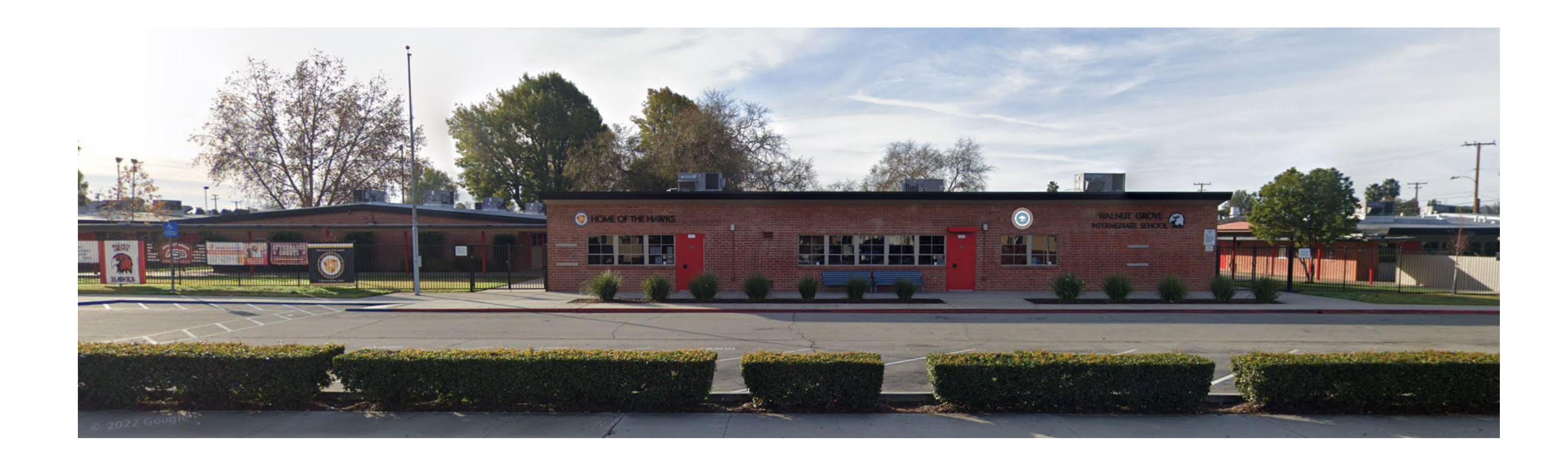


# WEST COVINA USD

# WALNUT GROVE I.S - SCIENCE CLASSROOM MODERNIZATION

# DSA BACKCHECK

10/02/2023



## **OWNER**

## **WEST COVINA USD**

1717 W. Merced Avenue West Covina, CA 91790 t: 626-939-4600 Contact: Jose D. Gomez

## **ARCHITECT**

## **PBK Architects**

8163 Rochester Avenue Rancho Cucamonga, CA 91730 t: 909.987.0909 Contact: Gilbert Baez

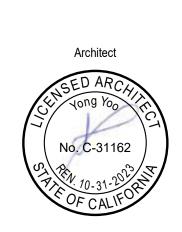
#### MEP, FIRE ALARM & **TECHNOLOGY ENGINEER**

## **LEAF ENGINEERS**

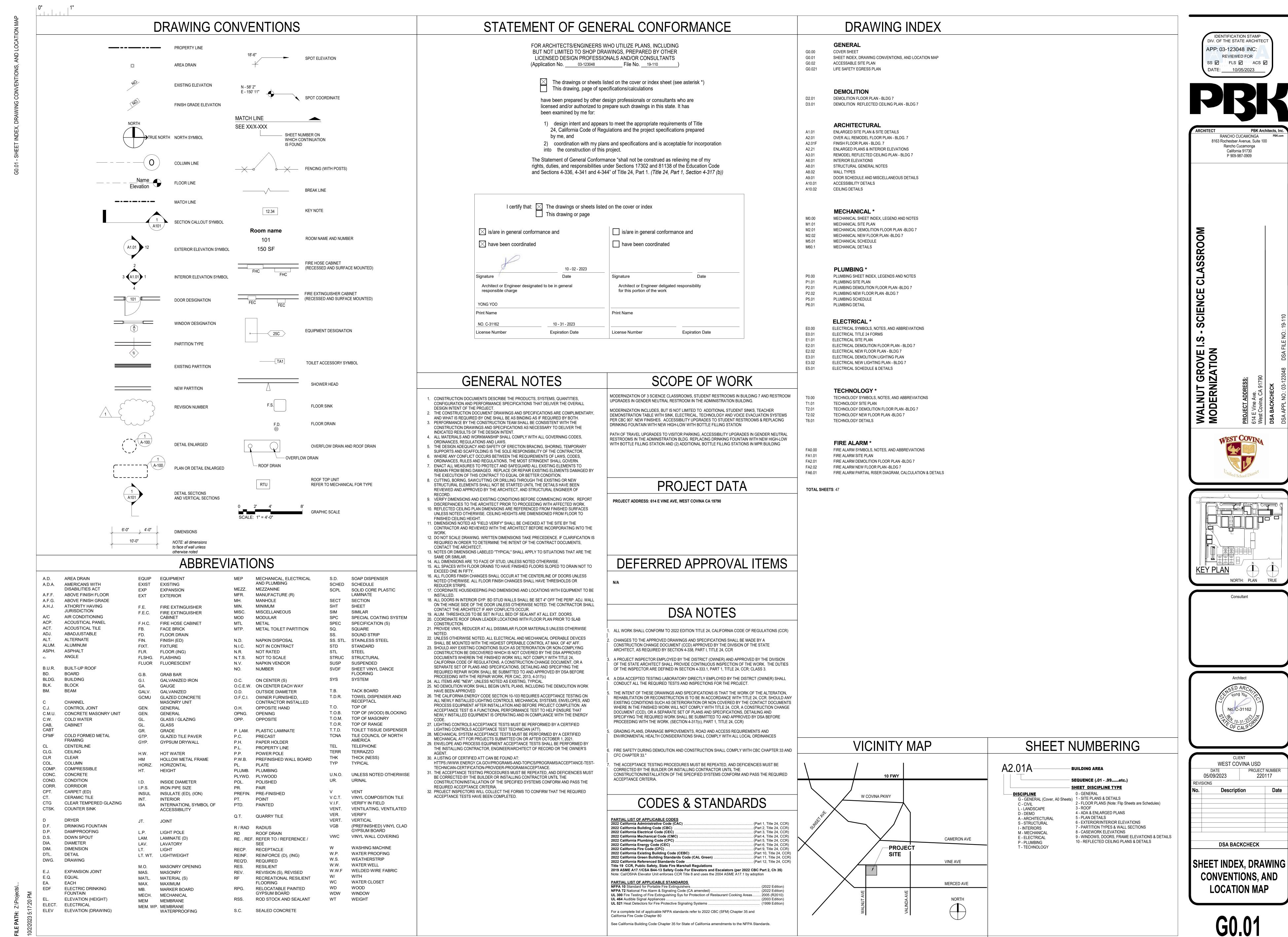
8163 ROCHESTER AVENUE, RANCHO CUCAMONGA, CA 91730 t: 909-987-0909 Contact: Rex Wang







**COVER SHEET** 



NORTH: PLAN TRUE

PROJECT NUMBER

220117

Consultant

Rancho Cucamonga

California 91730

P 909-987-0909

ACCESSIBILITY KEYED NOTES 00.35 (E) SITE ACCESS SIGN PER A#03-107514, PROTECT IN PLACE 02.01 (E) METAL FENCE 10.04 SAFE DISPERSAL SIGN PER DETAIL 18/A1.01 22.10 ACCESSABLE HI-LOW CHILLED DRINKING FOUNTAIN WITH BOTTLE FILLER AND STEEL PIPE RAILS AND FOOTINGS. REPAIR CONC. AS NEEDED DEMOLITION KEYED NOTES D73 DEMOLISH (E) DRINKING FOUNTAIN AND PIPE RAILS, SAWCUT SLAB IN PREPARATION FOR NEW PIPE RAILS ACCESSIBILITY LEGEND PATH OF TRAVEL UNER CURRENT PROJECT ●●●●●● (E) PATH OF TRAVEL (A#03 107514) PROPERTY LINE AREA IN SCOPE OF WORK (E) BUILDING NOT IN SCOPE (E) LUNCH SHELTER / (E) SOLAR PANELS E) SHADE STRUCTURE (E) ACCESSIBLE RESTROOM (E) BOYS RESTROOM (E) GIRLS RESTROOM (E) MEN RESTROOM (E) WOMEN RESTROOM (E) GENDER NEUTRAL RESTROOM DSA PROJECT STATUS DSA PROJECT STATUS AS OF 2/22/2023

DSA#'S ASSOCIATED IN WITH AREA OF SCOPE OF WORK LETTER TYPE CLOSED CORONADO ALTERNATIVE SCHOOL
Alterations to 1-Admin. Bldg 1; C.R. Bldgs 4,
OF FILE PER EDU ##2-CERTIFICATION & CLOSE 1/8/2019 5, 7; M.P. Bldg 2; K.G. Bldg 3; Toilet Bldg 6; Music/Shop Bldg 8; Home Economic Bldg 9 (A#11849, A#16523, A#17928); (1) C.R. Bldg.(Relocatable) (A#29569); Site Work WALNUT GROVE MIDDLE SCHOOL CONSTRUCTION OF 1 - SHADE #1-CERTIFICATION & CLOSE | 6/21/211 STRUCTURE/S (30'X40') WALNUT GROVE INTERMEDIATE DSA 301P NOTIFICATION OF | 1/20/2021 CONSTRUCTION OF 3-SOLAR PANEL REQUIREMENT FOR STRUCTURES PC 04-115627, RELATED CERTIFICATION SITE WORK.

#### PATH OF TRAVEL

PATH OF TRAVEL (P.O.T.) AS INDICATED MEETS THE FOLLOWING REQUIREMENTS: 1. IS A BARRIER-FREE ACCESSIBLE ROUTE WITHOUT ANY ABRUPT LEVEL CHANGES EXCEEDING 1/2" BEVELED AT A SLOPE NOT STEEPER THAN 1:2 EXCEPT THAT LEVEL CHANGES ARE 1/4" MAX. VERTICAL & IS AT LEAST 48" WIDE. 2. SURFACE SHALL BE STABLE, FIRM AND SLIP RESISTANT. 3. CROSS-SLOPE SHALL NOT BE STEEPER THAN 1:48 AND RUNNING SLOPE SHALL NOT BE STEEPER THAN 1:20 UNLESS OTHERWISE INDICATED (CBC 11B-403.3) 4. P.O.T. SHALL BE MAINTAINED FREE OF OVERHANGING OBSTRUCTIONS TO 80" MINIMUM (CBC 11B-307.4) AND PROTRUDING OBJECTS GREATER THAN 4" PROJECTION FROM WALL SURFACE BETWEEN 27" AND 80" ABOVE FINISH FLOOR OR GROUND (CBC 11B-307.2) 5. PROVIDE FLUSH TRANSITIONS AT ANY ADJOINING JOINTS BETWEEN DIFFERENT WALK 6. ARCHITECT TO VERIFY THERE ARE NO BARRIERS IN THE P.O.T. AND ALL P.O.T. COMPLY

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

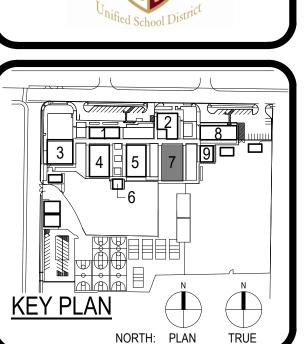
AS CODE COMPLIANT ARE FOUND TO BE NONCONFORMING BEYOND REASONABLE CONSTRUCTION TOLERANCES, THEY SHALL BE BROUGHT INTO COMPLIANCE WITH THE CBC AS A PART OF THIS PROJECT BY MEANS OF A CONSTRUCTION CHANGE DOCUMENT."

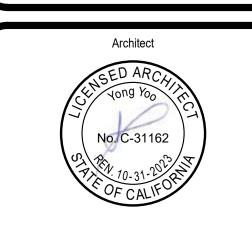
PARKING CALC	ULATION
(E) PARKING LOT 1 (A# 16523 & 03-107514):	
STANDARD STALLS	12
VAN ACCESSIBLE STALLS	1
STD ACCESSIBLE STALLS	0
TOTAL P-LOT 1 STALLS	13
(E) PARKING LOT 2 VISITOR (A# 16523 & 03-107514):	
STANDARD STALLS	16
VAN ACCESSIBLE STALLS	1
STD ACCESSIBLE STALLS	0
TOTAL P-LOT 2 STALLS	17
(E) PARKING LOT 3 (STAFF):	
STANDARD STALLS	30
VAN ACCESSIBLE STALLS	0
STD ACCESSIBLE STALLS	0
TOTAL P-LOT 3 STALLS	30
TOTAL STALLS ON SITE	60

IDENTIFICATION STAMP DIV. OF THE STATE ARCHITEC APP: 03-123048 INC: REVIEWED FOR SS 🗹 FLS 🗹 ACS 🗹

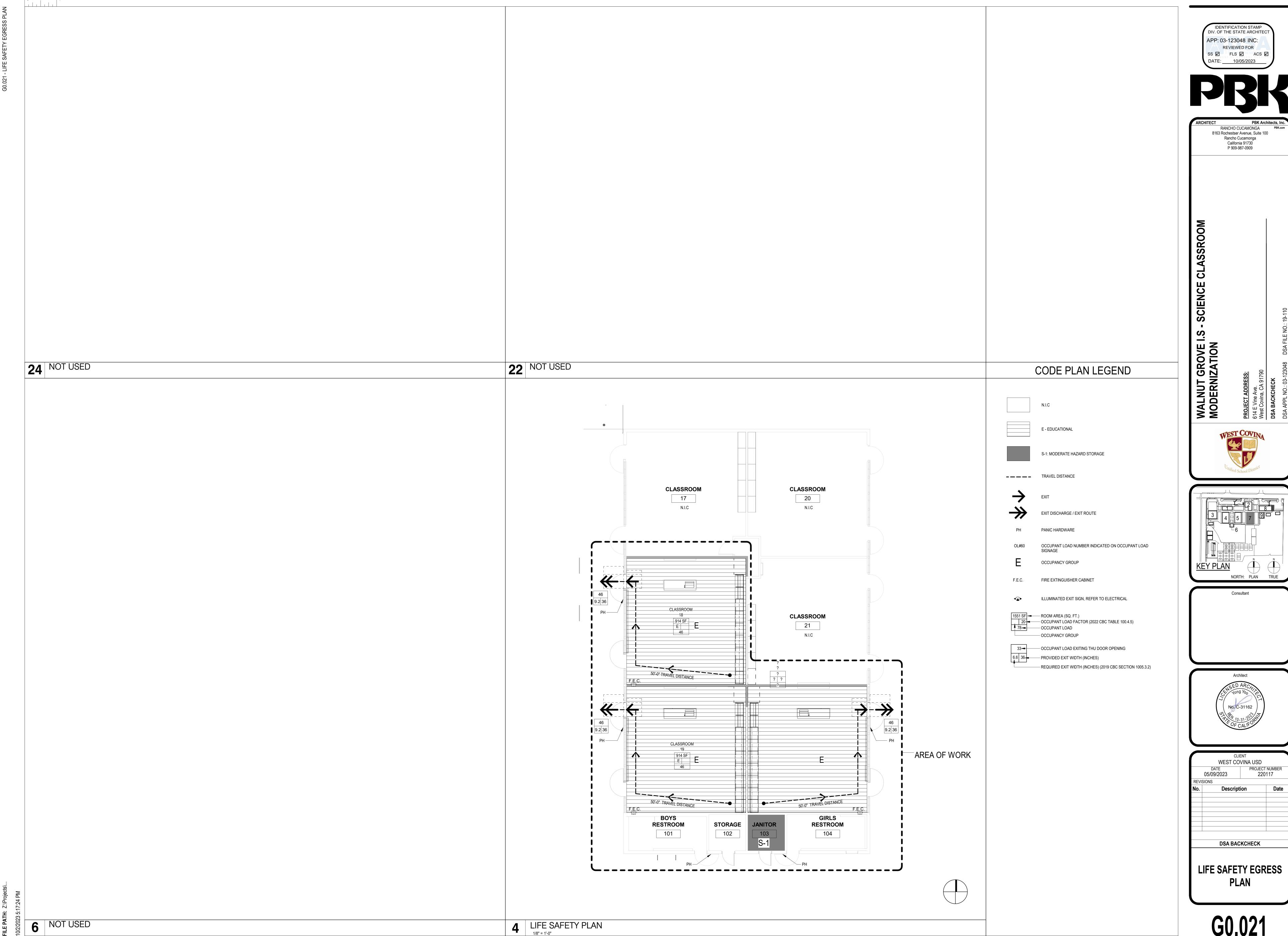
RANCHO CUCAMONGA 8163 Rochestser Avenue, Suite 100 Rancho Cucamonga California 91730 P 909-987-0909

