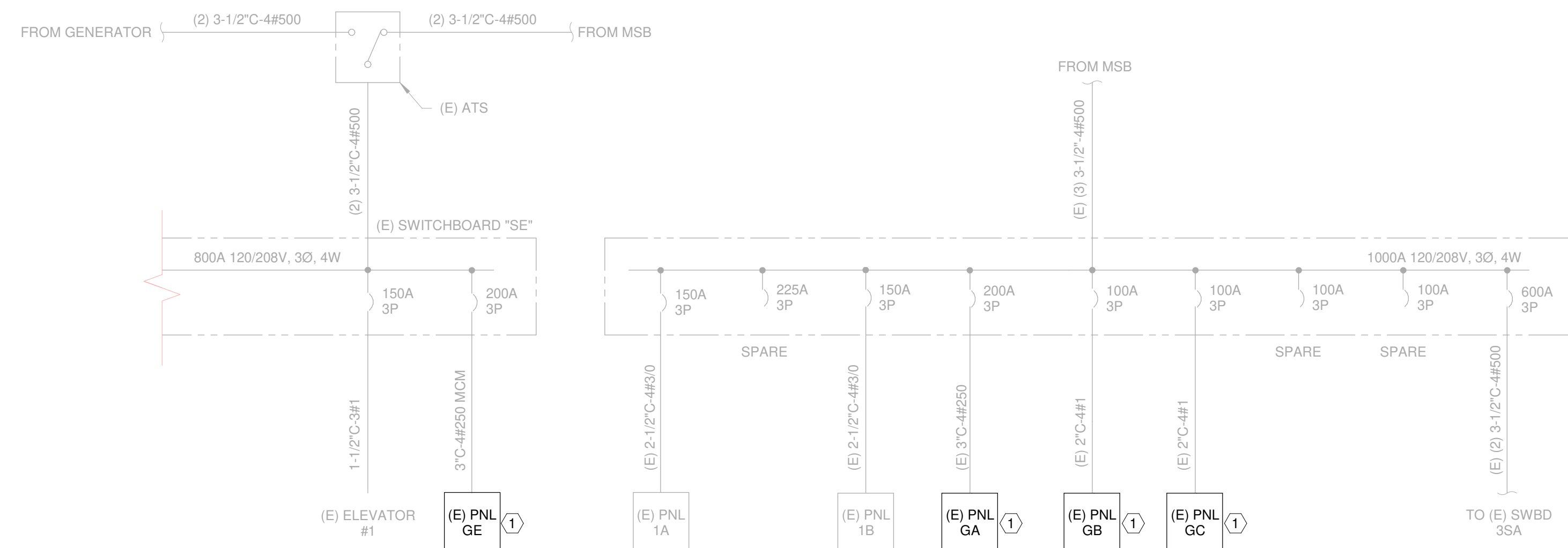
| SYMBOLS | |
|---------|---|
| | CONDUIT EXPOSED |
| | CONDUIT CONCEALED OR BURIED |
| | CROSS HATCHES W/ BARS INDICATES NUMBER OF #10 CONDUCTORS |
| | 1/2" C - 2# 12.1 #12G |
| | CAT 5e LIGHTING CABLE |
| | HOME RUN-DESTINATION SHOWN |
| | CONDUIT DOWN |
| | CONDUIT UP |
| | CONNECTION POINT |
| | TELEPHONE CONNECTION POINT; 18" TO COD AFF UNLESS OTHERWISE NOTED. 3/4" C - STUB UP TO CEILING PLENUM |
| | DATA CONNECTION POINT; 18" TO COD AFF UNLESS OTHERWISE NOTED. 3/4" C - STUB UP TO CEILING PLENUM |
| | TELE/DATA CONNECTION POINT; 18" TO COD AFF UNLESS OTHERWISE NOTED. 3/4" C - STUB UP TO CEILING PLENUM |
| | WALL SWITCH, 46" TO COD AFF UNLESS OTHERWISE NOTED |
| | INDICATES THREE-POLE WALL SWITCH |
| | INDICATES WALL SWITCH WITH INTEGRAL DIMMER |
| | INDICATES WALL SWITCH WITH INTEGRAL OCCUPANCY SENSOR |
| | INDICATES WALL SWITCHES FOR MULTIPLE LIGHTING GROUPS |
| | INDICATES LOW VOLTAGE WALL SWITCH |
| | INDICATES KEY-OPERATED WALL SWITCH |
| | INDICATES WALL SWITCH WITH INTEGRAL TIMER |
| | OCCUPANCY SENSOR |
| | JUNCTION BOX |
| | CONTACT RELAY |
| | 20A SPECIFICATION GRADE RECEPTACLE. COORDINATE CONFIGURATION W/ SUPPLIED EQUIPMENT |
| | 20A SPECIFICATION GRADE QUADRUPLEX RECEPTACLE |
| | 208/240V RECEPTACLE 18" COD UNLESS OTHERWISE NOTED ON PLANS |
| | SPLITWIRED RECEPTACLES |
| | FUSED DISCONNECT |
| | NON-FUSED DISCONNECT |
| | FUSED SWITCH |
| | LAY-IN 2 FT x 2 FT. |
| | SURFACE MOUNTED 2 FT x 4 FT FLUORESCENT LIGHT FIXTURE. |
| | SURFACE MOUNTED 1 FT x 4 FT FLUORESCENT LIGHT FIXTURE. |
| | HATCHING INDICATES EMERGENCY LIGHTING. |
| | RECESSED LIGHT FIXTURE. |
| | PENDANT MOUNTED LIGHT FIXTURE |
| | SINGLE FACE ILLUMINATED EXIT SIGN |
| | DOUBLE FACED ILLUMINATED DIRECTIONAL EXIT SIGN. |
| | SINGLE FACED ILLUMINATED DIRECTIONAL EXIT SIGN. |
| | LED STANDARD EMERGENCY LIGHT |

ELECTRICAL ABBREVIATIONS

| | |
|--------|---|
| A | -AMMETER, AMPERE |
| AC | -ALTERNATING CURRENT |
| ACH | -ABOVE COUNTER HEIGHT |
| AFCI | -ARC FAULT CIRCUIT INTERRUPT |
| AFF | -ABOVE FINISHED FLOOR |
| AIC | -AMPS INTERRUPTING CAPACITY |
| ATS | -AUTOMATIC TRANSFER SWITCH |
| BRKR | -BREAKER |
| BOE | -BOTTOM OF EQUIPMENT |
| CEC | -CALIFORNIA ELECTRICAL CODE |
| C/COND | -CONDUIT |
| CKT | -CIRCUIT |
| COD | -CENTER OF DEVICE |
| CT | -CURRENT TRANSFORMER |
| DC | -DIRECT CURRENT |
| (E) | -EXISTING |
| G | -GROUND |
| GFCI | -GROUND FAULT CIRCUIT INTERRUPT |
| J | -JUNCTION BOX |
| LCP | -LIGHTING CONTROL PANEL |
| LTR | -LIGHTING |
| MFR | -MANUFACTURER |
| MSB | -MAIN SWITCH BOARD |
| MTS | -MANUAL TRANSFER SWITCH |
| NEC | -NATIONAL ELECTRIC CODE |
| NEMA | -NATIONAL ELECTRIC MANUFACTURER'S ASSOCIATION |
| N | -NEUTRAL |
| PB | -PULLBOX |
| PC | -PHOTOCELL |
| PNL | -PANELBOARD |
| RECEPT | -RECEPTACLE |
| SWBD | -SWITCHBOARD |
| T | -THERMOSTAT OR TELE CONDUIT |
| TOD | -TOP OF DEVICE |
| TYP | -TYPICAL |
| V | -VOLTMETER, VOLT |
| W | -WATT |
| WP | -WEATHERPROOF (NEMA 3R) |
| XFMR | -TRANSFORMER |

LUMINAIRE SCHEDULE

| ID | Manufacturer | Model | Lamps | Luminous Flux | Color Temperature | Apparent Load | Description |
|----|--------------|---------------|-------|---------------|-------------------|---------------|--|
| 1 | METALUX | OVATION 22RD1 | LED | 2000 lm | 3500 K | 20.0 VA | INTERIOR RECESSED 2'x2' CENTER-LIT FLAT PANEL, GRID CEILING, 0-10V DIMMING DOWN TO 1%, 120V AC |
| 2 | METALUX | OVATION 22RD1 | LED | 4000 lm | 3500 K | 41.8 VA | INTERIOR RECESSED 2'x2' CENTER-LIT FLAT PANEL, GRID CEILING, 0-10V DIMMING DOWN TO 1%, 120V AC |
| 3 | LITHONIA | FMVCSLS | LED | 1550 lm | 3500 K | 18.0 VA | INTERIOR TRADITIONAL VANITY, 2FT LENGTH, BRUSHED NICKEL FINISH, 120V AC |
| 4 | LITHONIA | STL4 | LED | 3979 lm | 4000 K | 34.9 VA | INTERIOR SURFACE MOUNTED WRAPAROUND, 48" NOMINAL, CURVED SMOOTH LENS, 0-10V DIMMING DOWN TO 10%, 120V AC. PROVIDE WITH EMERGENCY BATTERY BACKUP WHERE INDICATED. |



2 ONE LINE DIAGRAM
E100 NOT TO SCALE

KEYED NOTES:

1 REFER TO PANEL SCHEDULES FOR MODIFICATION.



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LICENSE STAMP



CONSULTANTS

PROJECT NAME

SHERIFF OFFICE
REMODEL

FOR

HUMBOLDT COUNTY

826 4TH STREET
EUREKA, CA 95501

NO. REVISIONS DATE

1 Add ADA Restroom 11/21/25

SHEET TITLE

ELECTRICAL LEGENDS
AND SCHEDULES

ISSUED FOR:

