

# FLAGLER SCHOOL MEP RENOVATION

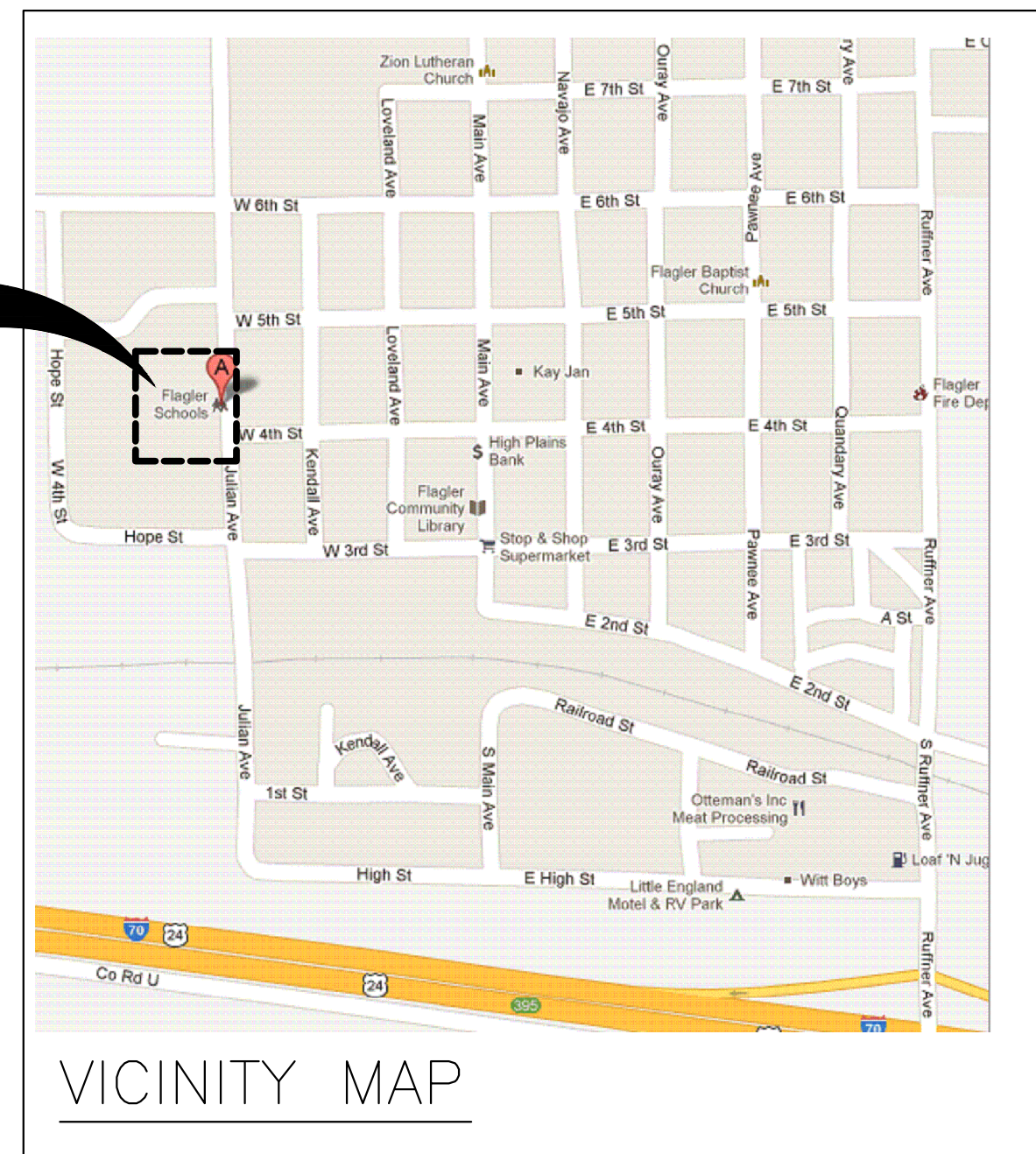
## ARRIBA FLAGLER CONSOLIDATED SCHOOL DISTRICT

FLAGLER COLORADO

100% CONSTRUCTION DOCUMENTS

MARCH 25, 2013

PROJECT  
LOCATION



### GENERAL NOTES

1. THE CONTRACTOR SHALL REPAIR OR REPLACE, AT THE DISCRETION OF DISTRICT, ALL BUILDING COMPONENTS OR SYSTEMS DAMAGED BY CONSTRUCTION OPERATIONS.
2. THE CONTRACTOR SHALL REPAIR AND PATCH, TO MATCH EXISTING, ALL WALLS, FLOORS AND CEILINGS DEMOLISHED TO PROVIDE NEW SYSTEMS OR COMPONENTS.
3. THE CONTRACTOR SHALL REVIEW ALL EQUIPMENT, INCLUDING EQUIPMENT, ENCLOSURES, PIPING, CONDUIT, CONDUCTORS ETC, TO BE DEMOLISHED WITH THE DISTRICT FOR EQUIPMENT THE DISTRICT WANTS TO SALVAGE. ALL OTHER DEMOLISHED EQUIPMENT AND COMPONENTS SHALL BE REMOVED FROM THE BUILDING.
4. ALL HANGERS, SUPPORTS, VALVES, PIPING COMPONENTS, CONDUIT, CONDUCTORS, ELECTRICAL EQUIPMENT AND CONTROLS ASSOCIATED WITH DEMOLISHED EQUIPMENT SHALL BE DEMOLISHED FROM EQUIPMENT TO THE SOURCE.
5. ALL INDICATED (E) MECHANICAL EQUIPMENT BASED UPON RECORD DRAWINGS AND FIELD OBSERVATIONS. NOT ALL EQUIPMENT MAY BE INDICATED ON THESE DOCUMENTS. THE CONTRACTOR SHALL FIELD VERIFY ALL EQUIPMENT BEFORE BEGINNING ANY WORK.
6. AT A MINIMUM ALL EQUIPMENT AND WORK SHALL BE INSTALLED AND PERFORMED IN ACCORDANCE WITH THE STATE ADOPTED INTERNATIONAL BUILDING CODES, INCLUDING ALL ADOPTED AMENDMENTS. THE CONTRACT DOCUMENTS MAY REQUIRE EQUIPMENT AND WORK TO BE INSTALLED AND PERFORMED THAT EXCEEDS THE CODE REQUIREMENTS.

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### PROJECT TEAM:

#### OWNER:

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Contact: Mr. Gary Leffingwell, P.E.

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FLAGLER SCHOOL MEP RENOVATION

ARRIBA FLAGLER CSD 20

Flagler, Colorado

REV	DATE
	03/25/13 100% CD

ENGINEER:	CHECKED BY:
LCE	LCE
DRAFTER:	DATE:
LCE	03/25/13

PROJECT NUMBER:  
12036

DRAWING TITLE:  
TITLE SHEET

DRAWING SCALE:  
AS INDICATED

DRAWING NUMBER:

T-1

### PIPING SYMBOLS

(NOT ALL SYMBOLS SHOWN ARE USED ON THESE DRAWINGS)

ABBR.	SYMBOL	DESCRIPTION
AAV		AUTOMATIC AIR VENT
BC		BALANCING COCK
		BALL VALVE
		BUTTERFLY VALVE
		CHECK VALVE
		FLEXIBLE PIPE CONNECTOR
		FLOW MEASURING STATION (SEE SPECIFICATIONS)
		FLOW SWITCH
		GATE VALVE
		GLOBE VALVE
HEV		HOSE END VALVE
MAV		MANUAL AIR VENT
		PRESSURE GAUGE WITH SHUT OFF COCK
		PRESSURE REDUCING VALVE
PRV		PRESSURE REGULATING VALVE
		PRESSURE RELIEF VALVE
P/T		PRESSURE/TEMPERATURE TEST POINT
		STEAM TRAP
		-INVERTED BUCKET TRAP (IBT)
		-THERMOSTATIC TRAP (TT)
		-FLOAT & THERMOSTATIC (FTT)
		STRAINER
		STRAINER WITH BLOW OFF
		THERMOMETER AND THERMOWELL
		UNION
		VENTURI FLOW METER (SEE SPECIFICATIONS)
		TURBINE FLOW METER (SEE SPECIFICATIONS)
		INLINE PUMP

### SHEETMETAL SYMBOLS

(NOT ALL SYMBOLS SHOWN ARE USED ON THESE DRAWINGS)

ABBR.	SYMBOL	DESCRIPTION
		ELBOW UP
		ELBOW DOWN
		TEE UP
		TEE DOWN
		TEE
		90° ELBOW
		PIPING CAP OR PLUG
		PIPING FLANGE
		DIRECTION OF FLOW
		DIRECTION OF PIPE PITCH
		PIPE EXPANSION ANCHOR
		PIPE EXPANSION GUIDE
		CONDENSER WATER SUPPLY
		CONDENSER WATER RETURN
		HEATING WATER SUPPLY
		HEATING WATER RETURN
		REFRIGERANT LIQUID
		REFRIGERANT SUCTION
		LOW PRESSURE STEAM (15 PSI)
		LOW PRESSURE CONDENSATE RETURN
		PUMPED CONDENSATE
		CONDENSATE OR EQUIPMENT DRAIN
		MANUAL VOLUME DAMPER IN DUCT
		FLEXIBLE CONNECTION IN DUCT
		FLEXIBLE DUCT WITH SPIN-IN FITTING AND VOLUME DAMPER (SEE SPECIFICATIONS)
		FIRE DAMPER WITH ACCESS PANEL
		FIRE/SMOKE DAMPER WITH ACCESS PANEL
		LINED DUCT (SEE SPECIFICATIONS)
		ELBOW WITH TURNING VANES
AP		ACCESS PANEL WITH SIZE
		PARALLEL BLADE DAMPER
		OPPOSED BLADE DAMPER
		SUPPLY DIFFUSER
		RETURN/EXHAUST GRILLE

### PLUMBING SYMBOLS

(NOT ALL SYMBOLS SHOWN ARE USED ON THESE DRAWINGS)

ABBR.	SYMBOL	DESCRIPTION
CO		HORIZONTAL CLEANOUT
		VERTICAL CLEANOUT
		DOWNSPOUT NOZZLE
		GAS COCK
		METER
		SHOCK ABSORBER
		SOLENOID VALVE
		THRUST BLOCK
		VACUUM BREAKER
WH/HB		WALL HYDRANT OR HOSE BIBB
RPBP		REDUCED PRESSURE BACKFLOW PREVENTER
DCW		DOMESTIC COLD WATER
DHW		DOMESTIC HOT WATER
DHWC		DOMESTIC HOT WATER CIRCULATING
THW		TEMPERED HOT WATER @ TEMPERATURE INDICATED
THWC		TEMPERED HOT WATER CIRCULATING
		SANITARY SEWER (BURIED)
		SANITARY SEWER (SUSPENDED)
		VENT
		STORM SEWER (BURIED)
		STORM SEWER (SUSPENDED)
		INDIRECT WASTE
		GREASE SANITARY SEWER (BURIED)
		GREASE SANITARY SEWER (SUSPENDED)
		NATURAL GAS
		FUEL OIL SUPPLY
		FUEL OIL RETURN
		FUEL OIL VENT

### ABBREVIATIONS

(NOT ALL ABBREVIATIONS SHOWN ARE USED ON THESE DRAWINGS)

ABBR.	DESCRIPTION
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
BDD	BACKDRAFT DAMPER
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
CI	CAST IRON
CUH	CABINET UNIT HEATER
(E)	EXISTING
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
ELEV	ELEVATION
ESP	EXTERNAL STATIC PRESSURE
EWI	ENTERING WATER TEMPERATURE
FCO	FLOOR CLEANOUT
GCO	GRADE CLEANOUT
IE	INVERT ELEVATION

ABBR.	DESCRIPTION
LAT	LEAVING AIR TEMPERATURE
LWT	LEAVING WATER TEMPERATURE
MAT	MIXED AIR TEMPERATURE
(N)	NEW
NC	NORMALLY CLOSED
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
OA	OUTSIDE AIR
ORD	OVERFLOW ROOF DRAIN
RA	RETURN AIR
RD	ROOF DRAIN
SA	SUPPLY AIR
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL FOR SIMILAR EQUIPMENT OR SITUATION
UH	UNIT HEATER
VTR	VENT THROUGH ROOF
WCO	WALL CLEANOUT

### CONTROL SYMBOLS

(NOT ALL SYMBOLS SHOWN ARE USED ON THESE DRAWINGS)

ABBR.	SYMBOL	DESCRIPTION
		DIGITAL INPUT
		ANALOG INPUT
		DIGITAL OUTPUT
		ANALOG OUTPUT (DDC)
		SINGLE PHASE
		THREE PHASE
		PNEUMATIC CONTROL TUBING
		CONTROL WIRING
		POWER WIRING
		GAUGE COCK
		<u>AUTOMATIC CONTROL VALVES:</u>
		-2-WAY PNEUMATIC
		-3-WAY PNEUMATIC
		-2-WAY ELECTRIC
		-3-WAY ELECTRIC
		DUCT TEMPERATURE SENSOR WITH DUCT AVERAGING SENSOR
		DUCT TEMPERATURE SENSOR WITH IMMERSION SENSOR
		ROOM HUMIDITY SENSOR
		ROOM TEMPERATURE SENSOR
		ROOM THERMOMETER
		LIQUID TEMPERATURE SENSOR WITH WELL
		ELECTRIC MOTORIZED CONTROL DAMPER
		PNEUMATIC MOTORIZED CONTROL DAMPER

ABBR.	SYMBOL	DESCRIPTION
		LOW LIMIT THERMOSTAT
		HIGH LIMIT THERMOSTAT
		AIR FLOW SWITCH
		DUCT SMOKE DETECTOR
		DAMPER/VALVE END SWITCH
		DIFFERENTIAL PRESSURE SWITCH
		HIGH PRESSURE SWITCH
		PRESSURE SWITCH
		ELECTRO-PNEUMATIC SOLENOID AIR VALVE
		MAGNETIC STARTER
		CONTROL RELAY
		VARIABLE FREQUENCY DRIVE
		CURRENT SENSOR
		MOTOR
		TEMPERATURE CONTROLLER
		LEVEL CONTROLLER
		TEMPERATURE TRANSMITTER
		LEVEL TRANSMITTER
		PRESSURE TRANSMITTER
		DIFFERENTIAL PRESSURE TRANSMITTER
		DIFFERENTIAL PRESSURE INDICATING TRANSMITTER
		FLOW TRANSMITTER
		ELECTRONIC/PNEUMATIC TRANSDUCER
		PNEUMATIC/ELECTRONIC TRANSDUCER
		FIRE ALARM CONTROL PANEL
		EMERGENCY STOP RELAY

### DRAWING SYMBOLS

(NOT ALL SYMBOLS SHOWN ARE USED ON THESE DRAWINGS)

	DETAIL NUMBER SHEET NUMBER WHERE DETAIL IS SHOWN		GRILLE, REGISTER, OR DIFFUSER TAG
	SECTION NUMBER SHEET NUMBER WHERE SECTION IS SHOWN		FINTUBE TAG
	POINT OF CONNECTION TO EXISTING SYSTEM		
	PIPING AND EQUIPMENT TO BE REMOVED		
	PLUMBING RISER DIAGRAM RISER NUMBER		

# FLAGLER SCHOOL MEP RENOVATION

ARRIBA FLAGLER CSD 20

Flagler, Colorado

REV	DATE
	03/25/13 100% CD

ENGINEER: LCE	CHECKED BY: LCE
DRAFTER: LCE	DATE: 03/25/13

PROJECT NUMBER:  
12036

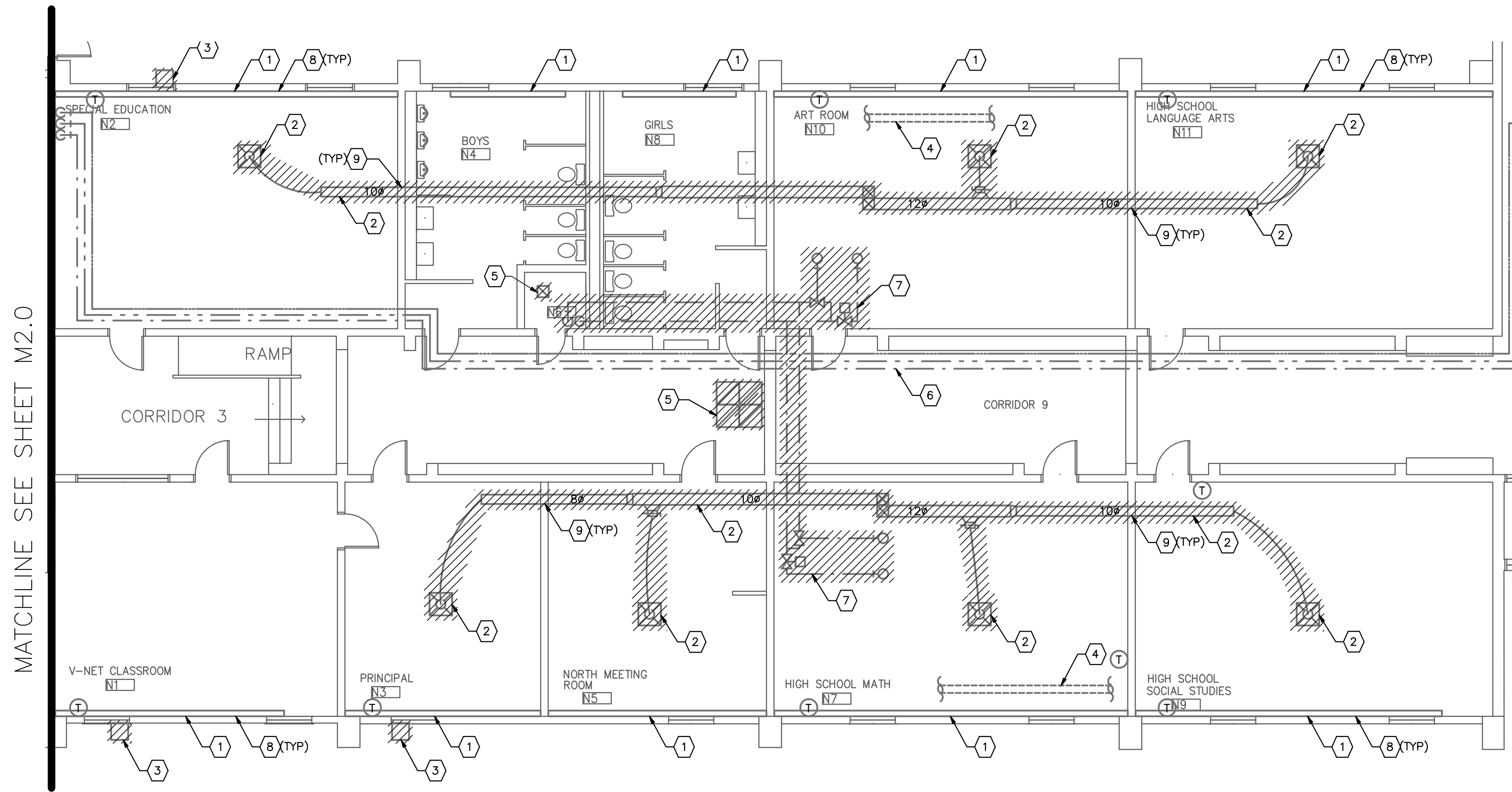
DRAWING TITLE:  
MECHANICAL LEGEND

DRAWING SCALE:  
AS INDICATED

DRAWING NUMBER:

M1.0





SHEETNOTES

- ① (E) BASEBOARD ELEMENT TO BE DEMOLISHED BY OWNER, INCLUDING ENCLOSURE, PIPING, THERMOSTAT, VALVES, FITTINGS AND ALL ASSOCIATED APPURTENANCES.
- ② DEMO ALL (E) S/A DUCTWORK, INCLUDING GRILLE, SHEETMETAL DUCTWORK, FLEX DUCT, SPIN IN FITTING, HANGERS AND ALL ASSOCIATED APPURTENANCES.
- ③ (E) THROUGH THE WALL AIR CONDITIONING UNIT TO BE REMOVED BY OWNER.
- ④ (E) STEAM PIPING AND CONDENSATE PIPING IN TUNNEL BELOW FLOOR, NO WORK ON THIS EQUIPMENT.
- ⑤ DEMO (E) EXHAUST AIR GRILLE, INCLUDING GRILLE, DUCTWORK, HANGERS AND ALL ASSOCIATED APPURTENANCES.
- ⑥ (E) DOMESTIC WATER PIPING AT CEILING, NO WORK ON THIS EQUIPMENT.
- ⑦ DEMO (E) DCW FROM ROOF MOUNTED EVAPORATIVE COOLER TO DCW MAIN IN JANITOR CLOSET AND DRAIN PIPING FROM ROOF MOUNTED EVAPORATIVE COOLER TO MOP SINK IN JANITOR CLOSET, INCLUDING PIPING, CONTROL VALVES, FITTING, HANGERS AND ALL ASSOCIATED APPURTENANCES. CAP DCW PIPING IN JANITOR CLOSET USING MATERIAL MATCHING (E) PIPING.
- ⑧ (E) CEILING TILE AND CEILING INSULATION TO BE REMOVED AND REPLACED BY OWNER. COORDINATE EXTENDS OF DEMO WITH OWNER.
- ⑨ EXPAND (E) WALL OPENING ABOVE CEILING AS REQUIRED FOR NEW DUCTWORK. SEE SHEET M3.1 FOR NEW DUCT LAYOUT. SEAL (E) UNUSED WALL OPENINGS USING MATERIAL MATCHING SURROUNDING MATERIAL.

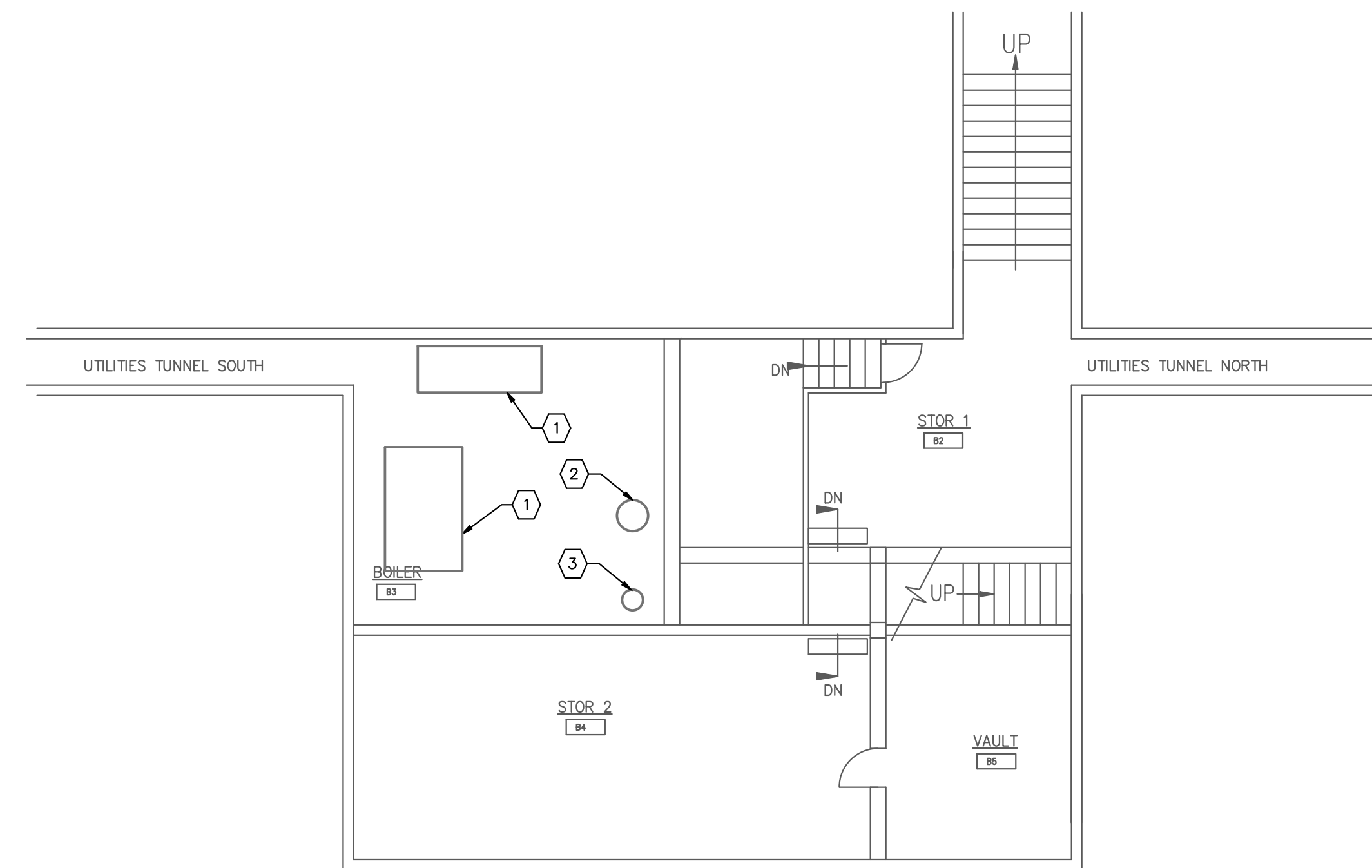
MATCHLINE SEE SHEET M2.0

MATCHLINE SEE SHEET M2.2

North ① NORTH CLASSROOM WING PLAN-DEMO  
M2.1 1/8" = 1'-0"

SHEETNOTES (BASEMENT)

- ① (E) STEAM BOILER PLANT TO BE REMOVED BY OWNER, INCLUDING STEAM BOILER, GAS PIPING, STEAM AND CONDENSATE PIPING, CONDENSATE PUMPS, CONDENSATE TANK, CONTROLS, EXPANSION TANKS AND ALL ASSOCIATED APPURTENANCES.
- ② (E) DOMESTIC WATER HEATER, NO WORK ON THIS EQUIPMENT.
- ③ (E) BOILER VENT, NO WORK ON THIS EQUIPMENT.

