

CONSTRUCTION DOCUMENTS

BOLTZ MIDDLE SCHOOL - RENOVATIONS
POUDRE SCHOOL DISTRICT
720 Boltz Drive
Fort Collins, CO 80525

PROJECT #: 11-26
ISSUE DATE: 28 February 2012

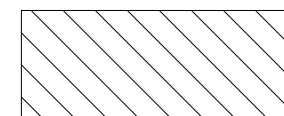
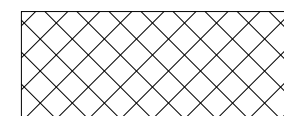
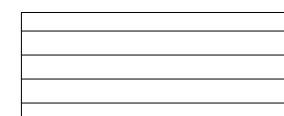
NO.	REVISIONS DESCRIPTION	DATE

OVERALL FLOOR PLAN (EXISTING)

A100

1 EXISTING LEVEL 1
1/16" = 1'-0"

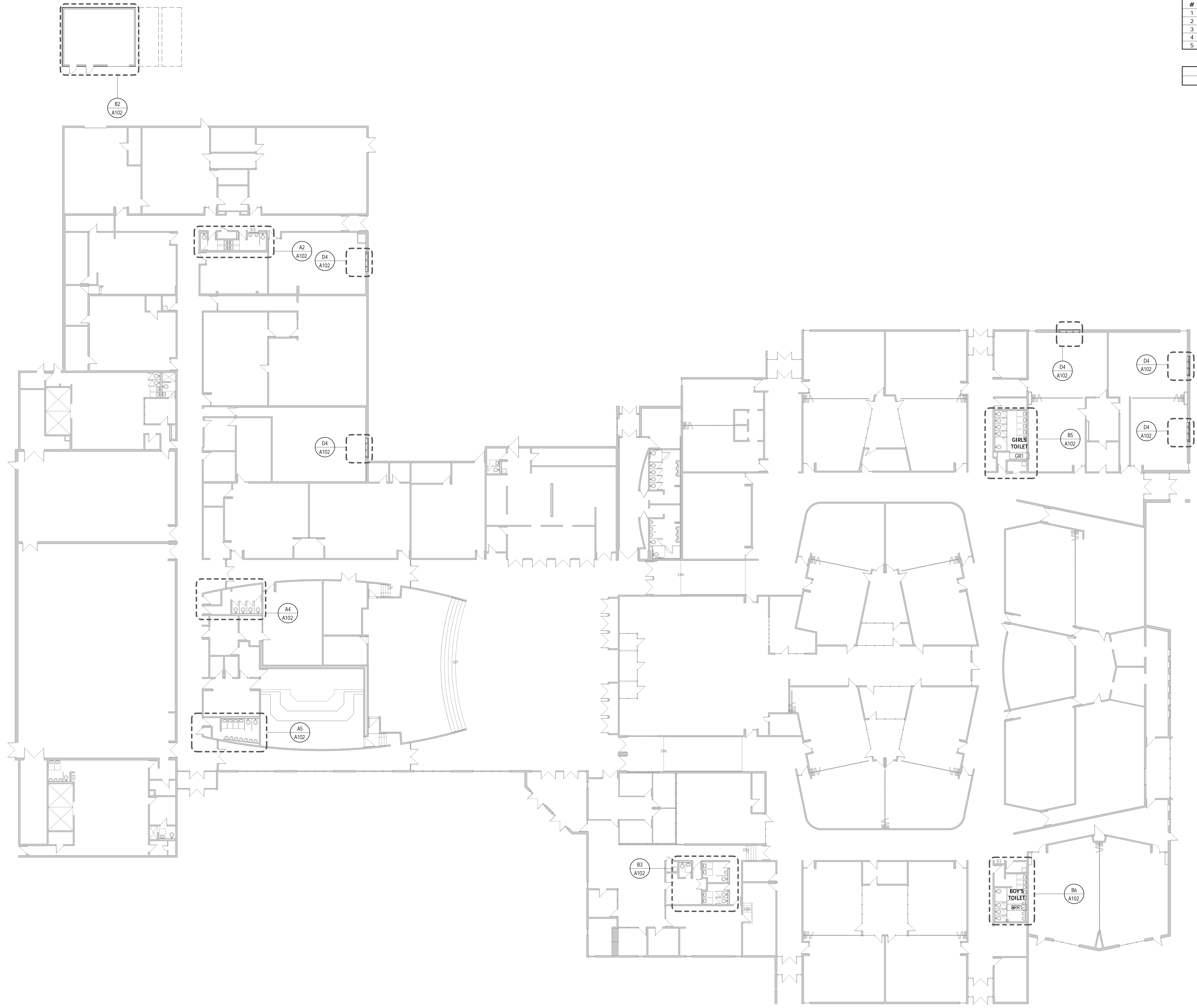


 HATCHED AREA SHOWS EXTENT OF 1981 ADDITION
 CROSS-HATCHED AREA SHOWS EXTENT OF 1993 ADDITION
 HORIZONTAL LINES SHOWS EXTENT OF 2004 ADDITION

2/28/2012 11:50:38 AM - PLOT DATE

SHEET NOTES - PLAN	
#	NOTE
1	ALIGN FACE
2	ADA DOOR ACTUATOR
3	SEE DETAIL X/XX
4	OVERHEAD
5	OPEN TO BELOW

KEYNOTES	
#	NOTE



CONSTRUCTION DOCUMENTS

BOLTZ MIDDLE SCHOOL - RENOVATIONS
POUDRE SCHOOL DISTRICT
720 Boltz Drive
Fort Collins, CO 80525

PROJECT #: 11-26
ISSUE DATE: 28 February 2012

NO.	DESCRIPTION	DATE
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REFERENCE FLOOR PLAN

A101

2/28/2012 11:52:34 AM - PLOT DATE

1 OVERALL REFERENCE PLAN
1/16" = 1'-0"

ARCHITECT

SEAL

CONSULTANT

PROJECT PHASE

PROJECT INFORMATION

SHEET INFORMATION

CONSTRUCTION DOCUMENTS

BOLTZ MIDDLE SCHOOL - RENOVATIONS
 Poudre School District
 720 Boltz Drive
 Fort Collins, CO 80525

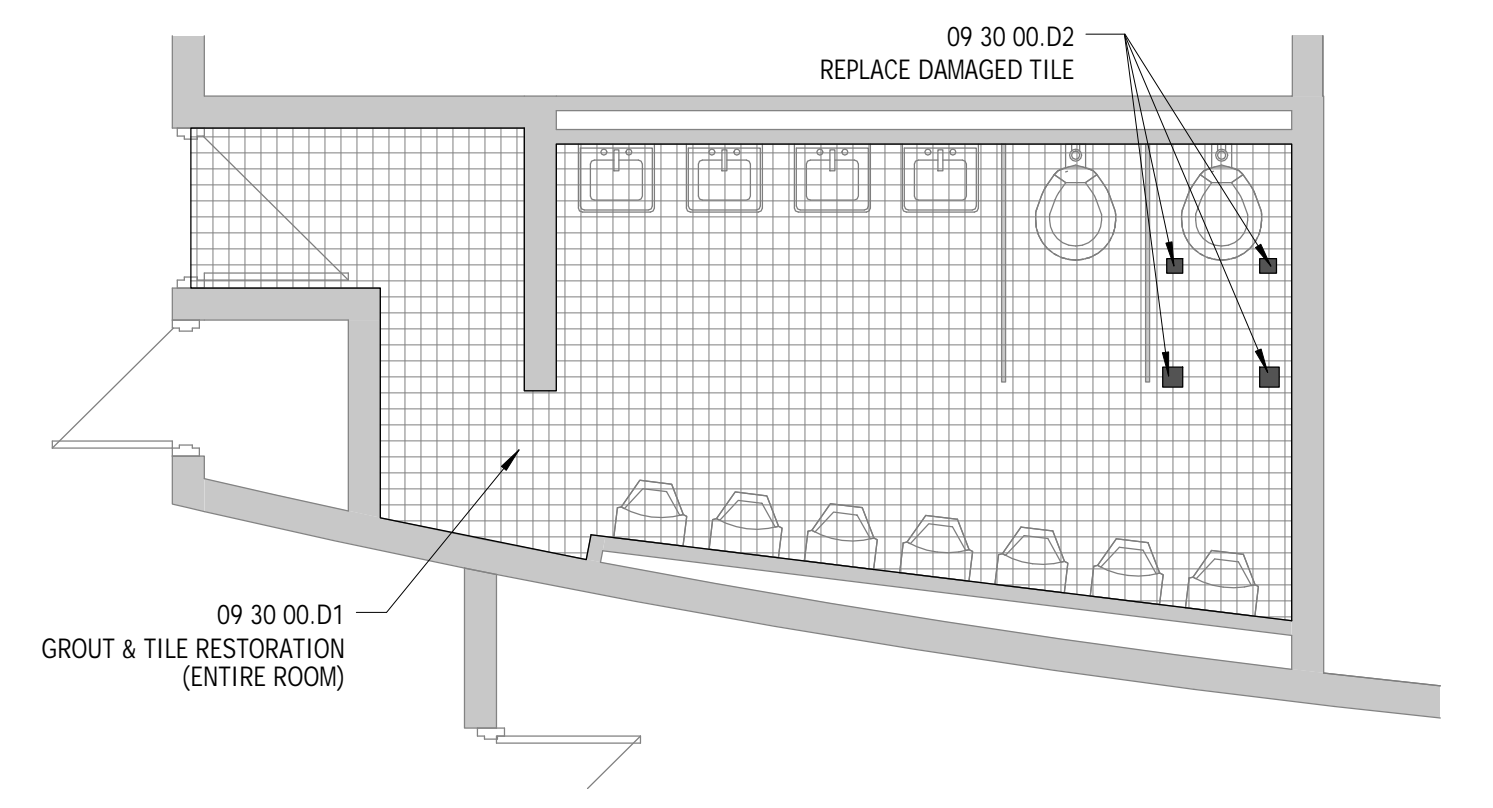
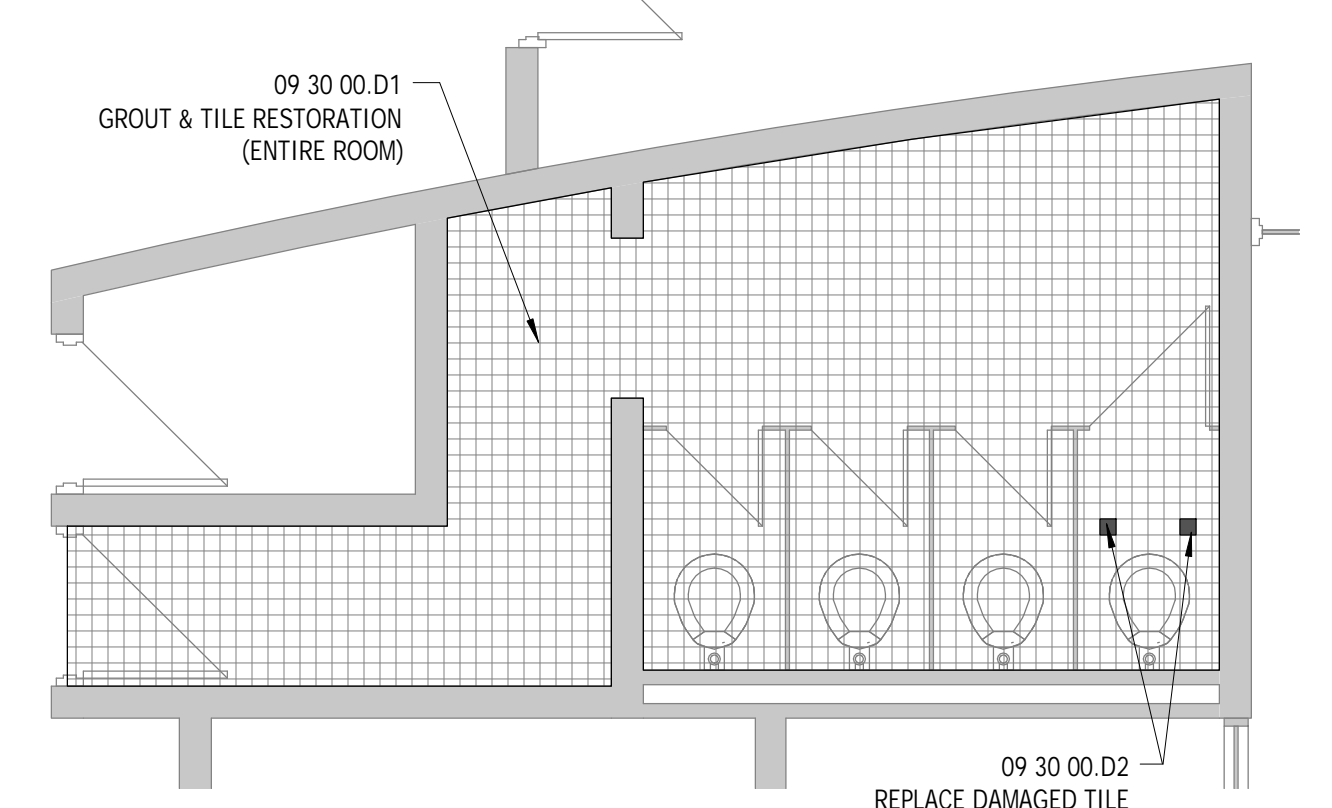
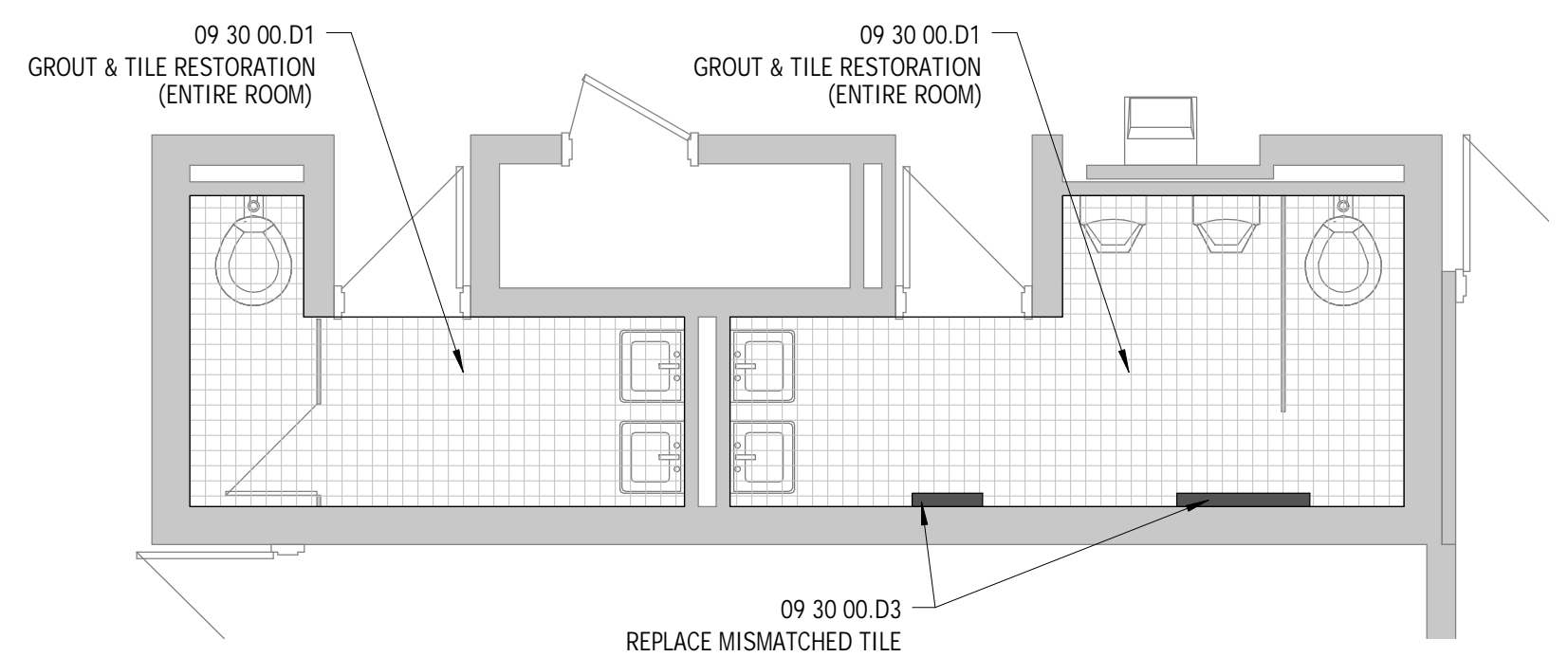
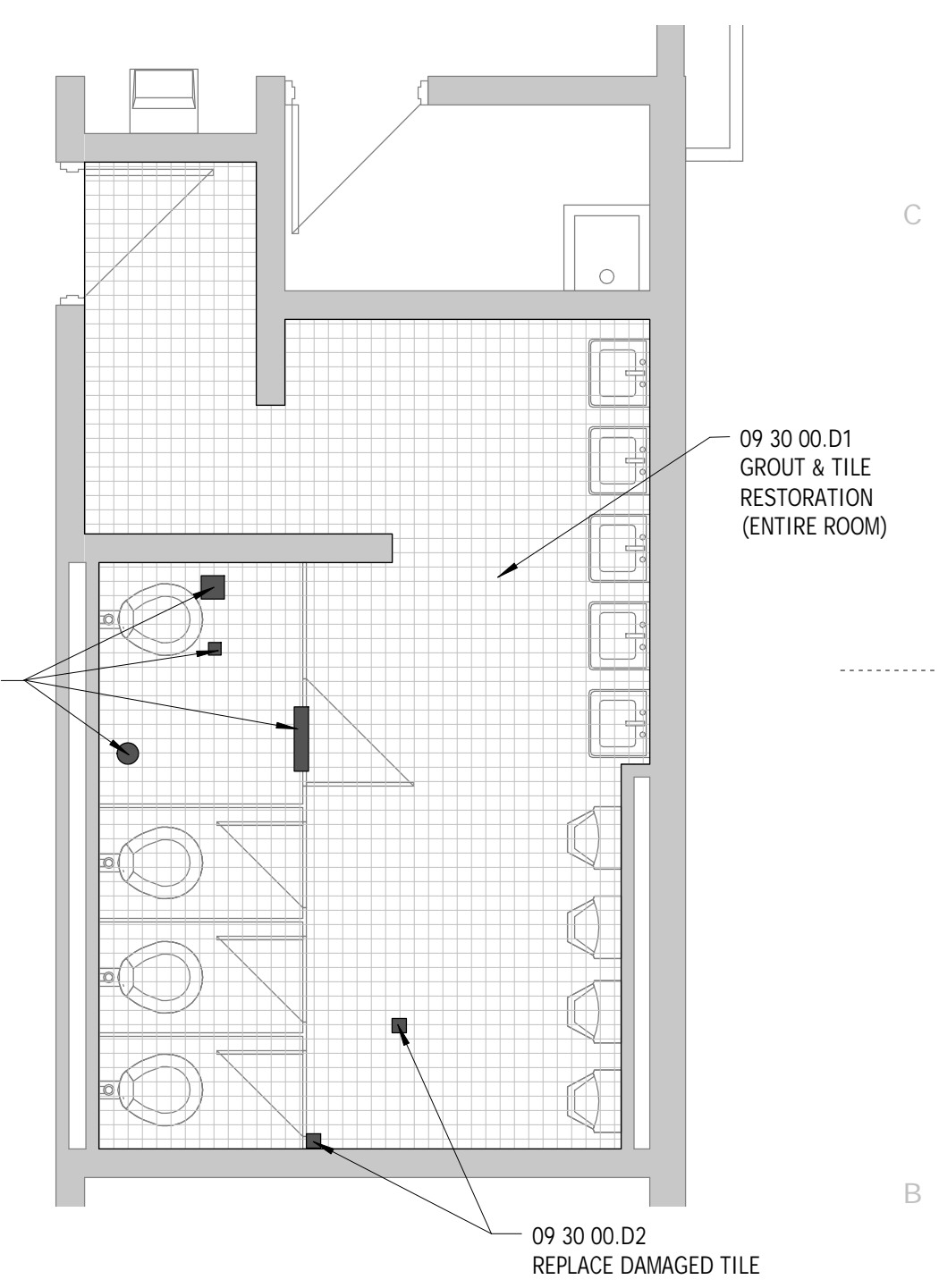
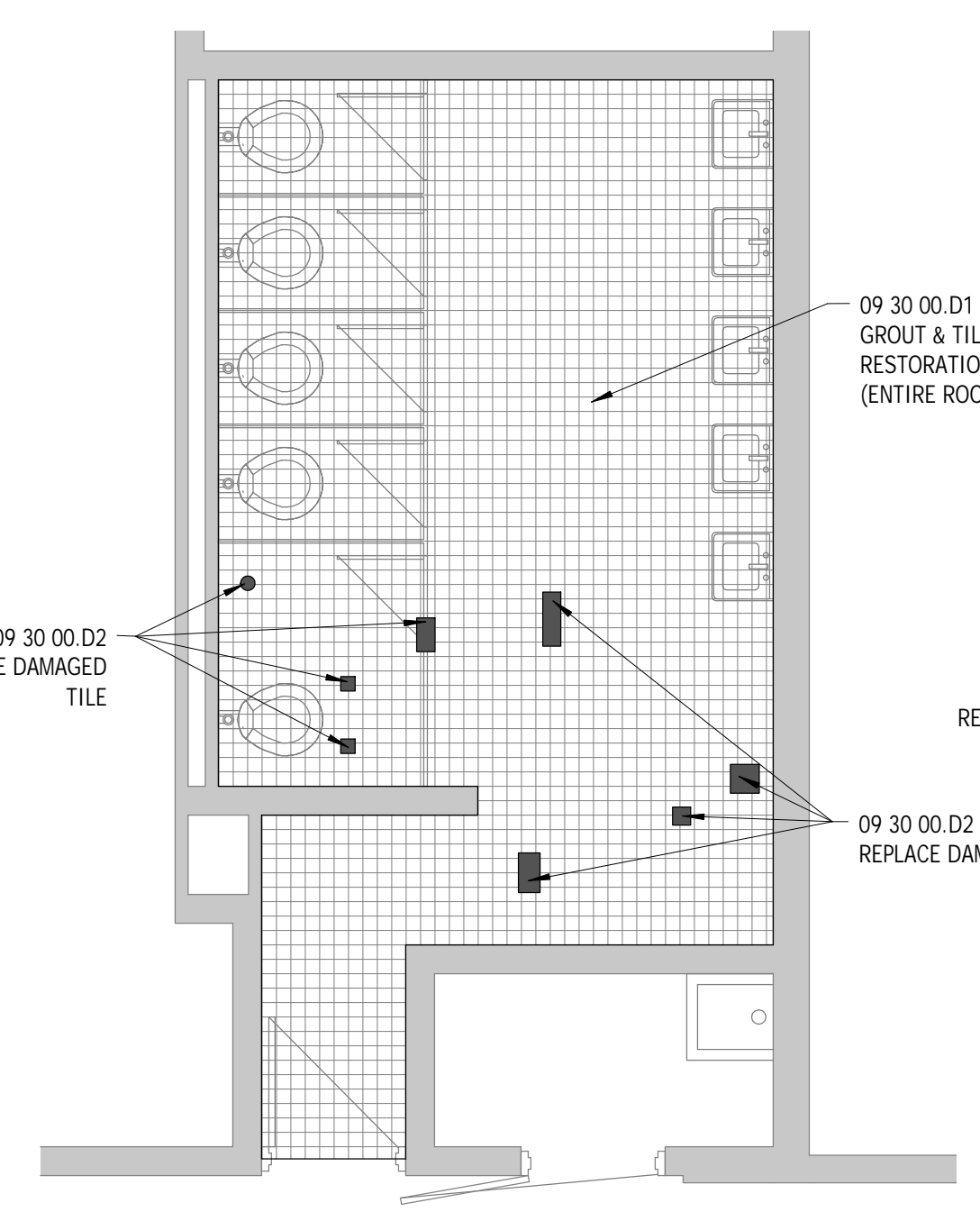
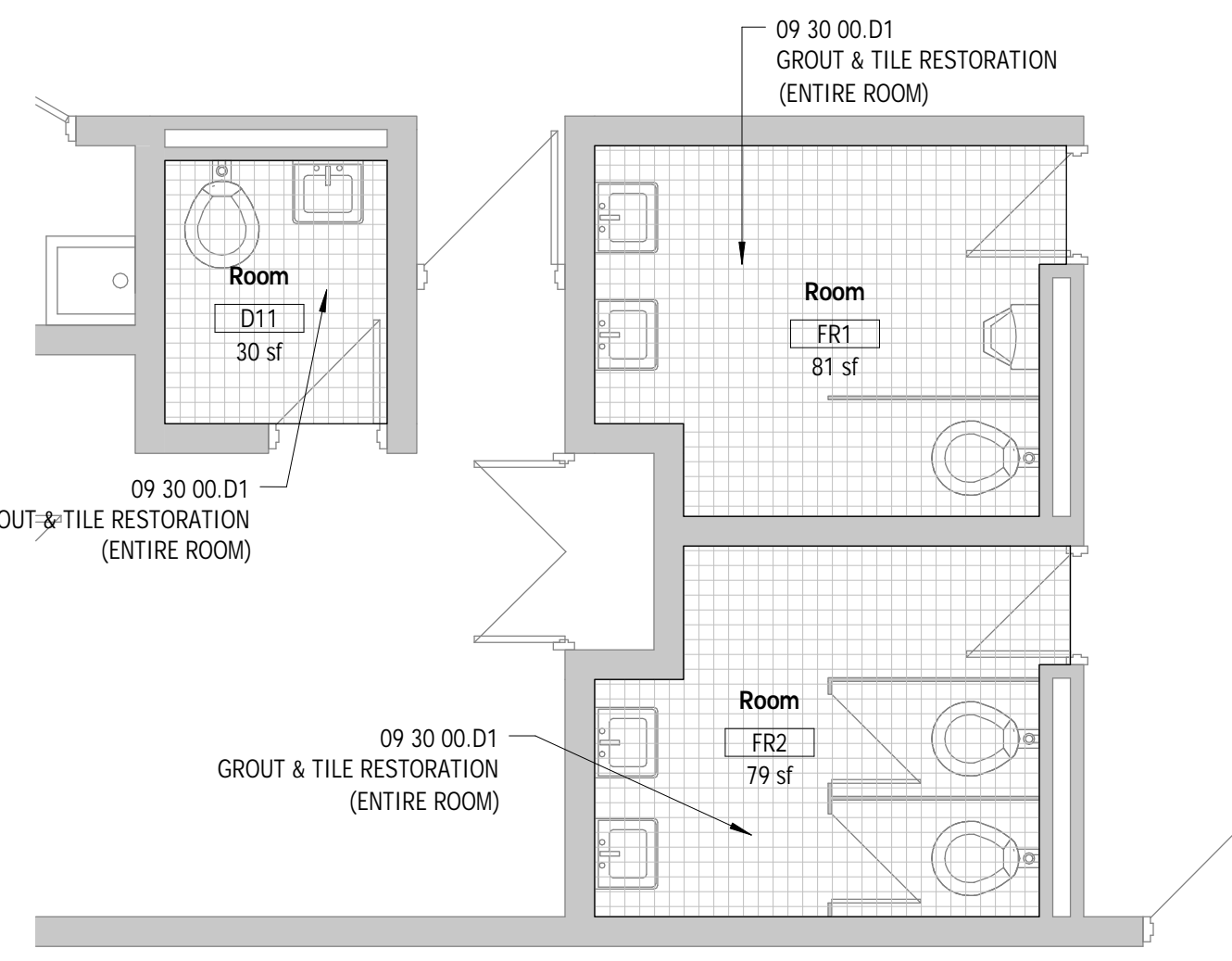
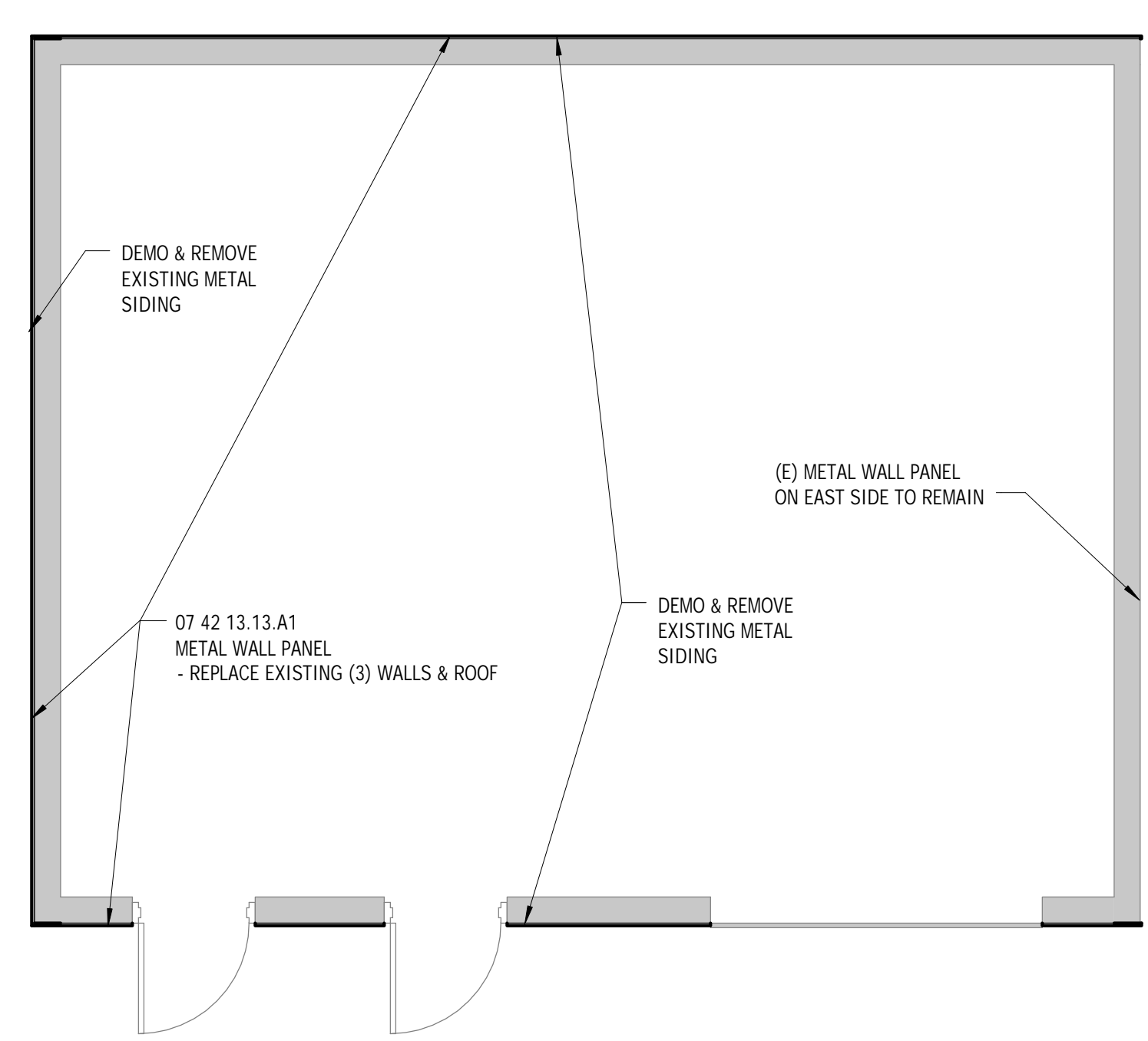
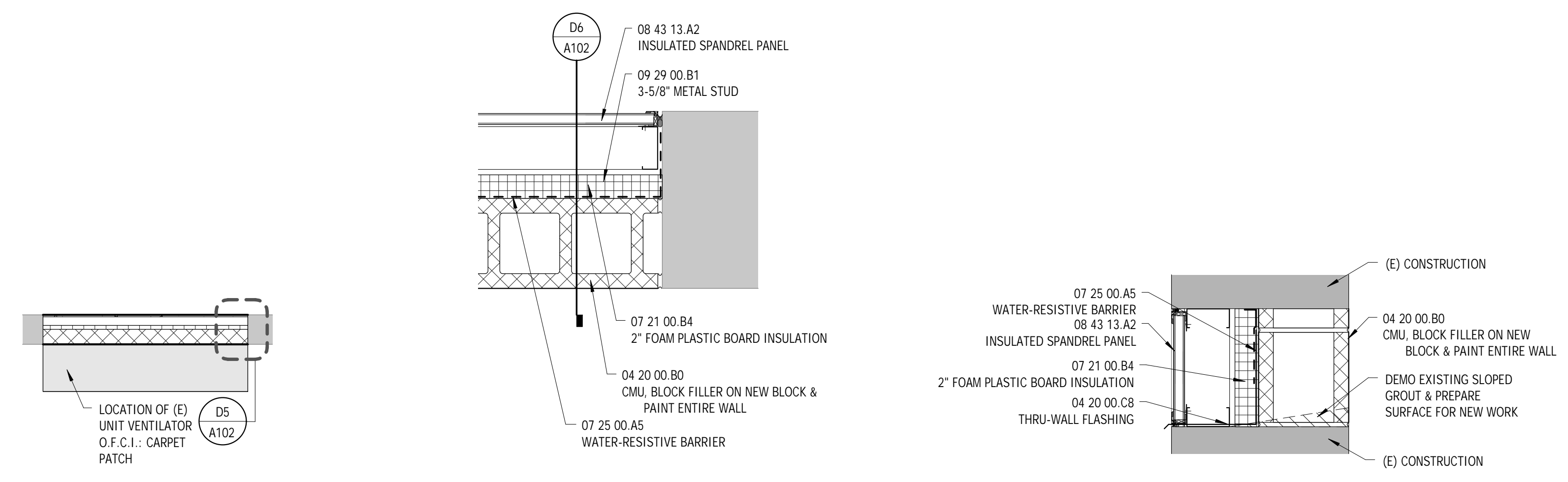
PROJECT #: 11-26

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REVISIONS

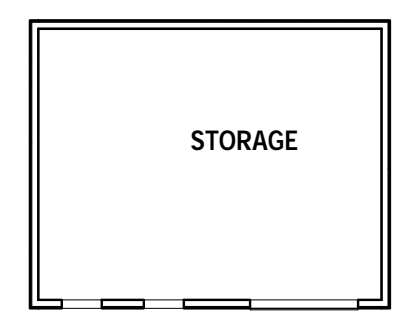
NO.	DESCRIPTION	DATE

ENLARGED PLANS



1. REMOVE AND REPLACE EXISTING CEILING TILE AND GRID TO PERFORM INSTALLATION OF ALL ABOVE CEILING WORK. DAMAGED TILE AND GRID SHALL BE REPLACED WITH NEW. COST TO REPLACE DAMAGED TILE AND GRID WILL NOT BE THE RESPONSIBILITY OF THE OWNER.

