TOWN OF ORANGE
BOARD OF EDUCATION

Boiler/Unit Vent. Replacement
TURKEY HILL SCHOOL
411 Turkey Hill Road

STATE PROJECT
TMP-107-GMZN

CODE INFORMATION

DATE OF ORIGINAL CONSTRUCTION: 1964
DATE OF ADDITIONS: 1989 & 2005

1. USE GROUP CLASSIFICATION:
   (PRIMARY): E – EDUCATION
   (INCIDENTAL) A3 – ASSEMBLY

2. CONSTRUCTION TYPE (601):
   MINIMUM TYPE REQUIRED: IIB
   ACTUAL TYPE PROVIDED: (EXISTING) IIB
   (NEW) IIB

3. BUILDING HEIGHT (501.0 – 503.0):
   ALLOWABLE HEIGHT (STORY/FEET): 3 / 30
   ACTUAL HEIGHT (STORY/FEET): 1 / 30
   STORIES ABOVE GRADE: 2

4. BUILDING AREA (501.0 – 503.0):
   GROSS BUILDING AREA (FIRST FLOOR):
   EXISTING CONSTRUCTION 50,853 S.F.
   NEW CONSTRUCTION 0 S.F.
   TOTAL FLOOR 50,853 S.F.

5. AREA MODIFICATIONS TO TABLE 503

OPEN PERIMETER:	NORTH	N/A
	EAST	N/A
	SOUTH	N/A
	WEST	N/A
TOTAL OPEN PERIMETER:		N/A
TOTAL PERIMETER:		N/A
% INCREASE FOR OPEN PERIMETER: (OPEN / TOTAL – .25) X 200 =		N/A
% OF ALLOWABLE TABULAR AREA (TABLE 503)		N/A
% REDUCTION FOR HEIGHT (506.4)		N/A
% INCREASE FOR OPEN PERIMETER (506.2)		N/A
% INCREASE FOR FULL FIRE SUPPRESSION		N/A
TOTAL PERCENTAGE FACTOR		
CONVERSION FACTOR (% FACTOR/100)		N/A
A) ADJUSTED TABULAR AREA:		N/A
B) TABULAR AREA (TABLE 503)		N/A
C) ACTUAL AREA / FLOOR		N/A

6. SINGLE OCCUPANCY OR NON-SEPARATED USES(302.3.1)

a) ADJUSTED BUILDING AREA
(actual building area) + (conversion factor) N/A sq.ft.

b) ALLOWABLE AREA per floor (Aa)
(conversion factor) × (tabular area Table 503) N/A sq.ft.

c) ACTUAL BUILDING AREA
(each floor of each building) N/A sq.ft.

d) TOTAL FLOOR AREA
(all stories) N/A sq.ft.

e) ALLOWABLE FLOOR AREA (all stories)
allowable area per floor (Aa) × number of stories (maximum 3) N/A sq.ft.

7. MIXED OCCUPANCY SEPARATED USES(302.3.2) (Allowable Area 506.4)

(Use Group A–2)(Use Group A–4) (Use Group E)

$\Sigma \frac{\text{Actual Area}}{\text{Allowable Area}} + \frac{\text{Actual Area}}{\text{Allowable Area}} + \frac{\text{Actual Area}}{\text{Allowable Area}} = \leq 1$

$\Sigma \frac{2,625}{28,500} + \frac{3,237}{28,500} + \frac{42,183}{58,000} = \leq 1$

.09 + .11 + .72 = .92

a) ALLOWABLE AREA per floor (Aa)
(conversion factor) × (tabular area, Table 503) N/A sq.ft.

b) TOTAL FLOOR AREA
(all stories) 50,853 sq.ft.

c) ALLOWABLE FLOOR AREA (all stories)

$\Sigma \frac{\text{(Use Group\_\_\_\_) Actual Area}}{\text{Allowable Area}} + \frac{\text{(Use Group\_\_\_\_) Actual Area}}{\text{Allowable Area}} + \frac{\text{(Use Group\_\_\_\_) Actual Area}}{\text{Allowable Area}} + \frac{\text{(Use Group\_\_\_\_) Actual Area}}{\text{Allowable Area}} + \frac{\text{(Use Group\_\_\_\_) Actual Area}}{\text{Allowable Area}} = \leq 3$ N/A

Σ ____ + ____ + ____ + ____ + ____ = N/A

8. FIRE RESISTANCE RATING OF STRUCTURAL ELEMENTS (602)

1)	Structural Frame: including columns, girders, trusses	0 hr
2)	Bearing Walls: (Exterior)	0 hr
	(Interior)	0 hr
3)	Nonbearing walls and partitions (Exterior)	0 hr
4)	Nonbearing walls and partitions (Interior)	0 hr
5)	Floor Const.: including supporting beams and joists	0 hr
6)	Roof Const.: including supporting beams and joists	0 hr

9. OCCUPANCY LOAD

DESIGN TOTALS:	BASEMENT FLOOR:	0
	FIRST FLOOR:	1658
	SECOND FLOOR:	0
TOTAL EXIT CAPACITY:	BASEMENT FLOOR:	0
	FIRST FLOOR:	7540
	SECOND FLOOR:	0
DESIGN TOTAL FOR BUILDING:		1658
TOTAL EXIT CAPACITY OF FACILITY:		7540

10. MODIFICATIONS

NO MODIFICATIONS REQUESTED FOR

11. ACCESSIBLE BUILDING

NON-UDESIGNATED

12. MINIMUM PLUMBING FIXTURE COUNT (I.P.C. CHAPTER 4) FOR EACH TYPE OF OCCUPANCY FOR EACH SEPARATE BUILDING OR ENTIRE FACILITY.

		Required	Provided
Group A Occupancy: (Design Load A–2 = 175) (Design Load A–4 = 468)	W/C Male	5	9
	W/C Female	8	11
	Lav	3	24
	D/F	1	1

		Required	Provided
Group E Occupancy: (Design Load = 1015	W/C	20	27
	Lav	20	27
	D/F	10	13

13. ENTIRE BUILDING SPRINKLERED Yes [X] No [ ]

14. THRESHOLD BUILDING Yes [X] No [ ]

15. CODES TO WHICH THIS BUILDING WAS DESIGNED

CODES TO WHICH THIS SPACE WAS DESIGNED

2009 CONNECTICUT STATE BUILDING CODE (CSBC)
– INTERNATIONAL BUILDING CODE / 2003 (ICC)
– INTERNATIONAL MECHANICAL CODE / 2003 (ICC)
– INTERNATIONAL PLUMBING CODE / 2003 (ICC)
– NATIONAL ELECTRIC CODE, NFPA 70 / 2005 (NEC)
– INTERNATIONAL ENERGY CONSERVATION CODE / 2009 (IECC)
ICC / ANSI A117.1
ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES (ANSI)
CONNECTICUT AMMENDMENTS / 2009 / STATE BUILDING CODE

2005 CONNECTICUT STATE FIRE CODE (CSFSC)
– INTERNATIONAL FIRE CODE / 2003 (ICC)
– NATIONAL FIRE PROTECTION ASSOCIATION 1
UNIFORM FIRE CODE / 2003 (NFPA 1)
CONNECTICUT AMMENDMENTS / 2009 / STATE FIRE SAFETY CODE

2005 CONNECTICUT STATE ELEVATOR CODE (AS REF IN IBC)
– ASME A17.1 – 2000 SAFETY CODE FOR ELEVATORS AND ESCALATORS

16. BUILDING AREA FOR GRANT CALCULATIONS (ENTIRE FACILITY)
Per State Building Code Definition "Area, Building" (to interior face of exterior walls)

Existing Construction prior to this project	49,342	sq.ft.
Existing being demolished and removed	(–)	sq.ft.
Total new construction for this project	0	sq.ft.
Total building area	49,342	sq.ft.

Open areas; floor openings and areas under projections (list separately, must reconcile with areas shown on code plan).

Building space	0	sq.ft.
Building space	0	sq.ft.

Total constructed building area (to exterior face of exterior walls, a.k.a. "contractor building area") 50,853 sq.ft.

GENERAL NOTES

1. EXISTING CONDITIONS SHALL BE VERIFIED PRIOR TO BID & CONSTRUCTION. DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT IN WRITING. THE ARCHITECT WILL CLARIFY ANY DISCREPANCIES VIA ADDENDUM OR WRITTEN RESPONSE.
2. SEAL ALL PENETRATIONS MADE IN EXISTING 1 HOUR RATED WALLS AS SHOWN ON DRAWINGS TH–A101, TH–A102, TH–A103, AND TH–A104.
3. WHERE EXISTING CONSTRUCTION IS REMOVED PATCH ALL AREAS WITH MATERIALS CONSISTENT WITH EXISTING INCLUDING ADJACENT SURFACES. MATCH AND BLEND PATCHED AREAS INTO EXISTING. REFER TO SPECIFICATIONS.

LIST OF DRAWINGS

ARCHITECTURAL

TH-A100	COVER SHEET
TH-EG101	EGRESS PLAN
TH-A101	PARTIAL FLOOR PLAN UNIT VENTILATORS
TH-A102	PARTIAL FLOOR PLAN UNIT VENTILATORS
TH-A103	PARTIAL FLOOR PLAN UNIT VENTILATORS
TH-A104	FLOOR PLAN BOILER ROOM

MECHANICAL

TH-M101	PARTIAL FLOOR PLAN MECHANICAL
TH-M102	PARTIAL FLOOR PLAN MECHANICAL
TH-M103	PARTIAL FLOOR PLAN MECHANICAL
TH-M104	PARTIAL FLOOR PLAN MECHANICAL
TH-M105	BOILER ROOM PLAN DEMOLITION MECHANICAL
TH-M106	BOILER ROOM PLAN MECHANICAL
TH-M107	SCHEDULES AND DETAILS MECHANICAL

ELECTRICAL

TH-EG1	GENERAL NOTES, SYMBOL LEGENDS, ABBREVIATIONS AND DRAWING LISTS
TH-E100	LUMINAIRE AND MECH EQUIPMENT WIRING SCHEDULE, DETAILS & NOTES
TH-ED101	ELECTRICAL DEMOLITION PLAN BOILER ROOM
TH-E101	PARTIAL FLOOR PLAN ELECTRICAL
TH-E102	PARTIAL FLOOR PLAN ELECTRICAL
TH-E103	ELECTRICAL PLAN BOILER ROOM

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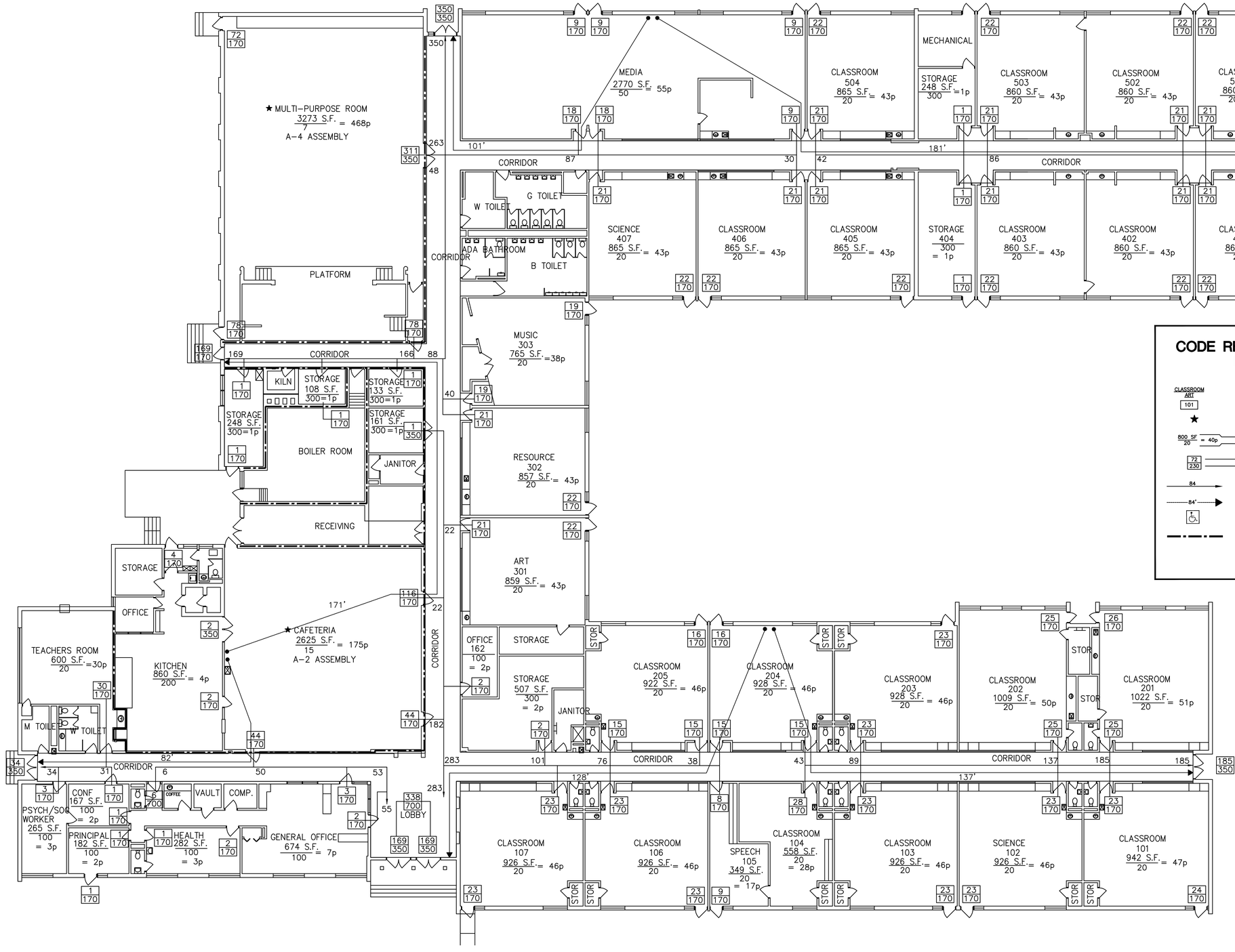
35 BRENTWOOD AVENUE, FAIRFIELD, CT 06825
TEL: (203)610-6262 • FAX: (203)610-6404

MUSCO ENGINEERING ASSOCIATES
375 Morgan Lane, Unit 307
West Haven, CT 06516
(203) 932-1901 FAX (203) 931-1550
www.muscoengineering.com

Facility Support Services, LLC
Environmental & Safety Consulting Engineers

ISSUED FOR BID:
11-01-13
JOB NO. : 1605



CODE REFERENCE PLAN LEGEND

- CLASSROOM / ART — ROOM NAME / ROOM USE
- 101 — ROOM NUMBER
- ★ — ASSEMBLY OCCUPANCY, TWO MEANS OF EGRESS REQUIRED
- 800 SF / 20 = 40p — ROOM OCCUPANCY LOAD: AREA IN SQUARE FEET / OCCUPANCY LOAD FACTOR
- 72 / 230 — EXIT CAPACITY: ACTUAL EGRESS OCCUPANCY OF DOOR OR STAIR / MAXIMUM ALLOWABLE EGRESS OCCUPANCY OF DOOR OR STAIR
- 84 → — DIRECTION OF TRAVEL WITH ACCUMULATED OCCUPANCY LOAD
- 84' → — MAXIMUM TRAVEL DISTANCE FROM FURTHEST POINT
- ACCESSIBLE AREA OR EXIT
- EXISTING 1 HOUR FIRE RATED WALL, UL DESIGN # UL906 (TIGHT TO DECK ABOVE); 1 HOUR FIRE WALL WHERE NOTED

FLOOR AREA	= 50,853
NEW CONSTRUCTION	= 0
TOTAL FLOOR AREA	= 50,853
OCCUPANCY LOAD	= 1,658
EXIT CAPACITY	= 7,540

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REVISIONS

NO.	BY	DATE	DESCRIPTION

PROJECT TITLE

TURKEY HILL SCHOOL
441 TURKEY HILL ROAD
ORANGE, CT
STATE PROJECT NO: TMP-107-GMZN

BOILER AND UNIT VENT. REPLACEMENTS

Prepared For:

TOWN OF ORANGE, CT
637 ORANGE CENTER ROAD
ORANGE, CT 06477

SHEET TITLE

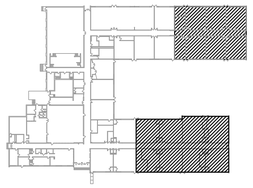
EGRESS PLAN

DESIGNED BY: MMF	SCALE: AS NOTED
DRAWN BY: MMF	DATE: 6-17-13
CHECKED BY: PR	PROJECT NUMBER: 1605
CAD FILE: R:/1625/ARCH/TURKEY HILL/TH-EG101.DWG	

SEAL

SHEET NUMBER

TH-EG101



KEYPLAN
N.T.S.

GENERAL NOTES:

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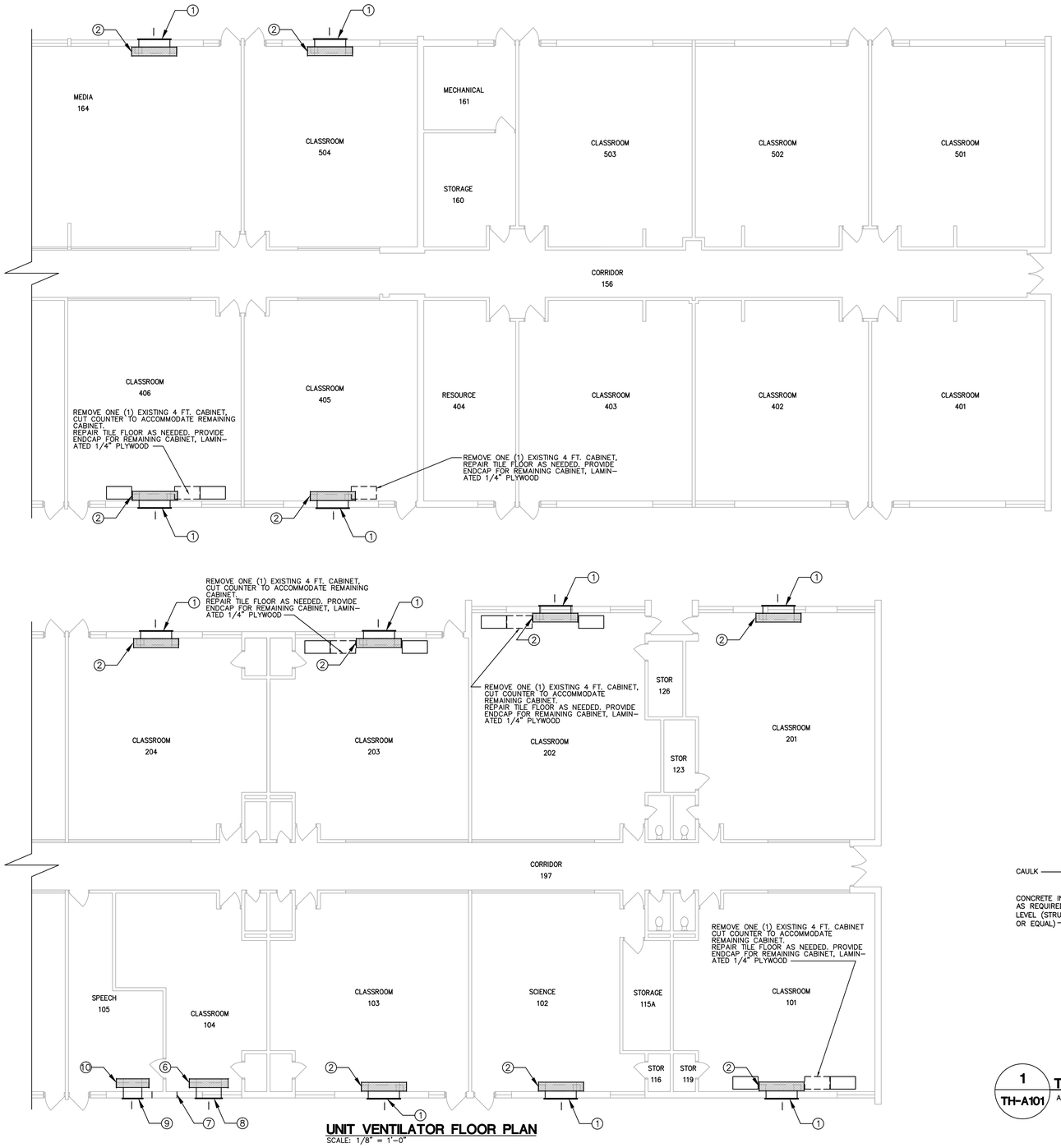
3. ALL PENETRATIONS THRU WALLS SHALL BE FIRE STOPPED WITH "THOMAS AND BETTS" – FLAMESAFE, TYPE FST FIRESTOP COMPOUND OR APPROVED EQUIVALENT, CONFORMING TO ASME E814/UL1479. REFER TO DWG TH–EG101 FOR LOCATION OF FIRE RATED WALLS.

CONSTRUCTION NOTES:

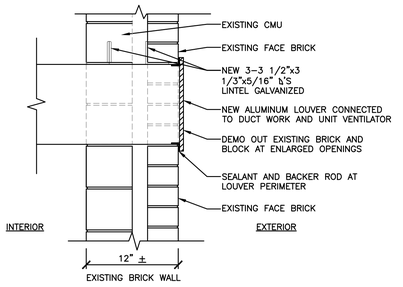
1. ENLARGED EXISTING MASONRY OPENING TO ACCOMMODATE NEW UV4 LOUVER. INSTALL NEW BACKER–ROD, AND SEALANT. (SEE DRAWING TH–A101 FOR DETAILS)
2. NEW UV4 WILL REQUIRE EXISTING RADIATOR TUBE/FINS, AND COVER TO BE "CUT–BACK" TO ACCOMMODATE FOR THE LAGER SIZED NEW UV4
3. ENLARGE EXISTING MASONRY OPENING TO ACCOMMODATE NEW UV3 (SEE DRAWING TH–A101 FOR DETAILS) INSTALL NEW LOUVER, BACKER–ROD, AND SEALANT
4. NEW UV3 WILL REQUIRE EXISTING RADIATOR TUBE/FINS, AND COVER TO BE "CUT–BACK" TO ACCOMMODATE FOR LARGER SIZED NEW UV3
5. REDUCE EXISTING MASONRY OPENING TO ACCOMMODATE NEW UV3 LOUVER, (SEE DRAWING TH–A101 FOR DETAILS). INFILL AREA WITH 6" CMU AND 4" BRICK (MATCH EXISTING). INSTALL NEW LOUVER, BACKER ROD AND SEALANT. SEE DRAWING TH–A101 DETAIL 1.
6. NEW UV3 WILL REQUIRE EXISTING RADIATOR TUBE/FIN, AND COVER TO BE EXTENDED TO ACCOMMODATE FOR A SMALLER SIZED NEW UV3
7. REMOVE AND INFILL EXISTING MASONRY OPENING WITH MATCHING MASONRY. SEE DRAWING TH–A101 DETAIL 1
8. PROVIDE NEW M.O. FOR NEW UV3 LOUVER. INSTALL NEW LOUVER, BACKER–ROD, AND SEALANT. SEE DRAWING TH–A101 DETAIL 2
9. PROVIDE NEW M.O. FOR NEW UV2 LOUVER. INSTALL NEW LOUVER, BACKER–ROD, AND SEALANT. SEE DRAWING TH–A101 DETAIL 2
10. NEW UV2 WILL REQUIRE EXISTING RADIATOR TUBE/FIN, AND COVER TO BE EXTENDED TO ACCOMMODATE FOR SMALLER SIZE NEW UV2
11. PATCH, PRIME, AND PAINT MECHANICAL ROOM WALLS, CEILINGS, DOORS, AND DOOR FRAMES.