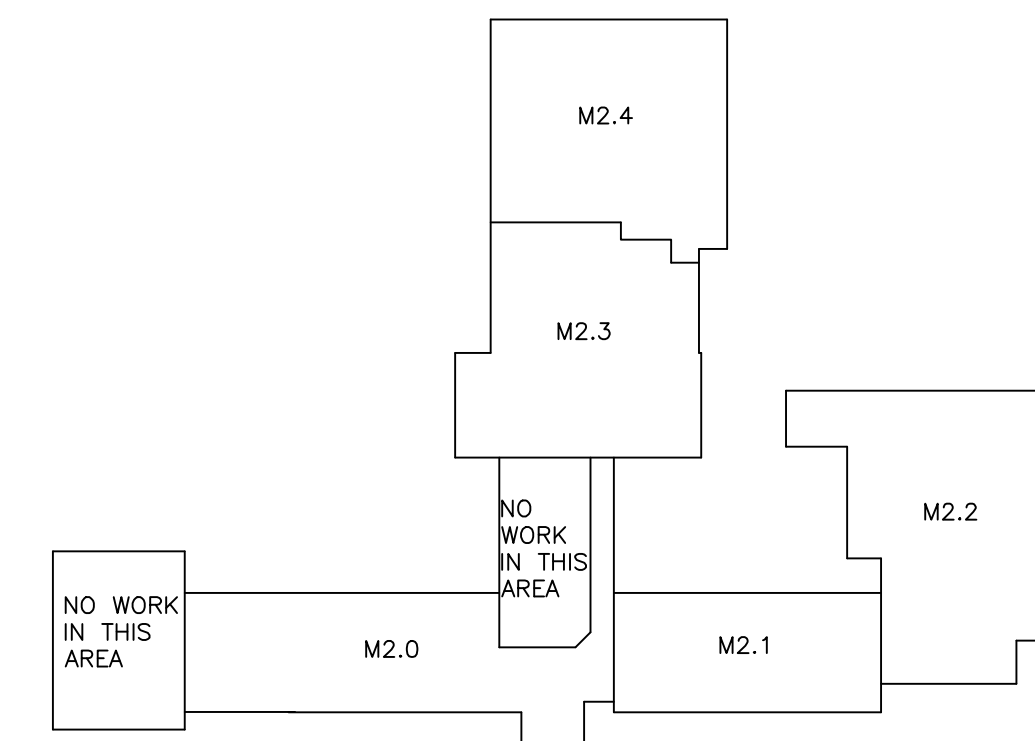


North ② BASEMENT PLAN-DEMO  
M2.2 1/8" = 1'-0"

FLAGLER SCHOOL RENOVATION

ARRIBA FLAGLER CSD 20

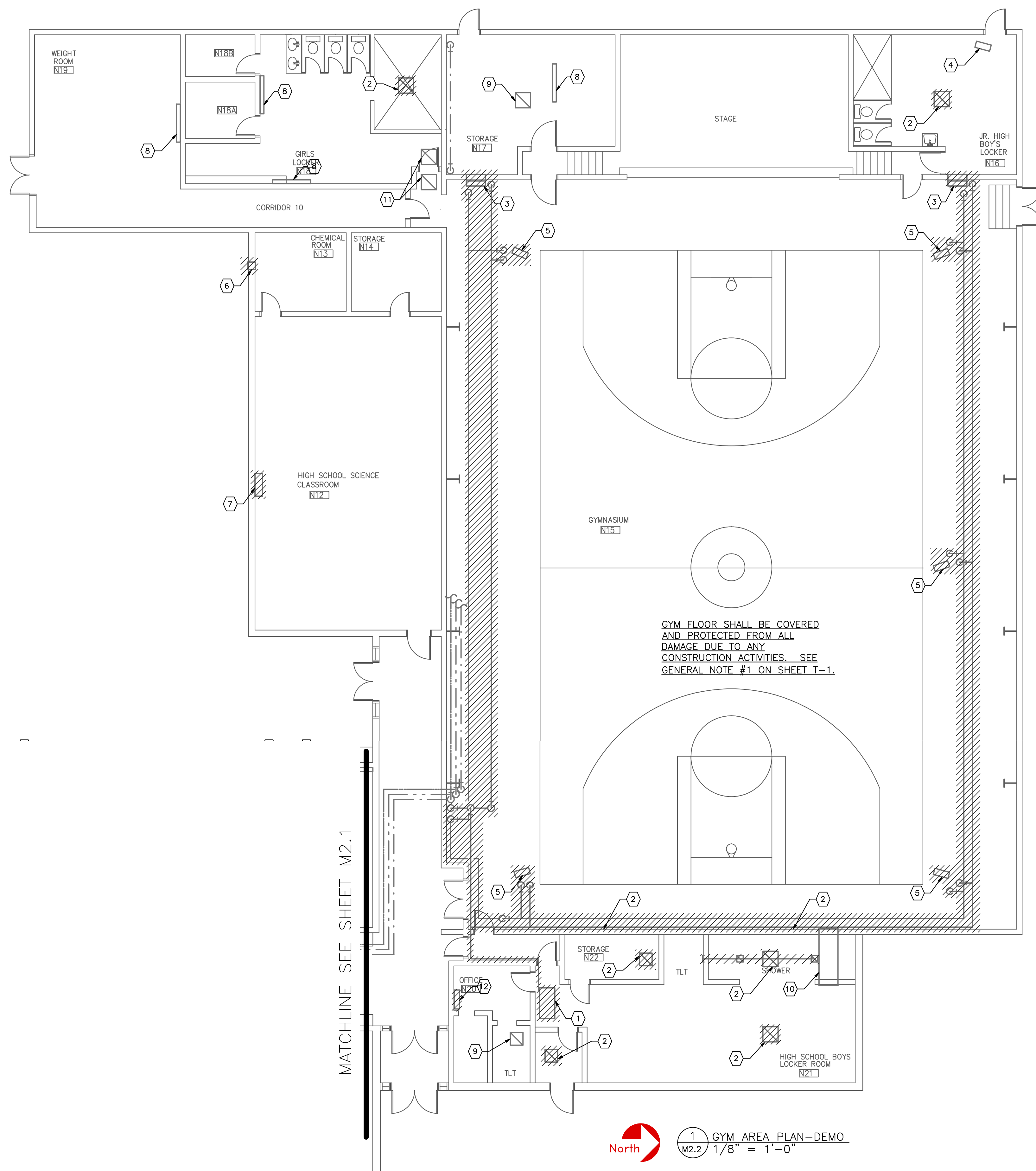
Flagler, Colorado



North KEYPLAN

REV	DATE
	03/25/13 100% CD
ENGINEER:	CHECKED BY:
LCE	LCE
DRAFTER:	DATE:
LCE	03/25/13
PROJECT NUMBER: 12036	
DRAWING TITLE: NORTH CLASSROOM WING PLAN - DEMO	
DRAWING SCALE: AS INDICATED	
DRAWING NUMBER: <b>M2.1</b>	

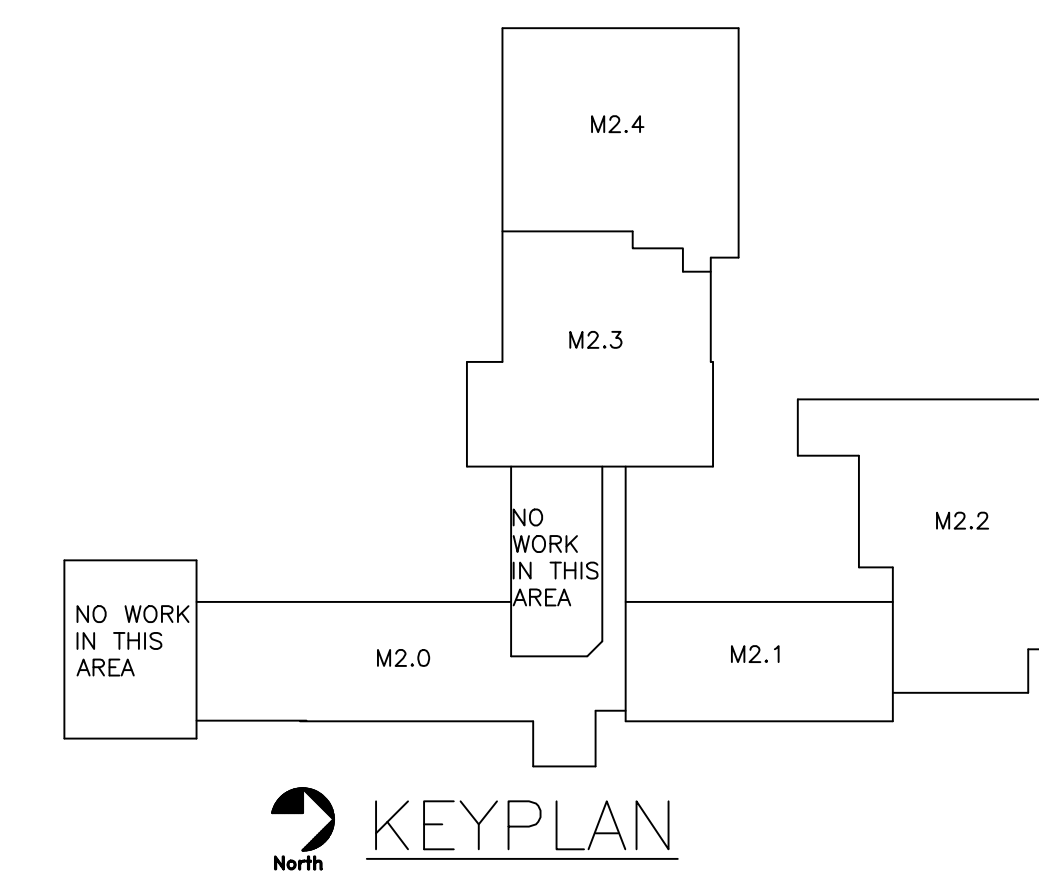
**FLAGLER SCHOOL RENOVATION**  
ARRIBA FLAGLER CSD 20  
Flagler, Colorado



MATCHLINE SEE SHEET M2.1

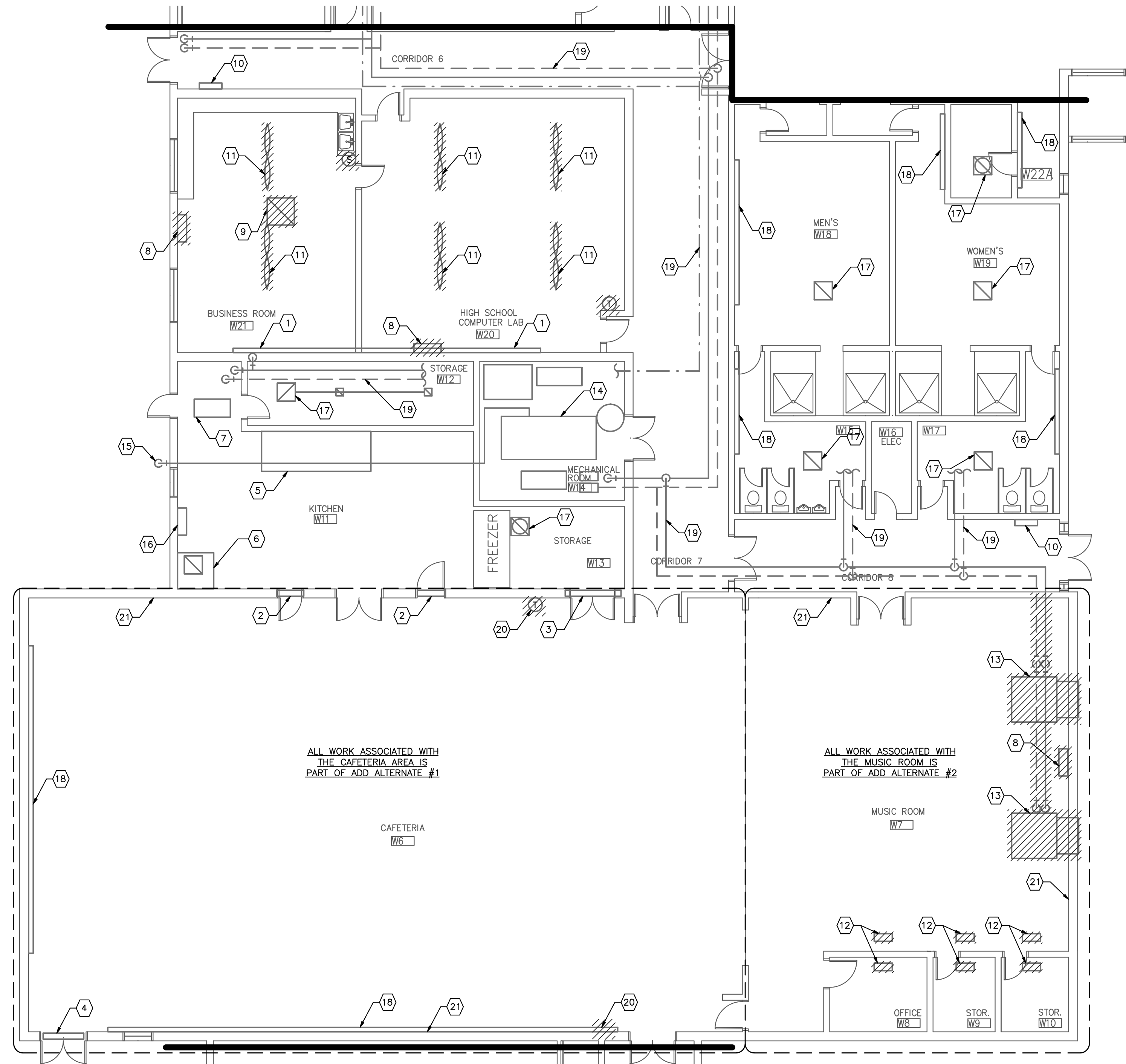
North

1 GYM AREA PLAN-DEMO  
M2.2 1/8" = 1'-0"



REV	DATE
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ENGINEER:	CHECKED BY:
LCE	LCE
DRAFTER:	DATE:
LCE	03/25/13
PROJECT NUMBER:	
12036	
DRAWING TITLE:	
GYM AREA PLAN - DEMO	
DRAWING SCALE:	
AS INDICATED	
DRAWING NUMBER:	
M2.2	

MATCHLINE SEE SHEET M2.4



ALL WORK ASSOCIATED WITH THE CAFETERIA AREA IS PART OF ADD ALTERNATE #1

ALL WORK ASSOCIATED WITH THE MUSIC ROOM IS PART OF ADD ALTERNATE #2

MATCHLINE SEE SHEET M2.0



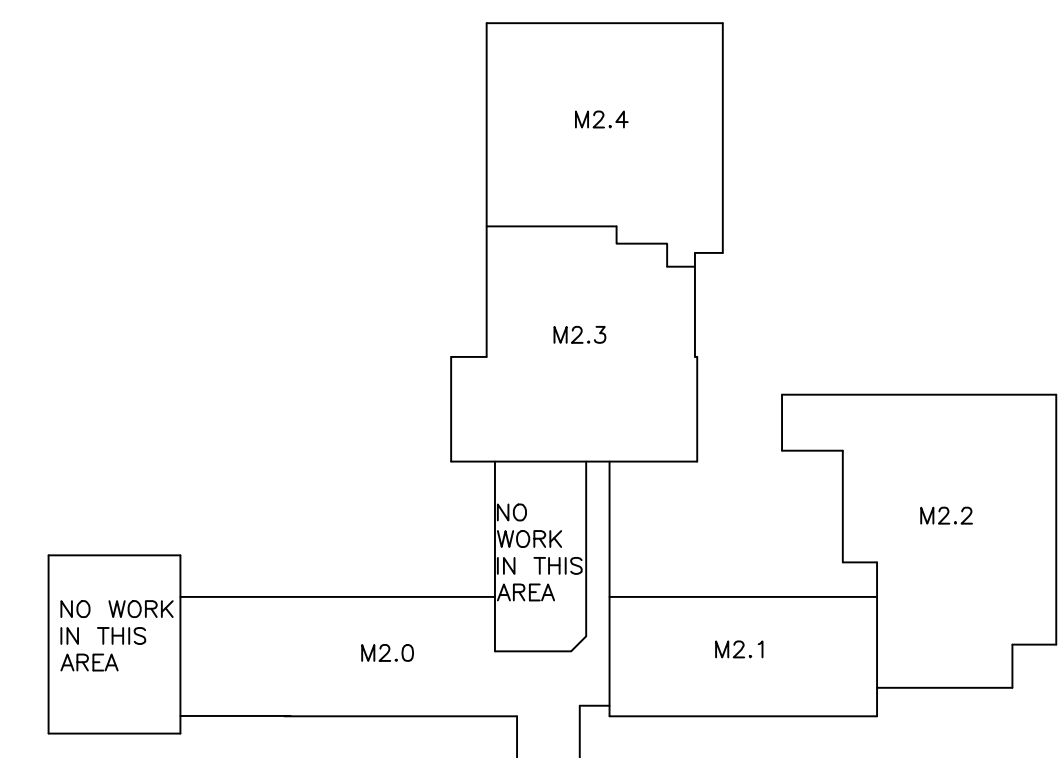
1 CAFETERIA AREA PLAN-DEMO  
M2.3 / 1/8" = 1'-0"

SHEETNOTES

- 1 (E) BASEBOARD ELEMENT TO BE DEMOLISHED BY OWNER, INCLUDING ENCLOSURE, PIPING, THERMOSTAT, VALVES, FITTINGS AND ALL ASSOCIATED APPURTENANCES.
- 2 (E) 36X24 TRANSFER GRILLE, NO WORK ON THIS EQUIPMENT.
- 3 (E) 74X26 TRANSFER GRILLE, NO WORK ON THIS EQUIPMENT.
- 4 DEMO (E) 54X28 GRILLE, INCLUDING GRILLE, SUPPORTS AND ALL ASSOCIATED APPURTENANCES.
- 5 (E) KITCHEN HOOD, NO WORK ON THIS EQUIPMENT.
- 6 (E) DISHWASHER HOOD, NO WORK ON THIS EQUIPMENT.
- 7 (E) CABINET UNIT HEATER AT CEILING, NO WORK ON THIS EQUIPMENT.
- 8 DEMO (E) WALL MOUNTED A/C SYSTEM, INCLUDING UNIT, ROOF MOUNTED CONDENSER, SUPPORTS, CONTROLS AND ALL ASSOCIATED APPURTENANCES.
- 9 DEMO (E) E/A SYSTEM, INCLUDING E/A GRILLE, E/A DUCTWORK, HANGERS, CONTROLS, ROOF MOUNTED FAN AND ALL ASSOCIATED APPURTENANCES.
- 10 (E) CABINET UNIT HEATER, NO WORK ON THIS EQUIPMENT.
- 11 DEMO (E) CEILING PROPELLER FAN.
- 12 DEMO (E) E/A GRILLES, E/A DUCTWORK AND ROOF MOUNTED FAN.
- 13 DEMO (E) CEILING MOUNTED UNIT VENTILATOR, INCLUDING UNIT, PIPING, O/A DUCT, O/A LOUVER, CONTROLS AND ALL ASSOCIATED APPURTENANCES. DEMO PIPING FROM UNIT TO A LOCATION ABOVE THE CORRIDOR.
- 14 (E) HYDRONIC BOILER PLANT, NO WORK ON THIS EQUIPMENT.
- 15 (E) 8" GAS PIPING, NO WORK ON THIS EQUIPMENT.
- 16 (E) WALL MOUNTED A/C SYSTEM, NO WORK ON THIS EQUIPMENT.
- 17 (E) E/A SYSTEM, NO WORK ON THIS EQUIPMENT.
- 18 (E) BASEBOARD ELEMENT, NO WORK ON THIS EQUIPMENT.
- 19 (E) PIPING ABOVE CEILING, NO WORK ON THIS EQUIPMENT.
- 20 DEMO (E) PNEUMATIC THERMOSTAT AND 2-WAY BASEBOARD CONTROL VALVE. CAP (E) PNEUMATIC TUBING AIR TIGHT.
- 21 (E) CEILING TILE AND CEILING INSULATION TO BE REMOVED AND REPLACED BY OWNER. COORDINATE EXTENDS OF DEMO WITH OWNER.

Leffingwell Consulting Engineers, Inc.  
1315 North El Paso Street  
Colorado Springs, CO 80903  
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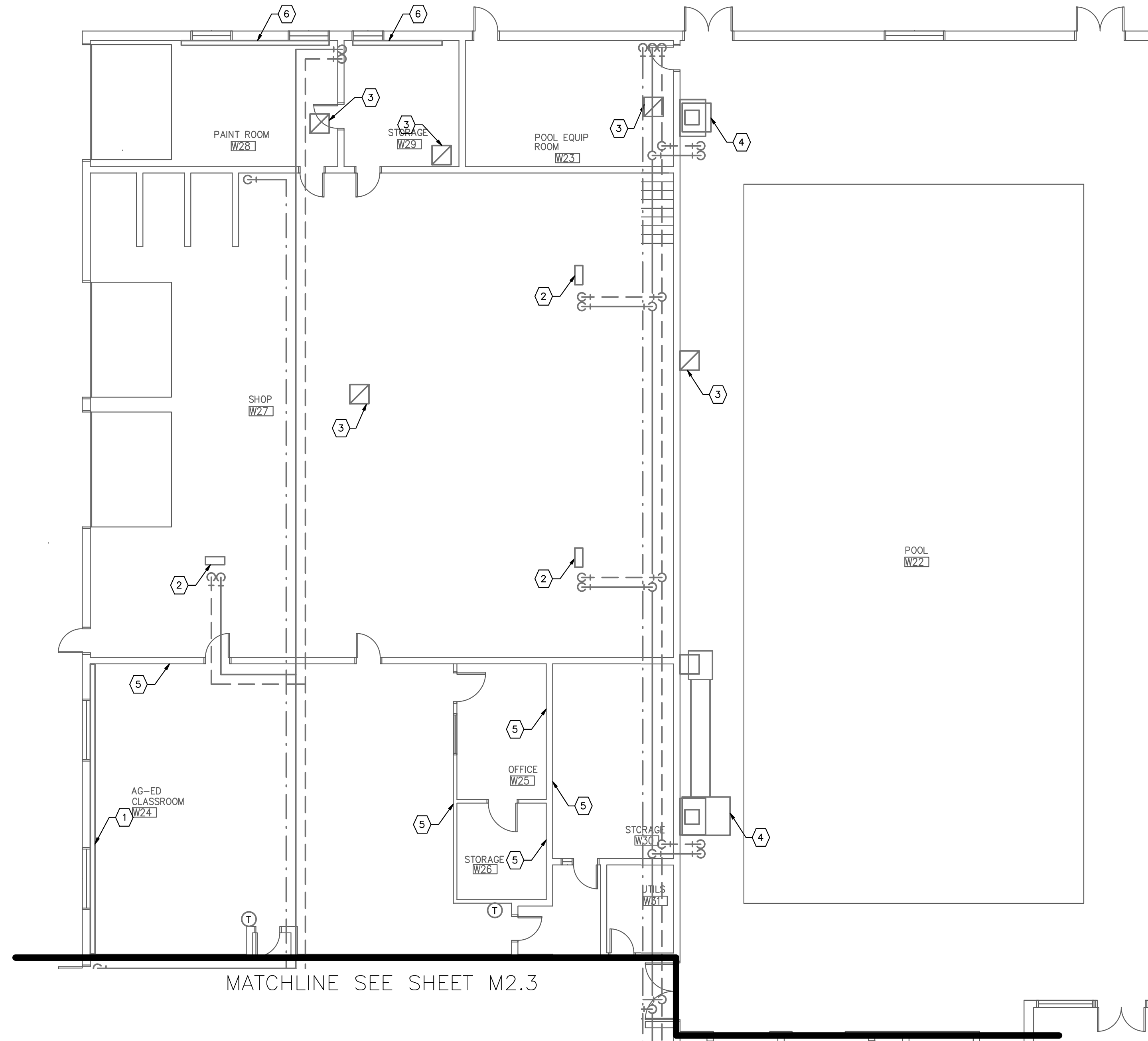
North KEYPLAN


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PROJECT NUMBER:	
12036	
DRAWING TITLE:	
CAFETERIA AREA PLAN - DEMO	
DRAWING SCALE:	
AS INDICATED	
DRAWING NUMBER:	
M2.3	

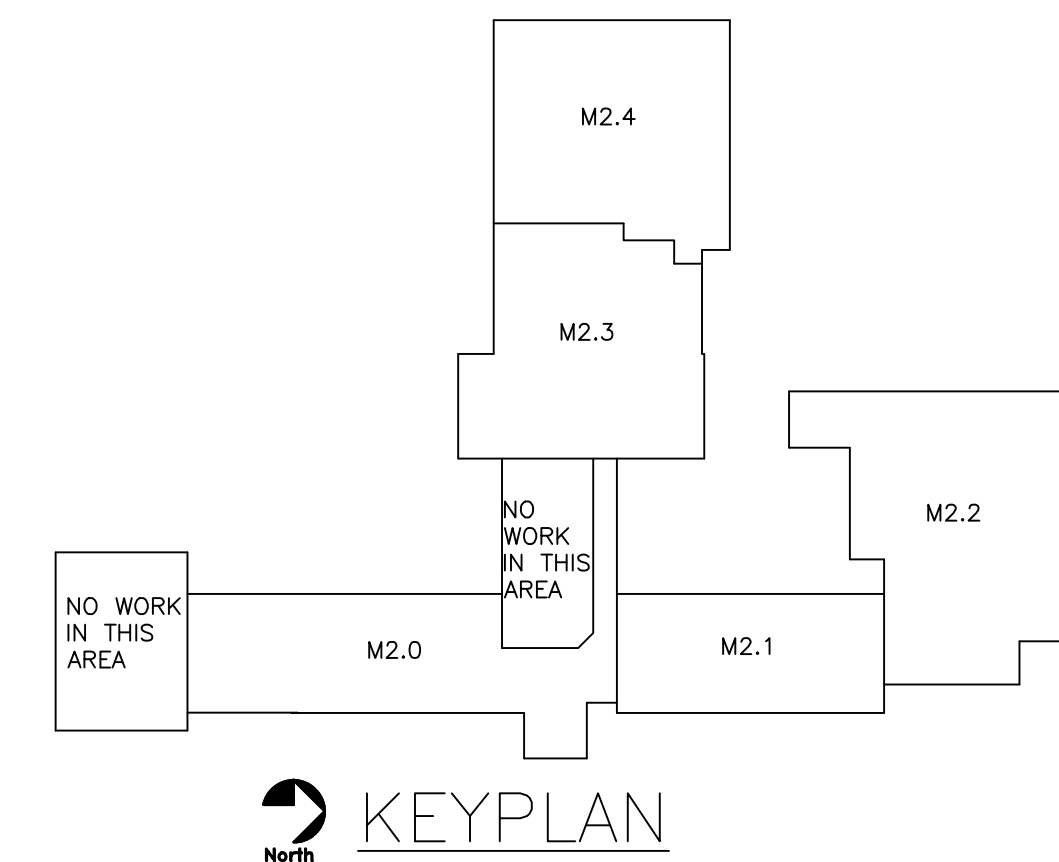
**FLAGLER SCHOOL RENOVATION**  
 ARRIBA FLAGLER CSD 20  
 Flagler, Colorado

**SHEETNOTES**

- ① (E) BASEBOARD ELEMENT TO BE DEMOLISHED BY OWNER, INCLUDING ENCLOSURE, PIPING, THERMOSTAT, VALVES, FITTINGS AND ALL ASSOCIATED APPURTENANCES.
- ② (E) HYDRONIC UNIT HEATER, NO WORK ON THIS EQUIPMENT.
- ③ (E) E/A SYSTEM, NO WORK ON THIS EQUIPMENT.
- ④ (E) POOL ROOM HEATING AND DEHUMIDIFICATION SYSTEM, NO WORK ON THIS EQUIPMENT.
- ⑤ (E) CEILING TILE AND CEILING INSULATION TO BE REMOVED AND REPLACED BY OWNER. COORDINATE EXTENDS OF DEMO WITH OWNER.
- ⑥ (E) BASEBOARD, NO WORK ON THIS EQUIPMENT.