GENERAL NOTES - RCP
1/2" = 1'-0"



CONSTRUCTION DOCUMENTS

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POUDRE SCHOOL DISTRICT
720 Boltz Drive
Fort Collins, CO 80525

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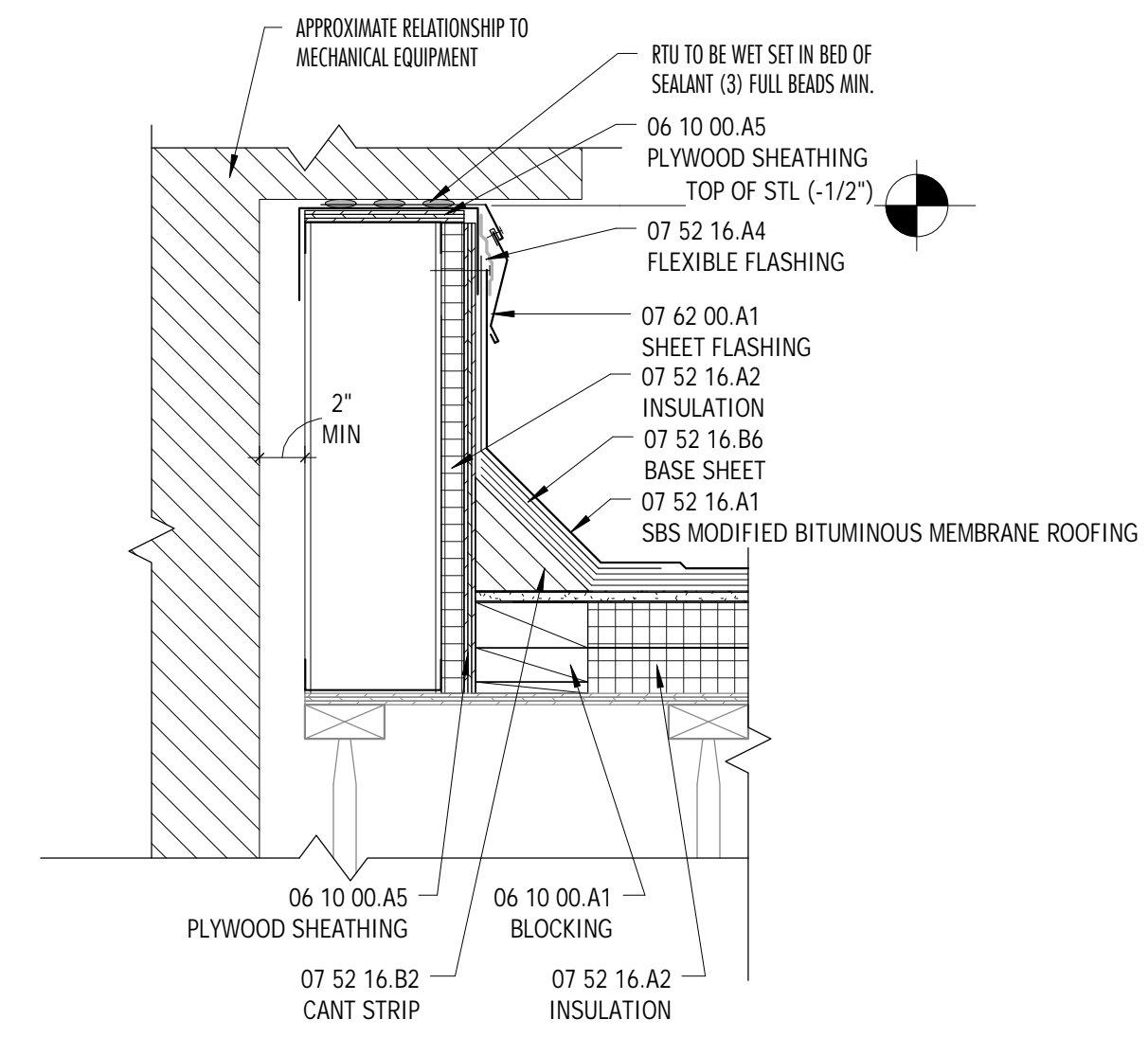
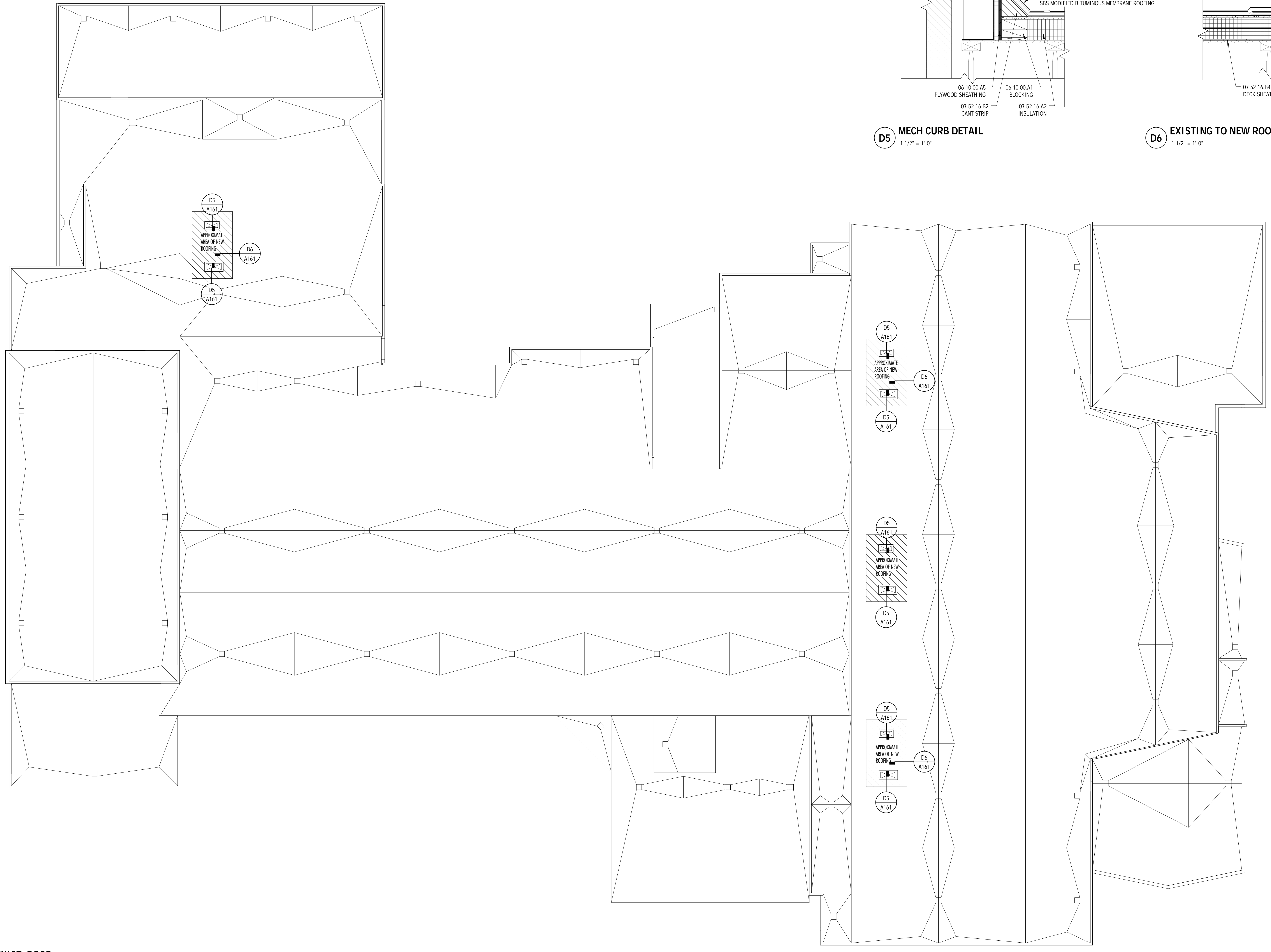
REVISIONS
NO. DESCRIPTION DATE

LEVEL ONE REFLECTED CEILING PLAN

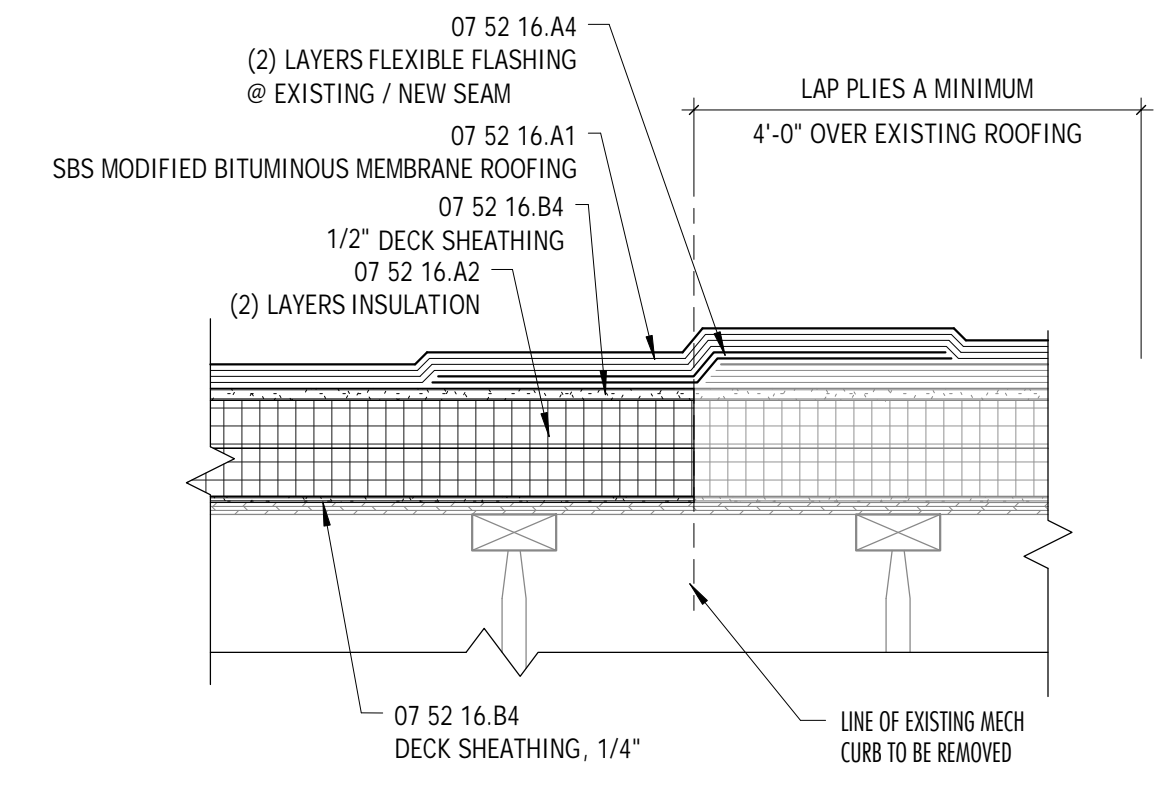
A141

2/28/2012 11:53:17 AM - PLOT DATE

1 EXIST. LEVEL 1 RCP
1/2" = 1'-0"



D5 MECH CURB DETAIL
1 1/2" = 1'-0"



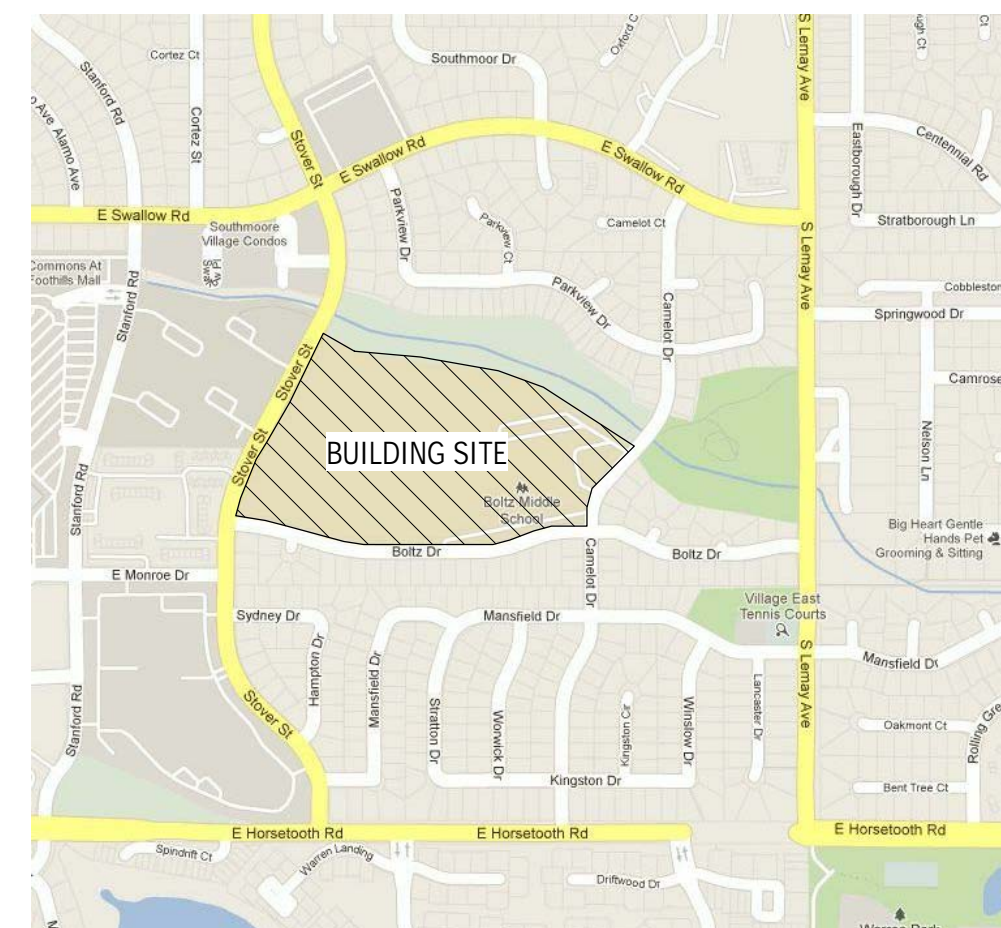
D6 EXISTING TO NEW ROOFING TIE-IN
1 1/2" = 1'-0"

1 EXIST. ROOF
1/16" = 1'-0"

BOLTZ MIDDLE SCHOOL - RENOVATIONS

POUDRE SCHOOL DISTRICT

PROJECT SITE MAP



MATERIAL LEGEND

	BRICK
	CMU
	CONCRETE
	STEEL
	WOOD SHIM / BLOCKING
	WOOD - CONTINUOUS
	EARTH
	GRAVEL
	PLYWOOD
	RIGID INSULATION
	SPRAY INSULATION
	BATT INSULATION
	GYPSUM BOARD

GENERAL NOTES

- DO NOT SCALE DRAWINGS. FIELD VERIFY ALL DIMENSIONS. NOTIFY ARCHITECT IMMEDIATELY WHEN DISCREPANCIES ARE DISCOVERED.
- IT IS THE RESPONSIBILITY OF THE MECHANICAL AND ELECTRICAL SUBCONTRACTORS TO REVIEW ALL OF THE DRAWINGS, INCLUDING ARCHITECTURAL FOR WORK UNDER THEIR RESPECTIVE CONTRACTS. ROOF PLANS AND RCP'S DESCRIBE MECHANICAL AND ELECTRICAL WORK AS DO OTHER ARCHITECTURAL DRAWINGS. NO EXTRAS WILL BE ALLOWED FOR WORK SHOWN IN ANY PART OF THESE DRAWINGS, OR DESCRIBED IN ANY PART OF THE PROJECT MANUAL.
- REMOVE AND REPLACE EXISTING CEILING TILE AND GRID AS NEEDED TO PERFORM INSTALLATION OF ALL ABOVE CEILING WORK. DAMAGED TILE AND GRID TO BE REPLACED WITH NEW. COST TO REPLACE DAMAGED TILE AND GRID WILL NOT BE THE RESPONSIBILITY OF THE OWNER.

CODE SUMMARY

GOVERNING CODE:	2006 INTERNATIONAL BUILDING CODE
CONSTRUCTION TYPE:	V-B
NUMBER OF STORIES:	ONE
OCCUPANCY:	E (A3 & B OCCUPANCIES AS ACCESSORY TO E)
FIRE PROTECTION:	FULLY SPRINKLED
CONSTRUCTION SCOPE:	THE SCOPE OF THE PROJECT CONSISTS OF DOOR HARDWARE UPGRADES, FLOOR TILE & GROUT CLEANING, AS WELL AS MECHANICAL AND ELECTRICAL UPGRADES. THERE ARE NO NEW DOORS OR OTHER ADDITIONS THAT WOULD CHANGE THE EXISTING MEANS OF EGRESS.
BUILDING AREA SUMMARY:	
ORIGINAL BUILDING:	94,250 SF
1981 ADDITION:	11,535 SF
1993 ADDITION:	7,330 SF
2004 ADDITION:	1,620 SF
CURRENT TOTAL SF:	114,735 SF

LEGEND

	DRAWING NUMBER
	EXTERIOR ELEVATION MARK
	SECTION MARK
	DETAIL MARK
	DETAIL CALLOUT OR ENLARGED PLAN
	INTERIOR ELEVATION MARK
	ROOM TAG
	DOOR MARK
	WINDOW MARK
	WALL TYPE MARK
	ACCESSORIES MARK
	WINDOW COVERING TAG
	SHEET KEYNOTE
	STRUCTURAL GRID

ABBREVIATIONS

A	A/C AIR CONDITION ADA AMERICANS WITH DISABILITIES ACT AFF ABOVE FINISHED FLOOR ALT ALTERNATE AL ALUMINUM	M	MAS MASONRY MAT MATERIAL MAX MAXIMUM MB MARKER BOARD MECH MECHANICAL MIN MINIMUM MISC MISCELLANEOUS MTL METAL
B	BLDG BUILDING B.O. BOTTOM OF BUR BUILT UP ROOFING	N	(N) NEW N NORTH NIC NOT IN CONTRACT NOM NOMINAL NTS NOT TO SCALE
C	CB COVE BASE CG CORNER GUARD CJ CONTROL JOINT CL CENTER LINE CLR CLEAR CMJ CONCRETE MASONRY JOINT COL COLUMN CONC CONCRETE CONT CONTINUE, CONTINUOUS CPT CARPET CTILE CARPET TILE CSWK CASEWORK CS CLEAR SEALER CT CERAMIC TILE	O	OC ON CENTER OF CI OWNER FURNISHED CONTRACTOR INSTALLED OH OPPOSITE HAND OP OPERABLE PARTITION OPP OPPOSITE ORD OVERFLOW ROOF DRAIN
D	DBL DOUBLE DTL DETAIL DF DRINKING FOUNTAIN DIA DIAMETER DIM DIMENSION DN DOWN DW DISHWASHER	P	PLAM PLASTIC LAMINATE PVC POLYVINYL CHLORIDE
E	(E) EXISTING E EAST EA EACH EJ EXPANSION JOINT EL ELEVATION ELEC ELECTRIC, ELECTRICAL ELEV ELEVATOR EQ EQUAL EHD EXHAUST FAN EPT EPOXY PAINT EXT EXTERIOR	Q	QTY QUANTITY
F	F/F FACE TO FACE FA FIRE ALARM FAP FLUID APPLIED FLOORING FAP FIRE ALARM ANNUNCIATOR PANEL FCO FLOOR CLEAN OUT FD FLOOR DRAIN FEC FIRE EXTINGUISHER CABINET FIN FINISH FIXT FIXTURE FLR FLOOR FM FLOOR MAT FRP FIBERGLASS REINFORCED PLASTIC FT FEET, FOOT	R	R RADIUS, RISER R- THERMAL RESISTANCE RA RETURN AIR RB RUBBER BASE RCP REFLECTED CEILING PLAN RD ROOF DRAIN RDL ROOF DRAIN LEADER RE REFER TO REV REVISION RO ROUGH OPENING RT RUBBER TILE/TREAD RTU ROOF TOP UNIT
G	GA GAGE GALV GALVANIZED GB GRAB BAR GYP BD GYPSUM BOARD	S	S SOUTH SA SUPPLY AIR SAT SUSPENDED ACOUSTICAL TILE SCONC SEALED CONCRETE SF SQUARE FOOT, FEET SIM SIMILAR SJ SLIP JOINT SPEC SPECIFICATION SS STAINLESS STEEL, SANITARY SEWER STL STEEL STRUCT STRUCTURAL SUSP SUSPEND
H	HM HOLLOW METAL HORIZ HORIZONTAL HT HEIGHT HVAC HEATING, VENTILATING AND AIR CONDITIONING INSUL INSULATION INT INTERIOR	T	T & G TONGUE AND GROOVE TH THICKNESS T.O. TOP OF TYP TYPICAL
I	INSUL INSULATION INT INTERIOR	U	UNO UNLESS NOTED OTHERWISE
L	L ANGLE, LENGTH LAV LAVATORY LINO LINOLEUM	V	VAR VARIES VB VENTED BASE VCT VINYL COMPOSITION TILE VERT VERTICAL VIF VERIFY IN FIELD VTR VENT THROUGH ROOF VWC VINYL WALL COVERING
W	WB WEST WB WOOD BASE WC WATER CLOSET WCO WALL CLEAN OUT WD WOOD WF WIDE FLANGE WWF WELDED WIRE FABRIC	X	X WEST

OWNER

POUDRE SCHOOL DISTRICT
2407 LePrie Ave.
FORT COLLINS, CO 80521
Phone: (970) 482-7420

ARCHITECT

RB+B ARCHITECTS, INC.
315 E. MOUNTAIN AVE.
SUITE 100
FORT COLLINS, CO 80524
Phone: 970-484-0117

STRUCTURAL ENGINEER

Larsen Structural Design
19 Old Town Square, Suite 238
Fort Collins, CO 80524
Phone: (970) 568-3355

MECHANICAL / ELECTRICAL ENGINEER

PCD ENGINEERING SERVICES, INC.
323 3RD AVENUE, #100
LONGMONT, CO 80501
Phone: (303)678-1108

SHEET INDEX

G000	COVER SHEET / GENERAL INFO	00-General Information
S	STRUCTURAL	03.0-Structural
S001	OVERALL PLAN	03.0-Structural
S101	ENLARGED RTU FRAMING PLANS	03.0-Structural
S102	ENLARGED RTU FRAMING PLANS	03.0-Structural
S103	ENLARGED RTU FRAMING PLANS	03.0-Structural
S201	GENERAL NOTES AND SECTIONS	03.0-Structural
A	ARCHITECTURAL	04.1-Architectural Site
A001	ARCHITECTURAL GENERAL NOTES	04.3-Architectural
A100	OVERALL FLOOR PLAN (EXISTING)	04.3-Architectural
A101	REFERENCE FLOOR PLAN	04.3-Architectural
A102	ENLARGED PLANS	04.3-Architectural
A141	LEVEL ONE REFLECTED CEILING PLAN	04.3-Architectural
A161	ROOF PLAN	04.3-Architectural
A401	ENLARGED RESTROOM PLANS & ELEVATIONS	04.3-Architectural
A601	DOOR SCHEDULES	04.3-Architectural
M	MECHANICAL	07.0-Mechanical
M001	MECHANICAL COVER SHEET	07.0-Mechanical
M002	MECHANICAL DETAILS AND SCHEDULES	07.0-Mechanical
M003	MECHANICAL DETAILS AND SCHEDULES	07.0-Mechanical
M004	MECHANICAL DETAILS AND SCHEDULES	07.0-Mechanical
M101	MECHANICAL DEMOLITION PLAN	07.0-Mechanical
M102	MECHANICAL DEMOLITION PLAN	07.0-Mechanical
M103	MECHANICAL DEMOLITION PLAN	07.0-Mechanical
M104	MECHANICAL DEMOLITION PLAN	07.0-Mechanical
M105	MECHANICAL ROOF DEMOLITION	07.0-Mechanical
M201	MECHANICAL PLAN - AREA 1	07.0-Mechanical
M202	MECHANICAL PLAN - AREA 2	07.0-Mechanical
M203	MECHANICAL PLAN - AREA 3	07.0-Mechanical
M204	MECHANICAL PLAN - AREA 4	07.0-Mechanical
M205	MECHANICAL ROOF PLAN	07.0-Mechanical
M301	BOILER ROOM MECHANICAL PLANS	07.0-Mechanical
M401	MECHANICAL CONTROLS	07.0-Mechanical
M402	MECHANICAL CONTROLS	07.0-Mechanical
E	ELECTRICAL	08.0-Electrical
E001	ELECTRICAL COVER SHEET	08.0-Electrical
E002	ELECTRICAL SCHEDULES	08.0-Electrical
E003	ELECTRICAL SCHEDULES	08.0-Electrical
E101	ELECTRICAL DEMOLITION PLAN	08.0-Electrical
E201	ELECTRICAL PLAN	08.0-Electrical
E301	ELECTRICAL DETAIL PLANS	08.0-Electrical

CONSTRUCTION DOCUMENTS



Architects, Inc.
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Suite 100
Fort Collins, CO 80524-2913
T - 970 484 0117
F - 970 484 0264
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www.rbbarchitects.com



COMcheck Software Version 3.8.2 Interior Lighting Compliance Certificate

2009 IECC

Section 1: Project Information

Project Type: Alteration
 Project Title: Boltz Middle School Remodel
 Construction Site: 720 Boltz Ave, Fort Collins, CO 80525
 Owner/Agent: Greg McCallin, Poudre School District, 2415 LaPorte Ave, Fort Collins, CO 80521, 970-440-3610, gregm@psdschools.org
 Designer/Contractor: Peter D'Antonio, PCD Engineering Services, 323 Third St, #100, Longmont, CO 80501, 303-678-1108

Section 2: Interior Lighting and Power Calculation

A Area Category	B Floor Area (ft ²)	C Allowed Watts / ft ²	D Allowed Watts (B x C)
Gymnasium	8379	1.1	9217
Total Allowed Watts =			9217

Section 3: Interior Lighting Fixture Schedule

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps / Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
Gymnasium (8379 sq.ft.)				
Linear Fluorescent 1: A: 48" T8 28W (Super T8) / Electronic	6	41	168	6868
Total Proposed Watts =			6868	

Section 4: Requirements Checklist

- Lighting Wattage:**
- Total proposed watts must be less than or equal to total allowed watts.
- | Allowed Watts | Proposed Watts | Complies |
|---------------|----------------|----------|
| 9217 | 6868 | Passes |
- Controls, Switching, and Wiring:**
- Daylight zones under skylights more than 15 feet from the perimeter have lighting controls separate from daylight zones adjacent to vertical fenestration.
 - Daylight zones have individual lighting controls independent from that of the general area lighting.
 - Contiguous daylight zones spanning no more than two orientations are allowed to be controlled by a single controlling device.
 - Daylight spaces enclosed by walls or ceiling height partitions and containing two or fewer light fixtures are not required to have a separate switch for general area lighting.
 - Independent controls for each space (switch/occupancy sensor).
 - Areas designated as security or emergency areas that must be continuously illuminated.
 - Lighting in stairways or corridors that are elements of the means of egress.
 - Master switch at entry to hotel/motel guest room.
 - Individual dwelling units separately metered.
 - Medical task lighting or ambulatory display lighting claimed to be exempt from compliance has a control device independent of the control of the nonambulatory lighting.
 - Each space required to have a manual control also allows for reducing the connected lighting load by at least 50 percent by either controlling all luminaires, dual switching of alternate rows of luminaires, alternate luminaires, or alternate lamps, switching the middle lamp luminaires independently of other lamps, or switching each luminaire or each lamp.
 - Only one luminaire in space.
 - An occupant-opening device controls the area.
 - The area is a corridor, storeroom, restroom, public lobby or sleeping unit.
 - Areas that use less than 0.6 Watts/sq ft.
 - Automatic lighting shutoff control in buildings larger than 5,000 sq.ft.
 - Sleeping units, patient care areas, and spaces where automatic shutoff would endanger safety or security.
 - Photocontrol/astronomical time switch on exterior lights.
 - Lighting intended for 24 hour use.
 - Tandem wired one-lamp and three-lamp ballasted luminaires (No single-lamp ballasts).
 - Electronic high-frequency ballasts; Luminaires on emergency circuits or with no available pair.

Interior Lighting PASSES

Section 5: Compliance Statement

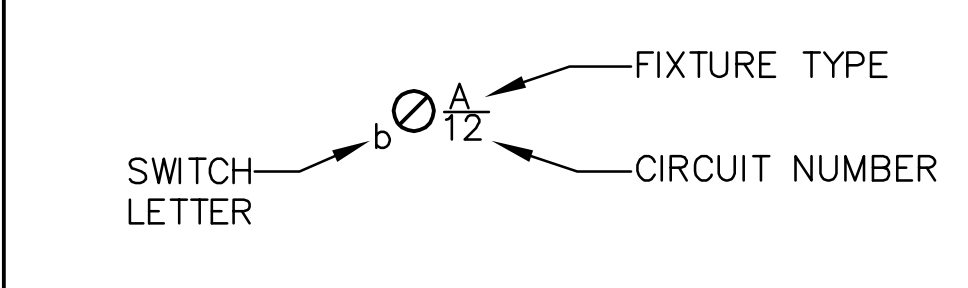
Compliance Statement: The proposed lighting alteration project represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed lighting alteration project has been designed to meet the 2009 IECC, Chapter 6, requirements in COMcheck Version 3.8.2 and to comply with the mandatory requirements in the Requirements Checklist.

Name - Title _____ Signature _____ Date _____

Project Title: Boltz Middle School Remodel
 Data filename: Z:_Projects\2011\11032 P11052 Boltz Middle School, Fort Collins\Calculations & Design Data\COMcheck\second
 Report date: 02/28/12
 Page 2 of 2

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	MAIN DISTRIBUTION BOARD		TELEPHONE/DATA OUTLET
	PANELBOARD		TELEPHONE, P=PUBLIC W=WALL
	ELECTRIC SERVICE METER		TOGGLE SWITCH
	CURRENT TRANSFORMER		a-switching p-pilot light 2-2 pole k-keyed 3-3 way to-therm. o'load 4-4 way t-timer
	TRANSFORMER		VARIABLE SPEED CONTROL
	CONCEALED CIRCUIT		DIMMER
	UNDERGROUND/FLOOR CIRCUIT		THERMOSTAT
	EXPOSED CIRCUIT		TIME CLOCK
	WIREMOLD (SURFACE RACEWAY)		PHOTOCELL
	PLUGMOLD		OCCUPANCY SENSOR
	HOMERUN TO PANELBOARD (ONE ARROW PER CIRCUIT, PANEL AND CIRCUIT #S SHOWN)		BELL
	CONDUIT TURNS UP		PUSHBUTTON STATION
	CONDUIT TURNS DOWN		SAFETY (DISCONNECT) SWITCH
	JUNCTION BOX		FUSTAT
	PORCELAIN LAMPHOLDER (PC: PULLCHAIN)		MOTOR STARTER/LTG CONTACTOR
	SURFACE MOUNTED LUMINAIRE		RELAY
	RECESSED LUMINAIRE		FUSED DISCONNECT SWITCH
	WALL MOUNTED LUMINAIRE		CIRCUIT BREAKER
	EXIT LIGHT: DIRECTIONAL ARROW		GROUND CONNECTION
	EMERGENCY BATTERY PACK		DETAIL NOTE
	FLUORESCENT STRIPLIGHT		MECHANICAL EQUIPMENT
	SURFACE FLUORESCENT LUMINAIRE		ABOVE COUNTER
	RECESSED FLUORESCENT LUMINAIRE		WEATHERPROOF
	POLE MOUNTED LUMINAIRE		DEDICATED
	SINGLE OUTLET: C=CLOCK (+7"0")		FIRE ALARM CONTROL PANEL
	DUPLEX RECEPTACLE		REMOTE ANNUNCIATOR
	ISOLATED GROUND		SMOKE DETECTOR, PHOTOELECTRIC
	GEO PROTECTED RECEPTACLE WPR=WEATHERPROOF ON ROOF		THERMAL DETECTOR, 135 RR
	SPLIT WIRE DUPLEX		THERMAL DETECTOR, 200 FT
	QUADPLEX (DOUBLE DUPLEX)		SMOKE DETECTOR, RESIDENTIAL 120V/9VDC
	COMB. SWITCH/RECEPTACLE		MANUAL PULL STATION
	FLOOR MOUNTED RECEPTACLE		DUCT DETECTOR
	SPECIAL PURPOSE RECEPTACLE 1 PHASE		MINI-HORN
	SPECIAL PURPOSE RECEPTACLE 3 PHASE		HORN/STROBE, ADA
	RANGE RECEPTACLE		STROBE, ADA
	TELEVISION OUTLET		REMOTE INDICATOR LIGHT
	MOTOR		MAGNETIC DOOR HOLDER
	TELEPHONE TERMINAL		SPRINKLER FLOW SWITCH
	DATA OUTLET		SPRINKLER TAMPER SWITCH
	CLOCK OUTLET		
	CLOCK OUTLET		



BUILDING CODE DATA

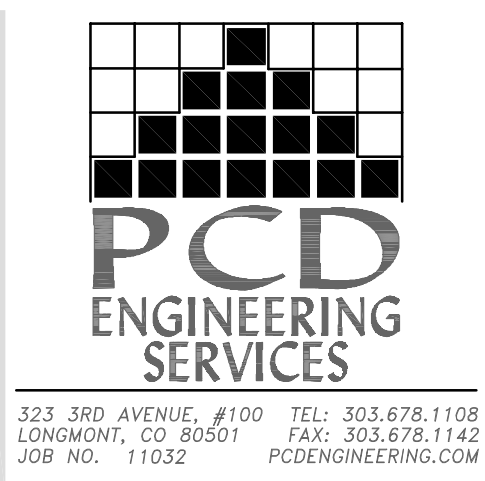
AUTHORITY HAVING JURISDICTION (AHJ): STATE OF COLORADO		
DISCIPLINE	CODE	EDITION
GENERAL	INTERNATIONAL BUILDING CODE	2009
HVAC / MECHANICAL	INTERNATIONAL MECHANICAL CODE	2009
PLUMBING	INTERNATIONAL PLUMBING CODE	2009
ELECTRICAL	NATIONAL ELECTRIC CODE	2011
FIRE PROTECTION	INTERNATIONAL FIRE CODE	-
	NFPA STANDARDS	CURRENT
FUEL	INTERNATIONAL FUEL GAS CODE	2009
ENERGY	INTERNATIONAL ENERGY CONSERVATION CODE	2009
ACCESSIBILITY	INTERNATIONAL BUILDING CODE / ANSI	2009

NOTES:
 A. ALL WORK PERFORMED SHALL COMPLY WITH THE REQUIREMENTS OF THE LISTED CODES AND REFERENCED STANDARDS AS ENFORCED BY THE AHJ.
 B. ALL WORK SUBJECT TO INSPECTION BY THE AHJ AT THE PROJECT SITE FOR COMPLIANCE.

COMMISSIONING

THIS PROJECT WILL UNDERGO A COMMISSIONING PROCESS AS DEFINED BY THE OWNER. CONTRACTOR SHALL PARTICIPATE IN ALL TESTING, DOCUMENTATION, AND COMMISSIONING AS REQUIRED BY THE OWNER'S COMMISSIONING OF WORK.

NOTICE: DUTY OF COOPERATION Release of these plans contemplates further coordination among the owner, his contractor(s), the architect and engineers. Design and construction are complex. Although the architect and his consultants have performed their services with due care and diligence, they cannot guarantee perfection. Communication is important, and every contingency cannot be anticipated. Any ambiguity or discrepancy discovered by the use of these plans shall be reported immediately to the architect. Failure to notify the architect compounds misunderstanding and increases construction costs. A failure to cooperate by a notice to the architect shall relieve the architect/engineer from responsibility for all consequences. Changes made from the plans without consent of the architect are unauthorized, and shall relieve the architect/engineer of responsibility for all consequences caused by such changes.

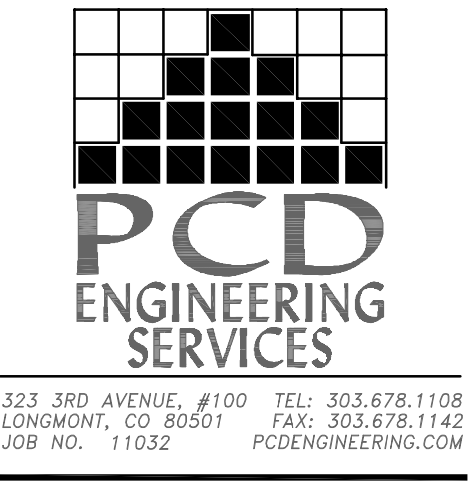


ARCHITECT
 SEAL
 CONSULTANT
 PROJECT PHASE
 PROJECT INFORMATION

Boltz Middle School Remodel

PROJECT #: 11-26
 DRAWN BY: LS
 CHECKED BY: PD
 ISSUE DATE: 28 February 2012
 REVISIONS
 NO DESCRIPTION DATE

ELECTRICAL COVER SHEET
E001



PROJECT PHASE
Construction Documents

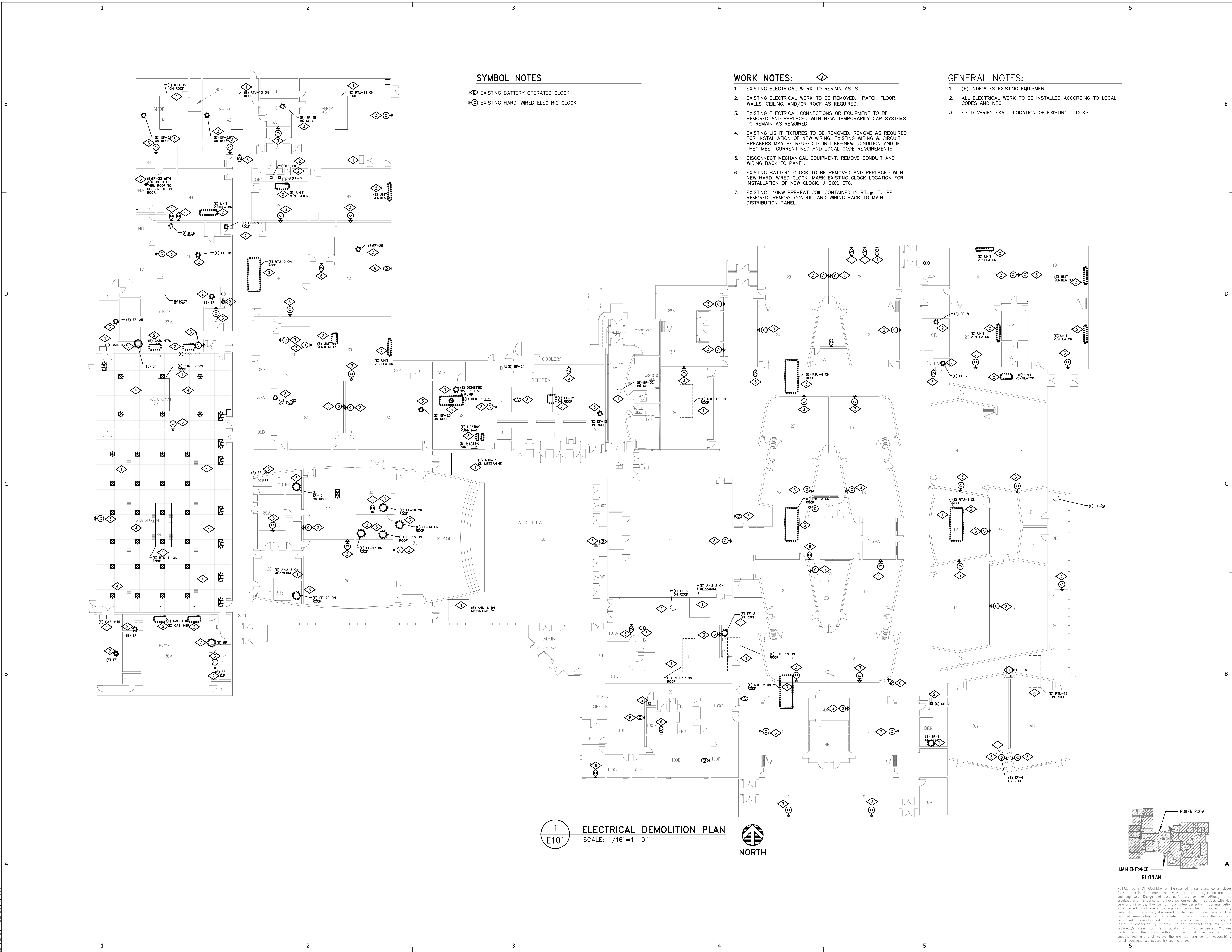
PROJECT INFORMATION
Boltz Middle School Remodel
Poudre School District R-1
720 Boltz Drive
Fort Collins, Colorado 80525

PROJECT #: 11-26
DRAWN BY: LS
CHECKED BY: PD
ISSUE DATE: 28 February 2012

REVISIONS

NO	DESCRIPTION	DATE

SHEET INFORMATION
ELECTRICAL DEMOLITION PLAN
E101



SYMBOL NOTES

- ⊕ EXISTING BATTERY OPERATED CLOCK
- ⊖ EXISTING HARD-WIRED ELECTRIC CLOCK

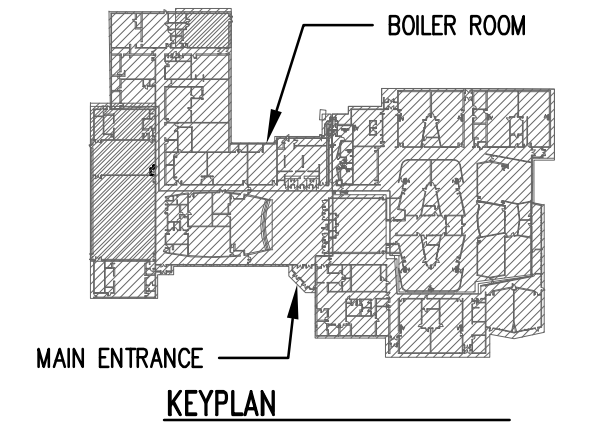
WORK NOTES:

1. EXISTING ELECTRICAL WORK TO REMAIN AS IS.
2. EXISTING ELECTRICAL WORK TO BE REMOVED. PATCH FLOOR, WALLS, CEILING, AND/OR ROOF AS REQUIRED.
3. EXISTING ELECTRICAL CONNECTIONS OR EQUIPMENT TO BE REMOVED AND REPLACED WITH NEW. TEMPORARILY CAP SYSTEMS TO REMAIN AS REQUIRED.
4. EXISTING LIGHT FIXTURES TO BE REMOVED. REMOVE AS REQUIRED FOR INSTALLATION OF NEW WIRING. EXISTING WIRING & CIRCUIT BREAKERS MAY BE REUSED IF IN LIKE-NEW CONDITION AND IF THEY MEET CURRENT NEC AND LOCAL CODE REQUIREMENTS.
5. DISCONNECT MECHANICAL EQUIPMENT. REMOVE CONDUIT AND WIRING BACK TO PANEL.
6. EXISTING BATTERY CLOCK TO BE REMOVED AND REPLACED WITH NEW HARD-WIRED CLOCK. MARK EXISTING CLOCK LOCATION FOR INSTALLATION OF NEW CLOCK, J-BOX, ETC.
7. EXISTING 140KW PREHEAT COIL CONTAINED IN RTU#1 TO BE REMOVED. REMOVE CONDUIT AND WIRING BACK TO MAIN DISTRIBUTION PANEL.