CONSTRUCTION
DOCUMENTS

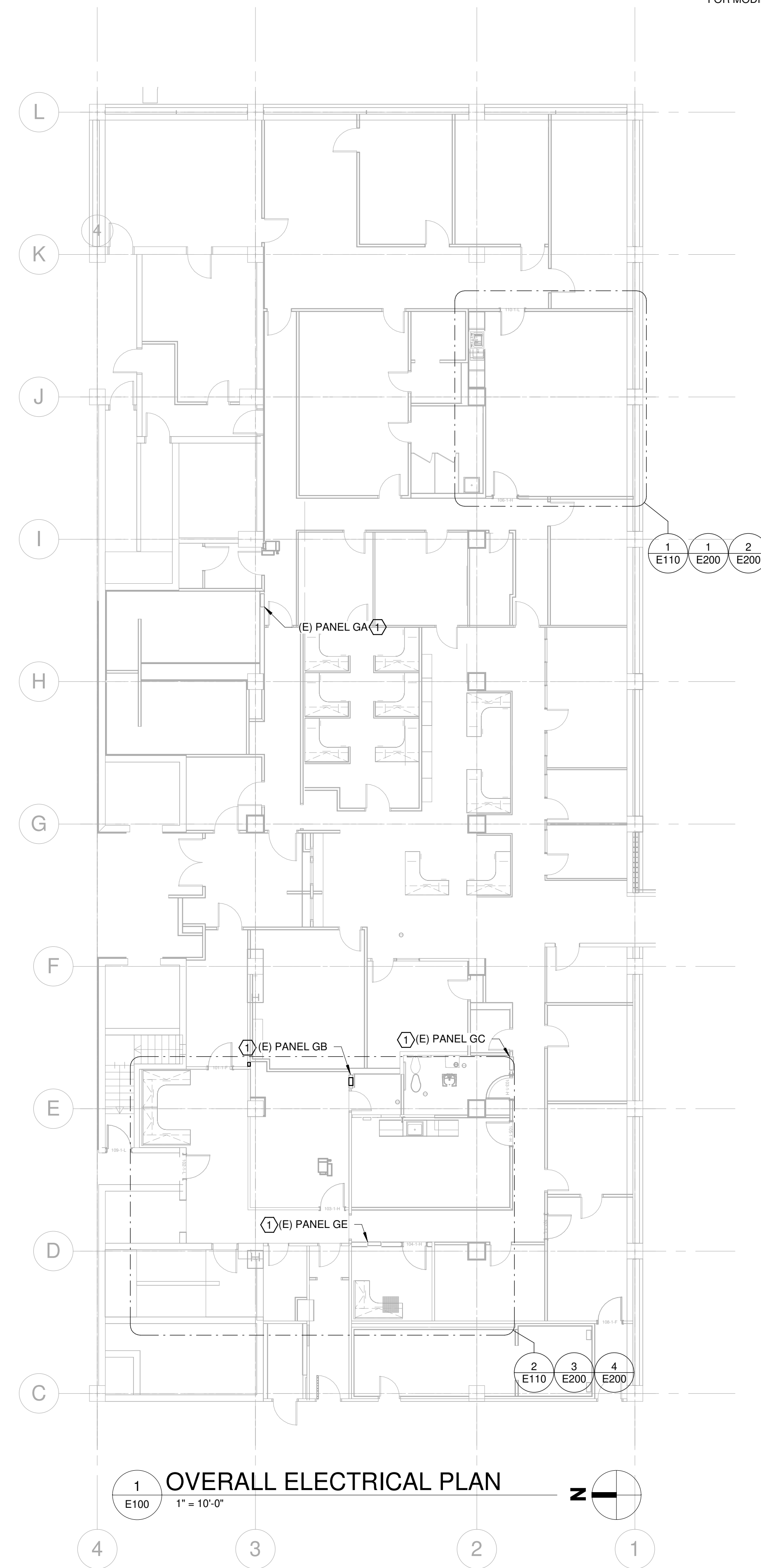
DATE: 06/24/2024

DRAWN BY: NW

REVIEWED BY: NW

SCALE: As indicated

PROJECT NO: 2026-501



1 OVERALL ELECTRICAL PLAN
E100 1" = 10'-0"

(E) BRANCH PANEL GB

LOCATION: STORAGE 2 23
 SUPPLY FROM: RECESSED
 MOUNTING: NEMA 1
 ENCLOSURE: NEMA 1

VOLTS: 120/208 Wye
 PHASES: 3
 WIRES: 4
 CIRCUITS: 24

A.I.C. RATING: EXISTING
 BUS RATING: 100 A
 MAIN: MLO

| CKT | Circuit Description | Rating | Poles | A | B | C | A | B | C | Poles | Rating | Circuit Description | CKT |
|-------------------------|---------------------------------|--------|-------|---------|---------|---------|------|------|-----|-------|--------|--------------------------|-----|
| 1 | (E) LIGHTING - CORR. 15 | 20 A | 1 | 1200 | | | 1200 | | | 1 | 20 A | (E) LIGHTING - DAY RM. | 2 |
| 3 | (E) LIGHTING - DAY RM. | 20 A | 1 | | 1200 | | | 1080 | | 1 | 20 A | (N) RECEPTS - SCOP | 4 |
| 5 | SPARE | 20 A | 1 | | 0 | | | | 0 | 1 | 20 A | SPARE | 6 |
| 7 | (E) ATTORNEY RM. | 20 A | 1 | 900 | | | 900 | | | 1 | 20 A | (E) RECEPTS - PIPE CHASE | 8 |
| 9 | SPARE | 20 A | 1 | | 0 | | | 900 | | 1 | 20 A | (E) RECEPTS - DARK RM. | 10 |
| 11 | (E) LIGHTING - CORR. 4 | 20 A | 1 | | | 1200 | | | 900 | 1 | 20 A | (E) RECEPTS - FOOD CART | 12 |
| 13 | (E) CONTROL RM BATH | 20 A | 1 | 900 | | | 900 | | | 1 | 20 A | (E) RECEPTS - DARK RM. | 14 |
| 15 | SPARE | 20 A | 1 | | 0 | | | | 0 | 1 | 20 A | SPARE | 16 |
| 17 | (E) LIGHTING - CORR. 9 | 20 A | 1 | | | 1200 | | | | 1 | 20 A | (E) SMK FANS | 18 |
| 19 | (E) LIGHTING & RECETPS - OFFICE | 20 A | 1 | 1200 | | | 0 | | | 1 | 20 A | SPARE | 20 |
| 21 | (E) LIGHTING - BATHROOM | 20 A | 1 | | 900 | | | 500 | | 1 | 20 A | (E) SMOKE DECT. | 22 |
| 23 | SPARE | 20 A | 1 | | | | | | 0 | 1 | 20 A | SPARE | 24 |
| TOTAL LOAD (VOLT-AMPS): | | | | PHASE A | PHASE B | PHASE C | | | | | | | |
| | | | | 7200 VA | 4580 VA | 3800 VA | | | | | | | |
| TOTAL LOAD (AMPS): | | | | 61 A | 39 A | 32 A | | | | | | | |

(E) BRANCH PANEL GE

LOCATION: STORAGE 2 23
 SUPPLY FROM: RECESSED
 MOUNTING: NEMA 1
 ENCLOSURE: NEMA 1

VOLTS: 120/208 Wye
 PHASES: 3
 WIRES: 4
 CIRCUITS: 20

A.I.C. RATING: EXISTING
 BUS RATING: 100 A
 MAIN: MLO

| CKT | Circuit Description | Rating | Poles | A | B | C | A | B | C | Poles | Rating | Circuit Description | CKT |
|-------------------------|--------------------------|--------|-------|---------|---------|---------|------|------|------|-------|--------|---|-----|
| 1 | (E) LIGHTING - JAIL AREA | 20 A | 1 | 1200 | | | 900 | | | 1 | 20 A | (E) POWER LOBBY | 2 |
| 3 | (E) POWER LOBBY | 20 A | 1 | | 900 | | | 0 | | 1 | 20 A | SPARE | 4 |
| 5 | (E) POWER COMMUNICATION | 20 A | 1 | | | 900 | | | 500 | 1 | 20 A | (E) CLOCKS | 6 |
| 7 | (E) LIGHTING | 20 A | 1 | 900 | | | 1200 | | | 1 | 20 A | (E) LIGHTS - CHF. | 8 |
| 9 | (N) RECEPTS - CONFERENCE | 20 A | 1 | | 380 | | | 900 | | 1 | 20 A | (E) RECEPTS - CHF. | 10 |
| 11 | (N) RECEPTS - SCOP | 20 A | 1 | | | 540 | | | 430 | 1 | 20 A | (N) LIGHTING - SCOP, OFFICE, BREAK, CONF. | 12 |
| 13 | (N) RECEPTS - CONFERENCE | 20 A | 1 | 1080 | | | 900 | | | 1 | 50 A | (E) RECEPTS | 14 |
| 15 | (E) ESCAPE ALARM | 20 A | 1 | | 900 | | | 1200 | | 1 | 20 A | (E) LIGHTING - STAIR NO. | 16 |
| 17 | (E) LIGHTING - STAIR NO. | 20 A | 1 | | | 1200 | | | 1200 | 1 | 20 A | (E) LIGHTING - STAIR NO. | 18 |
| 19 | (E) LIGHTS - STAIR NO. | 20 A | 1 | 1200 | | | 1200 | | | 1 | 20 A | (E) LIGHTS - STAIR NO. | 20 |
| TOTAL LOAD (VOLT-AMPS): | | | | PHASE A | PHASE B | PHASE C | | | | | | | |
| | | | | 8580 VA | 4280 VA | 4770 VA | | | | | | | |
| TOTAL LOAD (AMPS): | | | | 72 A | 36 A | 40 A | | | | | | | |

(E) BRANCH PANEL GA

LOCATION: STORAGE 2 23
 SUPPLY FROM: RECESSED
 MOUNTING: NEMA 1
 ENCLOSURE: NEMA 1

VOLTS: 120/208 Wye
 PHASES: 3
 WIRES: 4
 CIRCUITS: 44

A.I.C. RATING: EXISTING
 BUS RATING: 225 A
 MAIN: MLO

| CKT | Circuit Description | Rating | Poles | A | B | C | A | B | C | Poles | Rating | Circuit Description | CKT |
|-------------------------|-----------------------------|--------|-------|----------|----------|----------|------|------|------|-------|--------|---------------------------|-----|
| 1 | (E) LIGHTS | 20 A | 1 | 1200 | | | 1200 | | | 1 | 20 A | (E) LIGHTING - LOCKER RM. | 2 |
| 3 | (E) LIGHTING - LOCKER RM. | 20 A | 1 | | 1200 | | | 1200 | | 1 | 20 A | (E) LIGHTING - SQUAD RM. | 4 |
| 5 | (E) LIGHTING - SQUAD RM. | 20 A | 1 | | | 1200 | | | 1200 | 1 | 20 A | (E) LIGHTING - SQUAD RM. | 6 |
| 7 | (E) LIGHTING - EXERCISE RM. | 20 A | 1 | 1200 | | | 1200 | | | 1 | 20 A | (E) LIGHTING - NO. WEST | 8 |
| 9 | (E) LIGHTING | 20 A | 1 | | 1200 | | | 1200 | | 1 | 20 A | (E) LIGHTING - NO. WEST | 10 |
| 11 | (E) LIGHTING - EXERCISE RM. | 20 A | 1 | | | 1200 | | | 1200 | 1 | 20 A | (E) LIGHTING - RESTROOMS | 12 |
| 13 | (E) LIGHTING - RESTROOMS | 20 A | 1 | 1200 | | | 1200 | | | 1 | 20 A | (E) LIGHTING - RESTROOMS | 14 |
| 15 | (E) LIGHTING - RESTROOMS | 20 A | 1 | | | 1200 | | | 0 | 1 | 20 A | (E) LIGHTING - RESTROOMS | 16 |
| 17 | (E) LIGHTING | 20 A | 1 | | | 1200 | | | 900 | 1 | 20 A | (E) RECEPTS - PTR-T RM. | 18 |
| 19 | (E) RECEPTS - NORTH | 20 A | 1 | 900 | | | 900 | | | 1 | 20 A | (E) KITCHEN | 20 |
| 21 | (E) KITCHEN | 20 A | 1 | | 900 | | | 540 | | 1 | 20 A | (E) RECEPTS - NORTH | 22 |
| 23 | (E) RECEPTS - NORTH | 20 A | 1 | | | 900 | | | 900 | 1 | 20 A | (E) RECEPTS - SO. & P-V | 24 |
| 25 | (E) LIGHTING - RESTROOMS | 20 A | 1 | 1200 | | | 900 | | | 1 | 20 A | (N) RECEPTS - BRIEFING | 26 |
| 27 | (E) LIGHTING - RESTROOMS | 20 A | 1 | | | 1200 | | | 900 | 1 | 20 A | (E) RECEPTS - UPS | 28 |
| 29 | (N) LIGHTING - BRIEFING | 20 A | 1 | | | 251 | | | 900 | 1 | 20 A | (E) FLOOR DUCT | 30 |
| 31 | (E) MUREL / CANOPY | 20 A | 1 | 900 | | | 900 | | | 1 | 20 A | (E) FLOOR DUCT | 32 |
| 33 | (E) SIGN | 20 A | 1 | | 1200 | | | 1200 | | 1 | 20 A | (E) SIGN | 34 |
| 35 | (E) SIGN | 20 A | 1 | | | | | | 920 | 1 | 20 A | (N) RECEPTS - BRIEFING | 36 |
| 37 | (E) XEROX MACHINE | 40 A | 3 | 3400 | | | 3400 | | | 3 | 40 A | (E) XEROX MACHINE | 38 |
| 39 | (E) XEROX MACHINE | 40 A | 3 | | 3400 | | | 3400 | | 3 | 40 A | (E) XEROX MACHINE | 40 |
| 41 | (E) XEROX MACHINE | 40 A | 3 | | | 3400 | | | 3400 | 3 | 40 A | (E) XEROX MACHINE | 42 |
| 43 | (E) SPACE | -- | 1 | -- | | | -- | | | 1 | -- | (E) SPACE | 44 |
| TOTAL LOAD (VOLT-AMPS): | | | | PHASE A | PHASE B | PHASE C | | | | | | | |
| | | | | 19700 VA | 18740 VA | 17571 VA | | | | | | | |
| TOTAL LOAD (AMPS): | | | | 166 A | 158 A | 146 A | | | | | | | |