CODE REFERENCE LEGEND:

EXISTING 1 HOUR FIRE RATED WALL
UL DESIGN # UL906
(TIGHT TO DECK ABOVE)
1 HOUR FIRE WALL WHERE NOTED



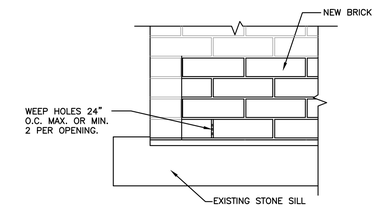
UNIT VENTILATOR FLOOR PLAN
SCALE: 1/8" = 1'–0"



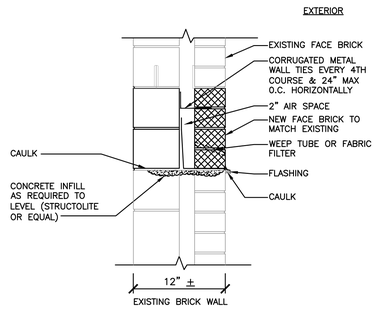
SECTION
SCALE: 1 1/2"=1'–0"

2 TH-A101 TYPICAL BRICK AND BLOCK OPENING ENLARGMENT DETAILS

ALL CONDITIONS SHALL BE VERIFIED IN FIELD.



ELEVATION DETAIL
SCALE: 1 1/2"=1'–0"



SECTION
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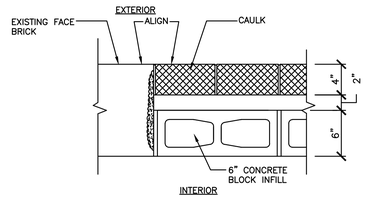

PLAN DETAIL
SCALE: 1 1/2"=1'–0"

1 TH-A101 TYPICAL BRICK AND BLOCK INFILL DETAILS

ALL CONDITIONS SHALL BE VERIFIED IN FIELD.

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REVISIONS			
NO.	BY	DATE	DESCRIPTION

PROJECT TITLE

TURKEY HILL SCHOOL
441 TURKEY HILL ROAD
ORANGE, CT
STATE PROJECT NO: TMP–107–GMZN

BOILER AND UNIT VENT. REPLACEMENTS

Prepared For:

TOWN OF ORANGE, CT
637 ORANGE CENTER ROAD
ORANGE, CT 06477

SHEET TITLE

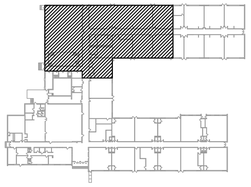
PARTIAL FLOOR PLAN UNIT VENTILATORS

DESIGNED BY: TG	SCALE: AS NOTED
DRAWN BY: TG	DATE: 06–17–13
CHECKED BY: PR	PROJECT NUMBER: 1605
CAD FILE: R:/1605/ARCH	

SEAL

SHEET NUMBER

TH–A101



KEYPLAN
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3. ENLARGE EXISTING MASONRY OPENING TO ACCOMMODATE NEW UV3 (SEE DRAWING TH–A101 FOR DETAILS) INSTALL NEW LOUVER, BACKER–ROD, AND SEALANT
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UL DESIGN # UL906
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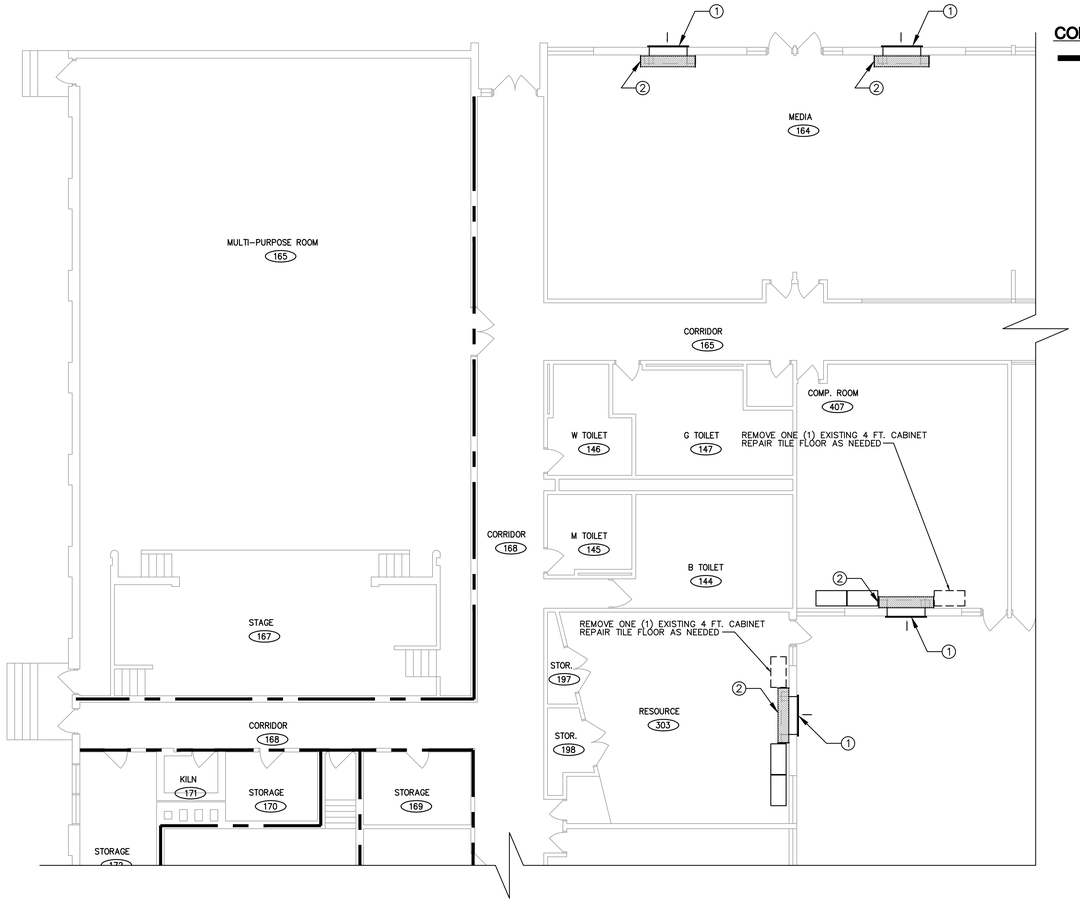

UNIT VENTILATOR FLOOR PLAN
SCALE: 1/8" = 1'–0"

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REVISIONS			
NO.	BY	DATE	DESCRIPTION

PROJECT TITLE

TURKEY HILL SCHOOL
441 TURKEY HILL ROAD
ORANGE, CT
STATE PROJECT NO: TMP–107–GMZN

BOILER AND UNIT VENT. REPLACEMENTS

ORANGE CONNECTICUT 1822 TOWN SEAL

Prepared For:

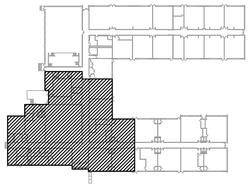
TOWN OF ORANGE, CT
637 ORANGE CENTER ROAD
ORANGE, CT 06477

SHEET TITLE

PARTIAL FLOOR PLAN UNIT VENTILATOR

DESIGNED BY: TG	SCALE: AS NOTED
DRAWN BY: TG	DATE: 06–17–13
CHECKED BY: PR	PROJECT NUMBER: 1605
CAD FILE: R:/1605/ARCH	

SEAL	SHEET NUMBER
	TH–A102



KEYPLAN
N.T.S.

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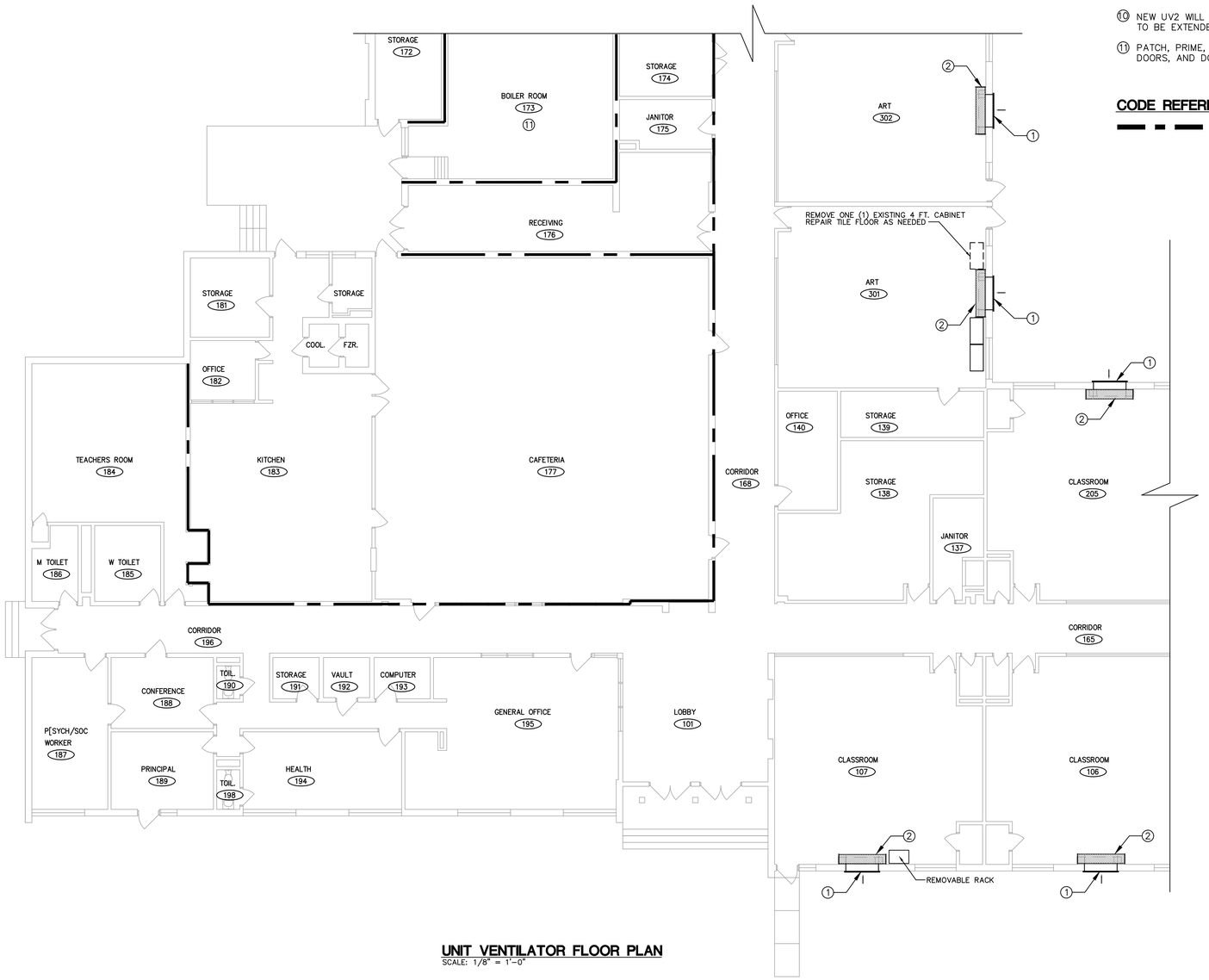
5. REDUCE EXISTING MASONRY OPENING TO ACCOMMODATE NEW UV3 LOUVER, (SEE DRAWING TH–A101 FOR DETAILS). INFILL AREA WITH 6" CMU AND 4" BRICK (MATCH EXISTING). INSTALL NEW LOUVER, BACKER ROD AND SEALANT. SEE DRAWING TH–A101 DETAIL 1.
6. NEW UV3 WILL REQUIRE EXISTING RADIATOR TUBE/FIN, AND COVER TO BE EXTENDED TO ACCOMMODATE FOR A SMALLER SIZED NEW UV3
7. REMOVE AND INFILL EXISTING MASONRY OPENING WITH MATCHING MASONRY. SEE DRAWING TH–A101 DETAIL 1
8. PROVIDE NEW M.O. FOR NEW UV3 LOUVER. INSTALL NEW LOUVER, BACKER–ROD, AND SEALANT. SEE DRAWING TH–A101 DETAIL 2
9. PROVIDE NEW M.O. FOR NEW UV2 LOUVER. INSTALL NEW LOUVER, BACKER–ROD, AND SEALANT. SEE DRAWING TH–A101 DETAIL 2
10. NEW UV2 WILL REQUIRE EXISTING RADIATOR TUBE/FIN, AND COVER TO BE EXTENDED TO ACCOMMODATE FOR SMALLER SIZE NEW UV2
11. PATCH, PRIME, AND PAINT MECHANICAL ROOM WALLS, CEILINGS, DOORS, AND DOOR FRAMES.

CODE REFERENCE LEGEND:

EXISTING 1 HOUR FIRE RATED WALL
UL DESIGN # UL906
(TIGHT TO DECK ABOVE)
1 HOUR FIRE WALL WHERE NOTED



UNIT VENTILATOR FLOOR PLAN
SCALE: 1/8" = 1'–0"

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ARCHITECTS ● SURVEYORS ● ENGINEERS
WWW.ROSETISO.COM
35 BRENTWOOD AVENUE, FAIRFIELD, CT 06825
TEL: (203)610-6262 ● FAX: (203)610-6404

REVISIONS			
NO.	BY	DATE	DESCRIPTION

PROJECT TITLE

TURKEY HILL SCHOOL
441 TURKEY HILL ROAD
ORANGE, CT
STATE PROJECT NO: TMP-107-GMZN

BOILER AND UNIT VENT. REPLACEMENTS

ORANGE CONNECTICUT 1822 TOWN SEAL

Prepared For:

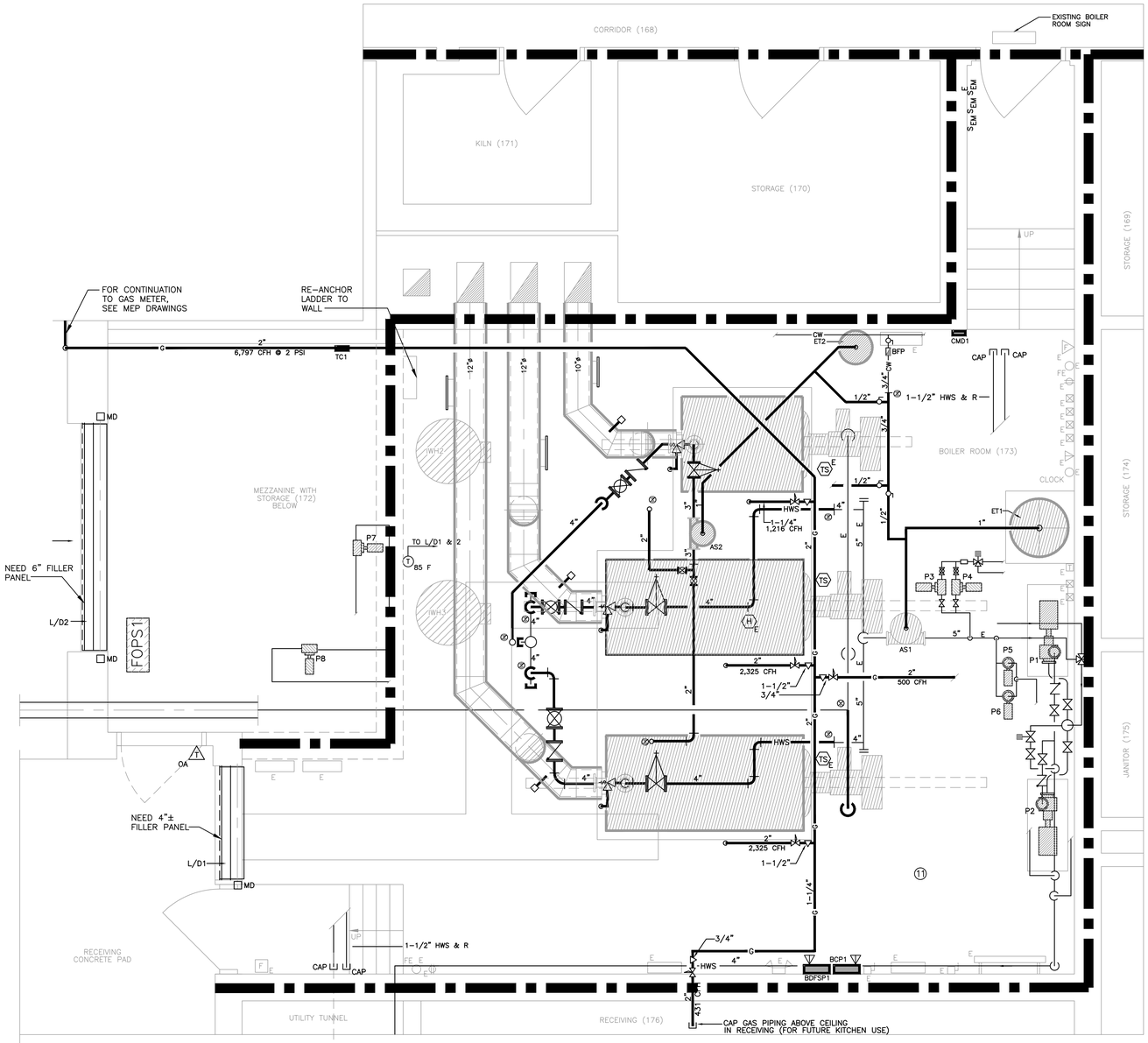
TOWN OF ORANGE, CT
637 ORANGE CENTER ROAD
ORANGE, CT 06477

SHEET TITLE

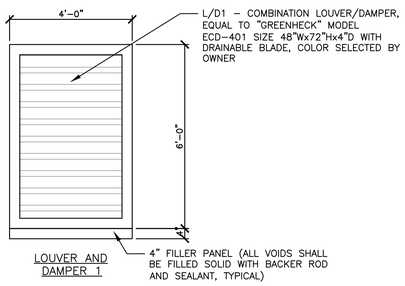
PARTIAL FLOOR PLAN UNIT VENTILATORS

DESIGNED BY: TG	SCALE: AS NOTED
DRAWN BY: TG	DATE: 06–17–13
CHECKED BY: PR	PROJECT NUMBER: 1605
CAD FILE: R:/1605/ARCH	

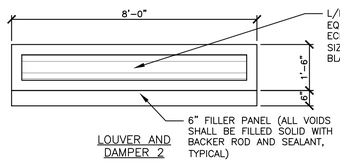
SEAL	SHEET NUMBER
	TH-A103



BOILER ROOM FLOOR PLAN – MECHANICAL
SCALE: 1/2"=1'-0"



LOUVER AND DAMPER 1



LOUVER AND DAMPER 2

GENERAL NOTES:

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2. THIS CONTRACTOR IS REQUIRED TO PERFORM THIS WORK IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, ORDINANCES, ETC., AND TO MEET THE REQUIREMENTS OF THE LOCAL AUTHORITIES HAVING JURISDICTION AND OWNER, WHETHER OR NOT SPECIFICALLY INDICATED OR SPECIFIED ON THIS DRAWING.
3. ALL PENETRATIONS THRU WALLS SHALL BE FIRE STOPPED WITH "THOMAS AND BETTS" – FLAMESAFE, TYPE FST FIRESTOP COMPOUND OR APPROVED EQUIVALENT, CONFORMING TO ASME E814/UL1479.
REFER TO DWG TH-EG101 FOR LOCATION OF FIRE RATED WALLS.

CONSTRUCTION NOTES:

1. ENLARGED EXISTING MASONRY OPENING TO ACCOMMODATE NEW UV4 LOUVER. INSTALL NEW BACKER-ROD, AND SEALANT. (SEE DRAWING TH-A101 FOR DETAILS)
2. NEW UV4 WILL REQUIRE EXISTING RADIATOR TUBE/FINS, AND COVER TO BE "CUT-BACK" TO ACCOMMODATE FOR THE LAGER SIZED NEW UV4
3. ENLARGE EXISTING MASONRY OPENING TO ACCOMMODATE NEW UV3 (SEE DRAWING TH-A101 FOR DETAILS) INSTALL NEW LOUVER, BACKER-ROD, AND SEALANT
4. NEW UV3 WILL REQUIRE EXISTING RADIATOR TUBE/FINS, AND COVER TO BE "CUT-BACK" TO ACCOMMODATE FOR LARGER SIZED NEW UV3
5. REDUCE EXISTING MASONRY OPENING TO ACCOMMODATE NEW UV3 LOUVER, (SEE DRAWING TH-A101 FOR DETAILS). INFILL AREA WITH 6" CMU AND 4" BRICK (MATCH EXISTING). INSTALL NEW LOUVER, BACKER ROD AND SEALANT. SEE DRAWING TH-A101 DETAIL 1.
6. NEW UV3 WILL REQUIRE EXISTING RADIATOR TUBE/FIN, AND COVER TO BE EXTENDED TO ACCOMMODATE FOR A SMALLER SIZED NEW UV3
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8. PROVIDE NEW M.O. FOR NEW UV3 LOUVER. INSTALL NEW LOUVER, BACKER-ROD, AND SEALANT. SEE DRAWING TH-A101 DETAIL 2
9. PROVIDE NEW M.O. FOR NEW UV2 LOUVER. INSTALL NEW LOUVER, BACKER-ROD, AND SEALANT. SEE DRAWING TH-A101 DETAIL 2
10. NEW UV2 WILL REQUIRE EXISTING RADIATOR TUBE/FIN, AND COVER TO BE EXTENDED TO ACCOMMODATE FOR SMALLER SIZE NEW UV2
11. PATCH, PRIME, AND PAINT MECHANICAL ROOM WALLS, CEILINGS, DOORS, AND DOOR FRAMES.

CODE REFERENCE LEGEND:

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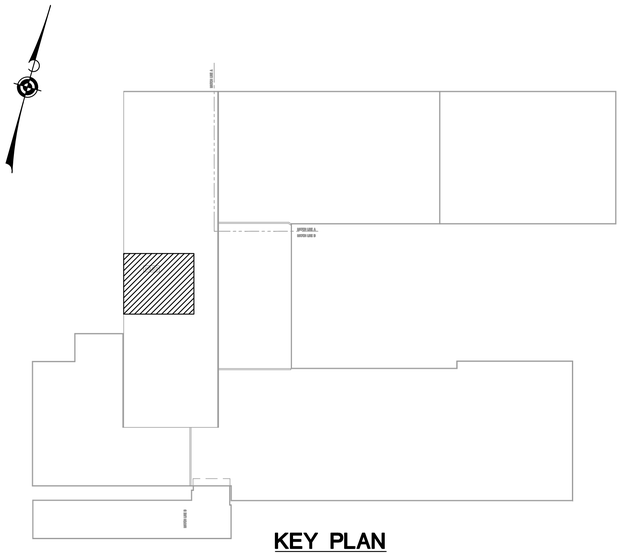

KEY PLAN

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3. – ALL PENETRATIONS THRU FLOOR AND WALLS SHALL BE FIRE STOPPED WITH "THOMAS AND BETTS" – FLAMESAFE, TYPE FST FIRESTOP COMPOUND OR APPROVED EQUIVALENT, CONFORMING TO ASME E814/UL1479.