GENERAL NOTES:

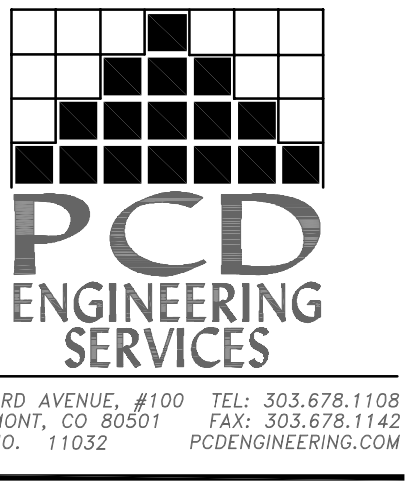
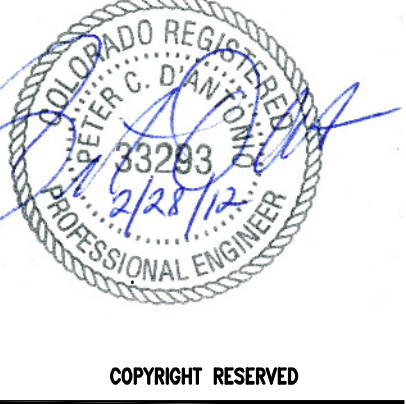
1. (E) INDICATES EXISTING EQUIPMENT.
2. ALL ELECTRICAL WORK TO BE INSTALLED ACCORDING TO LOCAL CODES AND NEC.
3. FIELD VERIFY EXACT LOCATION OF EXISTING CLOCKS

1
E101 ELECTRICAL DEMOLITION PLAN
SCALE: 1/16"=1'-0"



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2012-02-28 12:29:49 PM - PLOT DATE



WORK NOTES:

- NEW LIGHT FIXTURES IN GYMS. SEE SHEET E301 FOR DETAILED LIGHTING PLAN.
- MECHANICAL UNIT ON ROOF TO BE REPLACED, NEW UNIT TO USE THE SAME CIRCUIT AS EXISTING UNIT. CONTRACTOR TO VERIFY EXISTING HOME RUN CONDUCTORS MEET CURRENT CODE. CONNECT NEW UNITS TO EXISTING CONDUCTORS. REUSE EXISTING CIRCUIT BREAKER. EXTEND HOME RUN WIRING TO NEW UNIT. COMPLY WITH NEC AND LOCAL CODES.
- NEW CLOCK TO REPLACE EXISTING HARDWIRED CLOCK. REUSE JUNCTION BOX AND WIRING AS POSSIBLE. ALL CLOCK WIRING TO BE IN CONDUIT OR WIREMOLD. CONNECT TO NEW MASTER CLOCK PER MFG. SYSTEM REQUIREMENTS.
- NEW CLOCK TO REPLACE EXISTING BATTERY CLOCK. PROVIDE COMPLETE INSTALLATION INCLUDING JUNCTION BOX, WIRING AND CONDUIT. ALL CLOCK WIRING TO BE IN CONDUIT OR WIREMOLD. CONNECT TO NEW MASTER CLOCK SYSTEM PER MFG. SYSTEM REQUIREMENTS. ALL NEW CLOCKS ON BRICK WALLS TO BE CONNECTED BY WIREMOLD. ROUTE UP TO ABOVE GRID CEILING. CONTINUE IN CONDUIT.
- EXISTING BATTERY CLOCK TO REMAIN
- BID ALTERNATE 2 - INSTALL NEW VAV DRIVE MOTORS IN THIS EXISTING HVAC UNIT. EXISTING HOME RUNS TO REMAIN.
- MASTER CLOCK TO BE REPLACED WITH ALL-SYNC MASTER CLOCK ASMAO4E-WEB. REUSE EXISTING CONDUIT FOR WIRING OF MASTER CLOCK. REUSE EXISTING HOME RUN.
- EXISTING TO REMAIN AS IS FOR BASE

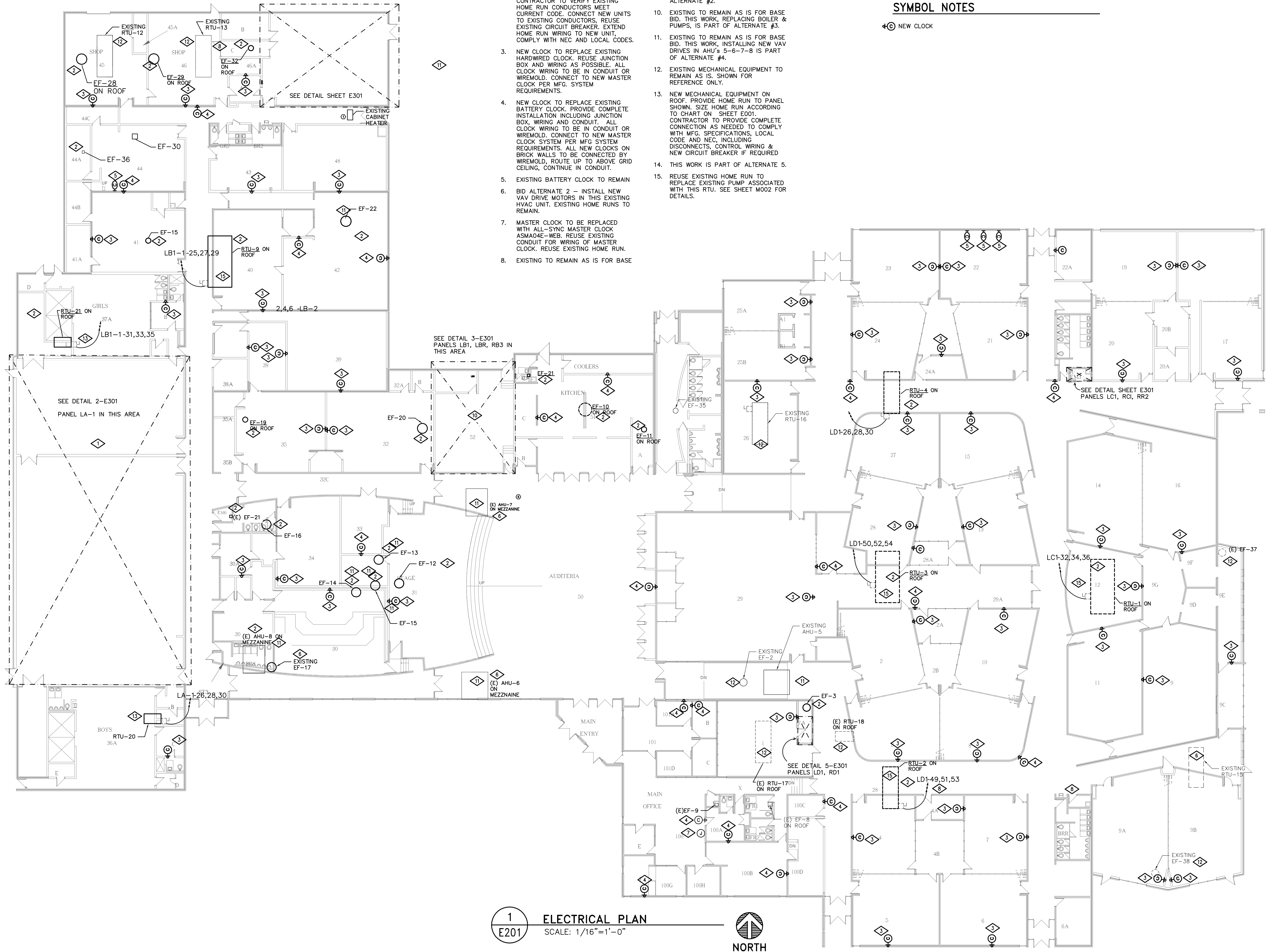
- EXISTING TO REMAIN AS IS FOR BASE BID. THIS WORK, PUTTING NEW VAV DRIVES IN RTU-15, IS PART OF ALTERNATE #2.
- EXISTING TO REMAIN AS IS FOR BASE BID. THIS WORK, REPLACING BOILER & PUMPS, IS PART OF ALTERNATE #3.
- EXISTING TO REMAIN AS IS FOR BASE BID. THIS WORK, INSTALLING NEW VAV DRIVES IN AHU's 5-6-7-8 IS PART OF ALTERNATE #4.
- EXISTING MECHANICAL EQUIPMENT TO REMAIN AS IS. SHOWN FOR REFERENCE ONLY.
- NEW MECHANICAL EQUIPMENT ON ROOF. PROVIDE HOME RUN TO PANEL SHOWN. SIZE HOME RUN ACCORDING TO CHART ON SHEET E001. CONTRACTOR TO PROVIDE COMPLETE CONNECTION AS NEEDED TO COMPLY WITH MFG. SPECIFICATIONS, LOCAL CODE AND NEC, INCLUDING DISCONNECTS, CONTROL WIRING & NEW CIRCUIT BREAKER IF REQUIRED.
- THIS WORK IS PART OF ALTERNATE 5.
- REUSE EXISTING HOME RUN TO REPLACE EXISTING PUMP ASSOCIATED WITH THIS RTU. SEE SHEET W002 FOR DETAILS.

GENERAL NOTES:

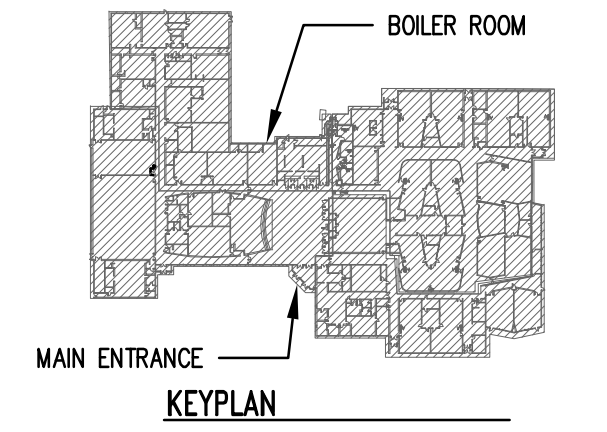
- ALL ELECTRICAL WORK TO BE INSTALLED ACCORDING TO LOCAL CODES AND NEC.
- FIELD VERIFY EXACT LOCATION OF EXISTING CLOCKS

SYMBOL NOTES

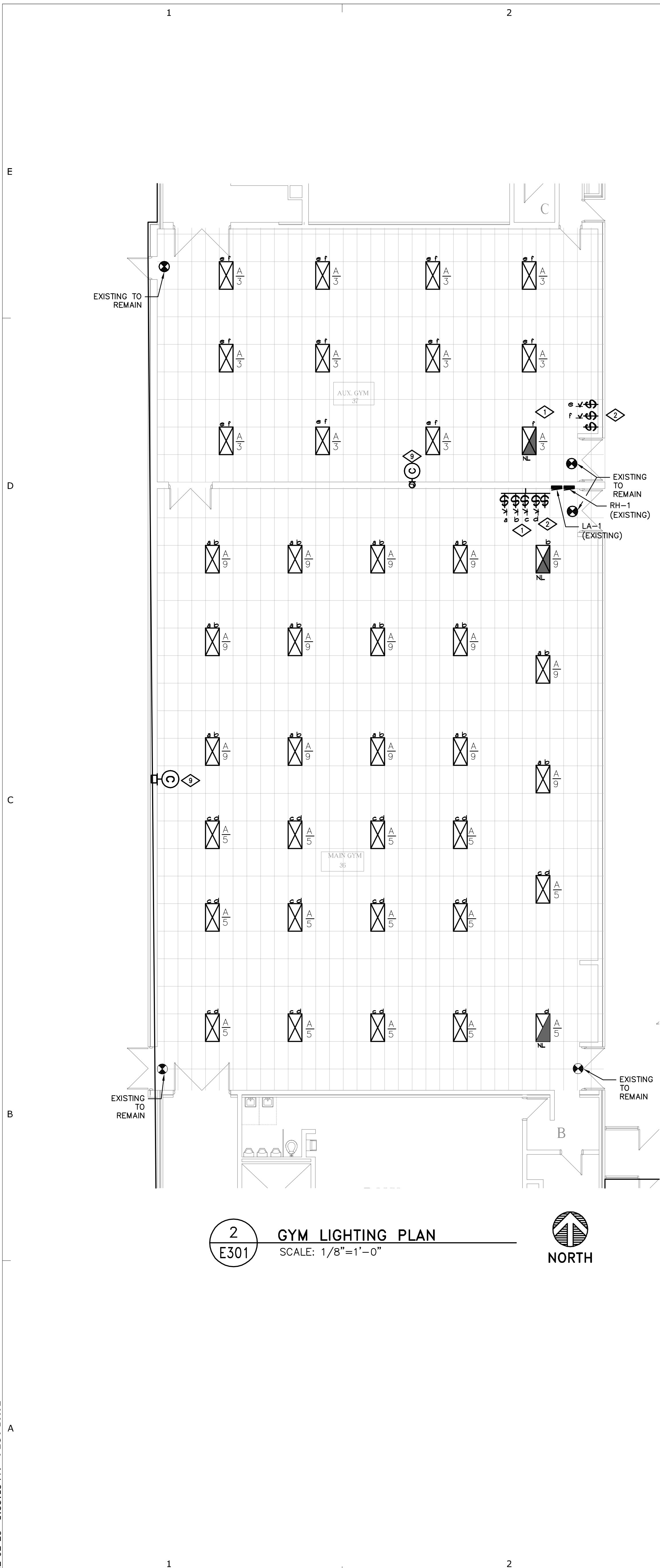
Ⓢ NEW CLOCK



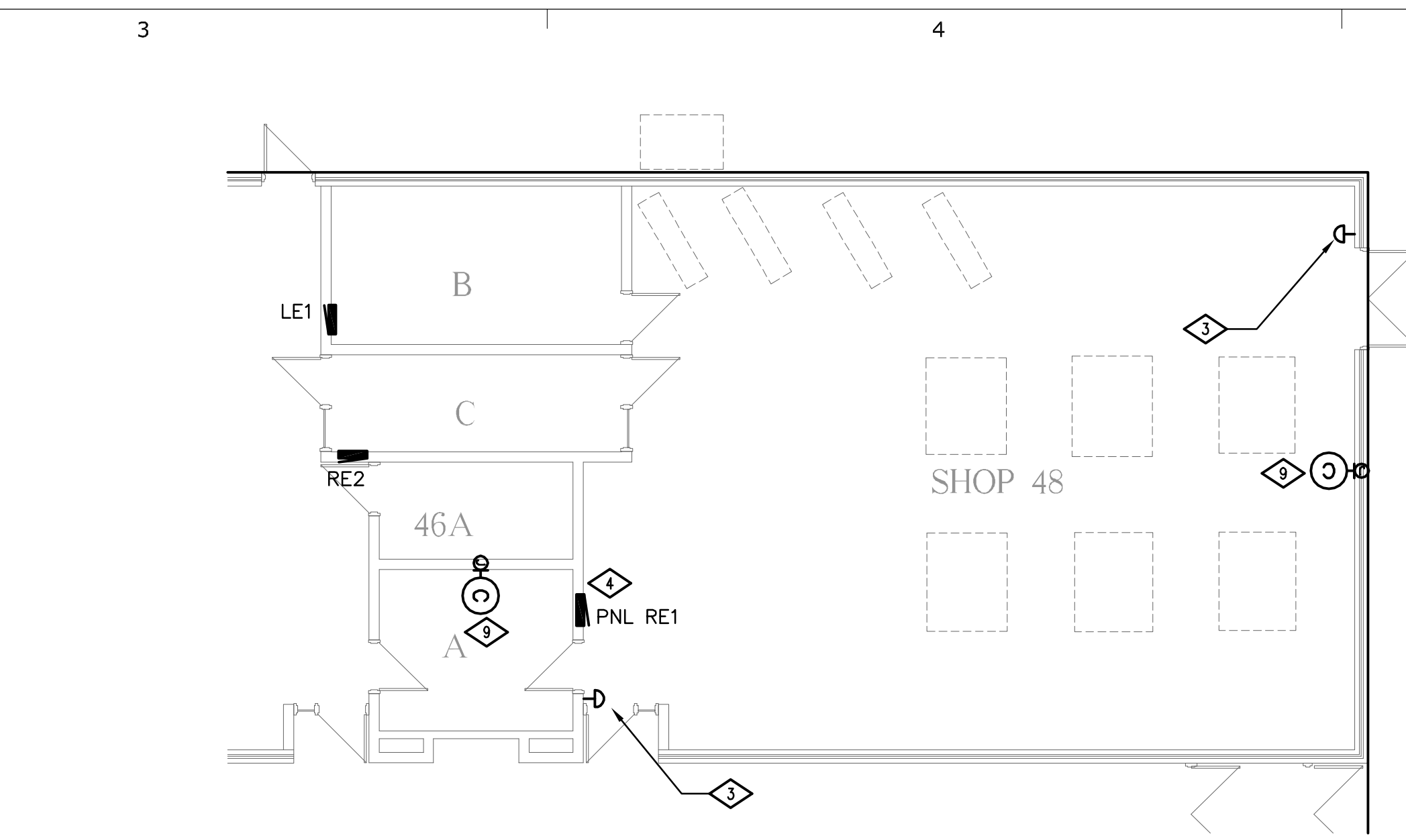
1
E201
ELECTRICAL PLAN
SCALE: 1/16"=1'-0"
NORTH



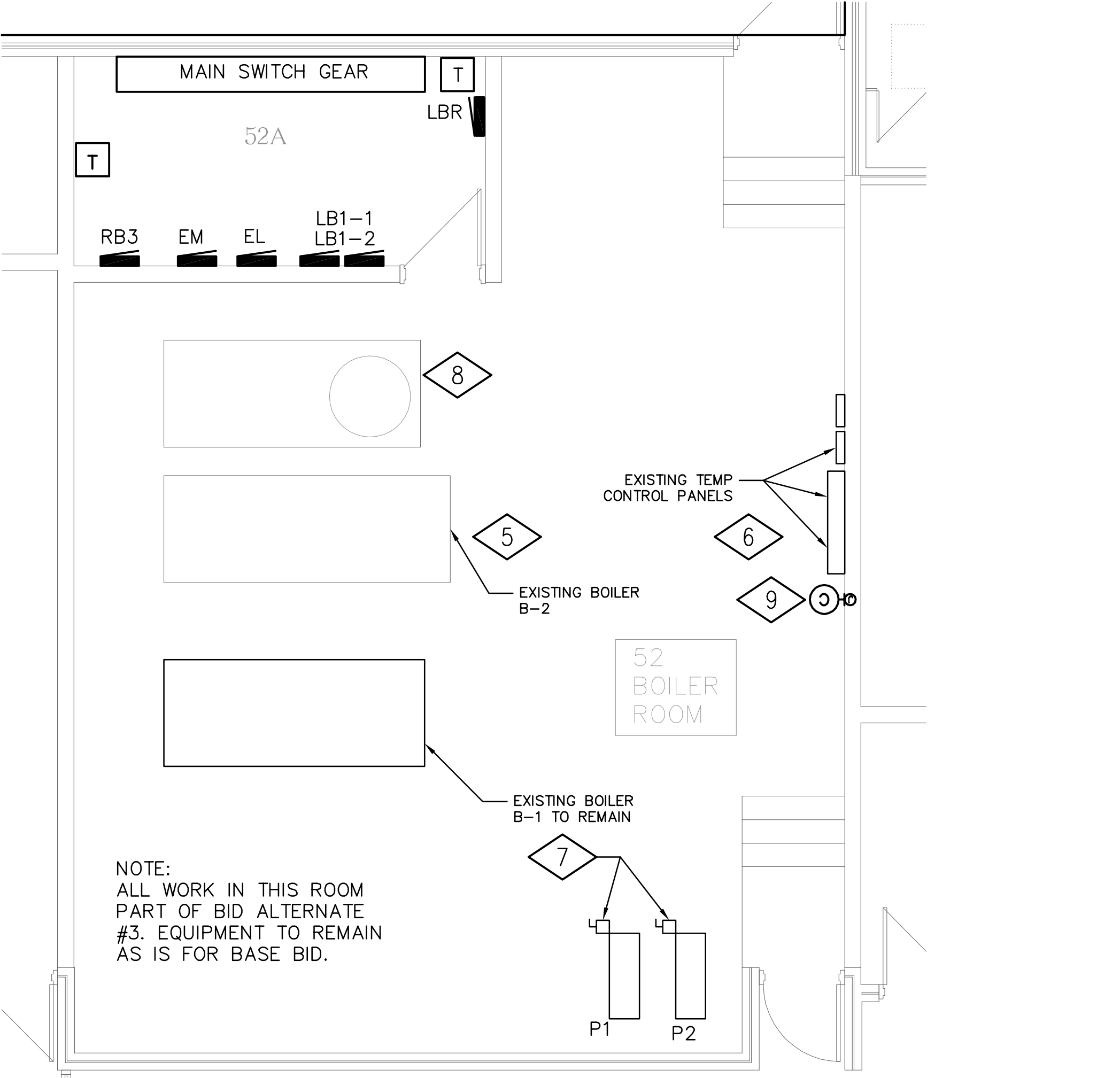
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2
E301
GYM LIGHTING PLAN
SCALE: 1/8"=1'-0"



1
E301
WOOD SHOP PLAN
SCALE: 1/8"=1'-0"



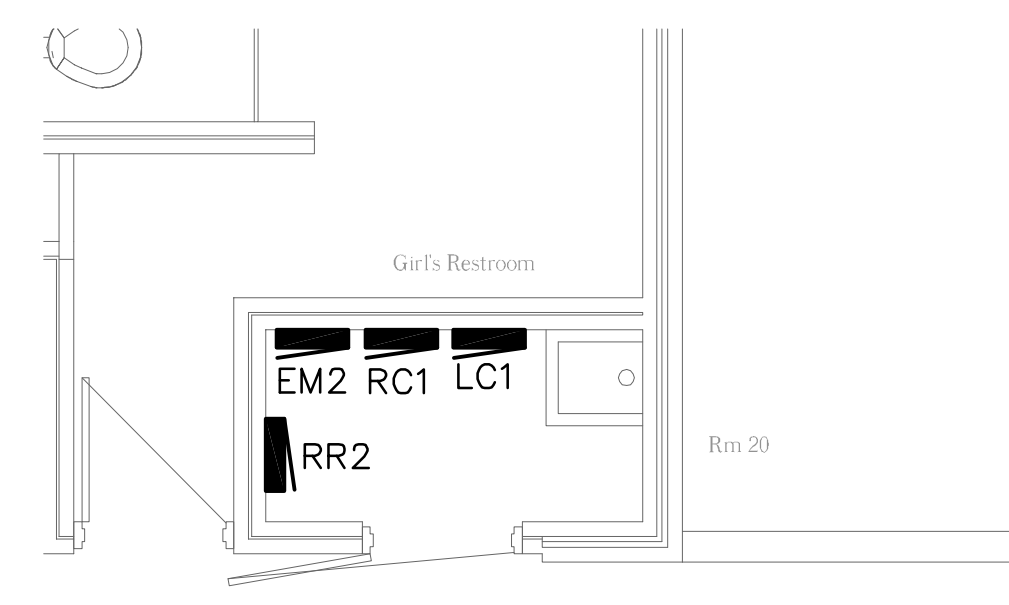
3
E301
ELECTRICAL & MECHANICAL ROOMS
SCALE: 1/8"=1'-0"

WORK NOTES:

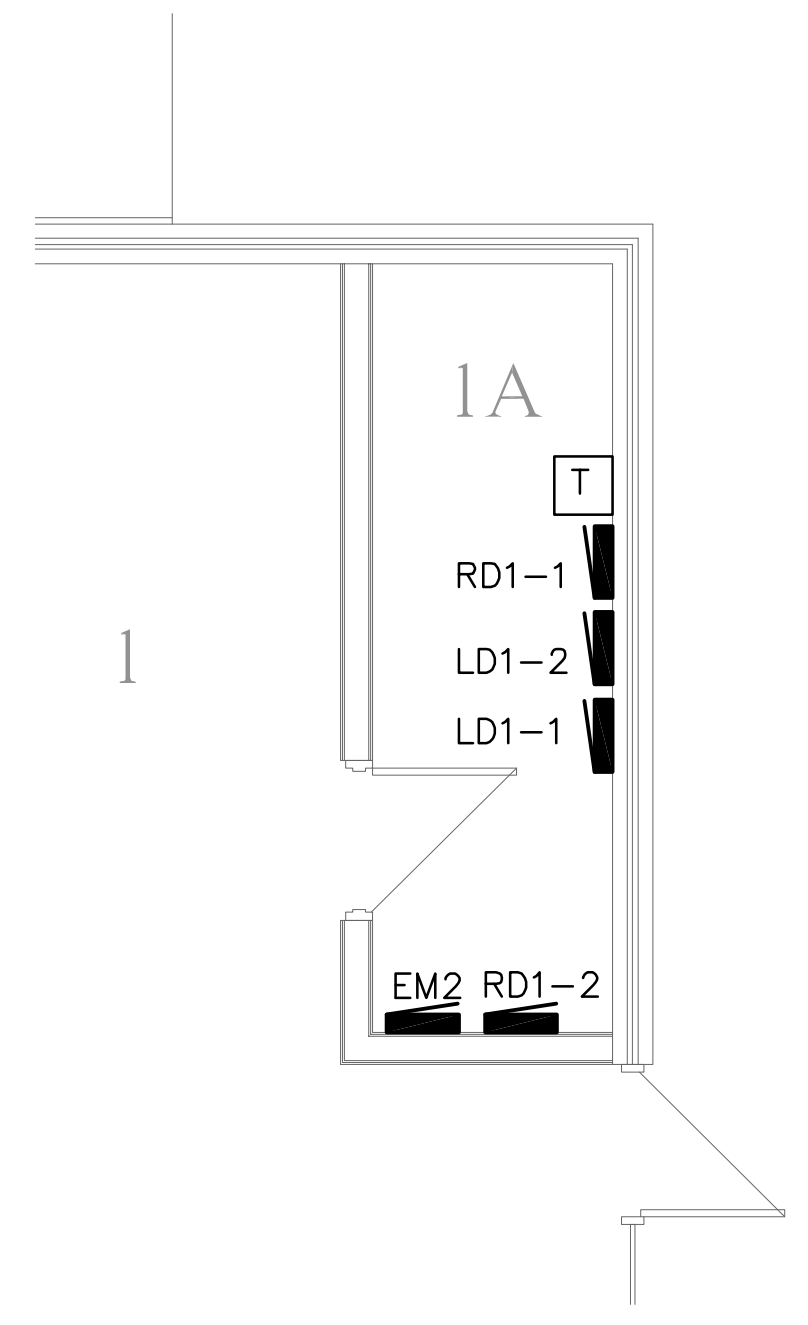
1. REUSE EXISTING KEYED SWITCHES. PROVIDE DUAL LEVEL SWITCHING BY CONNECTING SWITCHES a, c & e to 2-LAMP BALLASTS IN FIXTURES, AND SWITCHES b, d & f to 4-LAMP BALLASTS, AS SHOWN ON PLANS.
2. LIGHT FIXTURES IN BOTH GYMS HOME RUN TO PANEL LA-1, REUSE EXISTING CIRCUIT BREAKERS, CIRCUITS AS SHOWN.
3. PROVIDE SURFACE MOUNTED 100A PUSH-BUTTON EMERGENCY OFF SWITCH + 48" AFF. PUSH BUTTON TO BE WIRED TO INTERRUPT POWER TO PANEL RE-1 VIA THREE POLE RELAY. ALL WIRING OF RELAYS AND PUSH-BUTTONS TO USE SURFACE MOUNT WIREMOLD, SIZED AS NEEDED.
4. MOUNT RELAYS HIGH ON WALL NEAR PANEL RE1. TIE RELAY IN TO FEEDER FOR PANEL RE1, SO THAT EMERGENCY BUTTON CUTS OFF ALL POWER TO PANEL RE-1.
5. NEW BOILER TO BE CONNECTED TO EXISTING PIPING. PROVIDE NEW DISCONNECT AND CONTROL WIRING PER MANUFACTURER'S SPECIFICATIONS. REUSE EXISTING CIRCUIT BREAKERS. REROUTE EXISTING HOME RUN CONDUITS TO NEW BOILER, PROVIDE NEW CONDUCTORS AS NEEDED.
6. NEW CONTROL PANELS TO BE MOUNTED NEXT TO EXISTING CONTROL PANELS AS NEEDED. TRANSFORMERS FOR VAV BOXES IN THIS AREA TO BE MOUNTED IN THIS LOCATION ALSO.
7. NEW PUMPS TO REPLACE EXISTING. RECONNECT EXISTING HOME RUN TO PUMPS, PROVIDE NEW DISCONNECT IF NEEDED. REUSE EXISTING CIRCUIT BREAKER. PROVIDE NEW CONDUIT AND WIRING AS REQUIRED TO MEET LOCAL AND NEC CODES.
8. NEW WATER HEATER. PROVIDE CONTROL WIRING AS REQUIRED. SEE WATER HEATER DETAIL SHEET M002.
9. NEW CLOCK TO REPLACE EXISTING HARDWIRED CLOCK. REUSE JUNCTION BOX AND WIRING AS POSSIBLE. ALL CLOCK WIRING TO BE IN CONDUIT OR WIREMOLD. CONNECT TO NEW MASTER CLOCK PER MFG. SYSTEM REQUIREMENTS. REUSE EXISTING WIRING ZONES. CONNECT CLOCK REPLACING BATTERY CLOCK TO NEAREST HARDWIRED CLOCK CONDUCTORS. CONTRACTOR RESPONSIBLE TO PROVIDE OVERSIZED WIRING IF NEEDED FOR VOLTAGE DROP.

GENERAL NOTES:

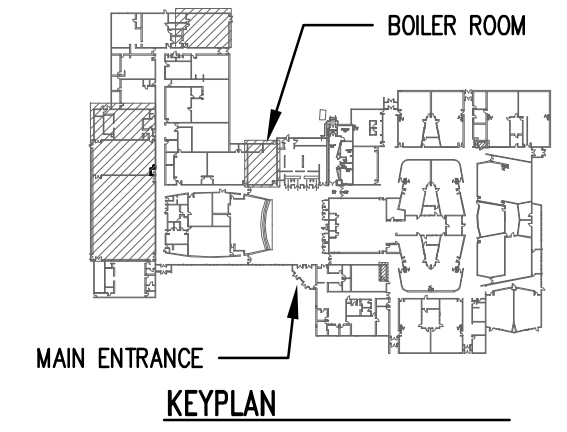
1. ALL ELECTRICAL WORK TO BE INSTALLED ACCORDING TO LOCAL CODES AND NEC.
2. ALL WOOD SHOP EQUIPMENT TO REMAIN AS IS.
3. PROVIDE UNSWITCHED CONDUCTOR TO 2-LAMP BALLAST FOR NIGHT LIGHTS, FIXTURES INDICATED WITH LETTERS "NL". CONNECT 4-LAMP BALLAST TO SWITCH.
4. ALL WORK IN THE BOILER ROOM IS PART OF ALTERNATE NUMBER 3. EXISTING TO REMAIN AS IS UNLESS NOTED OTHERWISE.



4
E301
ELECTRICAL CLOSET
SCALE: 1/4"=1'-0"



5
E301
ELECTRICAL ROOM 1A
SCALE: 1/4"=1'-0"



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FAN SCHEDULE

Table with columns: TAG, MANUFACTURER, MODEL, SERVICE, LOCATION, FAN DATA (AIR FLOW, E.S.P., OPER. ELEV., TYPE, MAX. RPM, MAX. SONES, MOUNT), MOTOR DATA (DRIVE, H.P. OR WATTS, VOLTS/PH/PHASE), OP. WT., OPTIONS, NOTES.

NOTES: A. PROVIDE TRANSITION CURB FROM OLD TO NEW. B. EXISTING FAN- LISTED FOR REFERENCE ONLY. C. PART OF ALTERNATE #1. D. PART OF ALTERNATE #4. E. PART OF ALTERNATE #5. F. EXISTING CONTROL TO REMAIN AS-IS. G. ADD WALL TIMER SWITCH. H. ADD MANUAL SWITCH.

MECHANICAL LEGEND

Table with columns: SYMBOL, ABBREV., DESCRIPTION, SYMBOL, ABBREV., DESCRIPTION. Lists various mechanical symbols like valves, pipes, and ducts.

BUILDING CODE DATA

Table with columns: DISCIPLINE, CODE, EDITION. Lists building codes for DISCIPLINE, CODE, and EDITION.

AIR DEVICE SCHEDULE

Table with columns: TAG, MANUFACTURER, MODEL, MATERIAL, FACE SIZE (INCHES), NECK SIZE (INCHES), OPPOSED BLADE DAMPER, SERVICE, NOTES.

COMMISSIONING

THIS PROJECT WILL UNDERGO A COMMISSIONING PROCESS AS DEFINED BY THE OWNER. CONTRACTOR SHALL PARTICIPATE IN ALL TESTING, DOCUMENTATION, AND COORDINATION AS REQUIRED BY THE OWNER'S COMMISSIONING OF WORK.

NOTE: DUTY OF COOPERATION Release of these plans constitutes further coordination among the owner, his contractor(s), the architect and engineers. Design and construction are complex. Although, the architect and his consultants have performed their services with due care and diligence, they cannot guarantee perfection. Communication is important, and every contingency cannot be anticipated. Any ambiguity or discrepancy discovered by the use of these plans shall be reported immediately to the architect. Failure to notify the architect compounds misunderstanding and increases construction costs. A failure to cooperate by a notice to the architect shall relieve the architect/engineer from responsibility for all consequences. Changes made from the plans without consent of the architect are unauthorized, and shall relieve the architect/engineer of responsibility for all consequences caused by such changes.

ROOFTOP UNIT AND AIR HANDLER SCHEDULE

Table with columns: TAG, MANUFACTURER, MODEL, SERVES, SUPPLY AIRFLOW (CFM), MIN OUTSIDE AIR (CFM), MAX HEATING OUTSIDE AIR (CFM), MIN EXHAUST (CFM), E.S.P. (IN.W.C.), OPER. ELEV. (FEET), MOTOR DATA (VOLTAGE, SA HP, EX FAN HP), ENERGY RECOVERY PERFORMANCE (SUMMER/WINTER), Heating (EAT, LFT, WPD, APD), COOLING (EAT DB, LAT DB, L, W, H, OP. WT.), Dimensions, OPTIONS, NOTES.