(E) BRANCH PANEL GC

LOCATION: STORAGE 2 23
 SUPPLY FROM: RECESSED
 MOUNTING: NEMA 1
 ENCLOSURE: NEMA 1

VOLTS: 120/208 Wye
 PHASES: 3
 WIRES: 4
 CIRCUITS: 32

A.I.C. RATING: EXISTING
 BUS RATING: 100 A
 MAIN: MLO

| CKT | Circuit Description | Rating | Poles | A | B | C | A | B | C | Poles | Rating | Circuit Description | CKT |
|-------------------------|---------------------------|--------|-------|---------|---------|---------|------|------|------|-------|--------|-------------------------------------|-----|
| 1 | (E) LIGHTING - INT. RM. | 20 A | 1 | 1200 | | | 1200 | | | 1 | 20 A | (E) LIGHTING - INT. RM. | 2 |
| 3 | (E) LIGHTING - INT. RM. | 20 A | 1 | | 1200 | | | 1080 | | 1 | 20 A | (E) LIGHTING - INT. RM. | 4 |
| 5 | (E) LIGHTING - INT. RM. | 20 A | 1 | | | 1200 | | | 1200 | 1 | 20 A | (E) LIGHTING - INT. RM. | 6 |
| 7 | (E) LIGHTING - INT. RM. | 20 A | 1 | 1200 | | | 1200 | | | 1 | 20 A | (E) LIGHTING - INT. RM. | 8 |
| 9 | (E) LIGHTING - INT. RM. | 20 A | 1 | | 1200 | | | 1470 | | 1 | 20 A | (E) RECEPTS - SOUTH | 10 |
| 11 | (E) LIGHTING | 20 A | 1 | | | 1200 | | | 900 | 1 | 20 A | (E) RECEPTS - SOUTH | 12 |
| 13 | (E) RECEPTS - REAR OFFICE | 20 A | 1 | 900 | | | 900 | | | 1 | 20 A | (E) FLOOR DUCT | 14 |
| 15 | (E) RECEPTS - SOUTH | 20 A | 1 | | 900 | | | 900 | | 1 | 20 A | (E) FLOOR DUCT | 16 |
| 17 | (E) FLOOR DUCT | 20 A | 1 | | | 900 | | | 900 | 1 | 20 A | (E) FLOOR DUCT | 18 |
| 19 | (E) LIGHTING | 20 A | 1 | 0 | | | 900 | | | 1 | 20 A | (E) RECEPTS - EAST JAIL | 20 |
| 21 | (E) COPY MACHINES | 20 A | 1 | | 900 | | | 700 | | 1 | 20 A | (N) VENDING - BREAK RM | 22 |
| 23 | (E) SPARE | 20 A | 1 | | | 0 | | | 1200 | 1 | 20 A | (N) REFRIGERATOR - BREAK RM | 24 |
| 25 | (E) SPARE | 20 A | 1 | 0 | | | | 900 | | 1 | 20 A | (N) RECEPTS - BREAK RM | 26 |
| 27 | (E) SPARE | 20 A | 1 | | | 0 | | | 720 | 1 | 20 A | (N) RECEPTS - OFFICE | 28 |
| 29 | (E) SPARE | 20 A | 1 | | | 0 | | | 1440 | 1 | 20 A | (N) RECEPTS - BREAK ROOM AND OFFICE | 30 |
| 31 | (E) SPACE | -- | 1 | -- | | | -- | | | 1 | -- | (E) SPACE | 32 |
| TOTAL LOAD (VOLT-AMPS): | | | | PHASE A | PHASE B | PHASE C | | | | | | | |
| | | | | 8400 VA | 9070 VA | 8940 VA | | | | | | | |
| TOTAL LOAD (AMPS): | | | | 70 A | 76 A | 75 A | | | | | | | |

- KEYED NOTES:**
- USE EXISTING SPARE CIRCUIT BREAKER TO SERVE NEW CIRCUIT AS SHOWN. MODIFY PANEL AS REQUIRED.
 - REUSE EXISTING CIRCUIT BREAKER FOR NEW CIRCUIT AS SHOWN. MODIFY PANEL AS REQUIRED.
 - PROVIDE NEW CIRCUIT BREAKER TO SERVE NEW CIRCUIT AS SHOWN. MODIFY PANEL AS REQUIRED.



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LICENSE STAMP



CONSULTANTS

PROJECT NAME

SHERIFF OFFICE REMODEL

FOR

HUMBOLDT COUNTY

826 4TH STREET EUREKA, CA 95501

| NO. | REVISIONS | DATE |
|-----|------------------|----------|
| 1 | Add ADA Restroom | 11/21/25 |

SHEET TITLE

PANEL SCHEDULES

ISSUED FOR:
CONSTRUCTION DOCUMENTS

DATE: 06/24/2024
 DRAWN BY: NW
 REVIEWED BY: NW
 SCALE:
 PROJECT NO: 2026-501

E101

ELECTRICAL SPECIFICATION

PART 1 - GENERAL

- 1.1 GENERAL
- A. ELECTRICAL PLAN DRAWINGS SHOW ONLY GENERAL LOCATIONS OF EQUIPMENT, DEVICES, AND NEW WORK UNLESS SPECIFICALLY DIMENSIONED. THE CONTRACTOR IS RESPONSIBLE FOR THE PROPER ROUTING OF RACEWAY, SUBJECT TO THE APPROVAL OF THE ENGINEER, MAKE ADJUSTMENTS AS NECESSARY TO WIRING, CONDUIT, DISCONNECTS, BRANCH CIRCUIT PROTECTION, AND OTHER AFFECTED MATERIAL OR EQUIPMENT TO ACCOMMODATE ACTUAL EQUIPMENT SUPPLIED FOR THIS PROJECT.
- 1.2 CODES, PERMITS, AND REGULATIONS
- A. DO ALL WORK AND INSTALL ALL MATERIALS AND EQUIPMENT IN ACCORDANCE WITH THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC), APPLICABLE STATE AND LOCAL LAWS AND ORDINANCES, AND THE POWER COMPANY. CONFLICTS, IF ANY, WILL BE RESOLVED AT THE DISCRETION OF THE ENGINEER.
- 1.3 SUBMITTALS
- A. BEFORE ANY MATERIAL IS FABRICATED OR SHIPPED, FURNISH TO THE ENGINEER FULL DETAILS, SHOP DRAWINGS, DIMENSIONS, CATALOG CUTS, SCHEMATIC (ELEMENTARY) DIAGRAMS, AND OTHER DESCRIPTIVE MATTER AS REQUIRED TO FULLY DESCRIBE THE EQUIPMENT SPECIFIED.
- 1.4 COORDINATION
- A. CLOSE COORDINATION BETWEEN THE ELECTRICAL AND MECHANICAL TRADES IS A PART OF THE WORK THAT IS REQUIRED BY THIS CONTRACT. NO ALLOWANCE WILL BE MADE FOR OMISSIONS BASED ON INCORRECTLY ASSUMING ANOTHER TRADE WILL BE PERFORMING YOUR WORK. CONFIRM YOUR SCOPE OF WORK WITH THE GENERAL CONTRACTOR.