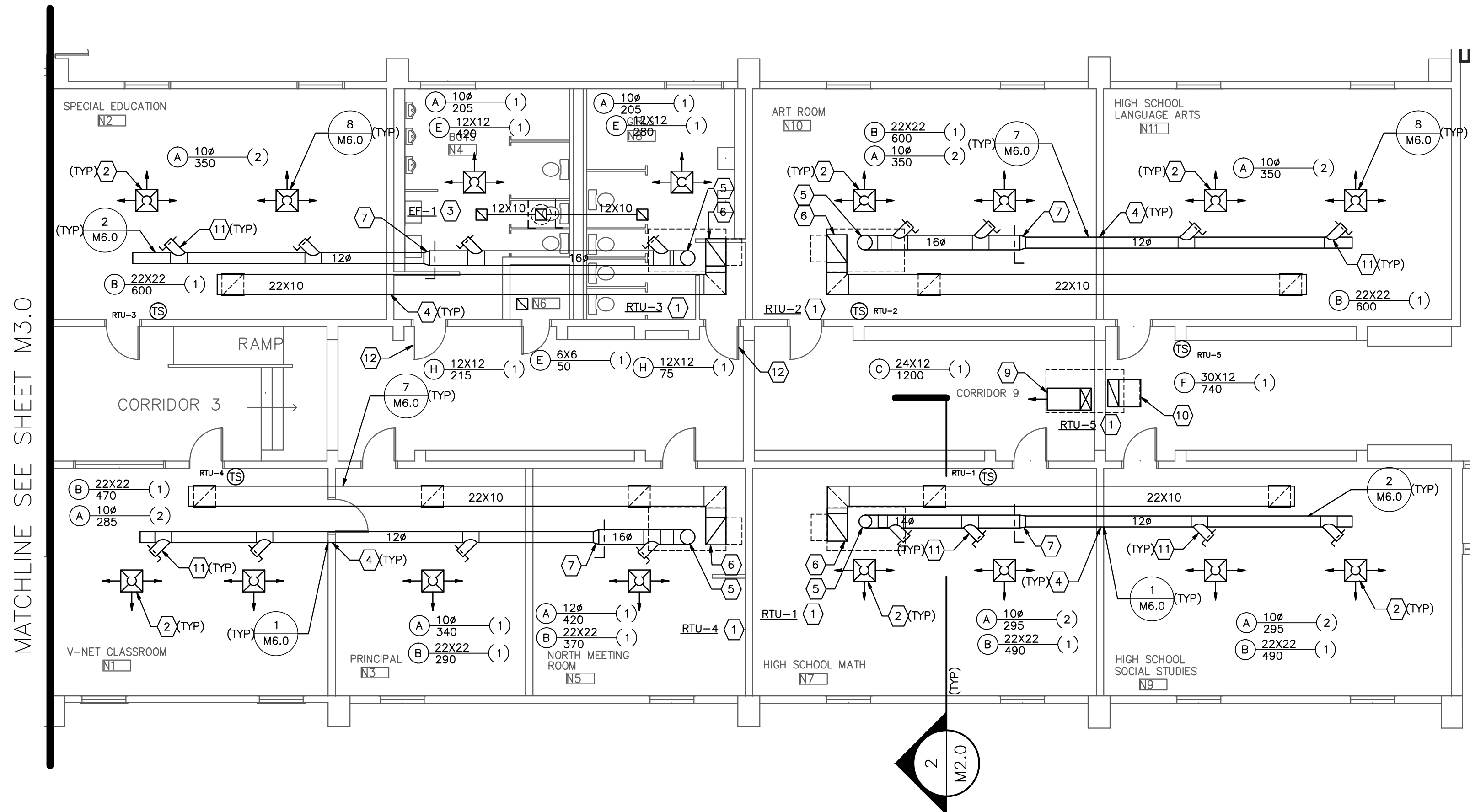

 ① POOL AREA PLAN-DEMO  
 M2.4 1/8" = 1'-0"



REV	DATE
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ENGINEER:	CHECKED BY:
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PROJECT NUMBER:	
12036	
DRAWING TITLE:	
POOL AREA PLAN - DEMO	
DRAWING SCALE:	
AS INDICATED	
DRAWING NUMBER:	
M2.4	







MATCHLINE SEE SHEET M3.0

MATCHLINE SEE SHEET M3.2

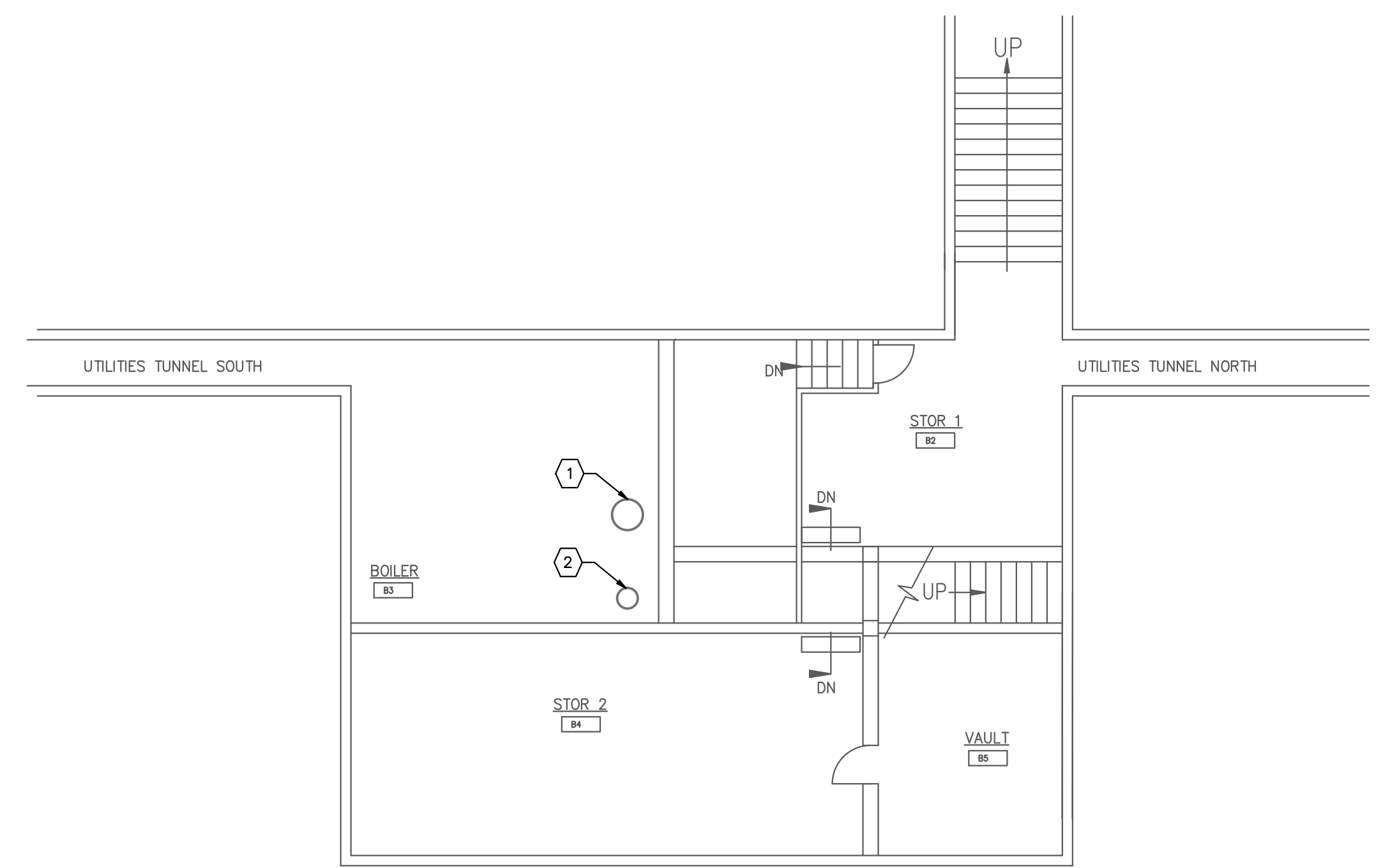
**1** NORTH CLASSROOM WING PLAN-NEW  
M3.1 1/8" = 1'-0"

**SHEETNOTES**

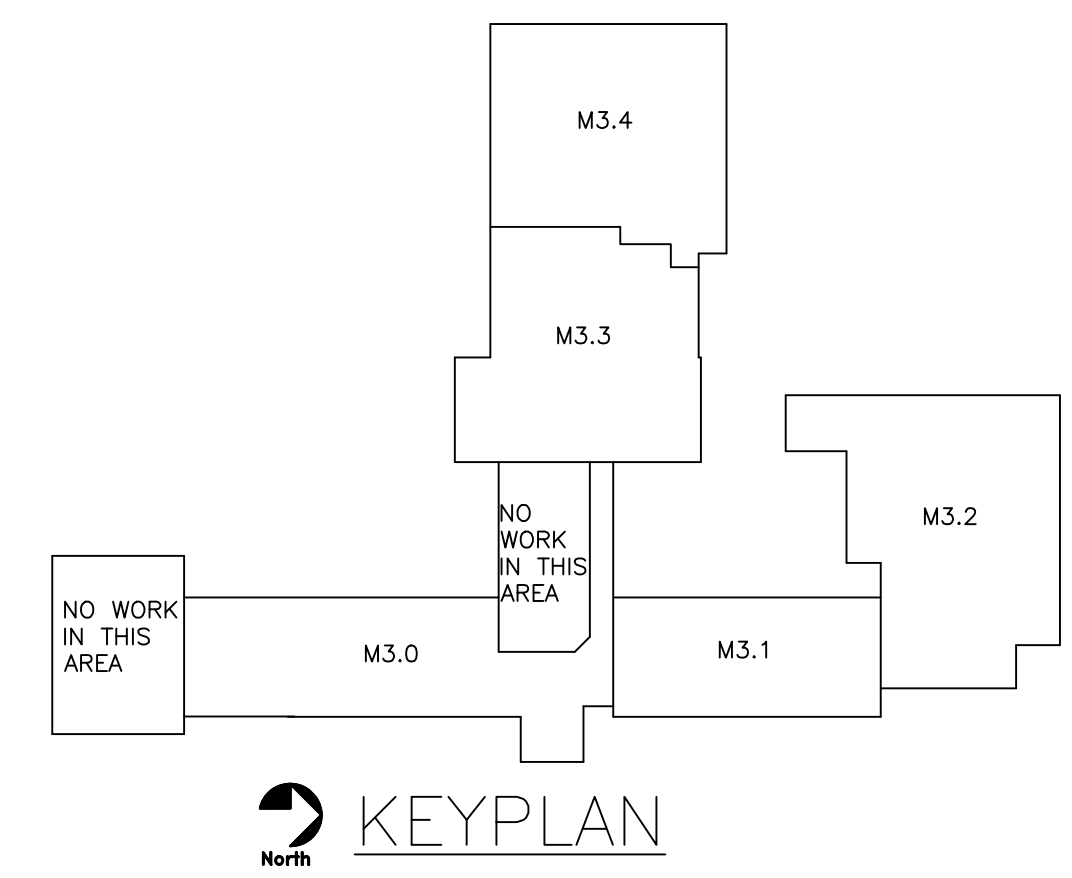
- 1 PROVIDE (N) PACKAGED ROOF TOP UNIT ON ROOF. SEE ROOF PLAN FOR DETAILS.
- 2 PROVIDE (N) S/A AND R/A GRILLES AND DUCTWORK. ALIGN (N) GRILLES WITH (E) CEILING GRID AND LIGHTS.
- 3 PROVIDE (N) 12X12 E/A DUCTWORK FROM E/A GRILLE TO ROOF MOUNTED EXHAUST FAN. SEE ROOF PLAN FOR DETAILS. PROVIDE 6" LONG TRANSITION BETWEEN E/A DUCTWORK AND FAN INLET.
- 4 PROVIDE NEW OPENING AS REQUIRED IN WALL ABOVE CEILING FOR NEW DUCTWORK.
- 5 PROVIDE 6" LONG TRANSITION FROM RTU DISCHARGE TO DUCT SIZE INDICATED. PROVIDE SHORT RADIUS (r/D=1.0) ELBOW AND OFFSET S/A DUCT INTO CEILING SPACE.
- 6 PROVIDE 12" LONG TRANSITION FROM RTU DISCHARGE TO 22X30. EXTEND 22X30 R/A DUCT INTO CEILING SPACE. PROVIDE 22X30 TO 22X10 TRANSITION ELBOW AND ROUTE 22X10 R/A DUCT AS INDICATED.
- 7 PROVIDE 6" LONG TRANSITION BETWEEN DUCT SIZES INDICATED.
- 8 PROVIDE 12" LONG TRANSITION BETWEEN DUCT SIZES INDICATED.
- 9 PROVIDE 12" LONG TRANSITION BETWEEN RTU DISCHARGE AND 24X12 S/A DUCT. EXTEND S/A DUCT DOWN AND OFFSET USING 90° ELBOW WITH TURNING VANES. BOTTOM OF DUCT SHALL BE FLUSH WITH BOTTOM OF BEAM. EXTEND S/A DUCT 36" AND PROVIDE S/A GRILLE AS INDICATED. ADJUST GRILLE BLADES TO PROVIDE 0% HORIZONTAL SPREAD AND 0° VERTICAL SPREAD.
- 10 PROVIDE 6" LONG TRANSITION BETWEEN RTU INLET AND 30X12 R/A DUCT. EXTEND R/A DUCT DOWN AND OFFSET USING 90° ELBOW WITH TURNING VANES. BOTTOM OF DUCT SHALL BE FLUSH WITH BOTTOM OF BEAM. EXTEND R/A DUCT 24" AND PROVIDE R/A GRILLE AS INDICATED. PROVIDE GRILLE INLET TOWARDS NORTH.
- 11 PROVIDE 45° TAKE OFF WITH LOCKING MVD. SHEETMETAL AND FLEX DUCT SIZE SHALL MATCH DIFFUSER NECK SIZE.
- 12 PROVIDE NEW TRANSFER GRILLE IN EXISTING DOOR.

**SHEETNOTES (BASEMENT)**

- 1 (E) DOMESTIC WATER HEATER, NO WORK ON THIS EQUIPMENT.
- 2 (E) BOILER FLUE, NO WORK ON THIS EQUIPMENT. SEAL OPENING FROM DEMOLISHED STEAM BOILER.



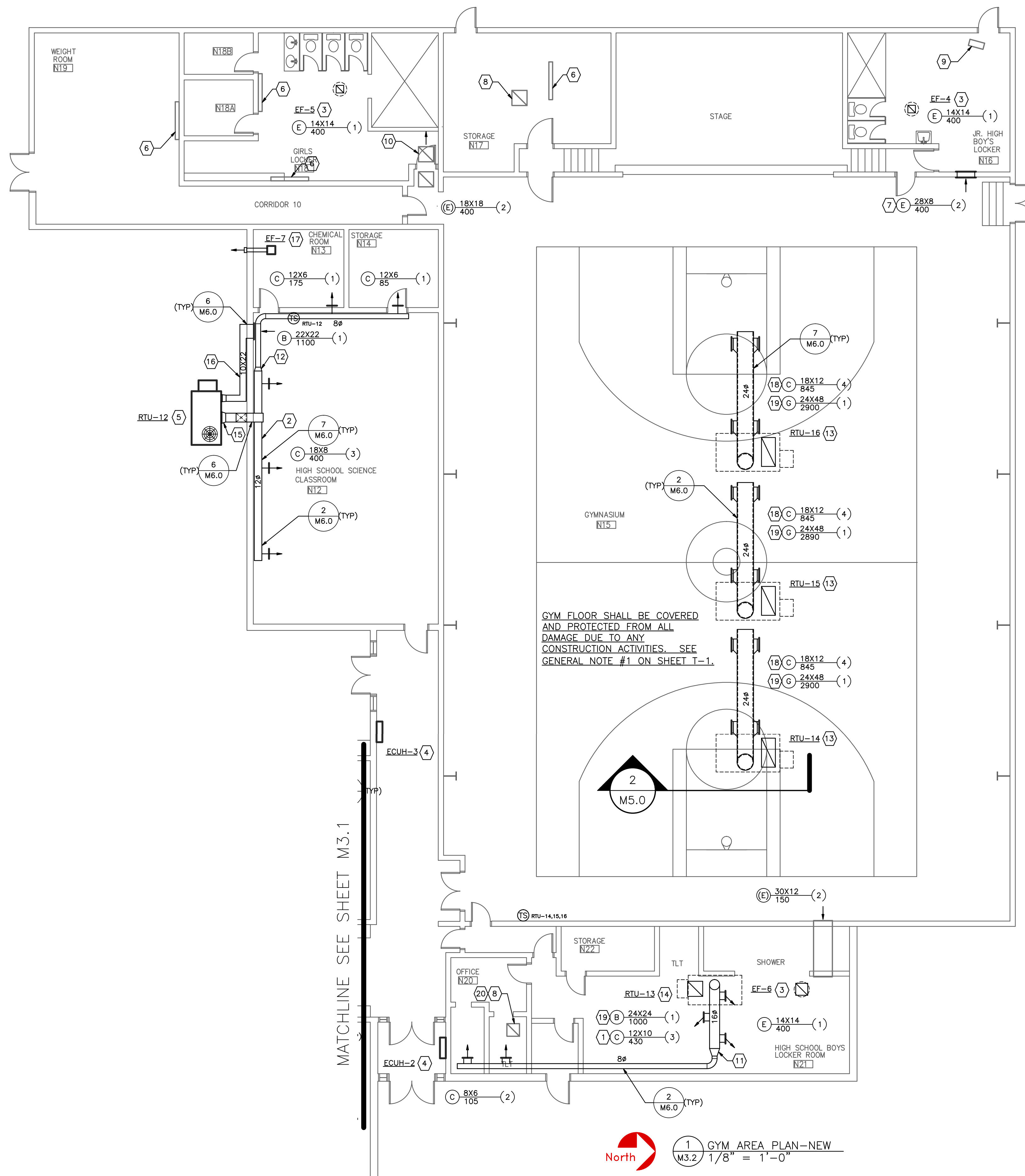
**2** BASEMENT PLAN-NEW  
M3.1 1/8" = 1'-0"



**KEYPLAN**

**FLAGLER SCHOOL RENOVATION**  
ARRIBA FLAGLER CSD 20  
Flagler, Colorado

REV	DATE
	03/25/13 100% CD
ENGINEER:	CHECKED BY:
LCE	LCE
DRAFTER:	DATE:
LCE	03/25/13
PROJECT NUMBER: 12036	
DRAWING TITLE: NORTH CLASSROOM WING PLAN - NEW	
DRAWING SCALE: AS INDICATED	
DRAWING NUMBER: <b>M3.1</b>	



**SHEETNOTES**

- 1) PROVIDE (N) S/A GRILLES WITH 6" LONG INLET BOOT WITH 45° INLET. INLET BOOT SHALL BE INSTALLED PARALLEL TO (E) CEILING SLOPE. ADJUST GRILLE BLADES TO PROVIDE HORIZONTAL DISCHARGE ALONG (E) CEILING AND 22.5' VERTICAL DISCHARGE TOWARDS EAST WALL. BALANCE GRILLES TO AIRFLOW INDICATED.
- 2) PROVIDE (N) S/A AND R/A GRILLES AND DUCTWORK. DUCTWORK SHALL BE INSTALLED TIGHT TO EXISTING CEILING SYSTEM. ADJUST GRILLE BLADES TO PROVIDE 0° HORIZONTAL DISCHARGE AND 22.5' VERTICAL DISCHARGE. BALANCE GRILLES TO AIRFLOW INDICATED.
- 3) PROVIDE (N) E/A GRILLE AND DUCTWORK AND EXTEND DUCTWORK UP TO ROOF MOUNTED EXHAUST FAN. SEE ROOF PLAN FOR DETAILS. PROVIDE 6" LONG TRANSITION, WITHIN ROOF JOIST SPACE, BETWEEN GRILLE NECK SIZE AND FAN INLET. EXTEND E/A DUCT UP THROUGH ROOF AND CONNECT TO EXHAUST FAN. FIELD VERIFY JOIST LOCATIONS.
- 4) PROVIDE (N) VESTIBULE ELECTRIC CABINET UNIT HEATER.
- 5) PROVIDE (N) PACKAGED ROOF TOP UNIT LOCATED AT GRADE LEVEL. PROVIDE 4" CONCRETE PAD AND EXTEND PAD 6" PAST RTU AND BELOW S/A AND R/A DUCTWORK. EXTEND S/A AND R/A ALONG EXTERIOR WALL AND EXTEND INTO ROOM AS INDICATED.
- 6) (E) ELECTRIC RADIANT HEATER, NO WORK ON THIS EQUIPMENT.
- 7) EXPAND (E) 28X6 WALL OPENING AND PROVIDE (N) TRANSFER GRILLES IN 28X8 OPENING.
- 8) (E) CEILING GRILLE, NO WORK ON THIS EQUIPMENT.
- 9) (E) GAS FIRED UNIT HEATER, NO WORK ON THIS EQUIPMENT.
- 10) (E) 18X18 TRANSFER GRILLES, NO WORK ON THIS EQUIPMENT.
- 11) PROVIDE 12" LONG TRANSITION BETWEEN DUCT SIZES INDICATED.
- 12) PROVIDE 6" LONG TRANSITION BETWEEN DUCT SIZES INDICATED.
- 13) PROVIDE (N) PACKAGED ROOFTOP UNIT ON ROOF. SEE ROOF PLAN FOR DETAILS. PROVIDE 12" LONG TRANSITION BETWEEN UNIT DISCHARGE AND DUCT SIZE INDICATED, WITHIN ROOF CURB, AND EXTEND S/A DUCT DOWN. ROUTE S/A DUCT TIGHT TO (E) STRUCTURE.
- 14) PROVIDE (N) PACKAGED ROOFTOP UNIT ON ROOF. SEE ROOF PLAN FOR DETAILS. PROVIDE 12" LONG TRANSITION BETWEEN UNIT DISCHARGE AND DUCT SIZE INDICATED, WITHIN ROOF CURB, AND EXTEND S/A DUCT DOWN. ROUTE S/A DUCT TIGHT TO CEILING.
- 15) PROVIDE 6" LONG TRANSITION BETWEEN UNIT DISCHARGE AND 14X16 S/A DUCT. ALL EXTERIOR S/A DUCTWORK SHALL BE PROVIDED WITH 2" ACOUSTIC LINER. EXTEND S/A DUCT UP ALONG EXTERIOR WALL AND INTO CLASSROOM AS INDICATED. SUPPORT DUCTWORK ABOVE CONCRETE PAD.
- 16) PROVIDE 6" LONG TRANSITION BETWEEN UNIT INLET AND DUCT SIZE INDICATED. ALL EXTERIOR R/A DUCTWORK SHALL BE PROVIDED WITH 2" ACOUSTIC LINER. EXTEND R/A DUCT ALONG EXTERIOR WALL AND INTO CLASSROOM, BELOW WINDOW, AS INDICATED. SUPPORT DUCTWORK ABOVE CONCRETE PAD.
- 17) PROVIDE (N) CEILING EXHAUST FAN IN (E) CEILING SYSTEM. INTERLOCK FAN TO ASSOCIATED RTU. PROVIDE 6" LONG TRANSITION BETWEEN FAN DISCHARGE AND 6" E/A DUCT. EXTEND E/A DUCT TO EXTERIOR WALL CAP AND CONNECT. WALL CAP SHALL BE 5 FEET (MIN.) FOR ANY OPENING INTO THE BUILDING.
- 18) PROVIDE (N) S/A GRILLES WITH 6" LONG INLET BOOT WITH 45° INLET. INLET BOOT SHALL BE INSTALLED PARALLEL TO (E) CEILING SLOPE. ADJUST GRILLE BLADES TO PROVIDE HORIZONTAL DISCHARGE ALONG (E) CEILING AND 22.5' VERTICAL DISCHARGE. BALANCE GRILLES TO AIRFLOW INDICATED.
- 19) PROVIDE R/A GRILLE AND BALANCE TO AIRFLOW INDICATED. PROVIDE 12" LONG TRANSITION BETWEEN GRILLE AND RTU INLET.
- 20) BALANCE (E) FAN TO 125 CFM.