NOTES: 1 VARIABLE FREQUENCY DRIVE(S) ON FAN(S) 6 THIS WORK IS PART OF ALTERNATE NUMBER 2 11 SYSTEM DESIGNED FOR 30% PROPYLENE GLYCOL 2 MOUNT ON STRUCTURAL STEEL FRAMEWORK 7 REBALANCE EXISTING UNIT TO LISTED CFMS 12 12" HIGH ROOF CURB 3 RETURN AIR CO2 SENSOR AND OVERIDE FOR MINIMUM OA 8 THIS WORK IS PART OF ALTERNATE NUMBER 4 9 THIS WORK IS PART OF ALTERNATE NUMBER 5 4 NEW VFD DRIVE AND MOTOR 9 THIS WORK IS PART OF ALTERNATE NUMBER 5 10 EXISTING UNIT LISTED FOR REFERENCE ONLY

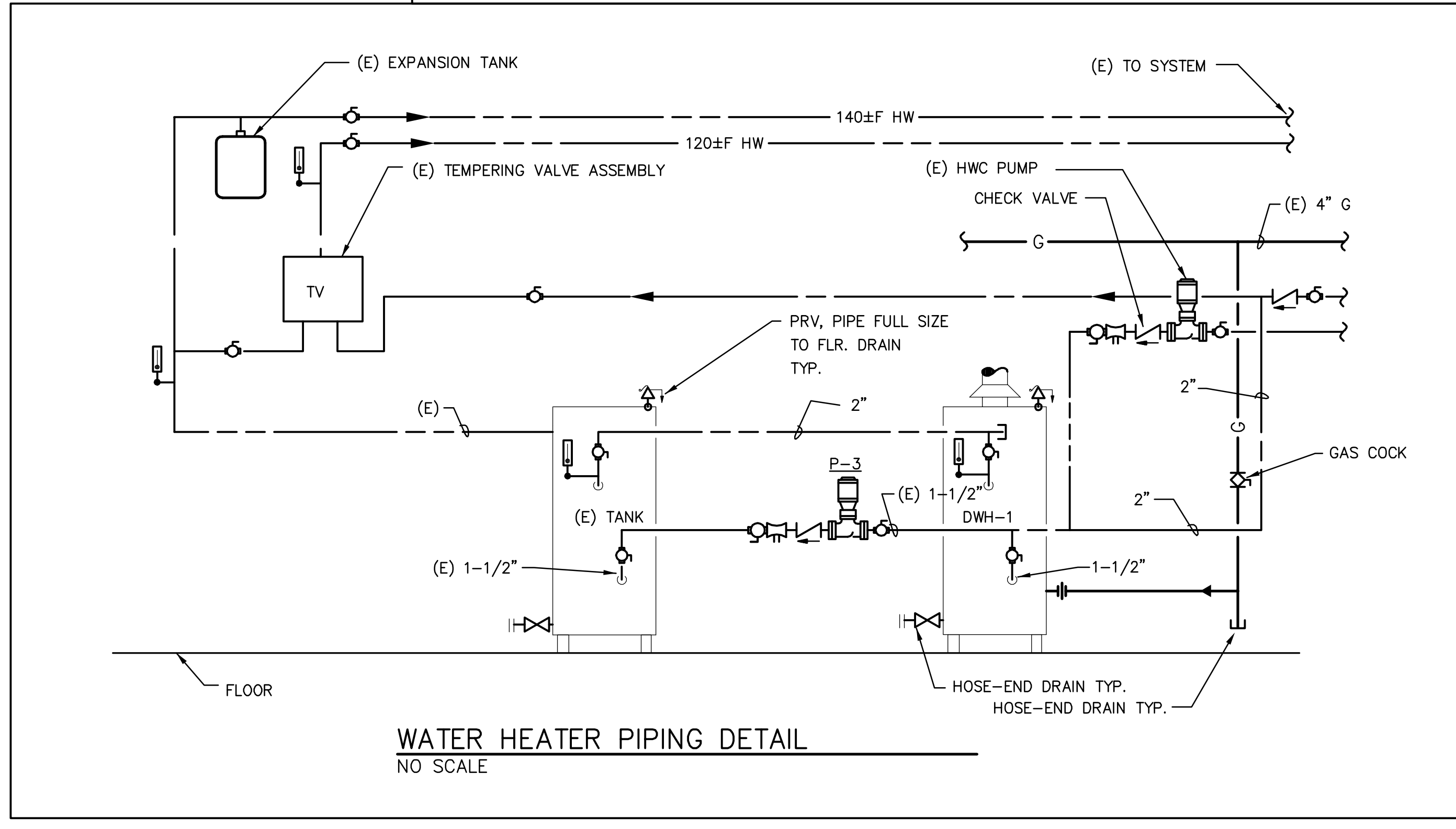
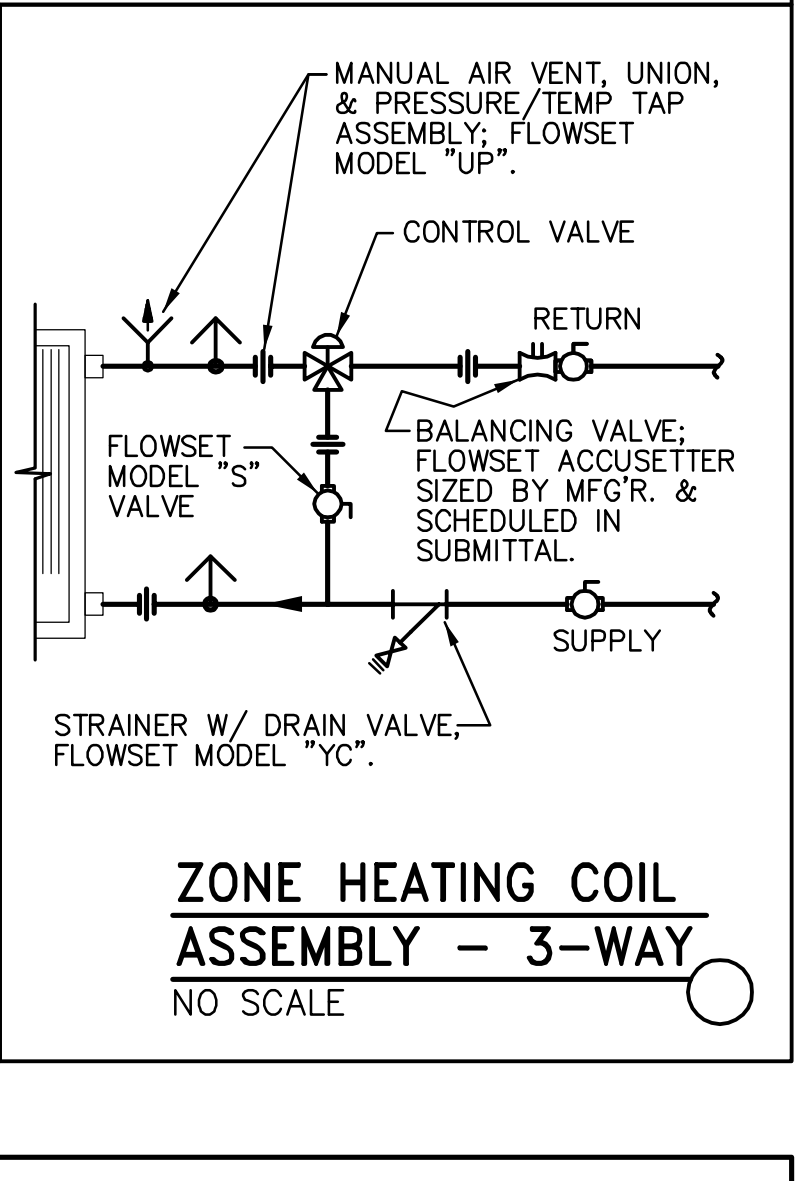
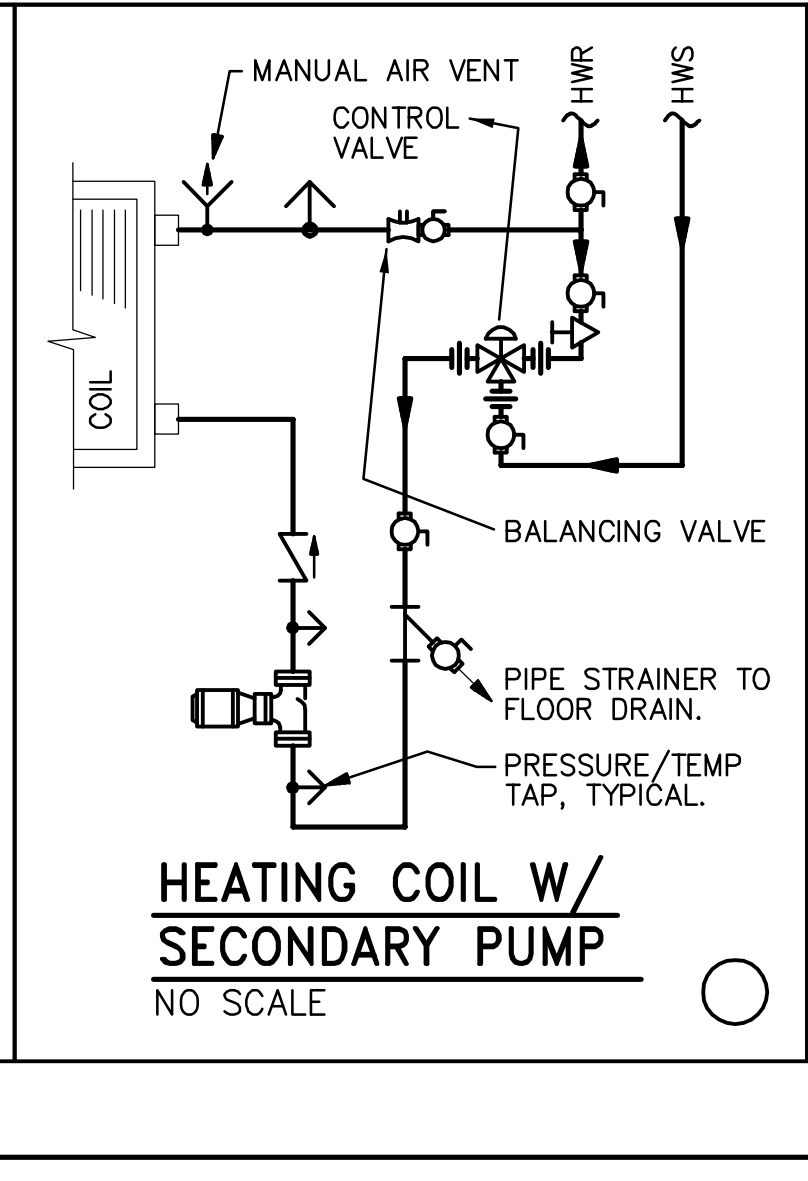
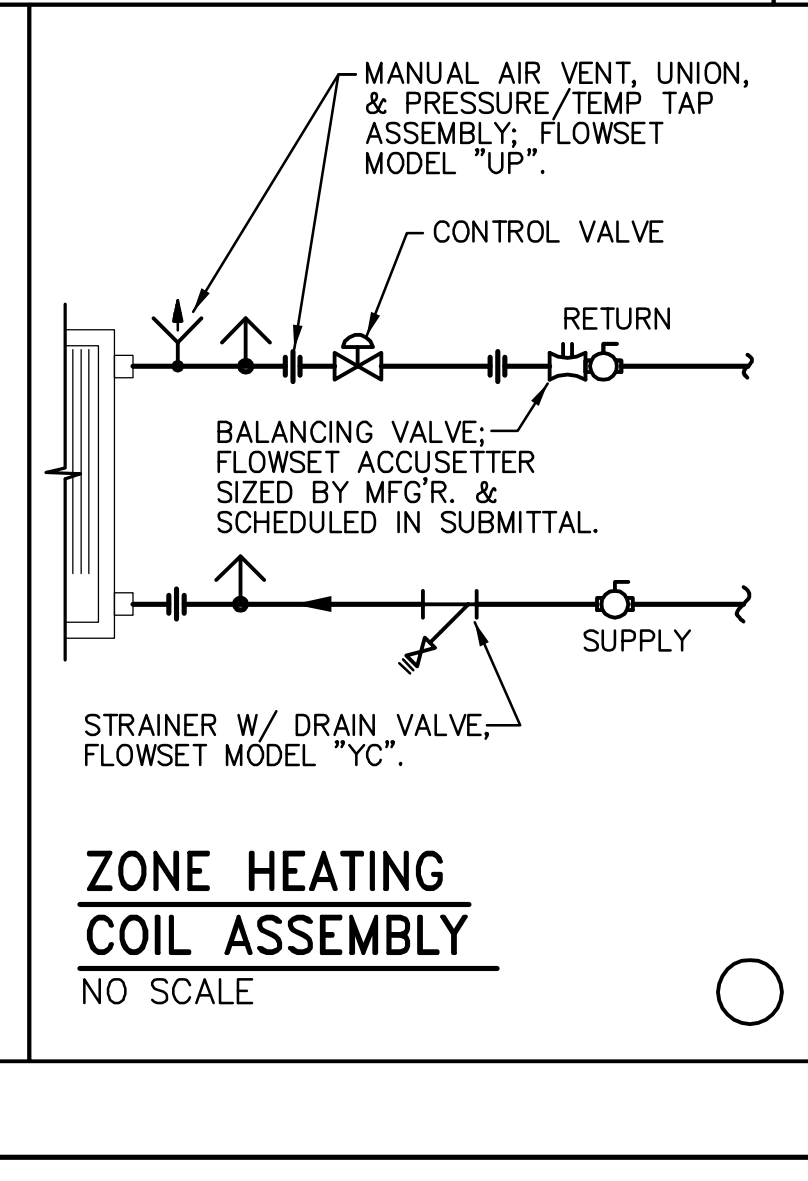
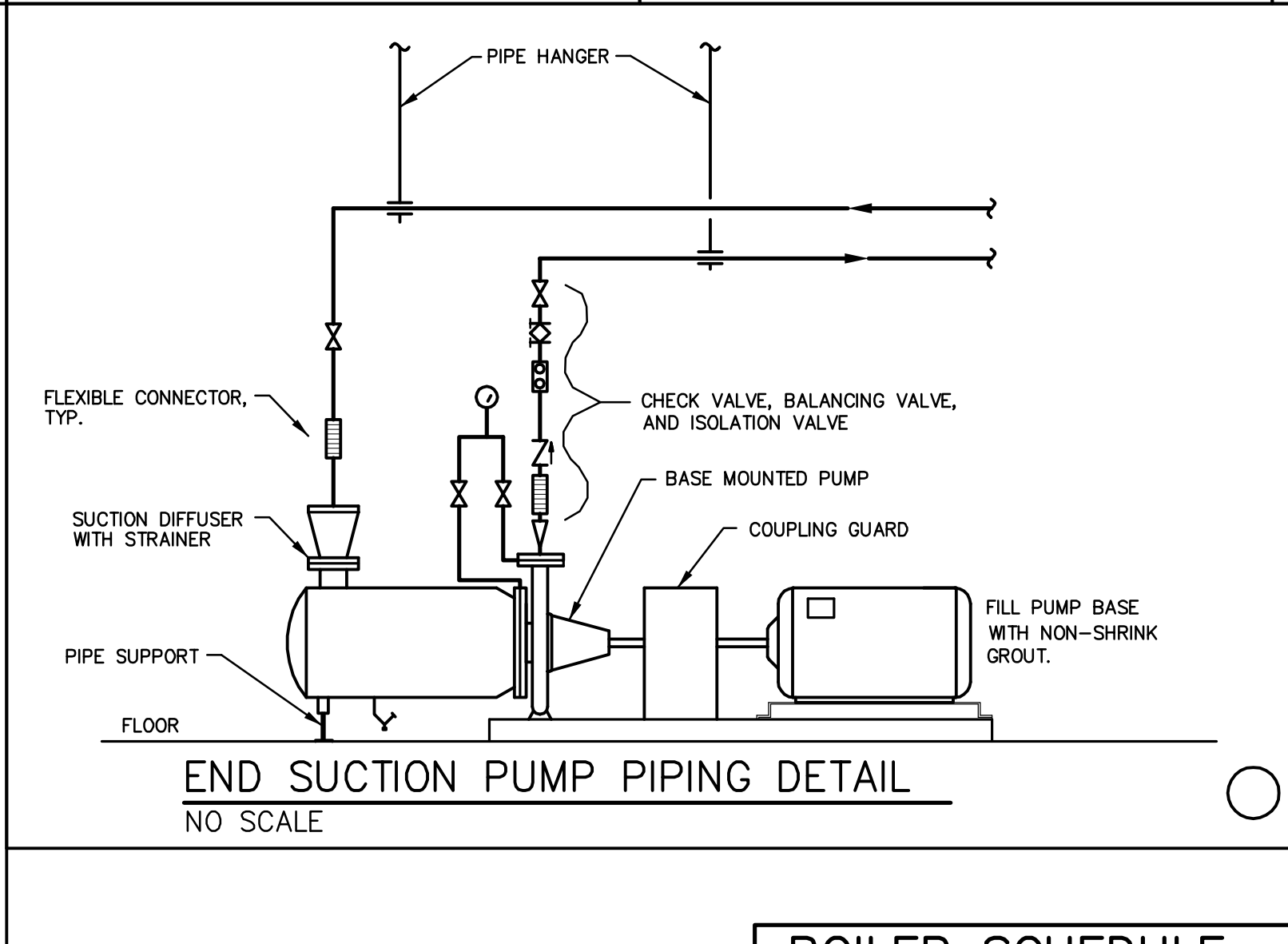
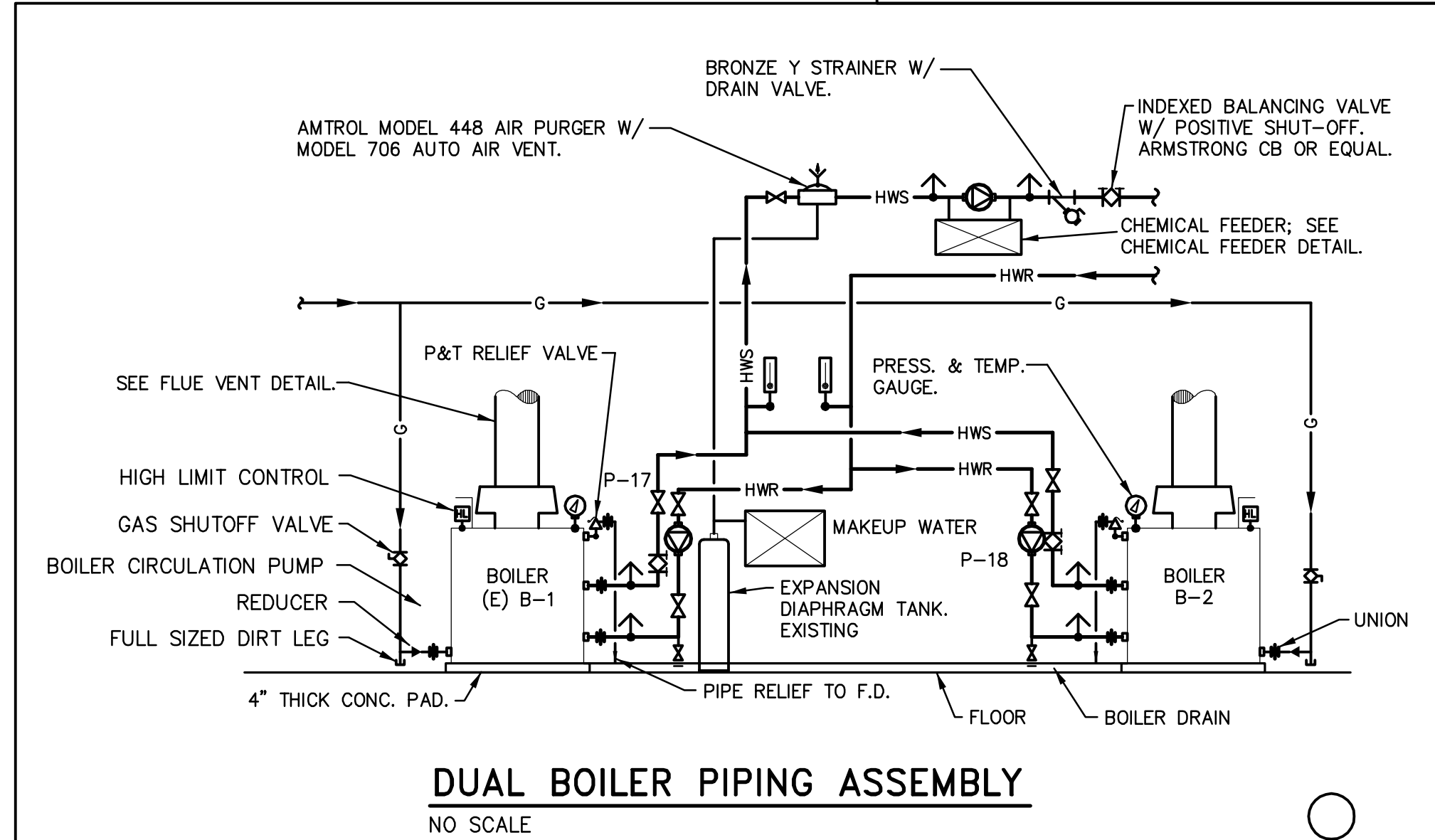
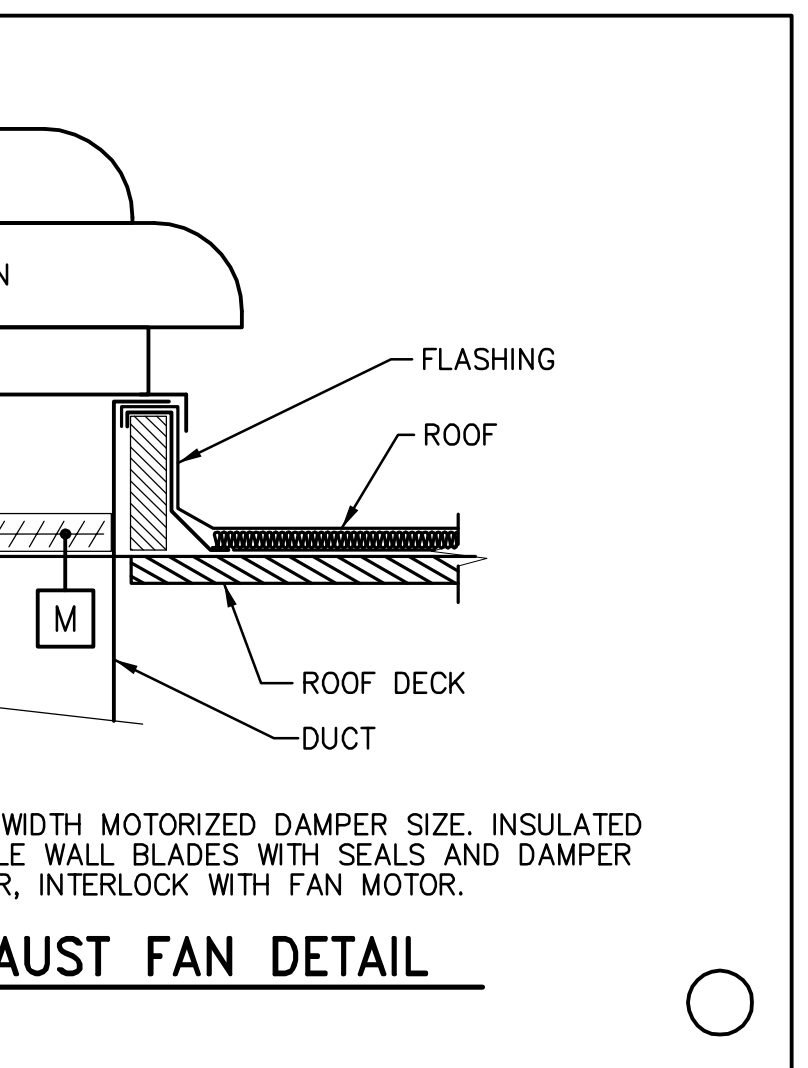
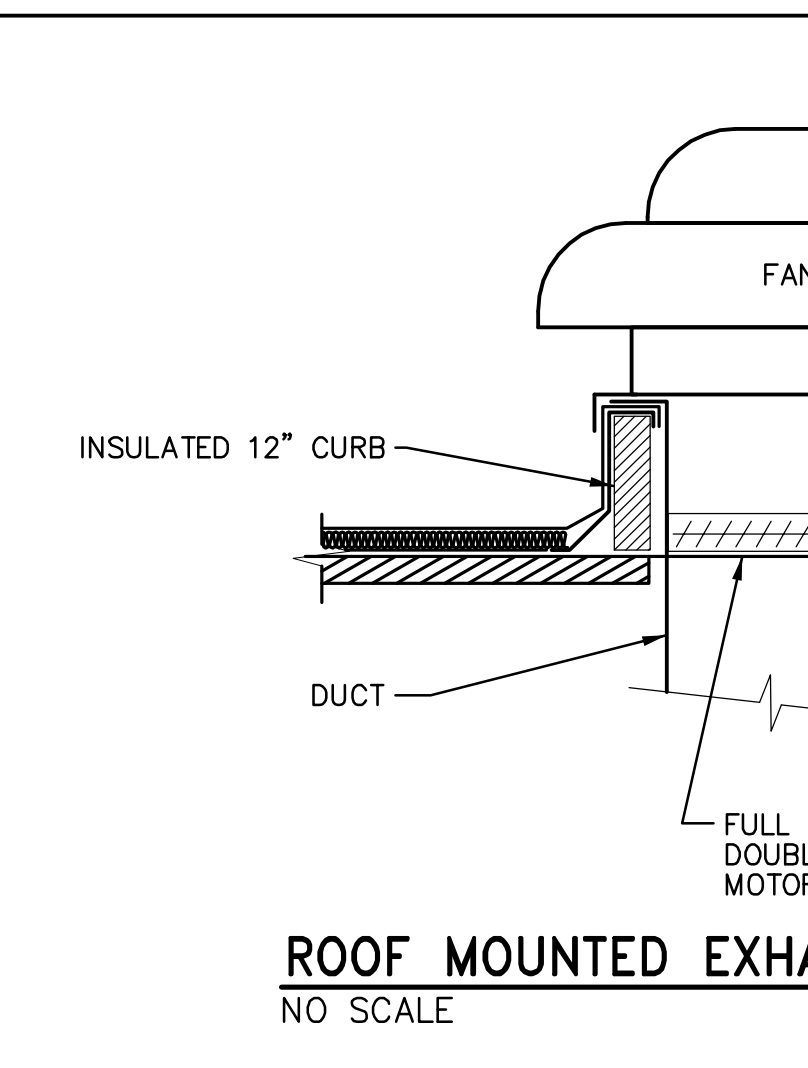
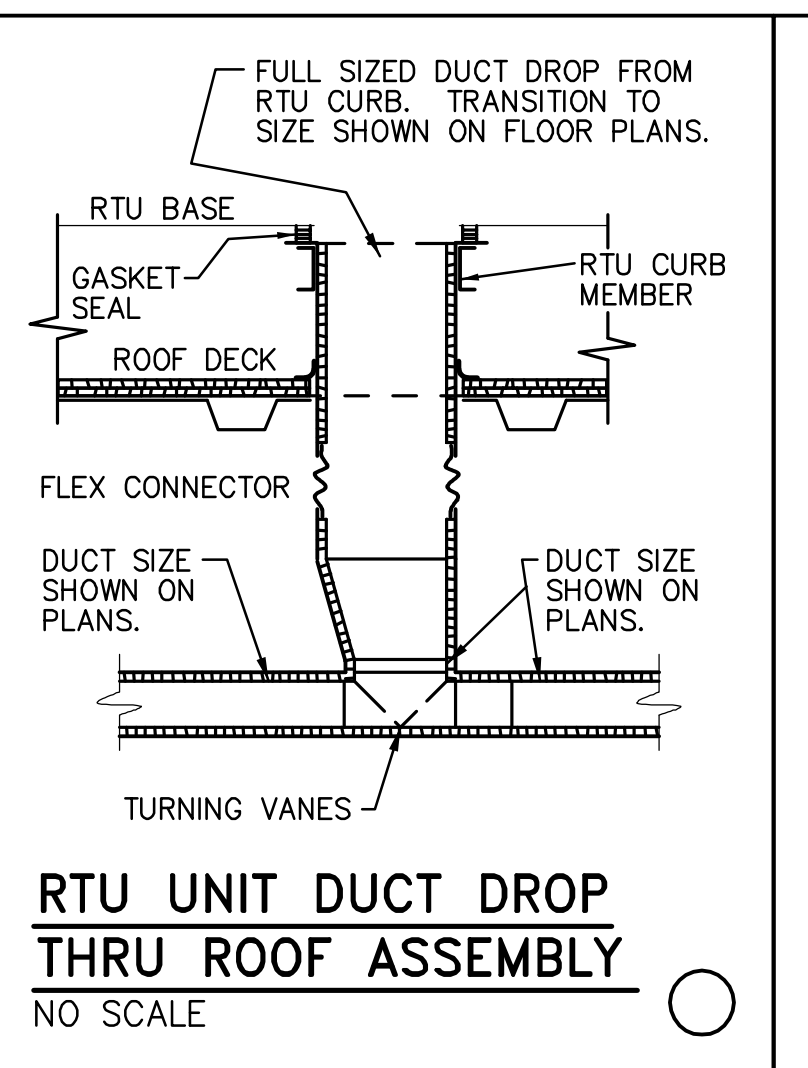
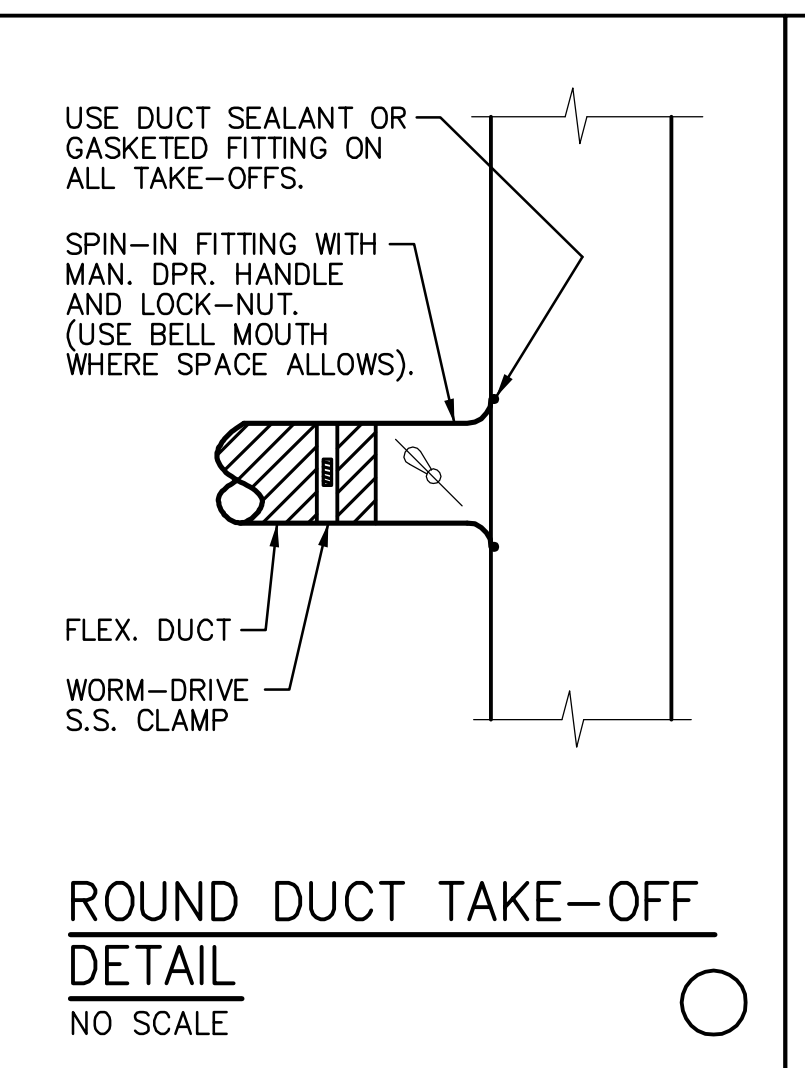
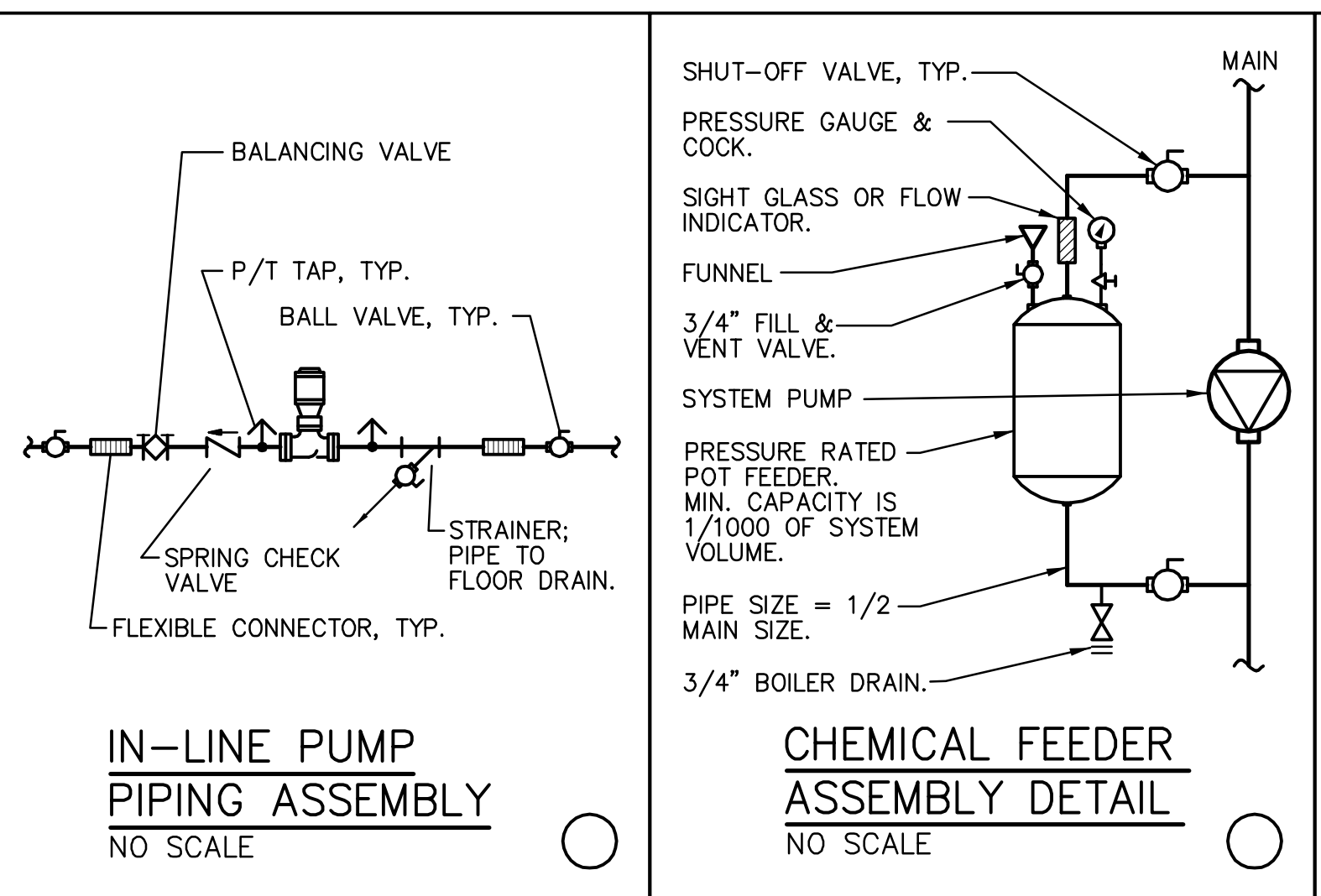
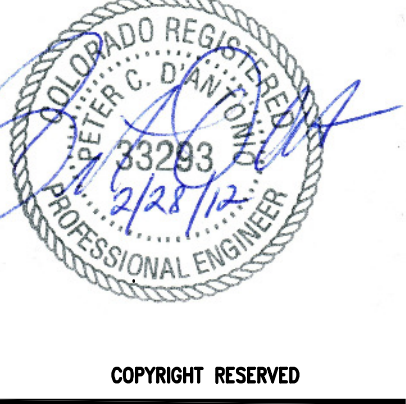
RBB Architects, Inc. 315 East Mountain Ave. Fort Collins, CO 80524-2913 T: 970-484-0117 F: 970-484-0264 © 2012 www.rbbarchitects.com

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Construction Documents PROJECT PHASE: PROJECT INFORMATION: Boltz Middle School Remodel Poudre School District R-1 720 Boltz Drive Fort Collins, Colorado 80525

PROJECT INFORMATION: PROJECT #: 11-26 DRAWN BY: WF CHECKED BY: PD ISSUE DATE: 28 February 2012 REVISIONS NO DESCRIPTION DATE MECHANICAL SCHEDULES M001



BOILER SCHEDULE

TAG	MANUFACTURER	MODEL	TYPE	OPERATING ELEVATION	FLUID TYPE	S.L. INPUT MBH OR (KW)	OUTPUT MBH OR (KW)	FUEL TYPE	BURNER TYPE	BLOWER HP	FLUE SIZE INCHES	OPER. PRESS. PSI	ELECTRICAL VOLT/Ø/A	WEIGHT LBS.	NOTES
(E) B-1	BRYAN	L-56-W	HEATING	5000 FT.	30% PG	3,750	3,000	GAS	MODULATING	N/A	(2) 18"	25	120V/1/2A	6500	5
B-2	BUDERUS	SB 970	HEATING	5000 FT.	30% PG	3,378	3,251	GAS	MODULATING	3	14"	25	480V/3/	4780	1, 2, 3

NOTES:
1. OUTPUT IS AT ALTITUDE.
2. FLUE VENTING AND OSA COMBUSTION INTAKE MUST BE IN ACCORDANCE W/MANUFACTURER AND ALL APPLICABLE CODES. PROVIDE NEW DISCHARGE AND INTAKE.
3. PROVIDE 45 PSIG RELIEF VALVE, 200 DEG.F HIGH LIMIT, AIR VENT, LOW WATER CUT-OUT AS REQUIRED, SAFETY DEVICES.
4. FLUE VENTING (WITH VENT CAP) MUST BE IN ACCORDANCE W/MANUFACTURER AND ALL APPLICABLE CODES.
5. EXISTING BOILER - INFORMATION FOR REFERENCE ONLY.