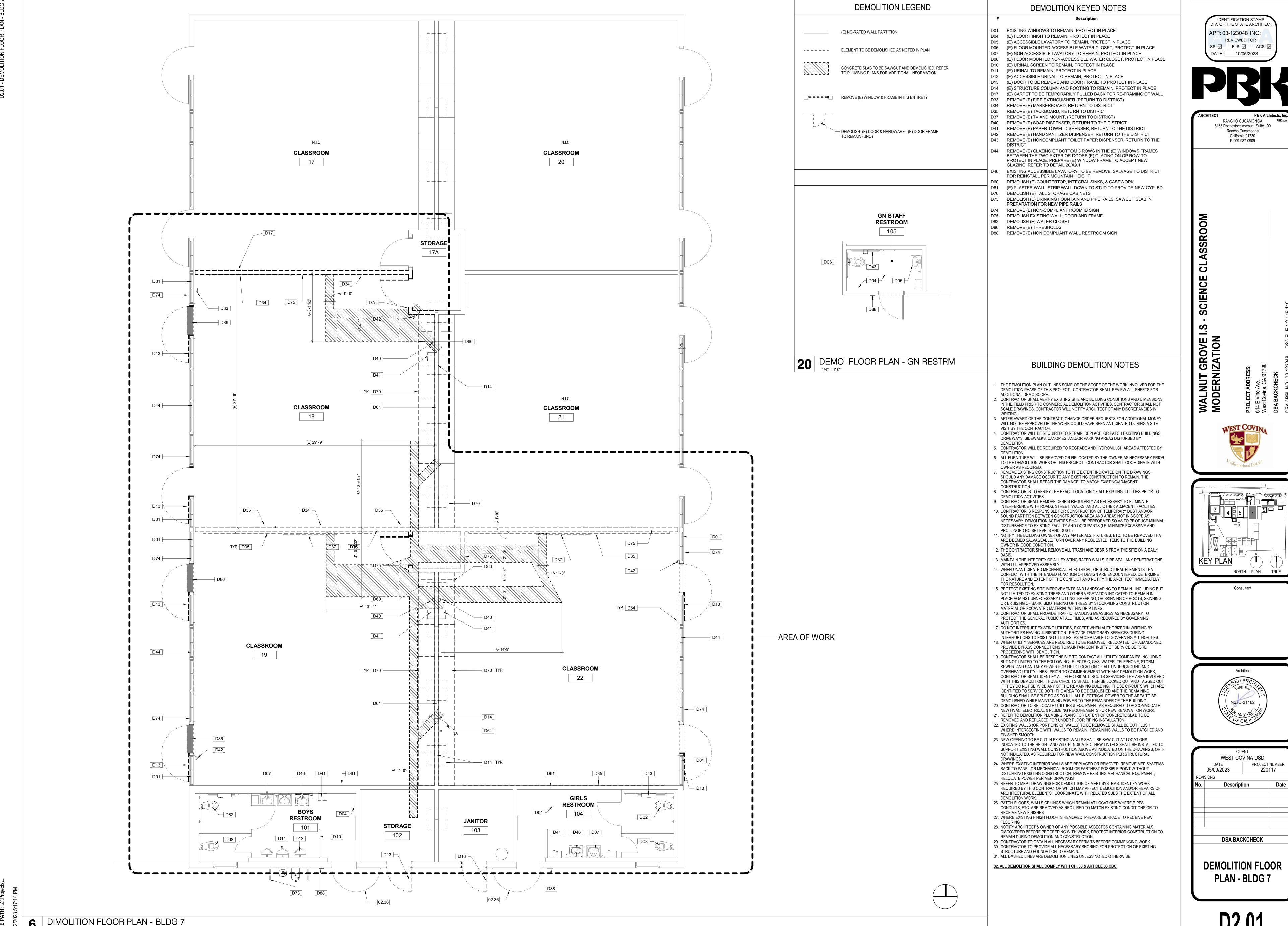
CIENCE IUT GROVE I

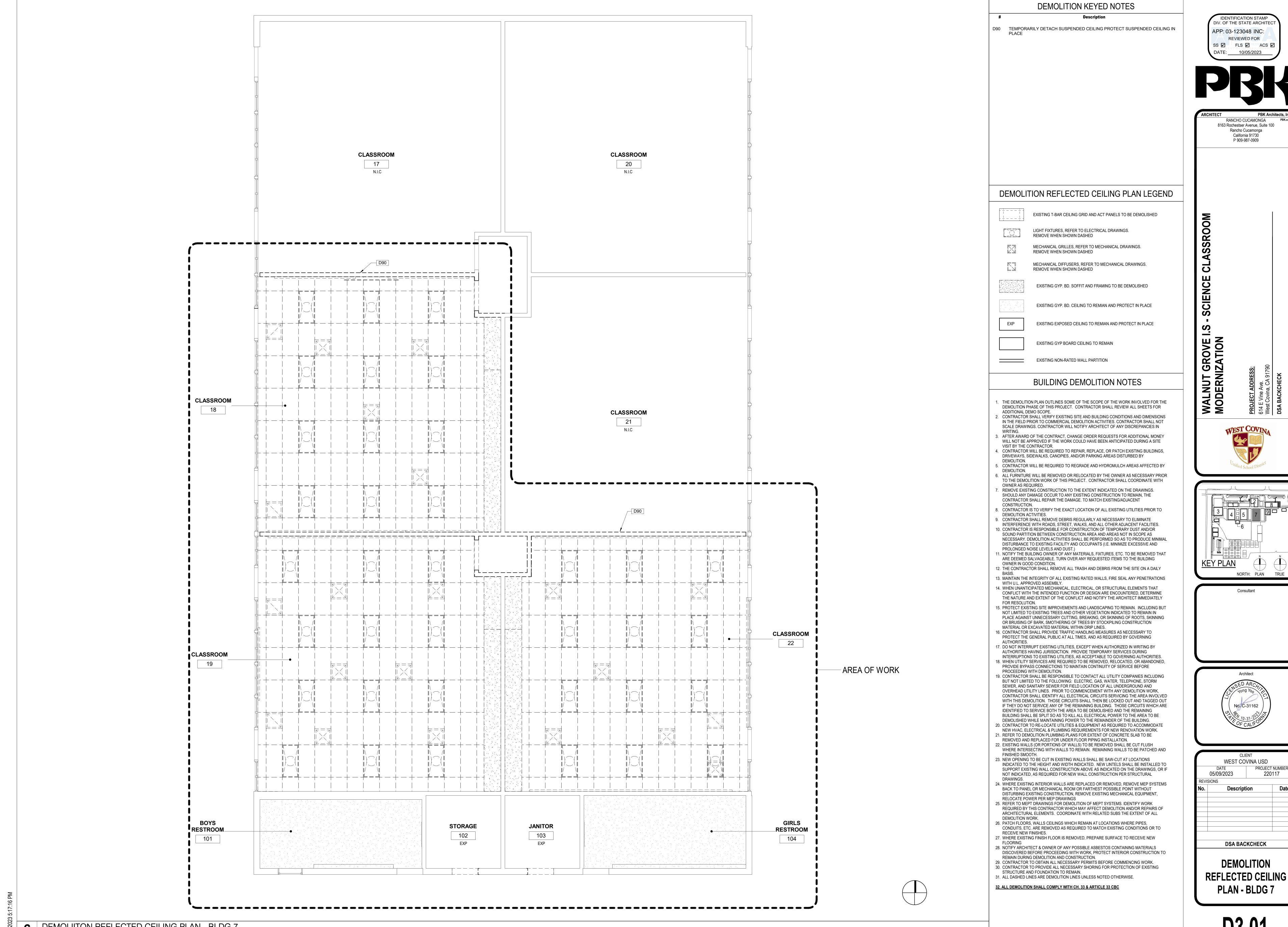


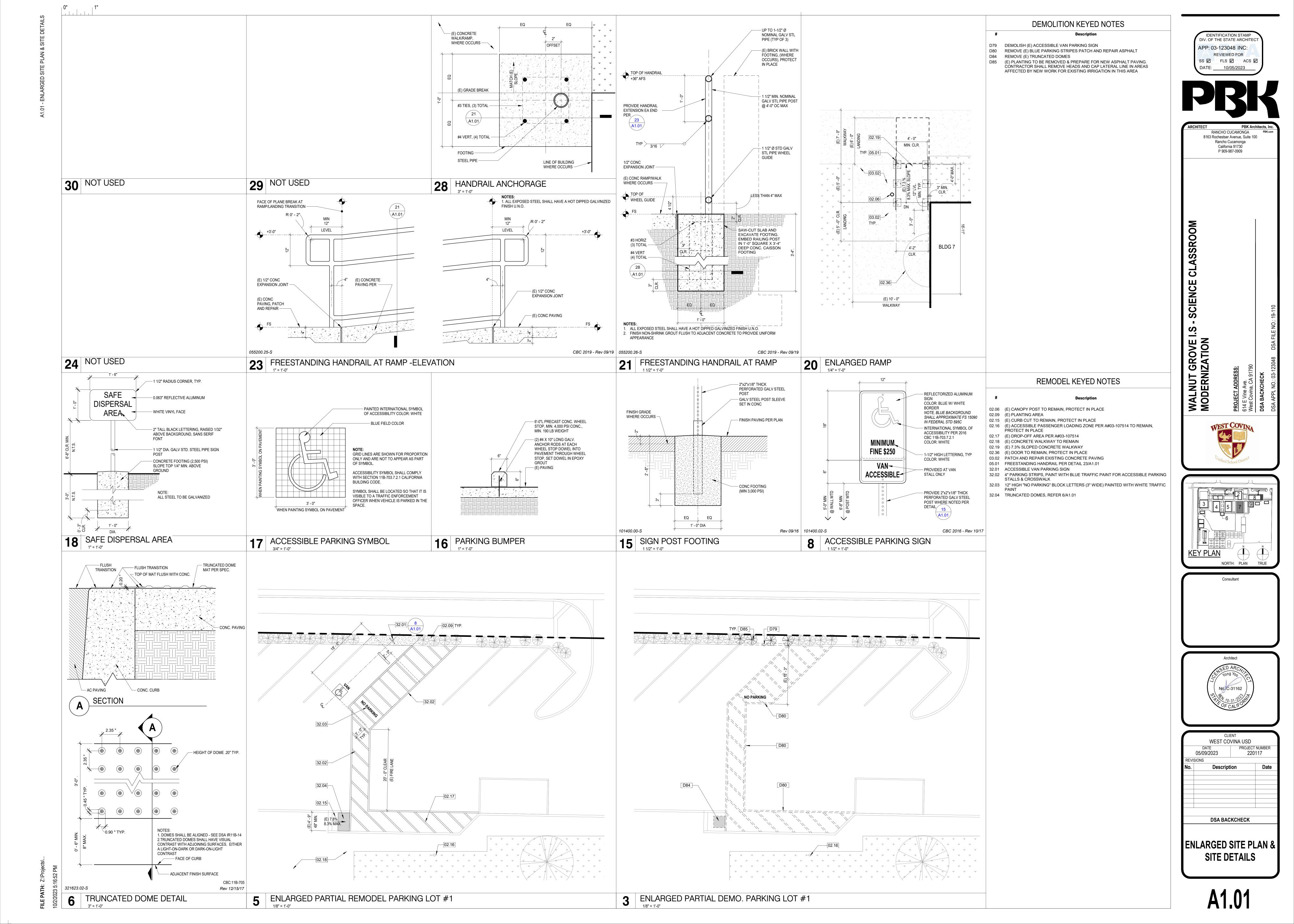


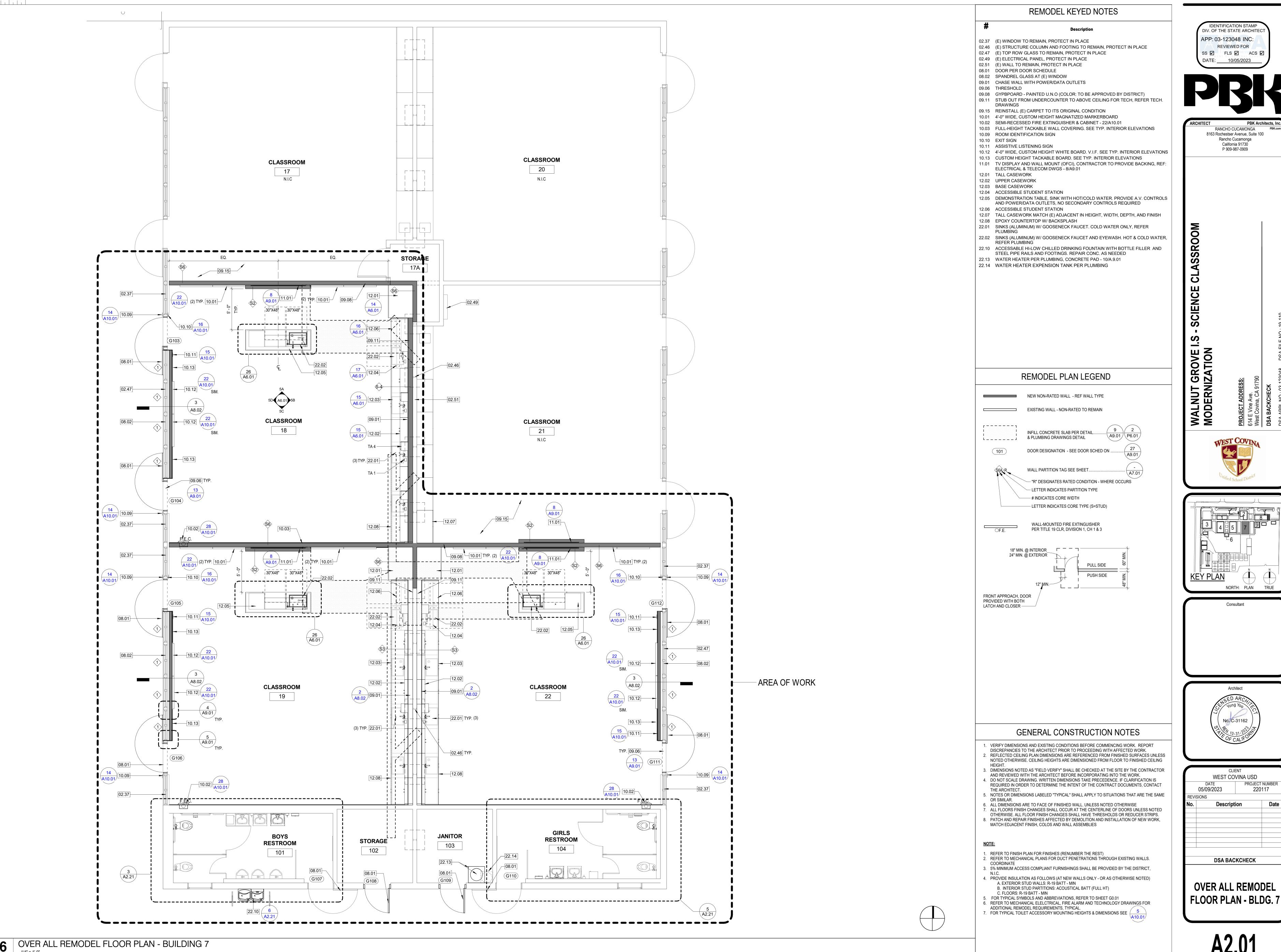
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0	DATE 5/09/2023	PROJECT 220	
REVISIO	ONS	,	
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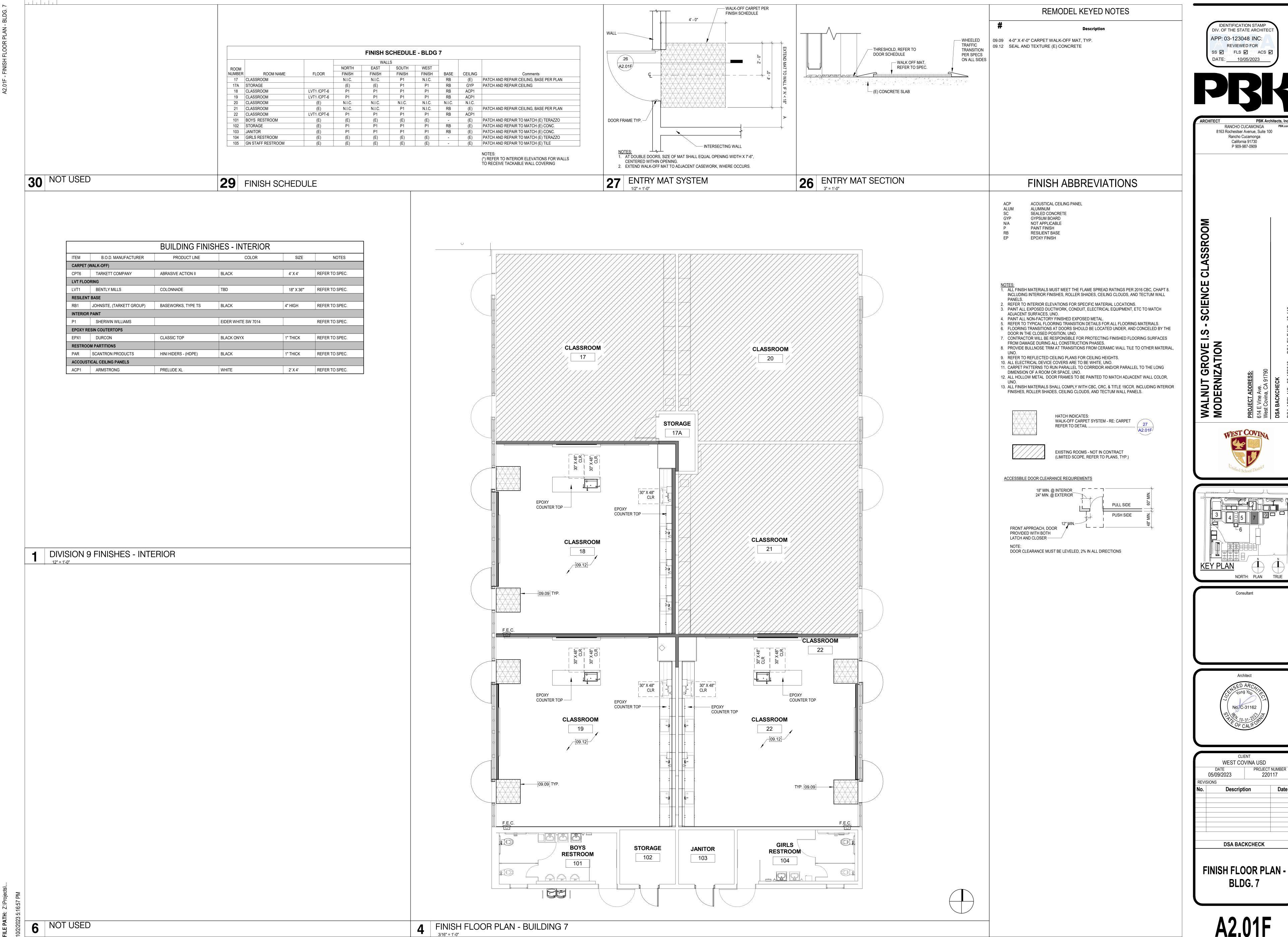


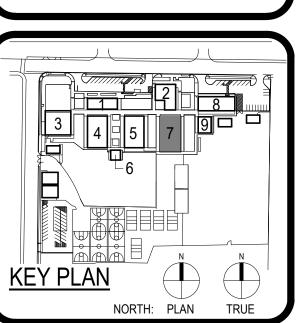


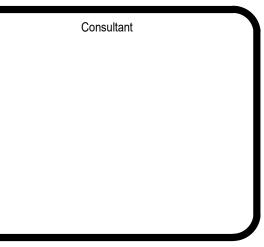


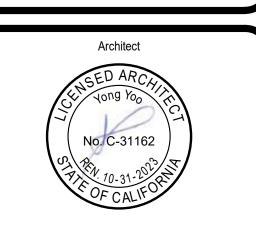






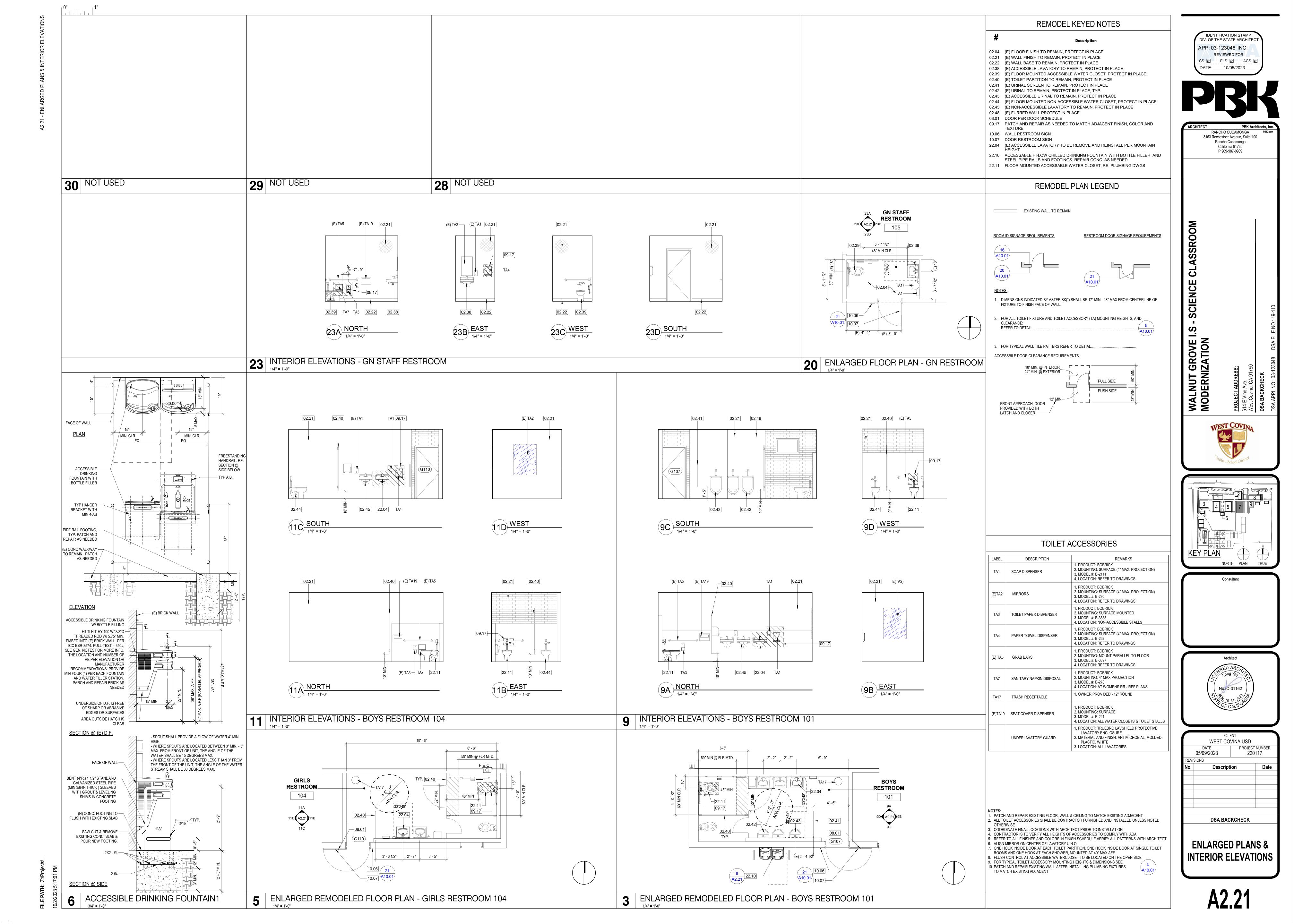


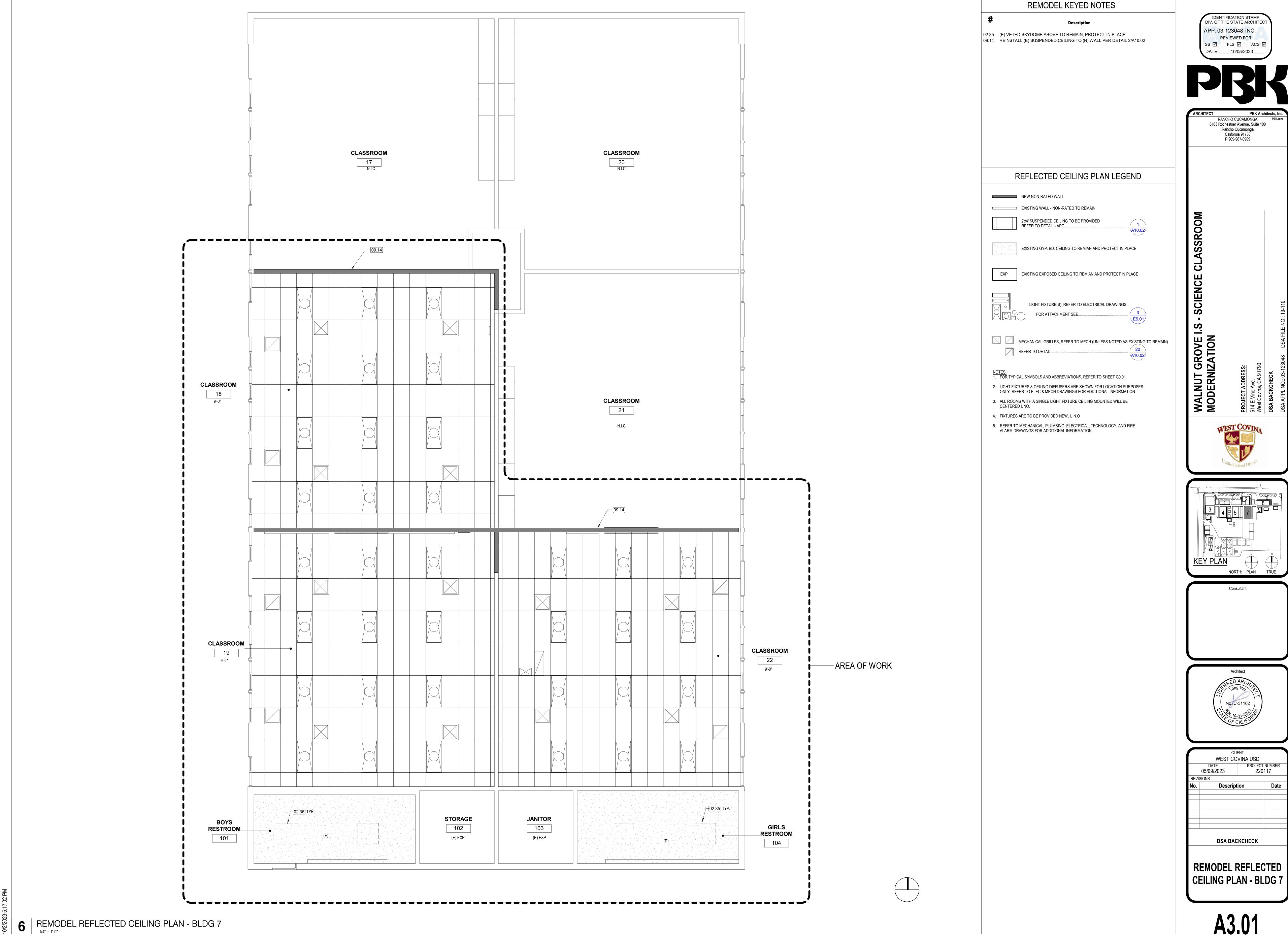


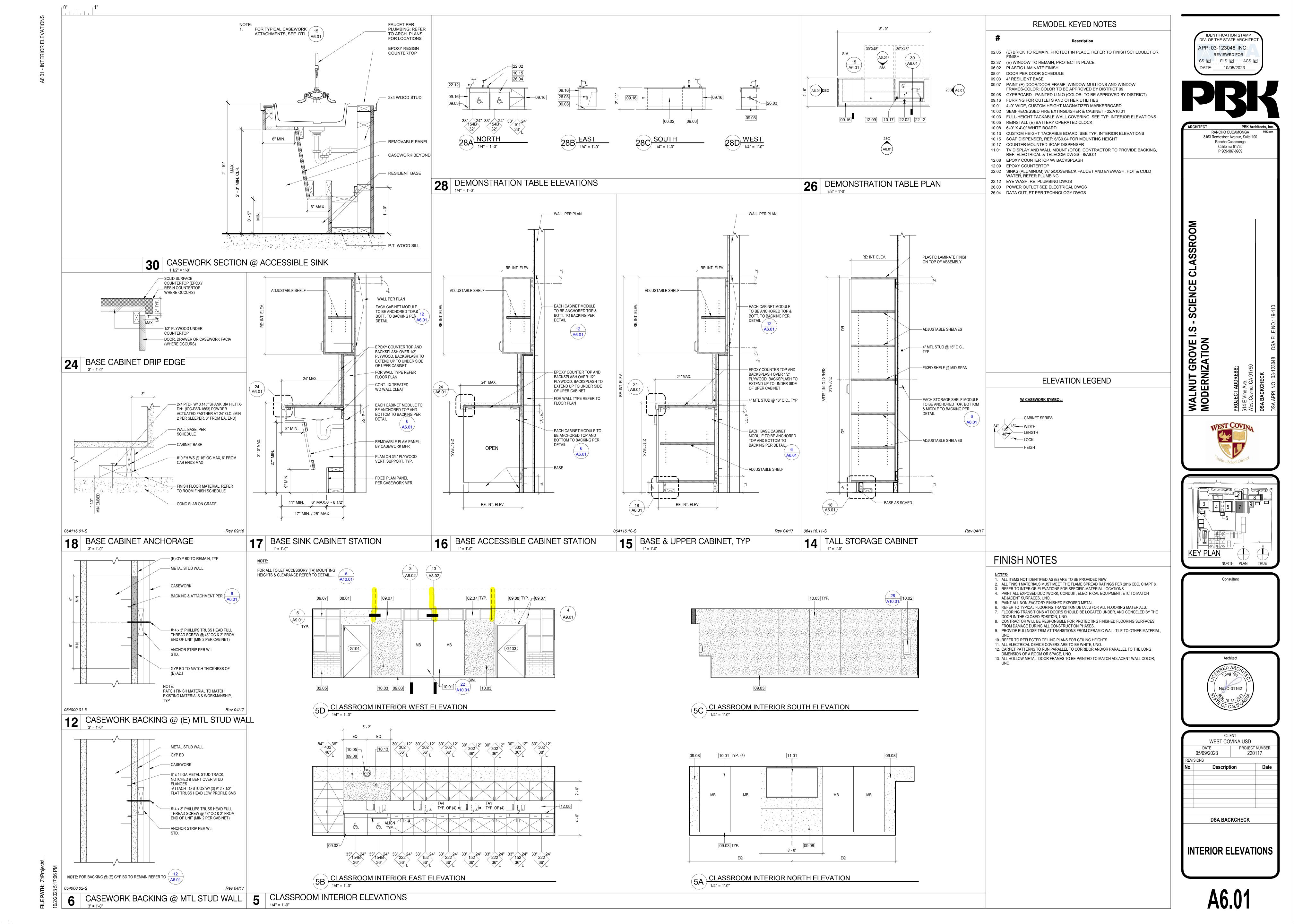


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## STRUCTURAL STEEL AND MISCELLANEOUS METAL

- 1. ALL PORTIONS OF WORK PERTAINING TO STRUCTURAL STEEL CONSTRUCTION SHALL CONFORM TO TITLE 24, PART 2, CHAPTER 22A.
- 2. ALL STRUCTURAL STEEL SHALL CONFORM TO ASTM A-992, UNLESS NOTED
- 3. ROUND HOLLOW STRUCTURAL SECTION (HSS) SHALL CONFORM TO ASTM A-500,
- 4. SQUARE AND RECTANGULAR HOLLOW STRUCTURAL SECTIONS (HSS) SHALL CONFORM TO ASTM A-500, GRADE C.
- 5. CHANNELS, ANGLES AND PLATES SHALL CONFORM TO ASTM A-36, UNLESS NOTED

OTHERWISE.

- 6. ALL BOLTS SHALL CONFORM TO THE FOLLOWING, UNLESS NOTED OTHERWISE:
- ANCHOR BOLTS: ASTM F1554, GRADE 36 U.N.O. TYPICAL STEEL CONNECTIONS: ASTM F3125, GRADE A325N OR F1852
- (NON-SLIP-CRITICAL) MOMENT AND DRAG CONNECTIONS: ASTM F3125, GRADE A325SC OR F1852
- (SLIP-CRITICAL) MISCELLANEOUS CONNECTIONS NOT NOTED OTHERWISE: ASTM A-307
- 7. HIGH STRENGTH BOLTS SHALL CONFORM TO THE FOLLOWING, UNLESS NOTED
- JOINT ASSEMBLIES USING HIGH-STRENGTH BOLTS SHALL BE IN ACCORDANCE
- WITH SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH STRENGTH BOLTS, BY THE RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS ALL HIGH STRENGTH BOLTS SHALL CONFORM TO ASTM F3125, GRADE A325 OR F1852 TWIST OFF TYPE, NUTS SHALL CONFORM TO ASTM A-563, AND
- WASHERS SHALL CONFORM TO ASTM F-436. PAINT SHALL NOT BE PERMITTED ON CONTACT SURFACES UNLESS NOTED OTHERWISE. CONTACT SURFACES OF BOLTED PARTS SHALL BE DESCALED AND FREE OF DIRT, OIL, BURRS, PITS, AND OTHER DEFECTS WHICH PREVENT SOLID
- SEATING OF PARTS. SLIP—CRITICAL JOINT ASSEMBLIES SHALL BE FULLY PRE—TENSIONED BY TURN-OF-NUT TIGHTENING, CALIBRATED WRENCH TIGHTENING, INSTALLATION OF ALTERNATE DESIGN BOLTS OR BY DIRECT TENSION INDICATOR TIGHTENING.
- 8. ALL BOLTS CONNECTING STEEL FRAMING MEMBERS SHALL BE FULLY PRETENSIONED AND INSPECTED PER AISC. TWIST OFF TYPE TENSION CONTROL BOLTS ARE ACCEPTABLE.
- 9. STRUCTURAL STEEL IN SFRS LINES SHALL BE CONNECTED IN SLIP-CRITICAL JOINTS COMPLYING WITH AISC 341-16, SECTION D.2.2, CLASS A FAYING SURFACE.

10. ANCHOR BOLTS SHALL BE HEX HEADED. BENT BAR ANCHORS SHALL NOT BE

- USED. 11. STRUCTURAL STEEL SHOP DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
- 12. ALL WELDING SHALL CONFORM TO THE STRUCTURAL WELDING CODE STEEL, AWS D1.1 AND SUPPLEMENT AWS D1.8, BY THE AMERICAN WELDING SOCIETY. WELDING RODS SHALL BE E70XX.
- 13. ALL WELDING IN SFRS LINES SHALL COMPLY WITH AWS D1.8 AND AISC 341-16 SECTION A3.4A.
- 14. THE FILLER METAL FOR ALL WELDING SHALL HAVE A NOTCH TOUGHNESS OF NOT LESS THAN 20 FT-LBS AT 0 DEGREES F. AS MEASURED BY A STANDARD CHARPY V-NOTCH TEST, ASTM E23, IN ACCORDANCE WITH THE APPLICABLE FILLER METAL SPECIFICATION REFERENCED IN AWS D1.1 AND SEISMIC SUPPLEMENT AWS D1.8.
- 15. ALL DEMAND CRITICAL WELDS SHALL HAVE A NOTCH TOUGHNESS OF NOT LESS THAN 40 FT-LBS AT 70 DEGREES F, AS MEASURED BY STANDARD CHARPY V-NOTCH TEST, ASTM E23, IN ACCORDANCE WITH THE APPLICABLE FILLER METAL SPECIFICATION REFERENCED IN AWS D1.1 AND SEISMIC SUPPLEMENT AWS D1.8.
- 16. ALL WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS.
- 17. ALL WELDS NOT SPECIFIED SHALL BE CONTINUOUS FILLET WELDS. SIZE OF WELDS SHALL BE BASED ON AWS D1.1 FOR THICKER PART JOINED.
- 18. BOLT HOLES SHALL BE  $\mathcal{Y}_6$ " LARGER IN DIAMETER THAN NOMINAL SIZE OF BOLT USED, UNLESS NOTED OTHERWISE. BOLT HOLES AT COLUMN BASEPLATES MAY BE 3/6" MAXIMUM LARGER IN DIAMETER THAN NOMINAL SIZE OF ANCHOR BOLT USED. UNLESS NOTED OTHERWISE.
- 19. DO NOT PAINT STRUCTURAL STEEL SURFACES THAT ARE TO RECEIVE SPRAY-APPLIED FIREPROOFING OR TO BE ENCASED IN CONCRETE OR MASONRY.
- 20. ALL STRUCTURAL STEEL AND MISCELLANEOUS METAL ITEMS, INCLUDING CONNECTORS, EXPOSED TO THE WEATHER SHALL BE HOT-DIPPED GALVANIZED, AFTER FABRICATION.
- 21. STRUCTURAL STEEL SHALL BE DELIVERED TO THE JOB SITE FREE OF EXCESSIVE RUST, MILL SCALE, GREASE, ETC.
- 22. OPENINGS SHALL NOT BE PLACED IN STEEL MEMBERS UNLESS SPECIFICALLY
- 23. THE CONTRACTOR SHALL IDENTIFY THE PROTECTED ZONES USING ANY SUITABLE NON-DESTRUCTIVE MEANS (SUCH AS YELLOW PAINT).
- 24. ONCE THE STEEL DECKING IS IN PLACE, THE CONTRACTOR SHALL USE ANY SUITABLE NON-DESTRUCTIVE MEANS TO IDENTIFY THE PROTECTED ZONES PRIOR TO THE INSTALLATION OF SHEAR STUDS, DECK ATTACHMENTS.
- 25. AFTER SPRAYED ON FIRE-RESISTIVE MATERIAL HAS BEEN APPLIED, THE CONTRACTOR SHALL USE ANY SUITABLE NON-DESTRUCTIVE MEANS TO IDENTIFY THE PROTECTED ZONES FOR OTHER DISCIPLINES TO PRECLUDE UNAUTHORIZED ATTACHMENTS.

#### COLD-FORMED STEEL FRAMING

- 1. ALL PORTIONS OF WORK PERTAINING TO COLD-FORMED STEEL CONSTRUCTION SHALL CONFORM TO TITLE 24, PART 2, CHAPTER 22A.
- 2. ALL LIGHT GAUGE METAL FRAMING SHALL BE GALVANIZED AND SHALL CONFORM TO ASTM A-653 SS, GRADE 50, CLASS 1, WITH A MINIMUM YIELD STRENGTH OF 50 KSI FOR 16 GAUGE AND HEAVIER FRAMING, AND ASTM A-653 SS. GRADE 33. WITH A MINIMUM YIELD STRENGTH OF 33 KSI FOR 18 GAUGE AND LIGHTER FRAMING.
- 3. DIMENSIONS, PROPERTIES AND TYPES NOTED ARE BASED ON METAL STUDS AND TRACKS BY STEEL STUD MANUFACTURERS ASSOCIATION, ICC NO. ESR-3064P,
- 4. ALL STUDS AT JAMBS OF DOOR AND WINDOW OPENINGS SHALL BE 16 GAUGE, UNLESS NOTED OTHERWISE.
- 5. WELDING SHALL BE IN ACCORDANCE WITH THE STRUCTURAL WELDING CODE -SHEET STEEL, AWS D1.3, BY THE AMERICAN WELDING SOCIETY.
- ALL SHEET METAL SCREWS SHALL PROTRUDE 3 EXPOSED THREADS MINIMUM
- 7. ALL METAL STUDS SHALL HAVE STIFFENED FLANGES.

UNLESS NOTED OTHERWISE.

THROUGH BASE METAL FRAMING.