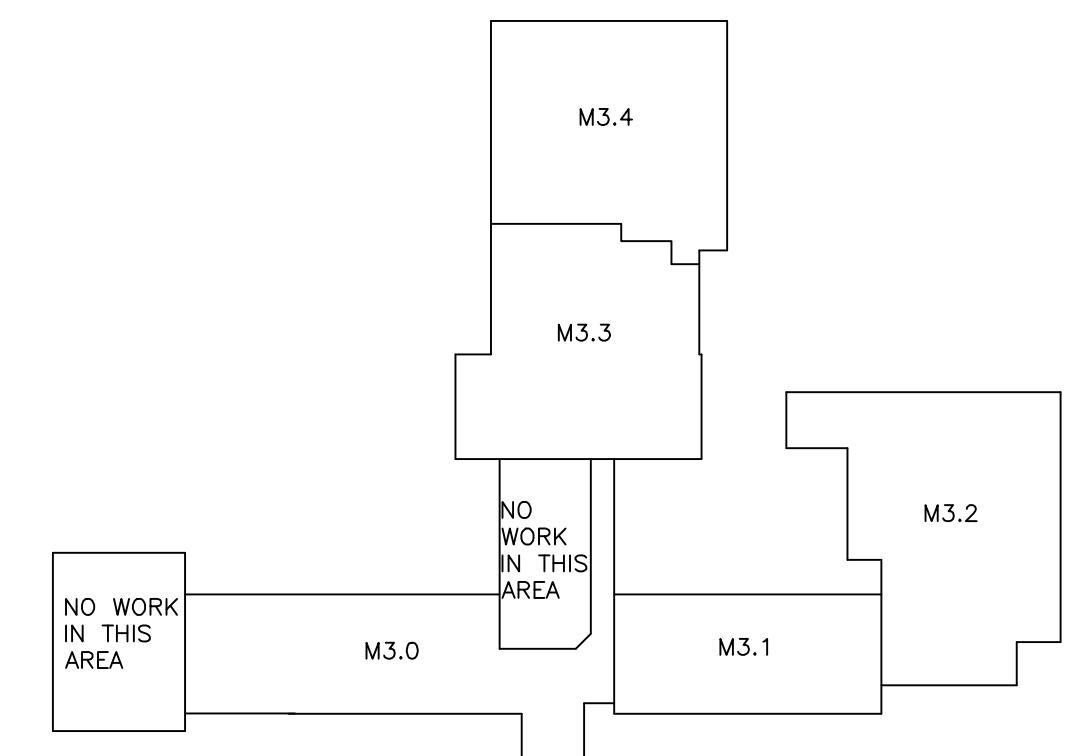
**FLAGLER SCHOOL RENOVATION**

ARRIBA FLAGLER CSD 20

Flagler, Colorado

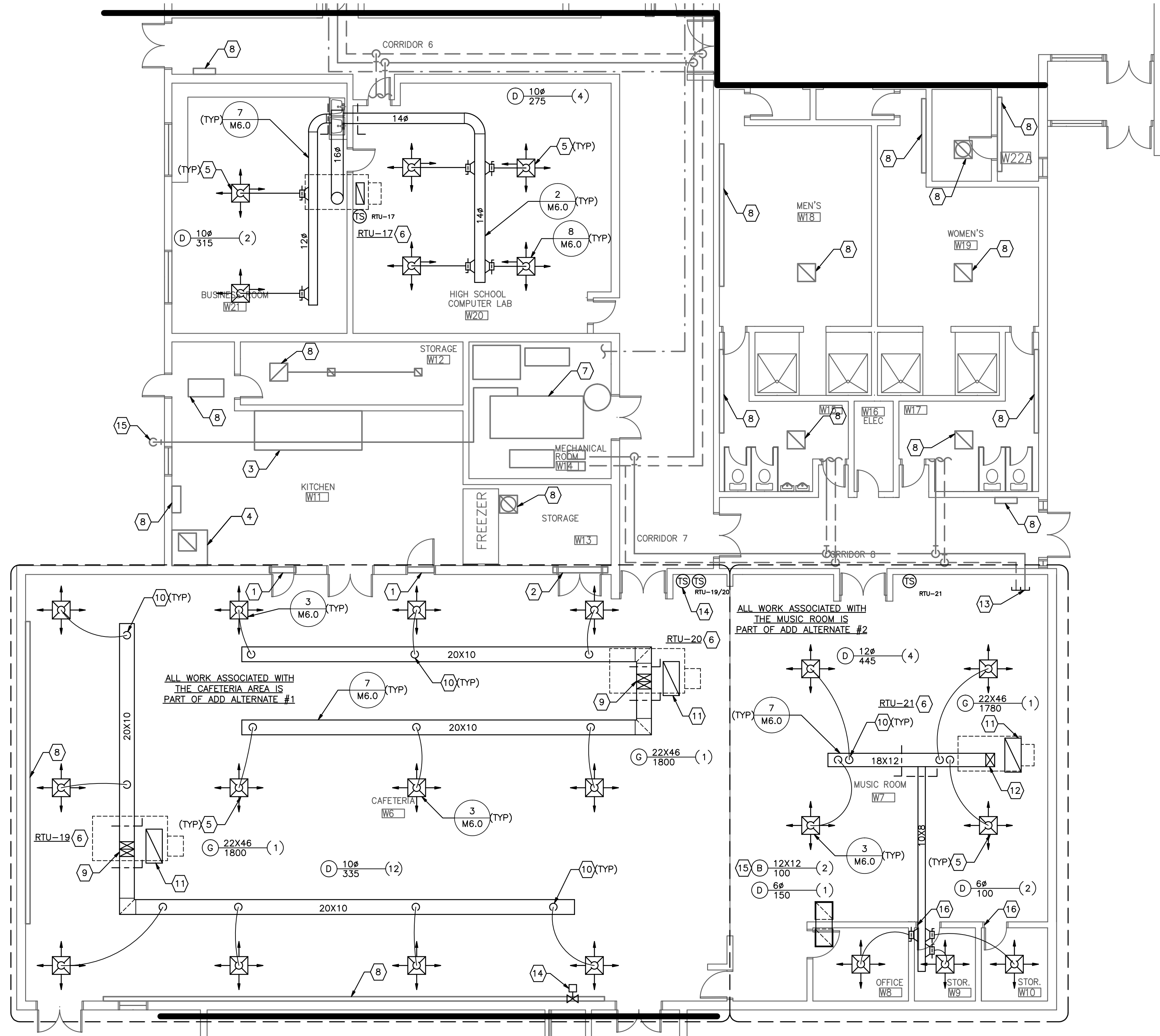
MATCHLINE SEE SHEET M3.1

North  
1 GYM\_AREA\_PLAN-NEW  
M3.2  
1/8" = 1'-0"



REV	DATE
	03/25/13 100% CD
ENGINEER: LCE	CHECKED BY: LCE
DRAFTER: LCE	DATE: 03/25/13
PROJECT NUMBER: 12036	
DRAWING TITLE: GYM AREA PLAN - NEW	
DRAWING SCALE: AS INDICATED	
DRAWING NUMBER: M3.2	

MATCHLINE SEE SHEET M3.4



SHEETNOTES

- (1) (E) 36X24 TRANSFER GRILLE, NO WORK ON THIS EQUIPMENT.
- (2) (E) 74X26 TRANSFER GRILLE, NO WORK ON THIS EQUIPMENT.
- (3) (E) KITCHEN HOOD, NO WORK ON THIS EQUIPMENT.
- (4) (E) DISHWASHER HOOD, NO WORK ON THIS EQUIPMENT.
- (5) PROVIDE (N) S/A AND R/A GRILLES AND DUCTWORK. ALIGN (N) GRILLES WITH (E) CEILING GRID AND LIGHTS.
- (6) PROVIDE (N) PACKAGED ROOF TOP UNIT ON ROOF, SEE ROOF PLAN FOR DETAILS.
- (7) (E) BOILER SYSTEM, NO WORK ON THIS EQUIPMENT.
- (8) (E) MECHANICAL EQUIPMENT, NO WORK ON THIS EQUIPMENT.
- (9) PROVIDE 6" LONG TRANSITION BETWEEN UNIT DISCHARGE AND 20X20 S/A DUCT. EXTEND S/A DUCT DOWN AND PROVIDE TWO 20X10 SPLITTING ELBOWS WITH TURNING VANES. OFFSET S/A DUCTS HORIZONTALLY AND ROUTE AS INDICATED. INSTALL S/A DUCTWORK TIGHT TO BOTTOM OF STRUCTURE.
- (10) PROVIDE SPIN IN FITTING AND EXTEND FLEX DUCT TO CEILING DIFFUSER. FLEX DUCT SIZE SHALL MATCH DIFFUSER NECK SIZE. ROUTE FLEX DUCT BETWEEN STRUCTURE.
- (11) PROVIDE 12" LONG TRANSITION BETWEEN UNIT INTAKE AND 22X46 R/A GRILLE. EXTEND R/A DUCT DOWN TO GRILLE AND CONNECT. COORDINATE GRILLE LOCATION WITH (E) CEILING GRID AND LIGHTS.
- (12) PROVIDE 6" LONG TRANSITION BETWEEN UNIT DISCHARGE AND DUCT SIZE INDICATED. EXTEND S/A DUCT DOWN AND OFFSET S/A DUCT HORIZONTALLY AND ROUTE AS INDICATED. INSTALL S/A DUCTWORK TIGHT TO BOTTOM OF STRUCTURE.
- (13) CAP (E) PIPING ABOVE CEILING.
- (14) PROVIDE NEW ELECTRIC THERMOSTAT AND 2-WAY CONTROL VALVE ON (E) BASEBOARD.
- (15) PROVIDE TRANSFER AIR SYSTEM BETWEEN OFFICE AND CLASSROOM. SYSTEM SHALL CONSIST OF GRILLES AND 12X12 TRANSFER DUCT.
- (16) PROVIDE 1" UNDERCUT ON EXISTING DOOR TO TRANSFER 50 CFM. REMAINING S/A IS FOR BUILDING PRESSURIZATION.

MATCHLINE SEE SHEET M3.0



1 CAFETERIA AREA PLAN-NEW  
M3.3 1/8" = 1'-0"

Leffingwell  
Consulting  
Engineers, Inc.  
1315 North El Paso Street  
Colorado Springs, CO 80903  
T: (719) 473-5998  
F: (719) 473-5978  
E: GaryL@LeffingwellCE.com

FLAGLER SCHOOL RENOVATION

ARRIBA FLAGLER CSD 20

Flagler, Colorado

REV	DATE
	03/25/13 100% CD

ENGINEER: LCE	CHECKED BY: LCE
DRAFTER: LCE	DATE: 03/25/13

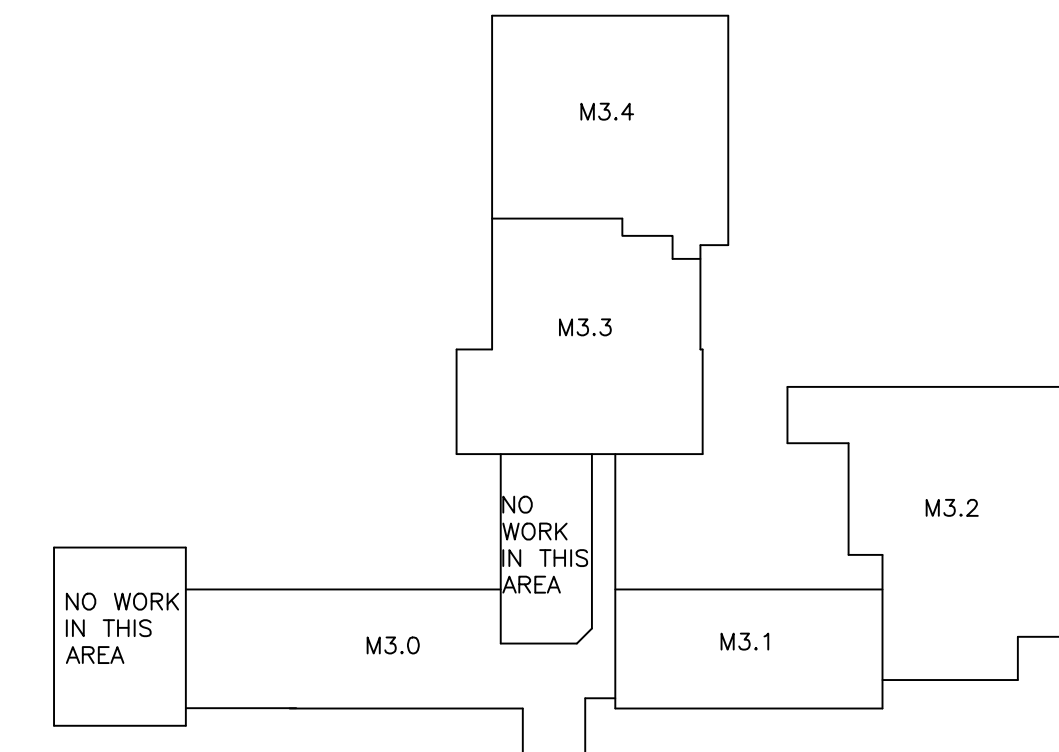
PROJECT NUMBER:  
12036

DRAWING TITLE:  
CAFETERIA AREA  
PLAN - NEW

DRAWING SCALE:  
AS INDICATED

DRAWING NUMBER:

M3.3



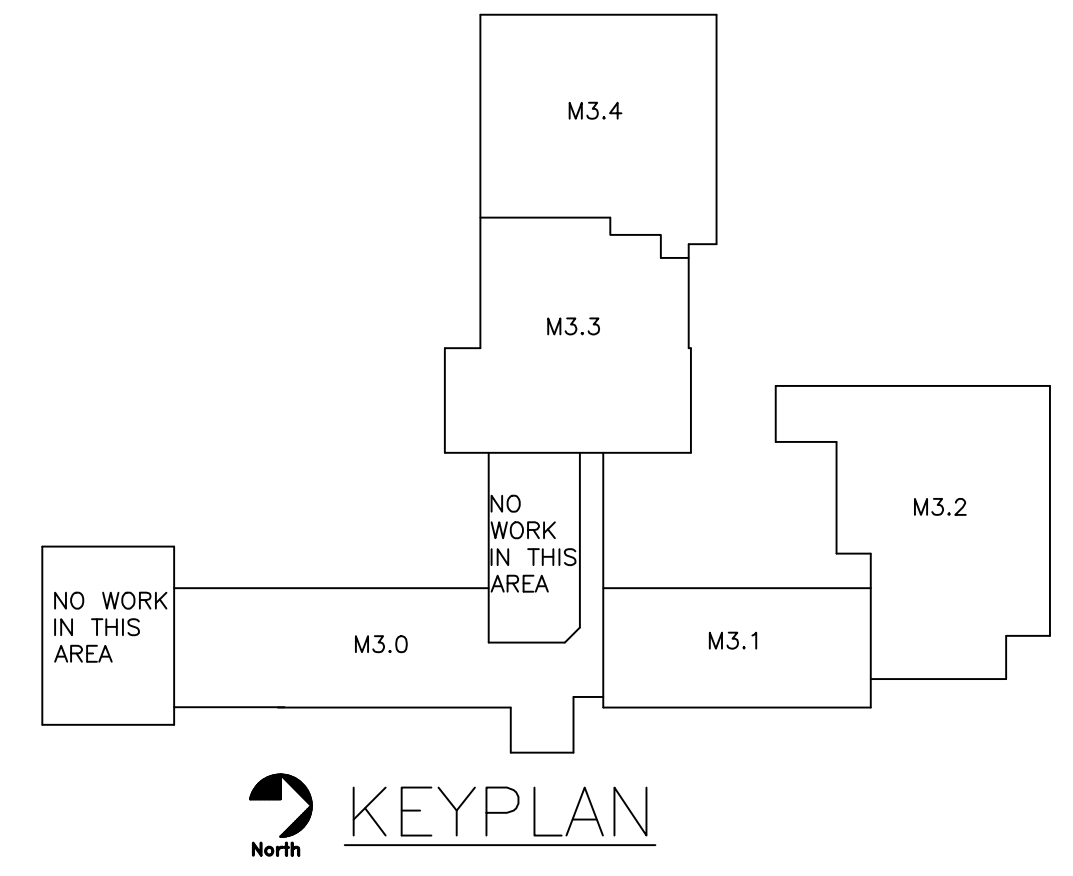


**FLAGLER SCHOOL RENOVATION**  
ARRIBA FLAGLER CSD 20  
Flagler, Colorado

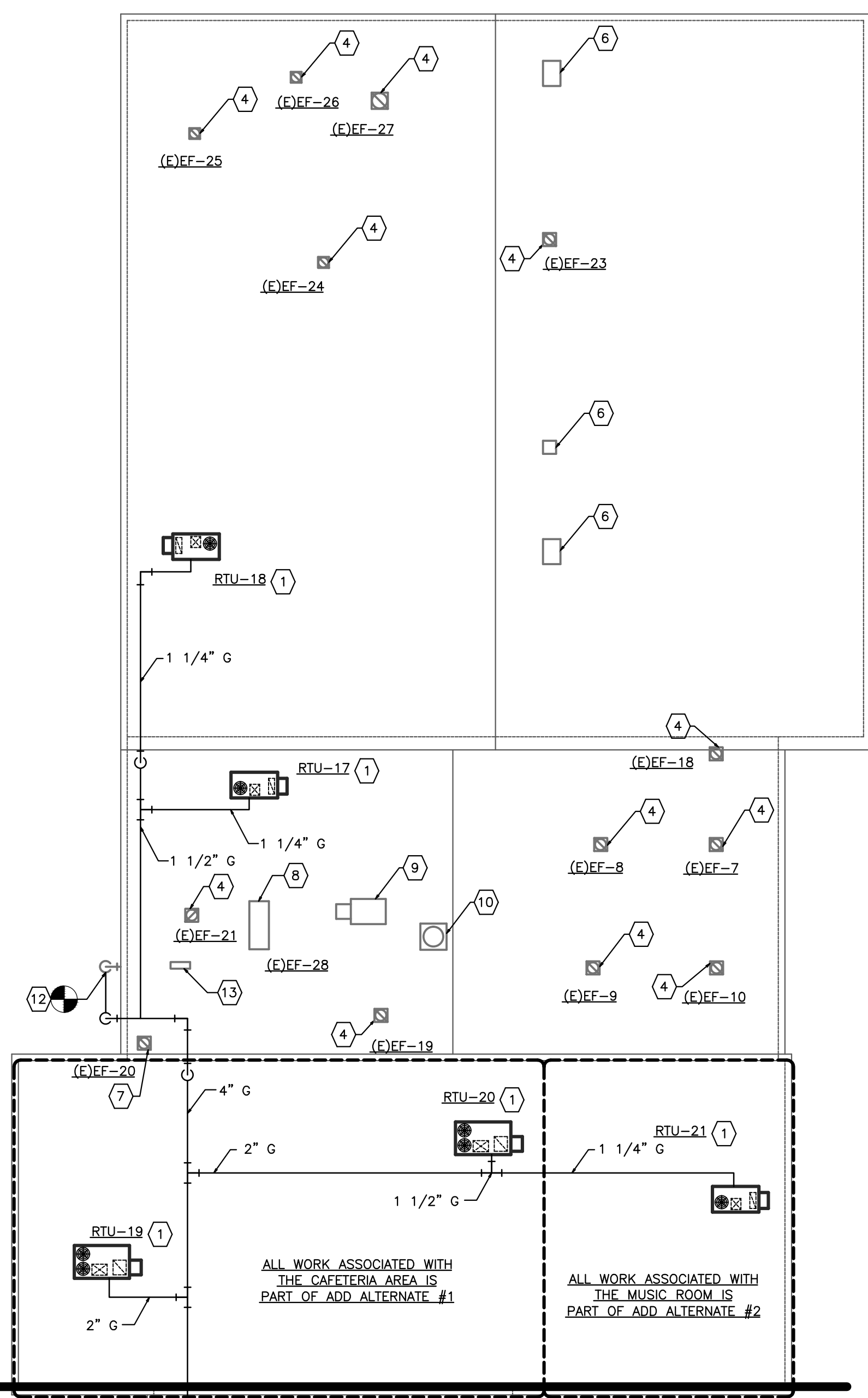
REV	DATE
	03/25/13 100% CD
ENGINEER:	CHECKED BY:
LCE	LCE
DRAFTER:	DATE:
LCE	03/25/13
PROJECT NUMBER:	12036
DRAWING TITLE:	ROOF PLAN - NEW
DRAWING SCALE:	AS INDICATED
DRAWING NUMBER:	M3.5

GAS CONSUMPTION TABLE		
DEVICE	INPUT	GAS FLOW
RTU-1	150.0 MBH	126.06 CFH
RTU-2	150.0 MBH	126.06 CFH
RTU-3	105.0 MBH	88.24 CFH
RTU-4	150.0 MBH	126.06 CFH
RTU-5	105.0 MBH	88.24 CFH
RTU-6	105.0 MBH	88.24 CFH
RTU-7	105.0 MBH	88.24 CFH
RTU-8	150.0 MBH	126.06 CFH
RTU-9	150.0 MBH	126.06 CFH
RTU-10	150.0 MBH	126.06 CFH
RTU-11	150.0 MBH	126.06 CFH
RTU-12	150.0 MBH	126.06 CFH
RTU-13	150.0 MBH	126.06 CFH
RTU-14	240.0 MBH	201.70 CFH
RTU-15	240.0 MBH	201.70 CFH
RTU-16	240.0 MBH	201.70 CFH
RTU-17	150.0 MBH	126.06 CFH
RTU-18	150.0 MBH	126.06 CFH
RTU-19	240.0 MBH	201.70 CFH
RTU-20	240.0 MBH	201.70 CFH
RTU-21	150.0 MBH	126.06 CFH
BOILER	5000.0 MBH	4202.00 CFH
KITCHEN STOVE	150.0 MBH	126.06 CFH
KITCHEN OVEN	150.0 MBH	126.06 CFH

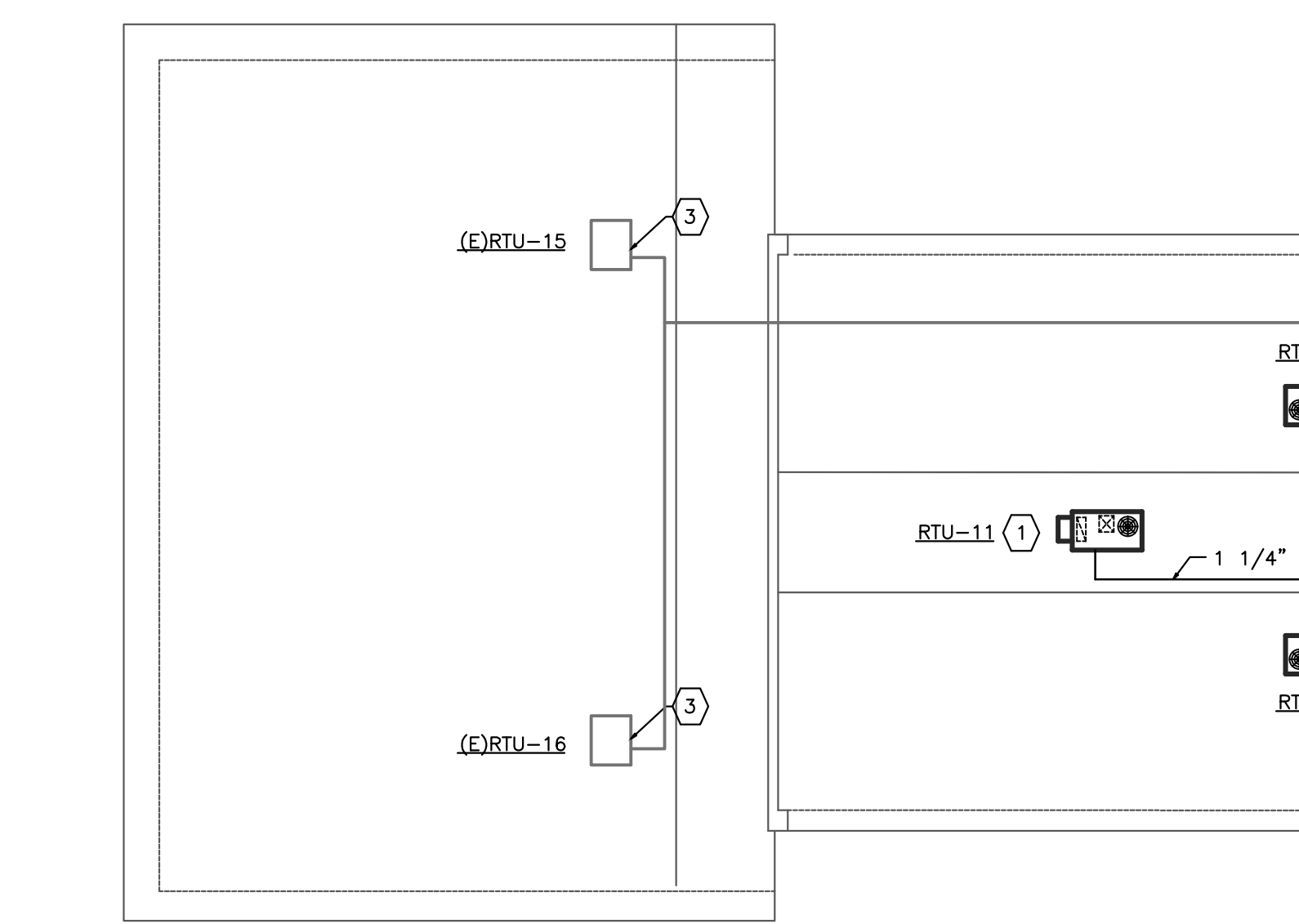
NOTES:  
1. GAS PIPE SIZING BASED UPON TABLE 402.4 OF THE IFGC.  
2. GAS FLOW BASED UPON 990 BTU/CF AT STP AND CONVERTED TO 4940 FT ELEVATION AT 50% AND 20% RH  
3. ALL APPLIANCES HAVE ATMOSPHERIC BURNERS