EQUALS BY: SEE SPECIFICATIONS

DOMESTIC WATER HEATER SCHEDULE

TAG	MANUFACTURER AND MODEL	TYPE	OPER. ELEV.	HEAT INPUT MBH	GPH AT 100 DEG. F RISE	GPH AT 30 DEG. F RISE	BOILER FLOW RATE	STORAGE GAL.	ELECTRICAL	OPERATING WEIGHT	NOTES
DWH-1	BRADFORD WHITE EF-100T-199E-3N	GAS	5000	199	239	N/A	-	100	120V/60/1	1,700 LBS	1

NOTES: 1. COMPLETE WITH CONCENTRIC ROOF TERMINATION KIT.

PUMP SCHEDULE

TAG	MANUFACTURER AND MODEL	TYPE	SERVICE	LOCATION	GPM	TDH	RPM	HP	VOLT/PH/HZ	NOTES
P-1	B&G 1510 3BC	BASE	HEATING SYSTEM	BOILER ROOM	400	60	1750	15	480/3/60	1,2,3,6,7,8,12
P-2	B&G 1510 3BC	BASE	HEATING SYSTEM	BOILER ROOM	400	60	1750	15	480/3/60	1,2,3,6,7,8,12
P-3	B&G NBF-33	IN-LINE	DOM. TANK CIRC.	BOILER ROOM	10	5	2950	1.1A	115/1/60	1,4,5,12
P-5	B&G BOOSTER PL-36	IN-LINE	RTU-1	AT UNIT	12.7	23	3300	0.17	115/1/60	1,6,8
P-6	B&G BOOSTER PL-36	IN-LINE	RTU-2	AT UNIT	7.3	22	3300	0.17	115/1/60	1,6,8,12
P-7	B&G 60 1X5-1/4	IN-LINE	RTU-3	AT UNIT	12.6	20	1750	0.33	480/3/60	1,6,8
P-8	B&G 60 1X5-1/4	IN-LINE	RTU-4	AT UNIT	19.6	26	1750	0.33	480/3/60	1,6,8
P-13	B&G 60 1X5-1/4	IN-LINE	RTU-9	AT UNIT	11.6	19	1750	0.33	480/3/60	1,6,8
P-17	B&G 80 - 3X3X7B	IN-LINE	BOILER B-1	BOILER ROOM	160	15	1150	1.0	480/3/60	1,6,8,13
P-18	B&G 80 - 3X3X7B	IN-LINE	BOILER B-2	BOILER ROOM	160	15	1150	1.0	480/3/60	1,6,8,13
P-19	B&G BOOSTER PL-30	IN-LINE	RTU-20	AT UNIT	8	16	2650	0.08	115/1/60	1,6,8,14
P-20	B&G BOOSTER PL-30	IN-LINE	RTU-21	AT UNIT	160	5	2650	0.08	115/1/60	1,6,8,14

NOTES:
1. PROVIDE VIBRATION ISOLATION.
2. PROVIDE VARIABLE SPEED MOTOR.
3. PROVIDE PREMIUM EFF. MOTOR.
4. MOTOR TYPE IS ODF.
5. ALL BRONZE/STAINLESS CONSTRUCTION.
6. CAST IRON CONSTRUCTION.
7. PROVIDE VARIABLE FREQUENCY DRIVE (VFD).
8. SYSTEM DESIGNED FOR 30% PROPYLENE GLYCOL.
9. PROVIDE PUMP WITH THERMOSTATIC CONTROL 24 HOURS PER DAY.
10. PROVIDE PUMP WITH CHECK VALVE.
11. FURNISH WITH ZOLLER OIL GUARD CONTROL SYSTEM.
12. PART OF ALTERNATE #1.
13. PART OF ALTERNATE #3.
14. PART OF ALTERNATE #5.

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2009 IECC

Section 1: Project Information

Project Type: Alteration
Project Title: Boltz Middle School Remodel
Construction Site: Fort Collins, CO 80525
Owner/Agent: Greg MacGuffin
Design/Contractor: Peter D'Antonio

Section 2: General Information

Building Location for weather data: Fort Collins, Colorado
Climate Zone: 3B

Section 3: Mechanical Systems List

- 1 HVAC System 1 (Multiple-Zone w/ Perimeter System)
Heating: 2 each - Hydronic or Steam Coil, Hot Water, Capacity = 175 kBtu/h
- 1 HVAC System 2 (Multiple-Zone w/ Perimeter System)
Heating: 1 each - Hydronic or Steam Coil, Hot Water, Capacity = 203 kBtu/h
- 1 HVAC System 3 (Multiple-Zone w/ Perimeter System)
Heating: 1 each - Hydronic or Steam Coil, Hot Water, Capacity = 300 kBtu/h
- 1 HVAC System 4 (Multiple-Zone w/ Perimeter System)
Heating: 1 each - Hydronic or Steam Coil, Hot Water, Capacity = 225 kBtu/h
- 1 HVAC System 5 (Single-Zone)
Heating: 1 each - Hydronic or Steam Coil, Hot Water, Capacity = 75 kBtu/h
- 1 Plant 1: Heating: Hot Water Boiler, Capacity 3378 kBtu/h, Gas, Efficiency: 96.00 % Ec, with Waterloop Heat Pump
- 1 Water Heater: 1 Gas Storage Water Heater, Capacity: 100 gallons, Input Rating: 75 Btu/h w/ Circulation Pump, Efficiency: 96.30 EF

Section 4: Requirements Checklist

- 1. Minimum one temperature control device per zone
Exception: System is an independent perimeter system and must have at least one temperature control per building exposure over 50 lineal ft and facing one orientation
- 2. Balancing and pressure test connections on all hydronic terminal devices
Exception: Where pressure relationships must be maintained
- 3. Systems serving more than one zone must be VAV systems
Exception: Zones or supply air systems with at least 75% of reheating/cooling energy site recovered or site solar
Exception: Zones with humidity requirements for special processes
Exception: Zones with cfm <300 and flow rate <10% of total design flow rate
Exception: Outside air needed to meet IMC Chapter 4
- 4. Single-duct VAV terminals reduce primary air before reheating

Project Title: Boltz Middle School Remodel
Data Reference: Z:\Projects\2011\1032 P11052 Boltz Middle School, Fort Collins\Calculations & Design Data\COMMech\11032 Boltz.doc
Report date: 02/28/12
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- 5. Controls capable of resetting supply air temp (SAT) by 25% of SAT-room temp difference
Exception: Systems that prevent reheating, recirculating or mixing of heated and cooled supply air
Exception: Severely five percent of the energy for reheating is from site recovered or site solar energy sources
- 6. Total VAV fan nameplate motor horsepower <= 1.5 hp/1000 cfm
- 7. For each fan, the selected fan motor is to be no larger than the first available motor size greater than the brake hp. The fan brake hp must be indicated on the design documents to allow for compliance verification by the code official.
Exception: For fans less than 6 brake hp, where the first available motor larger than the brake hp has a nameplate rating within 50% of the brake hp, the next larger nameplate motor size may be selected.
- 8. Hot water pumping systems with multiple boilers automatically reduce hot water flow rates proportionately when boilers are not operating

Requirements Specific To: HVAC System 2 :

- 1. Minimum one temperature control device per zone
Exception: System is an independent perimeter system and must have at least one temperature control per building exposure over 50 lineal ft and facing one orientation
- 2. Balancing and pressure test connections on all hydronic terminal devices
- 3. Systems serving more than one zone must be VAV systems
Exception: Where pressure relationships must be maintained
- 4. Single-duct VAV terminals reduce primary air before reheating
- 5. Controls capable of resetting supply air temp (SAT) by 25% of SAT-room temp difference

- 6. Total VAV fan nameplate motor horsepower <= 1.5 hp/1000 cfm
- 7. For each fan, the selected fan motor is to be no larger than the first available motor size greater than the brake hp. The fan brake hp must be indicated on the design documents to allow for compliance verification by the code official.
Exception: For fans less than 6 brake hp, where the first available motor larger than the brake hp has a nameplate rating within 50% of the brake hp, the next larger nameplate motor size may be selected.
- 8. Hot water pumping systems with multiple boilers automatically reduce hot water flow rates proportionately when boilers are not operating

Requirements Specific To: HVAC System 3 :

- 1. Minimum one temperature control device per zone
Exception: System is an independent perimeter system and must have at least one temperature control per building exposure over 50 lineal ft and facing one orientation
- 2. Balancing and pressure test connections on all hydronic terminal devices
- 3. Systems serving more than one zone must be VAV systems
Exception: Where pressure relationships must be maintained
- 4. Single-duct VAV terminals reduce primary air before reheating
- 5. Controls capable of resetting supply air temp (SAT) by 25% of SAT-room temp difference

Project Title: Boltz Middle School Remodel
Data Reference: Z:\Projects\2011\1032 P11052 Boltz Middle School, Fort Collins\Calculations & Design Data\COMMech\11032 Boltz.doc
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- 6. Total VAV fan nameplate motor horsepower <= 1.5 hp/1000 cfm
- 7. For each fan, the selected fan motor is to be no larger than the first available motor size greater than the brake hp. The fan brake hp must be indicated on the design documents to allow for compliance verification by the code official.
Exception: For fans less than 6 brake hp, where the first available motor larger than the brake hp has a nameplate rating within 50% of the brake hp, the next larger nameplate motor size may be selected.
- 8. Hot water pumping systems with multiple boilers automatically reduce hot water flow rates proportionately when boilers are not operating

Requirements Specific To: HVAC System 4 :

- 1. Minimum one temperature control device per zone
Exception: System is an independent perimeter system and must have at least one temperature control per building exposure over 50 lineal ft and facing one orientation
- 2. Balancing and pressure test connections on all hydronic terminal devices
- 3. Systems serving more than one zone must be VAV systems
Exception: Where pressure relationships must be maintained
- 4. Single-duct VAV terminals reduce primary air before reheating
- 5. Controls capable of resetting supply air temp (SAT) by 25% of SAT-room temp difference

- 6. Total VAV fan nameplate motor horsepower <= 1.5 hp/1000 cfm
- 7. For each fan, the selected fan motor is to be no larger than the first available motor size greater than the brake hp. The fan brake hp must be indicated on the design documents to allow for compliance verification by the code official.
Exception: For fans less than 6 brake hp, where the first available motor larger than the brake hp has a nameplate rating within 50% of the brake hp, the next larger nameplate motor size may be selected.
- 8. Hot water pumping systems with multiple boilers automatically reduce hot water flow rates proportionately when boilers are not operating

Requirements Specific To: HVAC System 5 :

- 1. Balancing and pressure test connections on all hydronic terminal devices
- 2. Hot water pumping systems with multiple boilers automatically reduce hot water flow rates proportionately when boilers are not operating

Requirements Specific To: Plant 1 :

- 1. Equipment minimum efficiency: Boiler Contribution Efficiency 80% EC
- 2. Loop temperature controlled with 20 degrees F headroom where return cooling tower/cooling coil not boiler can operate
- 3. Two-point valve on each heat pump having total heat pump system power >10hp
- 4. Newly purchased heating equipment meets the efficiency requirements
used equipment must meet 80% E1 @ maximum capacity
- 5. Systems with multiple boilers have automatic controls capable of sequencing boiler operation
- 6. Hydronic heating systems comprised of a single boiler and <3000 Btu/h input design capacity include either a multistaged or modulating burner

Requirements Specific To: Water Heater 1 :

- 1. Gas Storage Water Heater efficiency: 0.67 EF
- 2. All piping in circulating system insulated
- 3. Hot water storage temperature adjustable down to 120°F or lower
- 4. Automatic time control of heat loss and recirculating systems present
- 5. Controls will shut off operation of circulating pump between water heater/boiler and storage tanks within 6 minutes after end of heating cycle

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Data Reference: Z:\Projects\2011\1032 P11052 Boltz Middle School, Fort Collins\Calculations & Design Data\COMMech\11032 Boltz.doc
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- Exception: Standby equipment automatically off when primary system is operating
- Exception: Multiple units controlled to sequence operation as a function of load
- Minimum one temperature control device per system
- Minimum one humidity control device per installed humidification/condensation system
- Load controller per ASHRAE/ACCA Standard 183
- Automatic Controls: Setback to 35°F (heat) and 85°F (cool); 7-day clock, 2-hour occupant override, 10-hour backup
- Exception: Continuously operating zones
- Exception: 2-WV demand or reset, submit calculations
- Outside-air source for ventilation system capable of reducing OSA to required minimum
- R-4 supply and return air duct insulation in unconditioned spaces
- R-4 supply and return air duct insulation outside the building
- R-4 insulation between ducts and the building exterior when ducts are part of a building assembly
- Exception: Ducts located within equipment
- Exception: Ducts with interior and exterior temperature differences not exceeding 15°F
- Mechanical Relieves and exhausts used to connect ducts and air distribution equipment
- Ducts sealed - longitudinal seams on rigid ducts; transverse seams on all ducts: UL 181A or 181B tapes and mastic
- 10 Water pipe insulation: 1.5 in. for pipes <= 3 in. and 2 in. for pipes > 3 in.
Chilled water/antifreeze/primary pipe insulation: 1.5 in. for pipes <= 1.5 in. and 1.5 in. for pipes > 1.5 in.
Steam pipe insulation: 1.5 in. for pipes <= 1.5 in. and 3 in. for pipes > 1.5 in.
- Exception: Piping with HVAC equipment
- Exception: Fluid temperatures between 58 and 100°F
- Exception: Fluid not heated or cooled with renewable energy
- Exception: Piping within room fan-coil with AHJ940 rating and unit ventilators with AHJ940 rating
- Exception: Humidistat in its range
- Operation and maintenance manual provided to building owner
- Piping, insulated to 1/2 in. if nominal diameter of pipe is <1.5 in.;
Larger size insulated to 1 in. thickness
- Laboratory space outlet temperatures in public restrooms limited to 110°F (43°C)
- Hot water distribution systems >300 Btu/h must have one of the following:
a) controls that reset supply water temperature by 20% of supply/return delta T
b) mechanical or electrical adjustable-speed pump drives
c) bypass valves at all heating coils
d) multistage pumps
e) other controls that reduce pump flow by at least 50% based on load - calculations required
- Exception: Where the supply temperature reset controls cannot be implemented without causing improper operation of heating, cooling, humidification, or dehumidification systems
- Exception: Hydronic systems that use variable flow to reduce pumping energy
- 16. Balancing device provided in accordance with IMC 2008.6.1.7
- 18. Demand control ventilation (DCV) present for high design occupancy areas (40 person/1000 ft2 in spaces >500 ft2) and served by systems with any one of: 1) an air-side economizer; 2) automatic modulating control of the outdoor air damper; or 3) a design outdoor airflow greater than 3000 cfm
- Exception: Systems with heat recovery
- Exception: Multi-zone systems without DDC of individual zones communicating with a central control panel
- Exception: Systems with a design outdoor airflow less than 1200 cfm
- Exception: Spaces where the supply airflow rate minus any makeup or outgoing transfer air requirement is less than 1200 cfm
- 17. Motorized, automatic shutoff dampers required on exhaust and outdoor air supply openings
- Exception: Gravity dampers acceptable in buildings <2 stories
- Exception: Gravity dampers acceptable in systems with outside or exhaust air flow rates less than 300 cfm where dampers are interlocked with fan
- 18. Automatic controls for fire protection systems present
- 19. Three-pipe systems not used
- 20. Exhaust air heat recovery included for systems 5,000 cfm or greater with more than 70% outside air fraction or specifically exempted
- Exception: Hazardous exhaust systems, commercial kitchen and dobow dry exhaust systems that the International Mechanical Code prohibits the use of energy recovery systems
- Exception: Systems serving spaces that are heated and not cooled to less than 60°F
- Exception: Where more than 80 percent of the outdoor heating energy is provided from site-recovered or site solar energy

Project Title: Boltz Middle School Remodel
Data Reference: Z:\Projects\2011\1032 P11052 Boltz Middle School, Fort Collins\Calculations & Design Data\COMMech\11032 Boltz.doc
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- Exception: Heating systems in climates with less than 3600 HDD
- Exception: Cooling systems in climates with a 1 percent cooling design wet-bulb temperature less than 64°F
- Exception: Systems requiring dehumidification that employ energy recovery in series with the cooling coil
- Exception: Laboratory fume hood exhaust systems that have either a variable air volume system capable of reducing exhaust and makeup air volume to 50 percent of total design volume or a separate make-up air supply meeting the following make-up air requirements: a) at least 75 percent of exhaust flow rate; b) heated to no more than 2°F below room setpoint temperature; c) cooled to no lower than 2°F above room setpoint temperature; d) no humidification added; e) no simultaneous heating and cooling

Section 5: Compliance Statement

Compliance Statement: The proposed mechanical alteration project represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed mechanical alteration project has been designed to meet the 2009 IECC, Chapter 6, requirements in COMMech Version 3.8.2 and to comply with the mandatory requirements in the Requirements Checklist.

Name - Title _____ Date _____



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Construction Documents

Boltz Middle School Remodel
Poudre School District R-1
720 Boltz Drive
Fort Collins, Colorado 80525

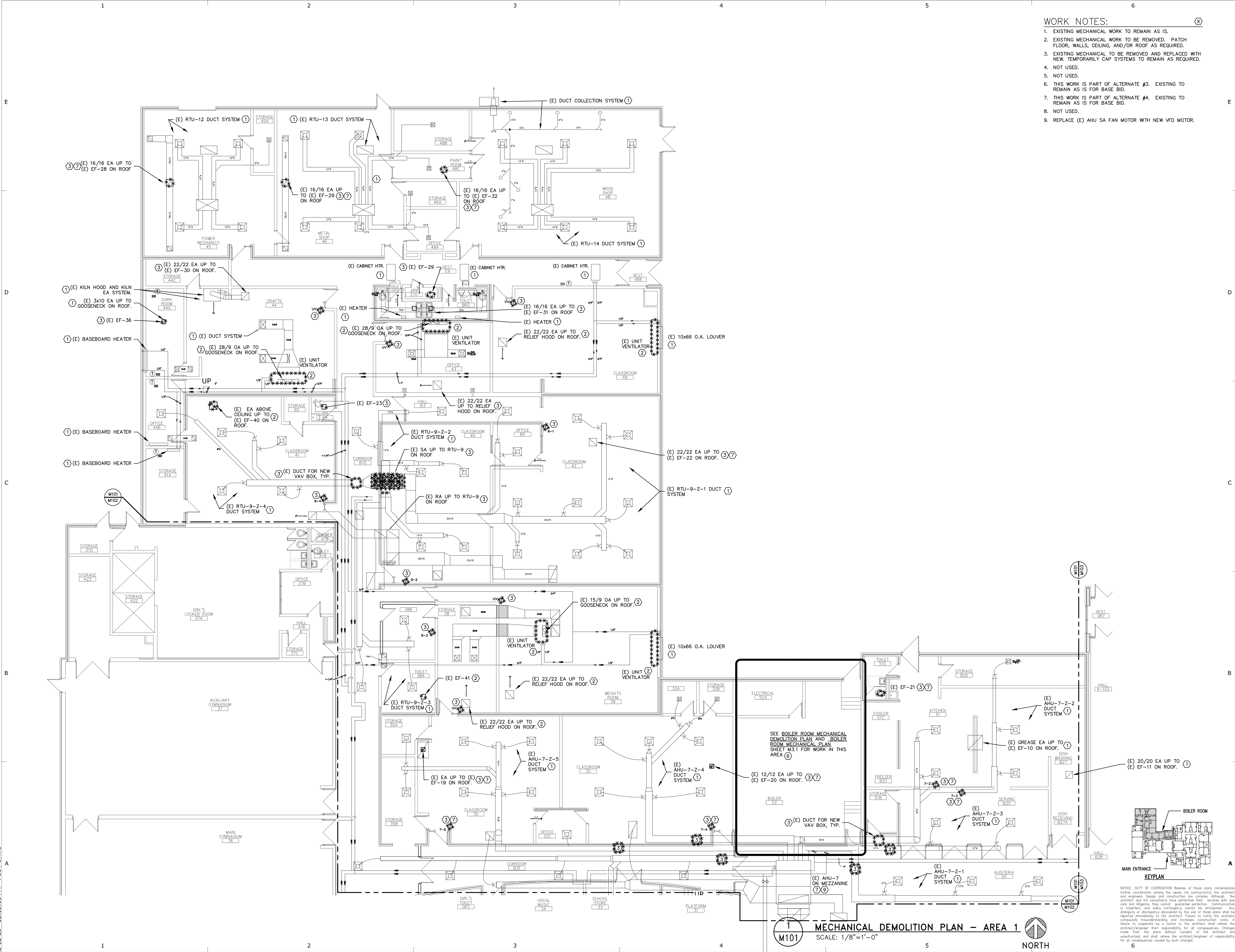
PROJECT #: 11-26
DRAWN BY: WF
CHECKED BY: PD
ISSUE DATE: 28 February 2012

REVISIONS
NO DESCRIPTION DATE

MECHANICAL DETAILS
M004

2012-02-28 11:18:40 AM - PLOT DATE

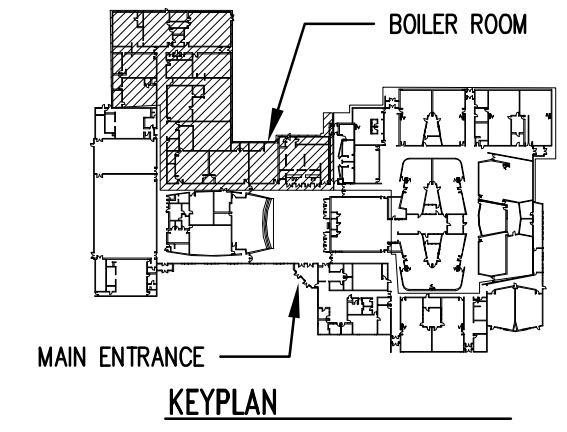
- WORK NOTES:**
- EXISTING MECHANICAL WORK TO REMAIN AS IS.
 - EXISTING MECHANICAL WORK TO BE REMOVED. PATCH FLOOR, WALLS, CEILING, AND/OR ROOF AS REQUIRED.
 - EXISTING MECHANICAL TO BE REMOVED AND REPLACED WITH NEW. TEMPORARILY CAP SYSTEMS TO REMAIN AS REQUIRED.
 - NOT USED.
 - NOT USED.
 - THIS WORK IS PART OF ALTERNATE #3. EXISTING TO REMAIN AS IS FOR BASE BID.
 - THIS WORK IS PART OF ALTERNATE #4. EXISTING TO REMAIN AS IS FOR BASE BID.
 - NOT USED.
 - REPLACE (E) AHU SA FAN MOTOR WITH NEW VFD MOTOR.



2012-02-28 12:15:06 PM - PLOT DATE

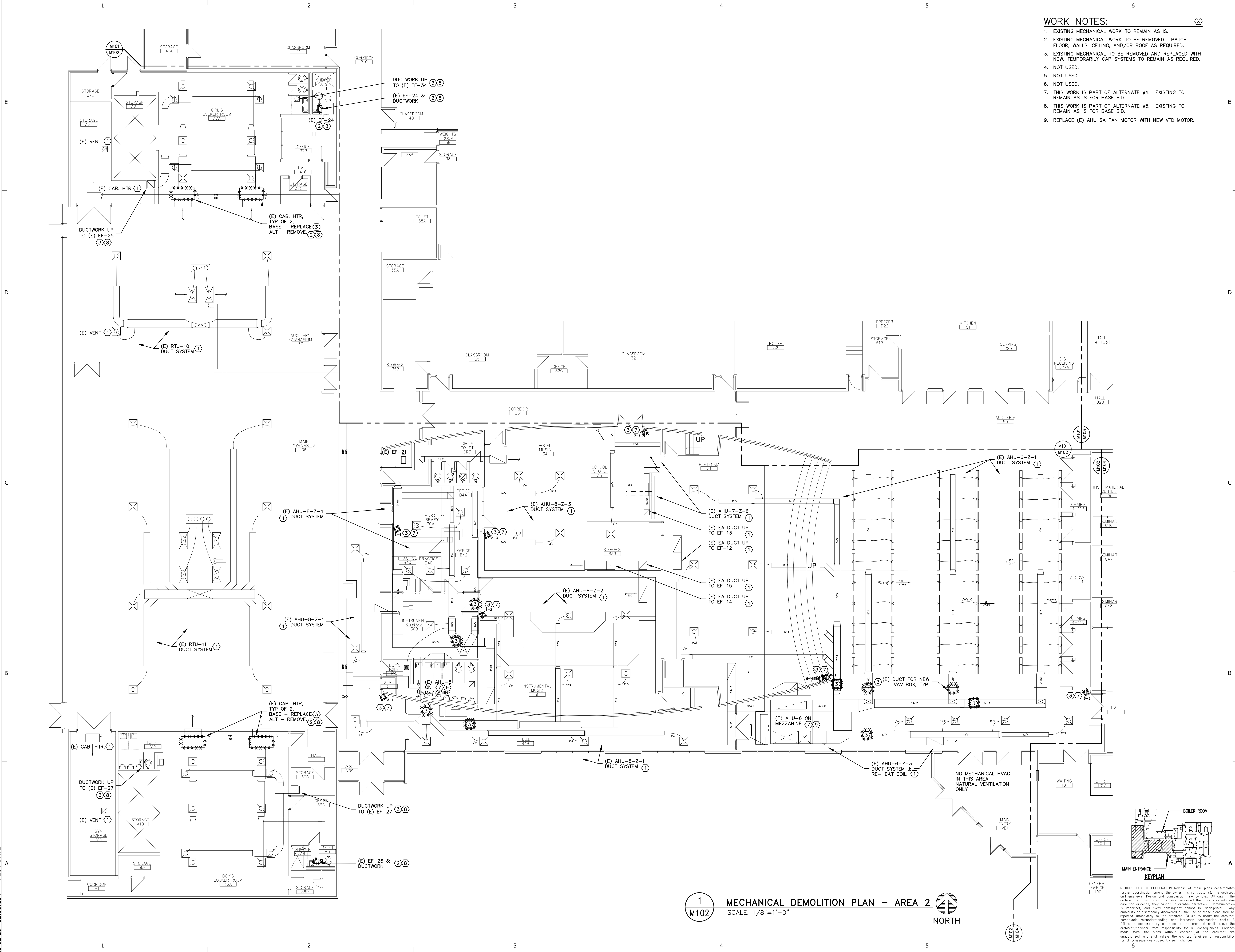
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MECHANICAL DEMOLITION PLAN - AREA 1
SCALE: 1/8" = 1'-0"



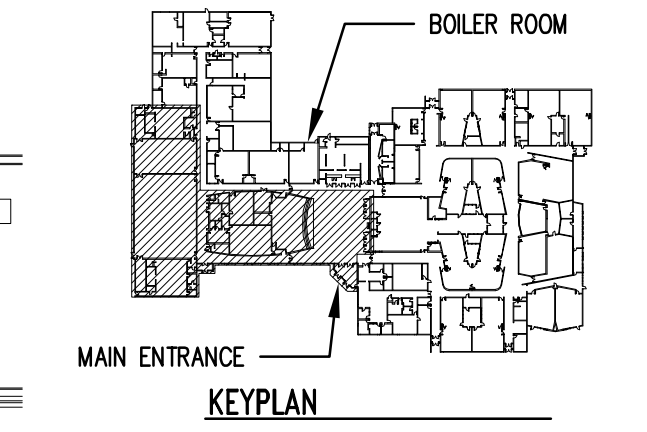
NOTE: DUTY OF COOPERATION Release of these plans contemplates further coordination among the owner, his contractor(s), the architect and engineers. Design and construction are complex. Although the architect and his consultants have performed their services with due care and diligence, they cannot guarantee perfection. Communication is important, and every contingency cannot be anticipated. Any ambiguity or discrepancy discovered by the use of these plans shall be reported immediately to the architect. Failure to notify the architect compounds misunderstanding and increases construction costs. A failure to cooperate by a notice to the architect shall relieve the architect/engineer from responsibility for all consequences. Changes made from the plans without consent of the architect are unauthorized, and shall relieve the architect/engineer of responsibility for all consequences caused by such changes.

- WORK NOTES:**
- EXISTING MECHANICAL WORK TO REMAIN AS IS.
 - EXISTING MECHANICAL WORK TO BE REMOVED. PATCH FLOOR, WALLS, CEILING, AND/OR ROOF AS REQUIRED.
 - EXISTING MECHANICAL TO BE REMOVED AND REPLACED WITH NEW. TEMPORARILY CAP SYSTEMS TO REMAIN AS REQUIRED.
 - NOT USED.
 - NOT USED.
 - NOT USED.
 - THIS WORK IS PART OF ALTERNATE #4. EXISTING TO REMAIN AS IS FOR BASE BID.
 - THIS WORK IS PART OF ALTERNATE #5. EXISTING TO REMAIN AS IS FOR BASE BID.
 - REPLACE (E) AHU SA FAN MOTOR WITH NEW VFD MOTOR.

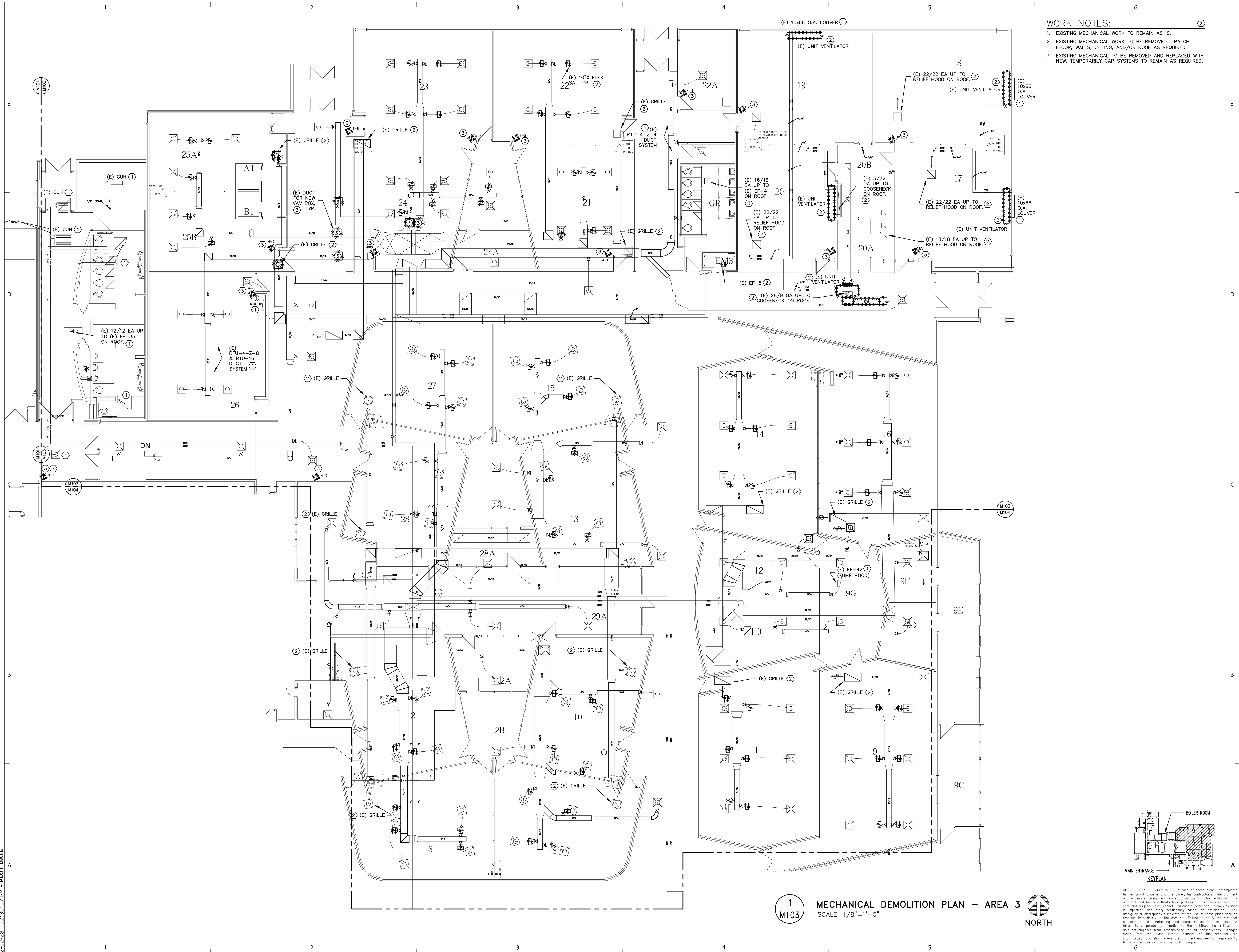


1
M102
MECHANICAL DEMOLITION PLAN - AREA 2
SCALE: 1/8"=1'-0"
NORTH

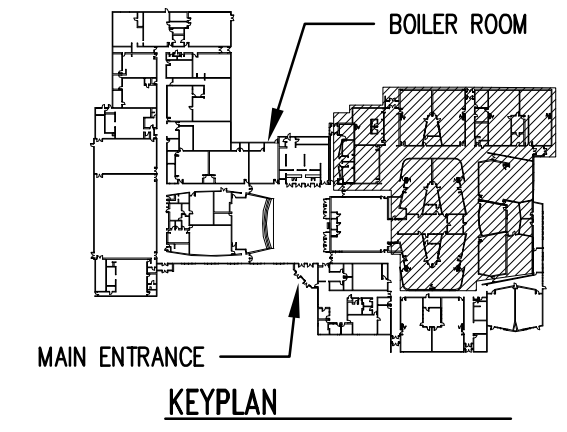
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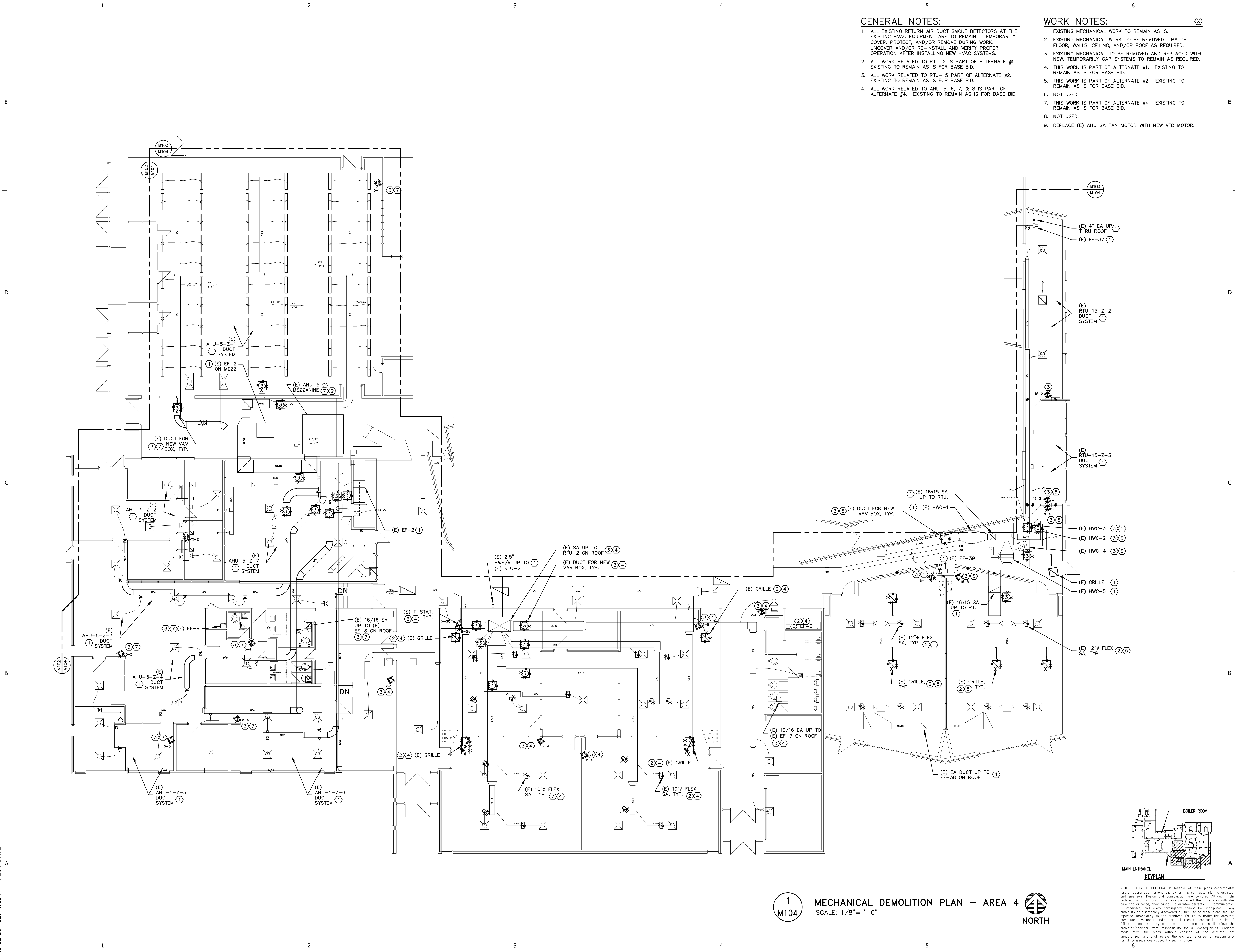
- WORK NOTES:**
- EXISTING MECHANICAL WORK TO REMAIN AS IS.
 - EXISTING MECHANICAL WORK TO BE REMOVED. PATCH FLOOR, WALLS, CEILING, AND/OR ROOF AS REQUIRED.
 - EXISTING MECHANICAL TO BE REMOVED AND REPLACED WITH NEW. TEMPORARILY CAP SYSTEMS TO REMAIN AS REQUIRED.



NOTICE: DUTY OF COOPERATION Release of these plans contemplates further coordination among the owner, his contractor(s), the architect and engineers. Design and construction are complex. Although the architect and his consultants have performed their services with due care and diligence, they cannot guarantee perfection. Communication is imperfect, and every contingency cannot be anticipated. Any ambiguity or discrepancy discovered by the use of these plans shall be reported immediately to the architect. Failure to notify the architect compounds misunderstanding and increases construction costs. A failure to cooperate by a notice to the architect shall relieve the architect/engineer from responsibility for all consequences. Changes made from the plans without consent of the architect are unauthorized, and shall relieve the architect/engineer of responsibility for all consequences caused by such changes.