PART 2 - PRODUCTS

- 2.1 GENERAL
- A. UNLESS OTHERWISE INDICATED, PROVIDE ALL FIRST-QUALITY NEW MATERIALS, FREE FROM ANY DEFECTS, AND SUITABLE FOR THE INTENDED USE AND THE SPACE PROVIDED. PROVIDE MATERIALS APPROVED BY UL WHEREVER STANDARDS HAVE ITEMS NOT SPECIFICALLY SHOWN OR SPECIFIED WHICH ARE REQUIRED TO PROVIDE THE COMPLETE SYSTEMS SPECIFIED HEREIN. WHERE TWO OR MORE UNITS OF THE SAME CLASS OF MATERIAL OR EQUIPMENT ARE REQUIRED, PROVIDE PRODUCTS OF A SINGLE MANUFACTURER. COMPONENT PARTS OF MATERIALS OR EQUIPMENT NEED NOT BE PRODUCTS OF THE SAME MANUFACTURER.
- 2.2 EQUIPMENT FINISH
- A. UNLESS OTHERWISE INDICATED, FINISH FOR ELECTRICAL EQUIPMENT AND ENCLOSURES SHALL BE MANUFACTURER'S STANDARD GRAY OR ANSI 61 GRAY OVER A PRIMER AND RUST INHIBITOR.
- 2.3 OUTLET AND DEVICE BOXES
- A. SHEET STEEL: ONE-PIECE DRAWN TYPE, ZINC- OR CADMIUM-PLATED.
- 2.4 JUNCTION AND PULLBOXES
- A. OUTLET BOXES USED AS JUNCTION OR PULL BOX: AS SPECIFIED UNDER OUTLET AND DEVICE BOXES.
- B. LARGE SHEET STEEL BOX: NEMA 1.
1. BOX: CODE-GAUGE, GALVANIZED STEEL.
2. COVER: FULL ACCESS, SCREW TYPE.
3. MACHINE SCREWS: CORROSION-RESISTANT.
- C. LARGE WEATHERPROOF: NEMA 3R.
1. BOX: GALVANIZED STEEL.
2. COVER: SCREW WITH PROVISIONS FOR PAD LOCKING.
3. EMBOSSED MOUNTING HOLES ON BACK OF ENCLOSURE.
4. NO GASKETING.
- 2.5 CONDUIT AND TUBING
- A. GALVANIZED RIGID STEEL CONDUIT (GRS):
1. MEET REQUIREMENTS OF ANSI C80.1 AND UL 6.
2. MATERIAL: HOT-DIP GALVANIZED, WITH CHROMATED PROTECTIVE LAYER.
- B. ELECTRIC METALLIC TUBING (EMT):
1. MEET REQUIREMENTS OF ANSI C80.3 AND UL 797.
2. MATERIAL: HOT-DIP GALVANIZED, WITH CHROMATED AND LAQUERED PROTECTIVE LAYER.
- C. FLEXIBLE METAL, LIQUID-TIGHT CONDUIT:
1. UL 360 LISTED FOR 105°C INSULATED CONDUCTORS.
2. MATERIAL: GALVANIZED STEEL, WITH AN EXTRUDED PVC JACKET.
- D. GALVANIZED STEEL FLEXIBLE CONDUIT:
1. HOT-DIP GALVANIZED.
2. UL 1 AND UL 1479.
- E. RIGID POLYVINYL CHLORIDE CONDUIT: UL 651.
- 2.6 FITTINGS
- A. GALVANIZED RIGID STEEL:
1. MEET REQUIREMENTS OF UL 514B.
2. TYPE: THREADED WITH LOCK NUTS; SCREW FITTINGS NOT PERMITTED.
3. MATERIAL: MALLEABLE IRON WITH INSULATED THROAT.
- B. ELECTRIC METALLIC TUBING:
1. MEET REQUIREMENTS OF UL 514B.
2. TYPE: STEEL BODY AND LOCK NUTS WITH STEEL OR MALLEABLE IRON COMPRESSION NUTS.
3. TYPE: STEEL BODY WITH SET SCREWS AND INSULATED THROAT.
- a. FLEXIBLE METAL, LIQUID-TIGHT CONDUIT: INSULATED THROAT AND SEALING O-RINGS.
- C. GALVANIZED STEEL FLEXIBLE CONDUIT: CAST, SCREW-IN TYPE OR TWO-SCREW CLAMP TYPE.
- 2.7 CONDUCTORS
- A. ALL CONDUCTORS SHOWN SHALL BE NEW UNLESS OTHERWISE INDICATED.
- B. CONDUCTOR TYPE:
1. 120VAC AND 277VAC LIGHTING: SOLID COPPER.
2. 120 AC RECEPTACLE CIRCUITS: SOLID COPPER.
3. ALL OTHER CIRCUITS: STRANDED COPPER.
- C. INSULATION: TYPE THHN/THWN, 90°C DRY OR 75°C WET.
- 2.8 CONDUCTOR ACCESSORIES
- A. TAPE:
1. GENERAL PURPOSE, FLAME RETARDANT: 7 MIL, VINYL PLASTIC, RATED FOR 90°C MINIMUM MEETING REQUIREMENTS OF UL 510.
2. FLAME RETARDANT, COLD AND WEATHER RESISTANT: 8.5 MIL, VINYL PLASTIC.
- B. CABLE TIES: NYLON, ADJUSTABLE, AND SELF-LOCKING.
- 2.9 WIRING DEVICES
- A. DUPLEX RECEPTACLE:
1. NEMA WD 1 AND FS WC596.
2. SPECIFICATION GRADE, TWO-POLE, THREE-WIRE GROUNDING TYPE WITH SCREW TYPE TERMINALS SUITABLE FOR NO. 10.
3. HIGH STRENGTH THERMOPLASTIC.
4. COLOR: TO BE DETERMINED.
5. CONTACT ARRANGEMENT: CONTRACT TO BE MADE ON TWO SIDES OF EACH INSERTED BLADE WITHOUT DETENT.
6. RATING: 120VAC, 20A.
7. CONFIGURATION: 5-20 R.
- B. GROUND FAULT INTERRUPTER (GFCI) RECEPTACLE:
1. NEMA WD 1.
2. RATING: 120VAC, 20A.
3. CONFIGURATION: 5-20 R.
4. PROTECTIONS: TRIPS AT 5 MA AND CAPABLE OF INTERRUPTING 1,000A WITHOUT DAMAGE.
5. COLOR: TO BE DETERMINED.
6. PROVISION FOR TESTING.
7. ALL RECEPTACLE TYPES SHALL BE FROM A SINGLE MANUFACTURER.
- C. CEILING MOUNTED OCCUPANCY SENSOR:
1. CEILING MOUNTED LOW PROFILE APPEARANCE.
2. TYPE: DUAL TECHNOLOGY WITH PASSIVE INFRARED AND MICROPHONIC TECHNOLOGIES.
3. TIME DELAYS: 30 SECONDS TO 20 MINUTES.
4. BUILT-IN LIGHT LEVEL SENSOR.
5. POWER PACK; PROVIDE AS REQUIRED TO ACCOMMODATE INSTALLATION.
6. COVERAGE PATTERN: 40-FOOT X 40-FOOT MINIMUM.
- 2.10 DEVICE PLATES
- A. PLASTIC
1. MATERIAL: NYLON HIGH IMPACT MATERIAL, NONCOMBUSTIBLE.
2. COLOR: TO MATCH ASSOCIATED WIRING DEVICE.
3. MOUNTING SCREW: OVAL-HEAD METAL, COLOR MATCHED TO PLATE.
- B. WEATHER RESISTANT RECEPTACLES
1. PROVIDE RAINPROOF PROTECTION WHILE OUTLET IS IN USE.
2. DIE-CAST ZINC HOUSING WITH POLYESTER POWDER COAT PAINT FOR CORROSION RESISTANCE.
3. STAINLESS STEEL SCREWS AND SPRINGS.
4. UL LISTED TAMPER RESISTANT AND CAPABLE OF ACCEPTING A PADLOCK.
5. NEMA 3R RATED WHILE IN USE.
- 2.11 SWITCHBOARD
- A. RATINGS: AS SHOWN ON THE PLANS.
- B. CONSTRUCTION:
1. THE SWITCHBOARD SHALL CONSIST OF THE REQUIRED NUMBER OF VERTICAL SECTIONS BOLTED TOGETHER TO FORM A RIGID ASSEMBLY. THE SIDES SHALL BE COVERED WITH REMOVABLE BOLT-ON COVERS. ALL EDGES OF FRONT COVERS OR HINGED FRONT PANELS SHALL BE FORMED. PROVIDE ADEQUATE VENTILATION WITHIN THE ENCLOSURE. CABLE COMPARTMENT ACCESS SHALL BE PROVIDED BY HINGED REAR DOORS, COMPLETE WITH KEY LOCKABLE HARDWARE HALL BE PROVIDED.
2. THE ASSEMBLY SHALL BE PROVIDED WITH ADEQUATE LIFTING MEANS AND SHALL BE CAPABLE OF BEING MOVED INTO INSTALLATION POSITION AND BOLTED DIRECTLY TO THE FLOOR WITHOUT THE REQUIRED USE OF FLOOR SILLS PROVIDING THE FLOOR IS LEVEL TO 1/8 INCH PER 3-FOOT DISTANCE IN ANY DIRECTION. PROVISIONS SHALL BE MADE FOR JACKING OF SHIPPING GROUPS. FOR REMOVAL OF SKIDS OR INSERTION OF EQUIPMENT ROLLERS. BASE OF ASSEMBLY SHALL BE SUITABLE FOR ROLLING DIRECTLY ON PIPES WITHOUT SKIDS. THE BASE SHALL BE EQUIPPED WITH SLOTS IN THE BASE FRAME MEMBERS TO ACCOMMODATE THE USE OF PRY BARS FOR MOVING THE EQUIPMENT TO ITS FINAL POSITION.
3. EACH VERTICAL STEEL UNIT FORMING PART OF THE SWITCHBOARD LINE-UP SHALL BE A SELF-CONTAINED HOUSING HAVING ONE OR MORE INDIVIDUAL BREAKER OR INSTRUMENT COMPARTMENTS. A CENTRALIZED BUS COMPARTMENT AND A REAR CABLE COMPARTMENT. EACH INDIVIDUAL CIRCUIT BREAKER COMPARTMENT, OR CELL, SHALL BE SEGREGATED FROM ADJACENT COMPARTMENTS AND SECTIONS BY MEANS OF STEEL OR GLASS-POLY BARRIERS TO THE MAXIMUM EXTENT POSSIBLE. REMOVABLE HINGE PINS SHALL BE PROVIDED ON THE BREAKER COMPARTMENT DOOR HINGES. FOR DRAW-OUT POWER AND INSULATED-CASE CIRCUIT BREAKERS, CURRENT TRANSFORMERS FOR FEEDER INSTRUMENTATION, WHERE SHOWN ON THE PLANS, SHALL BE LOCATED WITHIN THE CABLE PULL COMPARTMENT. BE REMOVABLE AND PROVIDED WITH SHORTING TERMINAL BLOCKS IN THE FRONT WIREWAY. CIRCUIT BREAKER DOORS SHALL NOT BE VENTILATED.
4. THE DRAW-OUT POWER AND INSULATED-CASE CIRCUIT BREAKER SECONDARY DISCONNECTING DEVICES SHALL CONSIST OF FLOATING TERMINALS MOUNTED ON THE STATIONARY UNIT AND ENGAGING MATING CONTACTS AT THE FRONT OF THE BREAKER. THE BREAKER SECONDARY DISCONNECTING DEVICES SHALL BE MAINTAINED IN THE "CONNECTED" AND "TEST" POSITIONS.
5. DRAW-OUT MOLDED-CASE CIRCUIT BREAKERS SHALL BE PROVIDED WITH A ROTARY DRAW-OUT MECHANISM. THE BREAKER CASSETTE SHALL POSITIVELY ALIGN THE BREAKER IN THE STATIONARY STRUCTURE DURING INSTALLATION AND REMOVAL OPERATIONS, AND IT SHALL HAVE TWO POSITIONS, "CONNECTED" AND "DISCONNECTED".
6. LINE AND LOAD CONNECTIONS FOR DRAW-OUT MOLDED CASE CIRCUIT BREAKERS UP TO 600 AMPS SHALL REMAIN WITH THE BREAKER CASSETTE BASE INSIDE THE SWITCHBOARD WHEN THE BREAKER DRAW-OUT ELEMENT IS REMOVED. DESIGNS THAT REQUIRE REMOVAL OF LINE OR LOAD CONDUCTORS TO REMOVE THE DRAW-OUT ELEMENT ARE NOT ACCEPTABLE.
7. PROVIDE A REAR COMPARTMENT BARRIER BETWEEN THE CABLE COMPARTMENT AND THE MAIN BUS TO PROTECT AGAINST INADVERTENT CONTACT WITH MAIN OR VERTICAL BUS BARS.
8. THE SWITCHBOARD SHALL BE SUITABLE FOR USE AS SERVICE ENTRANCE EQUIPMENT AND BE LABELED IN ACCORDANCE WITH UL REQUIREMENTS.
- C. BUS
1. ALL BUS BARS SHALL BE TIN-PLATED COPPER. MAIN HORIZONTAL BUS BARS SHALL BE MOUNTED WITH ALL THREE PHASES ARRANGED IN THE SAME VERTICAL PLANE. BUS SIZING SHALL BE BASED ON NEMA STANDARD TEMPERATURE RISE CRITERIA OF 65 DEGREES C OVER A 40 DEGREES C AMBIENT (OUTSIDE THE ENCLOSURE).
2. PROVIDE A FULL CAPACITY NEUTRAL BUS WHERE A NEUTRAL BUS IS INDICATED ON THE DRAWINGS.
3. A COPPER GROUND BUS, SIZED IN ACCORDANCE WITH UL STANDARD 891, SHALL BE FURNISHED FIRMLY SECURED TO EACH VERTICAL SECTION STRUCTURE AND SHALL EXTEND THE ENTIRE LENGTH OF THE SWITCHBOARD.
4. ALL HARDWARE USED ON CONDUCTORS SHALL BE HIGH-TENSILE STRENGTH AND ZINC-PLATED. JOINT BARS SHALL BE PROVIDED WITH CONICAL SPRING-TYPE WASHERS.
5. TAPERED BUS IS NOT ACCEPTABLE.
- D. UTILITY METERING
1. WHERE INDICATED ON THE DRAWINGS, FURNISH A BARRIER TO SEPARATE THE UTILITY METERING COMPARTMENT COMPLETE WITH HINGED SEALABLE DOOR. BUS WORK SHALL INCLUDE PROVISIONS FOR MOUNTING UTILITY COMPANY CURRENT TRANSFORMERS AND POTENTIAL TRANSFORMERS, OR POTENTIAL TAPS AS REQUIRED BY THE UTILITY COMPANY. PROVIDE SERVICE ENTRANCE LABEL AND PROVIDE NECESSARY APPLICABLE SERVICE ENTRANCE FEATURES PER NEC AND LOCAL CODE REQUIREMENTS.
- E. ENCLOSURES: NEMA 3R ENCLOSURE.
- F. NAMEPLATES
1. ENGRAVED NAMEPLATES, MOUNTED ON THE FACE OF THE ASSEMBLY, SHALL BE FURNISHED FOR ALL MAIN AND FEEDER CIRCUITS AS INDICATED ON THE DRAWINGS. NAMEPLATES SHALL BE LAMINATED PLASTIC, BLACK CHARACTERS ON WHITE BACKGROUND. CHARACTERS SHALL BE 3/16-INCH HIGH, MINIMUM.
2. FURNISH MASTER NAMEPLATE GIVING SWITCHBOARD DESIGNATION, VOLTAGE AMPERE RATING, SHORT-CIRCUIT RATING, AND MANUFACTURER'S NAME.
3. CONTROL COMPONENTS MOUNTED WITHIN THE ASSEMBLY, SUCH AS FUSE BLOCKS, RELAYS, PUSHBUTTONS, SWITCHES, ETC., SHALL BE SUITABLY MARKED FOR IDENTIFICATION CORRESPONDING TO APPROPRIATE DESIGNATIONS ON MANUFACTURER'S WIRING DIAGRAMS.
- G. FINISH
1. ALL EXTERIOR AND INTERIOR STEEL SURFACES OF THE SWITCHBOARD SHALL BE PROPERLY CLEANED AND PROVIDED WITH A RUST-INHIBITING PHOSPHATIZED COATING. COLOR AND FINISH OF THE SWITCHBOARD SHALL BE ANSI 61 LIGHT GRAY.
- 2.11 PANELBOARDS
- A. RATINGS: AS SHOWN ON THE PLANS.
- B. CONSTRUCTION:
1. INTERIORS SHALL BE COMPLETELY FACTORY ASSEMBLED. THEY SHALL BE DESIGNED SUCH THAT SWITCHING AND PROTECTIVE DEVICES CAN BE REPLACED WITHOUT DISTURBING ADJACENT UNITS AND WITHOUT REMOVING THE MAIN BUS CONNECTORS.
2. TRIMS FOR BRANCH CIRCUIT PANELBOARDS SHALL BE SUPPLIED WITH A HINGED DOOR OVER ALL CIRCUIT BREAKER HANDLES. DOORS IN PANELBOARD TRIMS SHALL NOT UNCOVER ANY LIVE PARTS. DOORS SHALL HAVE A SEMI FLUSH CYLINDER LOCK AND CATCH ASSEMBLY. DOOR-IN-DOOR TRIM SHALL BE PROVIDED. BOTH HINGED TRIM AND TRIM DOOR SHALL UTILIZE THREE POINT LATCHING. NO TOOLS SHALL BE REQUIRED TO INSTALL OR REMOVE TRIM. TRIM SHALL BE EQUIPPED WITH A DOORACTUATED TRIM LOCKING TAB, EQUIP LOCKING TAB WITH PROVISION FOR A SCREW SUCH THAT REMOVAL OF TRIM REQUIRES A TOOL, AT THE OWNER'S OPTION. INSTALLATION SHALL BE TAMPER RESISTANT WITH NO EXPOSED HARDWARE ON THE PANELBOARD TRIM.
3. DISTRIBUTION PANELBOARD TRIMS SHALL COVER ALL LIVE PARTS. SWITCHING DEVICE HANDLES SHALL BE ACCESSIBLE.