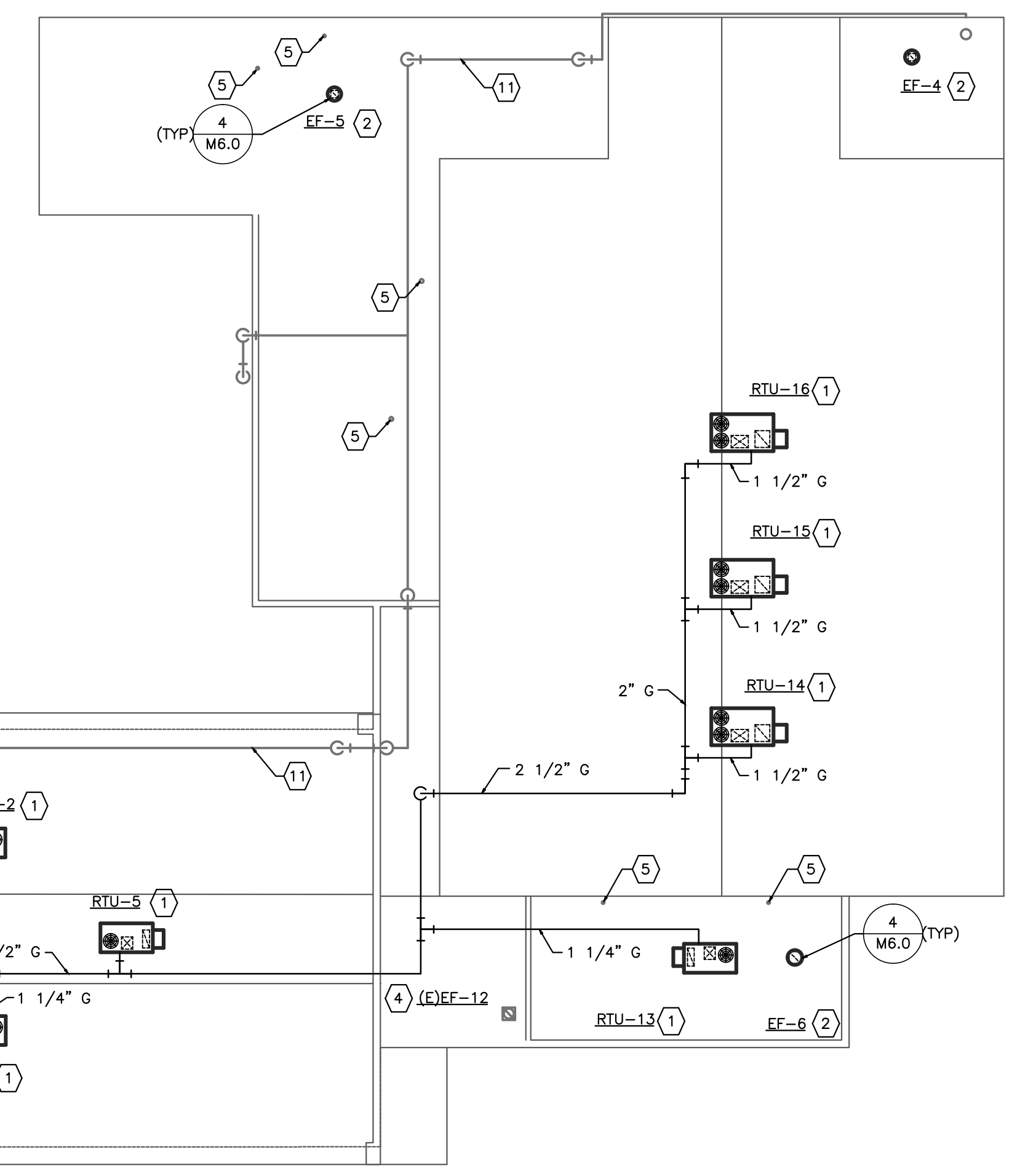
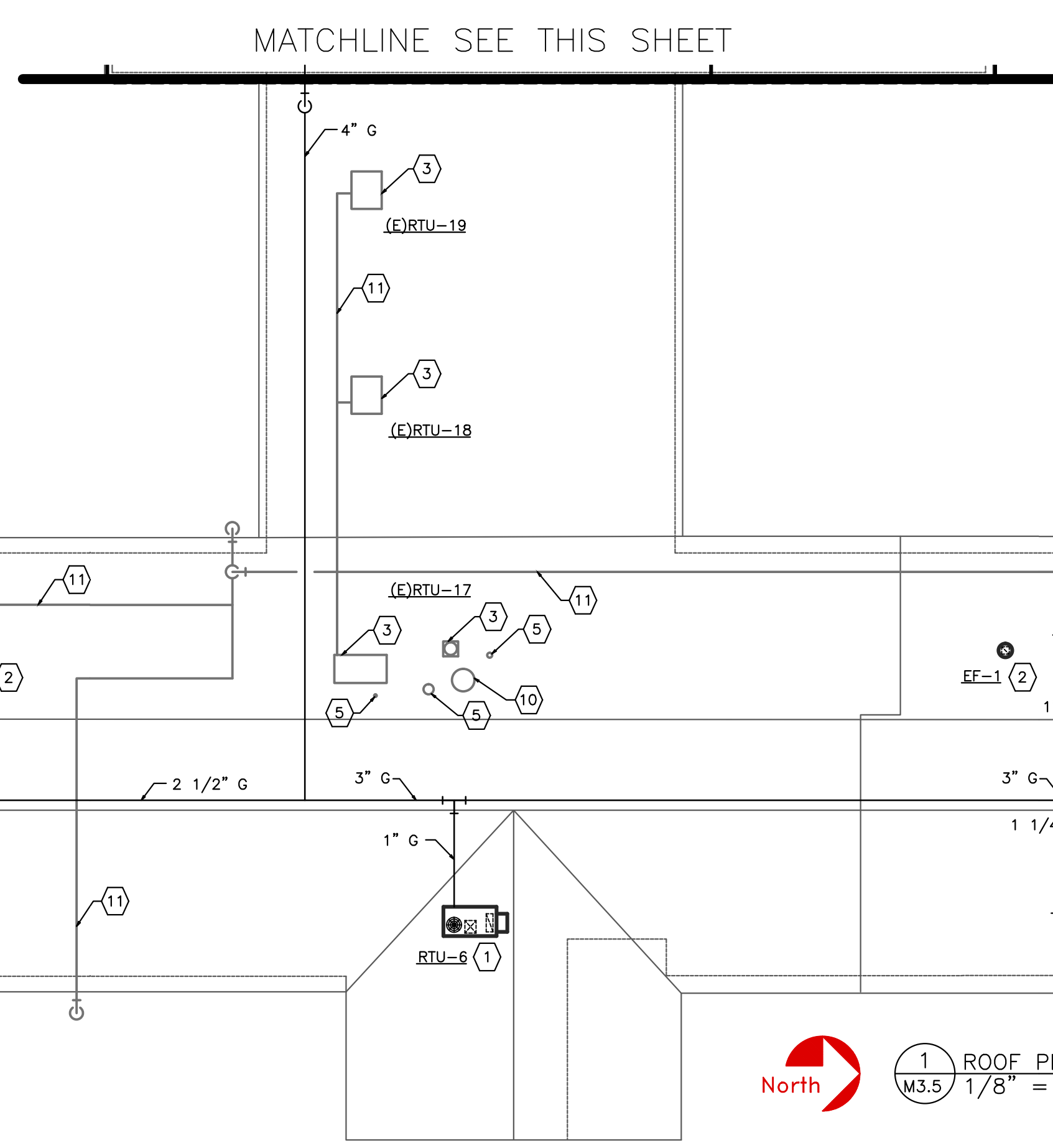
- SHEETNOTES**
- PROVIDE (N) PACKAGED ROOF TOP UNIT, INCLUDING UNIT, ROOF CURB AND CONTROLS. PROVIDE (N) G PIPING WITH ISOLATION VALVE FROM MAIN TO EACH UNIT AND CONNECT. PROVIDE 6" DIRT LEG AT EACH UNIT.
  - PROVIDE (N) EXHAUST FAN, INCLUDING UNIT, ROOF CURB AND CONTROLS.
  - (E) PACKAGED ROOF TOP UNIT, NO WORK ON THIS EQUIPMENT.
  - (E) EXHAUST AIR SYSTEM, NO WORK ON THIS EQUIPMENT.
  - (E) PLUMBING VENT, NO WORK ON THIS EQUIPMENT.
  - (E) POOL ROOM AIR HANDLER O/A INTAKE HOOD, NO WORK ON THIS EQUIPMENT.
  - (E) DISHWASHER HOOD EXHAUST FAN, NO WORK ON THIS EQUIPMENT.
  - (E) KITCHEN HOOD EXHAUST FAN, NO WORK ON THIS EQUIPMENT.
  - (E) BOILER COMBUSTION AIR INTAKE HOOD, NO WORK ON THIS EQUIPMENT.
  - (E) BOILER FLUE, NO WORK ON THIS EQUIPMENT.
  - (E) GAS PIPING, NO WORK ON THIS EQUIPMENT.
  - PROVIDE NEW G PIPING FOR NEW ROOF TOP UNITS. CONNECT NEW G PIPING TO (E) 8" G PIPING AND EXTEND UP TO ROOF AND ROUTE AS INDICATED. PROVIDE ISOLATION VALVE IN NEW G PIPING AT CONNECTION TO (E) G PIPING.
  - (E) WALL MOUNTED A/C SYSTEM WITH ROOF MOUNTED CONDENSER, NO WORK ON THIS EQUIPMENT.



MATCHLINE SEE THIS SHEET



MATCHLINE SEE THIS SHEET



North  
1 ROOF PLAN-NEW  
M3.5 1/8" = 1'-0"

ROOFTOP UNIT SCHEDULE

TAG	TYPE	OUTSIDE AIR		SUPPLY FAN				HEATING				COOLING				ELECTRICAL			OPERATING WEIGHT	MANUFACTURER AND MODEL	NOTES			
		MIN.	MAX.	CFM	ESP	RPM	TYPE	HP	INPUT	OUTPUT	AFUE	EAT	TOTAL	SENSIBLE	SEER	EAT	LAT	VOLTS				PHASE	MCA	MOCP
RTU-1	PACKAGED	200	400	1180	0.75" w.c.	975	FC	0.75	150.0	80.7	80%	19.6°F	40.8	40.8	15.0	86.9°F/57.2°F	50.0°F/42.6°F	208	3ø	23.0	35.0	900#	LENNOX LGH048S4BH3Y	1-30
RTU-2	PACKAGED	200	400	1400	0.75" w.c.	1025	FC	0.75	150.0	85.9	80%	27.9°F	45.5	45.5	15.0	84.7°F/56.5°F	50.0°F/42.7°F	208	3ø	23.0	35.0	900#	LENNOX LGH048S4BH3Y	1-30
RTU-3	PACKAGED	510	590	1110	0.75" w.c.	975	FC	0.75	105.0	42.8	80%	27.2°F	36.3	36.3	15.0	84.9°F/56.2°F	50.0°F/42.2°F	208	3ø	23.0	35.0	900#	LENNOX LGH048S4BU3Y	1-30
RTU-4	PACKAGED	200	530	1330	0.75" w.c.	1000	FC	0.75	150.0	71.1	80%	37.2°F	41.7	41.7	15.0	82.4°F/56.3°F	49.0°F/42.9°F	208	3ø	23.0	35.0	900#	LENNOX LGH048S4BH3Y	1-30
RTU-5	PACKAGED	460	460	1200	0.50" w.c.	852	FC	0.75	105.0	62.9	80%	38.9°F	31.3	31.3	15.0	82.1°F/54.9°F	54.0°F/43.6°F	208	3ø	19.0	25.0	900#	LENNOX LGH036S4BU3Y	1-29
RTU-6	PACKAGED	250	350	1370	0.75" w.c.	1025	FC	0.75	105.0	60.1	80%	48.5°F	38.1	38.1	15.0	79.7°F/55.6°F	50.0°F/43.6°F	208	3ø	23.0	35.0	900#	LENNOX LGH048S4BU3Y	1-30
RTU-7	PACKAGED	350	570	1060	0.75" w.c.	960	FC	0.75	105.0	66.1	80%	26.7°F	34.3	34.3	15.0	85.1°F/56.4°F	50.5°F/42.7°F	208	3ø	19.0	25.0	900#	LENNOX LGH036S4BU3Y	1-30
RTU-8	PACKAGED	200	750	1180	0.75" w.c.	985	FC	0.75	150.0	80.8	80%	19.6°F	40.8	40.8	15.0	86.9°F/57.2°F	50.0°F/42.6°F	208	3ø	23.0	35.0	900#	LENNOX LGH048S4BH3Y	1-30
RTU-9	PACKAGED	200	730	1400	0.75" w.c.	1025	FC	0.75	150.0	85.9	80%	27.9°F	44.1	44.1	15.0	84.7°F/56.5°F	51.0°F/43.1°F	208	3ø	23.0	35.0	900#	LENNOX LGH048S4BH3Y	1-30
RTU-10	PACKAGED	400	780	1600	0.75" w.c.	1060	FC	0.75	150.0	94.8	80%	30.5°F	51.1	51.1	15.0	84.1°F/56.3°F	50.0°F/42.7°F	208	3ø	23.0	35.0	900#	LENNOX LGH048S4BH3Y	1-30
RTU-11	PACKAGED	400	400	1700	0.50" w.c.	980	FC	0.75	150.0	72.2	80%	50.1°F	41.7	41.7	15.0	79.4°F/53.9°F	53.0°F/43.2°F	208	3ø	27.0	35.0	900#	LENNOX LGH048S4BH3Y	1-29
RTU-12	PACKAGED	290	590	1460	0.50" w.c.	934	FC	0.75	150.0	78.6	80%	36.8°F	37.3	37.3	15.0	82.5°F/55.5°F	55.0°F/44.6°F	208	3ø	23.0	35.0	900#	LENNOX LGH048S4BH3Y	1-30
RTU-13	PACKAGED	500	500	1500	0.50" w.c.	934	FC	0.75	150.0	111.1	80%	42.3°F	36.4	36.4	15.0	81.2°F/54.8°F	55.0°F/44.4°F	208	3ø	23.0	35.0	900#	LENNOX LGH048S4BH3Y	1-29
RTU-14	PACKAGED	480	368	3380	0.50" w.c.	855	FC	3.0	240.0	155.6	80%	36.6°F	86.2	86.2	12.6	82.6°F/57.4°F	55.0°F/46.9°F	208	3ø	45.0	50.0	1500#	LENNOX LGH092H4BH3Y	1-31
RTU-15	PACKAGED	490	368	3380	0.50" w.c.	855	FC	3.0	240.0	155.6	80%	36.6°F	86.2	86.2	12.6	82.6°F/57.4°F	55.0°F/46.9°F	208	3ø	45.0	50.0	1500#	LENNOX LGH092H4BH3Y	1-31
RTU-16	PACKAGED	480	368	3380	0.50" w.c.	855	FC	3.0	240.0	155.6	80%	36.6°F	86.2	86.2	12.6	82.6°F/57.4°F	55.0°F/46.9°F	208	3ø	45.0	50.0	1500#	LENNOX LGH092H4BH3Y	1-31
RTU-17	PACKAGED	100	765	1730	0.50" w.c.	1070	FC	1.0	150.0	97.4	80%	33.9°F	53.0	53.0	15.0	83.2°F/56.1°F	50.5°F/43.0°F	208	3ø	29.0	45.0	1000#	LENNOX LGH060S4BH3Y	1-30
RTU-18	PACKAGED	300	800	1450	0.50" w.c.	934	FC	0.75	150.0	80.4	80%	37.1°F	44.8	44.8	15.0	82.4°F/55.9°F	50.5°F/43.1°F	208	3ø	23.0	35.0	900#	LENNOX LGH048S4BH3Y	1-30
RTU-19	PACKAGED	750	995	2010	0.75" w.c.	700	FC	2.0	240.0	119.7	80%	29.7°F	54.4	54.4	12.6	84.3°F/57.9°F	55.0°F/46.9°F	208	3ø	42.0	50.0	1500#	LENNOX LGH092H4BH3Y	1-31
RTU-20	PACKAGED	750	995	2010	0.75" w.c.	700	FC	2.0	240.0	119.7	80%	29.7°F	54.4	54.4	12.6	84.3°F/57.9°F	55.0°F/46.9°F	208	3ø	42.0	50.0	1500#	LENNOX LGH092H4BH3Y	1-31
RTU-21	PACKAGED	300	660	2130	0.75" w.c.	911	FC	2.0	150.0	101.3	80%	44.1°F	50.9	50.9	15.0	80.8°F/55.6°F	55.0°F/45.6°F	208	3ø	32.0	45.0	1000#	LENNOX LGH060S4BH3Y	1-31

- NOTES: 1. ALL PERFORMANCE AND OUTPUT IS BASED UPON THE PROJECT ELEVATION OF 4940 FEET.  
 2. PROVIDE AN ECONOMIZER CYCLE WITH SINGLE ENTHALPY SENSOR, BAROMETRIC RELIEF DAMPER, HIGH ALTITUDE NATURAL GAS KIT, CONDENSER COIL GUARD AND HAL GUARD.  
 3. UNIT OUTPUT HEATING AND COOLING CAPACITY BASED UPON ROOM REQUIREMENTS, ACTUAL UNIT OUTPUT SHALL EXCEED OR MATCH REQUIREMENTS AND INCLUDE INTERNAL LOSSES AND GAINS.  
 4. MANUFACTURER PROVIDED DISCONNECT.  
 5. 409 STAINLESS STEEL HEAT EXCHANGER WITH 2 STAGE HEATING  
 6. LOW AMBIENT OPERATION TO ZERO DEGREES  
 7. DUAL HERMETICALLY SEALED COMPRESSORS (2 STAGE COOLING)  
 8. FACTORY INSULATED UNDERSIDE OF UNIT  
 9. LOW VOLTAGE RELAY BOARD WITH TERMINAL STRIP  
 10. PTC TYPE CRANKCASE HEATER  
 11. LIQUID LINE FILTER DRYER  
 12. PERMANENTLY LUBRICATED MOTORS  
 13. 24 VOLT CIRCUIT WITH COMPRESSOR LOCKOUT PROTECTION  
 14. COPPER TUBE AND ALUMINUM FIN COILS  
 15. 2" FILTER RACK WITH 2 SETS OF MERV 7 FILTERS  
 16. HIGH AND LOW PRESSURE, LOSS OF CHARGE AND FREEZESTAT PROTECTION SWITCHES  
 17. SINGLE THROUGH THE BASE POINT POWER CONNECTION  
 18. ENAMEL PAINT FINISH  
 19. ONE YEAR FACTORY WARRANTY ON COMPLETE UNIT, FOUR YEAR ADDITIONAL WARRANTY ON COMPRESSORS AND NINE YEAR ADDITIONAL WARRANTY ON HEAT EXCHANGER  
 20. FACTORY TESTED CHARGED AND WIRE  
 21. R-410A REFRIGERANT  
 22. G90 GALVANIZED STEEL CABINET CONSTRUCTION WITH 1/2" INTERIOR INSULATION, INSULATION SHALL BE COATED ON AIRSTREAM SIDE  
 23. FULL PERIMETER BASEPAINT  
 24. BELT DRIVE EVAPORATOR FAN  
 25. DIRECT DRIVE CONDENSER FAN  
 26. SEE CONTROL DIAGRAM FOR UNIT CONFIGURATION, OPTIONS AND TEMPERATURE CONTROL REQUIREMENTS  
 27. PROVIDE ACCESS DOOR TO THE FILTER SECTION AND FAN SECTION  
 28. MANUFACTURER PROVIDED POWERED CONVENIENCE OUTLET.  
 29. 14" HIGH CUSTOM ROOF CURB PROVIDED UNDER SPECIFICATION SECTION 07 72 00  
 30. PROVIDE DEMAND CONTROL VENTILATION OPTION.  
 31. R/A DUCT SMOKE DETECTOR

CABINET UNIT AND UNIT HEATER SCHEDULE

TAG	CONFIGURATION	FAN CRITERIA				HEATING COIL CRITERIA						COOLING COIL	MANUFACTURER AND MODEL	NOTES	
		CFM	RPM	HP	VOLT/PH	KW	GPM	EWI	LWT	WPD	ROWS				FPI
ECUH-1	SURFACE MOUNTED	230	1550	---	208/3ø	2.0	---	---	---	---	---	---	---	RAYWALL T33A02203B50	1,2
ECUH-2	SURFACE MOUNTED	230	1550	---	208/3ø	2.0	---	---	---	---	---	---	---	RAYWALL T33A02203B50	1,2
ECUH-3	SURFACE MOUNTED	230	1550	---	208/3ø	2.0	---	---	---	---	---	---	---	RAYWALL T33A02203B50	1,2

- NOTES: 1. ALL AIR PERFORMANCE IS BASED UPON THE PROJECT ELEVATION  
 2. 3.0 AMP  
 3. 9.2 AMP

FAN SCHEDULE

TAG	TYPE	SERVICE	CFM	ESP in. w.c.	RPM	EFF. %	FAN DIA. Inches	BHP	MOTOR HP	ELECTRICAL VOLTS/PH	MANUFACTURER AND MODEL	NOTES
EF-1	CENTRIFUGAL	RESTROOM	750	0.125	950	---	---	---	0.25	120/1ø	GREENHECK GB-90	1,2,5
EF-2	CENTRIFUGAL	RESTROOM	300	0.125	630	---	---	---	1/6	120/1ø	GREENHECK GB 80	1,3,5
EF-3	CENTRIFUGAL	RESTROOM	350	0.125	630	---	---	---	1/6	120/1ø	GREENHECK GB 80	1,4,5
EF-4	CENTRIFUGAL	LOCKER ROOM	400	0.125	900	---	---	---	1/6	120/1ø	GREENHECK GB 80	1,2,4
EF-5	CENTRIFUGAL	LOCKER ROOM	400	0.125	900	---	---	---	1/6	120/1ø	GREENHECK GB 80	1,2,4
EF-6	CENTRIFUGAL	LOCKER ROOM	400	0.125	900	---	---	---	1/6	120/1ø	GREENHECK GB 80	1,2,4
EF-7	CEILING	CHEM STORAGE	190	0.100	1400	---	---	---	113 WATT	120/1ø	GREENHECK SP-218	1,2,4

- NOTES: 1. ALL AIR PERFORMANCE IS BASED UPON THE PROJECT ELEVATION.  
 2. INTERLOCK EXHAUST FAN WITH RTU-1 AND RTU-11.  
 3. INTERLOCK EXHAUST FAN WITH RTU-10 AND RTU-11.  
 4. INTERLOCK EXHAUST FAN WITH RTU-7 NAD RTU-11.  
 5. PROVIDE BACKDRAFT DAMPER.  
 6. PROVIDE WALL COLLAR, MOTORIZED DAMPER AND WEATHERHOOD.

GRILLE/REGISTER/DIFFUSER SCHEDULE

TAG	STYLE	SERVICE	FACE SIZE	PATTERN	MAXIMUM CFM	MAXIMUM NC	MATERIAL	OBD	MANUFACTURER AND MODEL	NOTES
A	CEILING	SUPPLY	24X24	ADJUSTABLE LOUVERED	SEE PLANS	30	ALUMINUM	NO	TITUS TDCA-AA	1,2,3
B	CEILING	RETURN	24X24	PERFORATED	1000	30	ALUMINUM	YES	TITUS PAR-AA	1,3
C	SIDEWALL	SUPPLY	SEE NOTES	ADJUSTABLE LOUVERED	250	30	ALUMINUM	YES	TITUS 272FL	1,3,5
D	CEILING	SUPPLY	24X24	ADJUSTABLE LOUVERED	SEE PLANS	30	ALUMINUM	NO	TITUS TDCA-AA	1,3,6
E	CEILING	EXHAUST	SEE NOTES	LOUVERED	250	30	ALUMINUM	YES	TITUS 355FL	1,3,4
F	SIDEWALL	RETURN	SEE NOTES	45° LOUVERED	250	30	ALUMINUM	YES	TITUS 23RL	1,3
G	CEILING	RETURN	24X48	PERFORATED	2800	30	ALUMINUM	YES	TITUS PAR-AA	1,3
H	DOOR	TRANSFER	SEE PLANS	LOUVERED	400	30	ALUMINUM	NO	TITUS CT-700L	1,3

- NOTES: 1. ALL AIR PERFORMANCE IS BASED UPON THE PROJECT ELEVATION.  
 2. 24X24 PANEL SIZE WITH 18X18 LOUVER SIZE AND 3-WAY DISCHARGE.  
 3. FACE PLANS FOR NECK LARGER THAN NECK SIZE, SEE PLANS FOR NECK SIZE.  
 4. FACE PLANS FOR NECK LARGER THAN NECK SIZE, SEE PLANS FOR NECK SIZE.  
 5. DOUBLE DEFLECTION LOUVERS.  
 6. 24X24 PANEL SIZE WITH 18X18 LOUVER SIZE AND 4-WAY DISCHARGE.  
 7.