1
M103
MECHANICAL DEMOLITION PLAN - AREA 3
SCALE: 1/8"=1'-0"
NORTH

2012-02-28 12:30:17 PM - PLOT DATE



GENERAL NOTES:

1. ALL EXISTING RETURN AIR DUCT SMOKE DETECTORS AT THE EXISTING HVAC EQUIPMENT ARE TO REMAIN. TEMPORARILY COVER, PROTECT, AND/OR REMOVE DURING WORK UNCOVER AND/OR RE-INSTALL AND VERIFY PROPER OPERATION AFTER INSTALLING NEW HVAC SYSTEMS.
2. ALL WORK RELATED TO RTU-2 IS PART OF ALTERNATE #1. EXISTING TO REMAIN AS IS FOR BASE BID.
3. ALL WORK RELATED TO RTU-15 IS PART OF ALTERNATE #2. EXISTING TO REMAIN AS IS FOR BASE BID.
4. ALL WORK RELATED TO AHU-5, 6, 7, & 8 IS PART OF ALTERNATE #4. EXISTING TO REMAIN AS IS FOR BASE BID.

WORK NOTES:

1. EXISTING MECHANICAL WORK TO REMAIN AS IS.
2. EXISTING MECHANICAL WORK TO BE REMOVED. PATCH FLOOR, WALLS, CEILING, AND/OR ROOF AS REQUIRED.
3. EXISTING MECHANICAL TO BE REMOVED AND REPLACED WITH NEW. TEMPORARILY CAP SYSTEMS TO REMAIN AS REQUIRED.
4. THIS WORK IS PART OF ALTERNATE #1. EXISTING TO REMAIN AS IS FOR BASE BID.
5. THIS WORK IS PART OF ALTERNATE #2. EXISTING TO REMAIN AS IS FOR BASE BID.
6. NOT USED.
7. THIS WORK IS PART OF ALTERNATE #4. EXISTING TO REMAIN AS IS FOR BASE BID.
8. NOT USED.
9. REPLACE (E) AHU SA FAN MOTOR WITH NEW VFD MOTOR.

1
M104
MECHANICAL DEMOLITION PLAN - AREA 4
SCALE: 1/8"=1'-0"
NORTH

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PCDENGINEERING.COM

PROJECT PHASE
Construction Documents

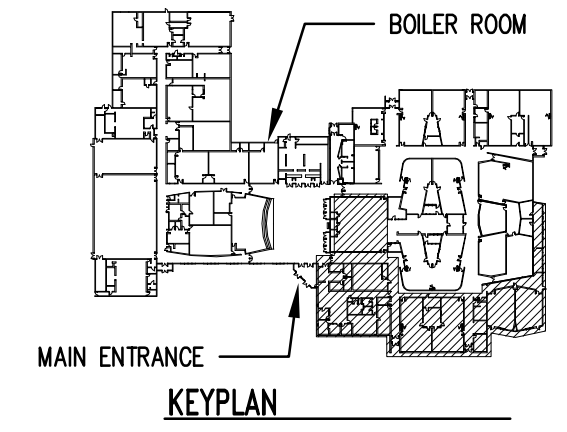
PROJECT INFORMATION
Boltz Middle School Remodel
Poudre School District R-1
720 Boltz Drive
Fort Collins, Colorado 80525

PROJECT #: 11-26
DRAWN BY: WF
CHECKED BY: PD
ISSUE DATE: 28 February 2012

REVISIONS
NO DESCRIPTION DATE

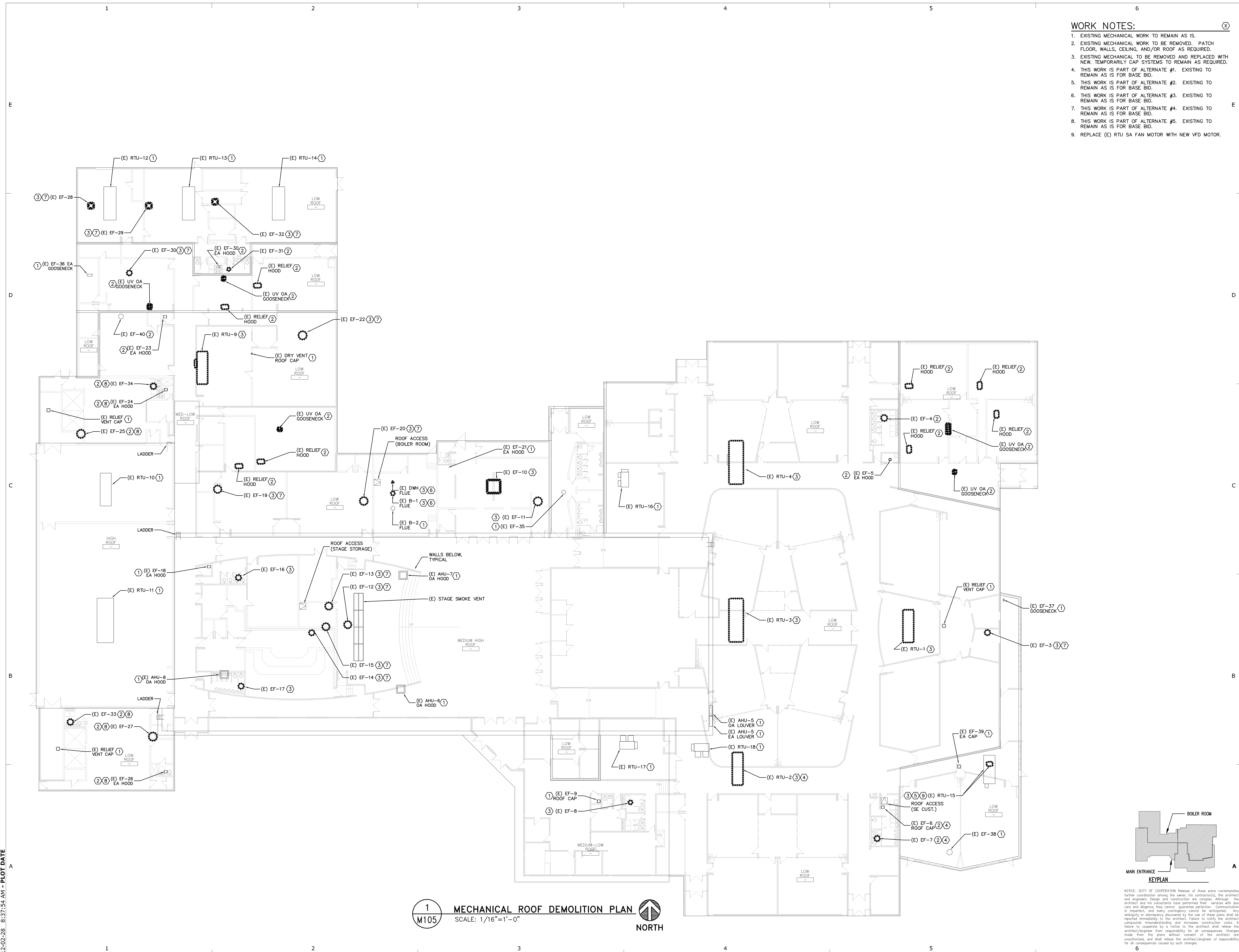
MECHANICAL DEMOLITION PLAN - AREA 4
M104

2012-02-28 12:44:19 PM - PLOT DATE



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2012-02-28 8:37:54 AM - PLOT DATE



1
M105
MECHANICAL ROOF DEMOLITION PLAN
SCALE: 1/16"=1'-0"
NORTH

- WORK NOTES:**
- EXISTING MECHANICAL WORK TO REMAIN AS IS.
 - EXISTING MECHANICAL WORK TO BE REMOVED. PATCH FLOOR, WALLS, CEILING, AND/OR ROOF AS REQUIRED.
 - EXISTING MECHANICAL TO BE REMOVED AND REPLACED WITH NEW. TEMPORARILY CAP SYSTEMS TO REMAIN AS REQUIRED.
 - THIS WORK IS PART OF ALTERNATE #1. EXISTING TO REMAIN AS IS FOR BASE BID.
 - THIS WORK IS PART OF ALTERNATE #2. EXISTING TO REMAIN AS IS FOR BASE BID.
 - THIS WORK IS PART OF ALTERNATE #3. EXISTING TO REMAIN AS IS FOR BASE BID.
 - THIS WORK IS PART OF ALTERNATE #4. EXISTING TO REMAIN AS IS FOR BASE BID.
 - THIS WORK IS PART OF ALTERNATE #5. EXISTING TO REMAIN AS IS FOR BASE BID.
 - REPLACE (E) RTU SA FAN MOTOR WITH NEW VFD MOTOR.

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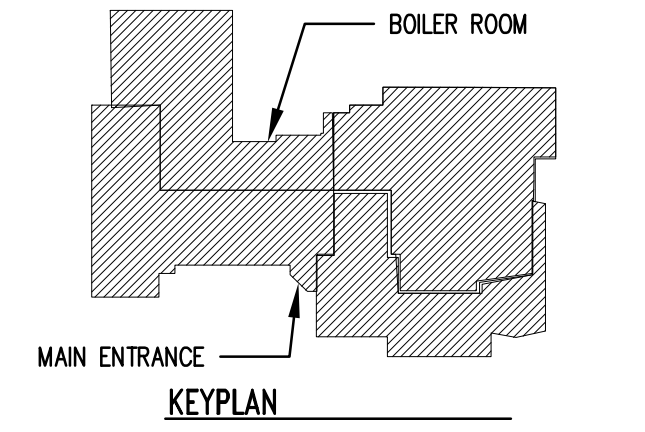
PROJECT PHASE
Construction Documents

PROJECT INFORMATION
Boltz Middle School Remodel
Poudre School District R-1
720 Boltz Drive
Fort Collins, Colorado 80525

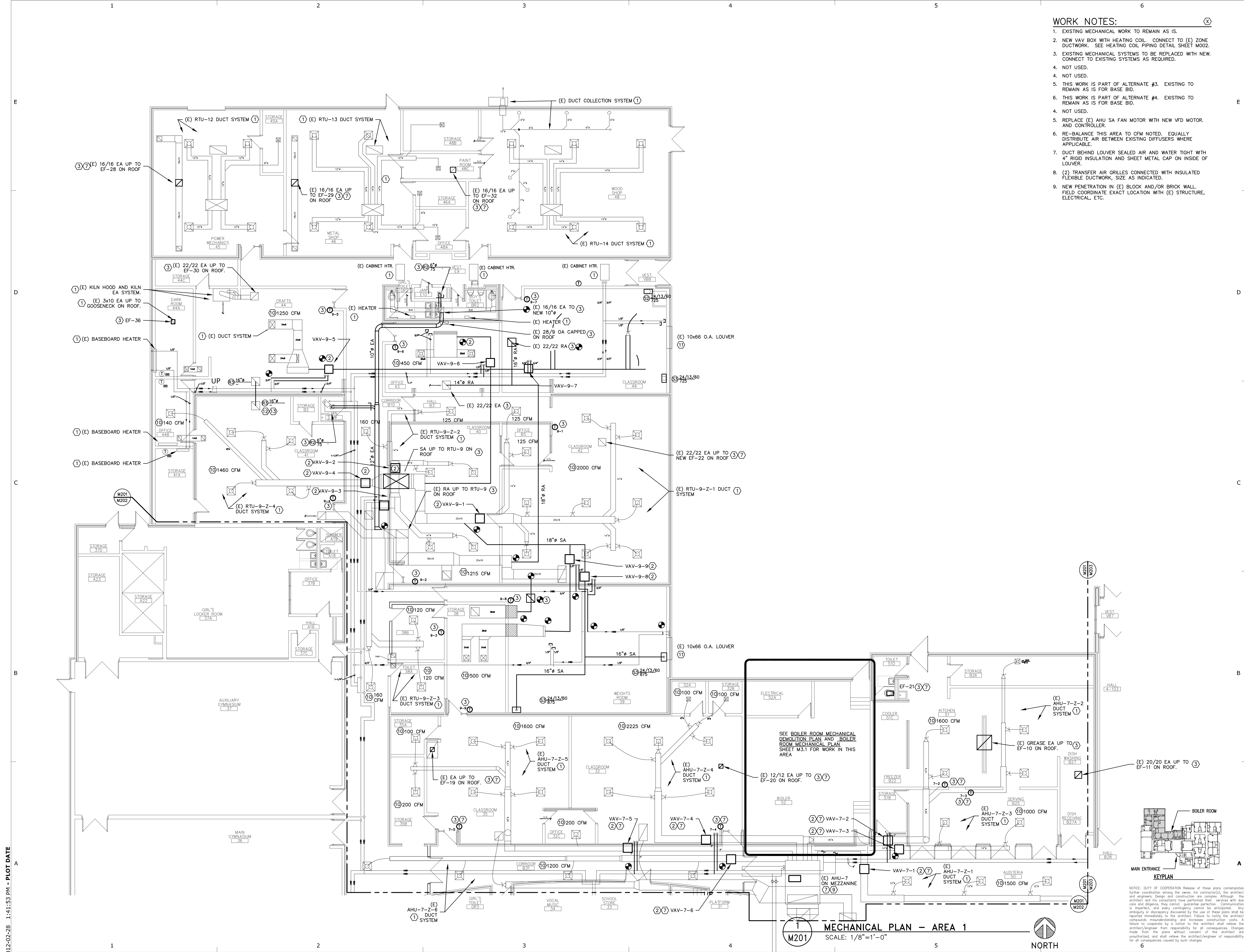
PROJECT #: 11-26
DRAWN BY: WF
CHECKED BY: PD
ISSUE DATE: 28 February 2012

REVISIONS
NO DESCRIPTION DATE

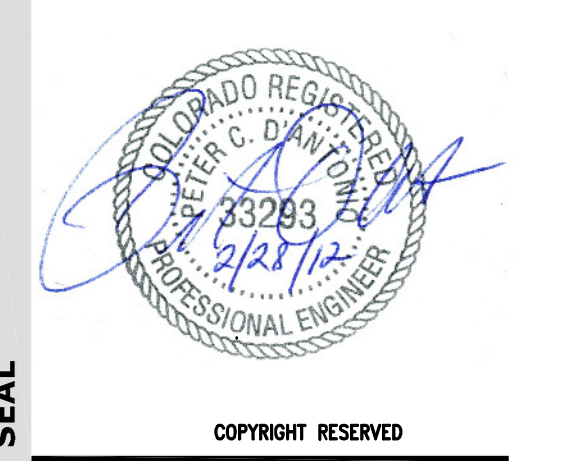
MECHANICAL ROOF DEMOLITION PLAN
M105



NOTICE: DUTY OF COOPERATION Release of these plans contemplates further coordination among the owner, his contractor(s), the architect and engineers. Design and construction are complex. Although the architect and his consultants have performed their services with due care and diligence, they cannot guarantee perfection. Communication is imperfect, and every contingency cannot be anticipated. Any ambiguity or discrepancy discovered by the use of these plans shall be reported immediately to the architect. Failure to notify the architect compounds misunderstanding and increases construction costs. A failure to cooperate by a notice to the architect shall relieve the architect/engineer from responsibility for all consequences. Changes made from the plans without consent of the architect are unauthorized, and shall relieve the architect/engineer of responsibility for all consequences caused by such changes.



- WORK NOTES:** (X)
- EXISTING MECHANICAL WORK TO REMAIN AS IS.
 - NEW VAV BOX WITH HEATING COIL. CONNECT TO (E) ZONE DUCTWORK. SEE HEATING COIL PIPING DETAIL SHEET M002.
 - EXISTING MECHANICAL SYSTEMS TO BE REPLACED WITH NEW. CONNECT TO EXISTING SYSTEMS AS REQUIRED.
 - NOT USED.
 - THIS WORK IS PART OF ALTERNATE #3. EXISTING TO REMAIN AS IS FOR BASE BID.
 - THIS WORK IS PART OF ALTERNATE #4. EXISTING TO REMAIN AS IS FOR BASE BID.
 - NOT USED.
 - REPLACE (E) AHU SA FAN MOTOR WITH NEW VFD MOTOR. AND CONTROLLER.
 - RE-BALANCE THIS AREA TO CFM NOTED. EQUALLY DISTRIBUTE AIR BETWEEN EXISTING DIFFUSERS WHERE APPLICABLE.
 - DUCT BEHIND LOUVER SEALED AIR AND WATER TIGHT WITH 4" RIGID INSULATION AND SHEET METAL CAP ON INSIDE OF LOUVER.
 - NEW PENETRATION IN (E) BLOCK AND/OR BRICK WALL. FIELD COORDINATE EXACT LOCATION WITH (E) STRUCTURE, ELECTRICAL, ETC.



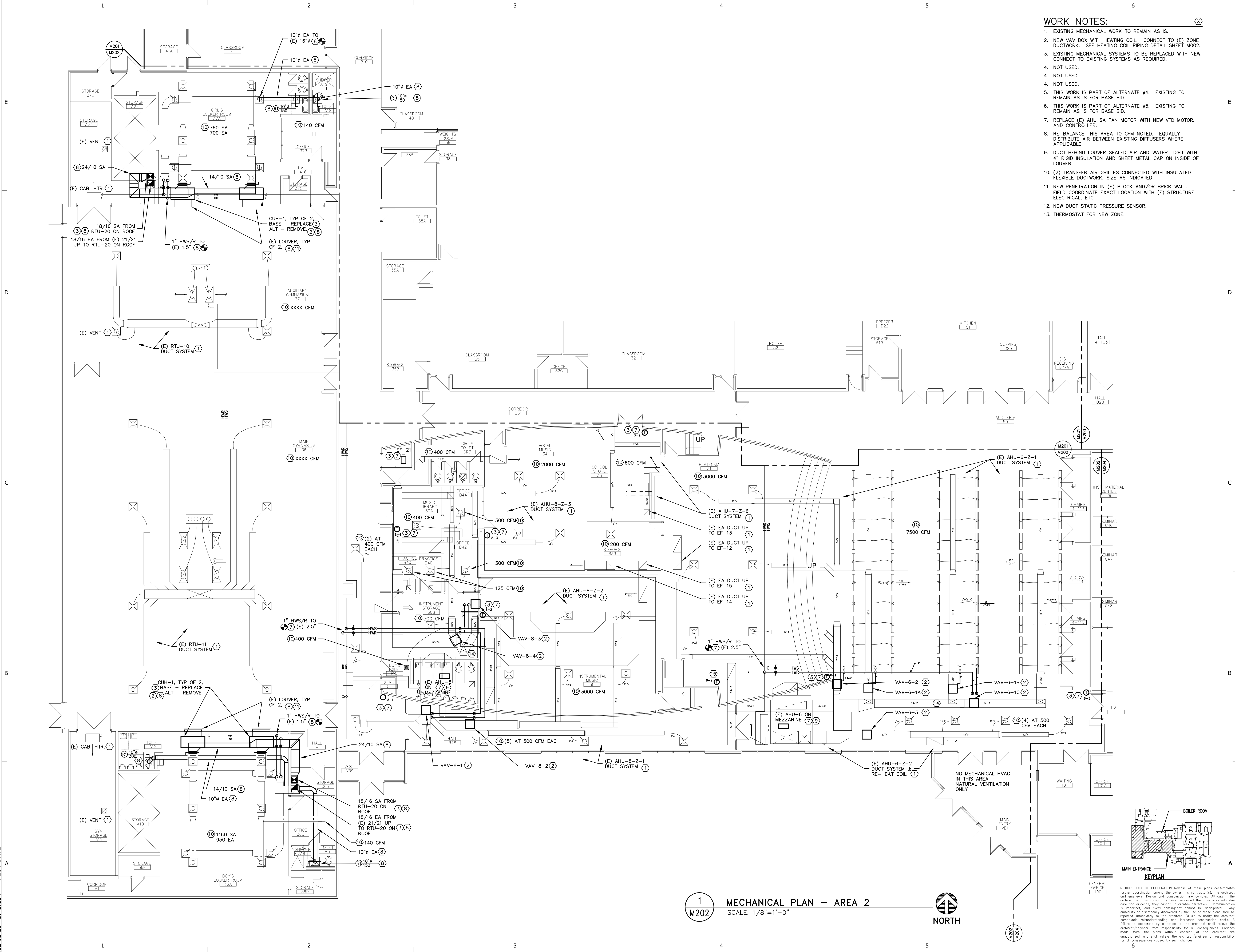
2012-02-28 1:41:53 PM - PLOT DATE

MECHANICAL PLAN - AREA 1
SCALE: 1/8" = 1'-0"
NORTH

KEYPLAN

NOTE: DUTY OF COOPERATION Release of these plans contemplates further coordination among the owner, his contractor(s), the architect and engineers. Design and construction are complex. Although the architect and his consultants have performed their services with due care and diligence, they cannot guarantee perfection. Communication is important, and every contingency cannot be anticipated. Any ambiguity or discrepancy discovered by the use of these plans shall be reported immediately to the architect. Failure to notify the architect compounds misunderstanding and increases construction costs. A failure to cooperate by a notice to the architect shall relieve the architect/engineer from responsibility for all consequences. Changes made from the plans without consent of the architect are unauthorized, and shall relieve the architect/engineer of responsibility for all consequences caused by such changes.

2012-02-28 1:42:35 PM - PLOT DATE



1
M202
MECHANICAL PLAN - AREA 2
SCALE: 1/8"=1'-0"
NORTH

- WORK NOTES:**
- EXISTING MECHANICAL WORK TO REMAIN AS IS.
 - NEW VAV BOX WITH HEATING COIL. CONNECT TO (E) ZONE DUCTWORK. SEE HEATING COIL PIPING DETAIL SHEET M002.
 - EXISTING MECHANICAL SYSTEMS TO BE REPLACED WITH NEW. CONNECT TO EXISTING SYSTEMS AS REQUIRED.
 - NOT USED.
 - NOT USED.
 - THIS WORK IS PART OF ALTERNATE #4. EXISTING TO REMAIN AS IS FOR BASE BID.
 - THIS WORK IS PART OF ALTERNATE #5. EXISTING TO REMAIN AS IS FOR BASE BID.
 - REPLACE (E) AHU SA FAN MOTOR WITH NEW VFD MOTOR. AND CONTROLLER.
 - RE-BALANCE THIS AREA TO CFM NOTED. EQUALLY DISTRIBUTE AIR BETWEEN EXISTING DIFFUSERS WHERE APPLICABLE.
 - DUCT BEHIND LOUVER SEALED AIR AND WATER TIGHT WITH 4" RIGID INSULATION AND SHEET METAL CAP ON INSIDE OF LOUVER.
 - NEW PENETRATION IN (E) BLOCK AND/OR BRICK WALL. FIELD COORDINATE EXACT LOCATION WITH (E) STRUCTURE, ELECTRICAL, ETC.
 - NEW DUCT STATIC PRESSURE SENSOR.
 - THERMOSTAT FOR NEW ZONE.

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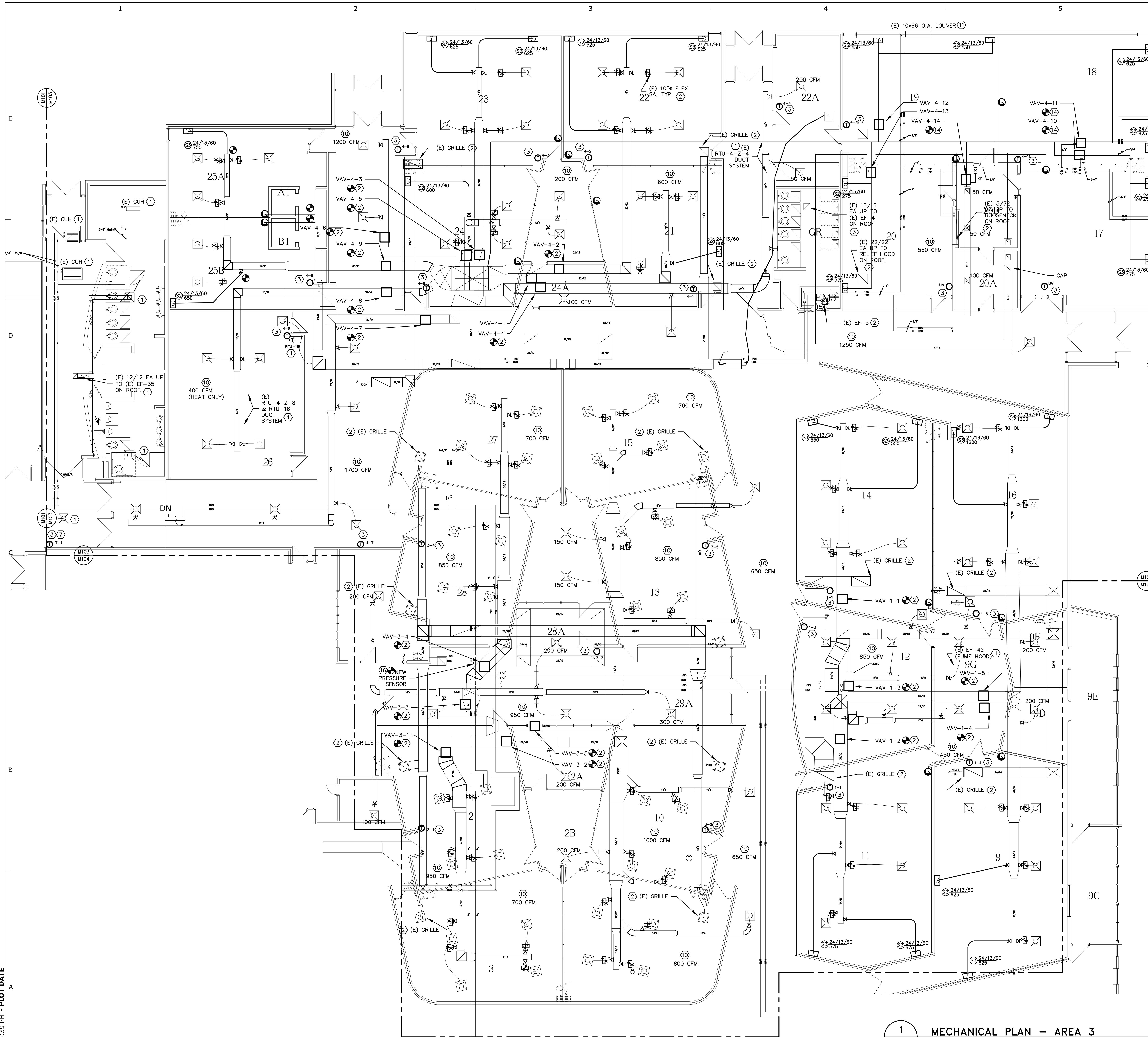
PROJECT PHASE
Construction Documents

PROJECT INFORMATION
Boltz Middle School Remodel
Poudre School District R-1
720 Boltz Drive
Fort Collins, Colorado 80525

PROJECT #: 11-26
DRAWN BY: WF
CHECKED BY: PD
ISSUE DATE: 28 February 2012

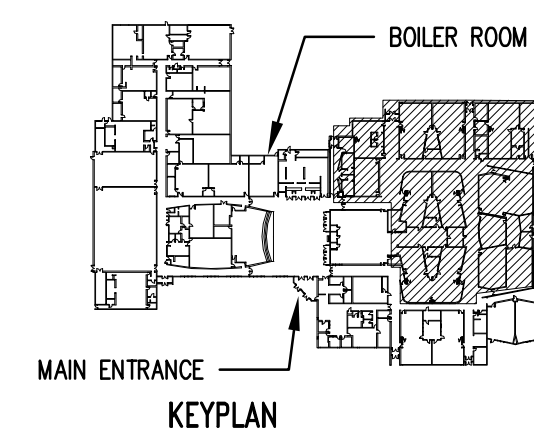
REVISIONS
NO DESCRIPTION DATE

MECHANICAL PLAN - AREA 2
M202

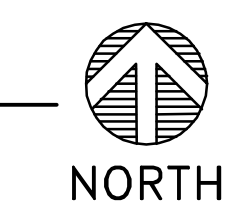


WORK NOTES:

1. EXISTING MECHANICAL WORK TO REMAIN AS IS.
2. NEW VAV BOX WITH HEATING COIL. CONNECT TO (E) ZONE DUCTWORK. SEE HEATING COIL PIPING DETAIL SHEET M002.
3. EXISTING MECHANICAL SYSTEMS TO BE REPLACED WITH NEW. CONNECT TO EXISTING SYSTEMS AS REQUIRED.
4. THIS WORK IS PART OF ALTERNATE #1. EXISTING TO REMAIN AS IS FOR BASE BID.
5. THIS WORK IS PART OF ALTERNATE #2. EXISTING TO REMAIN AS IS FOR BASE BID.
6. NOT USED.
7. THIS WORK IS PART OF ALTERNATE #4. EXISTING TO REMAIN AS IS FOR BASE BID.
8. NOT USED.
9. NOT USED.
10. RE-BALANCE THIS AREA TO CFM NOTED. EQUALLY DISTRIBUTE AIR BETWEEN EXISTING DIFFUSERS WHERE APPLICABLE.
11. DUCT BEHIND LOUVER SEALED AIR AND WATER TIGHT WITH 4" RIGID INSULATION AND SHEET METAL CAP ON INSIDE OF LOUVER.
12. (2) TRANSFER AIR GRILLES CONNECTED WITH INSULATED FLEXIBLE DUCTWORK, SIZE AS INDICATED.
13. NEW PENETRATION IN (E) BLOCK AND/OR BRICK WALL. FIELD COORDINATE EXACT LOCATION WITH (E) STRUCTURE, ELECTRICAL, ETC.
14. NEW VAV BOX WITH HEATING COIL. CONNECT TO NEW ZONE DUCTWORK. SEE HEATING COIL PIPING DETAIL SHEET M002.
15. TEMPERATURE CONTROL PANELS AND VAV BOX TRANSFORMERS TO BE INSTALLED IN THIS ROOM.
16. NEW HEATING WATER PRESSURE SENSOR INSTALLED IN (E) 3" HWS PIPE. HOT TAP INTO (E) PIPE WITH ISOLATION VALVE ON BRANCH. FIELD VERIFY EXACT LOCATION FOR EASY ACCESSIBILITY.



1
M203
MECHANICAL PLAN - AREA 3
SCALE: 1/8"=1'-0"



NOTICE: DUTY OF COOPERATION Release of these plans contemplates further coordination among the owner, his contractor(s), the architect and engineers. Design and construction are complex. Although the architect and his consultants have performed their services with due care and diligence, they cannot guarantee perfection. Communication is important, and every contingency cannot be anticipated. Any ambiguity or discrepancy discovered by the use of these plans shall be reported immediately to the architect. Failure to notify the architect compounds misunderstanding and increases construction costs. A failure to cooperate by a notice to the architect shall relieve the architect/engineer from responsibility for all consequences. Changes made from the plans without consent of the architect are unauthorized, and shall relieve the architect/engineer of responsibility for all consequences caused by such changes.

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PROJECT INFORMATION
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REVISIONS
NO DESCRIPTION DATE
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M203

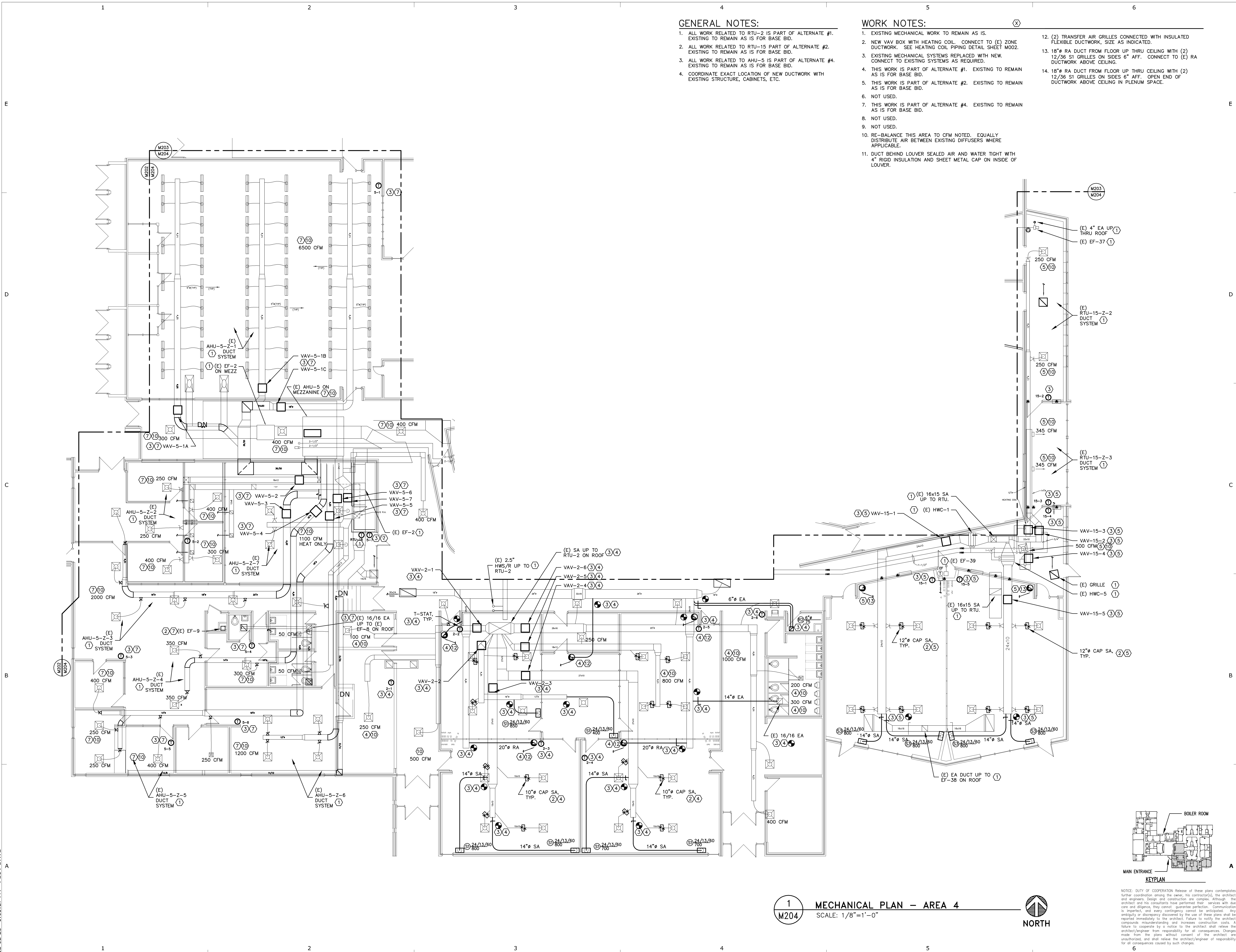
2012-02-28 1:38:39 PM - PLOT DATE

GENERAL NOTES:

1. ALL WORK RELATED TO RTU-2 IS PART OF ALTERNATE #1. EXISTING TO REMAIN AS IS FOR BASE BID.
2. ALL WORK RELATED TO RTU-15 PART OF ALTERNATE #2. EXISTING TO REMAIN AS IS FOR BASE BID.
3. ALL WORK RELATED TO AHU-5 IS PART OF ALTERNATE #4. EXISTING TO REMAIN AS IS FOR BASE BID.
4. COORDINATE EXACT LOCATION OF NEW DUCTWORK WITH EXISTING STRUCTURE, CABINETS, ETC.