- 8. SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR SIZE AND GAUGE OF STUDS.
- 9. THE FOLLOWING ITEMS ARE EXEMPT FROM DSA 103 TEST & INSPECTION WELDING REQUIREMENTS:
- NON-STRUCTURAL INTERIOR STUDS LESS THAN 15'-0" IN HT. SOFFIT/CEILING JOISTS LESS THAN 15'-0" IN LENGTH AND LESS THAN 20'-0" ABOVE FINISHED GRADE/FLOOR BELOW.

## **AUTOMATIC END WELDED STUDS**

- 1. AUTOMATIC END WELDED STUDS SHALL BE NELSON GRANULAR FLUX-FILLED SHEAR CONNECTORS OR ANCHOR STUDS OR AN APPROVED EQUAL.
- 2. STUDS SHALL BE MANUFACTURED OF COLD ROLLED STEEL, WHICH CONFORMS TO ASTM SPECIFICATION A-108, GRADES C-1010 THRU C-1020.
- 3. STUDS SHALL BE AUTOMATICALLY END WELDED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS IN SUCH A MANNER AS TO PROVIDE COMPLETE FUSION BETWEEN THE END OF THE STUD AND THE PLATE. THERE SHOULD BE NO POROSITY OR EVIDENCE OF LACK OF FUSION BETWEEN THE WELDED END OF THE STUD AND THE PLATE. THE STUD SHALL DECREASE IN LENGTH DURING WELDING APPROXIMATELY 1/8" FOR 1/8" DIAMETER STUDS AND SMALLER. AND 3/2" FOR STUDS LARGER THAN 5/4" DIAMETER. WELDING SHALL BE DONE ONLY BY QUALIFIED WELDERS APPROVED BY THE WELDING INSPECTOR.

#### POWDER DRIVEN CONCRETE FASTENERS

- 1. THE USE OF POWDER DRIVEN FASTENERS FOR TENSION LOADS IS LIMITED TO SUPPORT OF MINOR LOADS, SUCH AS ACOUSTICAL CEILINGS, DUCTWORK, CONDUIT, ETC. POWDER DRIVEN CONCRETE FASTENERS MAY NOT BE USED IN CURBS.
- 2. ALLOWABLE TENSION LOADS SHALL BE LIMITED TO 90 POUNDS, OR 80% OF ICC APPROVED VALUES, WHICHEVER IS LESS. QUALIFICATION FOR USE OF ALL POWER ACTUATED TOOLS MUST MEET ANSI A10.3 STANDARD AS REQUIRED BY THE MANUFACTURER AND ALL OSHA REQUIREMENTS.
- 3. THE OPERATOR, TOOL, AND FASTENERS SHALL BE PREQUALIFIED BY THE PROJECT INSPECTOR. HE SHALL OBSERVE THE TESTING OF THE FIRST TEN FASTENER INSTALLATIONS. A "PULL-OUT" TEST LOAD OF 200 LBS. SHALL BE APPLIED TO THE PIN IN SUCH A MANNER AS NOT TO RESIST THE SPALLING TENDENCY OF THE CONCRETE SURROUNDING THE PIN. THEREAFTER, RANDOM TESTS, UNDER THE PROJECT INSPECTOR'S SUPERVISION, SHALL BE MADE OF APPROXIMATELY ONE IN TEN PINS. IF ANY PIN FAILS TESTING, TEST ALL PINS OF THE SAME CATEGORY NOT PREVIOUSLY TESTED UNTIL TWENTY CONSECUTIVE PASS, THEN RESUME THE INITIAL TESTING FREQUENCY.
- 4. FASTENERS SHALL HAVE ICC APPROVAL FOR THE TYPE OF CONCRETE INTO WHICH THE FASTENERS ARE INSTALLED.
- 5. POWDER DRIVEN CONCRETE FASTENERS ARE NOT PERMITTED IN PRESTRESSED CONCRETE MEMBERS.
- 6. WHEN INSTALLING DRILLED-IN ANCHORS AND/OR POWDER DRIVEN PINS IN NON-PRESTRESSED REINFORCED CONCRETE, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGE TO THE REINFORCING BARS. MAINTAIN A MINIMUM CLEARANCE OF ONE INCH BETWEEN THE REINFORCEMENT AND DRILLED-IN ANCHOR AND/OR PIN.

#### ANCHORS AND/OR DOWELS INSTALLED WITH ADHESIVE

- 1. ANCHORS AND/OR DOWELS SHALL BE INSTALLED WITH ADHESIVE ONLY WHERE INDICATED ON DRAWINGS.
- 2. ANCHORS AND/OR DOWELS SHALL BE INSTALLED IN CONCRETE USING ONE OF THE FOLLOWING PRODUCTS IN ACCORDANCE WITH THE APPLICABLE ICC/IAPMO
- HILTI HIT—HY 200 ADHESIVE SIMPSON SET—XP ADHESIVE DEWALT PURE110+ ADHESIVE
- ICC NO. ESR-3298 3. ANCHORS AND/OR DOWELS SHALL BE INSTALLED IN GROUTED MASONRY USING ONE OF THE FOLLOWING PRODUCTS IN ACCORDANCE WITH THE APPLICABLE ICC
- HILTI HIT—HY 200 ADHESIVE SIMPSON SET—XP ADHESIVE
- ICC NO. ESR-3963 IAPMO NO. ER-265

ICC NO. ESR-3187

ICC NO. ESR-2508

- 4. ADHESIVE SYSTEMS OTHER THAN THOSE SPECIFIED SHALL BE SUBMITTED AS A SUBSTITUTION, AND ARE SUBJECT TO THE REVIEW AND APPROVAL OF THE ENFORCEMENT AGENCY, THE ARCHITECT, AND THE STRUCTURAL ENGINEER.
- 5. HOLES SHALL BE DRILLED WITH NON-REBAR-CUTTING DRILL BITS.
- 6. HOLES SHALL BE CLEAN OF CONCRETE DUST AND DEBRIS USING A STEEL WIRE BRUSH AND OIL-FREE COMPRESSED AIR. HOLES SHALL ALSO BE FREE OF STANDING WATER.

7. PROJECT INSPECTOR SHALL VERIFY INSTALLATION OF ANCHORS OR DOWELS IN

ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, INCLUDING CLEANLINESS OF DRILL HOLES AND PROPER EMBEDMENT. 8. ANCHORS SET IN CONCRETE AND GROUTED MASONRY SHALL BE TESTED TO 2 TIMES THE ASD ALLOWABLE TENSION LOAD. 1.25 TIMES THE LRFD STRENGTH

CAPACITY. OR 80% OF THE YIELD STRENGTH OF THE BOLT FOR THE SPECIFIC

- LOCATION OF THE ANCHOR TO BE TESTED, WHICHEVER IS LESS. TORQUE TESTING IS NOT PERMITTED. SEE DETAILS FOR TEST LOADS. 9. ADHESIVE ANCHORS INSTALLED IN HORIZONTAL TO VERTICALLY OVERHEAD ORIENTATION TO SUPPORT SUSTAINED TENSION LOADS SHALL BE DONE BY A CERTIFIED ADHESIVE ANCHOR INSTALLER (AAI) AS CERTIFIED THROUGH ACI/CRSI (ACI 318-14 17.8.2.2). PROOF OF CURENT CERTIFICATION SHALL BE SUBMITTED
- 10. ADHESIVE ANCHORS MUST BE INSTALLED IN CONCRETE AGED A MINIMUM OF 21

TO THE ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF INSTALLATION.

#### REINFORCING STEEL

SHALL BE PERFORMED BY CERTIFIED WELDERS.

- 1. ALL PORTIONS OF WORK PERTAINING TO FABRICATION AND PLACEMENT OF REINFORCING STEEL SHALL CONFORM TO TITLE 24, PART 2, CHAPTER 19A.
- 2. REINFORCING BARS SHALL CONFORM TO ASTM A-615 GRADE 60, EXCEPT #3 BARS MAY BE GRADE 40. REINFORCING BARS THAT ARE TO BE WELDED SHALL CONFORM TO ASTM A-706. GRADE 60
- 3. WELDING OF REINFORCEMENT SHALL BE WITH LOW HYDROGEN ELECTRODES AND SHALL CONFORM TO STRUCTURAL WELDING CODE - REINFORCING STEEL, AWS D1.4, BY THE AMERICAN WELDING SOCIETY AND SEC. 1903A.8. WELDING RODS USED FOR THE WELDING OF REINFORCING SHALL BE E80XX. ALL WELDING
- 4. ALL REINFORCING BAR BENDS SHALL BE MADE COLD. ALL #5 OR LARGER REINFORCING BARS SHALL NOT
- 5. FUSION WELDED REINFORCING STEEL ASSEMBLIES SHALL CONFORM TO SEC. 1903A.8. TIES/STIRRUP BARS IN FUSION WELDED ASSEMBLIES SHALL CONFORM TO ASTM A-706, AND LONGITUDINAL HOLDING WIRES SHALL CONFORM TO ASTM A-1064.
- 6. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185, AND SHALL BE LAPPED 11/2 SPACES AND 12"
- 7. DOWELS BETWEEN FOOTINGS AND WALLS OR COLUMNS SHALL BE THE SAME GRADE, SIZE, SPACING AND NUMBER AS THE VERTICAL REINFORCEMENT, RESPECTIVELY.
- 8. REINFORCING SPLICES SHALL BE MADE AS INDICATED ON THE DRAWINGS.
- 9. ALL VERTICAL REINFORCING SHALL BE CONTINUOUS BETWEEN TWO DIAPHRAGM LEVELS, UNLESS NOTED
- 10. D ANY BURIED STRUCTURES, SUCH AS CESSPOOLS, CISTERNS, FOUNDATIONS, ETC., BE FOUND.

#### POST-INSTALLED ANCHORS

- 1. ACCEPTABLE EQUIVALENT MANUFACTURERS OF POST-INSTALLED EXPANSION ANCHORS AND SCREW ANCHORS SHALL BE HILTI INC., SIMPSON STRONG-TIE COMPANY INC., OR DEWALT, UNO.
- 2. TESTS FOR POST-INSTALLED ANCHORS IN HARDENED CONCRETE SHALL CONFORM TO TITLE 24, PART 2, CHAPTER 19A, SECTION 1910A.5.
- 3. POST-INSTALLED ANCHOR INSTALLATION SHALL BE INSPECTED BY A SPECIAL

INSPECTOR SPECIFICALLY APPROVED BY THE ENFORCEMENT AGENCY FOR THAT

- 4. POST-INSTALLED ANCHOR TESTING SHALL BE DONE IN THE PRESENCE OF THE PROJECT INSPECTOR.
- 5. TEST QUANTITY OF POST-INSTALLED ANCHORS AS NOTED BELOW:
- <u>APPLICATION</u> **QUANTITY**
- SILL PLATES 10% OF BOLTS

LOOSENING OF THE WASHER UNDER THE NUT).

NON-STRUCTURAL (EQUIP. ANCHORAGE, ETC.) 50% OF BOLTS 6. IF ANY ANCHOR FAILS TESTING, TEST ALL ANCHORS OF THE SAME CATEGORY NOT

PREVIOUSLY TESTED UNTIL TWENTY (20) CONSECUTIVE ANCHORS PASS, THEN

100% OF BOLTS

- RESUME INITIAL TESTING FREQUENCY. 7. TORQUE TESTING SHALL BE APPLIED BY CALIBRATED WRENCH. TENSION TESTING
- (WHERE INDICATED) SHALL BE APPLIED BY HYDRAULIC JACK OR CALIBRATED SPRING LOADING DEVICE. 8. THE FOLLOWING CRITERIA SHALL APPLY FOR THE ACCEPTANCE OF INSTALLED
- POST-INSTALLED ANCHORS: A. TORQUE WRENCH METHOD: THE APPLICABLE TEST TORQUE MUST BE ATTAINED WITHIN ONE-HALF (%) TURN OF THE NUT. SLEEVE ANCHORS ¾ INCH DIAMETER OR LESS MUST ATTAIN THE SPECIFIED TEST TORQUE WITHIN

ONE-QUARTER (1/4) TURN OF THE NUT, AND THREADED ANCHORS MUST ATTAIN

THE SPECIFIED TEST TORQUE WITHIN ONE-QUARTER (1/4) TURN OF THE SCREW

- AFTER INITIAL SEATING OF THE SCREW HEAD. B. HYDRAULIC RAM METHOD: (FOR TENSION TESTING WHERE INDICATED) ANCHORS SHALL MAINTAIN THE TENSION TEST LOAD FOR A MINIMUM OF 15 SECONDS AND SHALL EXHIBIT NO DISCERNABLE MOVEMENT DURING THE TENSION TEST. (AN EXAMPLE OF DISCERNABLE MOVEMENT WOULD BE
- 9. TEST LOADS (1)(2)(3)

PURPOSE.

**STRUCTURAL** 

1		– EXPANSION ANCHORS HT CONCRETE	5
ANCHOR DIAMETER (INCH)	ANCHOR DEPTH (INCHES)	REQ'D. ANCHOR DEPTH (INCHES NOMINAL)	TORQUE (FT-LBF)
¾	2	21/2	30
1/2	2	21/2	50
/2	31/4	33/4	50
5/8	31/4	33/4	40
<i>7</i> 8	4	4½	40
3⁄4	33/4	4½	110
74	43/4	5½	110

- (1) TEST VALUES ARE BASED ON KWIK BOLT TZ2 (KB-TZ2) EXPANSION ANCHORS BY HILTI, INC. (ICC EVALUATION REPORT NUMBER ESR-4266).
- (2) TEST VALUES ARE BASED ON CARBON STEEL ANCHORS.
- (3) VERIFY TORQUE VALUES WITH MANUFACTURER FOR SIMPSON STRONG-BOLT 2 (ICC ESR-3037) OR DEWALT POWER-STUD+SD2 (ICC ESR-2502)

TORQUE TEST VALUES — SCREW ANCHORS  NORMAL WEIGHT CONCRETE								
ANCHOR DIAMETER (INCH)	ANCHOR DEPTH (INCHES)	TORQUE (FT-LBF)						
<i>y</i> <sub>4</sub>	1 %"	24						
74	2 ½"	24						
<b>¾</b>	23/4	50						
78	3½	50						
1/2	33/4	65						
/2	4½	65						
5/8	4½	100						
78	6	100						
3⁄4	6	150						
74	6¾	150						

- (1) TEST VALUES ARE BASED ON TITEN HD SCREW ANCHORS BY SIMPSON STRONG-TIE, (ICC EVALUATION REPORT NUMBER ESR-2713).
- (3) VERIFY TORQUE VALUES WITH MANUFACTURER FOR HILTI KWIK HUS-EZ SCREW ANCHORS (ICC ESR-3027) OR DEWALT SCREW-BOLT+SCREW ANCHOR (ICC ESR-3889)

## PROJECT DESIGN CRITERIA

1. BASIC DESIGN LIVE LOADS:

20 PSF (REDUCIBLE)

2. WIND LOADS

ROOF:

RISK CATEGORY: II EXPOSURE CATEGORY: C BASIC DESIGN WIND SPEED (3-SECOND GUST), V = 102 MPH ALLOWABLE STRESS DESIGN WIND SPEED,  $V_{ASD} = 79$  MPH VELOCITY PRESSURE EXPOSURE COEFFICIENT, K<sub>7</sub> = VARIES TOPOGRAPHIC FACTOR,  $K_{Zt} = 1.0$ WIND DIRECTIONALITY FACTOR,  $K_d = 0.85$ GROUND ELEVATION FACTOR. Ke = 1.00 GUST EFFECT FACTOR, G = 0.85

- A. COMPONENTS & CLADDING (ASCE 7-16, CH. 30)
  - $q_h = 0.00256 K_Z K_{Zt} K_d V_{ULT}^2$
- $P = q_h [(GC_P) (GC_{Pi})]$

EXTERNAL PRESSURE COEFFICIENT,  $(G_{CP}) = [FIG. 30.3-1 THRU 30.3-7]$ INTERNAL PRESSURE COEFFICIENT,  $(GC_{Pl}) = TABLE 26.13-1$ 

3. EARTHQUAKE LOADS

<u>SEISMIC DESIGN CRITERIA</u> (BASES ON ATC HAZARD SEISMIC DESIGN SERVICE)

 $S_{c} = 1.672$  $S_1 = 0.603$ SİTE CLASS: D  $F_{A} = 1.2$  $S_{DS}^{V} = 1.337$ RISK CATEGORY: SEISMIC DESIGN CATEGORY: D

### WOOD

SHALL BE 19% OR LESS.

- 1. ALL PORTIONS OF WORK PERTAINING TO WOOD CONSTRUCTION SHALL CONFORM TO TITLE 24, PART 2, CHAPTER 23, INCLUDING ADDITIONAL REQUIREMENTS AND EXCEPTIONS, AS APPLICABLE.
- 2. LUMBER SHALL BE GRADED IN ACCORDANCE WITH THE STANDARD GRADING RULES NO. 17 OF THE WEST COAST LUMBER INSPECTION BUREAU, OR THE STANDARD GRADING RULES OF THE WESTERN WOOD PRODUCTS ASSOCIATION.
- 3. DIMENSION LUMBER SHALL BE DOUGLAS FIR-LARCH, NO. 1 AND BETTER GRADE, UNLESS NOTED OTHERWISE. TIMBERS SHALL BE DOUGLAS FIR LARCH, NO. 1 GRADE, UNLESS NOTED OTHERWISE. MOISTURE CONTENT AT TIME OF INSTALLATION
- 4. ALL PLYWOOD SHALL BE STRUCTURAL 1 AND COMPLY WITH PRODUCT STANDARD PS-1. USE PLYWOOD NAILS SAME GAUGE AS COMMON WIRE NAILS WITH LENGTHS AT LEAST EQUAL TO PLYWOOD THICKNESS PLUS REQUIRED PENETRATION IN ACCORDANCE WITH CBC SECTIONS 2306.2 (AWC SDPWS TABLE 4.2A) OR 2306.3 (AWC SDPWS TABLE 4.3A), AS APPLICABLE.
- 5. EXPOSED MEMBERS SHALL BE SELECT STRUCTURAL GRADE, FREE OF HEART CENTER (WHERE SIZE PERMITS), AND SELECTED FOR APPEARANCE AND STRAIGHTNESS.
- 6. BOLT HOLES SHALL BE A MINIMUM OF  $\frac{1}{2}$  TO A MAXIMUM OF  $\frac{1}{16}$  LARGER DIAMETER THAN NOMINAL SIZE OF BOLT USED. RETIGHTEN ALL NUTS PRIOR TO
- 7. STANDARD CUT WASHERS SHALL BE USED UNDER BOLT HEADS AND NUTS AGAINST WOOD. USE HEAVY PLATE OR MALLEABLE IRON WASHERS WHERE NOTED.
- 8. DO NOT BORE OR NOTCH MEMBERS, EXCEPT WHERE SHOWN IN DETAILS. OBTAIN ENFORCEMENT AGENCY AND STRUCTURAL ENGINEER'S APPROVAL FOR ANY HOLES OR NOTCHES NOT DETAILED.
- METAL CONNECTORS FOR WOOD CONSTRUCTION SHALL BE SIMPSON "STRONG-TIE", KC METALS, OR APPROVED EQUAL, UNLESS NOTED OTHERWISE. PRODUCT CALLOUT ON PLANS REFERS TO SIMPSON "STRONG TIE" MODEL NUMBER AND KC METALS PRODUCT REFERENCE NUMBER. FILL ALL ROUND AND TRIANGLE HOLES WITH THE SPECIFIED NAILS, SCREWS, OR BOLTS AS REQUIRED PER THE MANUFACTURER CATALOG. APPROVED EQUALS MAY ONLY BE USED WITH PRIOR APPROVAL FROM ENFORCEMENT AGENCY AND THE STRUCTURAL ENGINEER.
- 10. ALL SILL PLATES WHICH REST ON FOUNDATION OR SLAB ON GRADE SHALL BE PRESERVATIVE-TREATED IN ACCORDANCE WITH CBC SEC. 2303.1.9, AND SHALL BEAR THE QUALITY MARK OF AN APPROVED INSPECTION AGENCY THAT MAINTAINS CONTINUING SUPERVISION, TESTING AND INSPECTION OVER THE QUALITY OF PRESERVATIVE-TREATED WOOD. CUTS AND HOLES SHALL BE RETREATED.
- 11. JOISTS MORE THAN 8-INCH DEPTH SHALL BE CONTINUOUSLY BRIDGED BY SOLID BLOCKING, 2 INCHES THICK AND THE FULL DEPTH OF THE JOIST, SPACED AT 8 FEET ON CENTER.
- 12. ALL NAILING SHALL CONFORM TO CBC TABLE 2304.10.1 FASTENING SCHEDULE, USING COMMON WIRE NAILS. PREDRILL ALL NAILS 20D AND LARGER AND WHERE REQUIRED TO PREVENT SPLITTING. FASTENERS IN CONTACT WITH PRESERVATIVE—TREATED WOOD SHALL BE OF HOT-DIPPED ZINC-COATED
- 13. LAG SCREWS SHALL HAVE LEAD HOLES BORED BEFORE INSTALLING. HOLE DIAMETERS SHALL BE AS FOLLOWS:
- A. SHANK PORTION SAME DIAMETER AND LENGTH OF SHANK.
- B. THREADED PORTION 0.40 TO 0.70 DIAMETER OF SHANK AND SAME LENGTH AS THREADED PORTION.

GALVANIZED STEEL.

- 1. ALL PORTIONS OF WORK PERTAINING TO CONCRETE CONSTRUCTION SHALL CONFORM TO TITLE 24, PART 2, CHAPTER 19A.
- 2. CONCRETE MIXES SHALL BE DESIGNED BY A QUALIFIED TESTING LABORATORY. MIX DESIGNS SHALL CONFORM TO ACI 318, SEC. 26.4, CBC SEC.1903A AND 1904A. MIX DESIGNS SHALL INCORPORATE THE FOLLOWING CRITERIA:
- MINIMUM OF 5 SACKS OF CEMENT PER CUBIC YARD OF CONCRETE. MAXIMUM OF 7 SACKS OF CEMENT
- MAXIMUM WATER/CEMENT RATIO (BY WEIGHT) OF CONCRETE IN CONTACT WITH SOIL SHALL BE 0.45. MAXIMUM SLUMP SHALL NOT EXCEED 3" ± 1" FOR FOOTINGS, SLABS ON GRADE, AND MASS CONCRETE: AND 4" ± 1" FOR OTHER CONCRETE. SLUMP LIMITATIONS NOTED SHALL APPLY TO CONCRETE MIX PRIOR TO THE ADDITION OF ANY WATER-REDUCING ADMIXTURES OR SUPER-PLASTICIZERS. MAXIMUM SLUMP MAY BE INCREASED TO 5 +/- 1" FOR MIX INCLUDING WATER-REDUCING ADMIXTURES OR SUPER-
- PLASTICIZERS. CALCIUM CHLORIDE OR ADMIXTURES CONTAINING CHLORIDE(S) SHALL NOT BE USED.
- 3. SCHEDULE OF STRUCTURAL CONCRETE 28 DAY MINIMUM STRENGTHS AND TYPES:
- SLABS ON GRADE 145 PCF. f'c = 3000 PSI
- (NOTE: 2,500 PSI USED FOR DESIGN) ELSEWHERE UNLESS NOTED 145 PCF, fc = 3000 PSI
- 4. PORTLAND CEMENT SHALL CONFORM TO ASTM C-150, TYPE II. CEMENT USED FOR CONCRETE IN CONTACT WITH SOIL SHALL CONFORM TO ASTM C-150, TYPE V.
- 5. AGGREGATE FOR NORMALWEIGHT CONCRETE SHALL CONFORM TO ASTM C-33. COMBINED AGGREGATE GRADATION OF 3/8" MAXIMUM (PEA GRAVEL) SHALL NOT BE USED.
- 6. READY MIXED CONCRETE SHALL CONFORM TO ASTM C-94.
- 7. PLACEMENT OF CONCRETE SHALL CONFORM TO ACI 304. CLEAN AND ROUGHEN TO 1/4" AMPLITUDE ALL CONCRETE SURFACES AGAINST WHICH CONCRETE IS TO BE PLACED.
- 8. ALL REINFORCING BARS, ANCHOR BOLTS AND OTHER CONCRETE INSERTS SHALL BE SECURED IN POSITION PRIOR TO PLACING CONCRETE. 9. PROVIDE SLEEVES FOR PLUMBING AND ELECTRICAL OPENINGS IN CONCRETE BEFORE PLACING. DO NOT CUT ANY REINFORCING WHICH MAY CONFLICT. CORING IN CONCRETE IS NOT PERMITTED EXCEPT AS
- SHOWN. NOTIFY THE STRUCTURAL ENGINEER, IN ADVANCE, OF CONDITIONS NOT SHOWN ON THE STRUCTURAL DRAWINGS

THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT:

- CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH ...... CONCRETE EXPOSED TO EARTH OR WEATHER: #6 THROUGH #18 BARS
- #5 BARS, W31 OR D31 WIRE, AND SMALLER. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND: SLABS, WALLS, JOISTS: #14 AND #18 BARS

ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS

#11 BAR AND SMALLER

SPECIFICALLY DETAILED.