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375 Morgan Lane, Unit 307
West Haven, CT 06516
(203) 932-1901 FAX (203) 931-1550
www.muscoengineering.com

DUMITRU T. PETRESCU, P.E.
MECHANICAL ENGINEER

REVISIONS			
NO.	BY	DATE	DESCRIPTION

PROJECT TITLE

TURKEY HILL SCHOOL
441 TURKEY HILL ROAD
ORANGE, CT
STATE PROJECT NO: TMP-107-GMZN

BOILERS & UNIT VENT REPLACEMENTS

ORANGE CONNECTICUT 1822 TOWN SEAL

Prepared For:

TOWN OF ORANGE, CT
637 ORANGE CENTER ROAD
ORANGE, CT 06477

SHEET TITLE

BOILER ROOM FLOOR PLAN

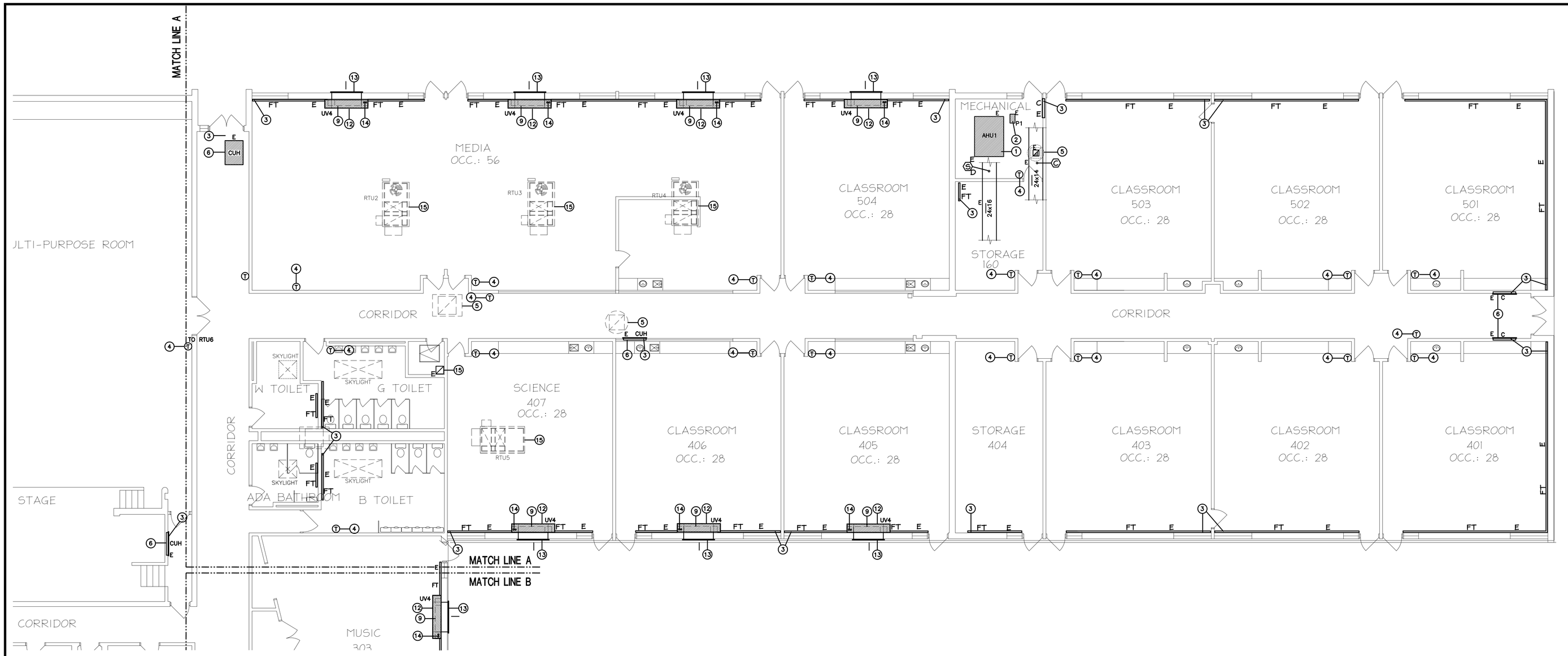
DESIGNED BY: DTP	SCALE: AS NOTED
DRAWN BY: CP/DTP	DATE: 06-17-13
CHECKED BY: DTP	PROJECT NUMBER: 1605
CAD FILE: R:/1605/ARCH/TH-A104	

SEAL

SHEET NUMBER

TH-A104

MEA# 130417-1



PART FLOOR PLAN - MECHANICAL

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

EXISTING EQUIPMENT:

AHU1 AIR HANDLING UNIT, HORIZONTAL FLOOR MOUNTED TYPE, "CARRIER", MODEL 39LG1082GA5121L, RATED FOR 3,900 CFM (1,850 CFM OUTSIDE AIR) ● 1-1/4" TSP, FURNISHED WITH HOT WATER COIL WITH 40 F EWT & 75 F LWT, 12.5 GPM ● 180 F AVE. TEMP. 2 HP FAN MOTOR ● 208V/ 3 PH, PROVIDED WITH PNEUMATIC 3-WAY MIXING VALVE, CONTROL DAMPERS AND AND TEMPERATURE CONTROLLERS (SERVES VENTILATION AIR FOR CLASSROOMS 401, 402 & 404, 501, 502 & 503), TO REMAIN.

AHU2 AIR HANDLING UNIT, HORIZONTAL FLOOR MOUNTED TYPE, "McQUAY", MODEL HD214H, RATED N/A (NO OUTSIDE AIR). 2 HP FAN MOTOR, FURNISHED WITH HOT WATER COIL WITH PNEUMATIC 3-WAY MIXING VALVE, CONTROL DAMPERS AND TEMPERATURE CONTROLLERS (SERVES MULTI-PURPOSE ROOM) TO REMAIN.

AHU3 AIR HANDLING UNIT, HORIZONTAL FLOOR MOUNTED TYPE, "McQUAY", MODEL HD209H, RATED N/A (OUTSIDE AIR N/A). 1-1/2 HP FAN MOTOR, FURNISHED WITH HOT WATER COIL WITH PNEUMATIC 3-WAY MIXING VALVE, CONTROL DAMPERS AND TEMPERATURE CONTROLLERS SERVES CAFETERIA), TO REMAIN.

RTU1 LINE OF EXISTING ROOFTOP UNIT ON ROOF, 7.5-TON DOWNFLOW COOLING ONLY, TYPE TO REMAIN.

RTU2, RTU3, RTU4 ROOFTOP UNIT, 5-TON DOWNFLOW COOLING ONLY TYPE TO REMAIN.

P1 PUMP, IN-LINE CIRCULATOR, MAKE & MODEL N/A, RATED FOR 12.5 GPM ● 6.5 FT HEAD, 1/12 HP ● 120V/1 PH, TO REMAIN.

FT EXISTING HOT WATER FINNED-TUBE RADIATION, MAKE, MODEL, SIZE & CHARACTERISTICS N/A, TO REMAIN.

C EXISTING HOT WATER CONVECTOR, MAKE, MODEL, SIZE & CHARACTERISTICS N/A, TO REMAIN.

EF EXHAUST FAN ON ROOF TO REMAIN.

CUH CABINET UNIT HEATER, CEILING MOUNTED OR WALL RECESSED TYPE, MAKE, MODEL, SIZE & CHARACTERISTICS N/A, TO REMAIN.

UV UNIT VENTILATOR, "TRANE", MODEL SIZE & CHARACTERISTICS N/A, 750 CFM OR 1,000 CFM TOTAL AIR FLOW (MINIMUM OUTSIDE AIR N/A) TO BE DISCONNECTED, REMOVED AND DISPOSED OF IN A LEGAL MANNER.

RD ROOF DRAIN ON ROOF TO REMAIN.

PV PLUMBING VENT ON ROOF TO REMAIN.

T EXISTING PNEUMATIC THERMOSTAT CONTROLLING THE HOT WATER FINNED-TUBE RADIATION, CABINET UNIT HEATERS, ETC., TO BE REMOVED AND REPLACED WITH ELECTRIC (24VAC) TEMPERATURE SENSOR.

NEW EQUIPMENT:

EXHAUST FANS

EF6 EXHAUST FAN, CEILING TYPE, EQUAL TO "GREENHECK", MODEL SP-B110-QD, RATED FOR 75 CFM ● 3/8" TSP, 80 WATTS ● 120V/1 PH, UL LISTED.

NOTES:

1. – INSTALL THE EXHAUST FAN IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, RECOMMENDATIONS AND WARRANTY.
2. – SEISMICALLY ANCHOR THE NEW EXHAUST FAN FROM THE EXISTING BUILDING'S STRUCTURAL ELEMENTS.
3. – CONNECT THE NEW EXHAUST FAN TO THE NEW 6"ø VENT WITH RAIN CAP. REFER TO DRAWING M-106.
4. – THIS EXHAUST FAN SHALL BE CONTROLLED VIA ITS INTERLOCK WITH THE LIGHT SWITCH.

NEW EQUIPMENT:

UNIT VENTILATORS

UV1 UNIT VENTILATOR, VERTICAL CABINET TYPE, EQUAL TO "MAGICAIRE", MODEL MAUVE1, RATED FOR 500 CFM TOTAL AIR SUPPLY ● HIGH SPEED (30 CFM/90 CFM MINIMUM OUTSIDE AIR), 20.2 MBH HEATING CAPACITY ● 63.7 F EAT, 2-ROWS, 4 GPM ● .150 F EWT & .9 FT WPD, 1/5 HP FAN MOTOR ● 120V/1PH, ETL LISTED, 50"W x 16.63"DEEP x 30.5"H, 340 LBS OPERATING WEIGHT, FURNISHED WITH FLANGED TYPE 24"W x 10-3/8"H OUTSIDE AIR LOUVER.

UV2 UNIT VENTILATOR, VERTICAL CABINET TYPE, EQUAL TO "MAGICAIRE", MODEL MAUVE2, RATED FOR 750 CFM TOTAL AIR SUPPLY ● HIGH SPEED (50 CFM/150 CFM MINIMUM OUTSIDE AIR), 36.3 MBH HEATING CAPACITY ● 52.4 F EAT, 2-ROWS, 4 GPM ● .150 F EWT & 1/2 FT WPD, 1/3 HP FAN MOTOR ● 120V/1PH, ETL LISTED, 62"W x 16.63" DEEP x 30.5"H, 500 LBS OPERATING WEIGHT, FURNISHED WITH FLANGED TYPE 36"W x 10-3/8"H OUTSIDE AIR LOUVER.

UV3 UNIT VENTILATOR, VERTICAL CABINET TYPE, EQUAL TO "MAGICAIRE", MODEL MAUVE3, RATED FOR 1,000 CFM TOTAL AIR SUPPLY ● HIGH SPEED (85 CFM/255 CFM MINIMUM OUTSIDE AIR), 49.3 MBH HEATING CAPACITY ● 48.9 F EAT, 2-ROWS, 4 GPM ● .150 F EWT & 1.5 FT WPD, 1/3 HP FAN MOTOR ● 120V/1PH, ETL LISTED, 74"W x 16.63"DEEP x 30.5"H, 600 LBS OPERATING WEIGHT, FURNISHED WITH FLANGED TYPE 48"W x 10-3/8"H OUTSIDE AIR LOUVER.

UV4 UNIT VENTILATOR, VERTICAL CABINET TYPE, EQUAL TO "MAGICAIRE", MODEL MAUV64, RATED FOR 1,250 CFM TOTAL AIR SUPPLY ● HIGH SPEED (140CFM/420 CFM MINIMUM OUTSIDE AIR), 62.6 MBH HEATING CAPACITY ● 43.8 F EAT, 2-ROWS, 4 GPM ● .150 F EWT & 1.8 FT WPD, 1/5 HP FAN MOTOR ● 120V/1PH, ETL LISTED, 86"W x 16.63"DEEP x 30.5"H, 740 LBS OPERATING WEIGHT, FURNISHED WITH FLANGED TYPE 60"W x 10-3/8"H OUTSIDE AIR LOUVER.

NOTES:

1. – EACH UNIT VENTILATOR SHALL BE TESTED AND CERTIFIED IN ACCORDANCE WITH AHRI STANDARD 840, SHALL BE 16-5/8" DEEP WITH OUTSIDE AIR REAR AND 18" OR 22" HIGH CLOSED PASSAGE PIPE TUNNEL WITH BOTTOM RECIRCULATION, AND INCLUDES INSULATED CASING CONSTRUCTION, 1" THICK PLEATED DISPOSABLE AIR FILTERS, PENCIL PROOF BARSTOCK DISCHARGE GRILLE, DRAIN PANS, FAN MOTOR, OUTSIDE AIR AND MOTORIZED DAMPERS, HOT WATER COIL, FRONT SERVICE PANELS, WITH FIELD INSTALLED THREE-WAY VALVE PACKAGE TYPE 4 AND CONTROLS TO MATCH EXISTING, AND CONNECT TO EXISTING EXPANDED ENERGY MANAGEMENT SYSTEM (EMS.)
2. – INSTALL THE NEW UNIT VENTILATORS IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, RECOMMENDATIONS AND WARRANTY. TEST AND CERTIFY THE OPERATION OF THE UNIT VENTILATORS IN STRICT ACCORDANCE WITH THE SPECIFIED SEQUENCE OF OPERATION.

CONSTRUCTION NOTES:

1. EXISTING AHU1 THRU AU3 TO REMAIN UNDER THIS PROJECT. AHU2 & 3 LOCATED AT MEZZANINE LEVEL SHALL REMAIN.
2. EXISTING P1 TO REMAIN UNDER THIS PROJECT. REPLACE ALL EXISTING PNEUMATIC CONTROLS WITH NEW ELECTRIC CONTROLS.
3. EXISTING 2-WAY PNEUMATIC CONTROL VALVE TO BE REPLACED WITH AN ELECTRIC (24VAC) VALVE. PROVIDE THE FOLLOWING INPUT/OUTPUT POINTS TO EXISTING EMS:
   – HEATING COIL VALVE
4. EXISTING PNEUMATIC THERMOSTAT TO BE REPLACED WITH AN ELECTRIC (24VAC) THERMOSTAT/ TEMPERATURE SENSOR, FURNISHED WITH CLEAR LOCKABLE COVER (TYP.). PROVIDE THE FOLLOWING INPUT/OUTPUT POINTS TO EXISTING EMS:
   – SPACE TEMPERATURE
5. EXHAUST FAN ON ROOF SHALL REMAIN.
6. EXISTING CABINET UNIT HEATER TO REMAIN. REPLACE ALL EXISTING PNEUMATIC CONTROLS WITH ELECTRIC CONTROLS. PROVIDE THE FOLLOWING INPUT/OUTPUT POINTS TO EXISTING EMS:
   – FAN START/STOP/STATUS
   – OUTSIDE, RETURN & MIXED AIR TEMPERATURES
   – OUTSIDE AIR MOTORIZED DAMPER
   – DISCHARGE AIR TEMPERATURE
   – HEATING COIL VALVE
   – FILTER STATUS
7. EXISTING 7" DEEP WOOD ENCLOSURE TO BE REMOVED & REINSTALLED AS NECESSARY TO ACCESS THE EXISTING HOT WATER SUPPLY & RETURN PIPING.
8. LINE OF EXISTING UNIT VENTILATOR RATED FOR 750 CFM TO BE DISCONNECTED, REMOVED, AND DISPOSED OF IN A LEGAL MANNER.
9. LINE OF EXISTING UNIT VENTILATOR RATED FOR 1,000 TO BE DISCONNECTED, REMOVED, AND DISPOSED OF IN A LEGAL MANNER.
10. LINE OF NEW UNIT VENTILATOR UV2, RATED FOR 750 CFM. PROVIDE THE FOLLOWING INPUT/ OUTPUT POINTS TO EXISTING EMS:
    – FAN START/STOP/STATUS
    – OUTSIDE, RETURN & MIXED AIR TEMPERATURES
    – OUTSIDE AIR MOTORIZED DAMPER
    – DISCHARGE AIR TEMPERATURE
    – DISCHARGE AIR PRESSURE
    – HEATING COIL VALVE
    – FILTER STATUS
    – DEMAND VENTILATION CONTROLLER
    – SPACE TEMPERATURE VIA INTERLOCK WITH FINNED-TUBE RADIATION CONTROL VALVE
11. LINE OF NEW UNIT VENTILATOR UV3, RATED FOR 1,000 CFM. PROVIDE THE FOLLOWING INPUT/ OUTPUT POINTS TO EXISTING EMS:
    – FAN START/STOP/STATUS
    – OUTSIDE, RETURN & MIXED AIR TEMPERATURES
    – OUTSIDE AIR MOTORIZED DAMPER
    – DISCHARGE AIR TEMPERATURE
    – DISCHARGE AIR PRESSURE
    – HEATING COIL VALVE
    – FILTER STATUS
    – SPACE TEMPERATURE VIA INTERLOCK WITH FINNED-TUBE RADIATION CONTROL VALVE
12. LINE OF NEW UNIT VENTILATOR UV4, RATED FOR 1,250 CFM. PROVIDE THE FOLLOWING INPUT/ OUTPUT POINTS TO EXISTING EMS:
    – FAN START/STOP/STATUS
    – OUTSIDE, RETURN & MIXED AIR TEMPERATURES
    – OUTSIDE AIR MOTORIZED DAMPER
    – DISCHARGE AIR TEMPERATURE
    – DISCHARGE AIR PRESSURE
    – HEATING COIL VALVE
    – FILTER STATUS
    – SPACE TEMPERATURE VIA INTERLOCK WITH FINNED-TUBE RADIATION CONTROL VALVE
13. LINE OF THE NEW UNIT VENTILATOR OUTSIDE AIR LOUVER/BOX. DISCONNECT, REMOVE AND DISPOSE OF IN A LEGAL MANNER OF THE EXISTING LOUVER/BOX. CAREFULLY CUT THE EXISTING WALL AS NECESSARY TO ACCOMMODATE THE NEW LOUVER/BOX. SEAL WATERTIGHT THE NEW LOUVER/BOX TO THE NEW WALL OPENING.
14. LINE OF EXISTING HOT WATER SUPPLY & RETURN RISERS FROM TUNNEL BELOW. ALL NEW UNIT VENTILATORS WILL REQUIRE TO BE ALIGNED WITH THE EXISTING UNIT VENTILATORS RIGHT HAND SIDE, SUCH THAT THE NEW UNITS PIPING COMPARTMENT WILL FALL AT PRESENT LOCATION. THE EXISTING FINNED-TUBE RADIATION ENCLOSURES WILL REQUIRE TO BE CUT/ADJUSTED, AS NECESSARY TO WORK WITH THE NEW UNIT VENTILATORS. ALL EXISTING BOOKCASES OR BUILT-IN CABINETRY WILL REQUIRE TO BE REMOVED AND RELOCATED AS NECESSARY TO PROVIDE THIS WORK.
15. EXISTING CEILING EXHAUST FAN TO REMAIN.
16. EXISTING WALL MOUNTED PROPELLER EXHAUST FAN TO REMAIN.
17. EXISTING FLOOR MOUNTED UTILITY EXHAUST FAN TO REMAIN UNDER THIS PROJECT.

MECHANICAL DRAWING LIST

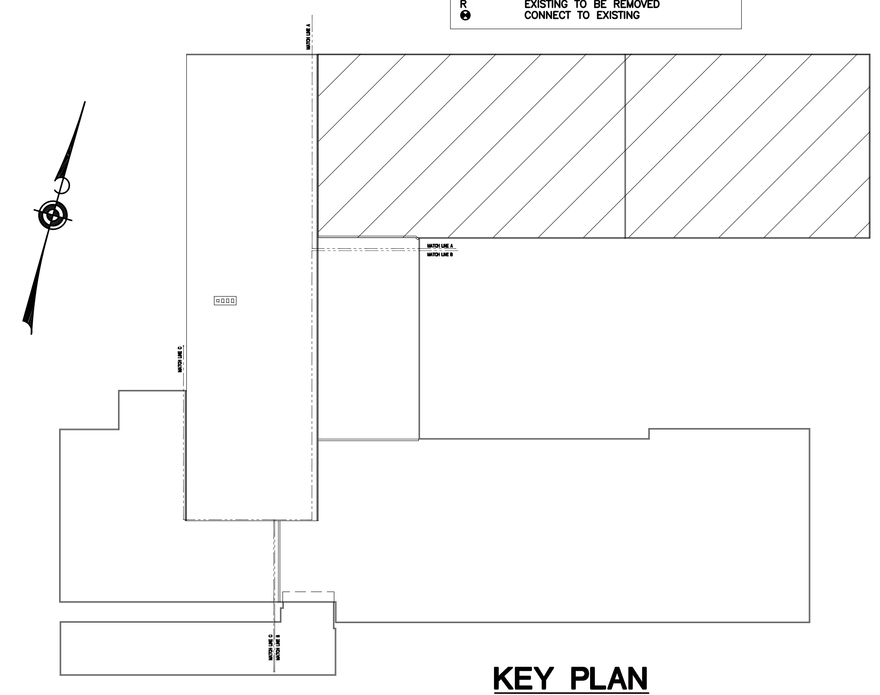
DWG. NO.	REV.	DRAWING TITLE
TH–M101	–	PARTIAL FLOOR PLAN MECHANICAL
TH–M102	–	PARTIAL FLOOR PLAN MECHANICAL
TH–M103	–	PARTIAL FLOOR PLAN MECHANICAL
TH–M104	–	PARTIAL FLOOR PLAN MECHANICAL
TH–M105	–	BOILER ROOM PLAN DEMOLITION MECHANICAL
TH–M106	–	BOILER ROOM PLAN MECHANICAL
TH–M107	–	SCHEDULES AND DETAILS MECHANICAL

ELECTRICAL DRAWING LIST

DWG. NO.	REV.	DRAWING TITLE
TH–EG1	–	GENERAL NOTES, SYMBOL LEGENDS, ABBREVIATIONS AND DRAWING LISTS
TH–E100	–	LUMINAIRE & MECHANICAL EQUIPMENT WIRING SCHEDULES, DETAILS & NOTES
TH–ED101	–	ELECTRICAL DEMOLITION PLAN BOILER ROOM
TH–E101	–	PARTIAL FLOOR PLAN ELECTRICAL
TH–E102	–	PARTIAL FLOOR PLAN ELECTRICAL
TH–E103	–	ELECTRICAL FLOOR PLAN BOILER ROOM