4. SURFACE TRIMS SHALL BE SAME HEIGHT AND WIDTH AS BOX. FLUSH TRIMS SHALL OVERLAP THE BOX BY 3/4 OF AN INCH ON ALL SIDES.
5. A DIRECTORY CARD WITH A CLEAR PLASTIC COVER SHALL BE SUPPLIED AND MOUNTED ON THE INSIDE OF EACH DOOR.
- C. BUS
1. MAIN BUS BARS SHALL BE TIN-PLATED COPPER (ALUMINUM) SIZED IN ACCORDANCE WITH UL STANDARDS TO LIMIT TEMPERATURE RISE ON ANY CURRENT CARRYING PART TO A MAXIMUM OF 65 DEGREES C ABOVE AN AMBIENT OF 40 DEGREES C MAXIMUM.
2. SYSTEM GROUND BUS SHALL BE INCLUDED IN ALL PANELS.
3. FULL-SIZE (100%-RATED) INSULATED STAND-OFF NEUTRAL BARS SHALL BE INCLUDED FOR PANELBOARDS SHOWN WITH NEUTRAL BUS BAR TAPS FOR PANELS WITH SINGLE-POLE BRANCHES SHALL BE ARRANGED FOR SEQUENCE PHASING OF THE BRANCH CIRCUIT DEVICES. NEUTRAL BUSING SHALL HAVE A SUITABLE LUG FOR EACH OUTGOING FEEDER REQUIRING A NEUTRAL CONNECTION. 200%-RATED NEUTRALS SHALL BE SUPPLIED FOR PANELS DESIGNATED ON DRAWINGS WITH OVERSIZED NEUTRAL CONDUCTORS.
- 2.12 CIRCUIT BREAKER
- A. GENERAL
1. PANEL CIRCUIT BREAKER AIC RATING SHALL BE AS SHOWN ON THE SCHEDULE.
2. BOLT-ON TYPE, HEAVY-DUTY, QUICK-MAKE, QUICK-BREAK, MULTIPOLE CIRCUIT BREAKER SHALL BE PROVIDED FOR EACH CIRCUIT AS SHOWN WITH TOGGLE HANDLES THAT INDICATE WHEN UNIT HAS TRIPPED.
3. ALL CIRCUIT BREAKERS SHALL BE THERMAL-MAGNETIC TYPE WITH COMMON HANDLE FOR ALL MULTIPLE POLE CIRCUIT BREAKERS.
4. CIRCUIT BREAKERS SHALL BE PROVIDED WITH LOCKABLE HANDLES WHEN INDICATED.
- B. ENCLOSURE
1. ENCLOSURES SHALL BE AT LEAST 20 INCHES WIDE MADE FROM GALVANIZED STEEL. PROVIDE MINIMUM GUTTER SPACE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE. WHERE FEEDER CABLES SUPPLYING THE MAINS OF A PANEL ARE CARRIED THROUGH ITS BOX TO SUPPLY OTHER ELECTRICAL EQUIPMENT, THE BOX SHALL BE SIZED TO INCLUDE THE ADDITIONAL REQUIRED WIRING SPACE. AT LEAST FOUR INTERIOR MOUNTING STUDS WITH ADJUSTABLE NUTS SHALL BE PROVIDED.
2. ENCLOSURES SHALL BE PROVIDED WITH BLANK ENDS.
3. WHERE INDICATED ON THE DRAWINGS, BRANCH CIRCUIT PANELBOARDS SHALL BE COLUMN WIDTH TYPE.
4. ENCLOSURE SHALL BE NEMA 1 UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
- C. NAMEPLATES: PROVIDE AN ENGRAVED NAMEPLATE FOR EACH PANEL.
- D. FINISH
1. SURFACES OF THE TRIM ASSEMBLY SHALL BE PROPERLY CLEANED, PRIMED, AND A FINISH COAT OF GRAY ANSI 61 PAINT APPLIED.
- 2.13 DISCONNECT SWITCH, INDIVIDUAL, 0 TO 600 VOLTS:
- A. NEMA KS 1.
- B. QUICK-MAKE, QUICK-BREAK, MOTOR RATED, LOAD-BREAK, HEAVY-DUTY (HD) TYPE WITH EXTERNAL MARKINGS CLEARLY INDICATING ON/OFF POSITIONS.
- C. ENCLOSURE: NEMA 12, INDUSTRIAL USE, NEMA 3R, DENOTED BY WP, UNLESS OTHERWISE SHOWN.
- D. INTERLOCK: ENCLOSURE AND SWITCH TO PREVENT OPENING COVER WITH SWITCH IN THE ON POSITION.
- E. LOCKABLE TO THE OPEN POSITION. PROVIDE TAG READING "DO NOT OPEN UNDER LOAD."
- 2.14 PHOTOCCELL
- A. AUTOMATIC ON/OFF SWITCHING PHOTO CONTROL.
- B. HOUSING: SELF-CONTAINED, DIE-CAST ALUMINUM CONSTRUCTION SUITABLE FOR OUTDOOR INSTALLATION.
- C. SETTINGS: ON AT 1 TO 5 FOOTCANDLES AND OFF AT 3 TO 15 FOOTCANDLES.
- D. TIME DELAY FEATURE TO PREVENT FALSE SWITCHING.
- E. FIELD ADJUSTABLE SLIDE TO CONTROL LIGHT OPERATING LEVELS.
- F. RATING: 1800VA AT 120VAC.
- G. MOUNTING: SEMI-MOUNT.
- H. WARRANTY: 5 YEAR, MINIMUM.
- 2.15 LUMINAIRES
- A. LUMINAIRES AS SHOWN, WITH PROPER HANGERS, PENDANTS, CANOPIES LAMES, ETC., NECESSARY FOR COMPLETE INSTALLATION.
- B. LUMINAIRES INSTALLED OUTDOORS WITH SUITABLE FOR WET LOCATIONS LABEL.
- C. SWINGING LUMINAIRES WITH A SAFETY CABLE ATTACHED TO THE STRUCTURE AND THE LUMINAIRE AT EACH SUPPORT CAPABLE OF SUPPORTING FOUR TIMES THE VERTICAL LOAD.
- PART 3 - EXECUTION
- 3.1 GENERAL PROCEDURES
- A. COORDINATE ELECTRICAL WORK WITH THE OWNER AND WORK OF OTHER TRADES TO AVOID CONFLICTS, ERRORS, DELAYS, AND UNNECESSARY INTERFERENCE DURING CONSTRUCTION.
- 3.2 PROTECTION DURING CONSTRUCTION
- A. FOLLOWING INSTALLATION, PROTECT MATERIALS, EQUIPMENT, AND INSULATION FROM CORROSION, PHYSICAL DAMAGE, AND MOISTURE. CAP CONDUIT RUNS DURING CONSTRUCTION WITH MANUFACTURED SEALS. KEEP OPENINGS IN BOXES OR EQUIPMENT CLOSED DURING CONSTRUCTION.
- 3.3 MATERIAL AND EQUIPMENT INSTALLATION
- A. FOLLOW THE MANUFACTURER'S INSTALLATION RECOMMENDATIONS UNLESS OTHERWISE INDICATED. FOLLOW THE ENGINEER'S DECISION, WHEREVER ANY CONFLICT ARISES. KEEP COPY OF THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AVAILABLE ON THE JOBSITE FOR REVIEW AT ALL TIMES.
- 3.4 CUTTING AND PATCHING
- A. DO NOT CUT OR NOTCH ANY STRUCTURAL MEMBER OR BUILDING SURFACE WITHOUT SPECIFIC APPROVAL OF THE ENGINEER. FOLLOWING SUCH WORK, RESTORE SURFACES NEATLY TO NEW CONDITION USING SKILLED CRAFTSMEN OF THE TRADES INVOLVED.
- 3.5 CLEANING AND TOUCH-UP PAINTING
- A. KEEP THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIAL OR RUBBISH. UPON COMPLETION OF WORK, REMOVE MATERIALS, SCRAPS, AND DEBRIS FROM THE PREMISES AND FROM THE INTERIOR AND EXTERIOR OF ALL DEVICES AND EQUIPMENT. REFINISH DAMAGED SURFACES TO NEW CONDITION USING SKILLED CRAFTSMEN OF THE TRADES INVOLVED.
- 3.6 RACEWAY SYSTEM
- A. UNLESS OTHERWISE INDICATED, RECEPTACLES AND JUNCTION BOXES SHALL BE CONNECTED TO THE CIRCUIT INDICATED USING 1/2" C-2#12, 1# 12G. RECEPTACLE CIRCUITS SHALL BE CONCEALED IN WALLS OR ABOVE CEILINGS.
- B. PROVIDE AND INSTALL 3/4" CONDUIT STUB CONCEALED IN WALL FROM ALL LOW-VOLTAGE DEVICE BOXES (DATA, TELEPHONE, LIGHTING CONTROLS, ETC.) TO THE SPACE ABOVE THE CEILING. PROVIDE A CONDUIT BUSING AT CONDUIT END TO PROTECT CONDUCTOR INSTALLATION.
- C. UNLESS OTHERWISE SPECIFIED OR INDICATED, WIRING SHALL CONSIST OF INSULATED CONDUCTORS INSTALLED IN RACEWAYS OF THE TYPES INDICATED.
- D. INTERIOR, EXPOSED: ELECTRIC METALLIC TUBING.
- E. INTERIOR, CONCEALED (NOT EMBEDDED IN CONCRETE):
1. GALVANIZED RIGID STEEL: WHEN ENTERING THE BUILDING FROM AN OUTSIDE SOURCE WHERE THE CONDUIT RUN MUST BE WATERTIGHT.
2. GALVANIZED STEEL FLEX; USE ONLY IN INDOOR, DRY LOCATIONS FOR FINAL CONNECTION TO FIXTURES IN LAY IN APPLICATIONS OR OTHER EQUIPMENT SUBJECT TO VIBRATION OR MOVEMENT.
3. ELECTRIC METALLIC TUBING: ALL OTHER LOCATIONS.
- F. FOR EQUIPMENT WHERE FLEXIBLE CONNECTION IS REQUIRED TO MINIMIZE VIBRATION:
1. FLEXIBLE METAL, LIQUID-TIGHT CONDUIT.
2. LENGTH: 18-INCH MINIMUM, 80-INCH MAXIMUM OF SUFFICIENT LENGTH TO ALLOW MOVEMENT OR ADJUSTMENT OF EQUIPMENT.
- G. BOX TYPE (ALL RACEWAY SYSTEMS)
1. EXTERIOR LOCATIONS: WEATHERPROOF TYPE 3R.
- H. INSTALL PULL BOXES WHERE SHOWN AND WHERE NECESSARY TO TERMINATE, TAP-OFF, OR REDIRECT MULTIPLE CONDUIT RUNS. INSTALL PULL BOXES WHERE NECESSARY IN RACEWAY SYSTEM TO FACILITATE CONDUCTOR INSTALLATION. INSTALL PULL BOXES IN CONDUIT RUNS AT LEAST EVERY 150 FEET OR AFTER THE EQUIVALENT OF THREE RIGHT-ANGLE BENDS. USE OUTLET BOXES AS JUNCTION AND PULL BOXES WHEREVER POSSIBLE AND ALLOWED BY APPLICABLE CODES.
- I. SUPPORT BOXES INDEPENDENTLY OF CONDUIT BY ATTACHMENT TO BUILDING STRUCTURE OR STRUCTURAL MEMBER. INSTALL BAR HANGERS IN FRAME CONSTRUCTION, OR FASTEN BOXES DIRECTLY WITH WOOD SCREWS ON WOOD. BOLTS AND EXPANSION SHIELDS ON CONCRETE OR BRICK. TOGGLE BOLTS ON HOLLOW MASONRY UNITS, AND MACHINE SCREWS OR WELDED THREADED STUDS ON STEELWORK.
- 3.7 RACEWAY INSTALLATION
- A. CONDUIT AND TUBING SIZES SHOWN ARE BASED ON THE USE OF COPPER CONDUCTORS.
- B. MAINTAIN RACEWAY ENTIRELY FREE OF OBSTRUCTIONS AND MOISTURE.
- C. GROUP RACEWAYS INSTALLED IN SAME AREA.
- D. FOLLOW STRUCTURAL SURFACE CONTOURS WHEN INSTALLING EXPOSED RACEWAYS. AVOID OBSTRUCTION OF PASSAGEWAYS. RUN EXPOSED RACEWAYS PARALLEL OR PERPENDICULAR TO WALLS, TRUCTURAL MEMBERS, OR INTERSECTIONS OF VERTICAL PLANES.
- E. INSTALL WATERTIGHT CONDUIT SEALING IN OUTDOOR, UNDERGROUND, OR WET LOCATIONS.
- F. ALL METAL CONDUIT TO BE REAMED, BURRS REMOVED, AND CLEANED BEFORE INSTALLATION OF CONDUCTORS, WIRES, OR CABLES.
- G. FOR EMPTY CONDUIT INSTALL A NYLON PULL CORD TO BE USED FOR FUTURE INSTALLATION.
- 3.8 RACEWAY PENETRATIONS
- A. MAKE AT RIGHT ANGLES, UNLESS OTHERWISE SHOWN.
- B. NOTCHING OR PENETRATION OF STRUCTURAL MEMBERS, INCLUDING FOOTING AND BEAMS, NOT PERMITTED.
- C. FIRE-RATED WALLS, FLOORS, OR CEILINGS: FIRE-STOP OPENINGS AROUND PENETRATIONS TO MAINTAIN FIRE-RESISTANCE RATING.
- D. APPLY SINGLE LAYER OF WRAP AROUND DUCT BANK TO ALL METALLIC CONDUIT PROTRUDING THROUGH CONCRETE FLOOR SLABS TO A POINT 2 INCHES ABOVE CONCRETE SURFACE.
- E. CONCRETE WALLS, FLOORS, OR CEILINGS (ABOVEGROUND): PROVIDE NONSHRINK GROUT DRY-PAK, OR USE WATERTIGHT SEAL DEVICE.
- F. ENTERING STRUCTURES:
1. SEAL RACEWAY AT THE FIRST BOX WITH A CONDUIT SEALING USING TO PREVENT THE ENTRANCE OF GASES OR LIQUIDS FROM ONE AREA TO ANOTHER.
2. HEATING, VENTILATING, AND AIR CONDITIONING EQUIPMENT: PENETRATE EQUIPMENT IN AREA ESTABLISHED BY MANUFACTURER.
3. EXISTING OR PRECAST WALL (UNDERGROUND): CORE DRILL WALL AND INSTALL A WATERTIGHT ENTRANCE SEAL DEVICE.
- 3.9 RACEWAY SUPPORT
- A. SUPPORT FROM STRUCTURAL MEMBERS ONLY, AT INTERVALS NOT EXCEEDING NEC REQUIREMENTS, AND IN ANY CASE NOT EXCEEDING 10 FEET. DO NOT SUPPORT FROM PIPING, PIPE SUPPORTS, OR OTHER RACEWAYS.
- B. WALL BRACKETS AND ASSOCIATED HARDWARE IN CONTACT WITH CONCRETE OR MASONRY SHALL BE STAINLESS STEEL. PROVIDE GALVANIZED STEEL AT ALL OTHER LOCATIONS. STRAP HANGERS, AND CEILING TRAPEZE INCLUDING HARDWARE, SHALL BE GALVANIZED STEEL.
- C. PROVIDE AND ATTACH WALL BRACKETS, STRAP HANGERS, OR CEILING TRAPEZE AS FOLLOWS:
1. WOOD: WOOD SCREWS.
2. HOLLOW MASONRY UNITS: TOGGLE BOLTS.
3. CONCRETE OR BRICK: EXPANSION SHIELDS, OR THREADED STUDS DRIVEN IN BY POWDER CHARGE, WITH LOCK WASHERS AND NUTS.
4. STEELWORK: MACHINE SCREWS.
- D. NAILS OR WOODEN PLUGS INSERTED IN CONCRETE OR MASONRY FOR ATTACHING RACEWAY NOT PERMITTED. DO NOT WELD RACEWAYS OR PIPE STRAPS TO STEEL STRUCTURES. DO NOT USE WIRE IN LIEU OF STRAPS OR HANGERS.
- 3.10 RACEWAY BENDS
- A. INSTALL CONCEALED RACEWAYS WITH A MINIMUM OF BENDS IN THE SHORTEST PRACTICAL DISTANCE.
- B. AVOID FIELD-MADE BENDS AND OFFSETS, BUT WHERE NECESSARY, MAKE WITH ACCEPTABLE HICKEY OR BENDING MACHINE. DO NOT HEAT METAL RACEWAYS TO FACILITATE BENDING.
- C. PVC CONDUIT:
1. BENDS 30° AND LARGER: PROVIDE FACTORY-MADE ELBOWS.
2. 90° BENDS: PROVIDE GALVANIZED RIGID STEEL ELBOWS; EXCEPT ON UTILITY SERVICE RUNS IF NOT ALLOWED BY THE UTILITY.
- D. FLEXIBLE CONDUIT: DO NOT MAKE BENDS THAT EXCEED ALLOWABLE CONDUCTOR BENDING RADIUS OF CABLE TO BE INSTALLED OR THAT SIGNIFICANTLY RESTRICTS CONDUIT FLEXIBILITY.
- 3.11 EXPANSION/DEFLECTION FITTINGS
- A. PROVIDE ON ALL RACEWAYS AT STRUCTURAL EXPANSION JOINTS.
- 3.12 TERMINATION AT ENCLOSURES
- A. SHEET METAL BOXES, CABINETS, AND ENCLOSURES:
1. ELECTRIC METALLIC TUBING: PROVIDE GLAND COMPRESSION, INSULATED CONNECTORS.
2. FLEXIBLE METAL CONDUIT: PROVIDE TWO SCREW TYPE, INSULATED, MALLEABLE IRON CONNECTORS.
- 3.13 CONDUCTORS
- A. DO NOT SPLICE INCOMING SERVICE CONDUCTORS AND BRANCH POWER DISTRIBUTION CONDUCTORS NO. 6 AWG AND LARGER UNLESS SPECIFICALLY INDICATED OR APPROVED BY THE ENGINEER.