- BEAMS, COLUMNS: PRIMARY REINFORCEMENT STIRRUPS, TIES, SPIRALS.... 11. CONDUITS OR PIPES SHALL NOT BE EMBEDDED WITHIN A SLAB, WALL, BEAM, OR COLUMN, UNLESS
- 12. SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR ALL MOLDS, GROOVES, REVEALS, ORNAMENTS AND GROUNDS TO BE CAST IN CONCRETE. 13. DRYPACK WHERE NOTED ON DRAWINGS SHALL CONSIST OF 1 PART PORTLAND CEMENT AND 21/2 PARTS OF FINE AGGREGATE CONFORMING TO ASTM C-33 WITH ENOUGH WATER TO FORM A BALL WHEN

SQUEEZED IN THE HAND. THE SPACE BETWEEN TWO SURFACES REQUIRING DRYPACK SHALL BE PACKED

COMPLETELY FILLED. 14. NON-SHRINK GROUT WHERE NOTED ON DRAWINGS SHALL BE A PRE-MIXED COMPOUND CONSISTING OF NON-METALLIC AGGREGATE, CEMENT, WATER REDUCING AND PLASTICIZING ADDITIVES, CAPABLE OF DEVELOPING A MINIMUM COMPRESSIVE STRENGTH OF 8,000 PSI AT 28 DAYS. WHERE APPLICATION THICKNESS EXCEEDS MANUFACTURER'S LIMITATIONS, EXTEND WITH 3/8" (GRAVEL) AGGREGATE IN

WITH THE DRYPACK MATERIAL BY TAMPING OR RAMMING WITH A BAR OR ROD UNTIL THE VOIDS ARE

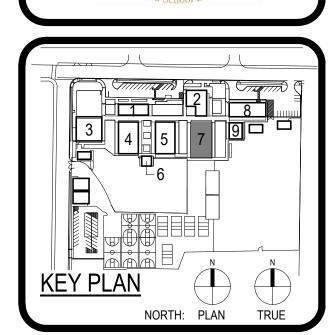
15. CONCRETE FOR SLAB ON GRADE DOES NOT REQUIRE BATCH PLANT INSPECTION. A MINIMUM OF ONE SET OF CYLINDERS SHALL BE TAKEN AND TESTED FOR EACH 50 CUBIC YARDS OF CONCRETE OR FRACTION

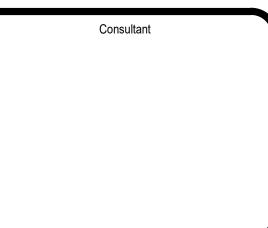
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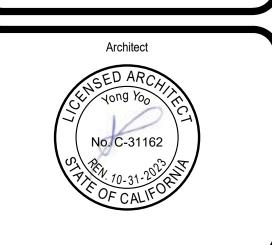
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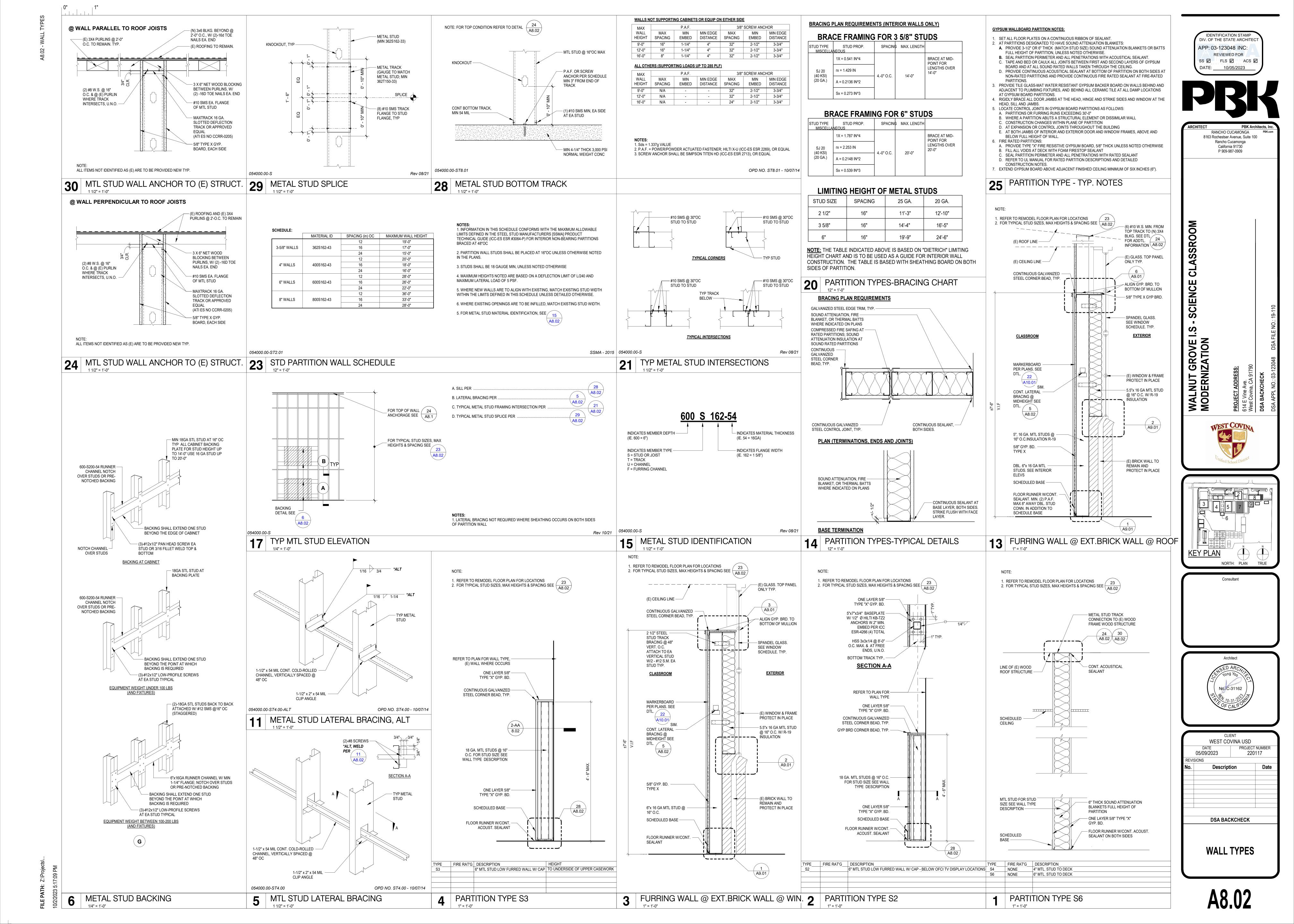


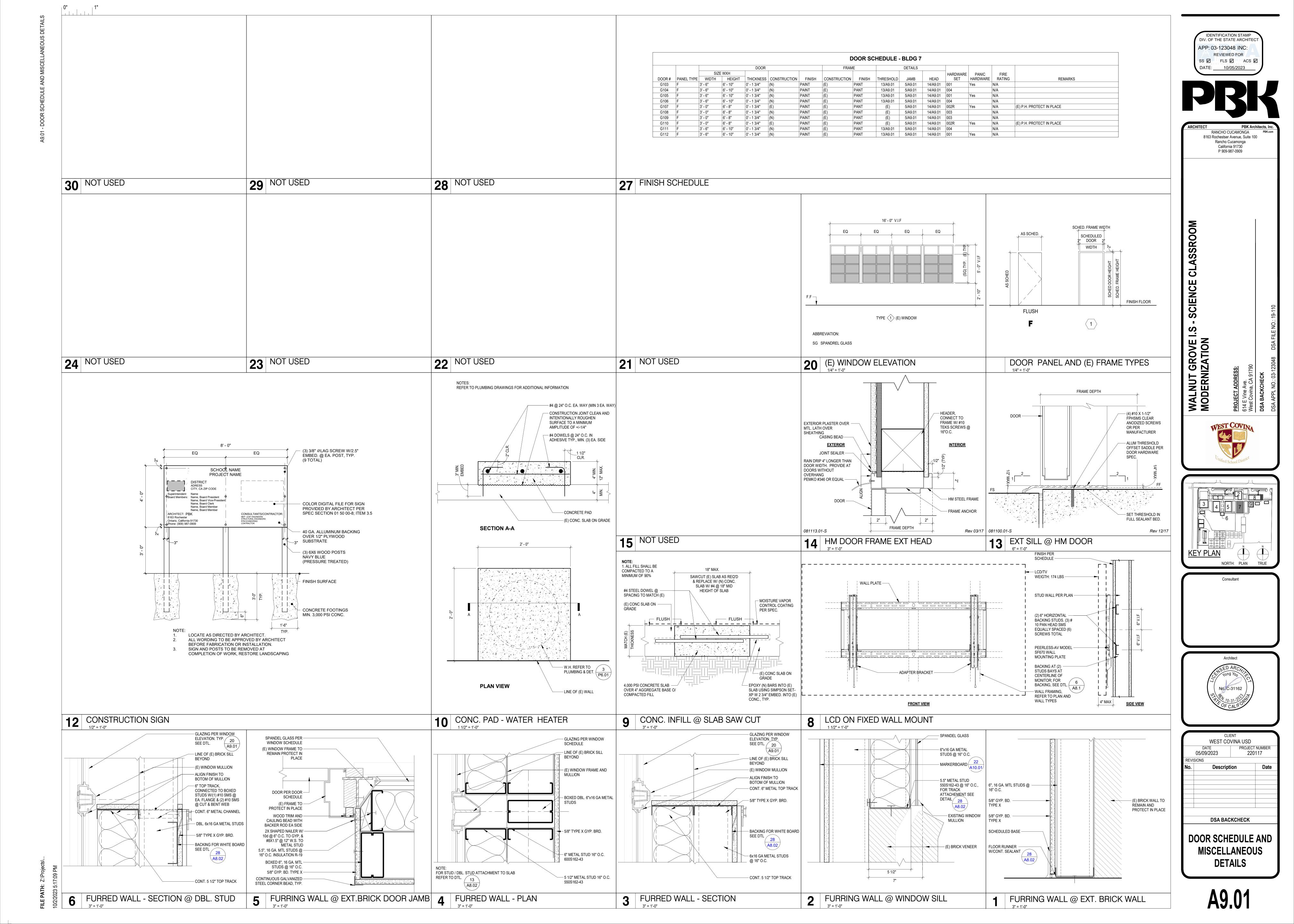


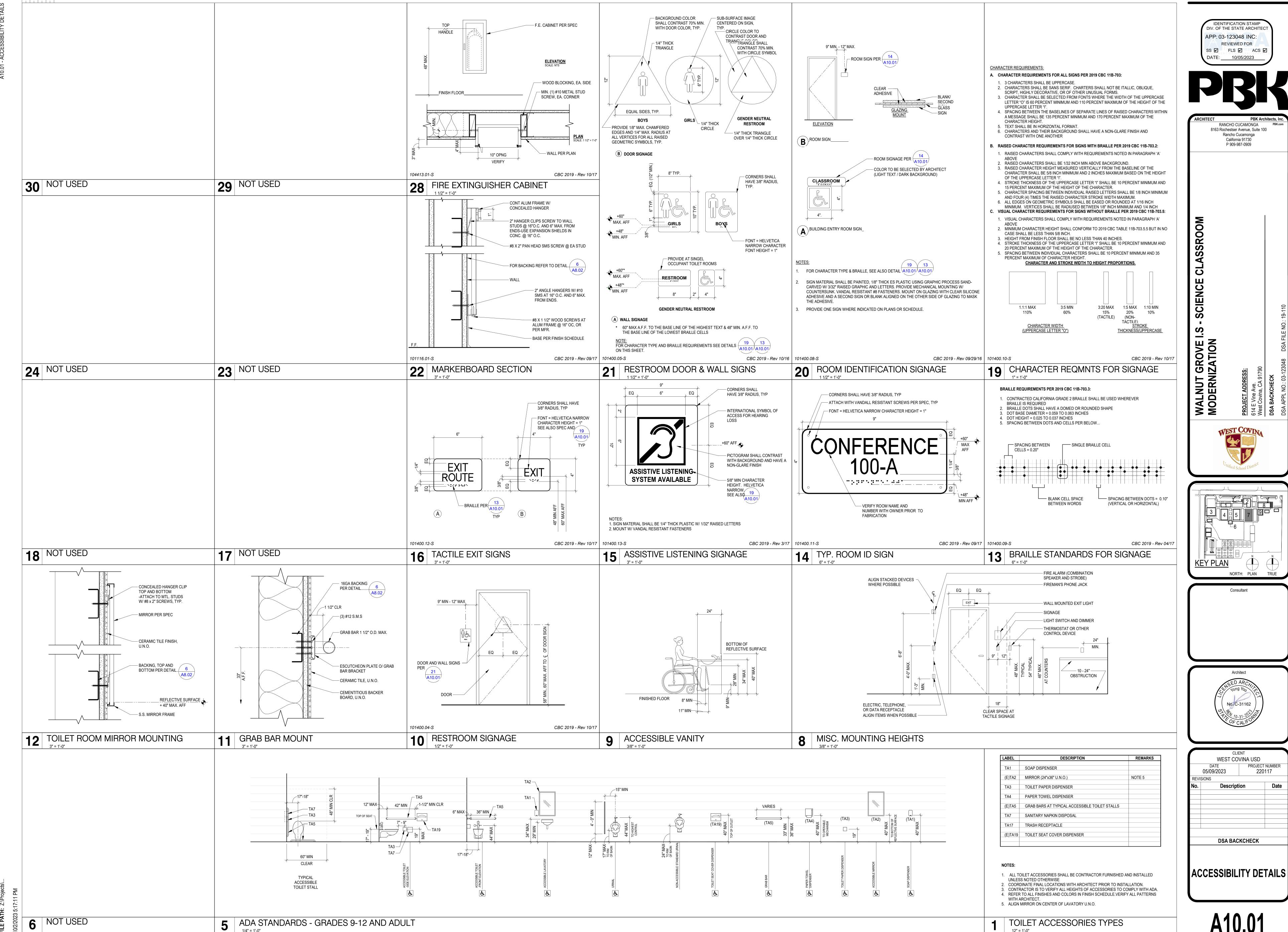


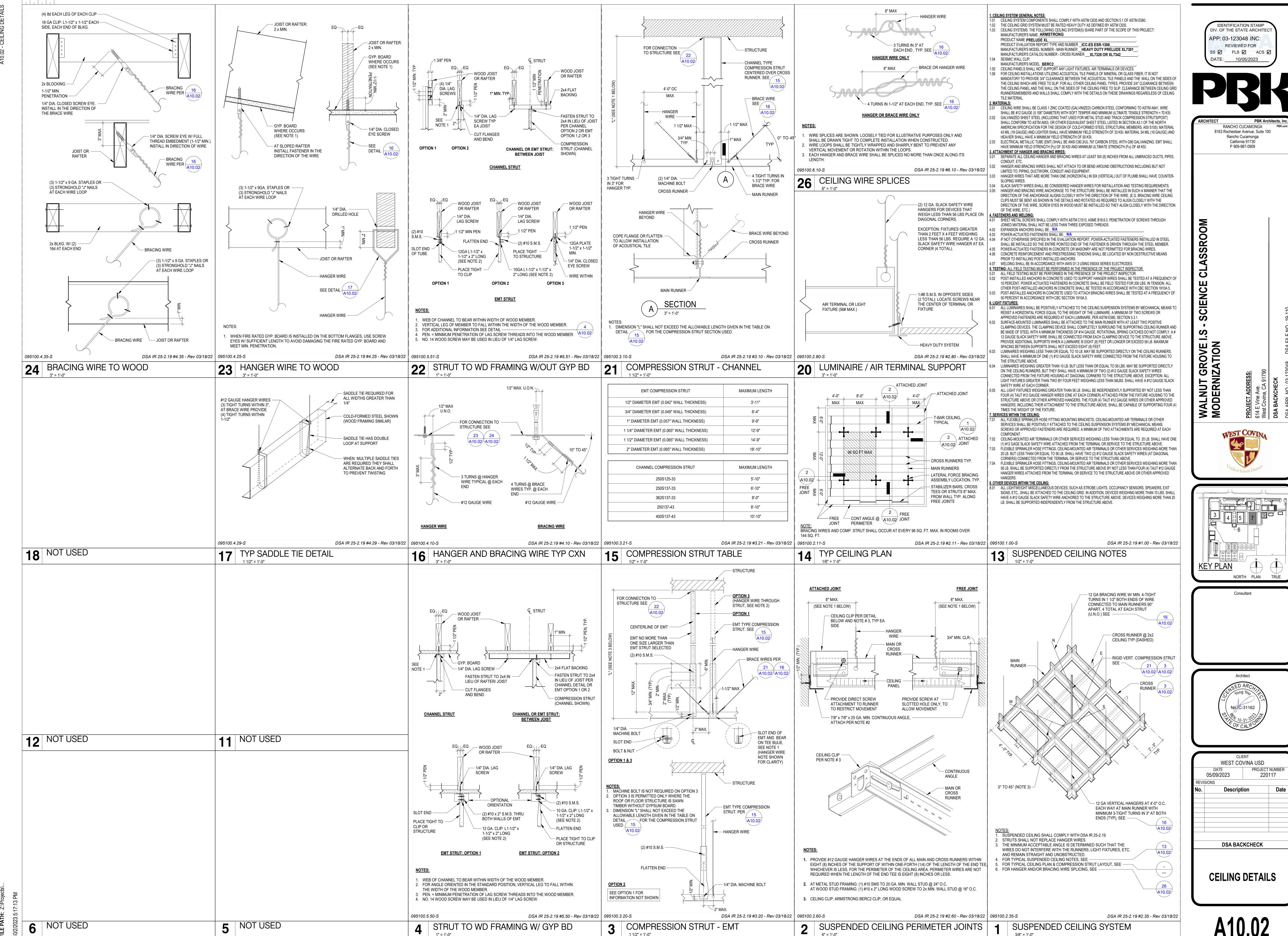
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**I STRUCTURAL GENERAL** 