FLAGLER SCHOOL MEP RENOVATION  
 ARRIBA FLAGLER CSD 20  
 Flagler, Colorado

REV	DATE
	03/25/13 100% CD

ENGINEER:	CHECKED BY:
LCE	LCE
DRAFTER:	DATE:
LCE	03/25/13

PROJECT NUMBER:  
12036

DRAWING TITLE:  
MECHANICAL SCHEDULES

DRAWING SCALE:  
AS INDICATED

DRAWING NUMBER:

M4.0

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SEQUENCE OF OPERATION:

GENERAL:

- THIS SYSTEM IS A CONSTANT VOLUME PACKAGED ROOFTOP UNIT WITH GAS FIRED 2 STAGE HEATING AND DIRECT EXPANSION (DX) 2 STAGE COOLING AND ECONOMIZER CYCLE. THE SYSTEM SHALL OPERATE IN AN OCCUPIED AND UNOCCUPIED MODE. SOME UNITS ARE PROVIDED WITH A DEMAND CONTROL VENTILATION OPTION AND SOME UNITS ARE PROVIDED WITH A SMOKE DETECTOR.
- THE UNIT SHALL PROVIDE THE SUPPLY AIRFLOW INDICATED IN THE EQUIPMENT SCHEDULE IN ALL OPERATING MODES. THIS AIRFLOW SHALL BE ESTABLISHED DURING BALANCING OF THE SYSTEM.

UNOCCUPIED MODE:

- THE UNIT SHALL BE OFF, THE OUTSIDE AIR DAMPER CLOSED AND THE RETURN AIR DAMPER SHALL BE OPEN.
- UPON A CALL FOR HEATING OR COOLING, FROM THE PROGRAMMABLE THERMOSTAT, THE UNIT SHALL START AND PROVIDE HEATING OR COOLING TO SATISFY THE UNOCCUPIED MODE SETBACK TEMPERATURE SETPOINT. THE OUTSIDE AIR DAMPER SHALL REMAIN CLOSED.
- THE UNOCCUPIED MODE COOLING SETBACK TEMPERATURE SETPOINT SHALL BE 80°F (ADJUSTABLE).
- THE UNOCCUPIED MODE HEATING SETBACK TEMPERATURE SETPOINT SHALL BE 65°F (ADJUSTABLE).
- THE UNIT SHALL RUN FOR A MINIMUM OF 30 MINUTES.

OCCUPIED HEATING MODE:

- THE OCCUPIED MODE SHALL BEGIN AT 6:00 AM (ADJUSTABLE) AND END AT 6:00 PM (ADJUSTABLE) MONDAY THROUGH FRIDAY (ADJUSTABLE).
- THE FAN SHALL RUN CONTINUOUSLY.
- THE OUTSIDE AIR DAMPER SHALL OPEN AND PROVIDE THE MAXIMUM OUTSIDE AIR LISTED IN THE ROOFTOP UNIT SCHEDULE.
- THE ROOFTOP UNIT SELF CONTAINED CONTROL SYSTEM SHALL PROVIDE HEATING AS REQUIRED TO SATISFY THE TEMPERATURE SETPOINT. THE DX COOLING SHALL BE OFF.
- THE OCCUPIED MODE HEATING TEMPERATURE SETPOINT SHALL BE 70°F (ADJUSTABLE).
- HEATING SHALL BEGIN USING THE 1ST STAGE HEAT EXCHANGER. IF SPACE TEMPERATURE REMAINS BELOW THE HEATING MODE SETPOINT TEMPERATURE FOR 10 MINUTES (ADJUSTABLE), THE 2ND STAGE HEAT EXCHANGER SHALL BE ENERGIZED.
- PROVIDE SUFFICIENT DEADBANDS TO PREVENT CYCLING BETWEEN 1ST STAGE HEATING AND 2ND STAGE HEATING.

OCCUPIED COOLING MODE:

- THE OCCUPIED MODE SHALL BEGIN AT 6:00 AM (ADJUSTABLE) AND END AT 6:00 PM (ADJUSTABLE) MONDAY THROUGH FRIDAY (ADJUSTABLE).
- THE FAN SHALL RUN CONTINUOUSLY.
- THE OUTSIDE AIR DAMPER SHALL OPEN AND PROVIDE THE MAXIMUM OUTSIDE AIR LISTED IN THE ROOFTOP UNIT SCHEDULE.
- THE ROOFTOP UNIT SELF CONTAINED CONTROL SYSTEM SHALL PROVIDE COOLING AS REQUIRED TO SATISFY THE COOLING MODE TEMPERATURE SETPOINT. THE HEATING SYSTEM SHALL BE OFF.
- THE OCCUPIED MODE COOLING TEMPERATURE SETPOINT SHALL BE 75°F (ADJUSTABLE).
- COOLING SHALL BEGIN USING THE ECONOMIZER MODE.
- IF THE ECONOMIZER MODE DOES NOT PROVIDE SUFFICIENT COOLING, THE UNIT SHALL SWITCH TO DX COOLING MODE.
- THE 1ST STAGE COMPRESSOR SHALL BE ENERGIZED TO MAINTAIN A ROOM TEMPERATURE SETPOINT. IF THE SPACE TEMPERATURE REMAINS ABOVE THE COOLING MODE SPACE TEMPERATURE SETPOINT FOR 10 MINUTES (ADJUSTABLE), THE 2ND STAGE DX COMPRESSOR SHALL BE ENERGIZED.
- PROVIDE SUFFICIENT DEADBANDS TO PREVENT CYCLING BETWEEN 1ST STAGE COOLING AND 2ND STAGE COOLING.

ECONOMIZER MODE:

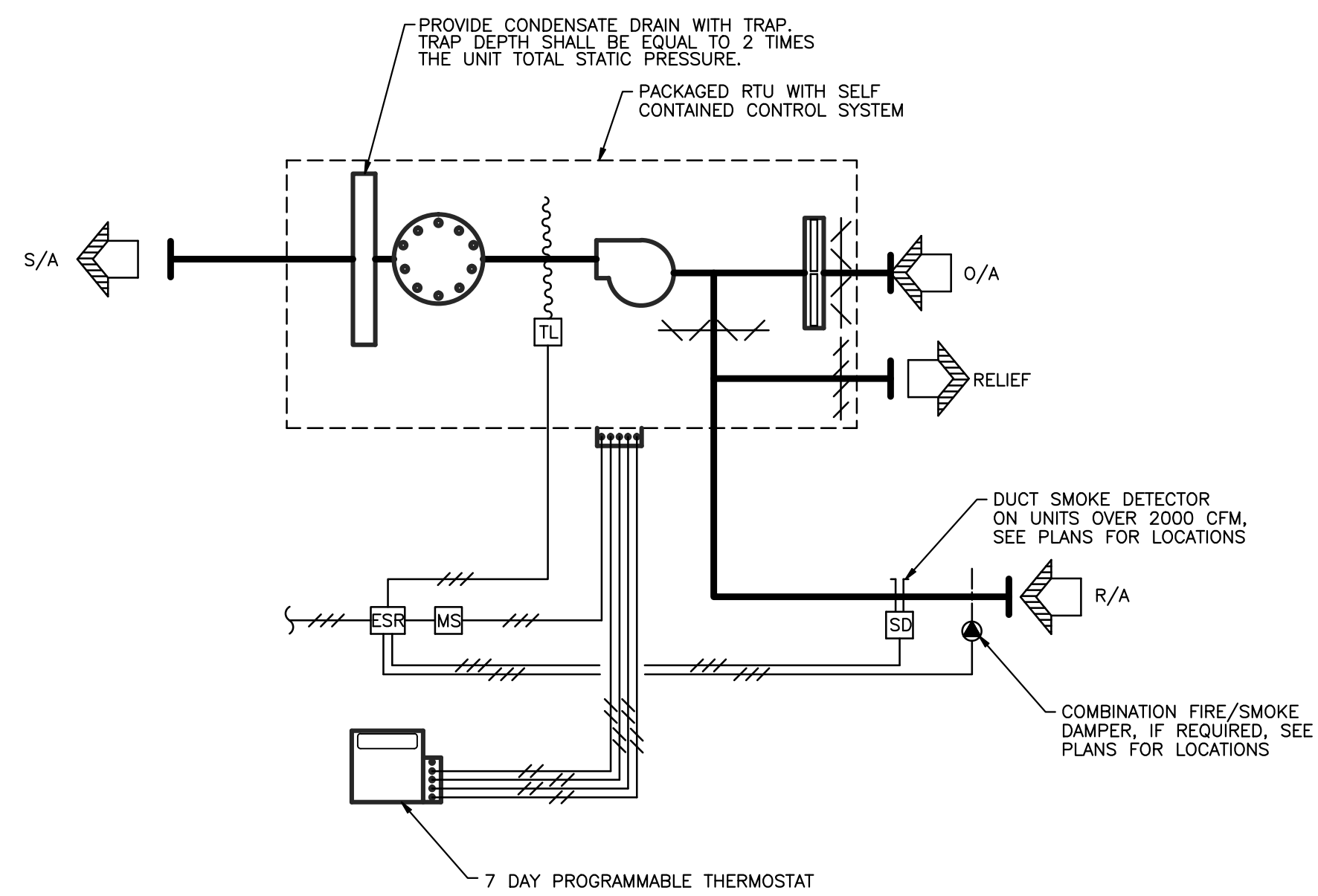
- WHEN THE OUTSIDE AIR TEMPERATURE IS BELOW 60°F (ADJUSTABLE), THE ROOFTOP UNIT SHALL ENGAGE THE OUTSIDE AIR ECONOMIZER SYSTEM TO PROVIDE COOLING.
- THE UNIT'S SELF CONTAINED CONTROL SYSTEM SHALL MODULATE THE OUTSIDE AIR AND RETURN AIR DAMPERS TO SATISFY THE COOLING TEMPERATURE SETPOINT.

DEMAND CONTROL VENTILATION MODE:

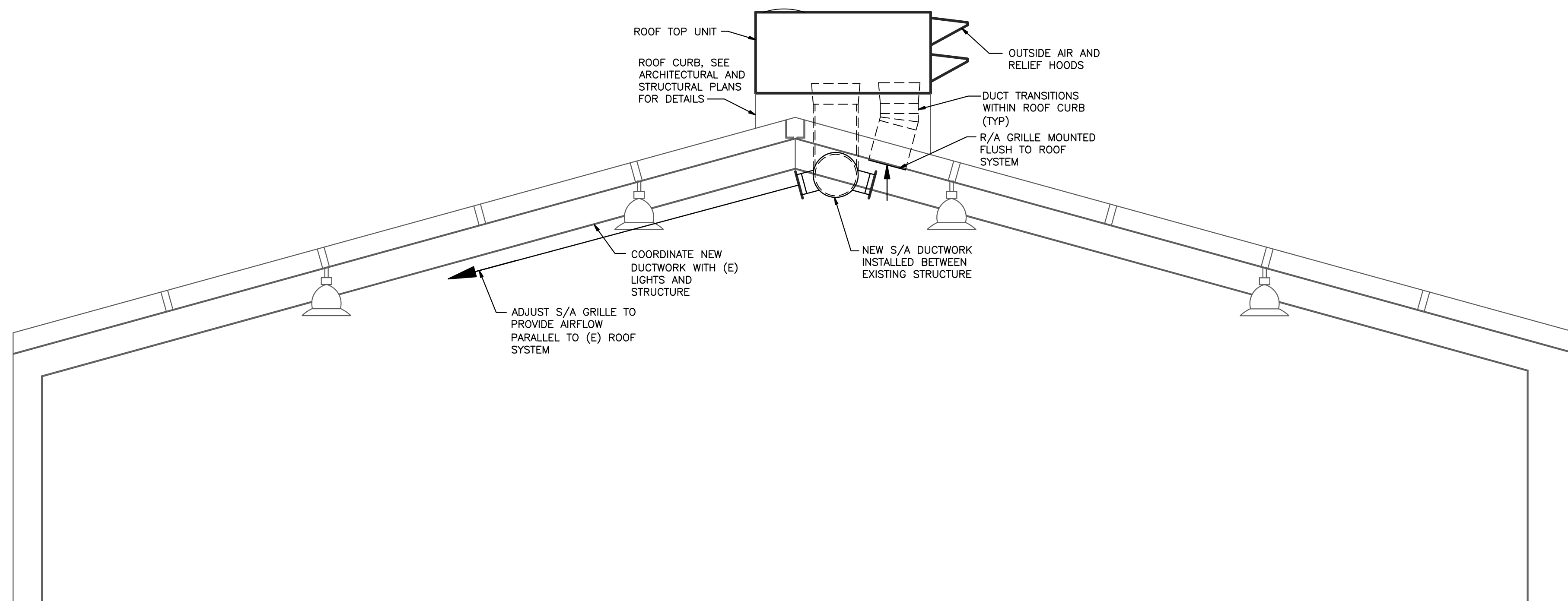
- DURING THE OCCUPIED MODE, UNIT EQUIPPED WITH DEMAND CONTROL VENTILATION, SHALL MODULATE THE OUTSIDE AIR AND RETURN AIR DAMPERS TO MAINTAIN THE SPACE CO2 SETPOINT.
- MINIMUM AND MAXIMUM OUTSIDE AIR VOLUMES SHALL BE AS LISTED IN THE SCHEDULE AND ESTABLISHED DURING BALANCING.
- THE SPACE CO2 SETPOINT SHALL BE THE OUTSIDE AIR CO2 LEVEL + 300PPM, BUT SHALL NOT EXCEED 800PPM.

ALARMS AND SAFETIES:

- WHEN THE UNITS ASSOCIATED RETURN AIR DUCT SMOKE DETECTOR SENSE SMOKE, THE UNIT SHALL SHUT DOWN.
- WHEN THE UNITS ASSOCIATED COMBINATION FIRE/SMOKE DAMPERS CLOSE, THE UNIT SHALL SHUT DOWN.



1 RTU SYSTEM CONTROL DIAGRAM  
M5.0 SCALE: NONE



2 GYMNASIUM SECTION  
M5.0 1/4" = 1'-0"

FLAGLER SCHOOL MEP RENOVATION

ARRIBA FLAGLER CSD 20

Flagler, Colorado

REV	DATE
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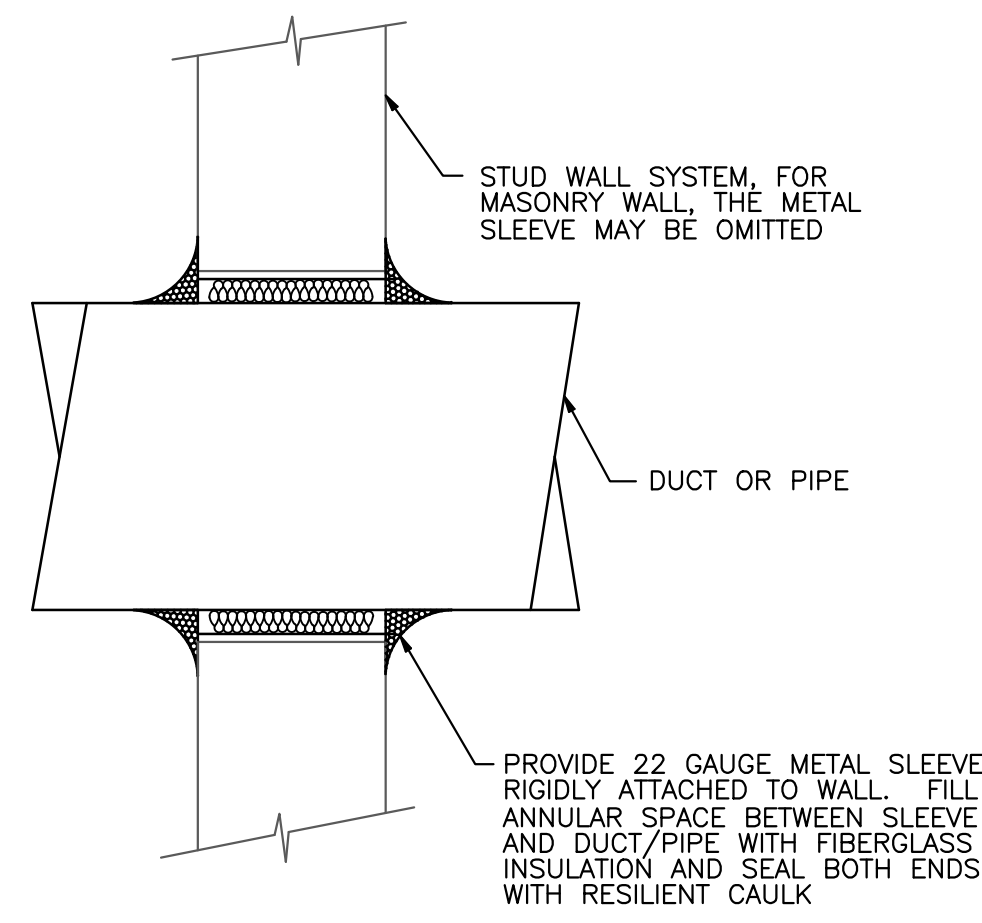
ENGINEER: LCE	CHECKED BY: LCE
DRAFTER: LCE	DATE: 03/25/13

PROJECT NUMBER:  
12036

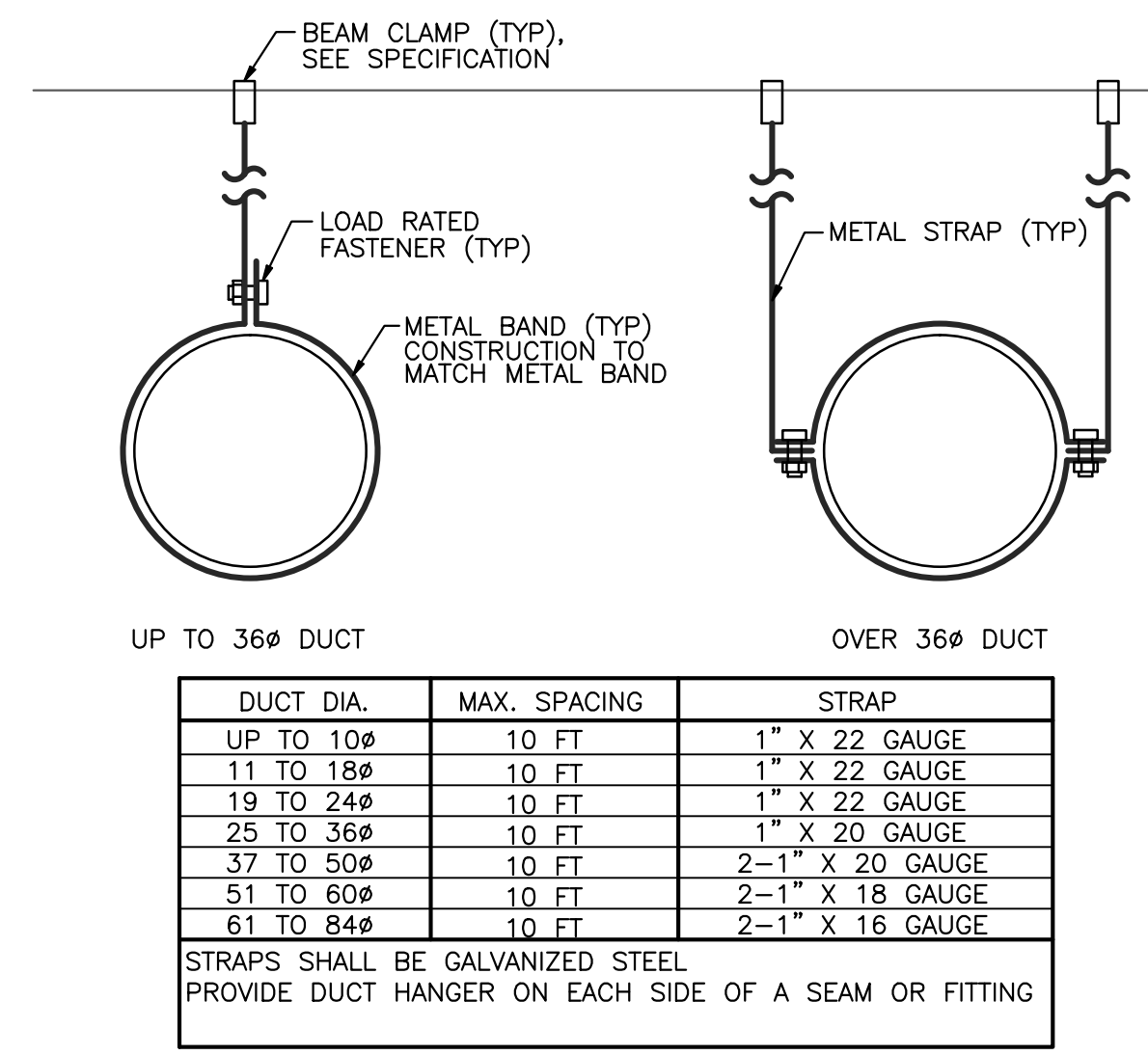
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CONTROL DIAGRAMS

DRAWING SCALE:  
AS INDICATED

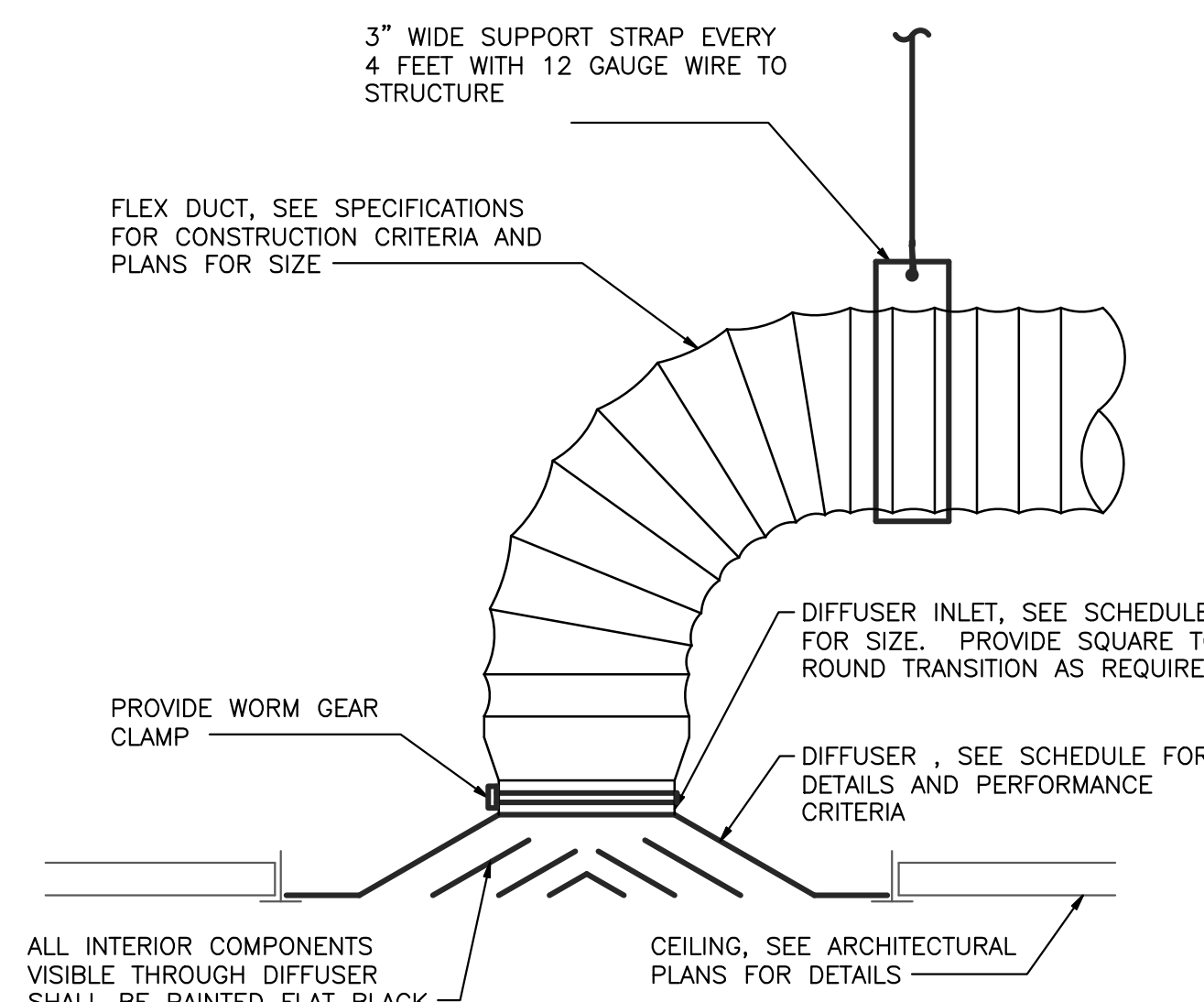
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M5.0



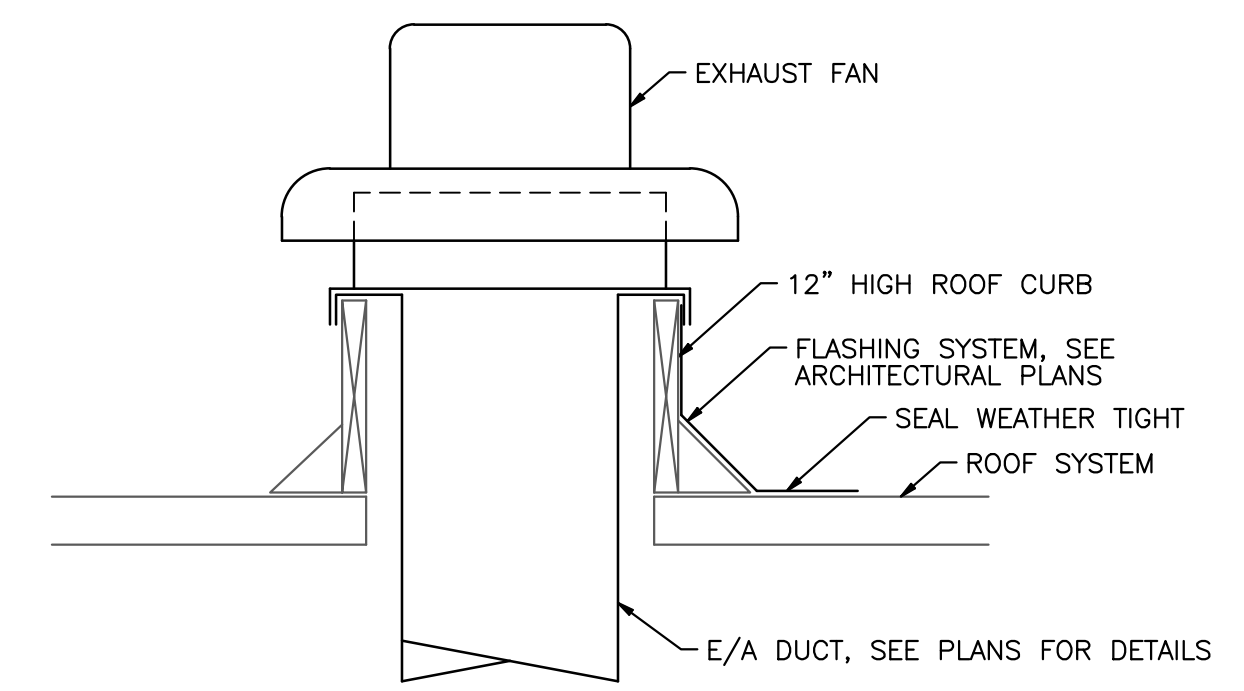
1 WALL PENETRATION DIAGRAM  
 M6.0 SCALE: NONE