- END OF SECTION



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LICENSE STAMP



CONSULTANTS

PROJECT NAME

SHERIFF OFFICE REMODEL

FOR

HUMBOLDT COUNTY

826 4TH STREET EUREKA, CA 95501

| NO. | REVISIONS | DATE |
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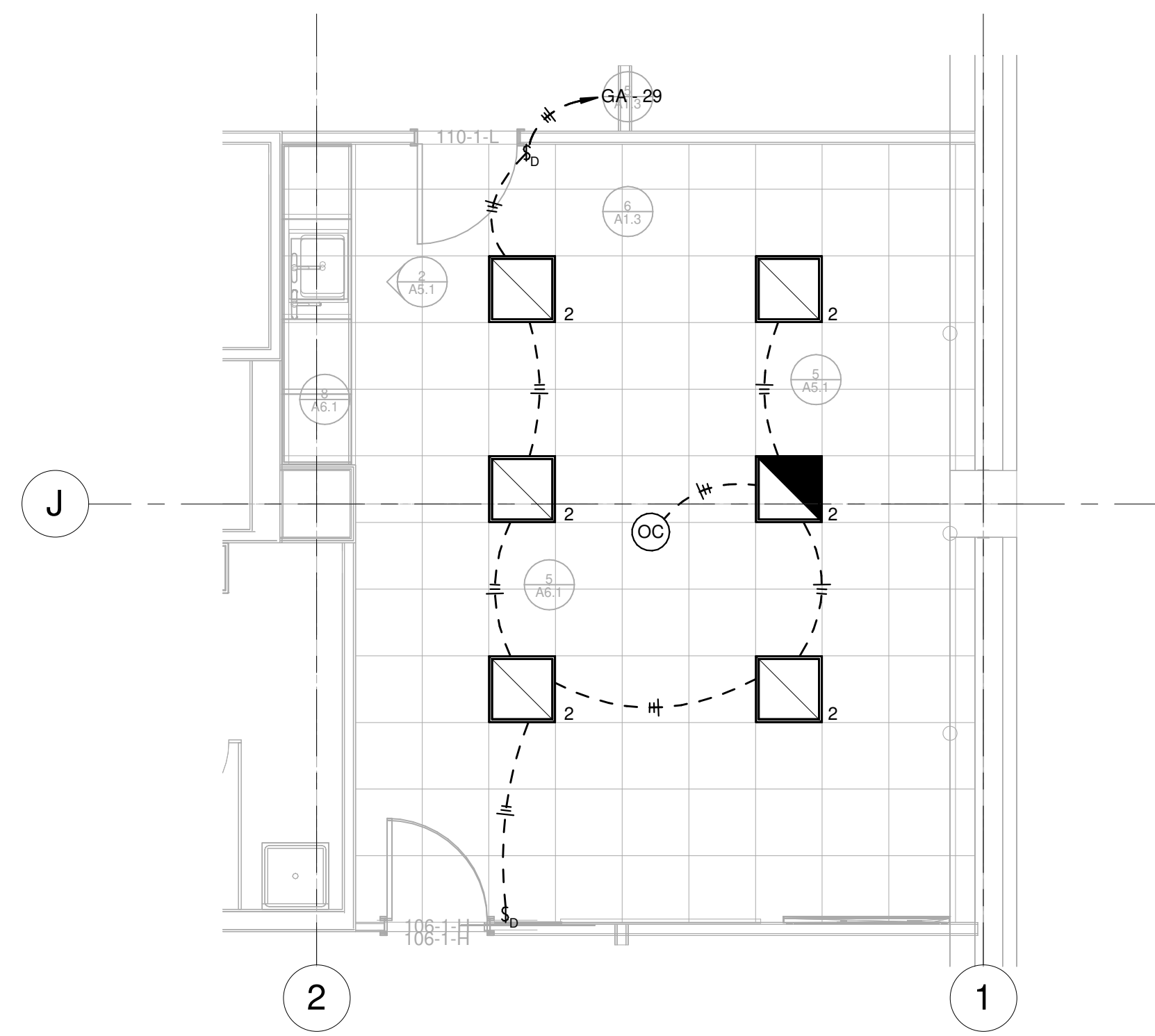
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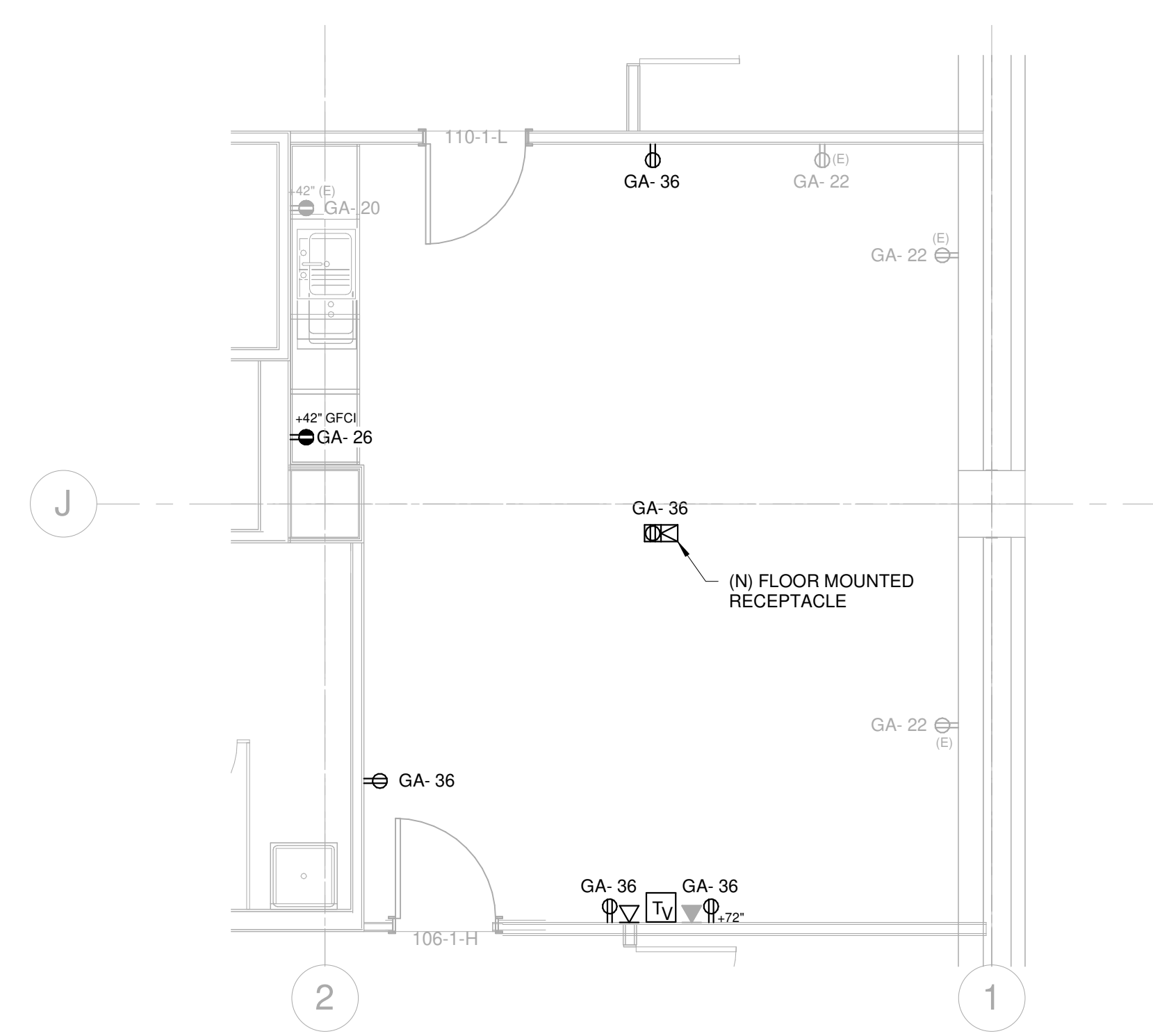
CONSTRUCTION DOCUMENTS