**GENERAL NOTES** TITLE 24 NOTES MEP COMPONENT ANCHORAGE NOTE . ALL WORK SHALL IN COMFORMANCE WITH TITLE 24, 2022 CALIFORNIA CODE OF REGULATIONS (CCR), 2022 CALIFORNIA THE FOLLOWING SHALL BE REQUIRED WHETHER OR NOT SPECIFICALLY BUILDING CODE, PART 2, TITLE 24 CCR, CALIFORNIA MECHANICAL CODE, PART 4, TITLE 24 CCR, ALL OTHER APPLICABLE ALL MECHANICAL, PLUMBING AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON SHOWN OR MENTIONED IN DRAWINGS AND/OR SPECIFICATIONS: CODE AND REGULATIONS, SMACNA AND ASHRAE GUIDELINES, AND LOCAL CODES. THE DSA APPROVED CONSTRUCTION DOCUMENTS. THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO 2.  $\,$  ALL HVAC EQUIPMENT SHALL BE COMPLIANT  $\,$  WITH EFFICIENCY STANDARDS PER TITLE-24, PART 6MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2022 CBC, SECTIONS 1617A.1.18 THROUGH EQUIPMENT SHALL MEET EFFICIENTY REQUIREMENTS OF TABLES 110.2-A ALL FRESH AIR INTAKES SHALL BE AT LEAST 10 FEET IN A HORIZONTAL DIRECTION FROM ALL EXHAUST. FLUE. FUEL 1617A.1.26 AND ASCE 7-16 CHAPTER 13, 26 AND 30: THROUGH 110.2-K. BURNING APPLIANCE AND PLUMBING VENT OUTLETS. FOR GAS/ELECTRIC AIR CONDITIONING UNITS WHERE THE CODE. ALL AIR-COOLED, UNITARY, DX UNITS (PACKAGED, SPLIT-SYSTEM, HEAT PUMPS REQUIRED CLEARANCES ARE NOT MET, A FACTORY FLUE GAS DEFLECTOR AND EXTENSION SHALL BE USED TO MINIMIZE 1. ALL PERMANENT EQUIPMENT AND COMPONENTS. AND VRF) WITH ECONOMIZERS SHALL BE EQUIPPED WITH FAULT DETECTION THESE CLEARANCES. CONTRACTOR SHALL DETERMINE LOCATIONS WHERE REQUIRED PRIOR TO BID. THIS SHALL BE AND DIAGNOSTICS SYSTEMS PROVIDED AT NO ADDITIONAL COST TO THE OWNER. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT THAT IS PERMANENTLY ATTACHED (e.g. HARD WIRED) TO THE PIPE INSULATION FOR SPACE CONDITIONING AND SERVICE WATER-HEATING 4. AIR FILTERS SHALL BE STATE FIRE MARSHAL APPROVED AND LISTED. PREFORMED FILTERS HAVING COMBUSTIBLE BUILDING UTILITY SERVICES SUCH AS ELECTRIC, GAS OR WATER. "PERMANENTLY ATTACHED" SHALL INCLUDE WITH FLUID TEMPERATURES LISTED IN TABLE 120.3-A SHALL HAVE INSULATION FRAMING SHALL BE TESTED AS A COMPLETE ASSEMBLY. AIR FILTERS IN ALL OCCUPANCIES SHALL BE PER TITLE-24 PART 6 ALL ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 110/220 VOLT RECEPTACLES HAVING A FLEXIBLE CABLE. LEVELS AS SPECIFIED IN SUBSECTION (A) AND (B). AND APPLICABLE ASHRAE REQUIREMENTS. FILTERS SHALL BE ACCESSIBLE MECHANICAL HEATING AND COOLING EQUIPMENT SHALL BE THE SMALLEST 5. REVIEW THESE PLANS AND SPECIFICATIONS PRIOR TO BID. REVIEW PLANS AND SPECIFICATIONS OF OTHER RELATED. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT WHICH IS HEAVIER THAN 400 POUNDS OR HAS A CENTER OF SIZE. WITHIN THE AVAILABLE OPTIONS OF THE DESIRED EQUIPMENT LINE. TRADES INCLUDING ARCHITECTURAL, STRUCTURAL, ELECTRICAL, AND FIRE PROTECTION. MASS LOCATED 4 FEET OR MORE ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE NECESSARY TO MEET THE DESIGN HEATING AND COOLING LOADS OF THE 6. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AS THESE ARE PART OF THE CONTRACT DOCUMENTS. COMPONENT IS REQUIRED TO BE RESTRAINED IN A MANNER APPROVED BY DSA. BUILDING, AS CALCULATED ACCORDING TO THE REQUIREMENTS OF SECTION WHERE A CONFLICT OCCURS BETWEEN THIS SPECIFICATION AND OTHER SPECIFICATIONS ISSUED AS A PART OF THE CONTRACT DOCUMENTS. THE MORE STRINGENT REQUIREMENT SUPERCEDES. THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE BUT HVAC MOTORS FOR FANS THAT ARE LESS THAN 1 HP AND 1/12 HP OR GREATER THESE DRAWINGS ARE DIAGRAMMATIC ONLY AND NOT INTENDED TO INDICATE ALL REQUIRED OFFSETS, BENDS, ELBOWS, NEED NOT DEMONSTRATE DESIGN COMPLIANCE WITH THE REFERENCES NOTED ABOVE. THESE COMPONENTS SHALL SHALL BE ECM OR HAVE A MINIMUM MOTOR EFFICIENCY OF 70%. MOTORS SHALL TRANSITIONS, FITTINGS AS REQUIRED TO CONFORM TO THE BUILDING STRUCTURE, CLEARANCE INSIDE CEILINGS, HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND ALSO HAVE MEANS TO ADJUST MOTOR SPEED FOR BALANCING OR REMOTE AVOIDANCE OF OBSTRUCTIONS, AND MAINTAINING HEAD CLEARANCE. CONDUIT. FLEXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS: CONTROL 8. COORDINATE INSTALLATION WITH ALL OTHER TRADES PRIOR TO INSTALLATION OF EQUIPMENT OR MATERIALS, INCLUDING ELECTRIC RESISTANCE HEATING SYSTEMS ARE NOT PROVIDED FOR SPACE BUT NOT LIMITED TO, STRUCTURAL, ARCHITECTURAL, ELECTRICAL, AND PLUMBING COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVE A CENTER OF MASS LOCATED 4 FEET OR LESS 9. COORDINATE THE LOCATIONS OF ALL CEILING DIFFUSERS, REGISTERS, AND GRILLES WITH THE ARCHITECTURA ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT. IN DRIER CLIMATES AND WHEN LARGE OUTDOOR AIR FRACTIONS ARE REFLECTIVE CEILING PLANS, ELECTRICAL LIGHTING LAYOUT, AND ARCHITECTURAL ROOM ELEVATIONS. THE ARCHITECT REQUIRED, EVAPORATIVE PRE-COOLING PACKAGES WERE EVALUATED TO AND ENGINEER SHALL BE IMMEDIATELY NOTIFIED OF ANY CONFLICTS PRIOR TO FABRICATION AND INSTALLATION. COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 PRE-COOL OUTSIDE AIR AND COOL THE AIR FLOWING OVER THE DX 10. COORDINATE THE LOCATION OF ALL ROOF OPENINGS AND THE LOCATIONS OF ALL ROOF MOUNTED EQUIPMENT WITH THE POUND PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL. CONDENSING UNIT STRUCTURAL AND ARCHITECTURAL WEIGHTS FOR PLATFORM AND CURB SIZES, FOR ROOF AND WALL PENETRATION ZONE EACH AIR HANDLER TO SERVE ONLY AREAS WITH COMMON LOADS TO DETAILS AND REQUIREMENTS, SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS. REQUIRED PLATFORMS AND THE ANCHORAGE OF ALL MECHANICAL, ELECTRICAL AND PLUMBING COMPONENTS SHALL BE SUBJECT TO THE APPROVAL ALLOW MORE AGGRESSIVE CONTROL STRATEGIES AND IMPROVE COMFORT. FLASHINGS FOR MECHANICAL EQUIPMENT SHALL BE AS INDICATED ON THE STRUCTURAL AND ARCHITECTURAL PLANS, OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED HAVE DIFFERENT AHU'S SERVING CORE VS. PERIMETER AREAS. RESPONSIBILITY AND ACCEPTANCE BY DSA. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND THE DESIGN ACCOMMODATES PARTIAL OCCUPANCY ENERGY SAVINGS WHEN 1. HIRE A TEST AND BALANCE AGENCY TO PERFORM THE TESTING PROCEDURES. REQUIRED BY THE MECH-2A THROUGH EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH ABOVE REQUIREMENTS THE OWNER'S REQUIREMENTS OR NARRATIVE DESCRIBE ANY POSSIBLITY OF MECH-11A CERTIFICATE OF ACCEPTANCE FORMS. AS APPLICABLE FOR ALL NEWLY INSTALLED HEATING AND COOLING PARTIAL OCCUPANCY, BY ZONING AIR HANDLERS BY FLOOR OR BY PART OF A SYSTEMS. THE CONTRACTOR AND TEST AND BALANCE AGENCY ARE RESPONSIBLE FOR OBTAINING THE CERTIFICATE OF FLOOR, OR BY INCORPORATING CONTROLLED FLOOR DAMPERS, OR VAV AIR ACCEPTANCE FORMS REQUIRED BY THE IOR. THE TEST AND BALANCE AGENCY SHALL BE WELL VERSED WITH ALL THE TERMINALS GOING TOTALLY SHUT WHEN NOT OCCUPIED, ETC. REQUIREMENTS OF THESE CERTIFICATE OF ACCEPTANCE FORMS, AND SHALL COORDINATE AND WORK WITH THE EACH ZONE IS CONTROLLED BY AN INDIVIDUAL THERMOSTATIC CONTROL. EQUIPMENT AND CONTROLS INSTALLERS TO COMPLY WITH THESE REQUIREMENTS IN A TIMELY MANNER WITHIN THE CONTROLS SHALL BE CAPABLE OF SETTING TEMPERATURES TO 55 DEG F FOR PROJECT SCHEDULE. THE AIR BALANCE CONTRACTOR SHALL BE A MEMBER OF AABC (ASSOCIATED AIR BALANCE HEATING AND 85 DEG F FOR COOLING AND PROVIDE A TEMPERATURE DEADBAND OF AT LEAST 5 DEG F IF CONTROLLING BOTH HEATING AND COOLING. 12. PAINT ALL EXPOSED DUCTWORK, DUCT SUPPORTS, ACCESSORIES, REGISTERS, GRILLES, DIFFUSERS, AND FACH SPACE CONDITIONING SYSTEM SHALL BE FOLIPPED WITH CONTROLS TO APPURTENANCES, WHETHER OR NOT COLORS ARE DESIGNATED IN SCHEDULES, EXCEPT WHERE A SURFACE OR SHUT THE SYSTEM OFF DURING PERIODS OF NONUSE AND WILL TEMPORARILY MATERIAL IS SPECIFICALLY INDICATED NOT TO BE PAINTED OR IS TO REMAIN NATURAL. WHERE AN ITEM OR SURFACE IS OPERATE THE SYSTEM TO MAINTAIN SETBACK AND SETUP TEMPERATURES NOT SPECIFICALLY MENTIONED, PAINT THE SAME AS SIMILAR ADJACENT MATERIALS OR SURFACES. IF COLOR OR FINISH IS WHILE KEEPING VENTILATION DAMPERS CLOSED NOT DESIGNATED. THE ARCHITECT WILL SELECT FROM STANDARD COLORS OR FINISHES AVAILABLE. PAINTING INCLUDES SYSTEMS SERVING MULTIPURPOSE ROOMS LESS THAN 100 SF AND FIELD PAINTING EXPOSED BARE AND COVERED PIPES AND DUCTS (INCLUDING COLOR CODING), HANGERS, EXPOSED CLASSROOMS, CONFERENCE, AUDITORIUM OR MEETING CENTER ROOMS STEEL AND IRON WORK, AND PRIMED METAL SURFACES OF MECHANICAL FOUIPMENT. GREATER THAN 750 SF SHALL HAVE OCCUPANCY SENSORS THAT INTERFACE 13. PROVIDE ALL LABOR, MATERIAL, INSURANCE, EQUIPMENT, INSTALLATION, CONSTRUCTION TOOLS, TRANSPORTATION, AND WITH HVAC CONTROLS TO AUTOMATICALLY SETUP THE COOLING SETPOINT BY 2F PIPING, DUCTWORK, AND ELECTRICAL OTHER WORK AS REQUIRED. FOR A COMPLETE AND PROPERLY OPERATING MECHANICAL SYSTEM. OR MORE AND AUTOMATICALLY RESET THE MINIMUM REQUIRED VENTILATION 14. ALL MATERIALS SHALL BE NEW AND OF THE SAME MANUFACTURER FOR EACH CLASS OR GROUP OF EQUIPMEN RATE. THESE OCCUPANT SENSOR VENTILATION CONTROL DEVICES MUST MEET DISTRIBUTION SYSTEM BRACING NOTE EQUIPMENT SHALL BE LISTED AND APPROVED BY UNDERWRITER'S LABORATORIES, AND SHALL BEAR THE INSPECTION THE REQUIREMENTS OF SECTION 120.1(C)5. LABEL WHERE SUBJECT TO SUCH APPROVAL. MATERIALS SHALL MEET WITH THE APPROVAL OF THE GOVERNING BODIES OUTDOOR AIR SUPPLY AND EXHAUST EQUIPMENT SHALL BE INSTALLED WITH HAVING JURISDICTION. MATERIALS SHALL BE MANUFACTURED AND INSTALLED IN ACCORDANCE WITH APPLICABLE DAMPERS THAT AUTOMATICALLY CLOSE UPON EF FAN SHUTDOWN. STANDARDS ESTABLISHED BY THE LATEST EDITION OF CMC, CBC U.L., SMACNA AND ASHRAE GUIDELINES. INSTALL PER HVAC SYSTEMS WITH DDC TO THE ZONE LEVEL SHALL BE PROGRAMMED TO MANUFACTURERS' RECOMMENDATIONS. AND INSTALLATION INSTRUCTIONS. ALLOW CENTRALIZED DEMAND SHED FOR NON-CRITICAL ZONES. OBTAIN AND PAY FOR ALL NECESSARY BUILDING PERMITS AND VARIANCES. COORDINATE TEMPORARY CONSTRUCTION PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND ZONE CONTROLS PREVENT REHEATING, RECOOLING AND SIMULTANEOUS REQUIREMENTS WITH ALL TRADES PRIOR TO CONSTRUCTION. INCLUDE ALL COSTS IN THE BID. DISPLACEMENTS PRESCRIBED IN ASCE 7-16 SECTION 13.3 AS DEFINED IN ASCE 7-16 SECTION 13.6.5, 13.6.6, 13.6.7, 13.6.8; AND PROVISIONS OF HEATING AND COOLING TO THE SAME ZONE 16. IF THE CONTRACTOR PROPOSES ALTERNATE EQUIPMENT OR MATERIAL, THE CONTRACTOR SHALL BE RESPONSIBLE TO 2022 CBC, SECTION 1617A.1.24, 1617A.1.25, AND 1617A.1.26. EACH WALL MOUNTED THRMOSTAT SHALL BE LOCATED AWAY FROM POTENTIAL OBTAIN ALL DSA APPROVALS, PAY ALL RELATED FEES AND OBTAIN APPROVAL FROM OWNER & ENGINEER OF RECORD. SOURCES THAT WOULD ADVERSELY AFFECT THE READING (CLOSE TO COPIERS PROVIDE TITLE-24 COMPLIANCE CERTIFICATION AND ALL ASSOCIATED FEES REQUIRED. COORDINATE SUBMITTED THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE DIRECT SUNLIGHT, BELOW OR ABOVE A SUPPLY AIR DIFFUSER OR CONVECTOR. EQUIPMENT WITH OTHER TRADES. INCLUDE IN THE SHOP DRAWINGS THE EQUIPMENT SUBMITTED FOR APPROVAL WITH A ETC.). ANY THERMOSTATS MOUNTED ON EXTERIOR WALLS SHALL BE INSTALLED AS NOTED BELOW. WHEN BRACING AND ATTACHMENTS ARE BASED ON A PREAPPROVED INSTALLATION GUIDE (E.G., OSHPD DIFFERENT PHYSICAL SIZE OR ARRANGEMENT FROM THAT SHOWN. OPM FOR 2022 CBC OR LATER), COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON IN SEALED AND INSULATED JUNCTION BOXES. . PROVIDE SHOP DRAWINGS PER PROJECT SCHEDULE, SEE 23 00 00 SPECIFICATIONS FOR REQUIREMENTS. IF SHOP CORNER OFFICE SHALL ALWAYS HAVE THEIR OWN THERMOSTATS, AIR TERMINAL THE JOBSITE PRIOR TO START OF AND DURING THE HANGING AND BRACING OF DISTRIBUTION SYSTEMS. THE STRUCTURAL DRAWINGS ARE NOT PROVIDED TO THE ENGINEER FOR REVIEW, AND ANY CONFLICTS OCCUR BETWEEN TRADES, DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK NECESSARY TO RESOLVE THE CONFLICT AND | ENGINEER OF RECORD SHALL VERIFY ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS. BOXES OR FIN-TUBE RADIATORS. CONTROL SEQUENCES SHALL BE LISTED FOR EQUIPMENT OPERATED BY STAND BEAR ALL COSTS INCURRED FOR ALL REVISIONS. AT NO ADDITIONAL COST TO THE DISTRICT. THE DISTRICT AND ENGINEER ALONE PACKAGED CONTROLS. UNOCCUPIED SEQUENCES SHALL BE INCLUDED. MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E): SHALL BE NOTIFIED IMMEDIATELY PRIOR TO FABRICATION AND INSTALLATION OF ALL WORK THAT CAUSES CONFLICTS CONTROL SEQUENCES SHALL BE PROVIDED FOR EACH PIECE OF EQUIPMENT LISTED IN THE EQUIPMENT SCHEDULE THAT IS MONITORED OR CONTROLLED BY 18. PROVIDE ALL MANUFACTURER'S PRODUCT DATA CLEARLY INDICATING MODEL NUMBERS, CAPACITIES, CONSTRUCTION, THE BUILDING AUTOMATION SYSTEM (BAS). UNOCCUPIED SEQUENCES SHALL BE MP oxtimes MDoxtimes PPoxtimes Eoxtimes OPTION 1: DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES & DETAILS ELECTRICAL INFORMATION, AND OPTIONAL ACCESSORIES, PER PROJECT SCHEDULE AND PRIOR TO THE START OF WORK. INCLUDED THESE SHALL BE REVIEWED BY THE MECHANICAL ENGINEER PRIOR TO PURCHASING. OUTSIDE AIR TEMPERATURE SENSORS SHALL BE IN A COMMERCIALLY DESIGNED 19. SUBMIT TO THE OWNER ALL BROCHURES, OPERATING MANUALS, CATALOGS, SHOP DRAWINGS, "AS-BUILTS", ETC. AT THE COMPLETION OF THE JOB. PROVIDE THE OWNER WITH COMPLETE MECHANICAL "AS-BUILTS" INDICATING FINAL EQUIPMENT MP MD PP E OPTION 2: SHALL COMPLY WITH THE APPLICABLE OSHPD PRE-APPROVAL (OPM #) # 0203-13 SOLAR SHIELD LOCATED ON A NORTH WALL OR SOME OTHER LOCATION OUT OF DIRECT SUNLIGHT AND AWAY FROM BUILDING EXHAUST OR HEAT REJECTION LOCATIONS, DUCTWORK AND PIPE ROUTING, ETC. 20. OBTAIN APPROVAL FROM THE OWNER ON ALL ADDENDA AND CONSTRUCTION CHANGE DOCUMENT (CCD) PRIOR TO DOING THE OUTDOOR AIR-VENTILATION RATE AND AIR-DISTRIBUTION ASSUMPTIONS MADE IN THE DESIGN OF THE VENTILATING SYSTEM ARE CLEARLY IDENTIFIED ON 21. INSTALL ALL EQUIPMENT, ACCESSORIES, AND MATERIAL IN STRICT ACCORDANCE WITH THE MANUFACTURER'S EACH SPACE IS DESIGNED TO HAVE NATURAL VENTILATION OR MECHANICAL 22. PROVIDE FIRESTOPPING FOR PIPE AND DUCT PENETRATIONS THROUGH RATED WALLS. CONTRACTOR SHALL COORDINATE VENTILATION THAT IS NO LESS THAN THE LARGER OF CONDITIONED FLOOR AREA WITH OTHER TRADES AS NECESSARY PRIOR TO INSTALLATION. TIMES THE REQUIREMENTS IN TABLE 120.1-A OR 15 CFM TIMES THE EXPECTED 23. ANY MATERIAL EXPOSED WITHIN A PLENUM OR DUCT MUST HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25, AND A NUMBER OF OCCUPANTS SMOKE DEVELOPED RATING OF NOT MORE THAN 50, AND A MOLD/HUMIDITY RESISTANCE PER U.L. 181. 23. THE MINIMUM AND MAXIMUM OUTDOOR AIR RATES FOR EACH AIR HANDLER ARE 24. ALL EQUIPMENT, DUCTS, PIPING, AND OTHER DEVICES AND MATERIALS OUTSIDE OF THE BUILDING OR OTHERWISE LISTED ON THE EQUIPMENT SCHEDULES EXPOSED TO THE WEATHER SHALL BE COMPLETELY WEATHERPROOFED. THE OUTDOOR AIR-VENTILATION RATES ARE BASED ON PLANNED OWNER 25. LOCATE ALL EQUIPMENT SUCH THAT CODE REQUIRED ACCESS IS MAINTAINED. INCLUDING N.E.C. REQUIREMENTS. ACCESS OCCUPANCY AS DEFINED IN OWNER'S DESIGN INTENT AND ARE NOT BASED ON PANELS WHERE REQUIRED, SHALL BE COORDINATED WITH ARCHITECT, AND PROVIDED BY FACTORY OR BE FIELD-MAXIMUM EGRESS OCCUPANCY RATES. PROVIDED. FOR ATTIC EQUIPMENT, G.C. TO PROVIDE A CATWALK & LIGHT PER CMC FOR ATTIC EQUIPMENT. HVAC SYSTEMS THAT HAVE AN ECONOMIZER, SERVE A SPACE WITH A DESIGN 26. FOR INACCESSIBLE AREAS THE CONTRACTOR SHALL PROVIDE ACCESS PANELS FOR ALL DAMPERS, EQUIPMENT, SMOKE OCCUPANT DENSITY GREATER THAN OR EQUAL TO 25 PEOPLE PER 1000 SF, AND DETECTORS, AND CONTROL DEVICES. THESE PANELS SHALL MATCH THE RATING OF THE WALL AND/OR CEILING WHERE ARE EITHER A SINGLE ZONE SYSTEM WITH ANY CONTROLS OR MULTIPLE ZONE THEY ARE LOCATED IN. MINIMUM ACCESS PANEL SIZES SHALL BE AS FOLLOWS: SYSTEM WITH DDC CONTROLS TO THE ZONE LEVEL MUST HAVE DEMAND 1) HAND ACCESS: 12"x12" MIN. CONTROL VENTILATION CONTROLS. THE FOLLOWING MUST BE MET: 2) BODY ACCESS: 30"x30" MIN 27. ALL EQUIPMENT WITH MOVING PARTS SHALL BE PROVIDED WITH FLEXIBLE DUCT AND PIPE CONNECTIONS A. CO2 SENSORS INSTALLED IN EACH ROOM SERVED BY SYSTEMS WITH DCV 28. LABEL ALL EQUIPMENT AS TO THE SPACE IT SERVES. SEE SPECIFICATIONS FOR IDENTIFICATION STANDARDS. LABEL DUCT SMOKE DETECTOR LOCATIONS (AT CEILING) AS TO THE EQUIPMENT IT SERVES. B. CO2 SENSORS ARE LOCATED BETWEEN 3 FT AND 6 FT ABOVE THE FLOOR. 29. A/C UNITS PROVIDED WITH ECONOMIZER CYCLE DAMPERS SHALL HAVE OSA DAMPERS SET UP TO CLOSE AUTOMATICALLY C. CO2 CONCENTRATIONS MAINTAINED AT LESS THAN OR EQUAL TO 600 PPM ON FAN SHUT DOWN PLUS OUTDOOR PPM. 30. PROVIDE MANUAL VOLUME DAMPERS AND BACKDRAFT DAMPERS FOR FRESH AIR INTAKES ON ALL AIR HANDLING D. DURING HOURS OF EXPECTED OCCUPANCY, CONTROLS MAINTAIN THE EQUIPMENT AND EXHAUST FANS SERVING CONDITIONED SPACES. EXCEPTION: EQUIPMENT WITH FACTORY-SYSTEM VENTILATION RATE. 31. DRAWINGS ARE FOR REFERENCE ONLY. CONTRACTOR TO FIELD VERIFY EXISTING CONDITION PRIOR TO BID DATE. EACH COOLING FAN SYSTEM THAT HAS A DESIGN MECHANICAL COOLING 32. OWNER RETAINS SALVAGE RIGHTS, PROVIDE A MINIMUM OF 72 HOURS NOTICE PRIOR TO REMOVAL OF ROOF TOP UNITS CAPACITY OVER 54,000 BTU/H SHALL HAVE AN AIR ECONOMIZER OR A WATER AND EXHAUST FANS ECONOMIZER. AIR ECONOMIZERS MUST COMPLY WITH THE HIGH LIMIT SHUTOFF 33. PATCH AND SEAL ALL SLAB, ROOF AND WALL OPENINGS WITH LIKE MATERIAL WHERE MECHANICAL EQUIPMENT ONCE CONTROLS SHOWN IN TABLE 140.4-B. PENETRATED. INTEGRATED ECONOMIZER CONTROLS SHALL BE SET UP SUCH THAT PARTIAL 34. REMOVE EXISTING AND PROVIDE ALL NEW DUCT AND PIPE HANGER SUPPORTS WHERE DUCT AND PIPE IS BEING COOLING IS PROVIDED BY THE ECONOMIZER EVEN WHEN ADDITIONAL REPLACED MECHANICAL COOLING ID REQUIRED. 35. PROVIDE ALL NEW PIPE SUPPORTS WHERE PIPING IS SCHEDULED TO BE REPLACED. B. ECONOMIZER DAMPERS SHALL BE DRIVEN BY DIRECT DRIVE ACTUATORS 36. OUTDOOR REFRIGERANT PIPING TO BE INSULATED AND ALUMINUM WRAPPED RATHER THAN ROD LINKAGES, WHICH CAN BE A MAJOR CAUSE OF ECONOMIZER 37. CONTRACTOR IS RESPONSIBLE FOR COMPLETE AND OPERABLE SYSTEM. MALFUNCTION. 38. ALL MECHANICAL EQUIPMENTS, PIPES AND DUCTS SHALL BE SUPPORTED AND BRACED PER THE CURRENT CALIFORNIA BAROMETRIC RELIEF IS USED, IF POSSIBLE. IF NOT, RELIEF FANS (RATHER THAN BUILDING CODE. ALL MECHANICAL COMPONENTS SHALL BE ABLE TO RESIST THE EFFECTS OF SEISMIC FORCES. RETURN FANS) SHALL BE USED IN MOST CASES 39. MECHANICAL WORK SHALL COMPLY WITH ALL FEDERAL, STATE, AND LOCAL CODES AND REGULATIONS. OUTDOOR AND RETURN AIR SENSORS SHALL BE PROPERLY SELECTED, 40. CONTRACTOR SHALL PROTECT EXISTING BUILDING INFRASTRUCTURE DURING CONSTRUCTION FROM OUTDOOR PROPERLY LOCATED TO PROVIDE ACCURATE AND REPEATABLE MEASUREMENTS ELEMENT. IF DAMAGED, CONTRACTOR SHALL REPLACE DAMAGED BUILDING COMPONENTS WITH NEW AT NO ADDITIONAL FOR CONTROLLING ECONOMIZER OPERATION. AVERAGING SENSORS COVER THE ENTIRE DUCT OR COIL FACE AREAS. 41. ALL DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE SMACNA LOW ALL AIR DISTRIBUTION SYSTEM DUCTS AND PLENUMS MUST BE INSTALLED, PRESSURE DUCT CONSTRUCTION STANDARDS. SEALED AND INSULATED AS REQUIRED BY 120.4(A) 42. ALL DUCT JOINTS SHALL BE MADE WITH MASTIC SEALANT, SHEET METAL SCREWS AND TAPED AIR TIGHT WITH HARDCAST DUCT SEALING LEAKAGE RATES SHALL BE NO MORE THAN 6% OF AIR FLOW FOR NEW DUCT SYSTEMS AND NO MORE THAN 15% OF AIR FLOW FOR ALTERED 43. WHERE BRACING DETAILS ARE NOT SHOWN ON THE DRAWINGS OR IN THE GUIDELINES, THE FIELD INSTALLATION SHALL EXISTING DUCT SYSTEMS BE SUBJECT TO THE APPROVAL OF THE ARCHITECT, MECHANICAL ENGINEER AND DSA FIELD ENGINEER. DUCT SHALL UTILIZE LOW STATIC PRESSURE DESIGN. IDENTIFY THE MOST 44. A COPY OF THE GUIDELINES PUBLISHED BY SMACNA AND APPROVED BY DSA SHALL BE PROVIDED BY THE CONTRACTOR RESTRICTIVE BRANCH FROM THE FAN TO THE LAST AIR TERMINAL UNIT. IDENTIFY AND KEPT ON THE JOB AT ALL TIMES. POSSIBLE MEANS OF SIGNIFICANTLY REDUCING THE PRESSURE DROP. BRANCH 45. CONTRACTOR SHALL COORDINATE ALL DUCTWORK ROUTING WITH WORK OF OTHER TRADES AND MAKE ANY OFFSET AS DUCT SYSTEMS SHALL DESIGNED FOR EQUAL PRESSURE DROP, WHEN POSSIBLE. REQUIRED TO AVOID CONFLICT WITH PIPING, LIGHT FIXTURES, TRUSSES, ETC. 4. DUCT BRANCHES WITH SIGNIFICANTLY DIFFERING STATIC PRESSURE 46. COORDINATE ALL EQUIPMENT VOLTAGES WITH ELECTRICAL PRIOR TO ORDERING ANY EQUIPMENT. REQUIREMENTS SHALL HAVE VOLUME CONTROL STRATEGICALLY PLACED TO FAN SHALL DISCHARGE INTO DUCT SECTIONS THAT REMAIN STRAIGHT FOR AS LONG AS POSSIBLE (IDEALLY 10 DUCT DIAMETERS) TO REDUCE FAN INEFFICIENCIES FROM SYSTEM EFFECTS CAL GREEN NOTES DUCT VELOCITIES SHALL GENERALLY BE BELOW 2,000 FPM FOR DUCTS IN CEILING PLENUMS, 1500 FPM FOR EXPOSED DUCTS AND 3500 FPM IN MECHANICAL ROOMS AND NON-NOISE SENSITIVE SHAFTS AND DO NOT REDUCE ANY DUCT SIZES LISTED ON PLANS. AN ADDITION OR ALTERATION SUBJECT TO SECTION 303.1 DUCT FRICTION RATES SHALL GENERALLY BE LESS THAN 0.25" WC PER 100 LINEAL FEET NEARER THE FAN, 0.15 TO 0.20" IN THE MAIN DUCTS AND 0.08 TO 0.12" WC/100' NEARER THE END OF THE SYSTEM. DESIGNS OVER THESE RATES NCLUDE, AS APPLICABLE TO THE PROJECT: SHALL BE QUESTIONED. VERY ENERGY EFFICIENT DESIGN CAN LOWER THESE VALUES BY UP TO 40%. A. HVAC SYSTEMS AND CONTROLS. D. RENEWABLE ENERGY SYSTEMS CONTRACTOR SHOP DRAWINGS SHALL BE SUFFICIENTLY DETAILED TO ENSURE B. INDOOR AND OUTDOOR LIGHTING AND CONTROLS. E. LANDSCAPE IRRIGATION SYSTEMS THAT DISTRIBUTION SYSTEM DESIGN INTENT IS ADEQUATELY CONVEYED TO F. WATER REUSE SYSTEMS. C. WATER HEATING SYSTEMS MATCH PLANS. IF SUFFICIENT DETAIL IS NOT INCLUDED IN DRAWINGS, INSTALLATIONS MAY RESULT IN SIGNIFICANTLY HIGHER PRESSURE DROPS AND HENCE HIGHER ENERGY CONSUMPTION AND OTHER OPERATING ISSUES. 9. ACCEPTANCE REQUIREMENTS ARE CLEARLY IDENTIFIED IN CONSTRUCTION DOCUMENTS. COMMISSIONING MEASURES OR REQUIREMENTS ARE REFLECTED IN THE CONSTRUCTION DOCUMENTS.

TESTING AND ADJUSTING. TESTING AND ADJUSTING OF SYSTEMS SHALL BE REQUIRED FOR NEW BUILDING LESS THAN 10,000 SQUARE FEET OR NEW SYSTEMS TO SERVE

SYSTEMS. DEVELOP A WRITTEN PLAN OF PROCEDURES FOR TESTING AND ADJUSTING SYSTEMS. SYSTEMS TO BE INCLUDED FOR TESTING AND ADJUSTING SHALL

PROCEDURES. PERFORM TESTING AND ADJUSTING PROCEDURES IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND APPLICABLE STANDARDS ON EACH

A. HVAC BALANCING. IN ADDITION TO TESTING AND ADJUSTING, BEFORE A NEW SPACE-CONDITIONING SYSTEM SERVING A BUILDING OR SPACE IS OPERATED FOR NORMAL USE, BALANCE THE SYSTEM IN ACCORDANCE WITH THE PROCEDURES DEFINED BY THE TESTING ADJUSTING AND BALANCING BUREAU NATIONAL STANDARDS; THE NATIONAL ENVIRONMENTAL BALANCING BUREAU PROCEDURAL STANDARDS; ASSOCIATED AIR BALANCE COUNCIL NATIONAL STANDARDS OR AS APPROVED BY THE ENFORCING AGENCY.

REPORTING. AFTER COMPLETION OF TESTING, ADJUSTING AND BALANCING, PROVIDE A FINAL REPORT OF TESTING SIGNED BY THE INDIVIDUAL RESPONSIBLE FOR

OPERATION AND MAINTENANCE (O & M) MANUAL. PROVIDE THE BUILDING OWNER OR REPRESENTATIVE WITH DETAILED OPERATING AND MAINTENANCE INSTRUCTIONS ND COPIES OF GUARANTIES/WARRANTIES FOR EACH SYSTEM. O & M INSTRUCTIONS SHALL BE CONSISTENT WITH OSHA REQUREMENTS IN CCR, TITLE 8, SECTION 5142,

AND OTHER RELATED REGULATIONS. A. <u>INSPECTIONS AND REPORTS.</u> INCLUDE A COPY OF ALL INSPECTION VERIFICATIONS AND REPORTS REQUIRED BY THE ENFORCING AGENCY.

TEMPORARY VENTILATION. THE PERMANENT HVAC SYSTEM SHALL ONLY BE USED DURING CONSTRUCTION IF NECESSARY TO CONDITION THE BUILDING WITHIN THE REQUIRED TEMPERATURE RANGE FOR MATERIAL AND EQUIPMENT INSTALLATION. IF THE HVAC SYSTEM IS USED DURING CONSTRUCTION, USE RETURN AIR FILTERS WITH A MINIMUM REPORTING VALUE (MERV 13) OF 13, BASED ON ASHRAE 52.2-1999 OR AN AVERAGE EFFICIENCY OF 30 PERCENT BASED ON ASHRAE 52.1-1992. REPLACE ALL FILTERS IMMEDIATELY PRIOR TO OCCUPANCY, OR, IF THE BUILDING IS OCCUPIED DURING ALTERATIONS, AT THE CONCLUSION OF CONSTRUCTION.

COVERING OF DUCT OPENINGS AND PROTECTION OF MECHANICAL EQUIPMENT DURING CONSTRUCTION. AT THE TIME OF ROUGH INSTALLATION AND DURING STORAGE ON E CONSTRUCTION SITE UNTIL FINAL STARTUP OF THE HEATING, COOLING AND VENTILATION EQUIPMENT, ALL DUCT AND OTHER RELATED AIR DISTRIBUTION COMPONENT OPENINGS SHALL BE COVERED WITH WRAP, PLASTIC, SHEET METAL OR OTHER METHODS ACCEPTABLE TO THE ENFORCING AGENCY TO REDUCE THE AMOUNT OF DUST. WATER AND DEBRIS WHICH MAY ENTER THE SYSTEM.

8. FILTERS. IN MECHANICALLY VENTILATED BUILDINGS, PROVIDE REGULARLY OCCUPIED AREAS OF THE BUILDING WITH AIR FILTRATION MEDIA FOR OUTSIDE AND RETURN AIR PRIOR TO OCCUPANCY THAT PROVIDE AT LEAST A MINIMUM EFFICIENCY REPORTING VALUE (MERV 13) OF 13. MERV 13 FILTERS SHALL BE INSTALLED PRIOR TO OCCUPANCY AND RECOMMENDATIONS FOR MAINTENANCE WITH FILTERS OF THE SAME VALUE SHALL BE INCLUDED IN THE OPERATION AND MAINTENANCE MANUAL.

A. AN ASHRAE 10-PERCENT TO 15-PERCENT EFFICIENCY FILTER SHALL BE PERMITTED FOR AN HVAC UNIT MEETING THE 2019 CALIFORNIA ENERGY CODE HAVING 60.000 BTU/H OR LESS CAPACITY PER FAN COIL, IF THE ENERGY USE OF THE AIR DELIVERY SYSTEM IS 0.4 W/CFM OR LESS AT DESIGN AIR FLOW. B. EXISTING MECHANICAL EQUIPMENT.

OZONE DEPLETION AND GREENHOUSE GAS REDUCTIONS. INSTALLATIONS OF HVAC, REFRIGERATION AND FIRE SUPPRESSION EQUIPMENT SHALL COMPLY WITH SECTIONS 5.508.1.1 AND 5.508.1.2. A. CHLOROFLOUROCARBONS (CFCS). INSTALL HVAC, REFRIGERATION AND FIRE SUPPRESSION EQUIPMENT THAT DO NOT CONTAIN CFCS.

10. ADHESIVES, ADHESIVE BONDING PRIMERS, ADHESIVE PRIMERS, SEALANTS, SEALANT PRIMERS AND CAULKS—SHALL COMPLY WITH LOCAL OR REGIONAL AIR POLLUTION CONTROL OR AIR QUALITY MANAGEMENT DISTRICT RULES WHERE APPLICABLE, OR SCAQMD RULE 1168 VOC LIMITS, AS SHOWN IN TABLES 5.504.4.1.

B. HALONS. INSTALL HVAC REFRIGERATION AND FIRE SUPPRESSION EQUIPMENT THAT DO NOT CONTAIN HALONS.

<u>SYMBOL</u> DESCRIPTION SYMBOL DESCRIPTION **KEY NOTES** DX COOLING COIL **DEMOLITION KEY NOTES** DETAIL DESIGNATION DETAIL NUMBER **HEATING COIL** SHEET NO. WHERE SHOWN **EQUIPMENT DESIGNATION** UNIT ABBREVIATION DAMPER, OPPOSED BLADE GRILLE DESIGNATION NECK SIZE & BLOW DAMPER, PARALLEL BLADE FIRE/SMOKE DAMPER WHERE REQ'D ∠ CFM SECTION CALLOUT FILTER POINT OF CONNECTION POINT OF DISCONNECTION HUMIDIFIER **NEW LINEWORK** ////// LOUVER EXISTING LINEWORK ACCESS DOOR OR ACCESS PANEL  $\mathcal{U}/\mathcal{U}/\mathcal{U}/\mathcal{U}/\mathcal{U}/\mathcal{U}/\mathcal{U}$ DEMOLITION LINEWORK (AP) IN DUCTWORK STATIC PRESSURE CHANGE TAG SHEET METAL DUCT 16"x12" 16"x12" HIDDEN SHEET METAL DUCT STATIC PRESSURE TAG INTERNALLY INSULATED SHEET METAL DUCT 16"x12" TURNING VANES (RECTANGULAR) DIRECTION OF FLOW \_ DRAIN, FUNNEL STANDARD BRANCH FOR SUPPLY AND RETURN CENTRIFUGAL FAN ROUND ELBOW DOWN ANALOG SIGNAL DIGITAL SIGNAL ROUND ELBOW UP ELECTRIC LEAD INSTRUMENT CAPILLARY TUBING RECTANGULAR TO ROUND TRANSITION **ELECTRONIC 3-WAY VALVE ELECTRONIC 2-WAY VALVE** FLEX CONNECTION DDC INPUT DDC OUTPUT LOCALLY MOUNTED INSTRUMENT FIRE DAMPER CARBON DIOXIDE SENSOR COMBINATION FIRE AND SMOKE DAMPER DIFFERENTIAL PRESSURE SENSOR FLOW METER MOTORIZED DAMPER AIRFLOW SENSOR SUPPLY DIFFUSER: 2-WAY/3-WAY/4-WAY RELATIVE HUMIDITY SENSOR GRILLE: RETURN/EXHAUST TEMPERATURE SENSOR 1'x2' RETURN AIR GRILLE (TS)-VVVVV AVERAGING TEMPERATURE SENSOR 2'x2' RETURN AIR GRILLE METAL DUCT EMS CO2 SENSOR SUPPLY AIR DUCT SECTION **THERMOSTAT** RETURN AIR DUCT SECTION PRESSURE SWITCH EXHAUST AIR DUCT SECTION SMOKE DETECTOR POWER OR GRAVITY ROOF VENTILATOR - EXHAUST STATIC PRESSURE SENSOR REFRIGERANT SENSOR POWER OR GRAVITY ROOF VENTILATOR - SUPPLY DEW POINT SENSOR UNDERCUT DOOR SPACE HUMIDITY SENSOR

TRANSFER GRILLE OR LOUVER

DOOR GRILLE OR LOUVER

TOP OF BOX OF

OUTLET FA

48" MAX

15" MIN TO

2022 CBC

11B-308.2.1

BOT. OF BOX

FINISHED

FLOOR -7

MICROPHONE

SWITCH, DEVICE,

34" MAX

2022 CBC

11B-308.2.2

1. THIS DETAIL APPLIES TO MOUNTING OF ANY MECHANICAL AND ELECTRICAL DEVICE WHICH CONTAINS AN OPERABLE

ADJUSTABLE THROUGH THE BUILDING AUTOMATION SYSTEM (IE: TEMPERATURE AND HUMIDITY SENSORS).