LEGEND AND ABBREVIATIONS

———	EXISTING EQUIPMENT/DUCTWORK/PIPING TO REMAIN
– – –	EXISTING EQUIPMENT/DUCTWORK/PIPING TO BE REMOVED
———	NEW EQUIPMENT/DUCTWORK/PIPING
AHU#	AIR HANDLING UNIT
RTU#	ROOFTOP UNIT
EF#	EXHAUST FAN
P#	PUMP
UV#	UNIT VENTILATOR
C	CONVECTOR
CUH	CABINET UNIT HEATER
FT	FINNED-TUBE RADIATION
EUH	ELECTRIC UNIT HEATER
GRH	GRAVITY ROOF HOOD
RD	ROOF DRAIN
PV	PLUMBING VENT
G	GAS PIPING
CD	CONDENSATE DRAIN PIPING
HWS/HWR	HOT WATER SUPPLY/RETURN PIPING
VD	VOLUME DAMPER
MD	MOTORIZED DAMPER
▽	PLUG VALVE
(T)	THERMOSTAT/TEMPERATURE SENSOR
(S)	SMOKE DETECTOR, DUCT MOUNTED
(C)	DEMAND VENTILATION CONTROLLER
E	EXISTING TO REMAIN
ER	EXISTING TO BE RELOCATED
R	EXISTING TO BE REMOVED
❶	CONNECT TO EXISTING



KEY PLAN

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MECHANICAL ENGINEER

REVISIONS

NO.	BY	DATE	DESCRIPTION

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441 TURKEY HILL ROAD
ORANGE, CT
STATE PROJECT NO:
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BOILERS & UNIT VENT. REPLACEMENTS

ORANGE CONNECTICUT 1822 TOWN SEAL

Prepared For:

TOWN OF ORANGE, CT
637 ORANGE CENTER ROAD
ORANGE, CT 06477

SHEET TITLE

PART FLOOR PLAN MECHANICAL

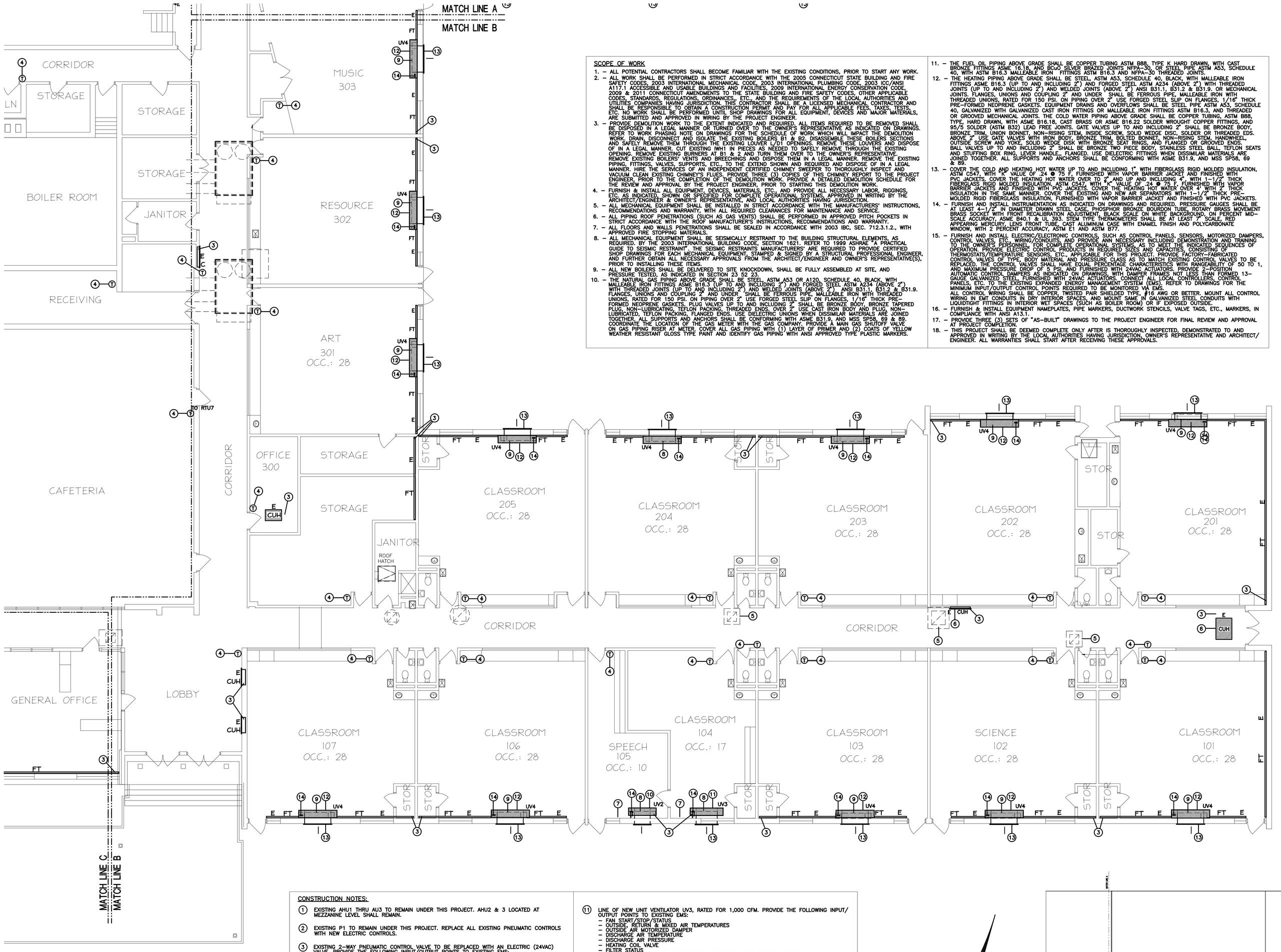
DESIGNED BY: DTP	SCALE: AS NOTED
DRAWN BY: CP	DATE: 6-17-13
CHECKED BY: DTP	PROJECT NUMBER: 1605
CAD FILE: M101.DWG	

SEAL

SHEET NUMBER

TH-M101

MEA# 130417-1



PART FLOOR PLAN - MECHANICAL

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

SCOPE OF WORK

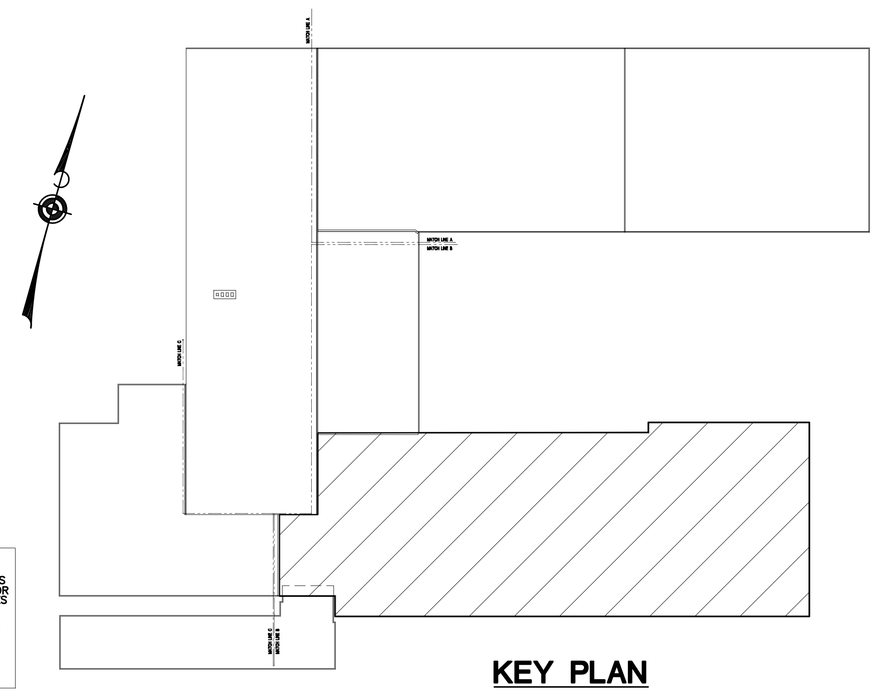
1. – ALL POTENTIAL CONTRACTORS SHALL BECOME FAMILIAR WITH THE EXISTING CONDITIONS, PRIOR TO START ANY WORK.
2. – ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE 2005 CONNECTICUT STATE BUILDING AND FIRE SAFETY CODES, 2003 INTERNATIONAL MECHANICAL CODE, 2003 INTERNATIONAL PLUMBING CODE, 2003 ICC/ANSI A117.1 ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES, 2009 INTERNATIONAL ENERGY CONSERVATION CODE, 2009 & 2011 CONNECTICUT AMENDMENTS TO THE STATE BUILDING AND FIRE SAFETY CODES, OTHER APPLICABLE CODES, STANDARDS, ORDINANCES, ETC., AND THE REQUIREMENTS OF THE LOCAL AUTHORITIES AND UTILITIES COMPANIES HAVING JURISDICTION. THIS CONTRACTOR SHALL BE A LICENSED, MECHANICAL CONTRACTOR AND SHALL BE RESPONSIBLE TO OBTAIN A CONSTRUCTION PERMIT AND PAY FOR ALL APPLICABLE FEES, TAXES, TESTS, ETC. NO WORK SHALL BE PERFORMED UNTIL SHOP DRAWINGS FOR ALL EQUIPMENT, DEVICES AND MAJOR MATERIALS, ARE SUBMITTED AND APPROVED IN WRITING BY THE PROJECT ENGINEER.
3. – PROVIDE DEMOLITION WORK TO THE EXTENT INDICATED AND REQUIRED. ALL ITEMS REQUIRED TO BE REMOVED SHALL BE DISPOSED IN A LEGAL MANNER OR TURNED OVER TO THE OWNER'S REPRESENTATIVE AS INDICATED ON DRAWINGS. REFER TO WORK PHASING NOTES ON DRAWINGS FOR THE SCHEDULE OF WORK WHICH WILL IMPACT THE DEMOLITION WORK. DRAIN, DISCONNECT AND ISOLATE THE EXISTING BOILERS B1 & B2. DISASSEMBLE THESE BOILERS SECTIONS AND SAFELY REMOVE THEM THROUGH THE EXISTING LOUVER L/01 OPENINGS. REMOVE THESE LOUVERS AND DISPOSE OF IN A LEGAL MANNER. CUT EXISTING WH1 IN PIECES AS NEEDED TO SAFELY REMOVE THROUGH THE EXISTING OPENING. REMOVE EXISTING BURNERS AT B1 & 2 AND TURN THEM OVER TO THE OWNER'S REPRESENTATIVE AT GRADE. REMOVE EXISTING BOILERS' VENTS AND BREECHINGS AND DISPOSE THEM IN A LEGAL MANNER. REMOVE THE EXISTING PIPING, FITTINGS, VALVES, SUPPORTS, ETC., TO THE EXTEND SHOWN AND REQUIRED AND DISPOSE OF IN A LEGAL MANNER. HIRE THE SERVICES OF AN INDEPENDENT CERTIFIED CHIMNEY SWEEPER TO THOROUGHLY INSPECT AND VACUUM CLEAN EXISTING CHIMNEY'S FLUES, PROVIDE THREE (3) COPIES OF THIS CHIMNEY REPORT TO THE PROJECT ENGINEER, PRIOR TO THE COMPLETION OF THE DEMOLITION WORK. PROVIDE A DETAILED DEMOLITION SCHEDULE FOR THE REVIEW AND APPROVAL BY THE PROJECT ENGINEER, PRIOR TO STARTING THIS DEMOLITION WORK.
4. – FURNISH & INSTALL ALL EQUIPMENT, DEVICES, MATERIALS, ETC., AND PROVIDE ALL NECESSARY LABOR, RIGGINGS, ETC. AS INDICATED, SHOWN OR SPECIFIED FOR COMPLETE OPERATIONAL SYSTEMS APPROVED IN WRITING BY THE ARCHITECT/ENGINEER & OWNER'S REPRESENTATIVE, AND LOCAL AUTHORITIES HAVING JURISDICTION.
5. – ALL MECHANICAL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURERS' INSTRUCTIONS, RECOMMENDATIONS AND WARRANTY, WITH ALL REQUIRED CLEARANCES FOR MAINTENANCE AND SERVICE.
6. – ALL PIPING ROOF PENETRATIONS (SUCH AS GAS VENTS) SHALL BE PERFORMED IN APPROVED PITCH POCKETS IN STRICT ACCORDANCE WITH THE LATEST MANUFACTURER'S INSTRUCTIONS, RECOMMENDATIONS AND WARRANTY.
7. – ALL FLOORS AND WALLS PENETRATIONS SHALL BE SEALED IN ACCORDANCE WITH 2003 IBC, SEC. 712.3.1.2., WITH APPROVED FIRE STOPPING MATERIALS.
8. – ALL MECHANICAL EQUIPMENT SHALL BE SEISMICALLY RESTRAINT TO THE BUILDING STRUCTURAL ELEMENTS, AS REQUIRED, BY THE 2003 INTERNATIONAL BUILDING CODE, SECTION 1621. REFER TO 1999 ASHRAE "A PRACTICAL GUIDE TO SEISMIC RESTRAINT". THE SEISMIC RESTRAINTS MANUFACTURERS' ARE REQUIRED TO PROVIDE CERTIFIED SHOP DRAWINGS FOR EACH MECHANICAL EQUIPMENT, STAMPED & SIGNED BY A STRUCTURAL PROFESSIONAL ENGINEER, AND FURTHER OBTAIN ALL NECESSARY APPROVALS FROM THE ARCHITECT/ENGINEER AND OWNER'S REPRESENTATIVE(S), PRIOR TO INSTALLING THESE ITEMS.
9. – ALL NEW BOILERS SHALL BE DELIVERED TO SITE KNOCKDOWN, SHALL BE FULLY ASSEMBLED AT SITE, AND PRESSURE TESTED, AS INDICATED IN SECTION 23 52 33.
10. – THE NATURAL GAS PIPING ABOVE GRADE SHALL BE STEEL, ASTM A53 OR A120, SCHEDULE 40, BLACK, WITH MALLEABLE IRON FITTINGS ASME B16.3 (UP TO AND INCLUDING 2") AND FORGED STEEL ASTM A234 (ABOVE 2") WITH THREADED JOINTS (UP TO AND INCLUDING 2") AND WELDED JOINTS (ABOVE 2"). ANSI B31.1, B31.2 & B31.9. FLANGES, UNIONS AND COUPLING 2" AND UNDER SHALL BE FERROUS PIPE MALLEABLE IRON WITH THREADED UNIONS, RATED FOR 150 PSI. ON PIPING OVER 2" USE FORGED STEEL SLIP ON FLANGES, 1/16" THICK PRE-FORMED NEOPRENE GASKETS. PLUG VALVES UP TO AND INCLUDING 2" SHALL BE BRONZE BODY, BRONZE TAPERED PLUG, NON-LUBRICATING, TEFLON PACKING, THREADED ENDS. OVER 2" USE CAST IRON BODY AND PLUG, NON-LUBRICATED, TEFLON PACKING, FLANGED ENDS. DISSIMILAR METALS ARE JOINED TOGETHER. ALL SUPPORTS AND ANCHORS SHALL BE CONFORMING WITH ASME B31.9, AND MSS SP58, 69 & 89. COORDINATE THE LOCATION OF THE GAS METER WITH THE GAS COMPANY. PROVIDE 1 MAIN GAS SHUTOFF VALVE ON GAS PIPING RISER AT METER. COVER ALL GAS PIPING WITH (1) LAYER OF PRIMER AND (2) COATS OF YELLOW WEATHER RESISTANT GLOSS TYPE PAINT AND IDENTIFY GAS PIPING WITH ANSI APPROVED TYPE PLASTIC MARKERS.
11. – THE FUEL OIL PIPING ABOVE GRADE SHALL BE COPPER TUBING ASTM B88, TYPE K HARD DRAWN, WITH CAST BRONZE FITTINGS ASME 16.18, AND BCuO SILVER BRAZED JOINTS NFPA-30, OR STEEL PIPE ASTM A53, SCHEDULE 40, WITH ASTM B16.3 MALLEABLE IRON FITTINGS ASTM B16.3 AND NFPA-30 THREADED JOINTS.
12. – THE HEATING PIPING ABOVE GRADE SHALL BE STEEL, ASTM A53, SCHEDULE 40, BLACK, WITH MALLEABLE IRON FITTINGS ASME B16.3 (UP TO AND INCLUDING 2") AND FORGED STEEL ASTM A234 (ABOVE 2"), WITH THREADED JOINTS (UP TO AND INCLUDING 2") AND WELDED JOINTS (ABOVE 2"). ANSI B31.1, B31.2 & B31.9. ON MECHANICAL JOINTS, FLANGES, UNIONS AND COUPLING 2" AND UNDER SHALL BE FERROUS PIPE, MALLEABLE IRON WITH THREADED UNIONS, RATED FOR 150 PSI. ON PIPING OVER 2" USE FORGED STEEL SLIP ON FLANGES, 1/16" THICK PRE-FORMED MECHANICAL GASKETS. EQUIPMENT DRAINS AND OVERFLOWS SHALL BE STEEL PIPE ASTM A53, SCHEDULE 40, GALVANIZED WITH GALVANIZED CAST IRON FITTINGS OR MALLEABLE IRON FITTINGS ASTM B16.3, AND THREADED OR GROOVED MECHANICAL JOINTS. THE COLD WATER PIPING ABOVE GRADE SHALL BE COPPER TUBING, ASTM B88, TYPE, HARD DRAWN, WITH ASME B16.18, CAST BRASS OR ASME B16.22 SOLDER WROUGHT COPPER FITTINGS, AND 95/5 SOLDER JOINTS (ASTM B32) OR FIRE-SAFE JOINTS. GATE VALVES UP TO AND INCLUDING 2" SHALL BE BRONZE BODY, BRONZE TRIM, UNION BONNET, NON-RISING STEM, INSIDE SCREW, SOLID WEDGE DISC, SOLDER OR THREADED EDS. ABOVE 2" USE GATE VALVES WITH IRON BODY, BRONZE TRIM, OUTSIDE SCREW-NON-RISING STEM, HANDWHEEL, OUTSIDE SCREW AND YOKE, SOLID WEDGE DISK WITH BRONZE SEAT RINGS, AND FLANGED OR GROOVED ENDS. BALL VALVES UP TO AND INCLUDING 2" SHALL BE BRONZE TWO PIECE BODY, STAINLESS STEEL BALL, TEFLON SEATS AND STUFFING BOX RING, LEVER HANDLE, FULL PORT. DISSIMILAR MATERIALS ARE JOINED TOGETHER. ALL SUPPORTS AND ANCHORS SHALL BE CONFORMING WITH ASME B31.9, AND MSS SP58, 69 & 89.
13. – COVER THE COLD AND HEATING HOT WATER UP TO AND INCLUDING 1" WITH FIBERGLASS RIGID MOLDED INSULATION, ASTM C547, WITH "K" VALUE OF .24 @ 75 F, FURNISHED WITH VAPOR BARRIER JACKET AND FINISHED WITH PVC JACKETS. COVER THE HEATING HOT WATER OVER TO 2", AND UP AND INCLUDING 4", WITH 1-1/2" THICK FIBERGLASS RIGID MOLDED INSULATION, ASTM C547, WITH "K" VALUE OF .24 @ 75 F, FURNISHED WITH VAPOR BARRIER JACKETS AND FINISHED WITH PVC JACKETS. COVER THE HEATING HOT WATER OVER 4" WITH 2" THICK INSULATION IN THE SAME MANNER. COVER THE EXISTING AND NEW AIR SEPARATORS WITH 1-1/2" THICK PRE-MOLDED RIGID FIBERGLASS INSULATION, FURNISHED WITH VAPOR BARRIER JACKET AND FINISHED WITH PVC JACKETS.
14. – FURNISH AND INSTALL INSTRUMENTATION AS INDICATED ON DRAWINGS AND REQUIRED. PRESSURE GAUGES SHALL BE AT LEAST 4-1/2" IN DIAMETER DRAWN STEEL CASE, PHOSPHOR BRONZE BOURDON TUBE, ROTARY BRASS MOVEMENT BRASS SOCKET, WITH FRONT RECALIBRATION ADJUSTMENT, BLACK SCALE ON WHITE BACKGROUND, ON PERCENT MID-SCALE ACCURACY, ASME B40.1 & UL 393. STEM TYPE THERMOMETERS SHALL BE AT LEAST 7" SCALE, RED APPEARING MERCURY, LENS FRONT TUBE, CAST ALUMINUM CASE WITH ENAMEL FINISH AND POLISHED PLATE WINDOW, WITH 2 PERCENT ACCURACY, ASTM E1 AND ASTM B77.
15. – FURNISH AND INSTALL ELECTRIC/ELECTRONIC CONTROLS, SUCH AS CONTROL PANELS, SENSORS, MOTORIZED DAMPERS, CONTROL VALVES, ETC., WIRING/CONDUITS, AND PROVIDE ANY NECESSARY INCLUDING DEMONSTRATION AND TRAINING TO THE OWNER'S PERSONNEL FOR COMPLETE OPERATIONAL SYSTEMS AS TO MEET THE INDICATED SEQUENCES OF OPERATION. PROVIDE ELECTRIC CONTROL PRODUCTS IN REQUIRED SIZES AND CAPACITIES, CONSISTING OF THERMOSTATS/TEMPERATURE SENSORS, ETC., APPLICABLE FOR THIS PROJECT. PROVIDE FACTORY-FABRICATED CONTROL VALVES OF TYPE, BODY MATERIAL AND PRESSURE CLASS AS TO MATCH EXISTING CONTROL VALVES TO BE REPLACED. THE CONTROL VALVES SHALL HAVE EQUAL PERCENTAGE CHARACTERISTICS WITH RANGEABILITY OF 50 TO 1, AND MAXIMUM PRESSURE DROP OF 5 PSI, AND FURNISHED WITH 24VAC ACTUATORS. PROVIDE 2-POSITION AUTOMATIC CONTROL DAMPERS AS INDICATED ON DRAWINGS, WITH DAMPER FRAMES NOT LESS THAN FORMED 13-GAUGE GALVANIZED STEEL, FURNISHED WITH 24VAC ACTUATORS. CONNECT ALL LOCAL CONTROLLERS, CONTROL PANELS, ETC. TO THE EXISTING EXPANDED ENERGY MANAGEMENT SYSTEM (EMS). REFER TO DRAWINGS FOR THE MINIMUM INPUT/OUTPUT CONTROL POINTS REQUIRED TO BE MONITORED VIA EMS.
16. – FURNISH & INSTALL EQUIPMENT NAMEPLATES, PIPE MARKERS, DUCTWORK STENCILS, VALVE TAGS, ETC., MARKERS, IN COMPLIANCE WITH ANSI A13.1.
17. – PROVIDE THREE (3) SETS OF "AS-BUILT" DRAWINGS TO THE PROJECT ENGINEER FOR FINAL REVIEW AND APPROVAL AT PROJECT COMPLETION.
18. – THIS PROJECT SHALL BE DEEMED COMPLETE ONLY AFTER IS THOROUGHLY INSPECTED, DEMONSTRATED TO AND APPROVED IN WRITING BY THE LOCAL AUTHORITIES HAVING JURISDICTION, OWNER'S REPRESENTATIVE AND ARCHITECT/ENGINEER. ALL WARRANTIES SHALL START AFTER RECEIVING THESE APPROVALS.