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| DATE: | 06/24/2024 |
| DRAWN BY: | NW |
| REVIEWED BY: | NW |
| SCALE: | |
| PROJECT NO: | 2026-501 |

E102



2 ENLARGED LIGHTING PLAN - PHASE 1B
E200 1/4" = 1'-0"



1 ENLARGED POWER PLAN - PHASE 1B
E200 1/4" = 1'-0"

GENERAL NOTES:
1. DATA BOXES SHALL BE CONNECTED USING AN EMPTY 3/4" CONDUIT ROUTED TO ACCESSIBLE CEILING SPACE.

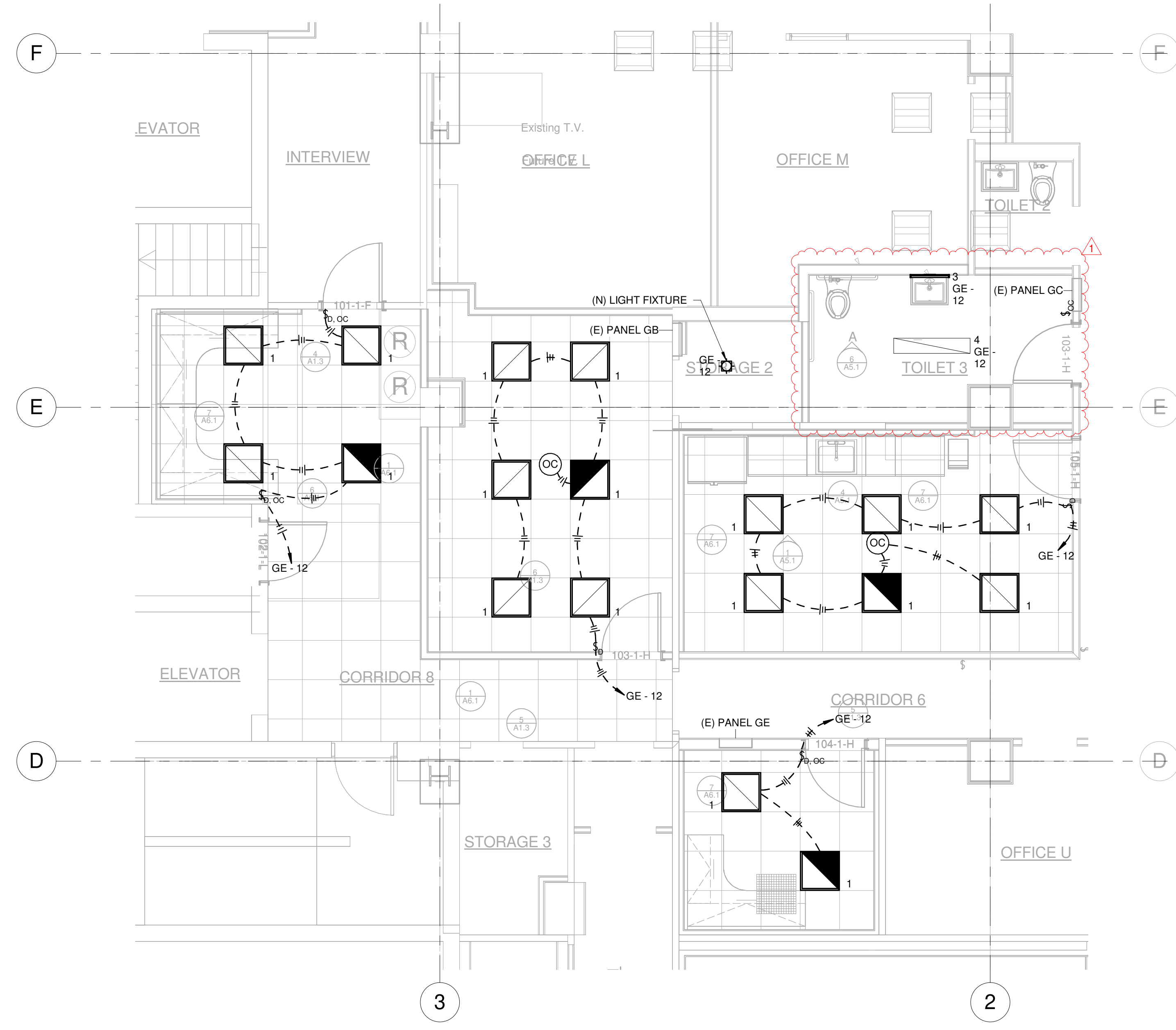


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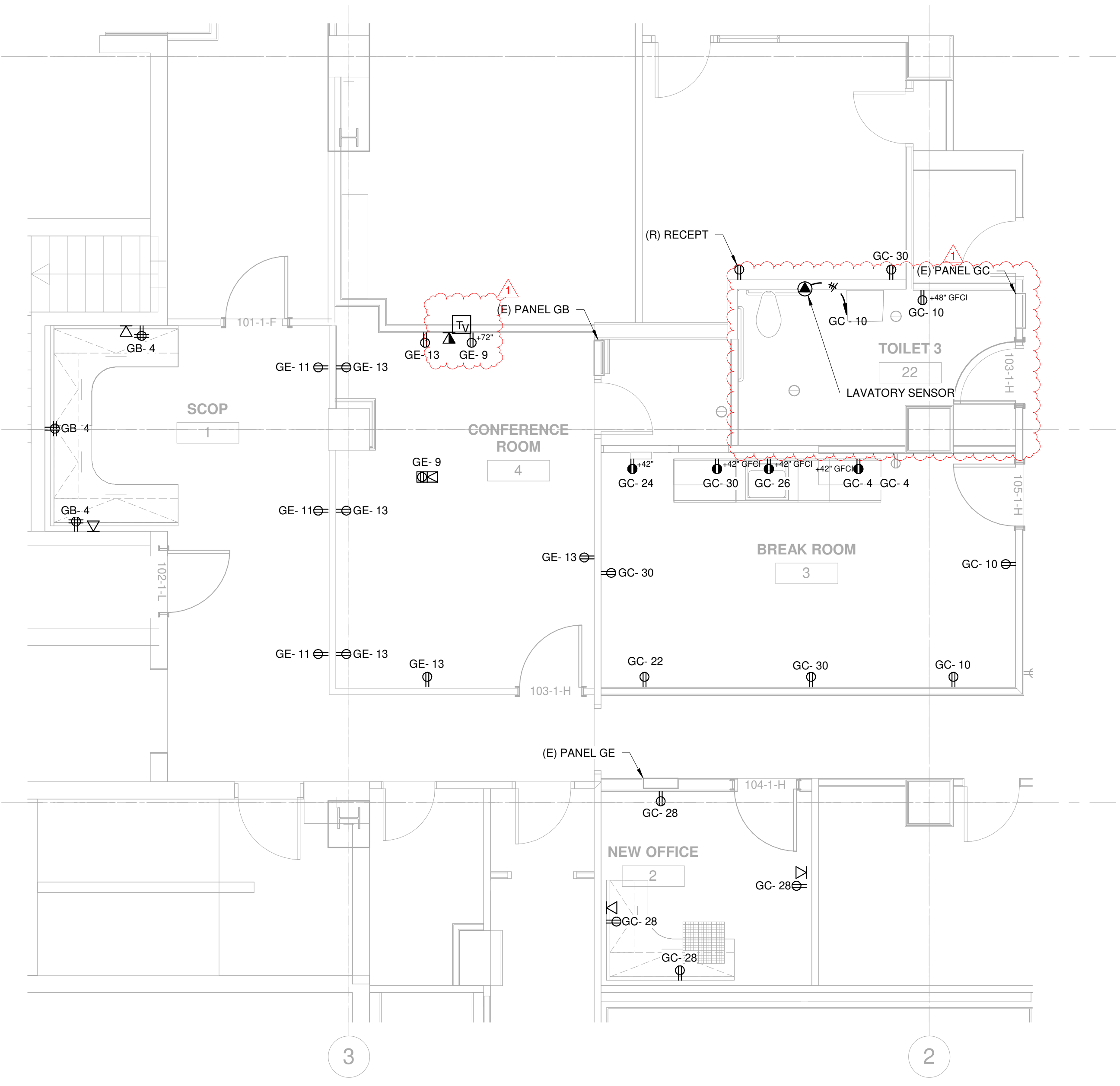
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CONSULTANTS