PART THAT IS ADJUSTABLE BY THE OCCUPANT. THIS DOES NOT APPLY TO SENSORS OR CONTROLS THAT ARE ONLY

MECHANICAL LEGEND

ANALOG OUTPUT MAXIMUM ACCESS PANEL THOUSAND BTU PER HOUR MECHANICAL CONTRACTOR BOILER MINIMUM CIRCUIT AMPS BDD BACK DRAFT DAMPER MANHOLE BELOW MINIMUM BELOW FINISHED CEILING MOCP MAXIMUM OVERLOAD CIRCUIT BACK FLOW PREVENTER PROTECTION BLAST GATE MOTOR OPERATED DAMPER BREAK HORSEPOWER MTD MOUNTED BLDG BUILDING MAKE-UP AIR UNIT MUA BOTTOM OF BEAM BOTTOM OF PIPE BOP NEW BSMT BASEMENT NORMALLY CLOSED **BRITISH THERMAL UNIT** NOT IN CONTRACT NORMALLY OPEN **CEILING DIFFUSER** CFM **CUBIC FEET PER MINUTE** OUTSIDE AIR TEMPERATURE CAST IRON OBD OPPOSED BLADE DAMPER CENTER LINE ON CENTER OUTSIDE DIAMETER **CLEANOUT** OUTSIDE AIR COLUMN CONDENSATE PUMP PARALLEL BLADE DAMPER COOLING TOWER PRESSURE DROP **CONDENSING UNIT** PERF PERFORATED CONSTANT VOLUME BOX PRESSURE RELIEF PRESSURE SWITCH POUNDS PER SQUARE INCH DRY BULB DIFFERENTIAL DEGREES POUNDS PER SQUARE INCH DIGITAL INPU GAUGE DIAMETER PRESSURE TRANSMITTER DOOR LOUVER PACKAGED TERMINAL AIR DOWN CONDITIONER DIGITAL OUTPUT POLYVINYL CHLORIDE DIFFERENATIAL PRESSURE DUCT SILENCER RETURN AIR DIRECT EXPANSION RETURN AIR REGISTER ROOF DRAIN RETURN FAN FAT **ENTERING AIR TEMPERATURE** RETURN AIR GRILLE ELECTRICAL CONTRACTOR RELATIVE HUMIDITY EXHAUST FAN REHEAT COIL EFFICIENCY RATED LOAD AMPS EGGCRATE GRILLE REVOLUTIONS PER MINUTE **EXPANSION JOINT** ELEVATION SUPPLY AIR SUPPLY AIR REGISTER EXHAUST REGISTER STAGED AIR VOLUME EXTERNAL STATIC PRESSURE ESP SMOKE DAMPER **EXPANSION TANK** SUPPLY FAN **ELECTRIC WATER COOLER** SPEED INDICATOR EXIST / (E) **EXISTING** SPEED CONTROL SENSIBLE MBH **DEGREES FAHRENHEIT** STATIC PRESSURE FREE AREA SPEC SPECIFICATION FAN COIL UNIT FIRE DAMPER STAINLESS STEEL FILTER GRILLE STD STANDARD FLA **FULL LOAD AMPS** FLR FLOOR TRANSFER AIR DUCT FOB FLAT ON BOTTOM TEFC TOTALLY ENCLOSED FAN FOT FLAT ON TOP COOLED FIRE PUMP TEMPERATURE FINS PER INCH TRANSFER GRILLE FEET PER MINUTE TEMPERATURE INDICATOR FLOW SWITCH TOTAL MBH FEET / FOOT TOTAL STATIC PRESSURE FLEXIBLE CONNECTION GAUGE UNDERCUT GALV GALVANIZED UNIT HEATER GENERAL CONTRACTOR UON UNLESS OTHERWISE NOTED GALLONS PER HOUR UP THROUGH ROOF UTR GALLONS PER MINUTE HOSE BIBB DAMPER/VALVE ACTUATOR VARIABLE AIR VOLUME UNIT HANDS OFF AUTO **VOLUME DAMPER** HEAT PUMP VFD VARIABLE FREQUENCY DRIVE HORSEPOWER **VELOCITY PRESSURE** HEIGHT VENT THROUGH ROOF HEATING AND VENTILATING HOT WATER CONVERTER WITH HWP WITHOUT HEATING HOT WATER RETURN W/O HWR WET BULB HOT WATER PUMP HWS HEATING HOT WATER SUPPLY WATER COLUMN WATER GAUGE WEIGHT MOTOR STATUS ICW INDUSTRIAL COLD WATER INSIDE DIAMETER INCHES INDIRECT WASTE

MECHANICAL SHEET INDEX, LEGEND, AND NOTES MECHANICAL DEMOLITION FLOOR PLAN - BLDG 7 MECHANICAL NEW FLOOR PLAN - BLDG 7 ABBREVIATION DESCRIPTION KII OWATTS LEAVING AIR TEMPERATURE POUNDS LINEAR DIFFUSER LINEAR FEET LEAVING WATER **TEMPERATURE** 

DRAWING INDEX

**ABBREVIATIONS** 

LWT

DESCRIPTION

ACCESS DOOR

ANALOG INPUT

ALUMINUM

AIR HANDLING UNIT

ABOVE

ALUM

FIRE WALL PENETRATION

TOP OF BOX OF

OUTLET FA

46" MAX SIDE APPROACH,

WITH KNEE AND TOE

CLEARANCE

2022 CBC

11B-308.3.2

FIG.

44" MAX FRONT APPROACH

MICROPHONE

SWITCH, DEVICE,

NEW

MOUNTING OVER OBSTRUCTION DETAIL

**─** 24" MAX —

AUTOMATIC AIR VENT

AIR CONDITIONING UNIT

ABOVE FINISHED FLOOR

**DESCRIPTION** 

MECHANICAL SITE PLAN

MECHANICAL SCHEDULE

MECHANICAL DETAILS

<u>SHEET</u>

M0.00

M1.01

M2.01

M2.02

M5.01

RANCHO CUCAMONGA 8163 Rochestser Avenue, Suite 100 Rancho Cucamonga California 91730 P 909-987-0909 **CONSULTANT** LEAF Engineer

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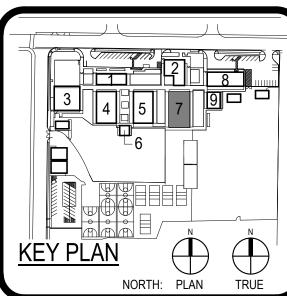
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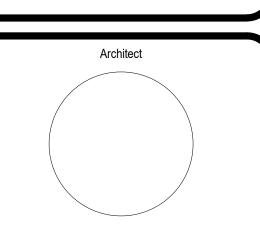
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WEST COVINA USD PROJECT NUMBER 02/22/2023 220117 Description

DSA BACKCHECK

MECHANICAL SHEET INDEX, LEGEND, AND

REQUIREMENTS FOR FUNCTIONAL PERFORMANCE TESTS ARE REFLECTED IN

COOLING SYSTEMS IDENTIFIED IN TABLE 140.4-D SHALL HAVE FAN CONTROLS TO

BASED ON OCCUPIED SPACE TEMPERATURE SHALL HAVE A MINIMUM OF

B. SYSTEMS THAT CONTROL SPACE TEMPERATURE BY MODULATING AIRFLOW

C. SYSTEMS WITH AIR SIDE ECONOMIZER SHALL HAVE A MINIMUM OF 2 SPEEDS

FAN CABINET ENCLOSURE AND INTERNAL COMPONENTS SHALL BE ELECTED TO

MINIMIZE PRESSURE DROP, E.G. FACE VELOCITY IS LESS THAN 500 FPM, LOW

FAN WHEEL SHALL BE SELECTED FOR EFFICIENT OPERATION, E.G. LARGER

SYSTEMS THAT SERVE MULTIPLE ZONES SHALL HAVE CONTROLS THAT

AUTOMATICALLY RESET SUPPLY AIR TEMPERATURE. ZONES WITH HIGH

INTERNAL LOADS WITH NEAR CONSTANT AIRFLOW SHALL BE DESIGNED FOR

IN RESPONSE TO BUILDING LOADS OR TO OUTDOOR AIT TEMPERATURE AND

DESIGN ROOM AIR TEMPERATURE. CONTROL SEQUENCES ARE IDENTIFIED IN

SAT RESET SHALL BE ESTABLISHED WITH AN AGGRESSIVE RESET SCHEDULE OF

SHALL BE AT LEAST 25% OF THE DIFFERENCE BETWEEN SUPPLY AIR AND

10F. E.G. 55F DURING WARM WEATHER AND 65F DURING COOL WEATHER.

THE ELEVATED RESET SUPPLY AIR TEMPERATURE. RESET CONTROLS SHALL BE

A. DX AND CHILLED WATER COOLING SYSTEMS THAT CONTROL CAPACITY

VARY THE INDOOR FAN AIRFLOW AS A FUNCTION OF LOAD:

OF FAN CONTROL DURING ECONOMIZER OPERATION.

TO THE SPACE SHALL HAVE PROPORTIONAL FAN CONTROL.

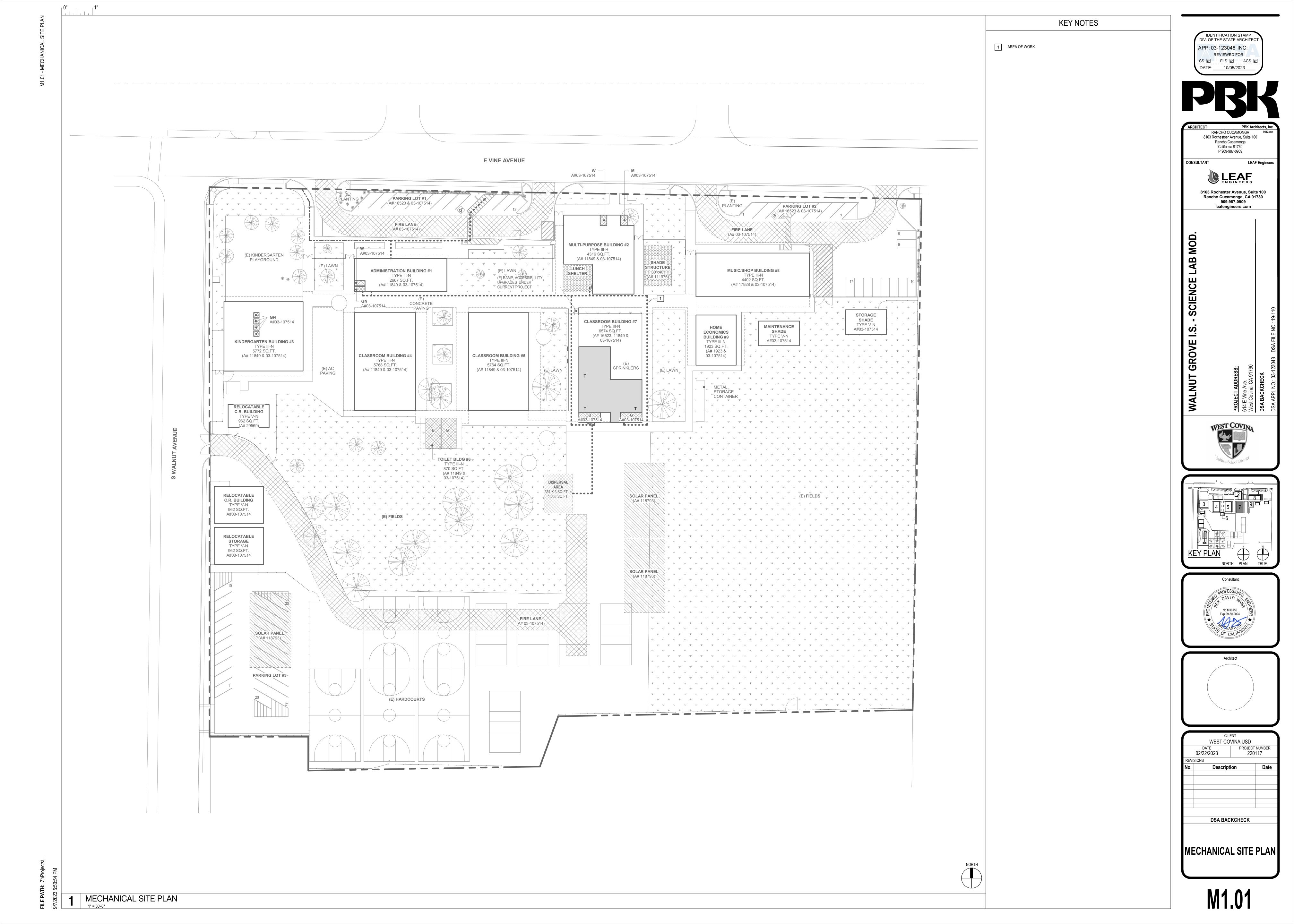
THE CONSTRUCTION DOCUMENTS.

PRESSURE DROP COILS, FILTERS, ETC

DIAMETER ROTATING AT LOWER SPEED.

CONSTRUCTION DOCUMENTS.

2 STAGES OF CONTROL.



- . CONTRACTOR SHALL VERIFY ALL EXISTING CODITIONS (EQUIPMENT, DUCTS, DAMPERS, THERMOSTAT,
- CONTRACTOR SHALL TAKE READINGS OF ALL EXISTING AIR FLOW QUANTITIES (CFM) OF ALL
- . CONTRACTOR SHALL PROTECT IN PLACE ALL EXISTING TO REMAIN EQUIPMENT, DUCT, THERMOSTAT,
- 5. ALL RELOCATED THERMOSTATS SHALL BE STORED IN SAFE PLACE AND PROTECTED BEFORE
- (E) DIFFUSER/REGISTER TO BE DEMOLISHED WITH (E) FLEX DUCT. DISCONNECT (E) DUCT AT THE TRANSITION BETWEEN (E) DUCT AND (E) FLEX DUCT. LOCATIONS OF (E) DIFFUSER/REGISTGER IS
- RECONNECTION, SEE NEW PLAN SHEET M2.02 FOR NEW LOCATION OF THERMOSTAT.

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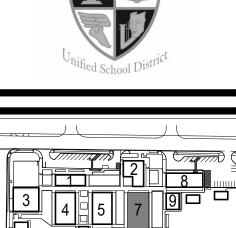
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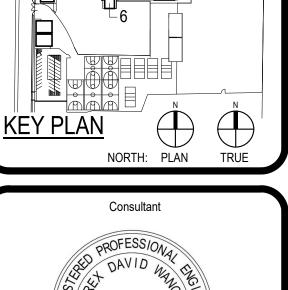
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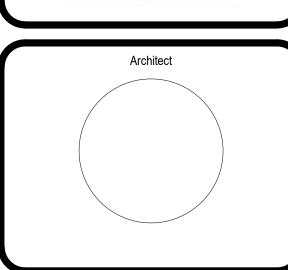
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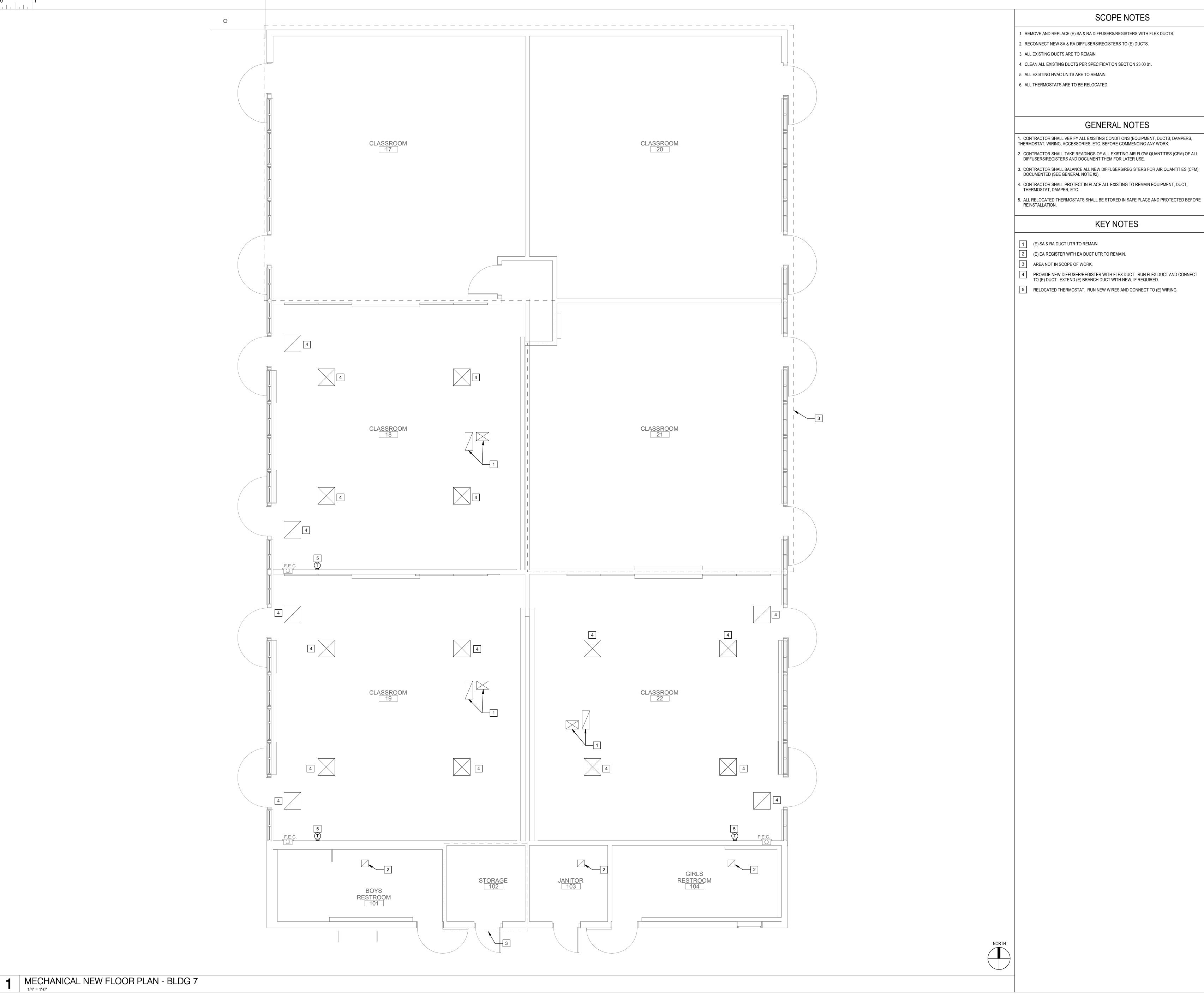






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**MECHANICAL DEMOLITION FLOOR** PLAN - BLDG 7



I. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS (EQUIPMENT, DUCTS, DAMPERS,

I. CONTRACTOR SHALL PROTECT IN PLACE ALL EXISTING TO REMAIN EQUIPMENT, DUCT,

5. ALL RELOCATED THERMOSTATS SHALL BE STORED IN SAFE PLACE AND PROTECTED BEFORE

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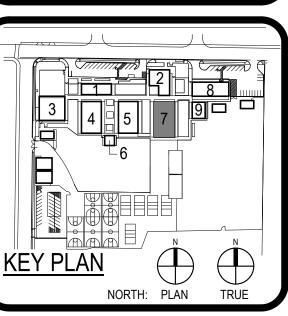
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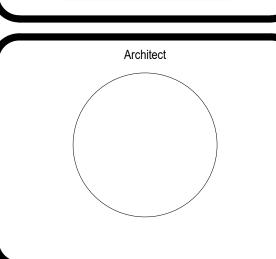
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MECHANICAL NEW FLOOR PLAN - BLDG 7

M2.02

	EXISTING ROOFTOP AIR CONDITIONING (GAS HEATNG/ELECTRIC COOLING) UNIT SCHEDULE (SAME EXISTING LOCATION)																													
UNIT	MANUFACTURER	LOCATION SERVING	DISCHARGE TYPE CI	FM ESP		OOLING CAP (MBH)	EN OUT TEM	NTERING TDOOR AIR IPERATURE	R EDB	EWB.	LDB LW	'B. SEER/	HTG. CA	P. A	FUE	INDOOR F	AN	С	OMPRESSO	DR .		EL	ELECTRICA	CAL .		FILTERS (QTY) L x W >	EXISTIN UNIT	٠   ٫	REMARKS	
	& MODEL NO.	SERVING	3.55.77.55	(IN. WG	G) TOTA	AL SENS	S. EDB	B. EWB	B (°F)	(°F)	(°F) (°F	EER   1	NPUT OL	JTPUT MBH	NO.	RPM	HP	NO.	RLA	LRA	OFM UN (FLA) (FL	INIT FLA)	V PHAS	SE HZ UN	IIT UNI	IT (INCHES)	OPERAT WEIGH (LBS)	HT C		
(E)AC 27	CARRIER 48HJD005	BUILDING '7" CLASSROOM 18	VERTICAL 1,5	575 0.5	48.0	.0 36.0	-	-	-	-		13.0/ 11.2 50	.0/72.0 40	.0/57.1 0	.82 -	-	1	-	-	-	- 16	16.9 46	60 3	60 11	9 -	-	850	3	EXISTING UNIT IN SAME EXISTING LOCATION, NO CHANGE.	
(E)AC 27 (E)AC 28	CARRIER 48HJD005	BUILDING '7" CLASSROOM 19	VERTICAL 1,5	0.5	48.0	.0 36.0	-	-	-	-		13.0/ 11.2 50	.0/72.0 40.	.0/57.1 0	.82 -	-	1	-	-	-	- 16	16.9 46	60 3	60 11	9 -	-	850	3	EXISTING UNIT IN SAME EXISTING LOCATION, NO CHANGE.	
(E)AC 30	CARRIER 48HJD005	BUILDING '7" CLASSROOM 22	VERTICAL 1,5	575 0.5	48.0	.0 36.0	-	-	-	-		13.0/ 11.2 50	.0/72.0 40	.0/57.1 0	.82 -	-	-	-	-	-	- 16	16.9 46	60 3	60 11	9 -	-	850	3	EXISTING UNIT IN SAME EXISTING LOCATION, NO CHANGE.	

			EXISTING EXHAUS	T FANS	SCHE	DULE	(SAM	IE EXIS	TING L	OCATIO	ON)		
UNIT	MANUFACTURER	SED/ICE	TYPE	CFM	SP (IN			М	OTOR	_	SONES	OPER WT.	DEMARKO
UNII	& MODEL NO.	SERVICE	TIPE	CFIVI	(IN. W.G.)	RPM	HP	VOLT	PH	HZ	CONEC	(LBS)	REMARKS
(E)EF 3	COOK ACEB 80C2B	BUILDING "7" BOYS RESTROOM E-37	ROOF MOUNTED	300	0.25	1026	1/6	120	1	60	3.9	70	EXISTING UNIT IN SAME EXISTING LOCATION, NO CHANGE.
(E)EF	COOK ACEB 80C2B	BUILDING "7" GIRLS RESTROOM E-34	ROOF MOUNTED	300	0.25	1026	1/6	120	1	60	3.9	70	EXISTING UNIT IN SAME EXISTING LOCATION, NO CHANGE.
(E)EF	COOK ACEB 100C2B	BUILDING "7" JANITOR E-35	ROOF MOUNTED	450	0.25	1086	1/6	120	1	60	4.7	70	EXISTING UNIT IN SAME EXISTING LOCATION, NO CHANGE.

	AIR DISTRIBUTION SCHEDULE								
SYMBOL	TYPE	MAKE & MODEL	DESCRIPTION						
A	CEILING SUPPLY	TITUS MODEL MCD	MODULAR CORE DIFFUSER WITH FRAME FOR LAY-IN T-BAR CEILING, FLUSH FACE MOUNTING.						
B	CEILING RETURN	TITUS MODEL PAR	PERFORATED FACE DIFFUSER WITH FRAME FOR LAY-IN T-BAR CEILING, FLUSH FACE MOUNTING.						
©	CEILING SUPPLY	TITUS MODEL MCD	MODULAR CORE DIFFUSER WITH RAPID MOUNT FRAME MODEL TRM FOR SURFACE MOUNTING.						
<b>(</b>	CEILING RETURN/EXHASUT	TITUS MODEL 50F	EGG CRATE GRILLE REGISTER WITH RAPID MOUNT FRAME TRM FOR SURFACE MOUNTING.						
€	SIDEWALL SUPPLY	TITUS MODEL 1700	DOUBLE DEFLECTION HORIZONTAL 5° DOWN FRONT GRILLE WITH 1/2" BLADE SPACING, FRAME FOR WALL MOUNTING.						
Ē	CEILING SUPPLY	TITUS MODEL ML-38-2B	ALUMINUM LINEAR SLOT DIFFUSER, 3/4" SLOT,4-SLOT, PATTERN CONTROLLER, FLANGED BORDER FOR SURFACE MOUNTING, OPTIONAL PLENUM IN 2,3,4 OR 5 FOOT SECTIONS PER PLANS, COLOR PER ARCHITECT.						

NOTES:
1. REFER TO THE FLOOR PLANS FOR NECK SIZE, CFM, AIR DIFFUSION PATTERN AND FIRE/DAMPER, IF REQUIRED.
2. PROVIDE AIR CONTROL GRID FOR ALL CEILING SUPPLY DIFFUSERS SET AT 90°.

IDENTIFICATION STAMP DIV. OF THE STATE ARCHITECT

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DATE: 10/05/2023

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RANCHO CUCAMONGA
8163 Rochestser Avenue, Suite 100
Rancho Cucamonga
California 91730
P 909-987-0909

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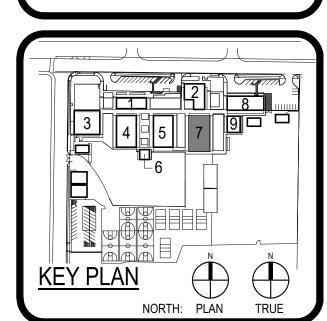
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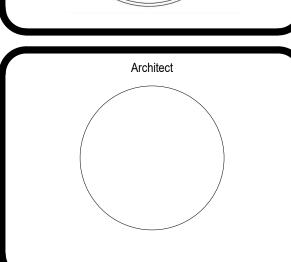
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SECURE TO STRUCTURE ABOVE, SEE DETAIL MAX. 5'-0"
FLEXIBLE DUCT 6/M6.01 SUPPLY AIR VOLUME DAMPER ——— ➤ SEE NOTE #4 BELOW SPIRAL DUCT 7 4" WIDE SHEET METAL FLEXIBLE DUCT SUPPORT STRAP SAFETY HANGER 12 GA.
 WIRE (NOTE #4) OR 18 GA. 1"
 METAL STRAP (NOTE #5) FLEXIBLE DUCT CLAMPING DEVICE (TYP.) CEILING DIFFUSER OR NOTES:

GRILLE

1. ALL DUCTWORK AND BRACING ARE EXISTING TO PROTECT IN PLACE. THE SUSPENDED CEILING SYSTEM IS NEW. FOR SUSPENDED CEILING SYSTEM REFER TO ARCHITECTURA.L DRAWINGS. RECONNECT DUCT TO NEW GRILLES. 19 LAY IN DIFFUSER CONNECTION DETAIL NOT TO SCALE

		TRANSVERSE REINFORCING (1)											
			AT JOINTS										
DIMENSION OF LONGEST SIDE, INCHES	SHEET METAL GAGE (ALL FOUR SIDES)	MINIMUM REINFORCING ANGLE SIZE AND MAXIMUM LONGITUDINAL SPACING BETWEEN TRANSVERSE JOINTS &/OR INTERMEDIATE REINFORCING	MIN. HT. IN.	DRIVE SLIP PLAIN S SLIP	HEMMED S SLIP	ALTER'NT BAR SLIP	REINFORCED BAR SLIP						
				RECOM- MENDED GAGE	RECOM- MENDED GAGE	RECOM- MENDED GAGE	RECOM- MENDED GAGE						
UP THRU 12	26	NONE REQUIRED	1	26	26	24	24						
13 - 18	24	NONE REQUIRED	1	24	24	24	24						
19 - 30	24	1" X 1" X 1/8" @ 60 IN.	1		24	24	24						
31 - 42	22	1" X 1" X 1/8" @ 60 IN.	1			22	22						
43 - 60	20	1" X 1" X 1/8" @ 60 IN.	1				20						
61 & ABOVE	18	1" X 1" X 1/8" @ 60 IN.	1				18						

2 DUCT CONSTRUCTION STANDARDS
NOT TO SCALE

(1) TRANSVERSE REINFORCING SIZE IS DETERMINED BY DIMENSION OF SIDE TO WHICH ANGLE IS APPLIED.