CONSTRUCTION NOTES:

1. EXISTING AHU1 THRU AU3 TO REMAIN UNDER THIS PROJECT. AHU2 & 3 LOCATED AT MEZZANINE LEVEL SHALL REMAIN.
2. EXISTING P1 TO REMAIN UNDER THIS PROJECT. REPLACE ALL EXISTING PNEUMATIC CONTROLS WITH NEW ELECTRIC CONTROLS.
3. EXISTING 2-WAY PNEUMATIC CONTROL VALVE TO BE REPLACED WITH AN ELECTRIC (24VAC) VALVE. PROVIDE THE FOLLOWING INPUT/OUTPUT POINTS TO EXISTING EMS:
   - HEATING COIL VALVE
4. EXISTING PNEUMATIC THERMOSTAT TO BE REPLACED WITH AN ELECTRIC (24VAC) THERMOSTAT/TEMPERATURE SENSOR, FURNISHED WITH CLEAR LOCKABLE COVER (TYP). PROVIDE THE FOLLOWING INPUT/OUTPUT POINTS TO EXISTING EMS:
   - SPACE TEMPERATURE
5. EXHAUST FAN ON ROOF SHALL REMAIN.
6. EXISTING CABINET UNIT HEATER TO REMAIN. REPLACE ALL EXISTING PNEUMATIC CONTROLS WITH ELECTRIC CONTROLS. PROVIDE THE FOLLOWING INPUT/OUTPUT POINTS TO EXISTING EMS:
   - FAN START/STOP/STATUS
   - DISCHARGE AIR TEMPERATURE
   - HEATING COIL VALVE
   - FILTER STATUS
7. EXISTING 7" DEEP WOOD ENCLOSURE TO BE REMOVED & REINSTALLED AS NECESSARY TO ACCESS THE EXISTING HOT WATER SUPPLY & RETURN PIPING.
8. LINE OF EXISTING UNIT VENTILATOR RATED FOR 750 CFM TO BE DISCONNECTED, REMOVED, AND DISPOSED OF IN A LEGAL MANNER.
9. LINE OF EXISTING UNIT VENTILATOR RATED FOR 1,000 TO BE DISCONNECTED, REMOVED, AND DISPOSED OF IN A LEGAL MANNER.
10. LINE OF NEW UNIT VENTILATOR UV2, RATED FOR 750 CFM. PROVIDE THE FOLLOWING INPUT/OUTPUT POINTS TO EXISTING EMS:
    - FAN START/STOP/STATUS
    - OUTSIDE, RETURN & MIXED AIR TEMPERATURES
    - OUTSIDE AIR MOTORIZED DAMPER
    - DISCHARGE AIR TEMPERATURE
    - DISCHARGE AIR PRESSURE
    - HEATING COIL VALVE
    - FILTER STATUS
    - DEMAND VENTILATION CONTROLLER
    - SPACE TEMPERATURE VIA INTERLOCK WITH FINNED-TUBE RADIATION CONTROL VALVE
11. LINE OF NEW UNIT VENTILATOR UV3, RATED FOR 1,000 CFM. PROVIDE THE FOLLOWING INPUT/OUTPUT POINTS TO EXISTING EMS:
    - FAN START/STOP/STATUS
    - OUTSIDE, RETURN & MIXED AIR TEMPERATURES
    - OUTSIDE AIR MOTORIZED DAMPER
    - DISCHARGE AIR TEMPERATURE
    - DISCHARGE AIR PRESSURE
    - HEATING COIL VALVE
    - FILTER STATUS
    - SPACE TEMPERATURE VIA INTERLOCK WITH FINNED-TUBE RADIATION CONTROL VALVE
12. LINE OF NEW UNIT VENTILATOR UV4, RATED FOR 1,250 CFM. PROVIDE THE FOLLOWING INPUT/OUTPUT POINTS TO EXISTING EMS:
    - FAN START/STOP/STATUS
    - OUTSIDE, RETURN & MIXED AIR TEMPERATURES
    - OUTSIDE AIR MOTORIZED DAMPER
    - DISCHARGE AIR TEMPERATURE
    - DISCHARGE AIR PRESSURE
    - HEATING COIL VALVE
    - FILTER STATUS
    - SPACE TEMPERATURE VIA INTERLOCK WITH FINNED-TUBE RADIATION CONTROL VALVE
13. LINE OF THE NEW UNIT VENTILATOR OUTSIDE AIR LOUVER/BOX. DISCONNECT, REMOVE AND DISPOSE OF IN A LEGAL MANNER OF THE EXISTING LOUVER/BOX. CAREFULLY CUT THE EXISTING WALL AS NECESSARY TO ACCOMMODATE THE NEW LOUVER/BOX. SEAL WATERTIGHT THE NEW LOUVER/BOX TO THE NEW WALL OPENING.
14. LINE OF EXISTING HOT WATER SUPPLY & RETURN RISERS FROM TUNNEL BELOW. ALL NEW UNIT VENTILATORS WILL REQUIRE TO BE ALIGNED WITH THE EXISTING UNIT VENTILATORS RIGHT HAND SIDE, SUCH THAT THE NEW UNITS PIPING COMPARTMENT WILL FALL AT PRESENT LOCATION. THE EXISTING FINNED-TUBE RADIATION ENCLOSURES WILL REQUIRE TO BE CUT/ADJUSTED, AS NECESSARY TO WORK WITH THE NEW UNIT VENTILATORS. ALL EXISTING BOOKCASES OR BUILT-IN CABINETRY WILL REQUIRE TO BE REMOVED AND RELOCATED AS NECESSARY TO PROVIDE THIS WORK.
15. EXISTING CEILING EXHAUST FAN TO REMAIN.
16. EXISTING WALL MOUNTED PROPELLER EXHAUST FAN TO REMAIN.
17. EXISTING FLOOR MOUNTED UTILITY EXHAUST FAN TO REMAIN UNDER THIS PROJECT.

GENERAL NOTES

1. – THE INFORMATION SHOWN ON THIS DRAWING IS BASED UPON THE INFORMATION SHOWN ON THE BUILDING PLANS AND LIMITED FIELD INVESTIGATIONS AND MAY OR MAY NOT REFLECT ACTUAL FIELD CONDITIONS. THIS CONTRACTOR SHALL VERIFY THE INFORMATION INDICATED ON THIS DRAWING AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO SUBMITTING HIS BID.
2. – THIS CONTRACTOR IS REQUIRED TO PERFORM THIS WORK IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, ORDINANCES, ETC., AND TO MEET THE REQUIREMENTS OF THE LOCAL AUTHORITIES HAVING JURISDICTION AND OWNER, WHETHER OR NOT SPECIFICALLY INDICATED OR SPECIFIED ON THIS DRAWING.
3. – ALL PENETRATIONS THRU WALLS SHALL BE FIRE STOPPED WITH "THOMAS AND BETTS" – FLAMESAFE, TYPE FST FIRESTOP COMPOUND OR APPROVED EQUIVALENT, CONFORMING TO ASME E814/UL1479. REFER TO DWG TH-CC101 FOR LOCATION OF FIRE RATED WALLS.



KEY PLAN

ROSE • TISO & CO. LLC.
ARCHITECTS • SURVEYORS • ENGINEERS
WWW.ROSETISO.COM
35 BRENTWOOD AVENUE, FAIRFIELD, CT 06825
TEL: (203)610-6262 • FAX: (203)610-6404

MUSCO ENGINEERING ASSOCIATES
375 Morgan Lane, Unit 307
West Haven, CT 06516
(203) 932-1901 FAX (203) 931-1550
www.muscoengineering.com

DUMITRU T. PETRESCU, P.E.
MECHANICAL ENGINEER

REVISIONS

NO.	BY	DATE	DESCRIPTION

PROJECT TITLE

TURKEY HILL SCHOOL
441 TURKEY HILL ROAD
ORANGE, CT
STATE PROJECT NO: TMP-107-GMZN

BOILERS & UNIT VENT REPLACEMENTS

ORANGE CONNECTICUT 1822 TOWN SEAL

Prepared For:

TOWN OF ORANGE, CT
637 ORANGE CENTER ROAD
ORANGE, CT 06477

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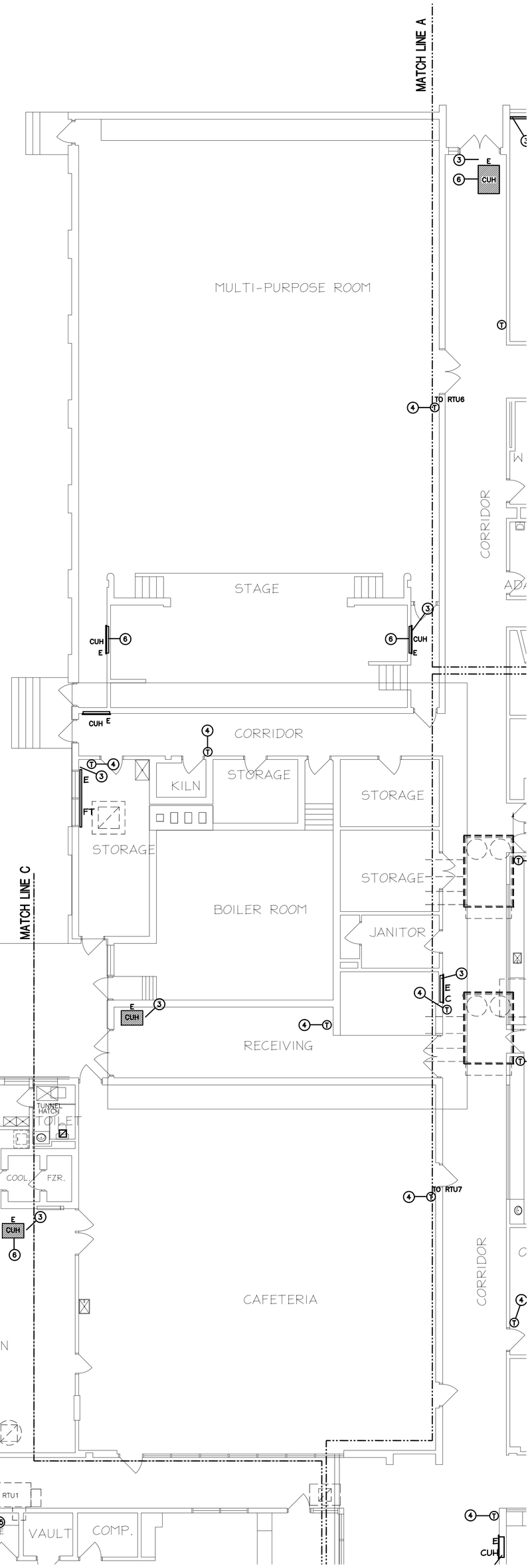


PART FLOOR PLAN - MECHANICAL

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

SEQUENCES OF OPERATION

EXISTING AIR HANDLING UNITS

THE EXISTING AIR HANDLING UNITS LOCATED AT MEZZANINE LEVEL SHALL REMAIN.
THE OPERATION OF THE AIR HANDLING UNITS SHALL BE CONTROLLED AND MONITORED VIA THE EXISTING EXPANDED ENERGY MANAGEMENT SYSTEM (EMS). THE AIR HANDLING UNITS FANS SHALL OPERATE CONTINUOUSLY DURING THE OCCUPIED HOURS AND CYCLE DURING THE OCCUPIED HOURS, AS SCHEDULED FROM EMS. THE OUTSIDE AIR MOTORIZED DAMPERS SHALL OPEN TO THEIR MINIMUM POSITIONS DURING THE OCCUPIED HOURS AND BE FULLY CLOSED DURING THE UNOCCUPIED HOURS, AS SCHEDULED FROM EMS. THE RELATED EXHAUST FANS SHALL OPERATE ONLY DURING THE OCCUPIED HOURS, AS SCHEDULED FROM EMS. THE NEW 3-WAY HEATING MIXING CONTROL VALVES, REPLACING THE EXISTING PNEUMATIC CONTROL VALVES SHALL MODULATE IN RESPONSE TO THE HEATING THERMOSTATS/TEMPERATURE SENSORS FURNISHED WITH CLEAR LOCKABLE COVERS, AS REQUIRED TO MAINTAIN THE SPACES TEMPERATURE SETTINGS. SET AIR HANDLING UNITS UNITS TO OPERATE AT 70 F DURING OCCUPIED & 55 F DURING UNOCCUPIED HEATING.
IF ANY UNIT DISCHARGE AIR TEMPERATURE EQUALS OR EXCEEDS 135 F OR FALLS BELOW 40 F, THE UNIT EVAPORATOR FAN SHALL SHUT DOWN, OUTSIDE AIR MOTORIZED DAMPER SHALL FULLY CLOSE, AND AN ALARM SIGNAL BE GENERATED TO EMS.
IF SMOKE IS DETECTED ON ANY UNIT SUPPLY MAIN, AS SENSED BY A DUCT MOUNTED SMOKE DETECTOR, THE UNIT EVAPORATOR FAN SHALL SHUT DOWN, THE OUTSIDE AIR MOTORIZED DAMPER SHALL FULLY CLOSE, AND AN ALARM SHALL BE GENERATED TO EMS AND BUILDING'S FIRE ALARM CONTROL PANEL.
REFER TO DRAWINGS FOR THE INPUT/OUTPUT CONTROL POINTS REQUIRED TO BE PROVIDED TO THE EXISTING EXPANDED EMS.

NEW UNIT VENTILATORS

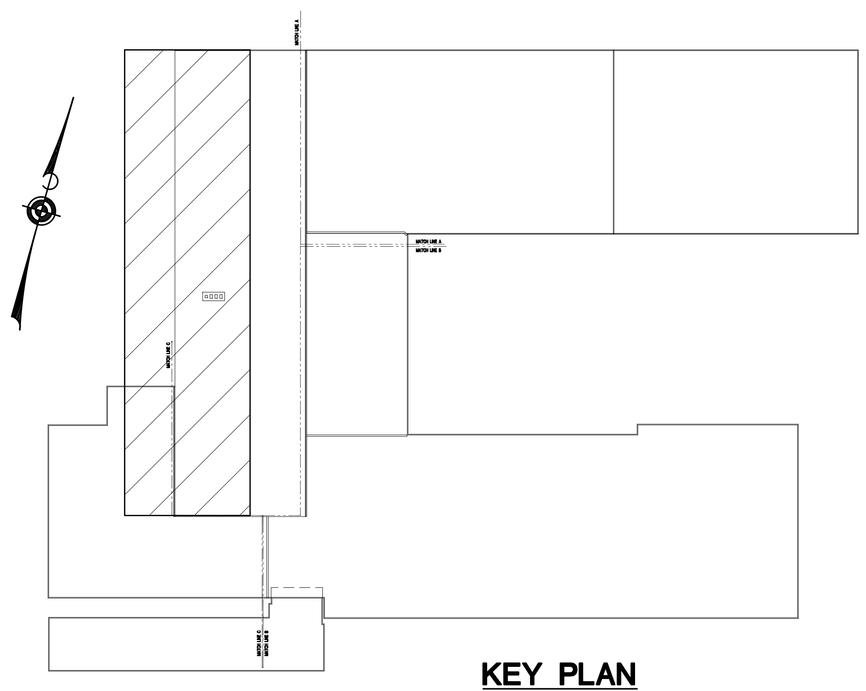
THE OPERATION OF THE NEW UNIT VENTILATORS SHALL BE CONTROLLED AND MONITORED VIA THE EXISTING EXPANDED ENERGY MANAGEMENT SYSTEM (EMS). THE UNIT VENTILATOR FAN SHALL OPERATE CONTINUOUSLY DURING THE OCCUPIED HOURS AND CYCLE DURING THE UNOCCUPIED HOURS, USING ASHRAE CYCLE II WITH THE EXCEPTION BELOW INDICATED, AS LOCALLY CONTROLLED AND SCHEDULED FROM THE EMS. SET EACH UNIT VENTILATOR TO MAINTAIN 70 F DURING THE OCCUPIED AND 55 F DURING UNOCCUPIED HEATING, FROM ITS WALL MOUNTED THERMOSTAT/ TEMPERATURE SENSOR FURNISHED WITH CLEAR LOCKABLE COVER. EACH UNIT VENTILATOR SHALL FIRST START OPERATING IN WARM-UP MODE WITH OUTSIDE AIR DAMPER FULLY CLOSED AND WITH THE 3-WAY HEATING CONTROL VALVE FULLY OPEN UNTIL THE ROOM TEMPERATURE REACHES ITS OCCUPIED SETPOINT. AFTER THE WARM-UP PERIOD EACH UNIT VENTILATOR OUTSIDE AIR MOTORIZED DAMPER SHALL FIRST OPEN TO ITS MINIMUM POSITION VIA THE DEMAND VENTILATION CONTROLLER AND THE 3-WAY HEATING CONTROL VALVE SHALL MODULATE ACCORDINGLY AS TO MAINTAIN THE ROOM TEMPERATURE SETPOINT. IF THE CARBON DIOXIDE (CO2) LEVEL OF ANY ZONE, MONITORED BY THE DEMAND VENTILATION CONTROLLER, EQUALS OR EXCEEDS 800 PPM (I.E. ADJUSTABLE), AS SENSED BY CO2 SENSOR, THE OUTSIDE AIR MOTORIZED DAMPER SHALL MODULATE TOWARDS ITS FULLY OPEN POSITION UNTIL THE CO2 LEVEL FALLS BELOW ITS SETTING. IF THE ROOM TEMPERATURE RISES ABOVE THE OCCUPIED SETPOINT, THE ECONOMIZER CONTROLLER SHALL BE ENABLED. THE OUTSIDE AIR MOTORIZED DAMPER SHALL MODULATE TOWARDS ITS FULLY OPEN POSITION WITH THE HEATING CONTROL VALVE FULLY CLOSED. A LOW-LIMIT THERMOSTAT/TEMPERATURE SENSOR MOUNTED IN EACH UNIT SHALL PREVENT THE DISCHARGE AIR TEMPERATURE TO BE TOO LOW AND CAUSE DISCOMFORT TO OCCUPANTS OR EVENTUALLY FREEZE-UP OF THE HEATING COIL. IF THE ROOM TEMPERATURE FALLS BELOW THE SETPOINT, THE OUTSIDE AIR DAMPER SHALL MODULATE BACK TO ITS MINIMUM POSITION DICTATED BY THE DEMAND VENTILATION CONTROLLER.

EXISTING CONVECTORS AND CABINET UNIT HEATERS

THE OPERATION OF THE NEW UNIT VENTILATORS SHALL BE CONTROLLED AND MONITORED VIA THE EXISTING EXPANDED ENERGY MANAGEMENT SYSTEM (EMS). THE UNIT VENTILATOR FANS SHALL OPERATE CONTINUOUSLY.

CONSTRUCTION NOTES:

1. EXISTING AHU1 THRU AU3 TO REMAIN UNDER THIS PROJECT. AHU2 & 3 LOCATED AT MEZZANINE LEVEL SHALL REMAIN.
2. EXISTING P1 TO REMAIN UNDER THIS PROJECT. REPLACE ALL EXISTING PNEUMATIC CONTROLS WITH NEW ELECTRIC CONTROLS.
3. EXISTING 2-WAY PNEUMATIC CONTROL VALVE TO BE REPLACED WITH AN ELECTRIC (24VAC) VALVE. PROVIDE THE FOLLOWING INPUT/OUTPUT POINTS TO EXISTING EMS:
   - HEATING COIL VALVE
4. EXISTING PNEUMATIC THERMOSTAT TO BE REPLACED WITH AN ELECTRIC (24VAC) THERMOSTAT/ TEMPERATURE SENSOR, FURNISHED WITH CLEAR LOCKABLE COVER (TYP.). PROVIDE THE FOLLOWING INPUT/OUTPUT POINTS TO EXISTING EMS:
   - SPACE TEMPERATURE
5. EXHAUST FAN ON ROOF SHALL REMAIN.
6. EXISTING CABINET UNIT HEATER TO REMAIN. REPLACE ALL EXISTING PNEUMATIC CONTROLS WITH ELECTRIC CONTROLS. PROVIDE THE FOLLOWING INPUT/OUTPUT POINTS TO EXISTING EMS:
   - FAN START/STOP/STATUS
   - DISCHARGE AIR TEMPERATURE
   - HEATING COIL VALVE
   - FILTER STATUS
7. EXISTING 7' DEEP WOOD ENCLOSURE TO BE REMOVED & REINSTALLED AS NECESSARY TO ACCESS THE EXISTING HOT WATER SUPPLY & RETURN PIPING.
8. LINE OF EXISTING UNIT VENTILATOR RATED FOR 750 CFM TO BE DISCONNECTED, REMOVED, AND DISPOSED OF IN A LEGAL MANNER.
9. LINE OF EXISTING UNIT VENTILATOR RATED FOR 1,000 TO BE DISCONNECTED, REMOVED, AND DISPOSED OF IN A LEGAL MANNER.
10. LINE OF NEW UNIT VENTILATOR UV2, RATED FOR 750 CFM. PROVIDE THE FOLLOWING INPUT/ OUTPUT POINTS TO EXISTING EMS:
    - FAN START/STOP/STATUS
    - OUTSIDE, RETURN & MIXED AIR TEMPERATURES
    - OUTSIDE AIR MOTORIZED DAMPER
    - DISCHARGE AIR TEMPERATURE
    - DISCHARGE AIR PRESSURE
    - HEATING COIL VALVE
    - FILTER STATUS
    - DEMAND VENTILATION CONTROLLER
    - SPACE TEMPERATURE VIA INTERLOCK WITH FINNED-TUBE RADIATION CONTROL VALVE
11. LINE OF NEW UNIT VENTILATOR UV3, RATED FOR 1,000 CFM. PROVIDE THE FOLLOWING INPUT/ OUTPUT POINTS TO EXISTING EMS:
    - FAN START/STOP/STATUS
    - OUTSIDE, RETURN & MIXED AIR TEMPERATURES
    - OUTSIDE AIR MOTORIZED DAMPER
    - DISCHARGE AIR TEMPERATURE
    - DISCHARGE AIR PRESSURE
    - HEATING COIL VALVE
    - FILTER STATUS
    - SPACE TEMPERATURE VIA INTERLOCK WITH FINNED-TUBE RADIATION CONTROL VALVE
12. LINE OF NEW UNIT VENTILATOR UV4, RATED FOR 1,250 CFM. PROVIDE THE FOLLOWING INPUT/ OUTPUT POINTS TO EXISTING EMS:
    - FAN START/STOP/STATUS
    - OUTSIDE, RETURN & MIXED AIR TEMPERATURES
    - OUTSIDE AIR MOTORIZED DAMPER
    - DISCHARGE AIR TEMPERATURE
    - DISCHARGE AIR PRESSURE
    - HEATING COIL VALVE
    - FILTER STATUS
    - SPACE TEMPERATURE VIA INTERLOCK WITH FINNED-TUBE RADIATION CONTROL VALVE
13. LINE OF THE NEW UNIT VENTILATOR OUTSIDE AIR LOUVER/BOX. DISCONNECT, REMOVE AND DISPOSE OF IN A LEGAL MANNER OF THE EXISTING LOUVER/BOX. CAREFULLY CUT THE EXISTING WALL AS NECESSARY TO ACCOMMODATE THE NEW LOUVER/BOX. SEAL WATERTIGHT THE NEW LOUVER/BOX TO THE NEW WALL OPENING.
14. LINE OF EXISTING HOT WATER SUPPLY & RETURN RISERS FROM TUNNEL BELOW. ALL NEW UNIT VENTILATORS WILL REQUIRE TO BE ALIGNED WITH THE EXISTING UNIT VENTILATORS RIGHT HAND SIDE, SUCH THAT THE NEW UNITS PIPING COMPARTMENT WILL FALL AT PRESENT LOCATION. THE EXISTING FINNED-TUBE RADIATION ENCLOSURES WILL REQUIRE TO BE CUT/ADJUSTED, AS NECESSARY TO WORK WITH THE NEW UNIT VENTILATORS. ALL EXISTING BOOKCASES OR BUILT-IN CABINETRY WILL REQUIRE TO BE REMOVED AND RELOCATED AS NECESSARY TO PROVIDE THIS WORK.
15. EXISTING CEILING EXHAUST FAN TO REMAIN.
16. EXISTING WALL MOUNTED PROPELLER EXHAUST FAN TO REMAIN.
17. EXISTING FLOOR MOUNTED UTILITY EXHAUST FAN TO REMAIN UNDER THIS PROJECT.