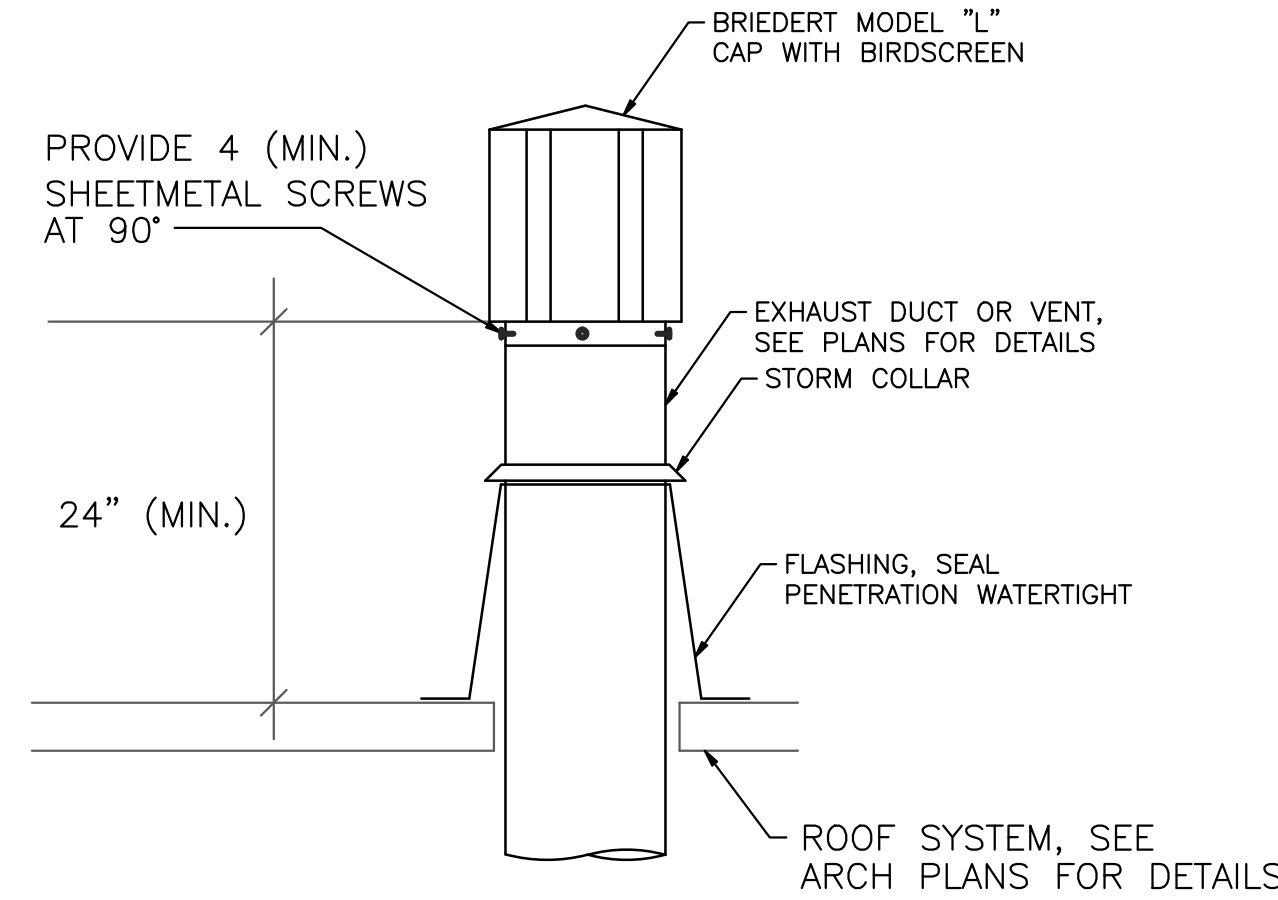
2 ROUND DUCT HANGER DIAGRAM  
 M6.0 SCALE: NONE



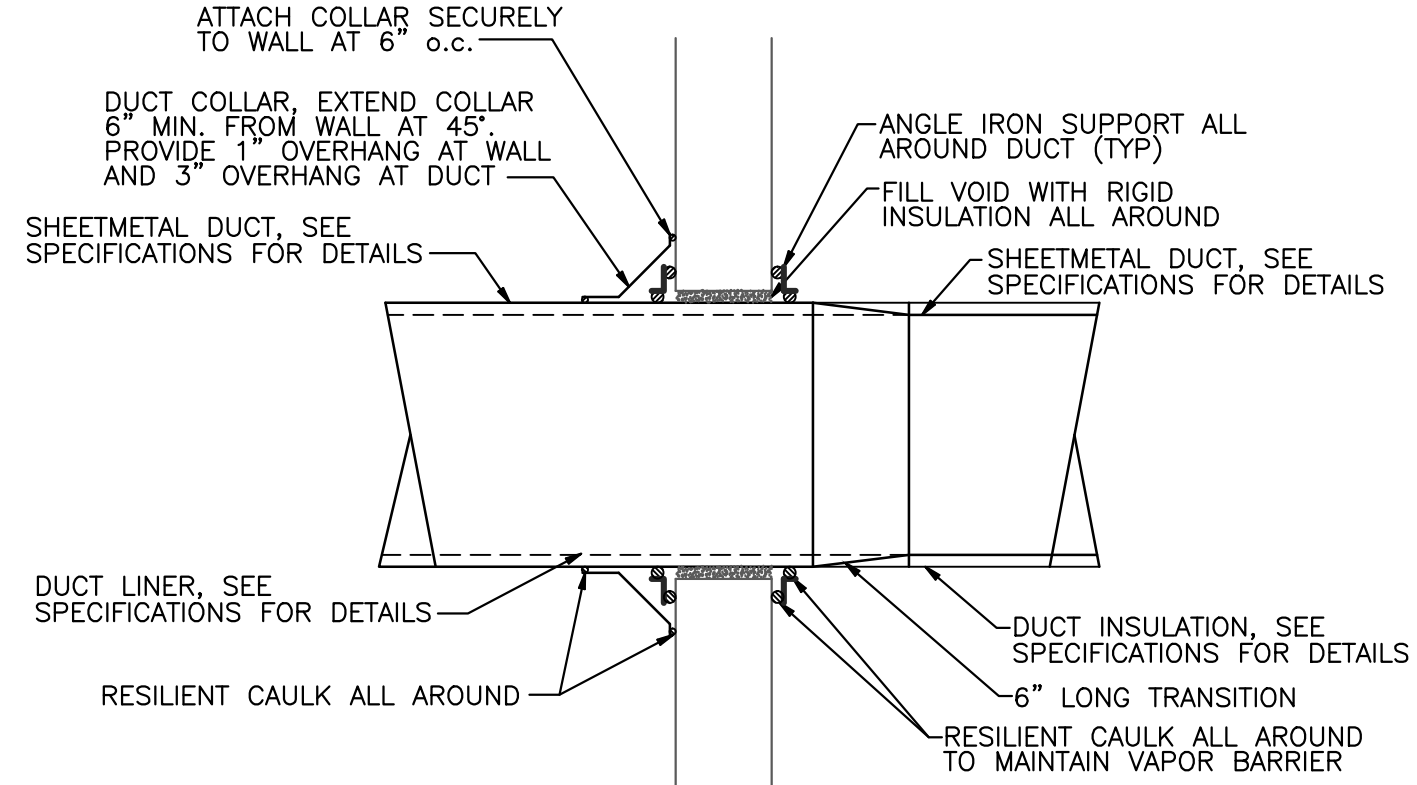
3 SUPPLY DIFFUSER DIAGRAM  
 M6.0 SCALE: NONE



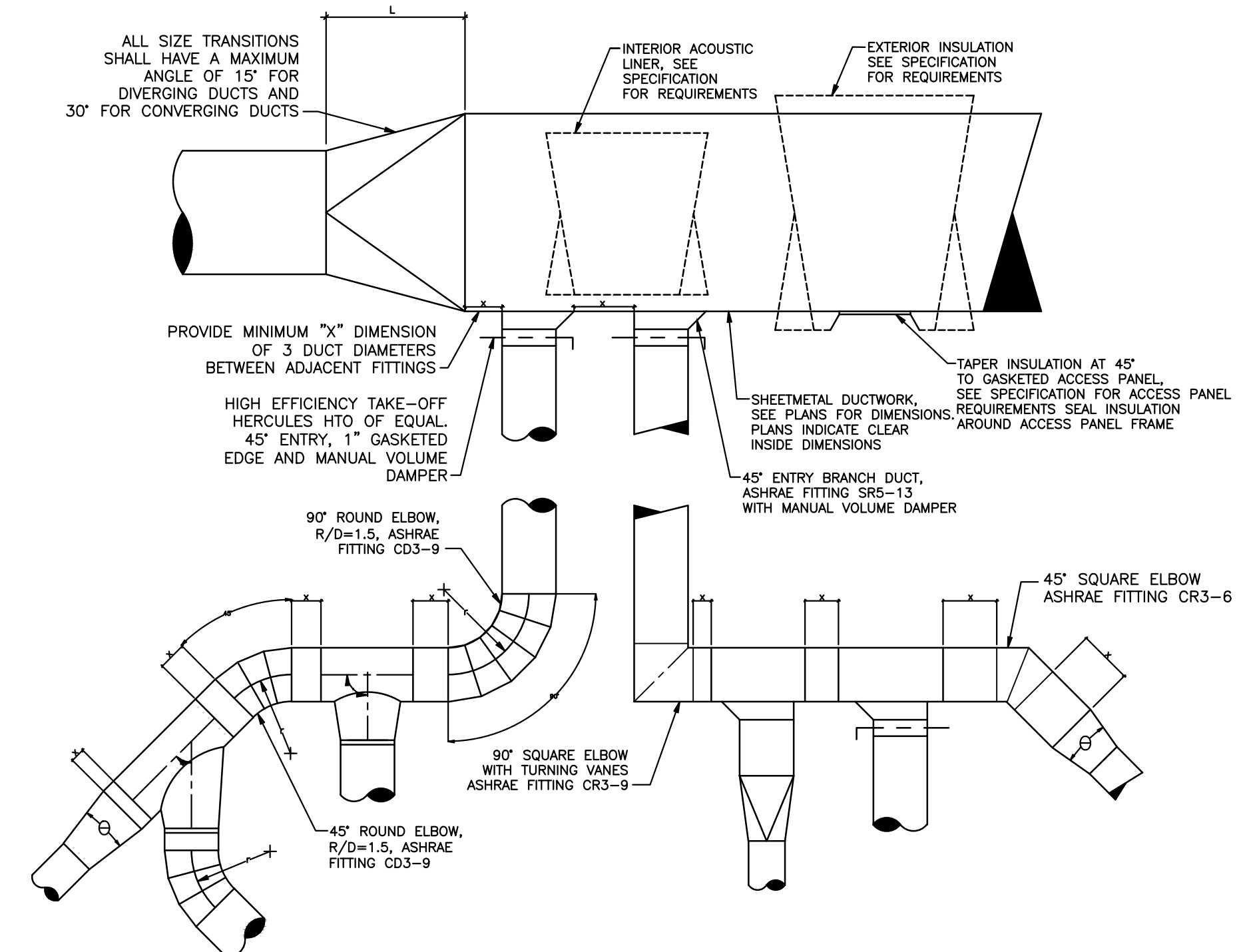
4 EXHAUST FAN DIAGRAM  
 M6.0 SCALE: NONE



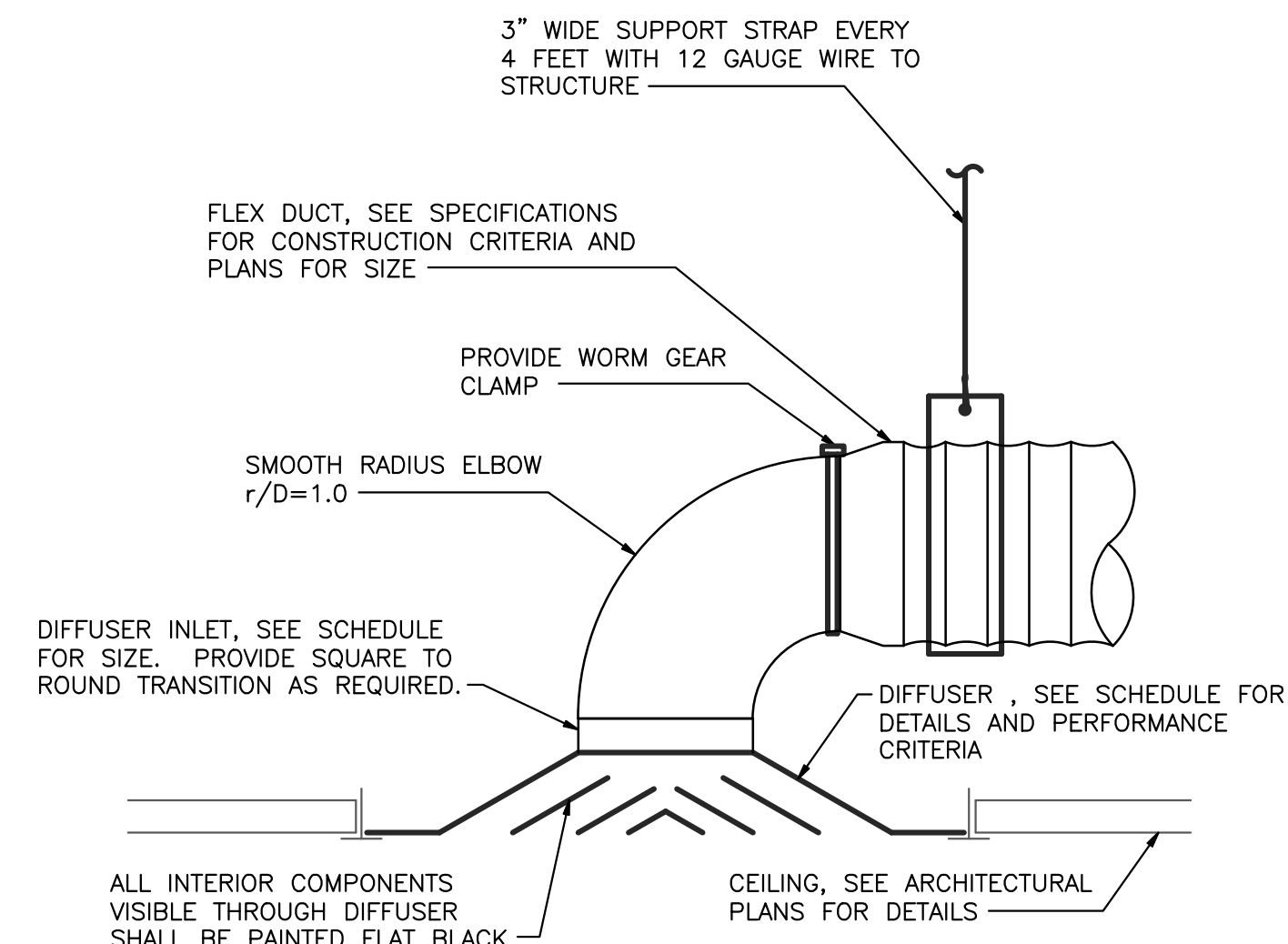
5 E/A OR VENT TERMINATION  
 M6.0 SCALE: NONE



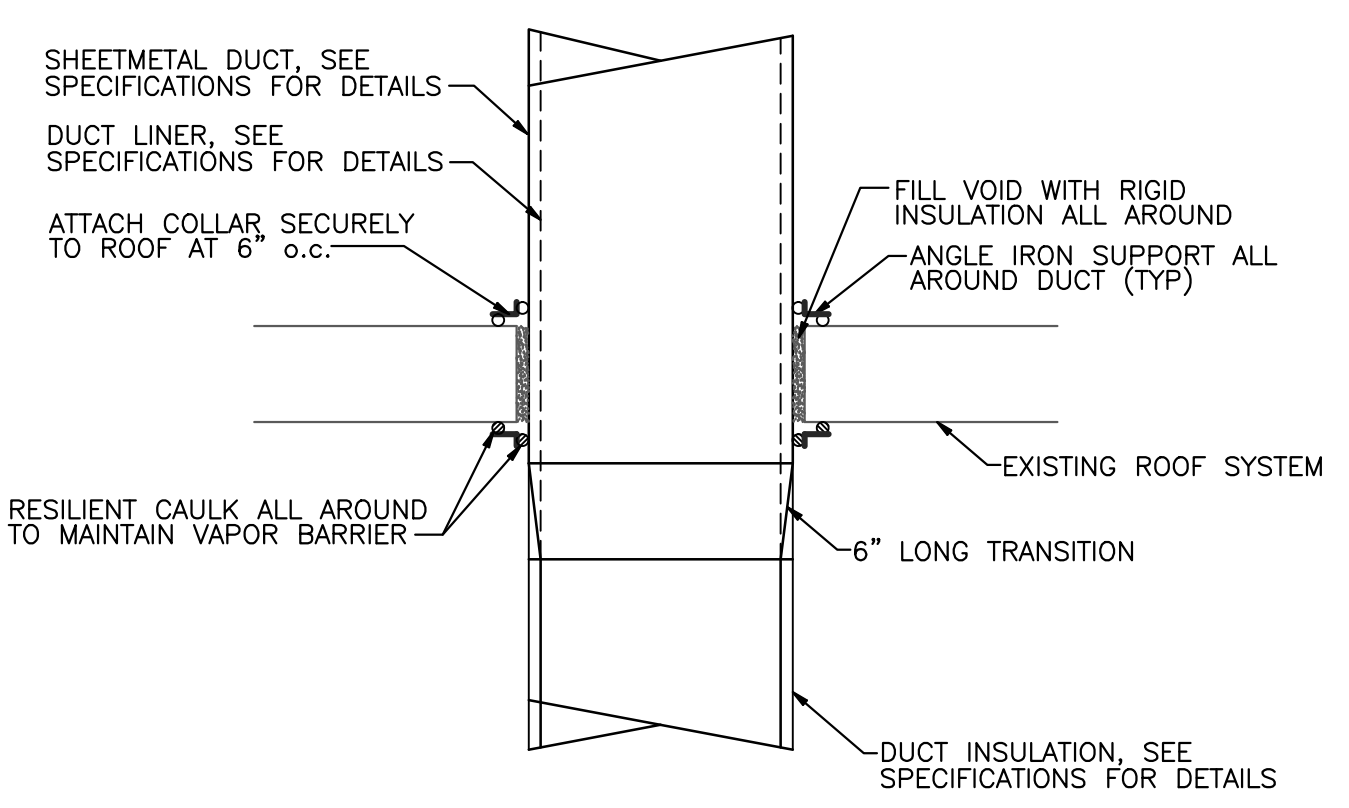
6 DUCT PENETRATION DIAGRAM  
 M6.0 SCALE: NONE



7 DUCT CONSTRUCTION DIAGRAM  
 M6.0 SCALE: NONE



8 SUPPLY DIFFUSER DIAGRAM  
 M6.0 SCALE: NONE



9 ROOF PENETRATION DIAGRAM  
 M6.0 SCALE: NONE

FLAGLER SCHOOL MEP RENOVATION  
 ARRIBA FLAGLER CSD 20  
 Flagler, Colorado

REV	DATE
	03/25/13 100% CD
ENGINEER:	CHECKED BY:
LCE	LCE
DRAFTER:	DATE:
LCE	03/25/13
PROJECT NUMBER:	
12036	
DRAWING TITLE:	
MECHANICAL DIAGRAMS	
DRAWING SCALE:	
AS INDICATED	
DRAWING NUMBER:	
M6.0	

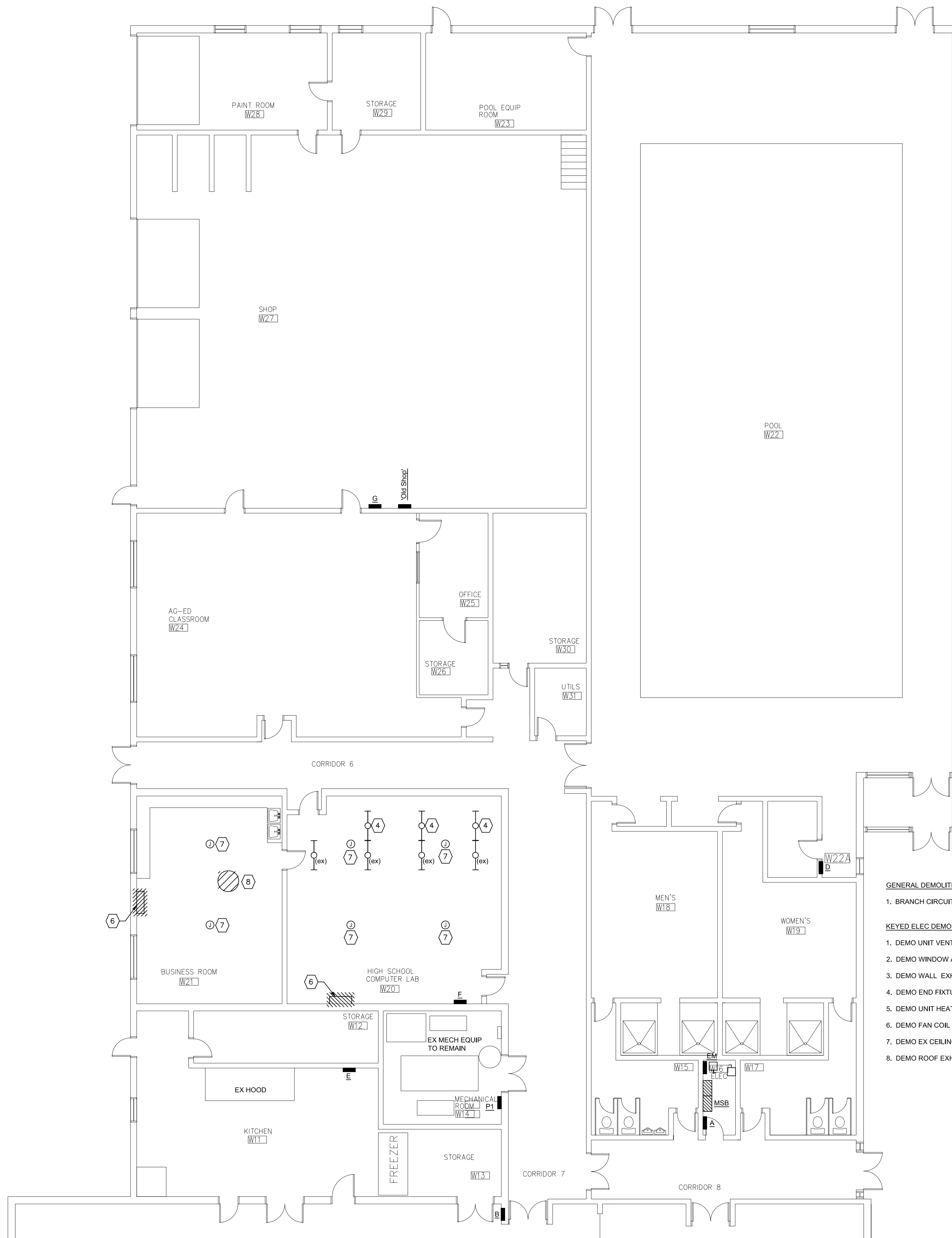








FLAGLER SCHOOL RENOVATION  
ARRIBA FLAGLER CSD 20  
Flagler, Colorado



**GENERAL DEMOLITION NOTES:**

1. BRANCH CIRCUITS IN THIS AREA ARE SERVED FROM LOCAL PANELS. SEE NOTES FOR CIRCUITS SERVING LARGE EQUIPMENT.

**KEYED ELEC DEMO NOTES:**

1. DEMO UNIT VENTILATOR.
2. DEMO WINDOW A/C UNIT. ABANDON ANY ASSOCIATED HARD-WIRED RECEPTACLE IN PLACE AND DENOTE AS "SPARE" IN PANELBOARD.
3. DEMO WALL EXHAUST FAN.
4. DEMO END FIXTURE IN EACH OF THREE ROWS FOR DUCTWORK. REINSTALL THREE END CAPS ON FIXTURES TO REMAIN.
5. DEMO UNIT HEATER.
6. DEMO FAN COIL UNIT AND ASSOC. SPLIT SYSTEM CONDENSOR ON ROOF. SEE E2-3.
7. DEMO EX CEILING FAN.
8. DEMO ROOF EXHAUST FAN. SEE SHEET E 2-3.