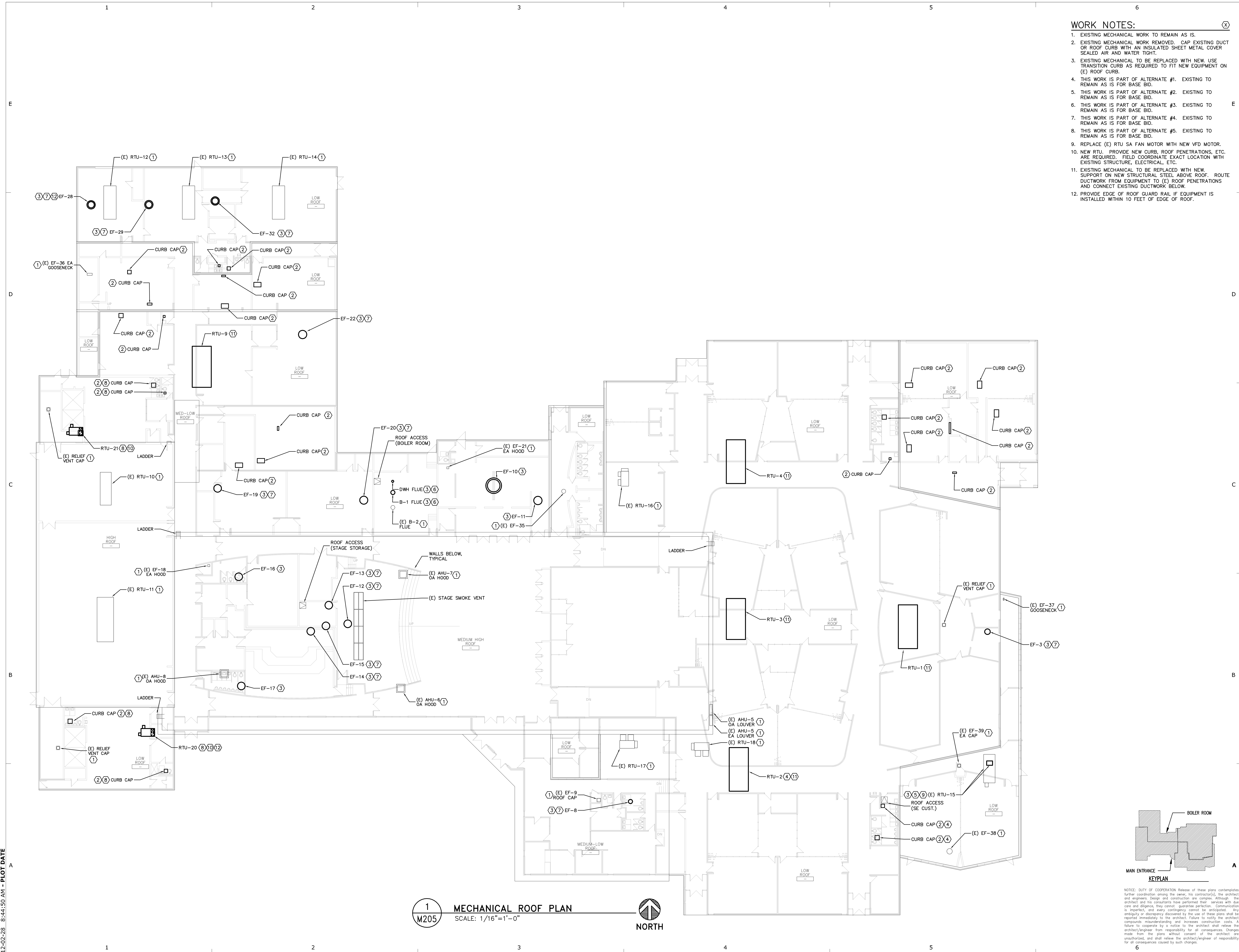
WORK NOTES:

1. EXISTING MECHANICAL WORK TO REMAIN AS IS.
2. NEW VAV BOX WITH HEATING COIL. CONNECT TO (E) ZONE DUCTWORK. SEE HEATING COIL PIPING DETAIL SHEET M002.
3. EXISTING MECHANICAL SYSTEMS REPLACED WITH NEW. CONNECT TO EXISTING SYSTEMS AS REQUIRED.
4. THIS WORK IS PART OF ALTERNATE #1. EXISTING TO REMAIN AS IS FOR BASE BID.
5. THIS WORK IS PART OF ALTERNATE #2. EXISTING TO REMAIN AS IS FOR BASE BID.
6. NOT USED.
7. THIS WORK IS PART OF ALTERNATE #4. EXISTING TO REMAIN AS IS FOR BASE BID.
8. NOT USED.
9. NOT USED.
10. RE-BALANCE THIS AREA TO CFM NOTED. EQUALLY DISTRIBUTE AIR BETWEEN EXISTING DIFFUSERS WHERE APPLICABLE.
11. DUCT BEHIND LOUVER SEALED AIR AND WATER TIGHT WITH 4" RIGID INSULATION AND SHEET METAL CAP ON INSIDE OF LOUVER.
12. (2) TRANSFER AIR GRILLES CONNECTED WITH INSULATED FLEXIBLE DUCTWORK, SIZE AS INDICATED.
13. 18" RA DUCT FROM FLOOR UP THRU CEILING WITH (2) 12/36 S1 GRILLES ON SIDES 6" AFF. CONNECT TO (E) RA DUCTWORK ABOVE CEILING.
14. 18" RA DUCT FROM FLOOR UP THRU CEILING WITH (2) 12/36 S1 GRILLES ON SIDES 6" AFF. OPEN END OF DUCTWORK ABOVE CEILING IN PLENUM SPACE.



1
M204
MECHANICAL PLAN - AREA 4
SCALE: 1/8"=1'-0"
NORTH

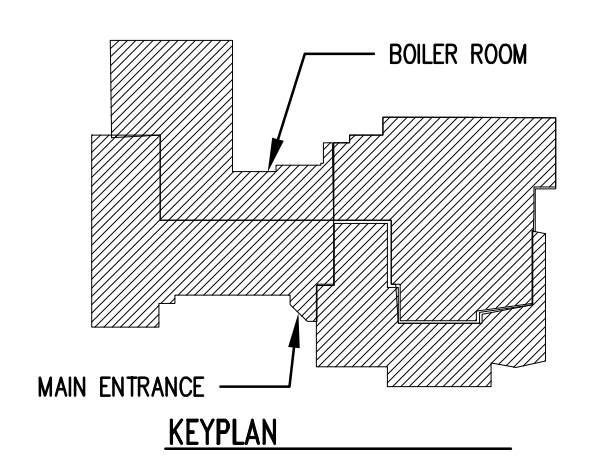
NOTICE: DUTY OF COOPERATION Release of these plans contemplates further coordination among the owner, his contractor(s), the architect and engineers. Design and construction are complex. Although the architect and his consultants have performed their services with due care and diligence, they cannot guarantee perfection. Communication is important, and every contingency cannot be anticipated. Any ambiguity or discrepancy discovered by the use of these plans shall be reported immediately to the architect. Failure to notify the architect compounds misunderstanding and increases construction costs. A failure to cooperate by a notice to the architect shall relieve the architect/engineer from responsibility for all consequences. Changes made from the plans without consent of the architect are unauthorized, and shall relieve the architect/engineer of responsibility for all consequences caused by such changes.



- WORK NOTES:**
- EXISTING MECHANICAL WORK TO REMAIN AS IS.
 - EXISTING MECHANICAL WORK REMOVED. CAP EXISTING DUCT OR ROOF CURB WITH AN INSULATED SHEET METAL COVER SEALED AIR AND WATER TIGHT.
 - EXISTING MECHANICAL TO BE REPLACED WITH NEW. USE TRANSITION CURB AS REQUIRED TO FIT NEW EQUIPMENT ON (E) ROOF CURB.
 - THIS WORK IS PART OF ALTERNATE #1. EXISTING TO REMAIN AS IS FOR BASE BID.
 - THIS WORK IS PART OF ALTERNATE #2. EXISTING TO REMAIN AS IS FOR BASE BID.
 - THIS WORK IS PART OF ALTERNATE #3. EXISTING TO REMAIN AS IS FOR BASE BID.
 - THIS WORK IS PART OF ALTERNATE #4. EXISTING TO REMAIN AS IS FOR BASE BID.
 - THIS WORK IS PART OF ALTERNATE #5. EXISTING TO REMAIN AS IS FOR BASE BID.
 - REPLACE (E) RTU SA FAN MOTOR WITH NEW VFD MOTOR.
 - NEW RTU. PROVIDE NEW CURB, ROOF PENETRATIONS, ETC. ARE REQUIRED. FIELD COORDINATE EXACT LOCATION WITH EXISTING STRUCTURE, ELECTRICAL, ETC.
 - EXISTING MECHANICAL TO BE REPLACED WITH NEW. SUPPORT ON NEW STRUCTURAL STEEL ABOVE ROOF. ROUTE DUCTWORK FROM EQUIPMENT TO (E) ROOF PENETRATIONS AND CONNECT EXISTING DUCTWORK BELOW.
 - PROVIDE EDGE OF ROOF GUARD RAIL IF EQUIPMENT IS INSTALLED WITHIN 10 FEET OF EDGE OF ROOF.

2012-02-28 8:44:50 AM - PLOT DATE

1
M205 **MECHANICAL ROOF PLAN**
SCALE: 1/16"=1'-0"
NORTH



KEYPLAN

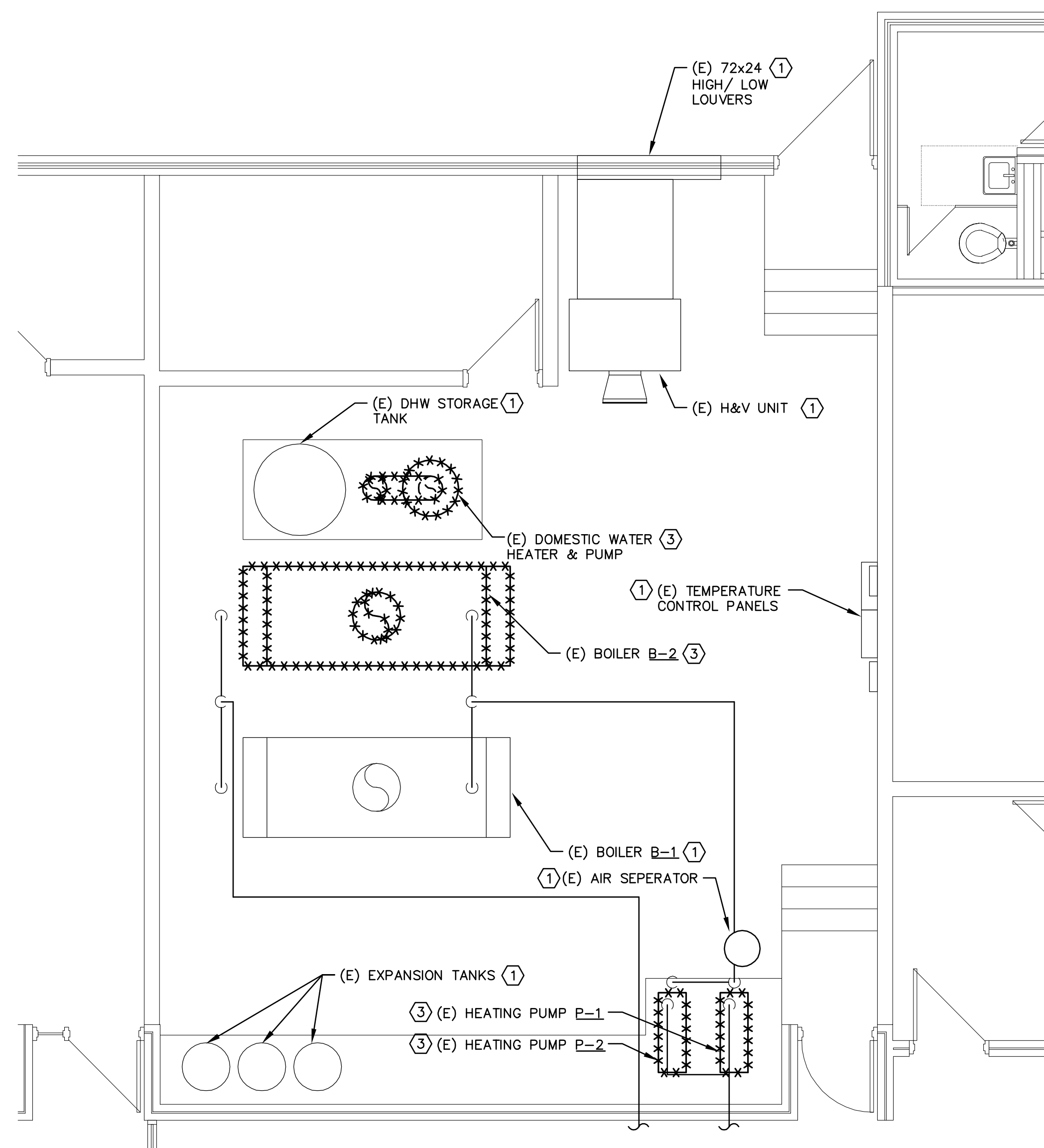
NOTICE: DUTY OF COOPERATION Release of these plans contemplates further coordination among the owner, his contractor(s), the architect and engineers. Design and construction are complex. Although the architect and his consultants have performed their services with due care and diligence, they cannot guarantee perfection. Communication is important, and every contingency cannot be anticipated. Any ambiguity or discrepancy discovered by the use of these plans shall be reported immediately to the architect. Failure to notify the architect compounds misunderstanding and increases construction costs. A failure to cooperate by a notice to the architect shall relieve the architect/engineer from responsibility for all consequences. Changes made from the plans without consent of the architect are unauthorized, and shall relieve the architect/engineer of responsibility for all consequences caused by such changes.

GENERAL NOTES:

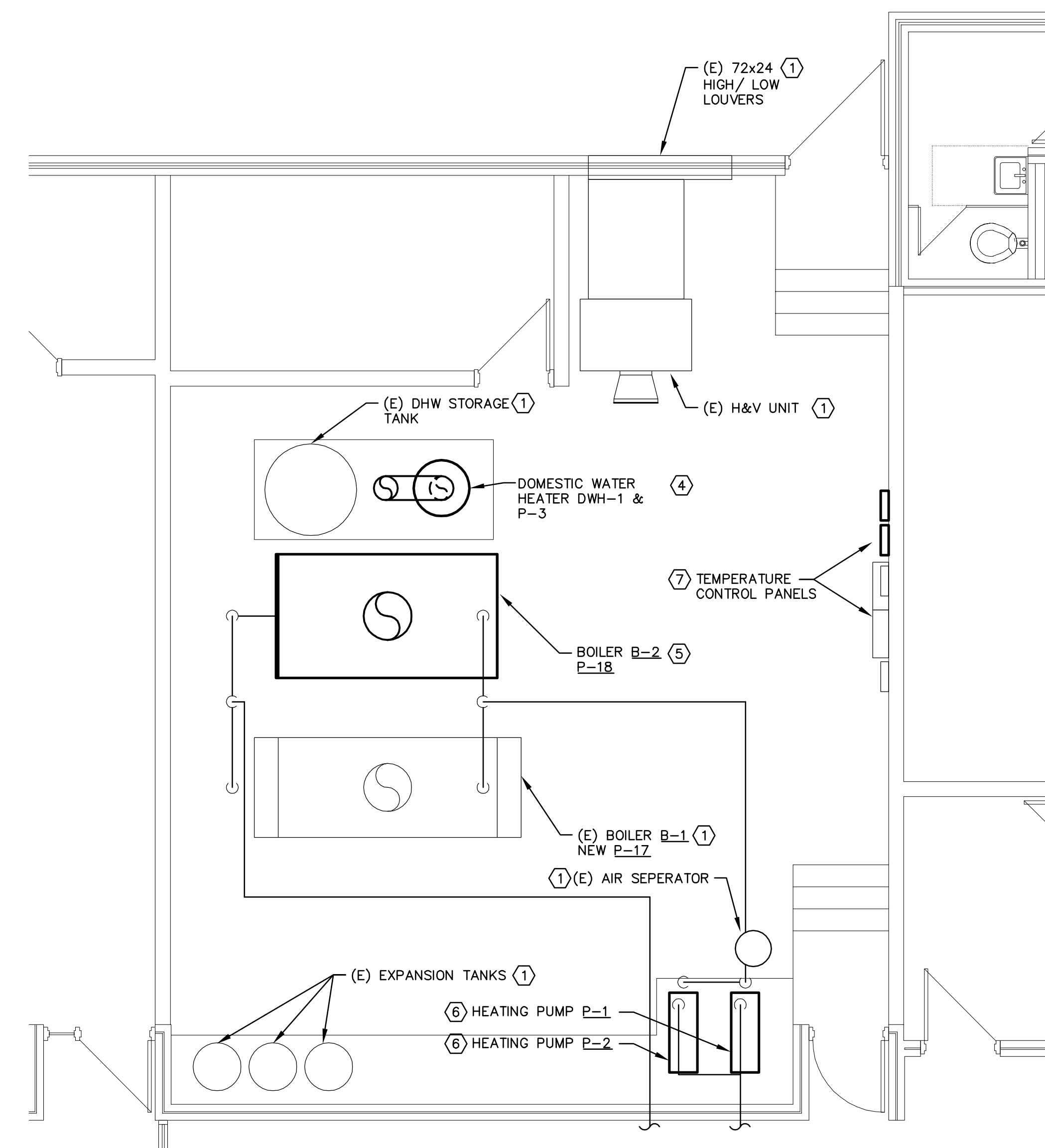
1. ALL WORK IN THE BOILER ROOM IS PART OF ALTERNATE NUMBER 3. EXISTING TO REMAIN AS IS UNLESS NOTED OTHERWISE.

WORK NOTES:

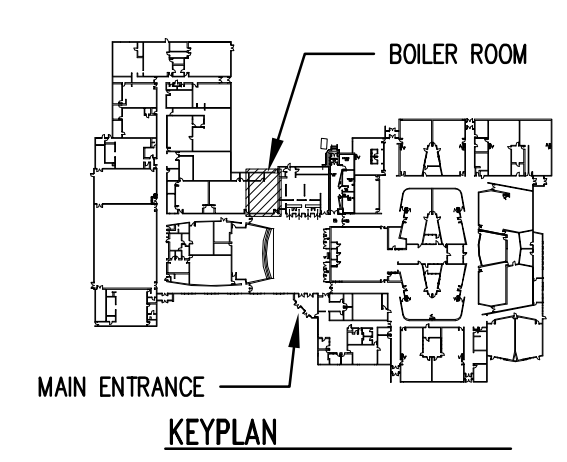
1. EXISTING MECHANICAL WORK TO REMAIN AS IS.
2. NOT USED.
3. EXISTING MECHANICAL TO BE REMOVED AND REPLACED WITH NEW. TEMPORARILY CAP SYSTEMS TO REMAIN AS REQUIRED.
4. NEW DOMESTIC WATER HEATER TO BE CONNECTED TO EXISTING STORAGE TANK. NEW FLUE THRU ROOF IN EXISTING ROOF PENETRATION. SEE WATER HEATER DETAIL SHEET M002.
5. NEW BOILER TO BE CONNECTED TO (E) PIPING. PROVIDE NEW ISOLATION VALVES, BALANCE VALVE, TRANSITIONS, ETC. AS REQUIRED. NEW FLUE THRU ROOF IN EXISTING ROOF PENETRATION.
6. NEW PUMP TO BE CONNECTED TO (E) PIPING. PROVIDE NEW ISOLATION VALVES, BALANCE VALVE, TRANSITIONS, ETC. AS REQUIRED. SEE PUMP DETAIL SHEET M002.
7. NEW CONTROL PANELS TO BE MOUNTED NEXT TO (E) CONTROL PANELS AS NEEDED. TRANSFORMERS FOR VAV BOXES IN THIS AREA TO BE MOUNTED IN THIS LOCATION ALSO.



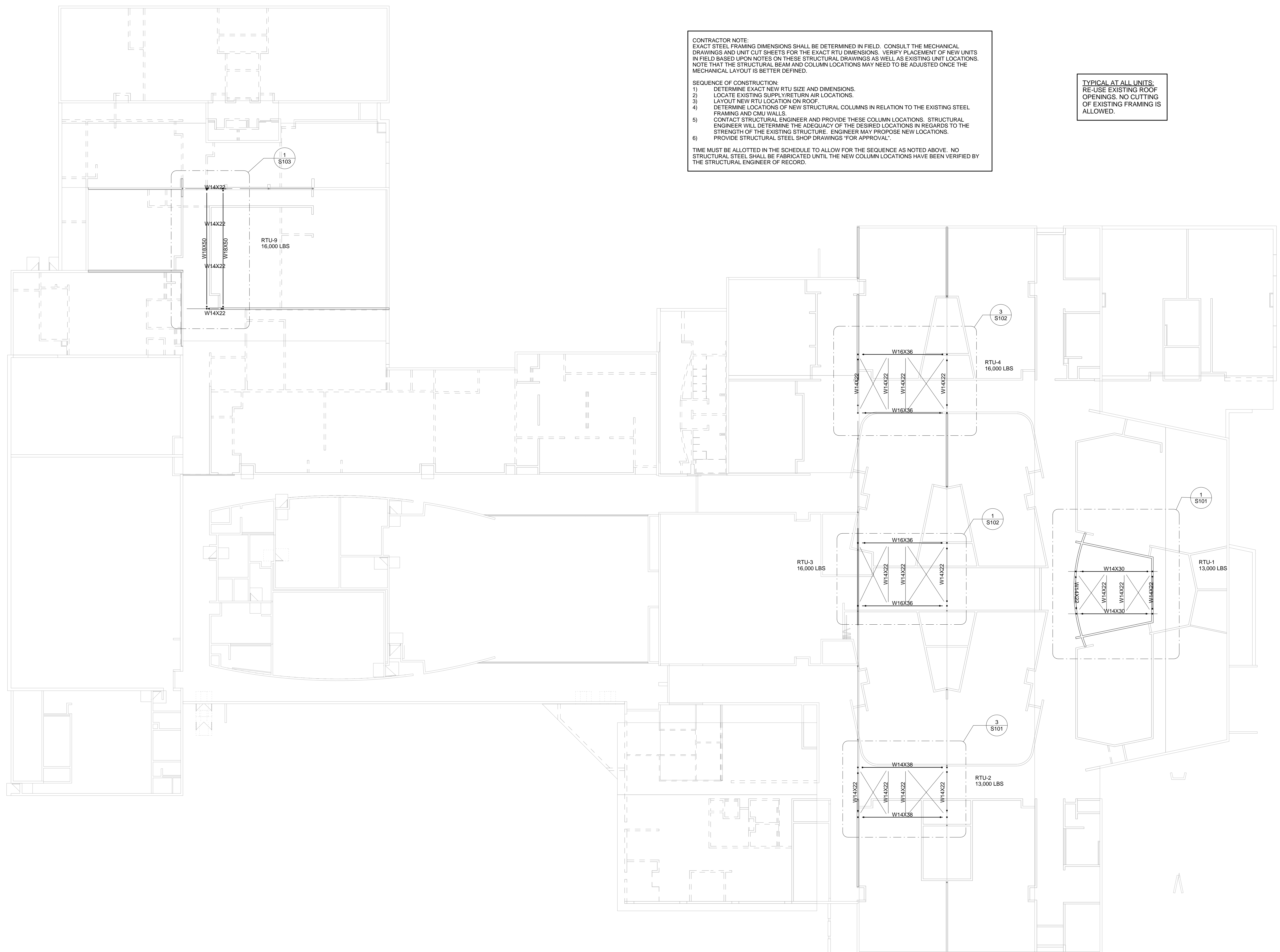
1
M301
BOILER ROOM MECHANICAL DEMOLITION PLAN
SCALE: 1/4"=1'-0"
NORTH



2
M301
BOILER ROOM MECHANICAL PLAN
SCALE: 1/4"=1'-0"
NORTH



NOTICE: DUTY OF COOPERATION Release of these plans contemplates further coordination among the owner, his contractor(s), the architect and engineers. Design and construction are complex. Although the architect and his consultants have performed their services with due care and diligence, they cannot guarantee perfection. Communication is important, and every contingency cannot be anticipated. Any ambiguity or discrepancy discovered by the use of these plans shall be reported immediately to the architect. Failure to notify the architect compounds misunderstanding and increases construction costs. A failure to cooperate by a notice to the architect shall relieve the architect/engineer from responsibility for all consequences. Changes made from the plans without consent of the architect are unauthorized, and shall relieve the architect/engineer of responsibility for all consequences caused by such changes.

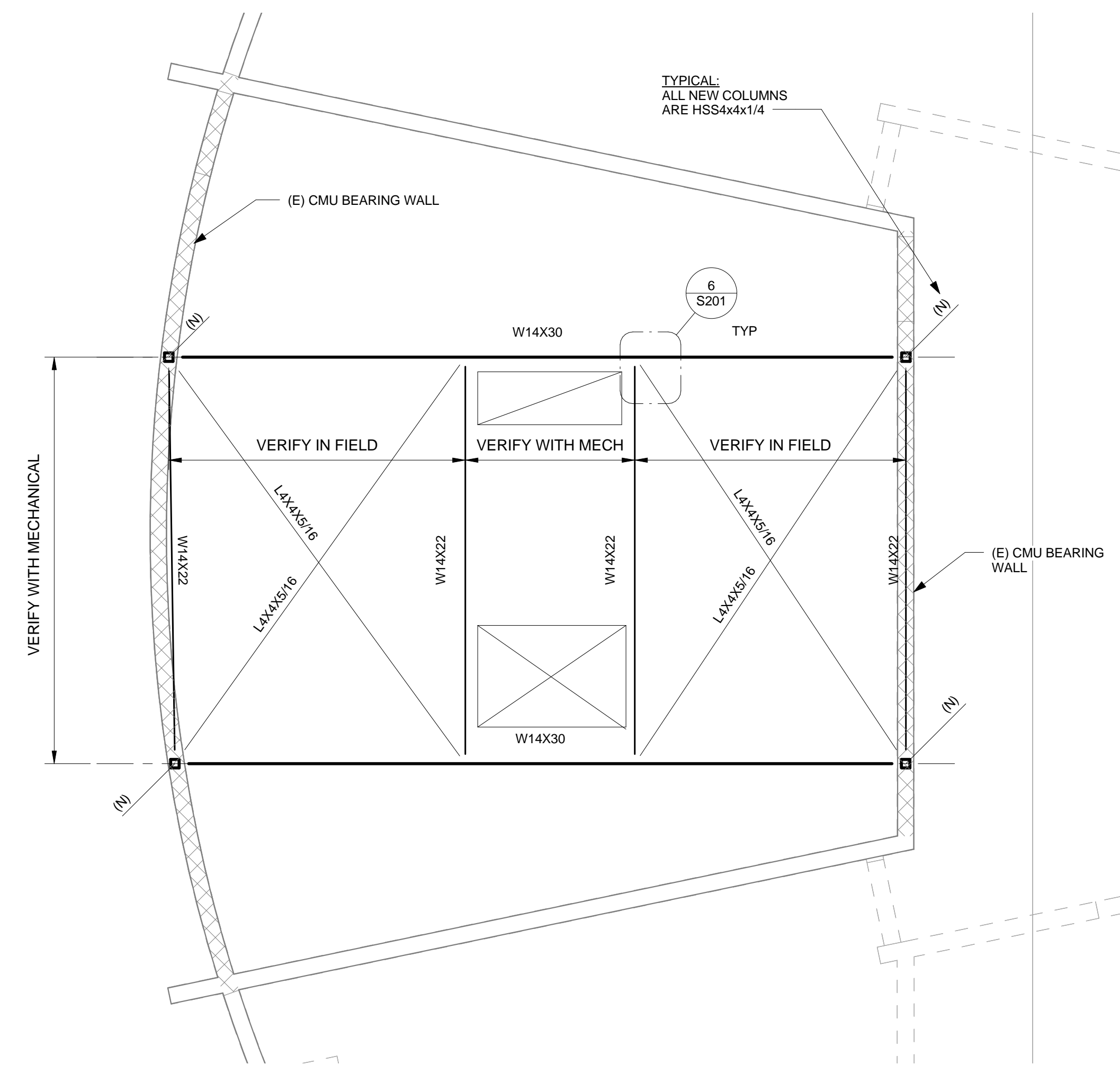


CONTRACTOR NOTE:
EXACT STEEL FRAMING DIMENSIONS SHALL BE DETERMINED IN FIELD. CONSULT THE MECHANICAL DRAWINGS AND UNIT CUT SHEETS FOR THE EXACT RTU DIMENSIONS. VERIFY PLACEMENT OF NEW UNITS IN FIELD BASED UPON NOTES ON THESE STRUCTURAL DRAWINGS AS WELL AS EXISTING UNIT LOCATIONS. NOTE THAT THE STRUCTURAL BEAM AND COLUMN LOCATIONS MAY NEED TO BE ADJUSTED ONCE THE MECHANICAL LAYOUT IS BETTER DEFINED.

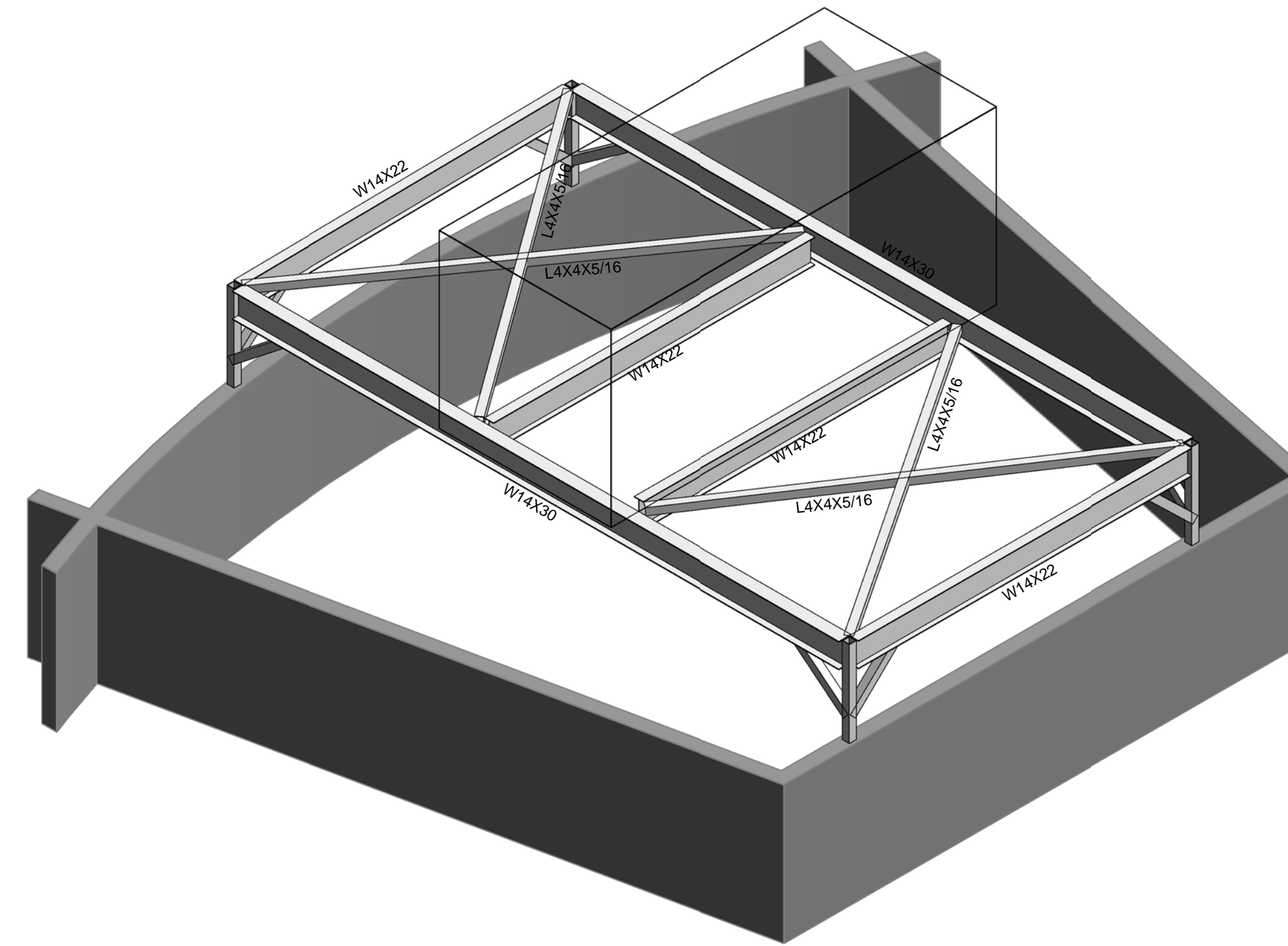
SEQUENCE OF CONSTRUCTION:
1) DETERMINE EXACT NEW RTU SIZE AND DIMENSIONS.
2) LOCATE EXISTING SUPPLY/RETURN AIR LOCATIONS.
3) LAYOUT NEW RTU LOCATION ON ROOF.
4) DETERMINE LOCATIONS OF NEW STRUCTURAL COLUMNS IN RELATION TO THE EXISTING STEEL FRAMING AND CMU WALLS.
5) CONTACT STRUCTURAL ENGINEER AND PROVIDE THESE COLUMN LOCATIONS. STRUCTURAL ENGINEER WILL DETERMINE THE ADEQUACY OF THE DESIRED LOCATIONS IN REGARDS TO THE STRENGTH OF THE EXISTING STRUCTURE. ENGINEER MAY PROPOSE NEW LOCATIONS. PROVIDE STRUCTURAL STEEL SHOP DRAWINGS FOR APPROVAL.
6) TIME MUST BE ALLOTTED IN THE SCHEDULE TO ALLOW FOR THE SEQUENCE AS NOTED ABOVE. NO STRUCTURAL STEEL SHALL BE FABRICATED UNTIL THE NEW COLUMN LOCATIONS HAVE BEEN VERIFIED BY THE STRUCTURAL ENGINEER OF RECORD.

TYPICAL AT ALL UNITS.
RE-USE EXISTING ROOF OPENINGS. NO CUTTING OF EXISTING FRAMING IS ALLOWED.

1 OVERALL PLAN
S001 1/16" = 1'-0"

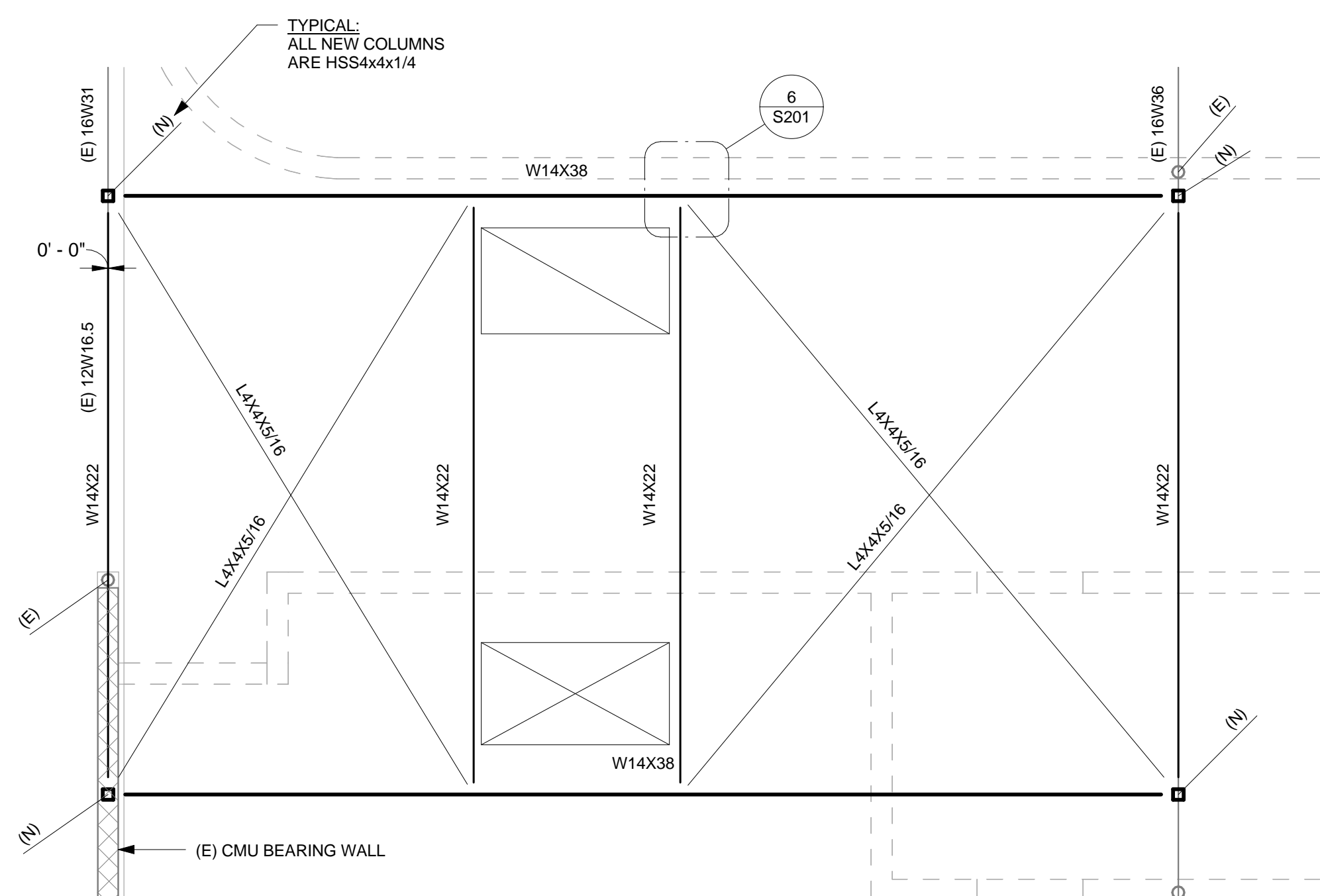


1 RTU 1 ENLARGED PLAN
 S101 1/4" = 1'-0"

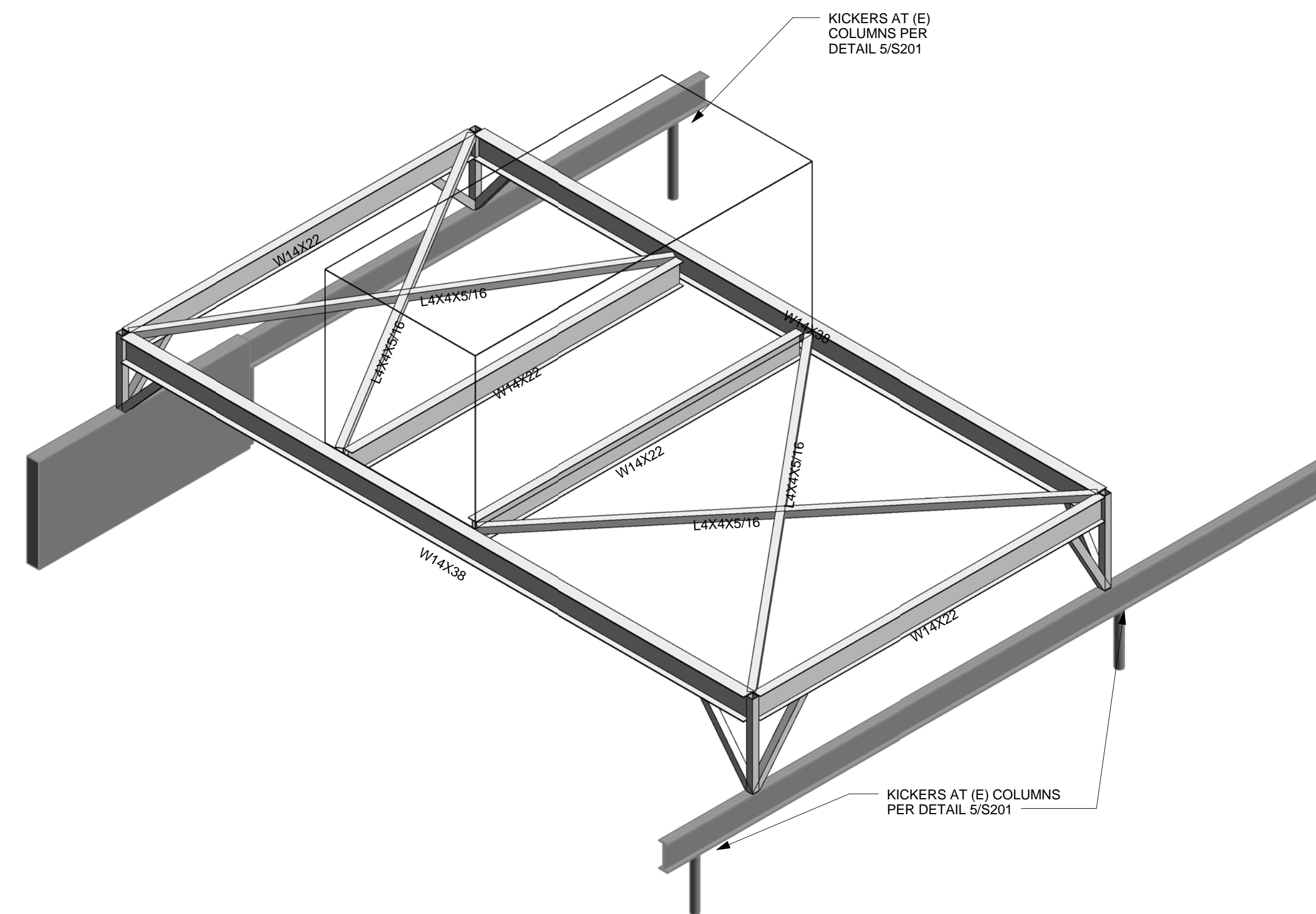


2 RTU 1 ISOMETRIC
 S101

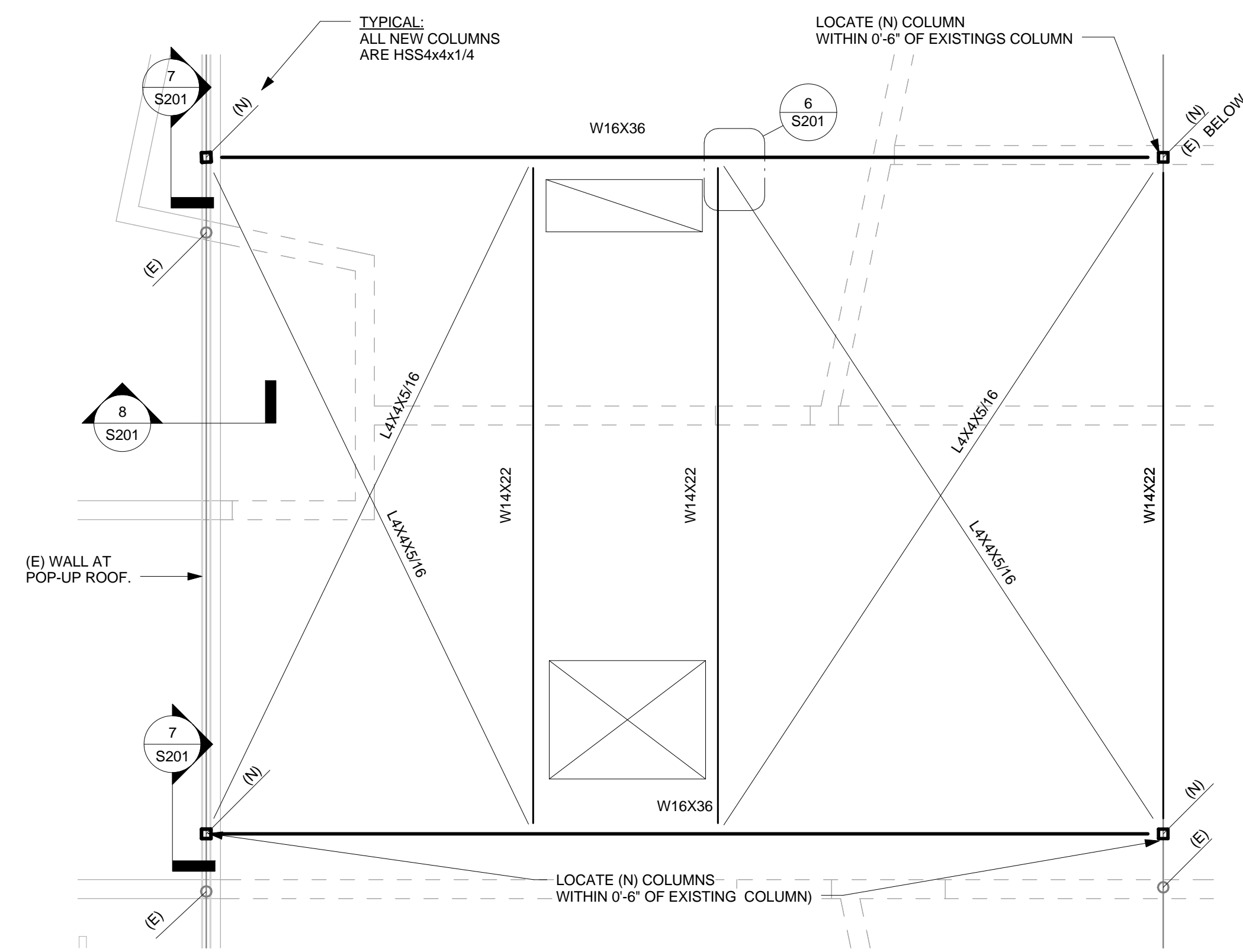
SEE SHEET S2.1 FOR TYPICAL STEEL CONNECTIONS