KEY PLAN

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ROSE ·TISO & CO. LLC.
ARCHITECTS ● SURVEYORS ● ENGINEERS
WWW.ROSETISO.COM
35 BRENTWOOD AVENUE, FAIRFIELD, CT 06825
TEL: (203)610-6262 ● FAX: (203)610-6404

MUSCO ENGINEERING ASSOCIATES
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West Haven, CT 06516
(203) 932-1901 FAX (203) 931-1550
www.muscoengineering.com

DUMITRU T. PETRESCU, P.E.
MECHANICAL ENGINEER

REVISIONS			
NO.	BY	DATE	DESCRIPTION

PROJECT TITLE

TURKEY HILL SCHOOL
441 TURKEY HILL ROAD
ORANGE, CT
STATE PROJECT NO: TMP-107-GMZN

BOILERS & UNIT VENT REPLACEMENTS

Prepared For:

TOWN OF ORANGE, CT
637 ORANGE CENTER ROAD
ORANGE, CT 06477

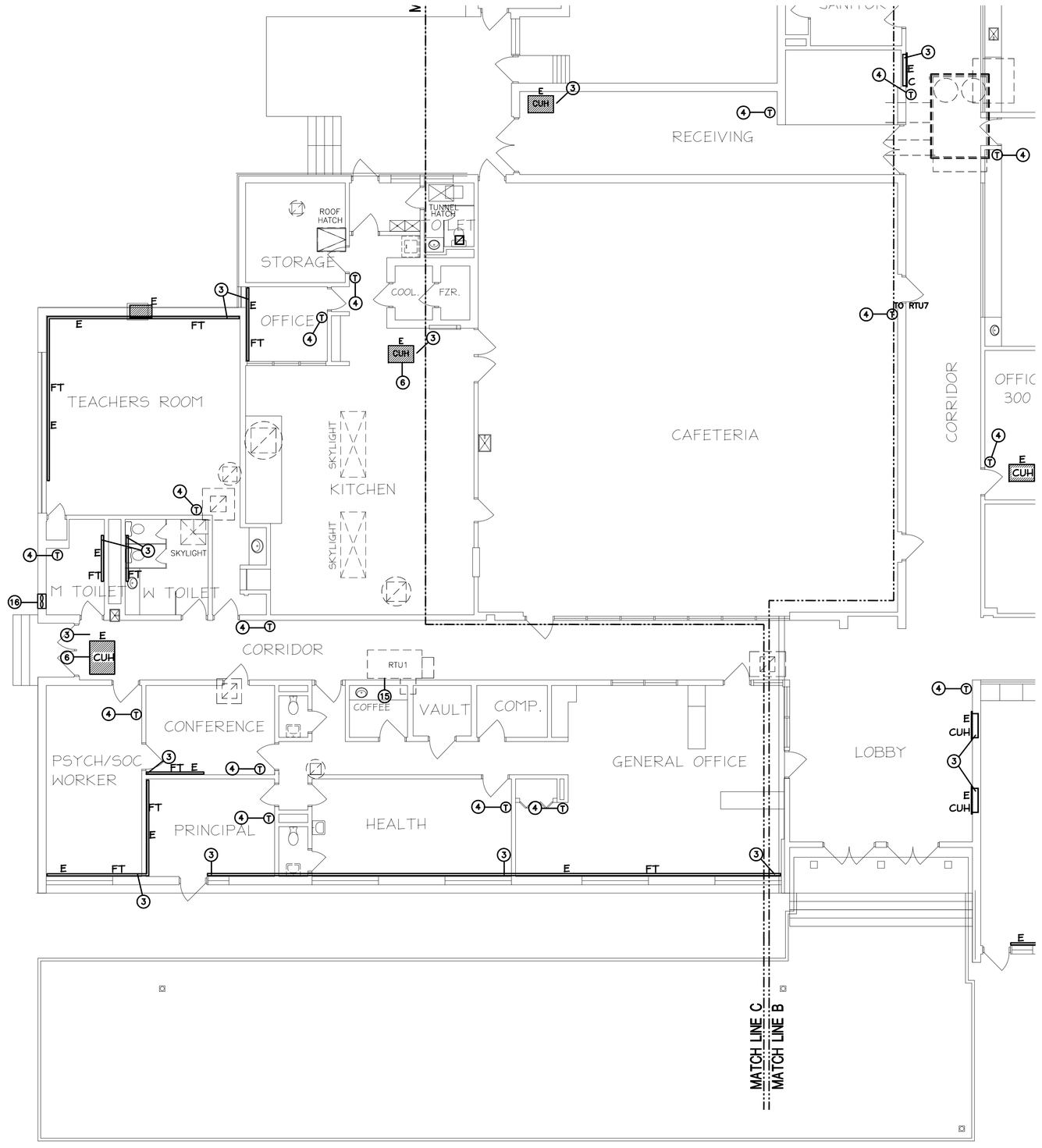
SHEET TITLE

PART FLOOR PLAN MECHANICAL

DESIGNED BY: DTP	SCALE: AS NOTED
DRAWN BY: CP	DATE: 6-17-13
CHECKED BY: DTP	PROJECT NUMBER: 1605
CAD FILE: M103.DWG	

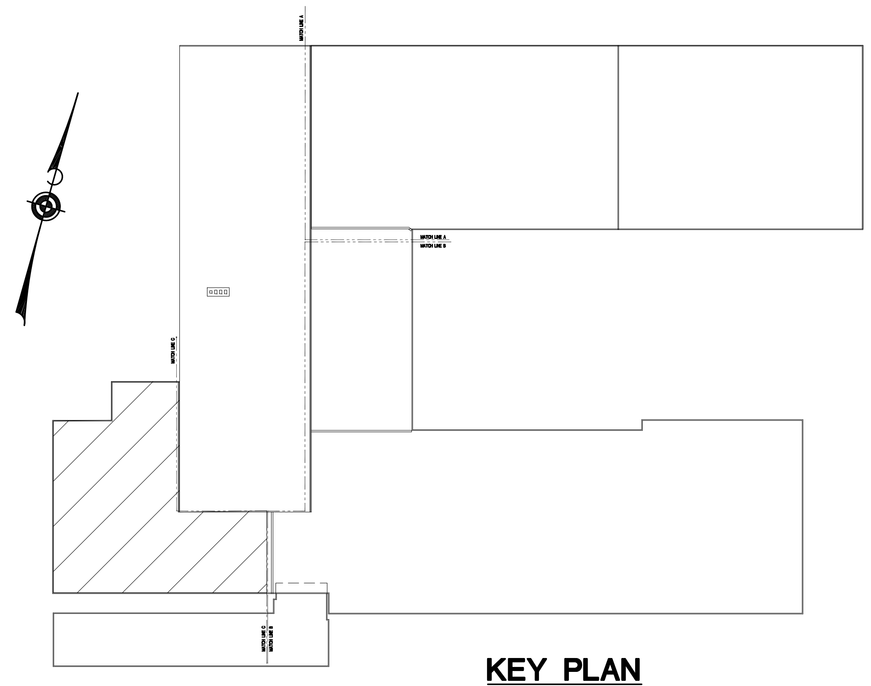
SEAL	SHEET NUMBER
	TH-M103

MEA# 130417-1



PART FLOOR PLAN - MECHANICAL

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



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REVISIONS			
NO.	BY	DATE	DESCRIPTION

PROJECT TITLE

TURKEY HILL SCHOOL
441 TURKEY HILL ROAD
ORANGE, CT
STATE PROJECT NO:
TMP-107-GMZN

BOILERS & UNIT VENT REPLACEMENTS

ORANGE CONNECTICUT 1822 TOWN SEAL

Prepared For:

TOWN OF ORANGE, CT
637 ORANGE CENTER ROAD
ORANGE, CT 06477

SHEET TITLE

PART FLOOR PLAN MECHANICAL

DESIGNED BY: DTP	SCALE: AS NOTED
DRAWN BY: CP	DATE: 6-17-13
CHECKED BY: DTP	PROJECT NUMBER: 1605
CAD FILE: M104.DWG	

SEAL	SHEET NUMBER
	TH-M104

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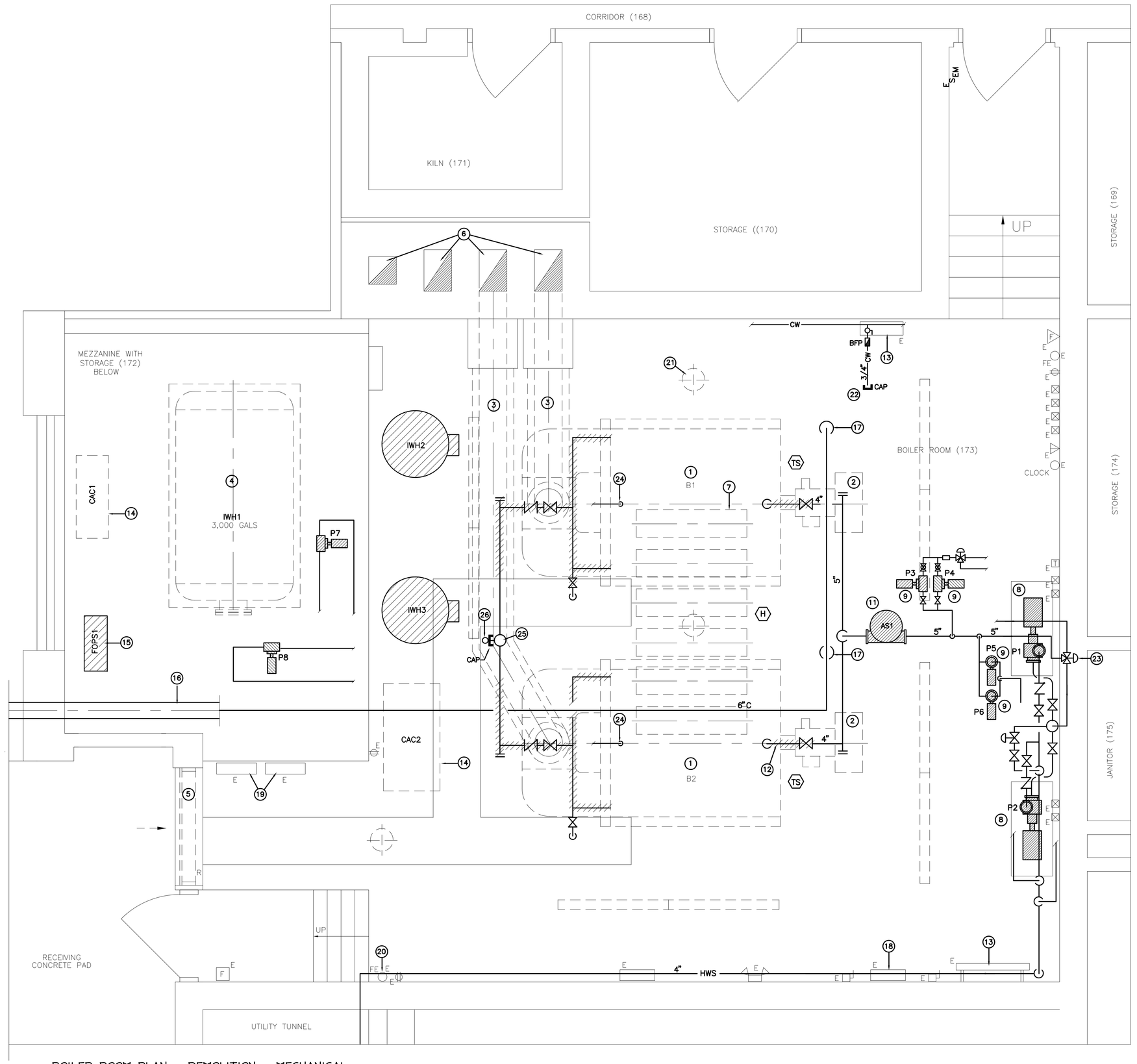


BOILER ROOM PLAN - DEMOLITION - MECHANICAL
SCALE: 1/2"=1'-0"

EXISTING EQUIPMENT

BOILERS

B1 & 2 BOILER, CAST-IRON, OIL-FIRED, HOT WATER TYPE, "H. B. SMITH" MILLS 450 SERIES, SIZE 450-W-12, RATED FOR 72.6 BHP OR 2,433.6 MBH @ 33.52 MBH/BHP, 2,428 MBH GROSS OUTPUT & 2,111.3 MBH NET HEATING OUTPUT @ 20.1 GPH FIRING RATE, FURNISHED WITH "POWER FLAME" BURNER MODEL C2-GB, RATED FOR 5.5-22.0 GPH RANGE, BUT CURRENTLY PROVIDED WITH 12.0 GPH OIL NOZZLE, TO BE REMOVED.

NOTES:

1. - EACH BOILER CURRENTLY PROVIDES ONLY 1,260.5 MBH NET HEATING OUTPUT, SINCE ITS OIL NOZZLE HAS BEEN DOWN SIZED TO 12.0 GPH FROM THE ORIGINAL 20.1 GPH.
2. - THE PRESENT BOILERS CONTAIN ASBESTOS MATERIALS IN THEIR FIRING CHAMBERS AND IN BETWEEN THEIR CAST-IRON SECTIONS, WHICH WILL REQUIRE TO BE LEGALLY ABATED, PRIOR TO THE INSTALLATION.

HEATING PUMPS

P1 & 2 PUMP, BASE MOUNTED TYPE, MAKE, MODEL, SIZE & CHARACTERISTICS N/A, TO REMAIN.
P3 THRU PUMP, IN-LINE TYPE, MAKE, MODEL, SIZE & CHARACTERISTICS N/A, TO REMAIN.
P8

INDIRECT WATER HEATERS

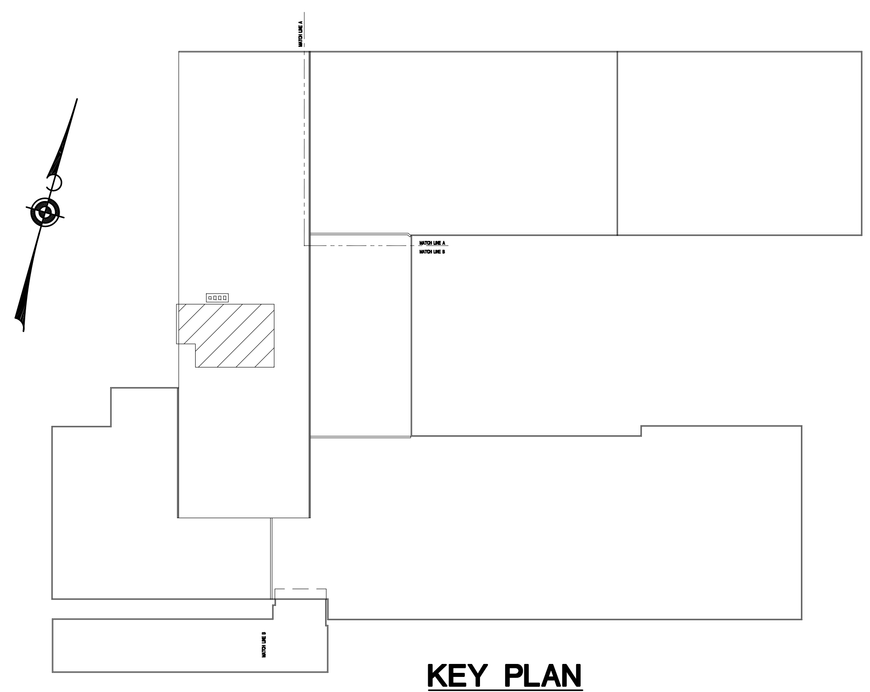
IWH2 & 3 INDIRECT WATER HEATER, "TURBOMAX" MODEL 109, RATED FOR 119 GALLONS CAPACITY, 483 GPH RECOVERY RATE @ 140 F CONTINUOUS FLOW USING 400.0 MBH NET HEATING BOILER CAPACITY USING 2" HWS & R CONNECTIONS, 29"ø x 72-3/4"H, TO REMAIN.

DEMOLITION NOTES:

1. EXISTING CAST-IRON, HOT WATER, OIL-FIRED BOILER TO BE DRAINED, DISCONNECTED, AND REMOVED FROM THE BOILER ROOM TO A LOCATION APPROVED BY THE OWNER'S REPRESENTATIVE, ONLY AFTER THE ASBESTOS CONTENT MATERIALS HAVE BEEN REMOVED BY OTHERS IN A LEGAL MANNER. THE OWNER'S REPRESENTATIVE WILL BE RESPONSIBLE FOR DISPOSAL OF THE BOILER'S SECTIONS AND ALL OTHER METAL PARTS.
2. EXISTING OIL-FIRED BURNERS SHALL BE SAFELY REMOVED AND TURNED OVER TO THE OWNER'S REPRESENTATIVE.
3. EXISTING BOILERS VENTS AND BREACHING SHALL BE DISCONNECTED, REMOVED AND DISPOSED OF IN A LEGAL MANNER, ONLY AFTER THEIR INSULATION IS CLEARED OF ANY ASBESTOS CONTENT MATERIALS.
4. EXISTING INDIRECT WATER HEATER NO LONGER USED SHALL BE REMOVED AND DISPOSED OF IN A LEGAL MANNER, ONLY AFTER ITS INSULATION IS CLEARED OF ANY ASBESTOS CONTENT MATERIALS.
5. EXISTING 4'-0"W x 6'-4" H x 4"DEEP COMBUSTION AIR LOUVER SHALL BE REMOVED AND DISPOSED OF IN A LEGAL MANNER.
6. EXISTING CHIMNEY'S FLUES SHALL BE INSPECTED AND THOROUGHLY CLEANED BY A CERTIFIED CHIMNEY SWEEPER ORGANIZATION, WHICH SHALL PROVIDE A DETAIL REPORT WITH REGARDS TO THE CONDITION OF THESE FLUES.
7. EXISTING HORIZONTAL COMPRESSION TYPE EXPANSION TANK MOUNTED HIGH ON STRUCTURAL SUPPORTS TO BE DISCONNECTED, REMOVED AND DISPOSED OF IN A LEGAL MANNER.
8. EXISTING BASE MOUNTED HEATING PUMPS (ONE SPARE) TO REMAIN.
9. EXISTING IN-LINE HEATING PUMPS SERVING HEATING ZONES TO REMAIN.
10. EXISTING IN-LINE HEATING PUMPS SERVING IWH2 & 3 TO REMAIN.
11. EXISTING AIR SEPARATOR TO REMAIN.
12. EXISTING PIPING, FITTINGS, VALVES, SUPPORTS, ETC., TO BE DISCONNECTED, REMOVED AND DISPOSED OF IN LEGAL MANNER (TYP.).
13. EXISTING "JOHNSON CONTROLS" PNEUMATIC CONTROL PANEL. CHECK IF IS STILL ACTIVE, IF NOT, DISCONNECT, REMOVE AND DISPOSE OF IN A LEGAL MANNER.
14. EXISTING CONTROL AIR COMPRESSOR TO BE DISCONNECTED, REMOVED AND DISPOSED OF IN A LEGAL MANNER.
15. EXISTING "WEBSTER" FUEL OIL PUMP SET, DUPLEX TYPE, TO REMAIN.
16. EXISTING 6" CONTAINMENT PIPING INCLUDING FOS & R PIPING AND CONTROLS WIRING TO REMAIN. NOTE, THAT THIS CONTAINMENT PIPING EXTEND OUTSIDE TO THE EXISTING 4,000 GALLONS ABOVE GROUND FUEL OIL STORAGE TANK. THE EXISTING FOPS1 CONNECTS ALSO TO THIS CONTAINMENT PIPING. THE EXACT ARRANGEMENT OF PIPING & CONTROL WIRING/CONDUITS INSIDE THIS CONTAINMENT PIPING IS NOT KNOWN. THIS CONTRACTOR SHALL FULLY INVESTIGATE THE PRESENT ARRANGEMENT AS NECESSARY FOR EXPANSION AND REPORT IN WRITING TO THE PROJECT ENGINEER.
17. EXISTING 6" CONTAINMENT PIPING DROP TO REMAIN. MODIFY PIPING BELOW THE CONTAINMENT PIPING AS NECESSARY TO AVOID CONFLICT WITH NEW EQUIPMENT. CLOSELY COORDINATE WITH THE NEW EQUIPMENT LOCATIONS.
18. EXISTING "PAL-AT" FUEL OIL LEAK DETECTION SYSTEM CONTROL PANEL TO REMAIN.
19. EXISTING ELECTRICAL PANELBOARD TO REMAIN.
20. EXISTING FIRE EXTINGUISHER TO REMAIN (TYP)
21. EXISTING SUSPENDED ROUND LIGHTING FIXTURES TO REMAIN (TYP)
22. EXISTING COLD WATER MAKE-UP PIPING TO EXISTING EXPANSION TANKS, BOILERS, PROBES/LOW WATER CUTOUTS, ETC., SHALL BE DISCONNECTED, REMOVED AND DISPOSED OF IN A LEGAL MANNER.
23. EXISTING PNEUMATIC CONTROL VALVE, 2-WAY & 3-WAY MODULATING TYPE, TO BE DISCONNECTED, REMOVED & DISPOSED OF IN A LEGAL MANNER. NOTE, THAT ALL EXISTING PNEUMATIC CONTROL VALVES LOCATED WITHIN THIS BOILER ROOM REQUIRE TO BE REPLACED. THIS CONTRACTOR SHALL REQUIRE TO FULLY INVESTIGATE THE PRESENT CONDITIONS, GET AN ACCURATE NUMBER OF ALL EXISTING CONTROL VALVES LOCATIONS, MODELS, TYPES AND CHARACTERISTICS, PRIOR TO STARTING THIS WORK (TYP).
24. REMOVE AND TEMPORARILY CAP THE EXISTING 2" HWS SERVING THE IWH2 & 3.
25. EXISTING 5" HWR COMMON MAIN PIPING TO REMAIN. NOTE, THAT THE EXISTING 3" HWR FROM IWH2 & 3 CONNECTS INTO THIS 5" HWR MAIN PIPING.
26. ISOLATE THE EXISTING COMMON 3" HWR SERVING THE IWH2 & 3 FROM THE EXISTING 5" HWR MAIN PIPING, AND CAP THE CONNECTION ON THE MAIN RISER AS SHOWN.