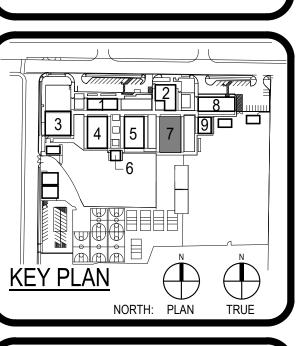
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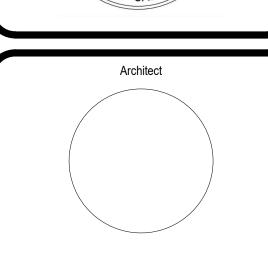
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SCIENCE IUT GROVE







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MECHANICAL DETAILS

## PLUMBING LEGEND

SYMBOL	ITEM	ABBR.
	FIXTURE DESIGNATION	
( S -	UNIT ABBREVIATION	
1	NUMBER	
01	+ DETAIL DESIGNATION	
P-1 <del>-</del>	DETAIL NUMBER	
	SHEET NO. WHERE SHOWN	CW
	DOMESTIC COLD WATER	CW
	DOMESTIC HOT WATER	HW
	DOMESTIC HW RETURN	HWR
	EXISTING PIPING	
—X	POINT OF CONNECTION	POC
c	CONDENSATE DRAIN	201
<u></u>	SHUT-OFF VALVE IN BOX	SOV
	PIPING RISE	
	PIPING DROP	
<u>\$</u>	SOIL OR WASTE	S OR W
V	VENT	V
	VENT THRU ROOF	VTR
FCO \$	FLOOR CLEANOUT	FCO
OTG 0	CLEANOUT TO GRADE	COTG
<u> </u>	WALL CLEANOUT	WCO
<u> </u>	HOSE BIBB	HB
—RD	ROOF DRAIN	RD
—OD—	OVERFLOW DRAIN	OD
	DOWN SPOUT	DS
	UNDERGROUND	UG
TP	TRAP PRIMER	TP
——SD——	STORM DRAIN	SD
(E)	EXISTING	EXIST.
(N)	NEW	NEW
	UNDERFLOOR	UF
	OVERHEAD	ОН
——R——	RELIEF	
D	DRAIN	
	CONDENSATE DRAIN CLEAN OUT	СО
sc	SECONDARY CONDENSATE DRAIN	
—_FC —	FURNACE CONDENSATE	
	GAS SHUT OFF VALVE	GSOV
	CONDENSATE DRAIN TRAP	CDT
—LPG—	LIQUIFIED PETROLEUM GAS	LPG
<u></u> — G —	NATURAL GAS	G
——	FIRE SPRINKLER RISER	FSR
—FSL —	FIRE SPRINKLER LINE	FSL
<b>↓</b>	FIRE DEPARTMENT CONNECTION	FDC
	FINISHED FLOOR	FF
	FLOW LINE	FL
<b>A</b>	FIRE RATED PENETRATION	
	POINT OF DISCONNECTION	POD

POINT OF CONNECTION

(E) PLYWOOD

SHTG.

JOISTS

4x8 BLKG.

W/ SIMP. U

HGR., EA.

— (E) PLYWOOD

111 111 111 111 111

**PERPENDICULAR** 

#### THE FOLLOWING SHALL BE REQUIRED WHETHER OR NOT SPECIFICALLY SHOWN OR MENTIONED

CALIFORNIA GREEN BUILDING STANDARDS

IN DRAWINGS AND/OR SPECIFICATIONS:

5.303.1 METERS: SEPARATE SUBMETERS OR METERING DEVICES SHALL BE INSTALLED FOR USES DESCRIBED IN SECTIONS 5.303.1.1 AND 5.303.1.2.

5.303.1.1 NEW BUILDINGS OR ADDITIONS IN EXCESS OF 50.000 SQUARE FEET: 1. FOR EACH INDIVIDUAL LEASED, RENTED, OR OTHER TENANT SPACE WITHIN THE BUILDING PROJECTEED TO CONSUME MORE THAN 100 GAL/DAY, INCLUDING, BUT NOT LIMITED TO, SPACES USED FOR LAUNDRY OR CLEANERS, RESTAURANT OR FOOD SERVICE, MEDICAL OR DENTAL OFFICE, LABORATORY, OR BEAUTY SALON OR BARBER SHOP.

2. WHERE SEPARATE SUBMETERS FOR INDIVIDUAL BUILDING TENANTS ARE UNFEASIBLE, FOR WATER SUPPLIED TO THE FOLLOWING SUBSYSTEMS: a. MAKE-UP WATER FOR COOLING TOWERS WHERE FLOW THROUGH IS GREATER THAN b. MAKE-UP WATER FOR EVAPORATIVE COOLERS GREATER THAN 6 GPM.

c. STEAM AND HOT-WATER BOILERS WITH ENERGY INPUT MORE THAN 500,000 BTUH/H. 5.303.1.2 EXCESS CONSUMPTION: A SEPARATE SUBMETER OR BE PROVIDED FOR ANY TENANT WITHIN A NEW BUILDING OR WITHIN AN ADDITION THAT IS PROJECTED TO CONSUME MORE THAN 1,000 GAL/DAY.

#### 5.303.2 RESERVED

5.303.3 WATER CONSERVING PLUMBING FIXTURES AND FITTINGS: PLUMBING FIXTURES (WATER CLOSETS AND URINALS) AND FITTINGS (FAUCETS AND SHOWERHEADS) SHALL COMPLY WITH THE

5.303.3.1 WATER CLOSETS: THE EFFECTIVE FLUSH VOLUME OF ALL WATER CLOSETS SHALL NOT EXCEED 1.28 GALLONS PER FLUSH. TANK-TYPE WATER CLOSETS SHALL BE CERTIFIED TO THE PERFORMANCE CRITERIA OF THE U.S. EPA WATERSENSE SPECIFICATION FOR TANK-TYPE TOILETS. NOTE: THE EFFECTIVE FLUSH VOLUME OF DUAL FLUSH TOILETS IS DEFINED AS THE COMPOSITE. AVERAGE FLUSH VOLUME OF TWO REDUCED FLUSHES AND ONE FULL FLUSH.

#### 5.303.3.2 URINALS:

5.303.3.2.1 WALL-MOUNTED URINALS: THE EFFECTIVE FLUSH VOLUME OF WALL-MOUNTED URINALS SHALL NOT EXCEED 0.125 GALLONS PER FLUSH.

5.303.3.2.2 FLOOR-MOUNTED URINALS: THE EFFECTIVE FLUSH VOLUME OF FLOOR-MOUNTED URINALS SHALL NOT EXCEED 0.5 GALLONS PER FLUSH.

5.303.3.2.1 WALL-MOUNTED URINALS: THE EFFECTIVE FLUSH VOLUME OF WALL-MOUNTED URINALS NOT EXCEED 0.125 GALLONS PER FLUSH. 5.303.3.2.2 FLOOR-MOUNTED URINALS: THE EFFECTIVE FLUSH VOLUME OF FLOOR-MOUNTED SHALL NOT EXCEED 0.5 GALLONS PER FLUSH.

5.303.3.3 SHOWERHEADS: 5.303.3.3.1 SINGLE SHOWERHEAD: SHOWERHEADS SHALL HAVE A MAXIMUM FLOW RATE OF NOT THAN 2.0 GALLONS PER MINUTE AT 80 PSI. SHOWERHEADS SHALL BE CERTIFIED TO PERFORMANCE CRITERIA OF THE U.S. EPA WATERSENSE SPECIFICATION FOR

5.303.3.3.2 MULTIPLE SHOWERHEADS SERVING ONE SHOWER: WHEN A SHOWER IS SERVED BY THAN ONE SHOWERHEAD, THE COMBINED FLOW RATE OF ALL SHOWERHEADS SHOWER OUTLETS CONTROLLED BY A SINGLE VALVE SHALL NOT EXCEED 2.0 MINUTE AT 80 PSI, OR THE SHOWER SHALL BE DESIGNED TO ALLOW ONLY GALLONS PER OUTLET TO BE IN OPERATION AT A TIME. NOTE: A HAND-HELD SHOWER ONE SHOWER SHALL BE CONSIDERED A SHOWERHEAD.

5.303.3.4 FAUCETS AND FOUNTAINS:

SHOWERHEADS.

5.303.3.4.1 NONRESIDENTIAL LAVATORY FAUCETS: LAVATORY FAUCETS SHALL HAVE A MAXIMUM FLOW RATE OF NOT MORE THAN 0.5 GALLONS PER MINUTE AT 60 PSI.

5.303.3.4.2 KITCHEN FAUCETS: KITCHEN FAUCETS SHALL HAVE A MAXIMUM FLOW RATE OF NOT THAN 1.8 GALLONS PER MINUTE AT 60 PSI. KITCHEN FAUCETS MAY TEMPORARILY INCREASE FLOW ABOVE THE MAXIMUM RATE, BUT NOT TO EXCEED 2.2 GALLONS PER MINUTE AT 60 PSI, AND MUST DEFAULT TO A MAXIMUM FLOW RATE OF 1.8 GALLONS PER MINUTE AT 60 PSI.

5.303.3.4.3 WASH FOUNTAINS: WASH FOUNTAINS SHALL HAVE A MAXIMUM FLOW RATE OF NOT MORE THAN 1.8 GALLONS PER MINUTE/20 [RIM SPACE (INCHES) AT 60 PSI].

5.303.3.4.4 METERING FAUCETS: METERING FAUCETS SHALL NOT DELIVER MORE THAN 0.20 GALLONS PER CYCLE.

5.303.3.4.5 METERING FAUCETS FOR WASH FOUNTAINS: METERING FAUCETS FOR WASH FOUNTAINS SHALL HAVE A MAXIMUM FLOW RATE OF NOT MORE THAN 0.20 GALLONS PER CYCLE/20 SPACE (INCHES) AT 60 PSI]. NOTE: WHERE COMPLYING FAUCETS ARE UNAVAILABLE, AERATORS OR OTHER MEANS MAY BE USED TO ACHIEVE REDUCTION.

#### #3 FOR ATTACHMENT TO UNISTRUT P1000T ROD STIFF ALTERNATE USE OF W/ ½"ø BOLTS @ 12" O.C. & STRUCTURE -✓ W/IN 6" OF EA. END (WHERE) REQ'D. PER SCHEDULE) SEE DETAIL ROD (TYP) 3/16" GALVANIZED ATTACHMENT TO AIRCRAFT CABLE (TYP) — STRUCTURE -TYPE 2 SUPPORT 3/16" GALVANIZED CABLE SIZE IS DETERMINED PER STANDARDS. SEE HANGER AND SUPPORT SCHEDULE FOR SPACING REQUIREMENTS. HANGER ROD SIZING PER TABLE BELOW. 4. REFER TO SHEETS FOR APPLICABLE -STANDARD ─UNISTRUT P1000T W/ P2485 CRADLE CLIP PIPE HANGER AND BRACING CONDITIONS NOT U-BOLT. PROVIDE SUPPORTED BY THIS DETAIL REFER TO BLOCKING AND DETAIL #3

H	•	TABLE 313.3 IND SUPPOI	RT
PIPE MATERIAL	TYPE OF JOINTS	HORIZONTAL	VERTICAL
CAST-IRON HUBLESS	SHIEDED COUPLING	EVERY OTHER JOINT, UN- LESS OVER 4 FEET THEN SUPPORT EACH JOINT 12.3.4	BASE AND EACH FI A MAXIMUM OF 15
COPPER TUBE AND PIPE	SOLDERED OR BRAZED	1-1/2" AND SMALLER, 6 FEET; 2" AND LARGER, 10 FEET	EACH FLOOR NOT EXCEED 10 FEE
STEEL PIPE FOR GAS	THREADED OR WELDED	1/2", 6 FEET; 3/4" AND 1", 8 FEET; 1 1/4" AND LARGER, 10 FEET	1/2", 6 FEET; 3/4" 1", 8 FEET; 1 1/4" LARGER, EVERY FL

PIPE & TUBE SIZE (INCHES)	ROD SIZE (INCHES)					
1/2 - 4	3/8					
5 - 8	1/2					
10 - 12	5/8					
NOTES:						
1. PROVIDE ROD SIZE CHART IN ACCORD TABLE 313.6.						

1. ALL EQUIPMENT AND/OR SYSTEMS NOTED ON THE DRAWINGS "TO REMAIN" SHALL BE INSPECTED AND TESTED ON SITE TO CERTIFY WORKING CONDITION. A WRITTEN REPORT ON THE CONDITION OF ALL EQUIPMENT TO REMAIN,

2. PIPE COVER AND BACKFILLING: A. AFTER HYDROSTATIC TEST, EVENLY BACKFILL ENTIRE TRENCH WIDTH BY HAND PLACING BACKFILL MATERIAL AND HAND TAMPING IN FOUR (4) ICHES COMPACTED LAYERS TO 12 INCHES MINIMUM COVER OVER TOP OF

BY THIS CONTRACTOR TO THE ARCHITECT/ENGINEER FOR REVIEW.

SYSTEM TWICE DURING CONSTRUCTION.

JACKET, COMPACT TO 95 PERCENT MAXIMUM DENSITY. B. EVENLY AND CONTINUOUSLY BACKFILL REMAINING TRENCH DEPTH IN C. UNIFORM LAYERS WITH BACKFILL MATERIAL.

PLUMBING TESTING

D. DO NOT USE WHEELED OR TRACKED VEHICLES FOR TAMPING. . PRESSURE TEST ALL DOMESTIC WATER PIPING. AFTER INSTALLATION AND PRIOR TO BACKFILL OR COVER-UP. RINSE PIPING SYSTEM OF PARTICULATE CONTAMINANTS, CAP AND SUBJECT TO STATIC WATER PRESSURE OF 125

INCLUDING A COPY OF THE TEST RESULTS AND RECOMMENDED REMEDIAL ACTIONS AND COSTS SHALL BE MADE

FAILS. PROVIDE WRITTEN TEST REPORT INCLUDING DATE AND TIME OF TEST, PASS OR FAIL INDICATION, SUMMARY OF REMEDIAL WORK REQUIRED AND DATE AND TIME OF EACH RE-TEST. 1. PRIOR TO COVER UP, WATER PIPE, SANITARY PIPE, AND GAS PIPING SHALL BE PRESSURE TESTED. TESTS SHALL BE WITNESSED BY CONSULTANT AND OWNER. NOTIFY OWNER 48 HOURS PRIOR TO TEST. TEST SHALL

PSIG FOR FOUR (4) HOURS. REPAIR LEAKS AND DEFECTS AND RE-TEST ANY PORTION OF PIPING SYSTEM THAT

BEWITNESSED BY CLIENT PLUMBING TECHNICIAN. 5. UPON COMPLETION OF THE SANITARY PIPING SYSTEM, THE CONTRACTOR SHALL NOTIFY ENGINEER AND OWNER

TO OBSERVE A SMOKE TEST OF THE SYSTEM. SMOKE TESTING SHALL BE PERFORMED ON SANITARY PIPING

6. PRESSURE TEST NATURAL GAS PIPING IN ACCORDANCE WITH NFPA 54. CA PLUMBING CODE SECTION 1213

#### GENERAL PLUMBING NOTES

1. ALL BRACING OF PIPING SHALL BE INSTALLED IN ACCORDANCE WITH HAZARD LEVEL 'A'.

2. WHERE BRACING DETAILS ARE NOT SHOWN ON THE DRAWINGS OR IN THE GUIDELINES. THE FIELD INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT, MECHANICAL ENGINEER AND

3. SUPPORT AND BRACING OF ALL PIPING SHALL BE IN ACCORDANCE FOR SEISMIC RESTRAINTS OF PLUMBING PIPING SYSTEMS", OR THE "SUPERSTRUT SEISMIC RESTRAINT SYSTEM" FOR PIPING ONLY.

4. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO PROCEEDING WITH INSTALLATION. CONTRACTOR SHALL NOTIFY ARCHITECT/ENGINEER OF ANY EXISTING CONDITIONS

WHICH CONFLICT WITH INFORMATION PROVIDED IN CONSTRUCTION DOCUMENTS. 5. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL PIPE ROUTING WITH WORK OF OTHER TRADES AND MAKE ANY OFFSETS AS REQUIRED TO AVOID CONFLICT WITH DUCTWORK,

LIGHT FIXTURES, SKYLIGHTS, ETC. 6. PLUMBING CONTRACTOR TO COORDINATE WITH MECHANICAL CONTRACTOR FOR ALL CONDENSATE DRAIN CONNECTIONS TO MECHANICAL EQUIPMENT.

7. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING PLUMBING CONDITIONS PRIOR TO PROCEEDING WITH INSTALLATION. CONTRACTOR SHALL NOTIFY ARCHITECT/ ENGINEER OF ANY EXISTING CONDITIONS

WHICH CONFLICT WITH INFORMATION PROVIDED IN CONSTRUCTION DOCUMENTS. 8. FOR PLUMBING FIXTURE MOUNTING HEIGHTS AND LOCATIONS, REFER TO THE ARCHITECTURAL DRAWINGS.

9. ALL PLUMBING CONVEYING OR DISPENSING WATER FOR HUMAN CONSUMPTION SHALL COMPLY WITH AB 1953

10. REFER TO ARCHITECTURAL DRAWING FOR EXACT LOCATIONS OF FIXTURES, EQUIPMENT, ETC. DO NOT SCALE FROM PLUMBING DRAWINGS.

11. ALL WALL CLEAN-OUTS SHALL BE ACCESSIBLE BY AN ACCESS PANEL.

12. PROVIDE A DOUBLE EXTERIOR CLEAN-OUT (DFCO) ON ALL SANITARY LINES EXITING THE BUILDING. 13. ALL FLOOR DRAINS AND FLOOR SINKS SHALL BE PROVIDED WITH A TRAP PRIMER.

14. FIXTURES DESIGNATED AS ADA ACCESSIBLE BY ARCHITECT SHALL BE INSTALLED AT ADA ACCESSIBLE

HEIGHT PER ARCHITECTURAL DETAILS.

15. ALL DOMESTIC COLD AND HOT WATER TAKE-OFFS SHALL HAVE AN ISOLATION SHUT-OFF VALVE. 16. CONTRACTOR SHALL DEWATER ANY AREA AT OR BELOW GRADE PRIOR TO SETTING EQUIPMENT

17. ANY AND ALL WATER PIPING EXPOSED TO OUTSIDE ELEMENTS SHALL BE INSULATED TO PREVENT FREEZING.

18. ALL WORK AND MATERIAL SHALL BE PERFORMED AND INSTALLED IN COMPLIANCE WITH THE FOLLOWING CODES AS ADOPTED BY THE INSPECTION AUTHORITY. NOTHING IN THESE PLANS IS TO BE CONSTUED TO PERMIT WORK NOT CONFORMING TO THESE CODES OR OTHER APPLICABLE PROJECT SPECIFICATIONS:

A. CALIFORNIA BUILDING CODE - 2022 B. CALIFORNIA PLUMBING CODE - 2022

C. CALIFORNIA MECHANICAL CODE - 2022

D. CALIFORNIA ELECTRICAL CODE - 2022 E. CALIFORNIA GREEN CODE - 2022

F. NATIONAL FIRE PROTECTION ASSOCIATION G. OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)

19. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE FACILITY, UTILITIES AND APPURTENANCE CAUSED BY THE WORK IN THEIR SCOPE. CONTRACTOR SHALL RESTORE AND REPAIR ANY DAMAGE AT NO ADDITIONAL COST TO THE OWNERS BY INSTALLATION THE FACILITY OF NEW WORK.

### MEP COMPONENT ANCHORAGE NOTES:

ALL MECHANICAL, PLUMBING AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA APPROVED CONSTRUCTION DOCUMENTS. THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2022 CBC, SECTIONS 1617A.1.18 THROUGH

1617A.1.26 AND ASCE 7-16 CHAPTER 13, 26 AND 30: ALL PERMANENT EQUIPMENT AND COMPONENTS.

TEMPORARY, MOVABLE OR MOBILE EQUIPMENT THAT IS PERMANENTLY ATTACHED (e.g. HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRIC, GAS OR WATER. "PERMANENTLY ATTACHED" SHALL INCLUDE

ALL ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 110/220 VOLT RECEPTACLES HAVING A FLEXIBLE CABLE TEMPORARY, MOVABLE OR MOBILE EQUIPMENT WHICH IS HEAVIER THAN 400 POUNDS OR HAS A CENTER OF MASS LOCATED 4 FEET OR MORE ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT IS REQUIRED TO BE RESTRAINED IN A MANNER APPROVED BY DSA.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE BUT NEED NOT DEMONSTRATE DESIGN COMPLIANCE WITH THE REFERENCES NOTED ABOVE. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT. FLEXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS. COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVE A CENTER OF MASS LOCATED 4 FEET OR LESS

COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUND PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT.

THE ANCHORAGE OF ALL MECHANICAL. ELECTRICAL AND PLUMBING COMPONENTS SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND ACCEPTANCE BY DSA. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH ABOVE REQUIREMENTS.

#### PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-16 SECTION 13.3 AS DEFINED IN ASCE 7-16 SECTION 13.6.5, 13.6.6, 13.6.7, 13.6.8; AND 2022 CBC, SECTION 1617A.1.24, 1617A.1.25, AND 1617A.1.26.

THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE AS NOTED BELOW. WHEN BRACING AND ATTACHMENTS ARE BASED ON A PREAPPROVED INSTALLATION GUIDE (E.G., OSHPD OPM FOR2013 CBC OR LATER). COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO START OF AND DURING THE HANGING AND BRACING OF DISTRIBUTION SYSTEMS. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

MP MD PP E OPTION 1: DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES & DETAILS.

MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E):

MP \_\_\_ MD\_\_ PP\_\_ E\_\_ OPTION 2: SHALL COMPLY WITH THE APPLICABLE OSHPD PRE-APPROVAL (OPM #) #\_\_\_\_\_

#### **ABBREVIATIONS**

DRAWING INDEX

PLUMBING SITE PLAN

PLUMBING SCHEDULE

PLUMBING SHEET INDEX, LEGEND, AND NOTES

PLUMBING DEMOLITION FLOOR PLAN - BLDG 7

PLUMBING NEW FLOOR PLAN - BLDG 7

PLUMBING DETAILS AND TITLE-24 FORMS

#### NOTE: 1. ALL ABBREVIATIONS MAY NOT BE USED

AREA ALARM PANEL MANHOLE AUTOMATIC AIR VENT MOP SINK ABOVE FINISHED FLOOR NORMALLY CLOSED ACCESS PANEL NOT IN CONTRACT BELOW FINISHED FLOOR

BACKFLOW PREVENTER BOTTOM OF BEAM

BRITISH THERMAL UNITS PER HOUR PHASE

POST INDICATOR VALVE CUT AND CAP CUBIC FEET PER HOUR **ROOF DRAIN** 

REFER TO CAST IRON CEILING

CLEANOUT RPBFP REDUCED PRESSURE BACKFLOW PREVENTER CONNECTION CONN REVOLUTIONS PER MINUTE

CONTINUATION DRINKING FOUNTAIN STORM DRAIN DRY PIPE VALVE SQUARE FEET

SIAMESE

ELEVATION T.O.P.

FLOOR CLEANOUT FLOOR DRAIN

UNDERFLOOR FINISHED FLOOR UNDERSLAB FIRE HOSE CABINET

VERIFY IN FIELD FLOOR SINK VENT THRU ROOF WATER CLOSET FIXTURE UNITS WALL CLEANOUT

GENERAL CONTRACTOR WALL HYDRANT GALLONS PER HOUR WASHING MACHINE BOX GALLONS PER MINUTE YARD HYDRANT

ZONE VALVE HORSEPOWER ITEM NOTED TO BE ABANDONED INVERT ELEVATION

**KILOWATTS** EXISTING ITEM LAVATORY

MASTER ALARM PANEL ZFITEM NOTED TO RELOCATED

#### ON THESE DRAWINGS.

P0.00

P1.01

NORMALLY OPEN

OWNER FURNISHED/CONTRACTOR INSTALLED OWNER FURNISHED/OWNER INSTALLED BOTTOM OF PIPE

**OVERFLOW DRAIN** OFD COMPRESSED AIR

PRESSURE REDUCING VALVE CUBIC FEET PER SECOND

ROUGH-IN AND CONNECT REVERSE OSMOSIS

REFRIGERATOR VALVE BOX

TOP OF PIPE

ELECTRIC DRINKING FOUNTAIN TRAP PRIMER **TYPICAL** 

URINAL FIRE DEPARTMENT VALVE

VACUUM BREAKER

ITEM NOTED TO BE DEMOLISHED

**MECHANICAL** 

KEY PLAN

IDENTIFICATION STAMP DIV. OF THE STATE ARCHITEC

REVIEWED FOR

SS 🗹 FLS 🗹 ACS 🗹

RANCHO CUCAMONGA 8163 Rochestser Avenue, Suite 100

Rancho Cucamonga

California 91730

P 909-987-0909

8163 Rochester Avenue, Suite 100

Rancho Cucamonga, CA 91730

909.987-0909

leafengineers.com

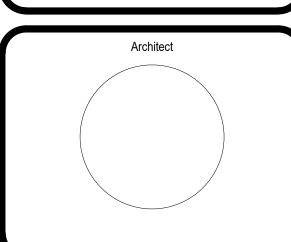
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**CONSULTANT** 

APP: 03-123048 INC:



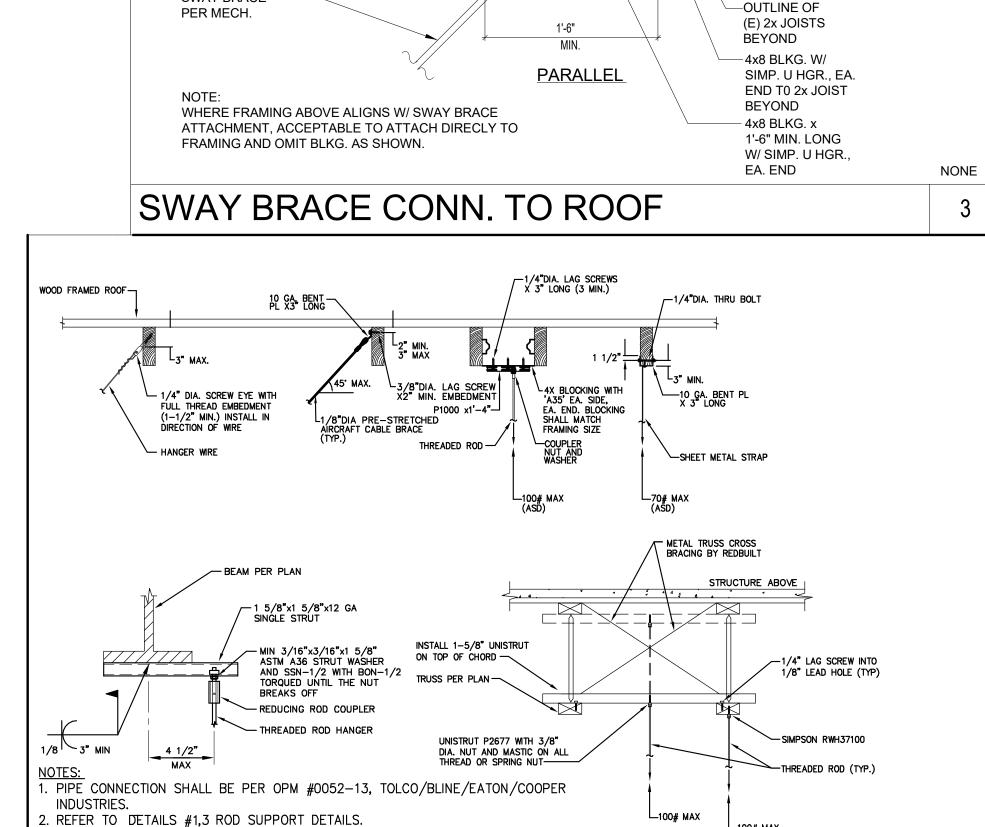
NORTH: PLAN TRUE



WEST COVINA USD PROJECT NUMBER 220117 **REVISIONS** Description

DSA BACKCHECK

PLUMBING SHEET INDEX, LEGEND, AND



PIPE CONNECTION DETAILS

. WHERE SUPPORT IS AT BOTTOM TRUSS CHORD. PROVIDE METAL TRUSS CROSS BRACING AT EACH BOTTOM CHORD PANEL ON EITHER SIDE OF THE UNISTRUT SUPPORT. REFER TO

REDBUILT TRUSS DRAWINGS, SHEET 3 OF 23.