**WEST WING - ELEC DEMO**  
SCALE: 1/8" = 1' - 0"

REV	DATE

ENGINEER: JBT	CHECKED BY: JBT
DRAFTER: CAD	DATE: 2/25/13

PROJECT NUMBER:  
12036

DRAWING TITLE:  
WEST WING  
ELECTRICAL DEMO

DRAWING SCALE:  
AS INDICATED

DRAWING NUMBER:

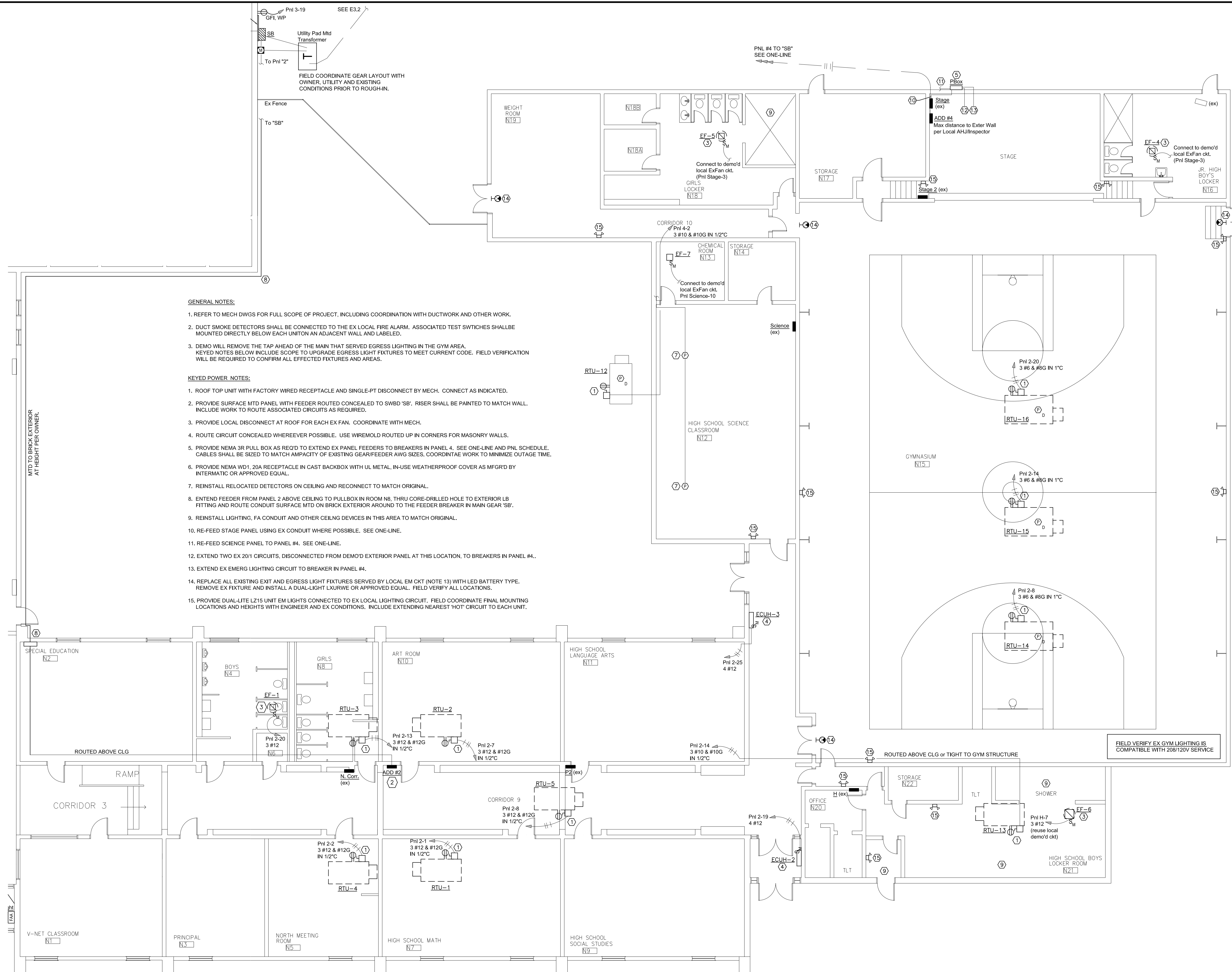
E2.2

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FLAGLER SCHOOL RENOVATION  
ARRIBA FLAGLER CSD 20  
Flagler, Colorado



- GENERAL NOTES:**
- REFER TO MECH DWGS FOR FULL SCOPE OF PROJECT, INCLUDING COORDINATION WITH DUCTWORK AND OTHER WORK.
  - DUCT SMOKE DETECTORS SHALL BE CONNECTED TO THE EX LOCAL FIRE ALARM. ASSOCIATED TEST SWITCHES SHALL BE MOUNTED DIRECTLY BELOW EACH UNIT ON AN ADJACENT WALL AND LABELED.
  - DEMO WILL REMOVE THE TAP AHEAD OF THE MAIN THAT SERVED EGRESS LIGHTING IN THE GYM AREA. KEYED NOTES BELOW INCLUDE SCOPE TO UPGRADE EGRESS LIGHT FIXTURES TO MEET CURRENT CODE. FIELD VERIFICATION WILL BE REQUIRED TO CONFIRM ALL EFFECTED FIXTURES AND AREAS.
- KEYED POWER NOTES:**
- ROOF TOP UNIT WITH FACTORY WIRED RECEPTACLE AND SINGLE-PT DISCONNECT BY MECH. CONNECT AS INDICATED.
  - PROVIDE SURFACE MTD PANEL WITH FEEDER ROUTED CONCEALED TO SWBD 'SB'. RISER SHALL BE PAINTED TO MATCH WALL. INCLUDE WORK TO ROUTE ASSOCIATED CIRCUITS AS REQUIRED.
  - PROVIDE LOCAL DISCONNECT AT ROOF FOR EACH EX FAN. COORDINATE WITH MECH.
  - ROUTE CIRCUIT CONCEALED WHEREVER POSSIBLE. USE WIREMOLD ROUTED UP IN CORNERS FOR MASONRY WALLS.
  - PROVIDE NEMA 3R PULL BOX AS REQ'D TO EXTEND EX PANEL FEEDERS TO BREAKERS IN PANEL 4. SEE ONE-LINE AND PNL SCHEDULE. CABLES SHALL BE SIZED TO MATCH CAPACITY OF EXISTING GEARFEEDER AWG SIZES. COORDINATE WORK TO MINIMIZE OUTAGE TIME.
  - PROVIDE NEMA WD1, 20A RECEPTACLE IN CAST BACKBOX WITH UL METAL, IN-USE WEATHERPROOF COVER AS MFRGD BY INTERMATIC OR APPROVED EQUAL.
  - REINSTALL RELOCATED DETECTORS ON CEILING AND RECONNECT TO MATCH ORIGINAL.
  - EXTEND FEEDER FROM PANEL 2 ABOVE CEILING TO PULLBOX IN ROOM N8, THRU CORE-DRILLED HOLE TO EXTERIOR LB FITTING AND ROUTE CONDUIT SURFACE MTD ON BRICK EXTERIOR AROUND TO THE FEEDER BREAKER IN MAIN GEAR 'SB'.
  - REINSTALL LIGHTING, FA CONDUIT AND OTHER CEILING DEVICES IN THIS AREA TO MATCH ORIGINAL.
  - RE-FEED STAGE PANEL USING EX CONDUIT WHERE POSSIBLE. SEE ONE-LINE.
  - RE-FEED SCIENCE PANEL TO PANEL #4. SEE ONE-LINE.
  - EXTEND TWO EX 20/1 CIRCUITS, DISCONNECTED FROM DEMOD EXTERIOR PANEL AT THIS LOCATION, TO BREAKERS IN PANEL #4.
  - EXTEND EX EMERG LIGHTING CIRCUIT TO BREAKER IN PANEL #4.
  - REPLACE ALL EXISTING EXIT AND EGRESS LIGHT FIXTURES SERVED BY LOCAL EM CKT (NOTE 13) WITH LED BATTERY TYPE. REMOVE EX FIXTURE AND INSTALL A DUAL-LIGHT LXURWE OR APPROVED EQUAL. FIELD VERIFY ALL LOCATIONS.
  - PROVIDE DUAL-LITE LZ15 UNIT EM LIGHTS CONNECTED TO EX LOCAL LIGHTING CIRCUIT. FIELD COORDINATE FINAL MOUNTING LOCATIONS AND HEIGHTS WITH ENGINEER AND EX CONDITIONS. INCLUDE EXTENDING NEAREST 'HOT' CIRCUIT TO EACH UNIT.

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REV	DATE
ENGINEER:	CHECKED BY:
JBT	JBT
DRAFTER:	DATE:
CAD	2/25/13
PROJECT NUMBER: 12036	
DRAWING TITLE: NORTH CLASSROOM WING & GYM PLAN POWER	
DRAWING SCALE: AS INDICATED	
DRAWING NUMBER: E3.1	

**NORTH CLASSROOM WING & GYM PLAN - POWER**  
SCALE: 1/8" = 1' - 0"

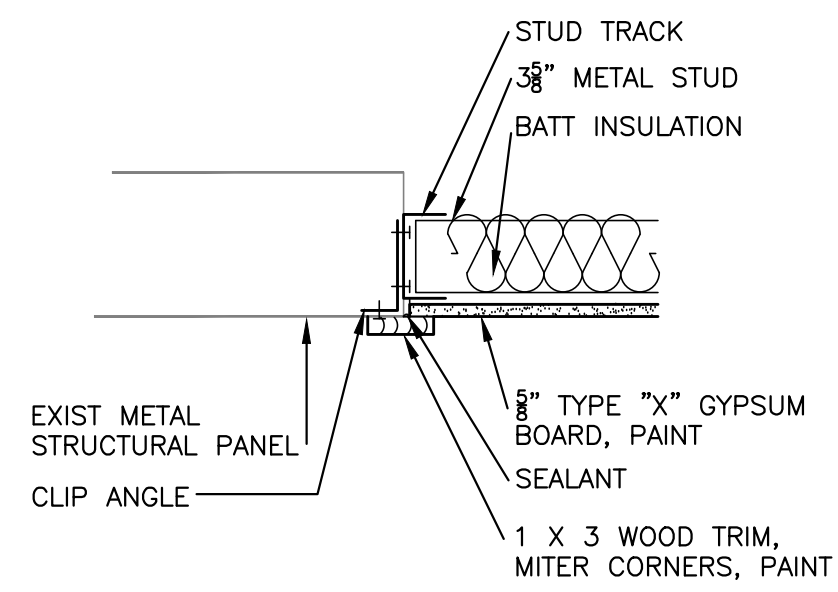




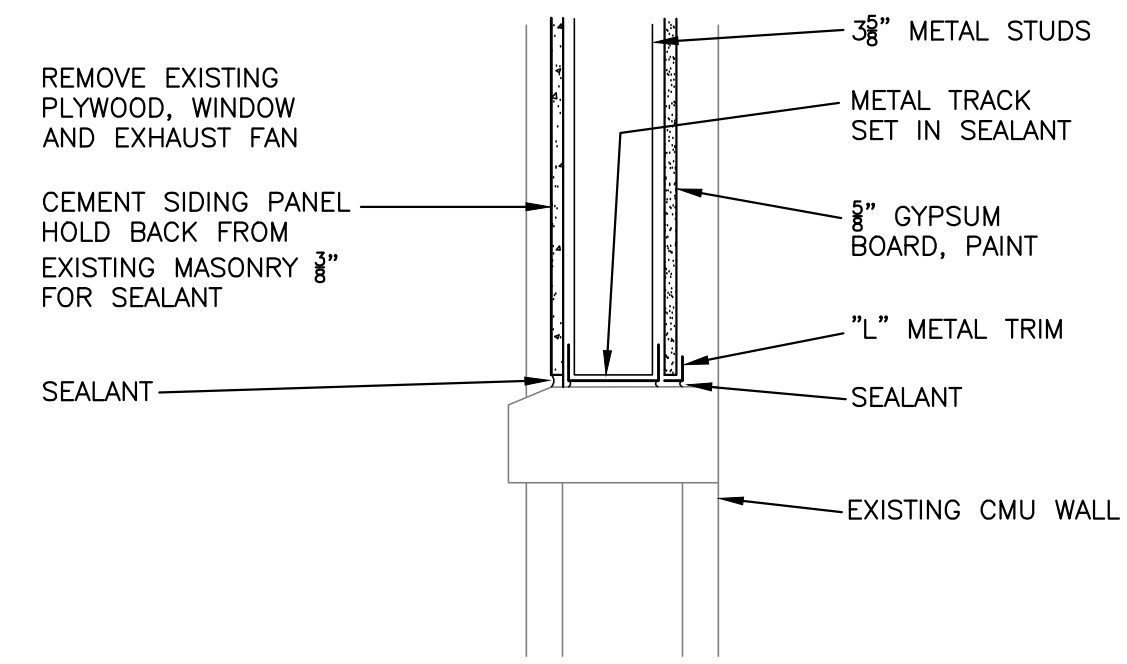




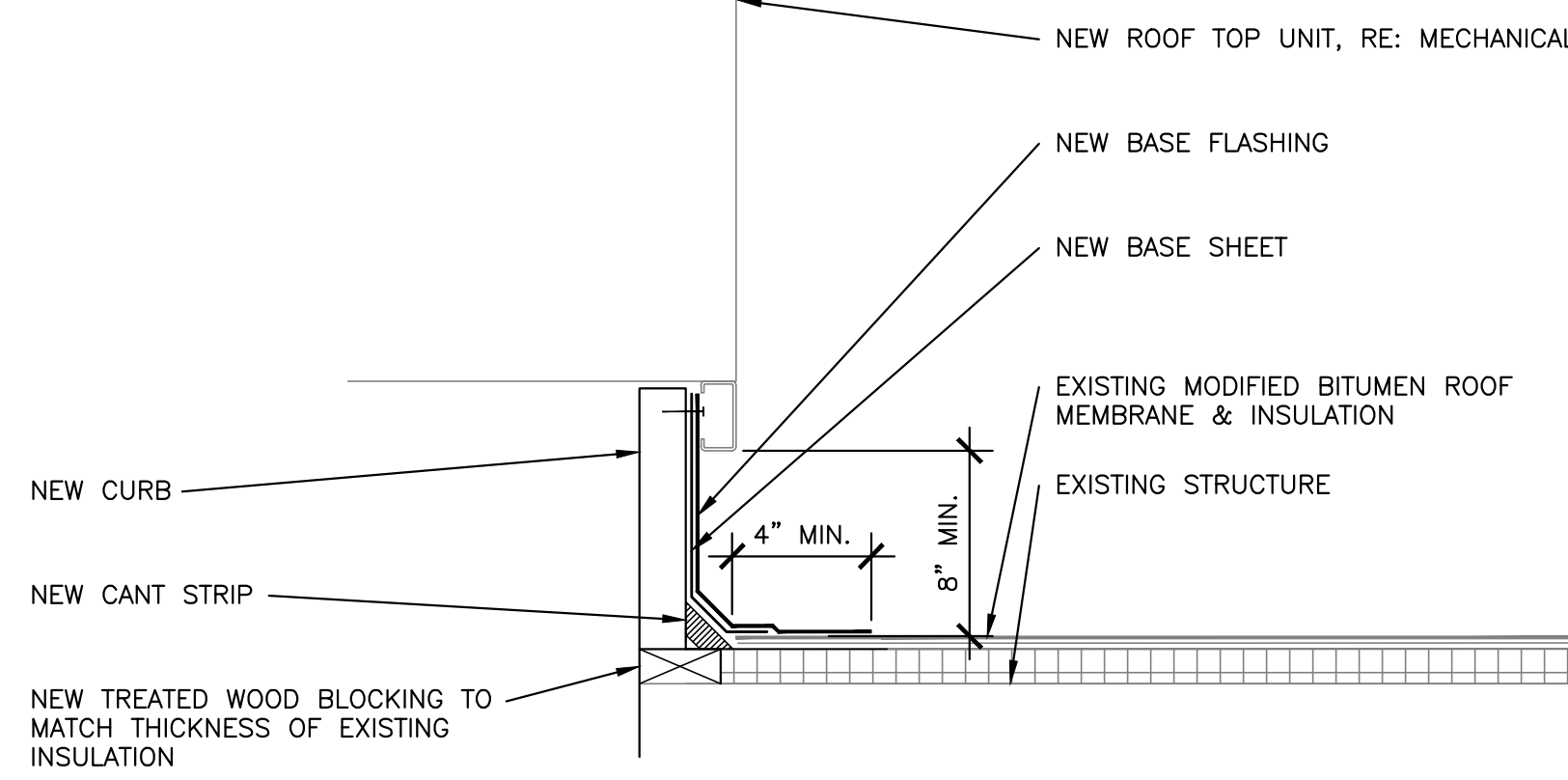




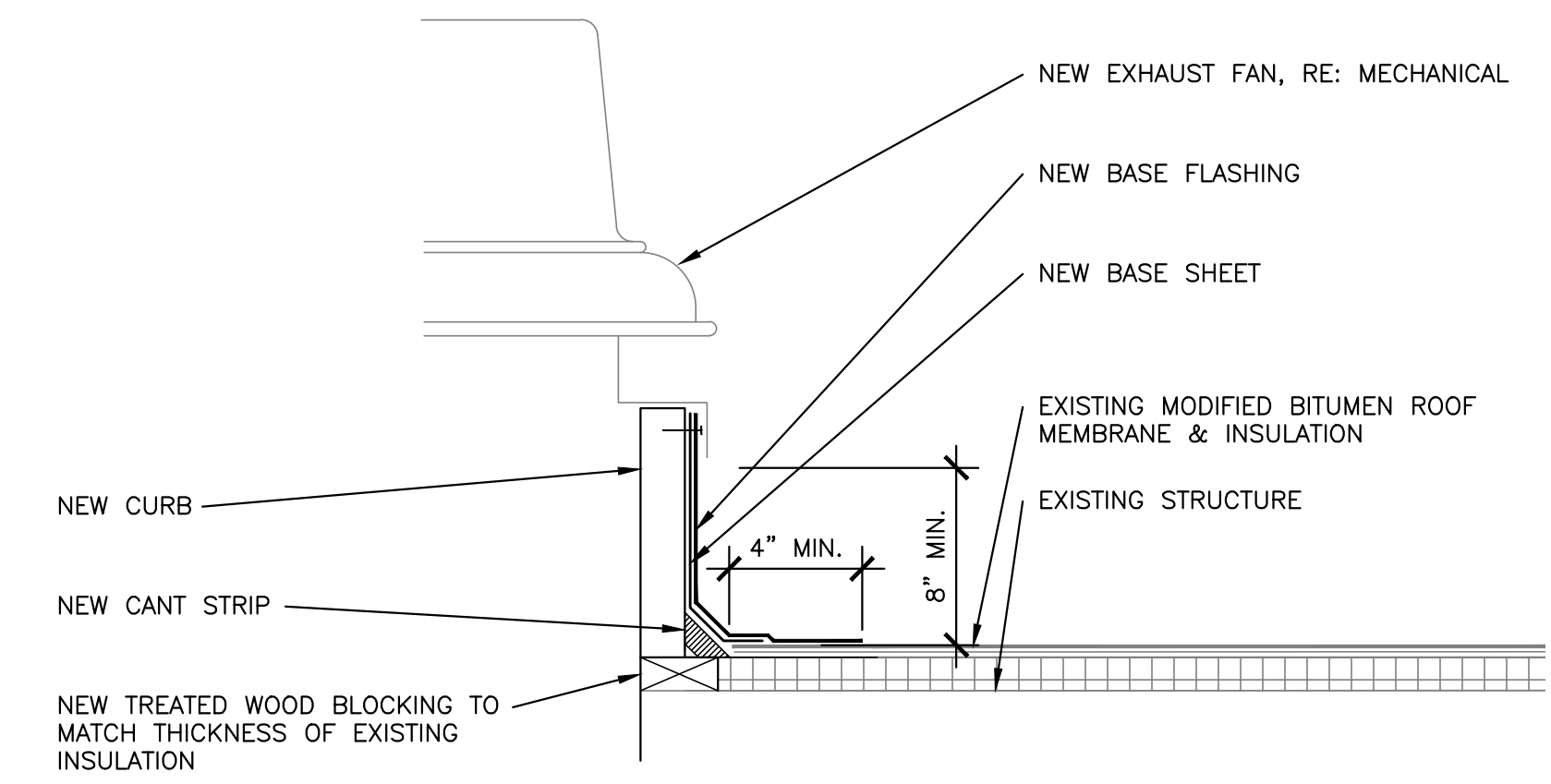
1 DETAIL AT METAL PANEL INFILL  
1 1/2" = 1'-0"



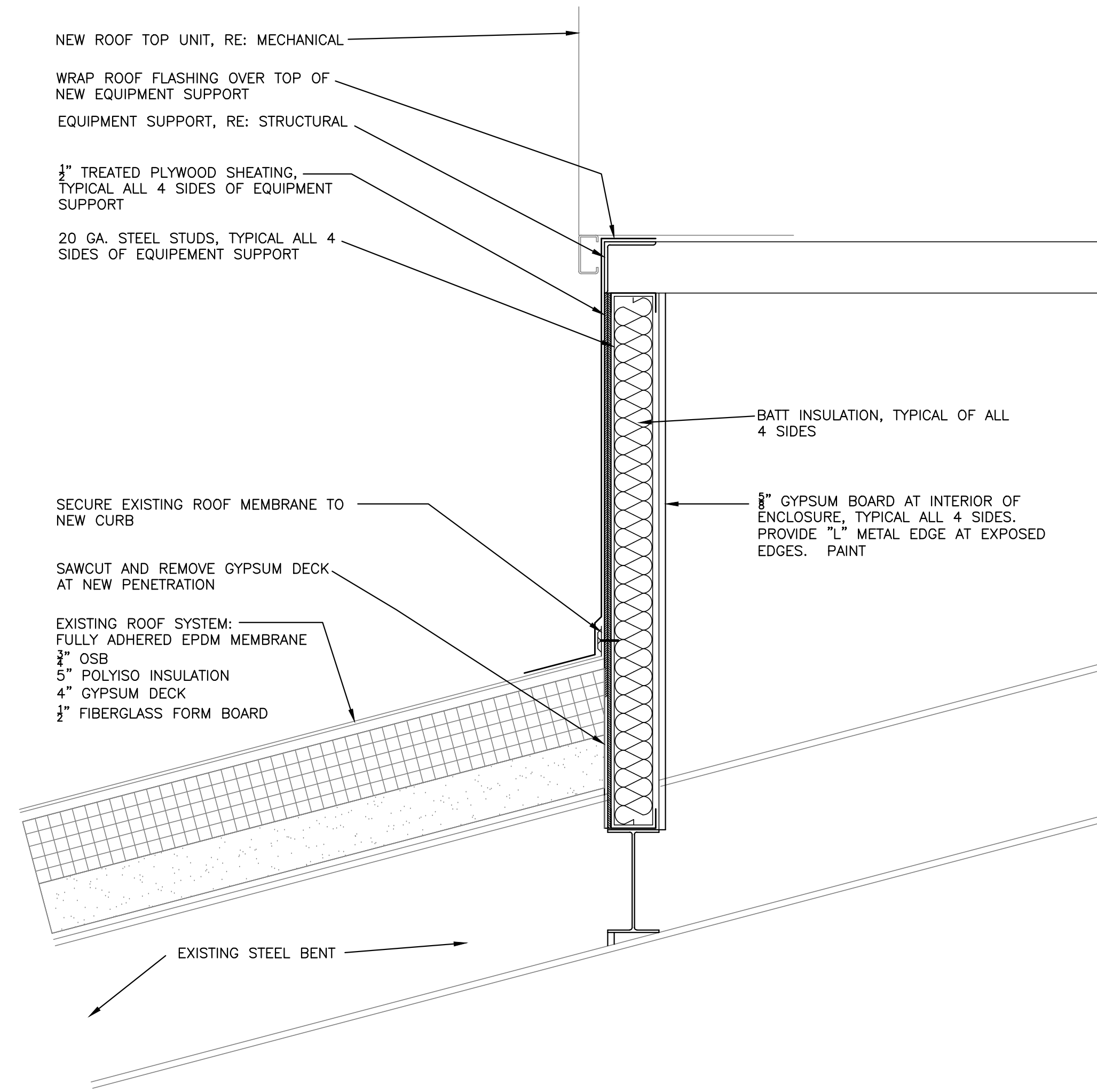
2 DETAIL AT WINDOW INFILL  
1 1/2" = 1'-0"



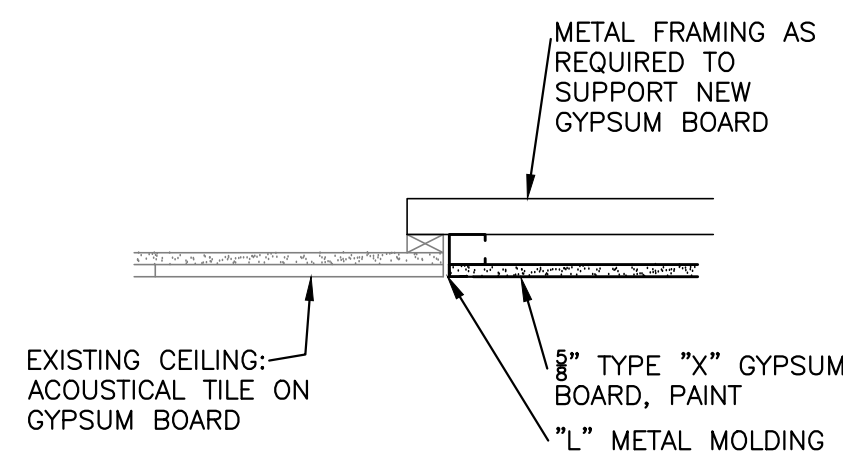
3 DETAIL AT NEW RTU CURB  
1 1/2" = 1'-0"



4 DETAIL AT NEW EX. FAN CURB  
1 1/2" = 1'-0"



5 DETAIL AT NEW GYM RTU SUPPORT CURB  
1 1/2" = 1'-0"



6 DETAIL AT CEILING TILE INFILL  
1 1/2" = 1'-0"

FLAGLER SCHOOL RENOVATION  
ARRIBA FLAGLER CSD 20  
Flagler, Colorado

REV	DATE

ARCHITECT: BJ	CHECKED BY: BJ
DRAFTER: BJ	DATE: 3/25/13

PROJECT NUMBER:  
12036

DRAWING TITLE:  
DETAILS

DRAWING SCALE:  
AS INDICATED

DRAWING NUMBER:

A3.2