LEGEND & ABBREVIATIONS

	EXISTING EQUIPMENT/PIPING TO REMAIN	ER	EXISTING TO BE RELOCATED	OCF	OIL CARTRIDGE FILTER
	EXISTING EQUIPMENT/PIPING TO BE REMOVED	R	EXISTING TO BE REMOVED	T	THERMOSTAT
	NEW EQUIPMENT/PIPING		GATE VALVE	TE	TEMP. SENSOR/CONTROLLER WITH WELL
B#	BOILER		BALL VALVE	PE	PRESS. SENSOR/CONTROLLER WITH WELL
P#	HEATING PUMP		CHECK VALVE	S_S	SERVICE SWITCH
FOPS#	FUEL OIL PUMP SET		PLUG TYPE GATE VALVE	S_{EM}	EMERGENCY SHUTDOWN SWITCH
CAC#	CONTROL AIR COMPRESSOR		BUTTERFLY VALVE	LWCO	LOW WATER CUT OUT CONTROLLER
BD	BAROMETRIC DAMPER WITH THERMAL LINK SWITCHES		PRESSURE REDUCING VALVE	T	TEMPERATURE GAUGE
MD	MOTORIZED DAMPER		BACKFLOW PREVENTER	TS	THERMAL SWITCH, SET AT 165 F
DWH#	DOMESTIC WATER HEATER		FLOW CONTROL VALVE	H	HEAT DETECTOR
IWH#	INDIRECT WATER HEATER		TWO-WAY CONTROL VALVE	TC#	TIME CLOCK
CW	COLD WATER PIPING		THREE-WAY CONTROL VALVE		OUTLET TO SUIT EQUIPMENT
HW	HOT WATER PIPING (DOMESTIC)		STRAINER		STARTER
HWS/HWR	HOT WATER SUPPLY/RETURN PIPING		RELIEF VALVE		DISCONNECT SWITCH
G	GAS PIPING		BALANCING VALVE		COMB. STARTER/DISCONNECT SWITCH
AS#	AIR SEPARATOR		FUSOMATIC OIL VALVE		CONNECT TO EXISTING
ET#	EXPANSION TANK				
FOS/FOR	FUEL OIL SUPPLY/RETURN PIPING				
FT#	FLUE TEMPERATURE SENSOR				
CMD#	CARBON MONOXIDE DETECTOR				
BFP	BACKFLOW PREVENTER				
E	EXISTING TO REMAIN				



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REVISIONS			
NO.	BY	DATE	DESCRIPTION

PROJECT TITLE

TURKEY HILL SCHOOL
441 TURKEY HILL ROAD
ORANGE, CT
STATE PROJECT NO:
TMP-107-GMZN

BOILERS & UNIT VENT. REPLACEMENTS

ORANGE CONNECTICUT 1822 TOWN SEAL

Prepared For:

TOWN OF ORANGE, CT
637 ORANGE CENTER ROAD
ORANGE, CT 06477

SHEET TITLE

BOILER ROOM PLAN DEMOLITION MECHANICAL

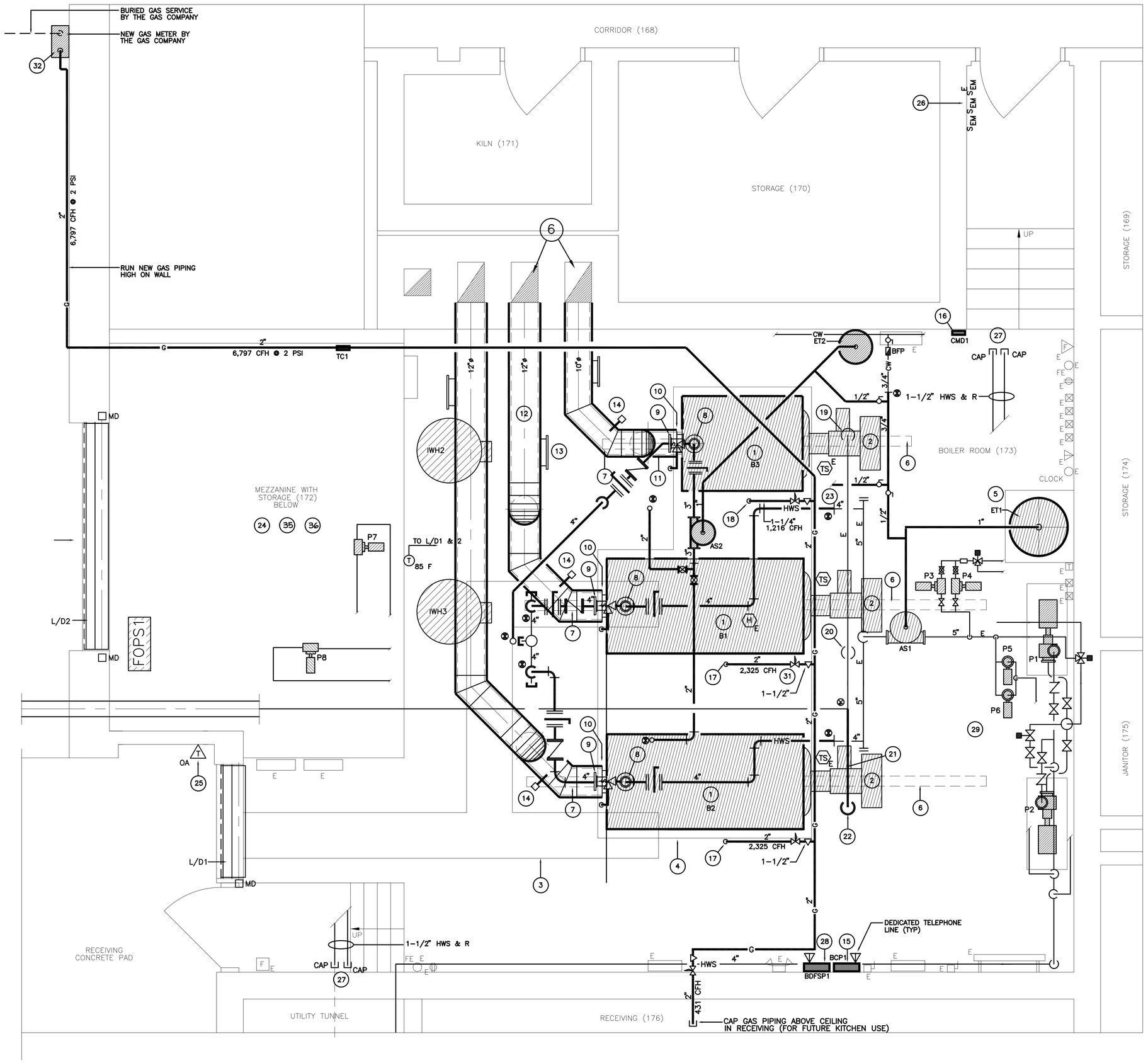
DESIGNED BY: DTP	SCALE: AS NOTED
DRAWN BY: CP/DTP	DATE: 6-17-13
CHECKED BY: DTP	PROJECT NUMBER: 1605
CAD FILE: M105.DWG	

SEAL

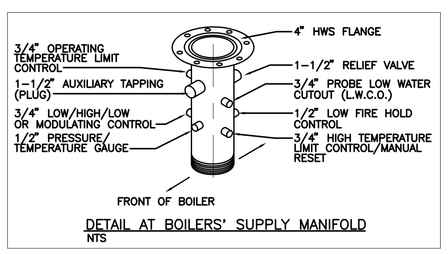
SHEET NUMBER

TH-M105

MEA# 130417-1



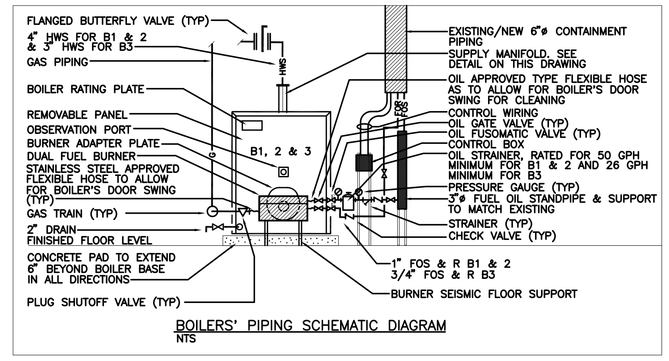
BOILER ROOM FLOOR PLAN - MECHANICAL
SCALE: 1/2"=1'-0"



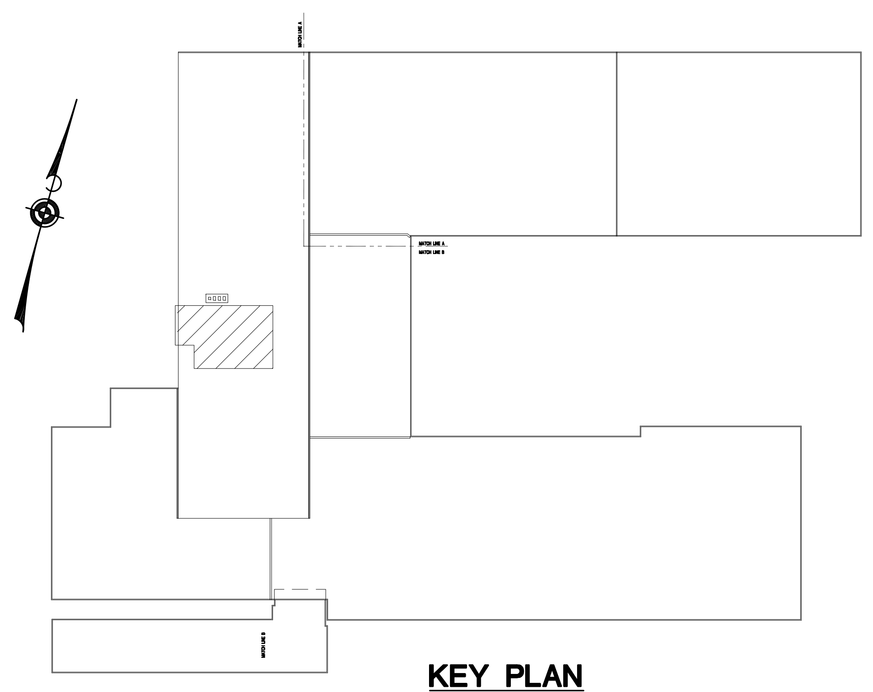
DETAIL AT BOILERS' SUPPLY MANIFOLD
NTS

CONSTRUCTION NOTES:

1. NEW CAST-IRON, HOT WATER BOILER.
2. NEW DUAL-FUEL BURNER.
3. LINE OF EXISTING IN-FLOOR DRAIN CHANNEL TO BE RE-USED.
4. LINE OF NEW 5" THICK CONCRETE PAD. IN-FILL AFFECTED AREAS OF THE EXISTING IN-FLOOR DRAIN CHANNEL AS REQUIRED.
5. LINE OF NEW EXPANSION TANK ET1 ON CONCRETE PAD.
6. REQUIRED CLEARANCE FOR FLUE BAFFLE 82" FOR NEW BOILERS B1 & 2, AND 48" FOR B3
7. REQUIRED CLEARANCE FOR MODULAR RETURN WATER MIXING TUBE 36" FOR NEW BOILERS BOILERS B1, 2 & 3.
8. BOILER 4" SUPPLY MANIFOLD - REFER TO DETAIL FOR TAPPINGS.
9. BOILER 4" RETURN MANIFOLD - REFER TO DETAIL FOR TAPPINGS.
10. BOILERS 12"ø VENT CONNECTION FOR NEW BOILERS B1 & 2, AND 10"ø FOR B3.
11. NEW BOILER VENT WITH BAROMETRIC DAMPER WITH THERMAL SPILL SWITCH (TYP).
12. NEW BOILER'S BREECHING (TYP).
13. NEW BOILER'S BREECHING CLEANOUT (TYP).
14. NEW BOILER'S FLUE TEMPERATURE INDICATOR/ CONTROLLER FT1, 2 & 3.
15. NEW BOILERS CONTROL CONTROL PANEL BCP1
16. NEW CARBON MONOXIDE DETECTOR WITH INTEGRATED ALARM HORN WITH BUILT-IN TROUBLE/POWER SUPERVISION RELAY. REFER TO SPECS AND SEQUENCE OF OPERATION.
17. NEW 2"G DN TO GE/IRI APPROVED GAS TRAIN (2,325 CFH).
18. NEW 1-1/4"G DN TO APPROVED GE/IRI GAS TRAIN (1,216 CFH).
19. MODIFY THE EXISTING FOS & R PIPING BELOW THE EXISTING 6" CONTAINMENT PIPING AS AS NEEDED TO AVOID CONFLICT WITH NEW BOILER'S B3 BURNER. MAKE THE FINAL FOS & R CONNECTIONS TO THIS BURNER WITH FLEXIBLE APPROVED HOSES & CONDUITS, AS TO ALLOW THE BOILER'S DOOR OPENING FOR CLEANING.
20. MODIFY THE EXISTING FOS & R PIPING BELOW THE EXISTING 6" CONTAINMENT PIPING AS AS NEEDED TO AVOID CONFLICT WITH NEW BOILER'S B2 BURNER. MAKE THE FINAL FOS & R CONNECTIONS TO THIS BURNER WITH FLEXIBLE APPROVED HOSES & CONDUITS, AS TO ALLOW THE BOILER'S DOOR OPENING FOR CLEANING.
21. NEW 6" CONTAINMENT PIPING CONNECTED TO EXISTING.
22. NEW 6" CONTAINMENT PIPING DROP TO SERVE THE NEW BOILER'S BURNER B2. THIS DROP SHALL MATH THE EXISTING (2) DROPS. PROVIDE 1" FOS & R PIPING, CONTROLS WIRING/CONDUITS, CONTROL BOX ON UNISTRUT, ETC., AS REQUIRED FOR A COMPLETE OPERATIONAL INSTALLATION. MAKE THE FINAL CONNECTIONS TO THIS BURNER WITH FLEXIBLE APPROVED HOSES & CONDUITS AS TO ALLOW THE BOILER'S DOOR OPENING FOR CLEANING.
23. CONNECT NEW 1/2"CW TO THE NEW BOILERS PROBE/LOW WATER CUTOUTS (LWCO), AS REQUIRED FOR A NEW OPERATIONAL INSTALLATION.
24. NEW ELECTRIC/ELECTRONIC 2-WAY & 3-WAY CONTROL VALVE TO REPLACE THE EXISTING PNEUMATIC CONTROL THROUGHOUT THIS BOILER ROOM.
25. LOCATION OF NEW OUTSIDE AIR TEMPERATURE SENSOR TO BE USED FOR THE BOILERS' HWS TEMPERATURE RESET CONTROL VIA BCP1.
26. LOCATION OF THE EXISTING AND NEW BOILERS' EMERGENCY SHUTDOWN SWITCHES. WIRE EACH BOILER SERVICE SWITCH IN SERIES WITH A THERMAL SWITCH AND AN EMERGENCY SHUTDOWN SWITCH TO BE PERFORMED BY THE ELECTRICAL CONTRACTOR.
27. CAP EXISTING 1-1/2" HWS & R PIPING SERVING THE AIR HANDLING UNITS AHU2 & 3 LOCATED AT MEZZANINE LEVEL
28. BOILERS DUAL FUEL SWITCHOVER PANEL (BDFSP1) TO INCLUDE ALL NECESSARY SWITCHES, RELAYS, SAFETY CONTROLS, ETC., AS TO SAFELY ENABLE AUTOMATIC SWITCHING FROM NATURAL GAS TO FUEL OIL #2 AND VICE VERSA OF THE BOILERS DUAL FUEL BURNERS, 120V/1 PH, UL LISTED.
29. ALL EXISTING VALVES LOCATED IN THE BOILER ROOM SHALL BE REPLACED WITH NEW VALVES OF TYPE AND SIZE TO MATCH EXISTING.
30. NOT USED.
31. NEW GAS PRESSURE REGULATOR FROM 2 PSI DOWN TO 6.5" W.C. GAS PRESSURE. VENT FULL SIZE 3 FEET ABOVE ROOF LEVEL AND TERMINATE WITH VENT CAP. USE APPROVED PITCH POCKET AT ROOF PENETRATION (TYP).
32. NEW 2" GAS PIPING @ 2 PSI DOWN TO GAS METER. COORDINATE THE INSTALLATION OF THE GAS METER WITH THE GAS COMPANY. PROVIDE A BUILDING'S MAIN GAS PLUG SHUTOFF VALVE ON THE GAS METER RISER.
33. NEW GAS METER LOCATION BY THE GAS COMPANY.
34. ALL GAS PRESSURE REGULATORS SHALL BE VENTED FULL SIZE ABOVE THE ROOF LEVEL. TERMINATE THE GAS VENTS 2'-0" ABOVE THE ROOF LEVEL WITH VENT CAPS FURNISHED WITH INSECT SCREENS. ALL ROOF PENETRATIONS SHALL BE PERFORMED IN APPROVED PITCH POCKETS. ALL VENT PIPING SHALL BE COPPER PIPING TYPE L WITH MECHANICAL JOINTS.
35. ALL ORIGINAL VALVES LOCATED WITHIN THE BOILER ROOM SHALL BE REPLACED WITH NEW VALVES. ALL EXISTING VALVES TO BE REPLACED AND THE NEW VALVES 2" AND UNDER SHALL BE BALL TYPE, AND ALL VALVES 2-1/2" AND LARGER SHALL BE BUTTERFLY TYPE, UNLESS OTHERWISE NOTED.
36. SINCE, THIS SCHOOL WASTE/SANITARY PIPING DISCHARGES INTO A SEPTIC SYSTEM, ALL PROPOSED CHEMICALS FOR BOILER CLEANING AND WATER TREATMENT WILL REQUIRE TO BE ENVIRONMENTALLY FRIENDLY AND APPROVED BY THE ORANGE SCHOOL DISTRICT, PRIOR TO STARTING THIS WORK. THIS CONTRACTOR SHALL CONTACT "AZURE WATER SERVICES, LLC" AT 203-932-3655 OR OTHER TOWN APPROVED MANUFACTURER AND SUPPLIER OF ENVIRONMENTALLY-RESPONSIBLE PRODUCTS, TO BE USED FOR THIS PROJECT. FILTER BAGS SHALL BE USED TO CAPTURE ANY SOLIDS, PRIOR TO DISCHARGING INTO SEPTIC SYSTEM.



BOILERS' PIPING SCHEMATIC DIAGRAM
NTS



KEY PLAN

GENERAL NOTES

1. - THE INFORMATION SHOWN ON THIS DRAWING IS BASED UPON THE INFORMATION SHOWN ON THE BUILDING PLANS AND LIMITED FIELD INVESTIGATIONS AND MAY OR MAY NOT REFLECT ACTUAL FIELD CONDITIONS. THIS CONTRACTOR SHALL VERIFY THE INFORMATION INDICATED ON THIS DRAWING AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO SUBMITTING HIS BID.
2. - THIS CONTRACTOR IS REQUIRED TO PERFORM THIS WORK IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, ORDINANCES, ETC., AND TO MEET THE REQUIREMENTS OF THE LOCAL AUTHORITIES HAVING JURISDICTION AND OWNER, WHETHER OR NOT SPECIFICALLY INDICATED OR SPECIFIED ON THIS DRAWING.
3. - ALL PENETRATIONS THRU WALLS SHALL BE FIRE STOPPED WITH "THOMAS AND BETTS" -- FLAMESAFE, TYPE FST FIRESTOP COMPOUND OR APPROVED EQUIVALENT, CONFORMING TO ASME E814/UL1479. REFER TO DWG TH-EG101 FOR LOCATION OF FIRE RATED WALLS.

ROSE • TISO & CO. LLC.
ARCHITECTS • SURVEYORS • ENGINEERS
WWW.ROSETISO.COM
35 BRENTWOOD AVENUE, FAIRFIELD, CT 06825
TEL: (203)610-6262 • FAX: (203)610-6404

MUSCO ENGINEERING ASSOCIATES
375 Morgan Lane, Unit 307
West Haven, CT 06516
(203) 932-1901 FAX (203) 931-1550
www.muscoengineering.com

DUMITRU T. PETRESCU, P.E.
MECHANICAL ENGINEER

REVISIONS			
NO.	BY	DATE	DESCRIPTION

PROJECT TITLE

TURKEY HILL SCHOOL
441 TURKEY HILL ROAD
ORANGE, CT
STATE PROJECT NO:
TMP-107-GMZN

BOILERS & UNIT VENT. REPLACEMENTS

Prepared For:

TOWN OF ORANGE, CT
637 ORANGE CENTER ROAD
ORANGE, CT 06477

SHEET TITLE

BOILER ROOM PLAN MECHANICAL

DESIGNED BY: DTP	SCALE: AS NOTED
DRAWN BY: CP/DTP	DATE: 6-17-13
CHECKED BY: DTP	PROJECT NUMBER: 1605
CAD FILE: M106.DWG	

SEAL	SHEET NUMBER
	TH-M106

MEA# 130417-1

NEW EQUIPMENT

BOILERS

B1 & 2 — BOILER, HIGH EFFICIENCY CAST IRON MULTI-PASS COMMERCIAL DUAL FUEL-FIRED TYPE, EQUAL TO "BURNHAM", MODEL MPC14, RATED FOR 58.3 BOILER HP, 2,325 MBH NATURAL GAS AND 2,324 MBH FUEL OIL #2 WITH 16.6 GPH BURNER INPUT, 1,697 MBH NET I=B=R HEATING OUTPUT, 85.8% NATURAL AND 88.5% FUEL OIL #2 COMBUSTION EFFICIENCY, 237.2 SQFT HEATING SURFACE, 182 GALLONS WATER CONTENT, 6,073 LBS SHIPPING WEIGHT AND 10"ø VENT DIAMETER, FURNISHED WITH SAFETY AND OPERATION CONTROLS, PROVIDED WITH DUAL FUEL-FIRED BURNER, EQUAL TO "POWER FLAME", MODEL C2-GO-20A, RATED FOR 2,325 MBH GAS INPUT & 16.6 GPH FUEL OIL #2 INPUT, 1 HP BLOWER MOTOR @ 208V/1 PH, 120V/1 PH CONTROL CIRCUIT, 2" STANDARD GE/IRI APPROVED GAS TRAIN, 6.5" W.C. MINIMUM GAS PRESSURE, UL LISTED. REFER TO SECTION 235011 FOR ADDITIONAL INFO.