TOLCO FIG. 910

SWAY BRACE

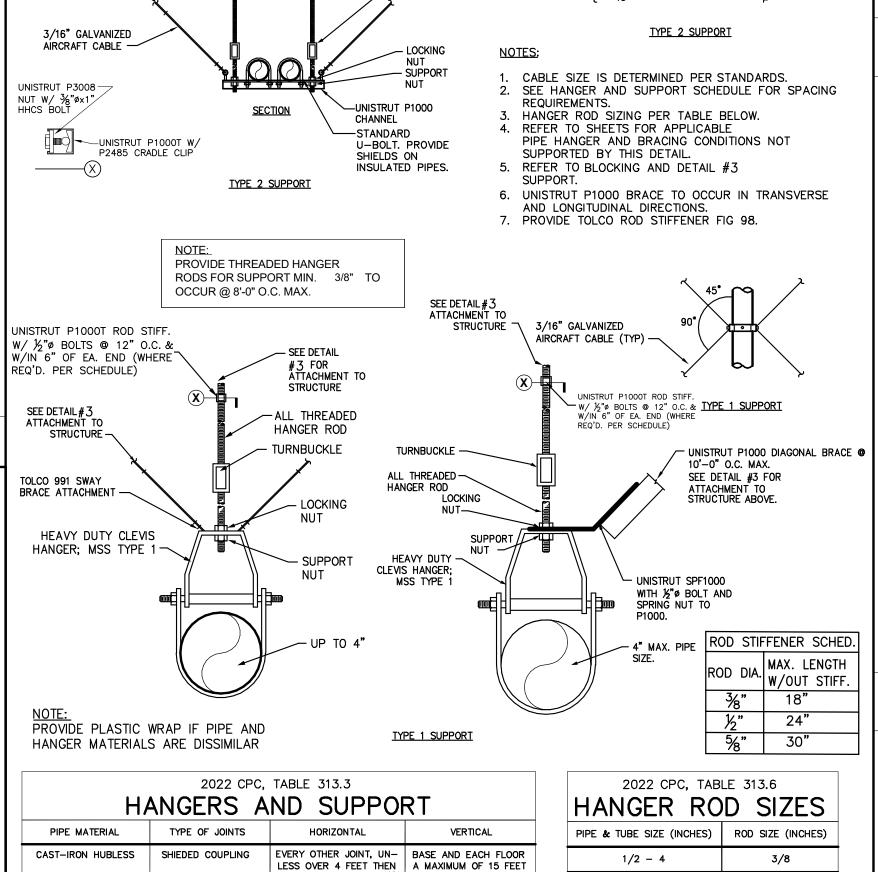
TOLCO FIG. 910

SWAY BRACE

ATTACHMENT W/ 1/2" Ø

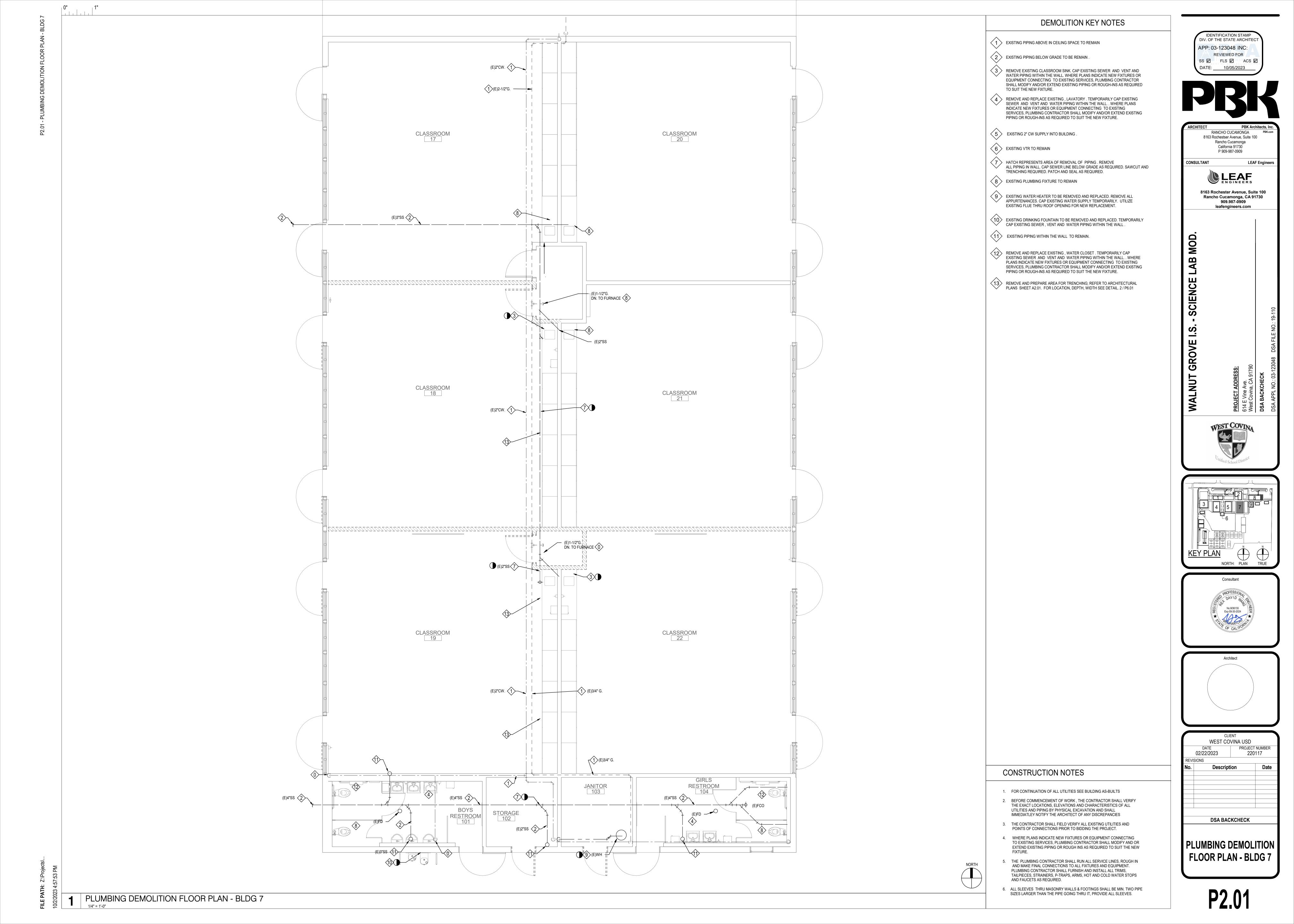
PER MECH.

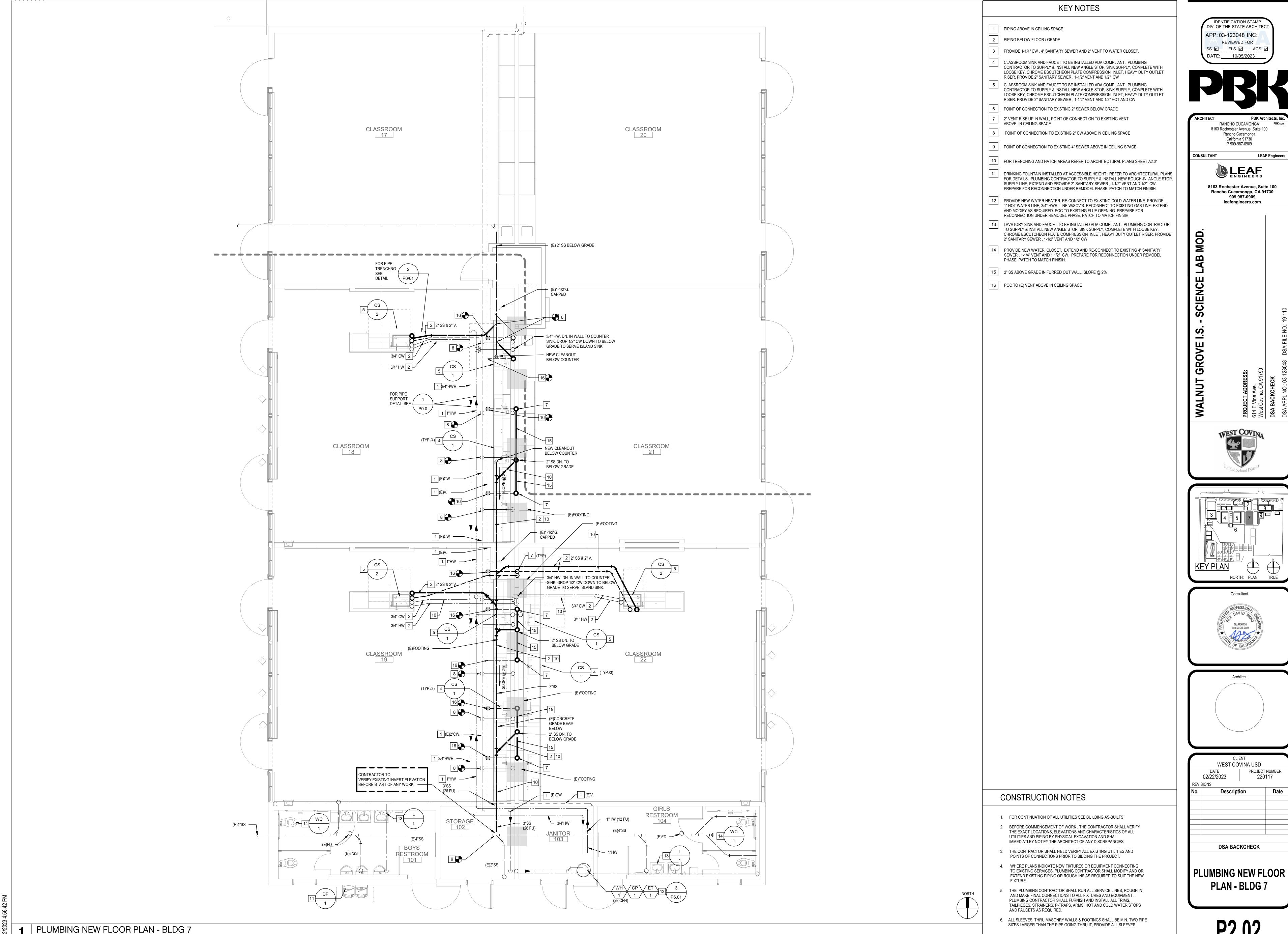
ATTACHMENT W/ 1/2" Ø



PIPE SUPPORT DETAILS







GAS WATER HEATER SCHEDULE TANK CAPACITY STORAGE OPER. WT.(LBS.) BTUH MANUFACTURER MODEL DIMENSIONS LOCATION NO. SERVICE REMARKS GAS WATER HEATER A.O. SMITH GCR - 30R 3/4" WATER CONNECTION, 1/2" GAS SUPPLY, 4" DIA. FLUE, CUSTODIAL RM. 60-1/2"H 18" DIA. EXTERNAL HEAT TRAPS, GLASS LINED. CSA CERTIFIED, ASME RATED,T&P RELIEF VALVE.

	CIRCULATOR PUMP SCHEDULE											
NO.	SERVICE	LOCATION	MANUFACTURER MODEL	TYPE	EFFICIENCY	GPM	TDH	WATTS	RPM	VOLT/PH/HZ	OPER. WT.(LBS.)	REMARKS
CP 1	DOM. HOT WATER	CUSTODIAL RM.	BELL & GOSSETT NBF-12	VERTICAL, IN-LINE	74%	5	7	39	2800	115/1/60	9.0	

	EXPANSION TANK SCHEDULE								
NO.	SERVICE	LOCATION	MANUFACTURER MODEL	QUANTITY	TOTAL VOL.(GAL)	HEIGHT	DIAM.	OPER. WT.(LBS.)	REMARKS
ET 1	DOMESTIC HOT WATER	CUSTODIAL RM.	AMTROL INC THERM-X- TROL MODEL ST-5C	1	2.1	19 15/16"	16 1/4"	14	

	PLUMBING FIXTURE SCHEDULE							
MARK	FIXTURE	S or W	V	CW	HW	DESCRIPTION		
WC 1	WATER CLOSET	4"	2"	1-1/2"		AMERICAN STANDARD MADERA FLOWISE # 2854.128 FLOOR MOUNTED TOILET SYSTEM WITH SLOAN ROYAL 111-1.28 MANUAL FLUSH VALVE WITH METAL COVER AND 5901.100 HEAVY DUTY OPEN FRONT ADJUSTABLE SEAT. FLUSH VALVE HANDLE TO BE MOUNTED ON WIDE SIDE OF STALL. (ACCESSIBLE) CBC COMPLIANT		
CS 1	CLASSROOM SINK	2"	2"	1/2"	-	JUST CRA-ADA-1725-A-GR-VRL-CT, 18 GA STAINLESS STEEL, 2 HOLE SINGLE COMPARTMENT 17" X 25" X 6-1/2, WITH GOOSENECK FAUCET W/VANDAL PROOF 2-3/8", LEVER HANDLE W/ VANDAL RESISTANT AERATOR FAUCET (1.5 GPM). PUSH BUTTON BUBBLER. DRAIN J-ADA-35-FS OFFSET FLAT STRAINER, SPEEDWAY COMPRESSION. P-TRAP, DEARBORN #750 LA PATTERN. WRAP, PLUMBEREX # 2004, TRAP, 2 SUPPLY - ANGLE STOP, & FAUCET COVER. ANGLE STOP, CHICAGO #1006ABCP. SUPPLY, BRASSCRAFT # S1-** A F STAINLESS STEE BRAIDED FLEC. CBC COMPLIANT FOR ACCESS. (OR EQUAL)		
CS 2	INSTRUCTOR CLASSROOM SINK	2"	2"	1/2"	1/2"	JUST SL-ADA-17519-A-GR, 18 GA STAINLESS STEEL, SINGLE COMPARTMENT, 14"X18"X4-1/2, 1-HOLE CENTERED WITH CHICAGO 350 SINGLE LEVER HANDLE FAUCET WITH 1.5 GPM FLOW RESTRICTOR, J-35-FS PERFORATED GRID DRAIN, SPEEDWAY COMPRESSION WALL STOPS & SUPPLY, P-TRAP. CBC COMPLIANT FOR ACCESS. (OR EQUAL) (PROVIDE GUARDIAN EYEWASH MODEL # GBF1849LH-L)		
DF 1	DRINKING FOUNTAIN	2"	2"	3/4"		ELKAY NO. VRCTL8WSK WATER COOLERS, WALL MOUNTED. VANDAL-RESISTANT BOTTLE-FILLING STATION WITH BI-LEVEL COOLER FILTERED REFRIGERATED STAINLESS CONTROLLED BY TRANSFORMER 115 / 60HZ / 4.2 FLA 14 GAUGE STAINLESS STEEL MOUNTING BRACKET (L) VRCTL8, COMPLETE WITH VANDAL PROOF BOTTOM CHICAGO NO. 45LKABCP ANGLE STOP W/ 1/2" FEMALE INLET & OUTLET. MOUNT AT ADA-COMPLIANT / ACCESSIBLE HEIGHT.		
L 1	LAVATORY	2"	1-1/2"	1/2"	-	AMERICAN STANDARD NO. 0355.012 "LUCERNE WALL HUNG LAVATORY" 20"X18" WALL HUNG, COMPLETE WITH CHICAGO NO. 2200-4ABCP FAUCET WITH 0.5 GPM AERATOR AND VANDAL RESISTANT COVER PLATE. MCGUIRE NO. 155A 1-1/4" OUTLET "OPEN GRID P.O. PLUG" MCGUIRE NO. PW8090NC0 1-1/4" L.A. PATTERN P-TRAP WITH TRAP AND SUPPLYCOVERS, GALVANIZED NIPPLE AND CHROMIUM PLATED BRASS CASING, CHICAGO NO. 1017 -ABCP LOOSE KEY STOPSWITH RIGID SUPPLIES, AND ZURN NO. Z-1231CARRIER WITH STEEL PLATE.		

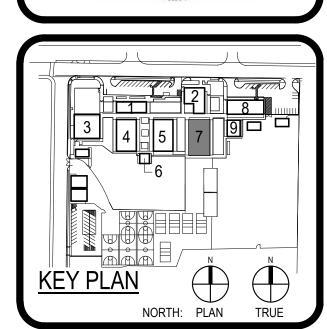
#### NOTES:

- 1. ALL PLUMBING FIXTURES, FLUSH VALVES, FAUCETS, FLOOR DRAINS, FLOOR SINKS, DRINKING FOUNTAINS, ETC. SHALL BE VANDAL RESISTANT.
- 2. ALL PLUMBING FIXTURES SHALL COMPLY WITH CAL GREEN FLOW RATES FOR 20 PERCENT FLOW RATE REDUCTION PER TABLE 5.303.2.3.
- 3. COORDINATE ALL FIXTURES WITH ARCHITECT

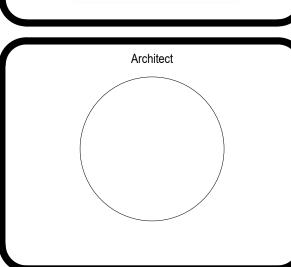


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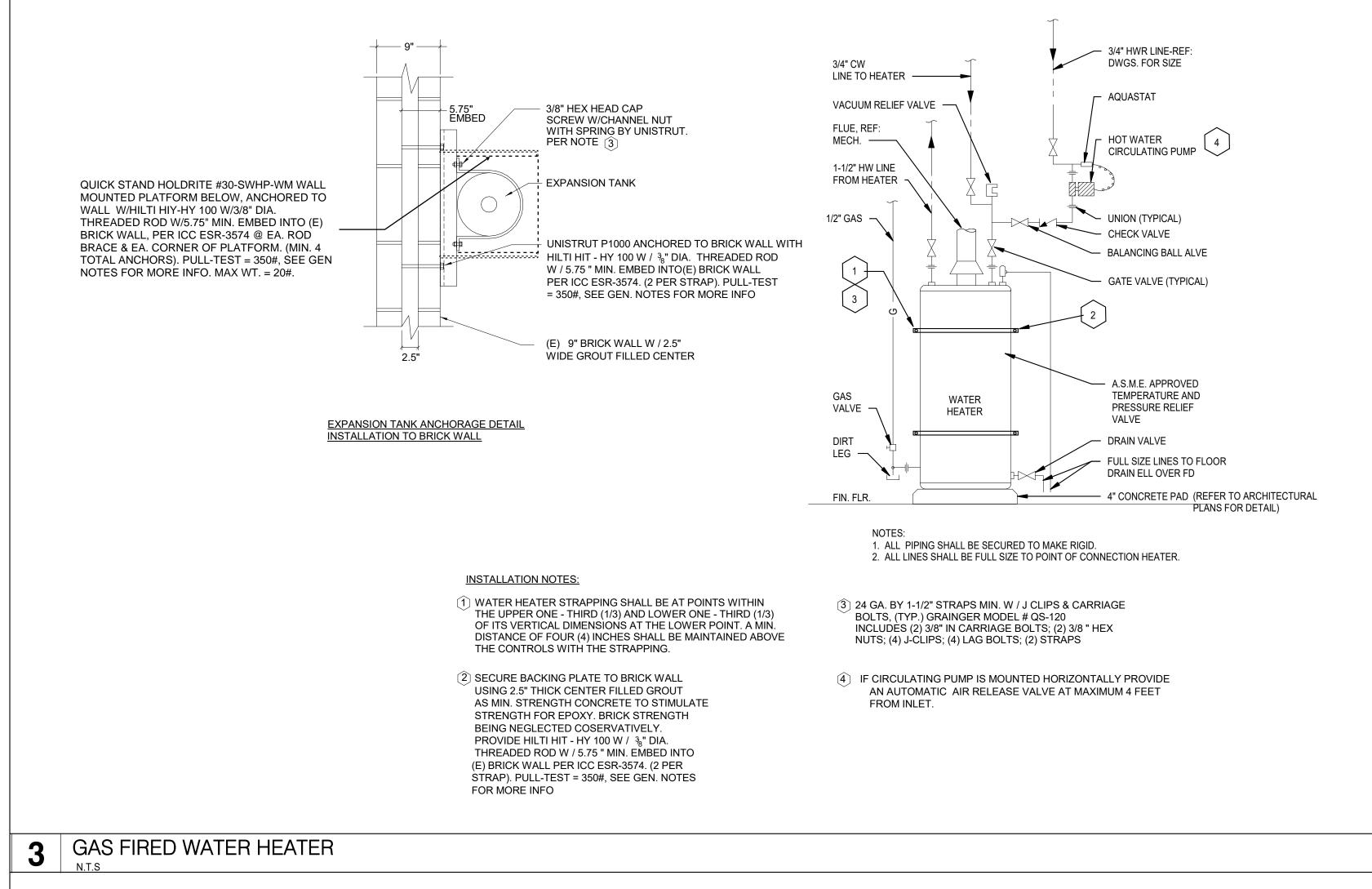
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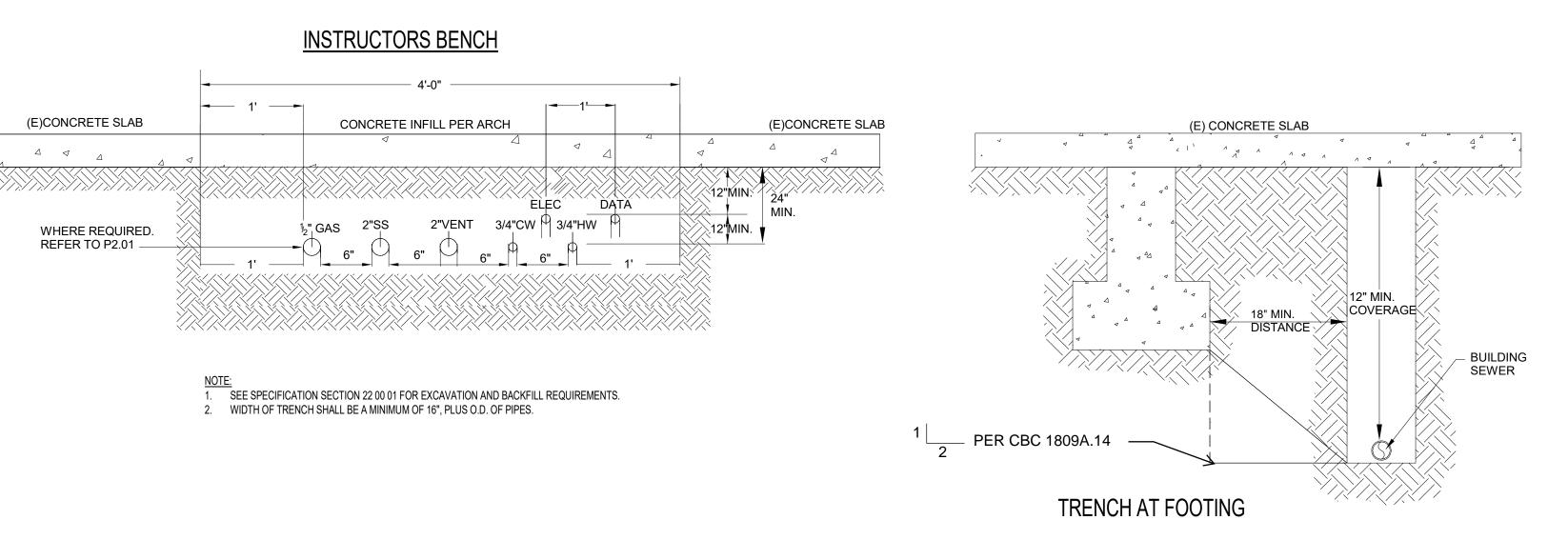


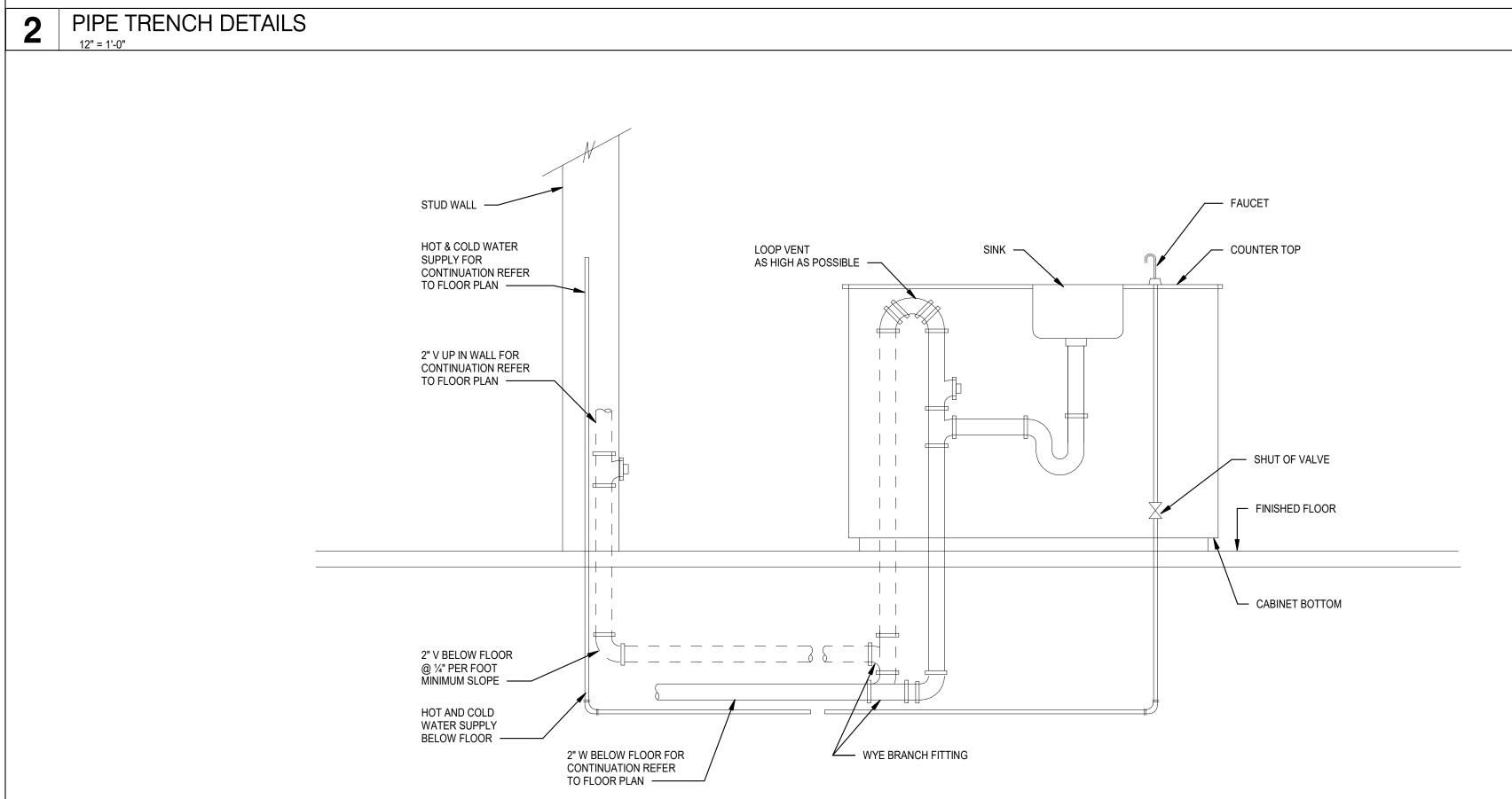




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RANCHO CUCAMONGA

8163 Rochestser Avenue, Suite 100

Rancho Cucamonga

California 91730

P 909-987-0909

8163 Rochester Avenue, Suite 100

Rancho Cucamonga, CA 91730

909.987-0909

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KEY PLAN

NORTH: PLAN TRUE

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WEST COVINA USD

**DSA BACKCHECK** 

PLUMBING DETAILS AND

TITLE-24 FORMS

Description

02/22/2023

REVISIONS

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Date

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