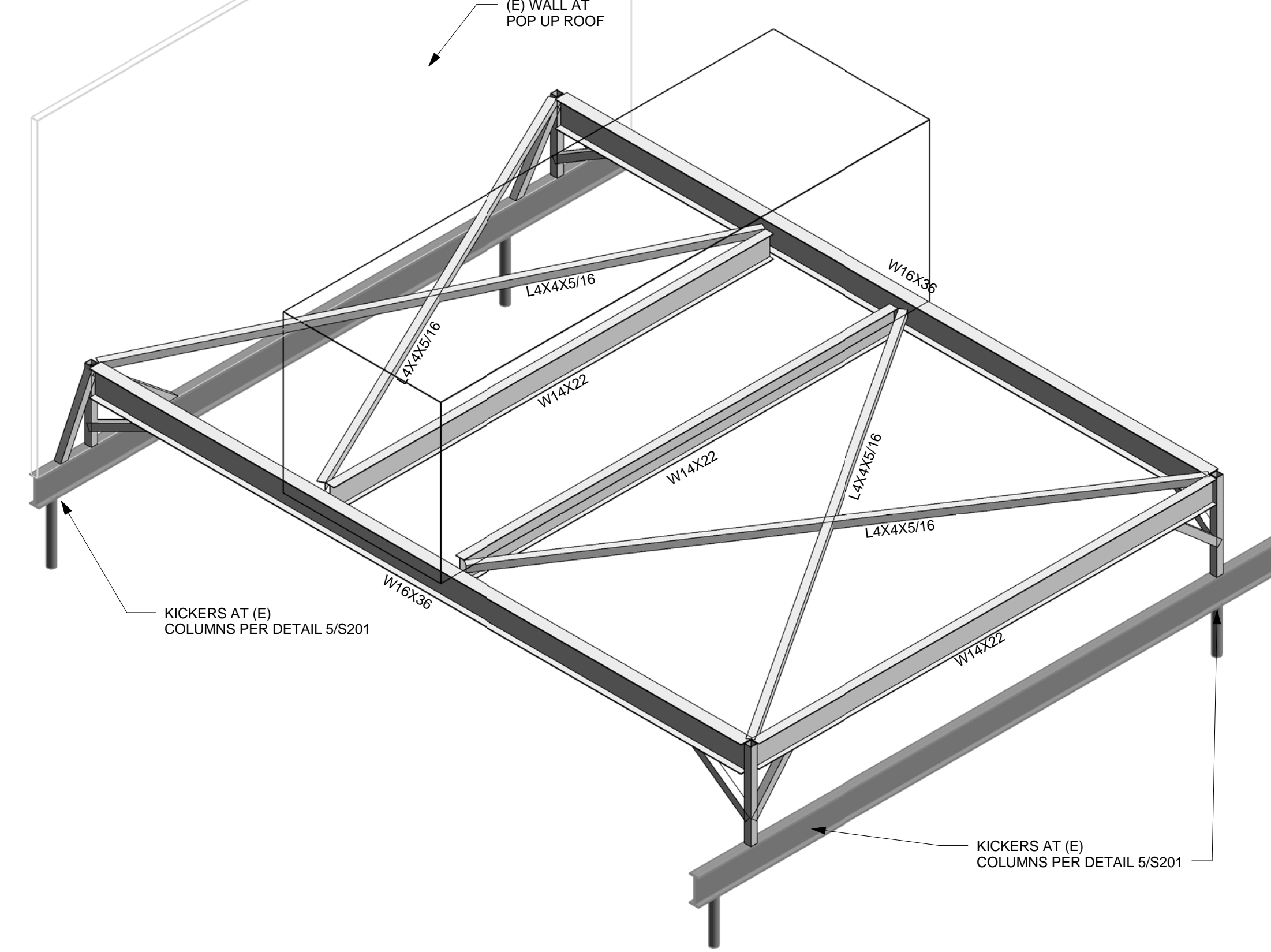
3 RTU 2 ENLARGED PLAN
 S101 1/4" = 1'-0"



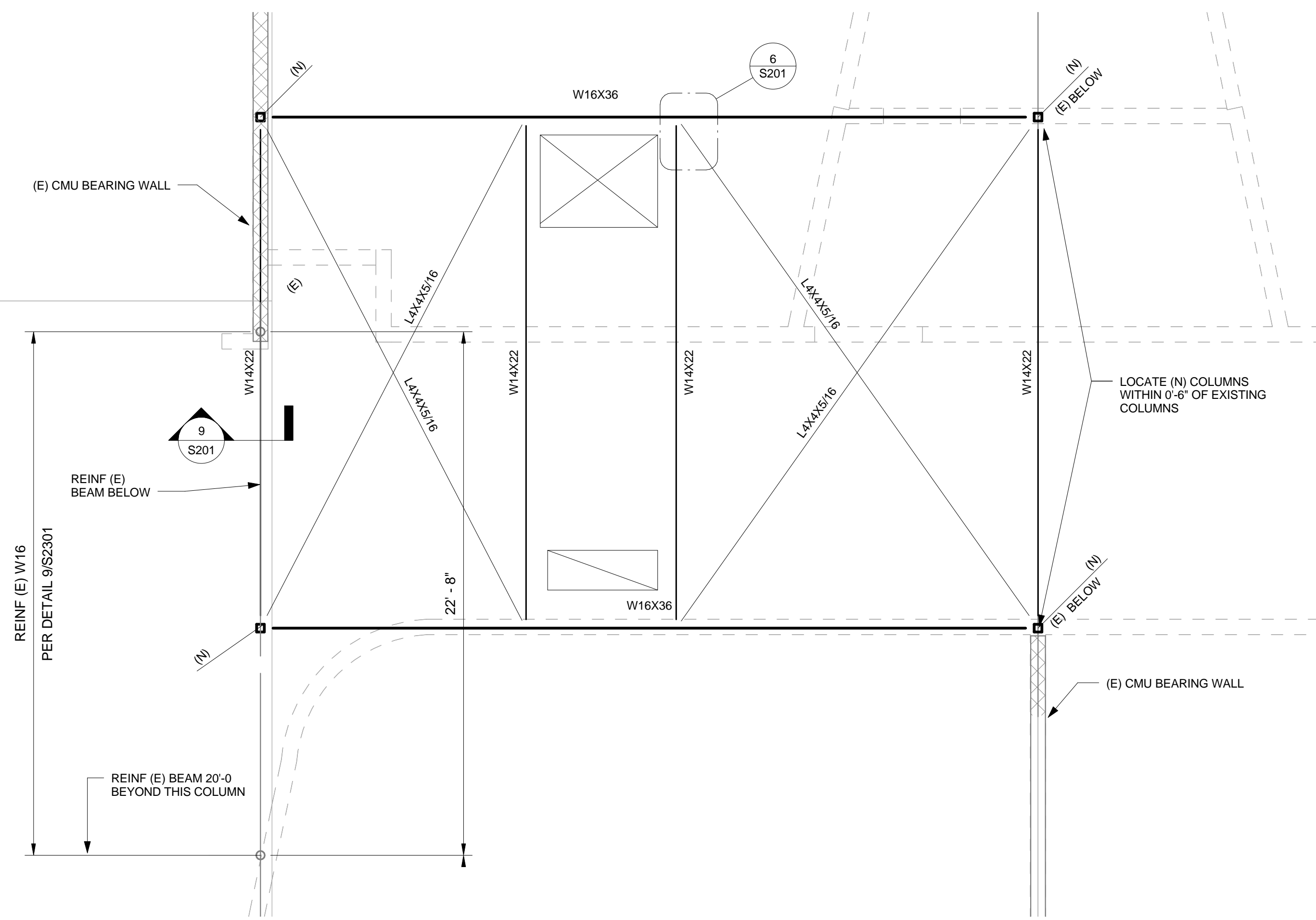
4 RTU 2 ISOMETRIC
 S101



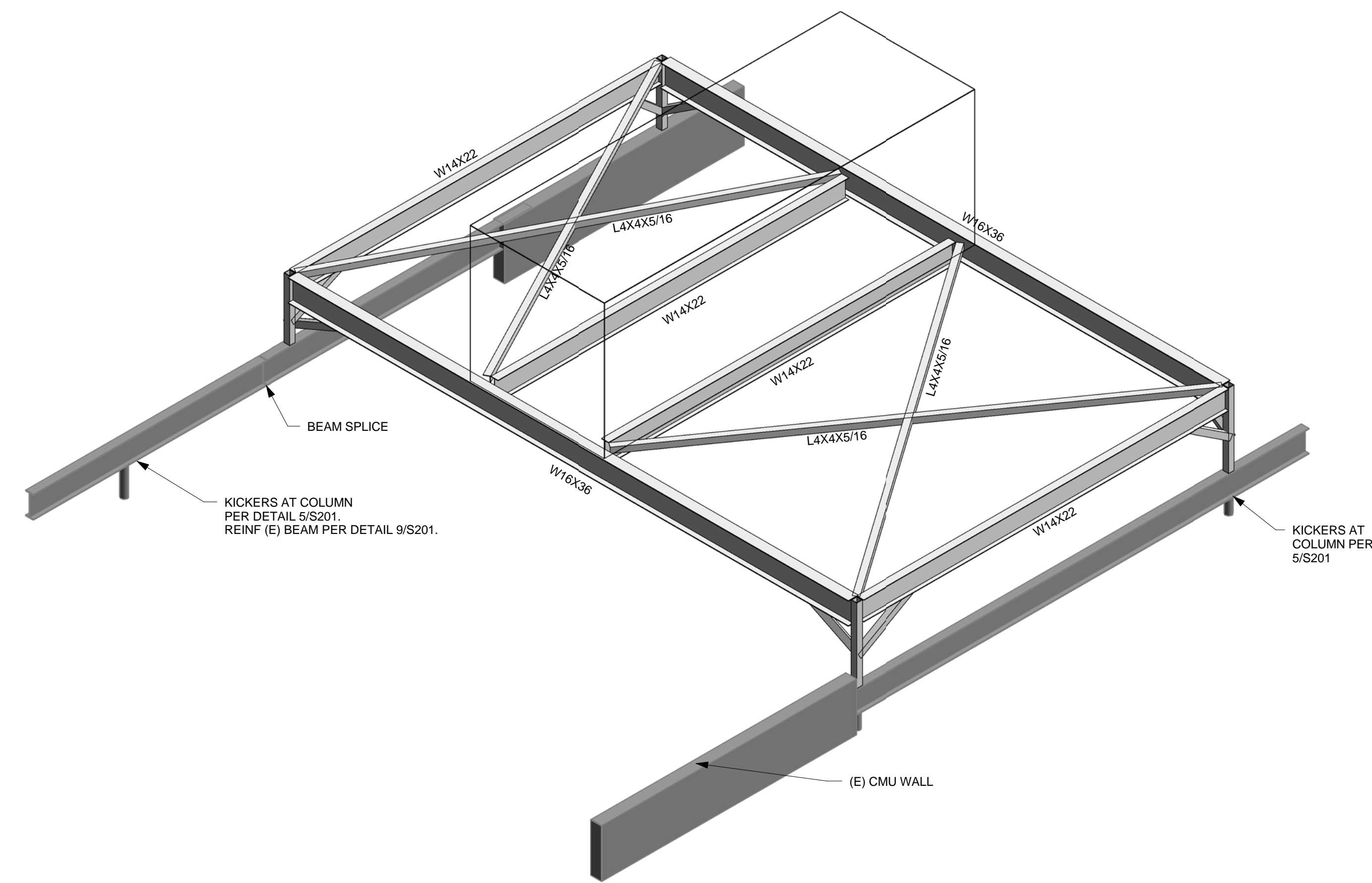
1 RTU 3 ENLARGED PLAN
S102 1/4" = 1'-0"



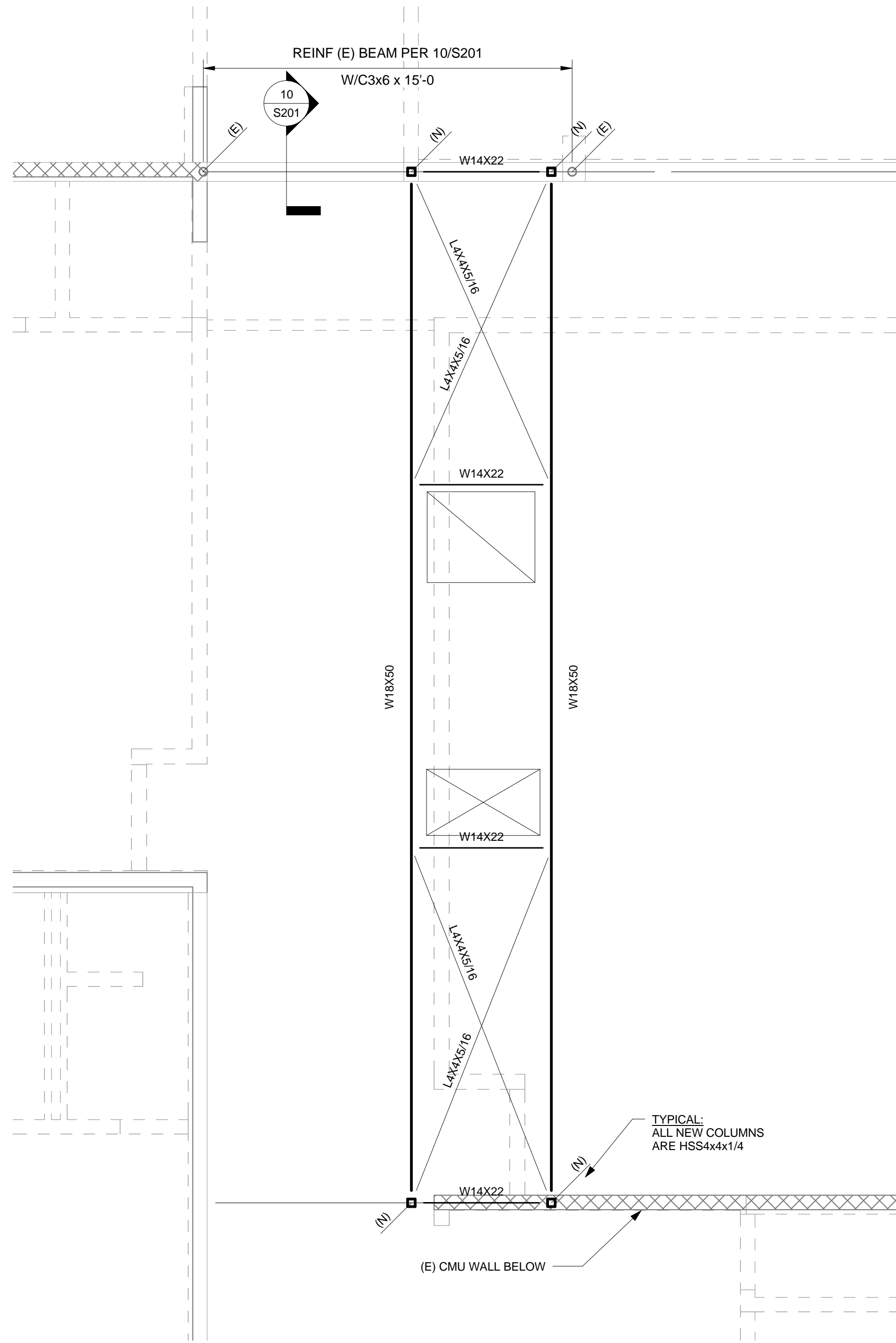
2 RTU 3 ISOMETRIC
S102



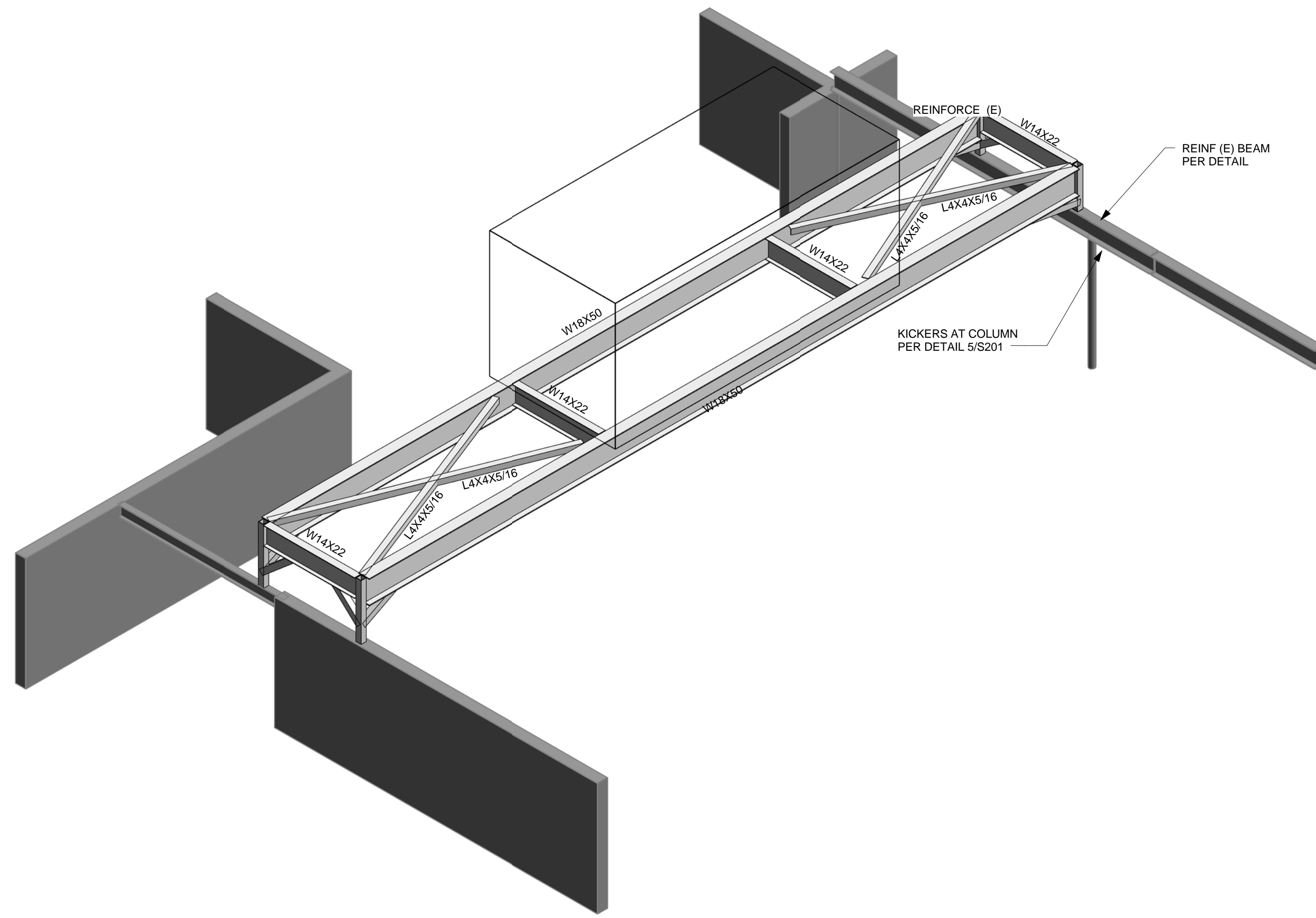
3 RTU 4 ENLARGED PLAN
S102 1/4" = 1'-0"



4 RTU 4 ISOMETRIC
S102



1 RTU 9 ENLARGED PLAN
S103 1/4" = 1'-0"



2 RTU 9 ISOMETRIC
S103

NO.	DESCRIPTION	DATE

TABLE 1704.3 REQUIRED VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD	IBC REFERENCE
1. Material verification of high-strength bolts, nuts and washers:				
a. Identification markings to conform to ASTM standards specified in the approved construction documents.	—	X	Applicable ASTM material specifications, AISC 360, Section A3.3	—
b. Manufacturer's certificate of compliance required.	—	X	—	—
2. Inspection of high-strength bolting:				
a. Bearing-type connections	—	X	AISC 360, Section M2.5	1704.3.3
b. Slip-critical connections	X	X	—	—
3. Material verification of structural steel:				
a. Identification markings to conform to ASTM standards specified in the approved construction documents.	—	—	ASTM A 6 or ASTM A 588	1708.4
b. Manufacturer's certified mill test reports.	—	—	ASTM A 6 or ASTM A 588	—
4. Material verification of weld filler materials:				
a. Identification markings to conform to AWS specification in the approved construction documents.	—	—	AISC 360, Section A3.5	—
b. Manufacturer's certificate of compliance required.	—	—	—	—
5. Inspection of welding:				
a. Structural steel:				
1) Complete and partial penetration groove welds	—	X	—	1704.3.1
2) Multiple fillet welds	X	—	AWS D1.1	—
3) Single-pass fillet welds > 3/16"	—	X	—	—
4) Single-pass fillet welds > 3/16"	—	X	—	—
b. Inspection of steel beam joint details for compliance with approved construction documents:				
1) Details such as bearing and stiffening.	—	—	—	1704.3.2
2) Member locations.	—	—	—	—
3) Application of joint details at each connection.	—	—	—	—

For SI: 1 inch = 25.4 mm.
a. Where applicable, see also Section 1707.1, Special Inspection for seismic resistance.

STRUCTURAL GENERAL NOTES
Project title: Boltz Middle School-Renovations, Poudre School District
Larsen Structural Design Project No: 1555

DESIGN LOADS: International Building Code, IBC 2009 Edition, except as noted
Occupancy Category, Table 1604.5 III Standard

Roofs:

Ground Snow, Pg	30 psf (used for drifting calculations)
Flat Roof Snow, Pf	30 psf
Snow Exposure Factor, Ce	Table 1608.3.1 1.00
Snow Importance Factor, Is	Table 1604.5 1.10
Snow Thermal Factor, Ct	Table 1608.3.2 1.00

Lateral

Wind IBC 1603.1.4, ASCE 7-02	Analytic Method
3 Second Gust Velocity	100 mph
Importance Factor	1.15
Building Category and Internal Pressure Coefficient	C
IBC 1609.2, ASCE Figure 6-5	Enclosed, GCp=0.18
Exposure	C
Components and Cladding Pressures	See Pressures Table on Drawings

STRUCTURAL STEEL:
Structural steel shall be detailed, fabricated, and erected in accordance with the "Specification for Structural Steel Buildings" (AISC 360-05) and the "Code of Standard Practice for Steel Building and Bridges" (AISC 303-05), by the American Institute of Steel Construction (AISC).
Structural steel wide flange beams shall conform to ASTM A992.
Other rolled shapes, including plates, channels, and angles shall conform to ASTM A36.
Hollow structural section (HSS) tube shapes shall conform to ASTM A500, Grade B, 46 ksi yield.
Pipe shapes shall conform to ASTM A53 Grade B.
Except as noted, framed beam connections shall be bearing-type with 3/4" diameter, snug tight, A325-N bolts, detailed in conformance with the Structural Drawings and the "Steel Construction Manual" by AISC, 13th Edition, Install bolts in accordance with AISC "Specification for Structural Joints Using ASTM A325 or A490 Bolts", 2004.
All beams shall have full depth web stiffeners each side of webs above and below columns.
Anchor rods shall conform to ASTM F1554, Grade 36 (or high strength Gr 55 or Gr 105 as noted), with weldability supplement S1.
Headed anchor studs (HAS) shall be attached to structural steel with equipment approved by the stud manufacturer according to the stud manufacturer's recommendations.
Welding shall be done by a certified welder in accordance with AISC and AWS specifications and recommendations using E70 electrodes. Where not specifically noted, minimum weld shall be 3/16" fillet by length of contact edge.
All post-installed anchors shall have current International Code Council Evaluation Service (ICC-ES) reports and shall be installed in accordance with the manufacturer's requirements.
Expansion anchors shall be approved "wedge" type unless specifically noted to be "sleeve" type.
Chemical anchors shall be approved epoxy or similar adhesive type and shall have current ICC-ES Report. Where base material is not solid, approved screen tubes shall be used.
Gout beneath column base and beam-bearing plates shall be minimum 28-day compressive strength of 7,500 psi, approved non-shrink, when tested in accordance with ASTM C1107 Grade B or C at a flow cone fluid consistency of 20 to 30 seconds.

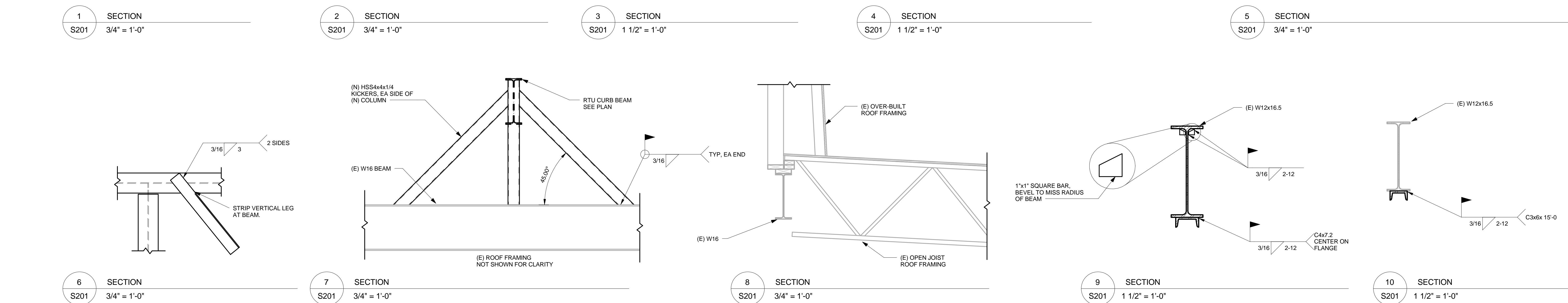
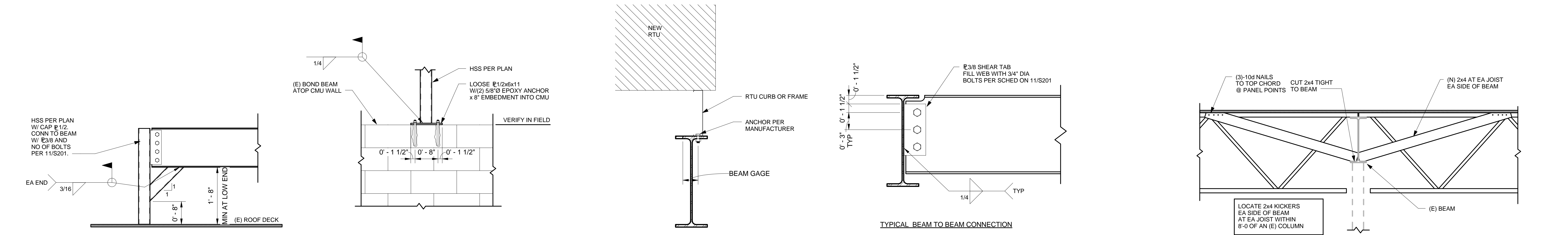
SHOP DRAWINGS:
Construction Documents are copyrighted and shall not be copied for use as erection plans or shop details. Use of Larsen Structural Design's electronic files as base for shop drawings requires prior approval by Larsen Structural Design, signed release of liability by subcontractor, and deletion of Larsen Structural Design's name and Logo from all sheets so used. The General Contractor and his subcontractors shall submit in writing any requests to modify the plans or specifications. All shop and erection drawings shall be checked and stamped by the General Contractor prior to submission for Engineer's review.
Unchecked submittals will be returned without review.
Furnish one (1) print and one (1) electronic copy of shop and erection drawings to the Structural Engineer for review prior to fabrication for structural steel.
Submit in a timely manner to permit ten (10) working days for review.
Shop drawings submitted for review do not constitute "request for change in writing" unless specific suggested changes are clearly marked. In any event, such changes by means of the shop drawing submittal process become the responsibility of the one initiating such change.

FIELD VERIFICATION OF EXISTING CONDITIONS:
Contractor shall thoroughly inspect and survey existing structure to verify conditions that affect the work shown on the drawings. Contractor shall report any variations or discrepancies to the Architect before proceeding.

STRUCTURAL ERECTION AND BRACING REQUIREMENTS:
The structural drawings illustrate the completed structure with elements in their final positions, properly supported and braced. These construction documents contain typical and representative details to assist the contractor. Details shown apply at all similar conditions unless otherwise indicated. Although due diligence has been applied to make the drawings as complete as possible, not every detail is illustrated, nor is every exceptional condition addressed. All proprietary connections shall be installed in accordance with the manufacturers' recommendations. All work shall be accomplished in a workmanlike manner and in accordance with the applicable code and local ordinances. The general contractor is responsible for coordination of all work, including layout and dimension verification, materials coordination, shop drawing review, and the work of subcontractors. Any discrepancies or omissions discovered in the course of the work shall be immediately reported to the architect for resolution. Continuation of work without notification of discrepancies releases the architect and engineer from all consequences. Unless otherwise specifically indicated, the drawings do not describe methods of construction. The contractor, in the proper sequence, shall perform or supervise all work necessary to achieve the final completed structure, and to protect the structure, workers, and others during construction. Such work shall include, but not be limited to, bracing, shoring for construction equipment, shoring for excavation, formwork, scaffolding, safety devices and programs of all kinds, support and bracing for cranes and other erection equipment. Do not backfill against basement or retaining walls until supporting walls and floor framing are in place and securely anchored, unless adequate bracing is provided. Temporary bracing shall remain in place until all floors, walls, roofs and any other supporting elements are in place. The architect and engineer bear no responsibility for the above items, and observation visits to the site do not in any way include inspection of them.

FIELD VERIFICATION OF EXISTING CONDITIONS:
Contractor shall thoroughly inspect and survey existing structure to verify conditions that affect the work shown on the drawings. Contractor shall report any variations or discrepancies to the Architect before proceeding.

STRUCTURAL ERECTION AND BRACING REQUIREMENTS:
The structural drawings illustrate the completed structure with elements in their final positions, properly supported and braced. These construction documents contain typical and representative details to assist the contractor. Details shown apply at all similar conditions unless otherwise indicated. Although due diligence has been applied to make the drawings as complete as possible, not every detail is illustrated, nor is every exceptional condition addressed. All proprietary connections shall be installed in accordance with the manufacturers' recommendations. All work shall be accomplished in a workmanlike manner and in accordance with the applicable code and local ordinances. The general contractor is responsible for coordination of all work, including layout and dimension verification, materials coordination, shop drawing review, and the work of subcontractors. Any discrepancies or omissions discovered in the course of the work shall be immediately reported to the architect for resolution. Continuation of work without notification of discrepancies releases the architect and engineer from all consequences. Unless otherwise specifically indicated, the drawings do not describe methods of construction. The contractor, in the proper sequence, shall perform or supervise all work necessary to achieve the final completed structure, and to protect the structure, workers, and others during construction. Such work shall include, but not be limited to, bracing, shoring for construction equipment, shoring for excavation, formwork, scaffolding, safety devices and programs of all kinds, support and bracing for cranes and other erection equipment. Do not backfill against basement or retaining walls until supporting walls and floor framing are in place and securely anchored, unless adequate bracing is provided. Temporary bracing shall remain in place until all floors, walls, roofs and any other supporting elements are in place. The architect and engineer bear no responsibility for the above items, and observation visits to the site do not in any way include inspection of them.



SINGLE ROW BEARING BOLTED BEAM CONN SCHEDULE

BEAM TYPE	# OF 3/4" Ø A325 N OR TC BOLTS	PLATE LENGTH (L)	COMMENTS
W8	2	6"	HORIZONTAL SHORT SLOTTED HOLE IN PLATE
W10	2	6"	HORIZONTAL SHORT SLOTTED HOLE IN PLATE
W12, W14	3	9"	HORIZONTAL SHORT SLOTTED HOLE IN PLATE
W16	4	12"	HORIZONTAL SHORT SLOTTED HOLE IN PLATE
W18, W21	5	15"	HORIZONTAL SHORT SLOTTED HOLE IN PLATE
W24	6	18"	HORIZONTAL SHORT SLOTTED HOLE IN PLATE
W27	7	21"	HORIZONTAL SHORT SLOTTED HOLE IN PLATE
W30	8	24"	HORIZONTAL SHORT SLOTTED HOLE IN PLATE
W33	9	27"	HORIZONTAL SHORT SLOTTED HOLE IN PLATE
W36	10	30"	HORIZONTAL SHORT SLOTTED HOLE IN PLATE

NOTE:
1. BEARING TYPE CONNECTION W/ THREADS INCLUDED IN SHEAR PLANE.
2. FOR TW < MIN. THICKNESS, CAPACITY IS REDUCED BY FACTOR tw/tmin.

11 BOLTED BEAM CONNECTION SCHEDULE
S201 3/4" = 1'-0"