4 ENLARGED LIGHTING PLAN - PHASE 1A
E200 1/4" = 1'-0"



3 ENLARGED POWER PLAN - PHASE 1A
E200 1/4" = 1'-0"

PROJECT NAME

SHERIFF OFFICE REMODEL

FOR

HUMBOLDT COUNTY

826 4TH STREET
EUREKA, CA 95501

| NO. | REVISIONS | DATE |
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| ▲ | Add ADA Restroom | 11/21/25 |

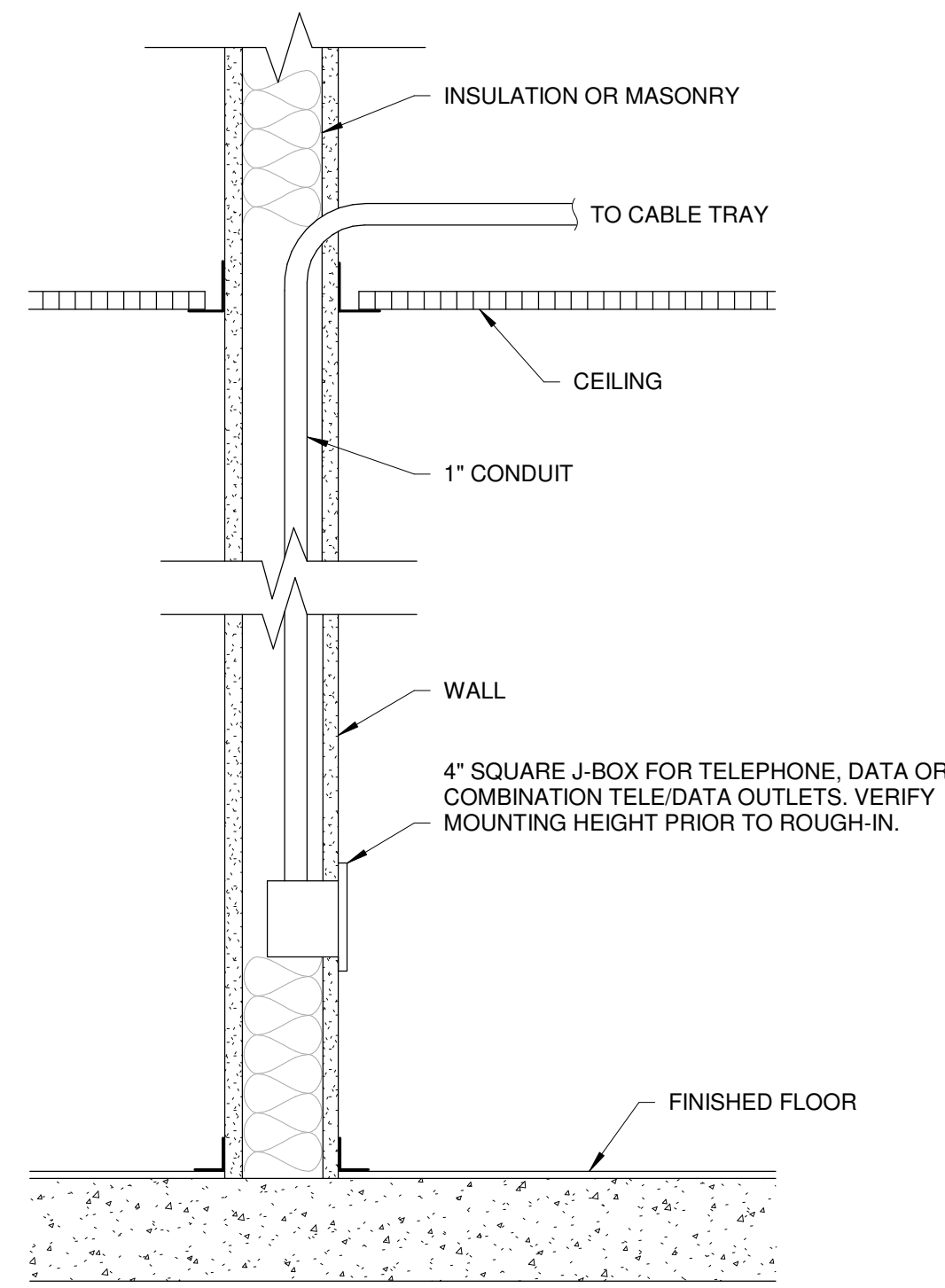
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ELECTRICAL PLANS

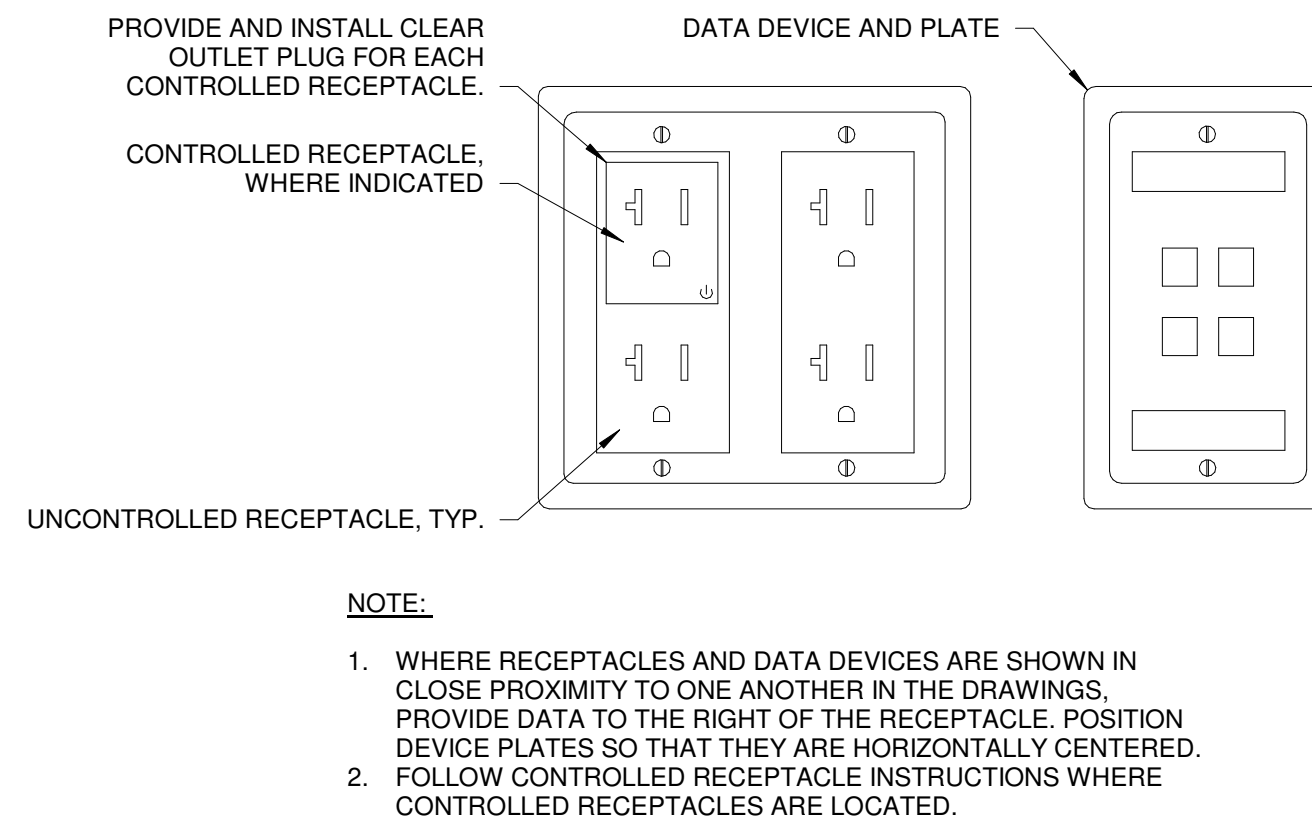
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CONSTRUCTION DOCUMENTS

DATE: 06/24/2024
DRAWN BY: NW
REVIEWED BY: NW
SCALE: 1/4" = 1'-0"
PROJECT NO: 2026-501

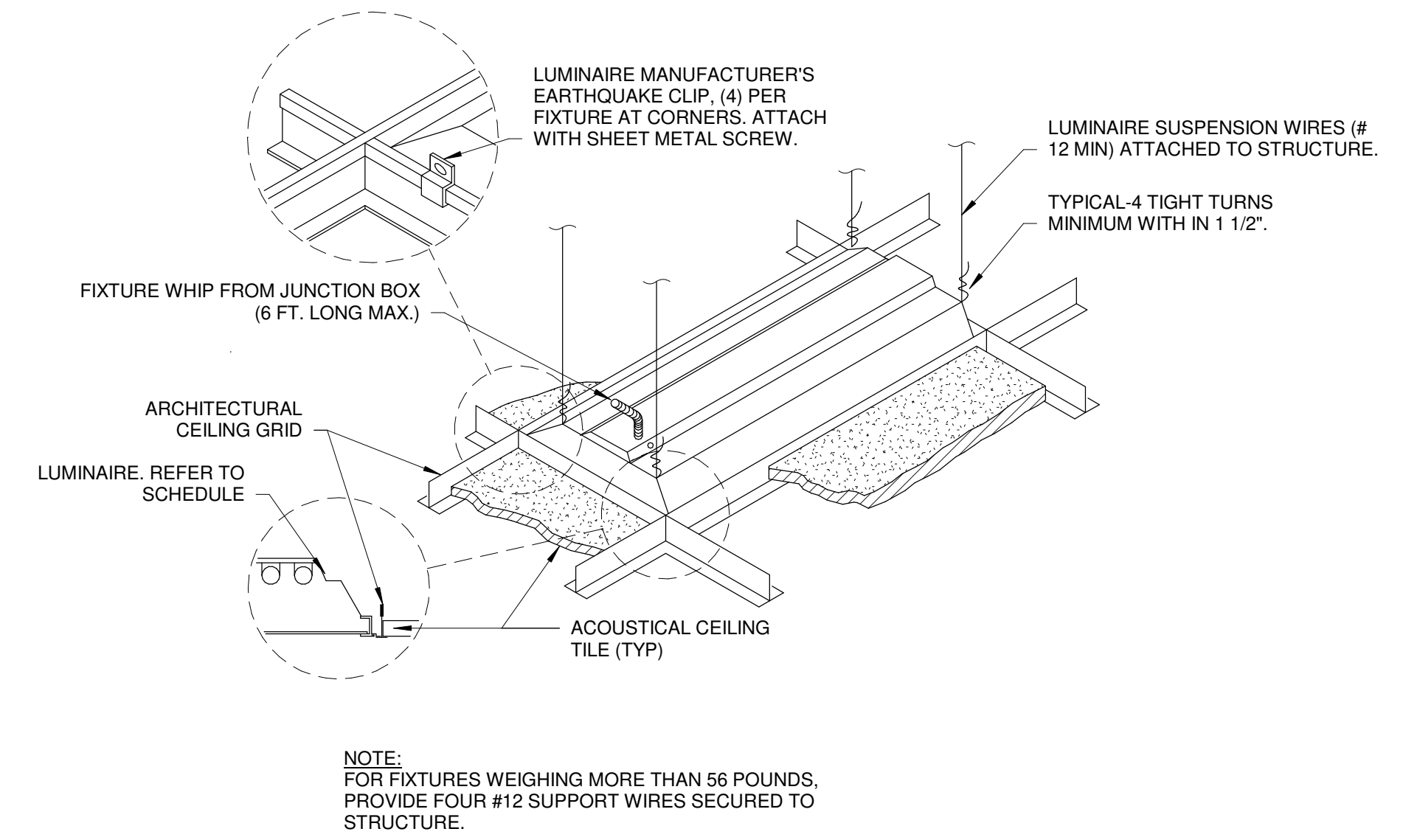
E200



3 TYPICAL DATA & TELEPHONE OUTLET INSTALLATION
E300 NOT TO SCALE



2 E210.2 - POWER AND DATA OUTLET GROUPING
E300 NOT TO SCALE



1 LIGHT FIXTURE MOUNTING DETAIL - LAY-IN CEILING
E300 NOT TO SCALE



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