B3 — BOILER, HIGH EFFICIENCY CAST IRON MULTI-PASS COMMERCIAL DUAL FIRED TYPE, EQUAL TO "BURNHAM", MODEL MPC7, RATED FOR 30.6 BOILER HP, 1,216 MBH NATURAL GAS & 1,218 MBH FUEL OIL #2, 8.7 GPH BURNER INPUT, 890.0 MBH I=B=R NET HEATING OUTPUT, 86.0 NATURAL GAS & 88.7% FUEL OIL #2 COMBUSTION EFFICIENCY, 135.8 SQFT HEATING SURFACE, 108 GALLONS WATER CONTENT, 3,733 LBS SHIPPING WEIGHT AND 8"ø VENT DIAMETER, FURNISHED WITH SAFETY AND OPERATION CONTROLS, PROVIDED WITH DUAL FIRED BURNER, EQUAL TO "POWER FLAME", MODEL C1-GO-12, RATED FOR 1,216 MBH NATURAL GAS & 8.7 GPH FUEL OIL #2 INPUT, 1/2 HP BLOWER MOTOR @ 120V/1 PH, 120V/1 PH CONTROL CIRCUIT, 1-1/4" STANDARD GE/IRI GAS APPROVED GAS TRAIN, 6.5" MINIMUM GAS PRESSURE, UL LISTED. REFER TO SECTION 235011 FOR ADDITIONAL INFO.

NOTES:

1. – PROVIDE 5" THICK NEW CONCRETE PAD AS INDICATED ON DRAWINGS. THIS CONCRETE PAD SHALL EXTEND INTO EXISTING IN-FLOOR CHANNEL AS REQUIRED.
2. – FURNISH BOILERS WITH KNOCKDOWN SECTIONS FOR FIELD INSTALLATION AND TESTING. USE EXISTING DOOR AND COMBUSTION AIR LOUVER FOR RIGGING.
3. – INSTALL BOILERS ON THE NEW COMMON CONCRETE PAD AND ATTACH BOILERS SEISMICALLY TO THIS PAD. BEFORE INSTALLATION CAN PROCEED, FURNISH STRUCTURAL SHOP DRAWINGS FOR THE BOILERS SEISMIC ATTACHMENTS TO CONCRETE PAD FOR REVIEW BY THE PROJECT ENGINEER. THESE SHOP DRAWINGS SHALL INCLUDE DETAILED CONSTRUCTION DRAWINGS, STAMPED & SIGNED BY A LICENSED STRUCTURAL ENGINEER IN THE STATE OF CONNECTICUT. THESE CALCULATIONS SHALL ACCOUNT FOR MANUFACTURER'S RECOMMENDATIONS WITH REGARDS TO BOILERS' SECTIONS EXPANSION AND CONTRACTION REQUIREMENTS.
4. – PROVIDE BURNERS MOUNTING PLATES, BOILER FITTINGS, AND OTHER PARTS, SUCH AS REQUIRED FOR A COMPLETE OPERATIONAL INSTALLATION. SEISMICALLY SUPPORT BURNERS WITH SUPPORTS ANCHORED TO EXISTING CONCRETE SLAB.
5. – ERECT, INSTALL AND TEST BOILERS IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, RECOMMENDATIONS AND WARRANTY.
6. – CONNECT THE NEW BOILERS TO EXISTING AND NEW UTILITIES SUCH AS: HOT WATER SUPPLY AND RETURN, COLD WATER MAKE-UP, GAS AND FUEL OIL PIPING, CONTROLS, ETC., AS INDICATED AND REQUIRED FOR COMPLETE OPERATIONAL SYSTEMS.
7. – PIPE EACH BOILER RELIEF VALVE AND DRAIN FULL SIZE TO EXISTING DRAIN CHANNEL.
8. – EACH GAS TRAIN MAIN SOLENOID & VENT VALVES, AND GAS PRESSURE REGULATOR SHALL BE INDIVIDUALLY VENTED FULL SIZE OUTSIDE THE BOILER ROOM AND TERMINATED ABOVE THE ROOF WITH VENT CAPS.
9. – PROVIDE TEN (10) YEAR MANUFACTURER'S DEFECT WARRANTY ON SECTIONS AND ONE (1) YEAR OVERALL WARRANTY FOR THIS WORK.
10. – REFER TO THE WORK PHASING NOTE ON DRAWINGS WHICH OUTLINES THE ORDER IN WHICH THE NEW BOILERS ARE REQUIRED TO BE INSTALLED.

EXPANSION TANKS

ET1 — EXPANSION TANK, VERTICAL PRE-CHARGED DIAPHRAGM TYPE, EQUAL TO "B&G", MODEL D-240V, RATED FOR 132 GALLONS CAPACITY AND 46 GALLONS ACCEPTANCE RATE, 30"ø x 53-7/8" H, 12 PSI OPERATING PRESSURE, 100 PSI AND 240 F MAXIMUM DESIGN PRESSURE & TEMPERATURE.

ET2 — EXPANSION TANK, VERTICAL PRE-CHARGED DIAPHRAGM TYPE, EQUAL TO "B&G", MODEL D-60V, RATED FOR 33.6 GALLONS CAPACITY AND 11.3 GALLONS ACCEPTANCE RATE, 16-1/4"ø x 45-1/8" H, 12 PSI OPERATING PRESSURE, 100 PSI AND 240 F MAXIMUM DESIGN PRESSURE & TEMPERATURE.

NOTES:

1. – INSTALL THE EXPANSION TANKS IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, RECOMMENDATIONS AND WARRANTY.
2. – MOUNT THE EXPANSION TANK ET1 ON 4" THICK CONCRETE PAD AND SEISMICALLY ANCHOR THE EXPANSION TANK TO THIS CONCRETE PAD. SEISMICALLY SUPPORT ET2 FROM THE EXISTING BUILDING'S STRUCTURAL ELEMENTS.

VENTS AND BREECHINGS

THE NEW VENTS AND BREECHING SHALL BE EQUAL TO "METAL-FAB, INC.", MODEL IPIC-1 FOR VENTS AND IPIC-2 FOR BREECHING, 1400 F FACTORY BUILT-CHIMNEY, WITH 304SS INNER PIPE MATERIAL AND ALUMINIZED STEEL OUTER PIPE MATERIAL, FURNISHED WITH 1 INCH HIGH TEMPERATURE INSULATION FOR VENTS AND 2 INCHES HIGH TEMPERATURE INSULATION FOR BREECHING, CONFORMING TO NFPA-37 & -211 AND UL-103.

NOTES:

1. – INSTALL VENTS AND BREECHINGS IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, RECOMMENDATIONS AND WARRANTY.
2. – PROVIDE SEISMIC TYPE SUPPORTS AND ANCHORS TO EXISTING BUILDING STRUCTURAL ELEMENTS.
3. – COVER ALL SUPPORTS AND ANCHORS WITH TWO (2) LAYERS OF PRIMER AND TWO (2) COATS OF WEATHER RESISTANT PAINT.

AIR SEPARATOR

AS2 — AIR SEPARATOR, FLANGED TYPE, EQUAL TO "B&G", MODEL R-3.

NOTES:

1. – INSTALL AIR SEPARATOR IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, RECOMMENDATIONS AND WARRANTY.
2. – PROVIDE WALL SEISMIC TYPE SUPPORTS AND ANCHORS TO EXISTING BUILDING WALL.
3. – COVER ALL SUPPORTS AND ANCHORS WITH TWO (2) LAYERS OF PRIMER AND TWO (2) COATS OF WEATHER RESISTANT PAINT.

BOILER CONTROL PANEL

BCP1 — BOILER CONTROL PANEL, EQUAL TO "HEAT-TIMER", MODEL HWR-Q SEQ-8, FURNISHED WITH REMOTE COMMUNICATION INTERFACE(P/N 900147-00), 120V/1 PH, UL LISTED, FURNISHED WITH IMMERSION WELL TEMPERATURE SENSORS FOR EACH BOILER HWS & R, AND COMMON OUTSIDE AIR TEMPERATURE SENSOR FOR BOILERS SEQUENCING AND HWS TEMPERATURE RESET.

NOTES:

1. – INSTALL BOILER CONTROL PANEL IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, RECOMMENDATIONS AND WARRANTY. PROVIDE ALL REQUIRED PROGRAMMING FOR A COMPLETE OPERATIONAL SYSTEM.
2. – THE OWNER'S REPRESENTATIVE SHALL PROVIDE A DEDICATED TELEPHONE LINE AT THIS LOCATION.

FLUE TEMPERATURE INDICATORS/CONTROLLERS

FTI1, 2 & 3 — FLUE TEMPERATURE INDICATOR, "HEAT-TIMER", MODEL DIGI-SPAN SPC950T, 24 VAC, RATED FOR 220 F TO 950 F RANGE AND 3 TO 70 F DIFFERENTIAL, UL LISTED, FURNISHED WITH HIGH TEMPERATURE STAINLESS STEEL SENSOR, MODEL P/N 904019-00, LOW VOLTAGE TRANSFORMER, AND INTERFACE CABLE, MODEL P/N 908305.

NOTES:

1. – INSTALL FLUE TEMPERATURE INDICATORS IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, RECOMMENDATIONS AND WARRANTY.
2. – CONNECT SENSORS TO THE BOILERS CONTROL PANEL WITH INTERFACE WIRING MOUNTED IN STEEL RIGID CONDUITS WITH LIQUIDTIGHT FITTINGS.
3. – SET SENSORS SETPOINT TO THE MAXIMUM TEMPERATURE RECOMMENDED BY THE BOILERS' MANUFACTURER.

COMBUSTION AIR LOUVER/DAMPERS

L/D1 — COMBINATION LOUVER/DAMPER, EQUAL TO "GREENHECK", MODEL ECD-401, SIZE 48"W x 72"H x 4"DEEP WITH 11.52 SQFT FREE AREA OR 48%, DRAINABLE BLADE TYPE, FURNISHED WITH FLANGED FRAME TO MATCH EXISTING OPENING, EXTERIOR STAINLESS STEEL BIRD SCREEN, FINISH IN COLOR AS SELECTED BY THE OWNER'S REPRESENTATIVE. DAMPER'S OPERATOR SHALL BE LOW VOLTAGE 24 VAC, 2-POSITION TYPE WITH SPRING RETURN, EQUAL TO "BELIMO".

L/D2 — COMBINATION LOUVER/DAMPER, EQUAL TO "GREENHECK", MODEL ECD-401, SIZE 96"W x 18"H x 4"DEEP WITH 5.76 SQFT FREE AREA OR 48%, DRAINABLE BLADE TYPE, FURNISHED WITH FLANGED FRAME TO MATCH EXISTING OPENING, EXTERIOR STAINLESS STEEL BIRD SCREEN, FINISH IN COLOR AS SELECTED BY THE OWNER'S REPRESENTATIVE. DAMPER'S OPERATOR SHALL BE LOW VOLTAGE 24 VAC, 2-POSITION TYPE WITH SPRING RETURN, EQUAL TO "BELIMO".

NOTES:

1. – INSTALL COMBUSTION AIR LOUVERS/DAMPERS IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, RECOMMENDATIONS AND WARRANTY.
2. – THE MOTORIZED DAMPERS AT L/D1 & L/D2 SHALL BE INTERLOCKED WITH THE OPERATION OF THE BOILERS' BURNERS AND WITH WALL MOUNTED LOW VOLTAGE (24VAC) HIGH LIMIT THERMOSTAT. IF ANY BURNER IS ENERGIZED OR IF THE SPACE TEMPERATURE EXCEEDS 85 F (I.E. ADJUSTABLE), THE MOTORIZED DAMPERS (MD'S) SHALL FULLY OPEN.

CARBON MONOXIDE DETECTOR

CMD1 — CARBON MONOXIDE DETECTOR, EQUAL TO "SYSTEM SENSOR", MODEL CO1224T, 12/24 VDC, 4-WIRE ELECTRO-CHEMICAL SENSING TECHNOLOGY SYSTEM-MONITORED TYPE, FURNISHED WITH FUNCTIONAL REAL TEST USING CANNED CO, CODE-REQUIRED TROUBLE RELAY WIRING SUPERVISION WITH EMS TERMINALS, UL 2034 AND 2075 LISTED AND COMPLIANT WITH CT PUBLIC ACT 11-248.

NOTES:

1. – INSTALL THE CARBON MONOXIDE DETECTOR IN STRICT ACCORDANCE WITH THE 2012 NFPA 720 AND MANUFACTURER'S INSTRUCTIONS, RECOMMENDATIONS AND WARRANTY.
2. – REFER TO THE SEQUENCE OF OPERATION ON DRAWINGS.
3. – REFER TO THE ELECTRICAL DRAWINGS FOR CONNECTIONS TO THE BUILDING'S FIRE ALARM SYSTEM.

ELECTRIC/ELECTRONIC CONTROL VALVES

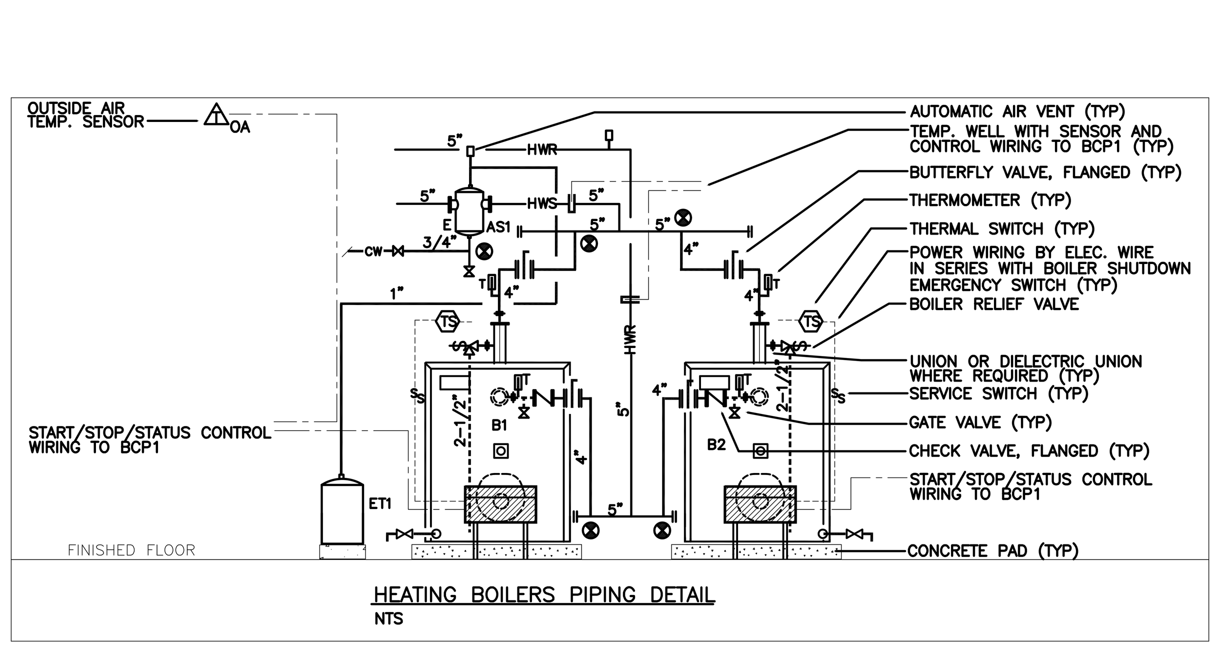
MV'S — CONTROL VALVES, 2-WAY AND 3-WAY MIXING & DIVERTING SHALL BE EQUAL TO "HONEYWELL" MODEL V5047A & V5013A, B & C, SIZES AS REQUIRED, RATED FOR MAX. 240 F TEMPERATURE, 125 PSI AND MAX. 20 PSI PRESSURE DROP, FURNISHED WITH 24VAC ACTUATORS, UL LISTED.

NOTES:

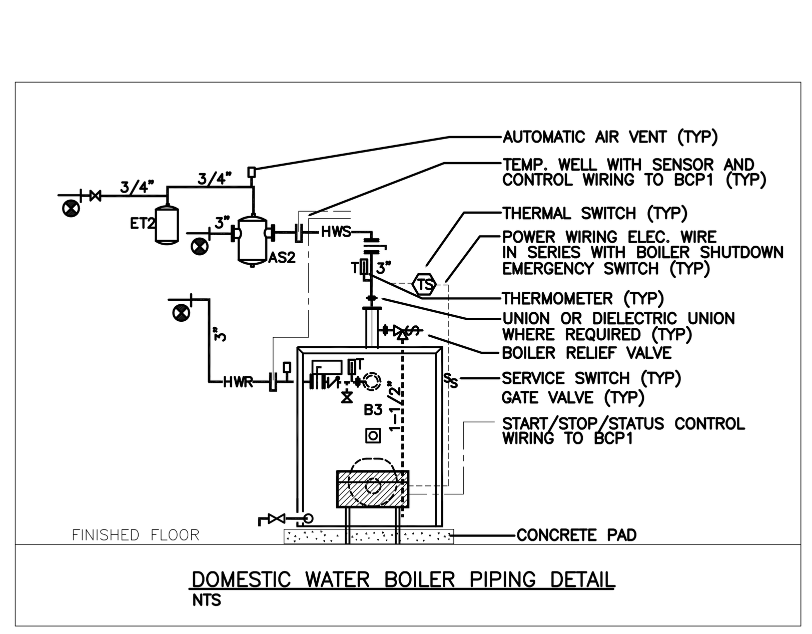
1. – THE ELECTRIC/ELECTRONIC CONTROL VALVES SHALL REPLACE ALL EXISTING CONTROL VALVES LOCATED WITHIN THE EXISTING BOILER ROOM. PROVIDE E/P SWITCHES AS REQUIRED TO INTERFACE WITH EXISTING PNEUMATIC CONTROLS LOCATED OUTSIDE THIS BOILER ROOM.
2. – INSTALL CONTROL VALVES IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, RECOMMENDATIONS AND WARRANTY.

SCOPE OF WORK FOR BOILERS AND UNIT VENTILATORS REPLACEMENT

1. – ALL POTENTIAL CONTRACTORS SHALL BECOME FAMILIAR WITH THE EXISTING CONDITIONS, PRIOR TO START ANY WORK.
2. – ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE 2005 CONNECTICUT STATE BUILDING AND FIRE SAFETY CODES, 2003 INTERNATIONAL MECHANICAL CODE, 2003 INTERNATIONAL PLUMBING CODE, 2003 ICC/ANSI A117.1 ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES, 2009 INTERNATIONAL ENERGY CONSERVATION CODE, 2009 & 2011 CONNECTICUT AMENDMENTS TO THE STATE BUILDING AND FIRE SAFETY CODES, OTHER APPLICABLE CODES, STANDARDS, REGULATIONS, ORDINANCES, ETC., AND THE REQUIREMENTS OF THE LOCAL AUTHORITIES AND UTILITIES COMPANIES HAVING JURISDICTION. THIS CONTRACTOR SHALL BE A LICENSED MECHANICAL CONTRACTOR AND SHALL BE RESPONSIBLE TO OBTAIN A CONSTRUCTION PERMIT AND PAY FOR ALL APPLICABLE FEES, TAXES, TESTS, ETC. NO WORK SHALL BE PERFORMED UNTIL SHOP DRAWINGS FOR ALL EQUIPMENT, DEVICES AND MAJOR MATERIALS, ARE SUBMITTED AND APPROVED IN WRITING BY THE PROJECT ENGINEER.
3. – PROVIDE DEMOLITION WORK TO THE EXTENT INDICATED AND REQUIRED. ALL ITEMS REQUIRED TO REMOVED SHALL BE DISPOSED IN A LEGAL MANNER OR TURNED OVER TO THE OWNER'S REPRESENTATIVE AS INDICATED ON DRAWINGS. REFER TO WORK PHASING NOTE ON DRAWINGS FOR THE SCHEDULE OF WORK WHICH WILL IMPACT THE DEMOLITION WORK. DRAIN, DISCONNECT AND ISOLATE THE EXISTING BOILERS B1 & B2. DISASSEMBLE THESE BOILERS SECTIONS AND SAFELY REMOVE THEM THROUGH THE EXISTING LOUVER L/D1 OPENINGS. REMOVE THESE LOUVERS AND DISPOSE OF IN A LEGAL MANNER. CUT EXISTING IWH1 IN PIECES AS NEEDED TO SAFELY REMOVE THROUGH THE EXISTING OPENING. REMOVE EXISTING BURNERS AT B1 & 2 AND TURN THEM OVER TO THE OWNER'S REPRESENTATIVE. REMOVE EXISTING BOILERS' VENTS AND BREECHINGS AND DISPOSE THEM IN A LEGAL MANNER. REMOVE THE EXISTING PIPING, FITTINGS, VALVES, SUPPORTS, ETC., TO THE EXTENT SHOWN AND REQUIRED AND DISPOSE OF IN A LEGAL MANNER. HIRE THE SERVICES OF AN INDEPENDENT CERTIFIED CHIMNEY SWEEPER TO THOROUGHLY INSPECT AND VACUUM CLEAN EXISTING CHIMNEY'S FLUES. PROVIDE THREE (3) COPIES OF THIS CHIMNEY REPORT TO THE PROJECT ENGINEER, PRIOR TO THE COMPLETION OF THE DEMOLITION WORK. PROVIDE A DETAILED DEMOLITION SCHEDULE FOR THE REVIEW AND APPROVAL BY THE PROJECT ENGINEER, PRIOR TO STARTING THIS DEMOLITION WORK.
4. – FURNISH & INSTALL ALL EQUIPMENT, DEVICES, MATERIALS, ETC., AND PROVIDE ALL NECESSARY LABOR, RIGGINGS, ETC. AS INDICATED, SHOWN OR SPECIFIED FOR COMPLETE OPERATIONAL SYSTEMS, APPROVED IN WRITING BY THE ARCHITECT/ENGINEER & OWNER'S REPRESENTATIVE, AND LOCAL AUTHORITIES HAVING JURISDICTION.
5. – ALL MECHANICAL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURERS' INSTRUCTIONS, RECOMMENDATIONS AND WARRANTY, WITH ALL REQUIRED CLEARANCES FOR MAINTENANCE AND SERVICE.
6. – ALL PIPING ROOF PENETRATIONS (SUCH AS GAS VENTS) SHALL BE PERFORMED IN APPROVED PITCH POCKETS IN STRICT ACCORDANCE WITH THE ROOF MANUFACTURER'S INSTRUCTIONS, RECOMMENDATIONS AND WARRANTY.
7. – ALL FLOORS AND WALLS PENETRATIONS SHALL BE SEALED IN ACCORDANCE WITH 2003 IBC, SEC. 712.3.1.2., WITH APPROVED FIRE STOPPING MATERIALS.
8. – ALL MECHANICAL EQUIPMENT SHALL BE SEISMICALLY RESTRAINT TO THE BUILDING STRUCTURAL ELEMENTS, AS REQUIRED. BY THE 2003 INTERNATIONAL BUILDING CODE, SECTION 1621. REFER TO 1999 ASHRAE "A PRACTICAL GUIDE TO SEISMIC RESTRAINT". THE SEISMIC RESTRAINTS MANUFACTURERS' ARE REQUIRED TO PROVIDE CERTIFIED SHOP DRAWINGS FOR EACH MECHANICAL EQUIPMENT, STAMPED & SIGNED BY A STRUCTURAL PROFESSIONAL ENGINEER, AND FURTHER OBTAIN ALL NECESSARY APPROVALS FROM THE ARCHITECT/ENGINEER AND OWNER'S REPRESENTATIVE(S), PRIOR TO INSTALLING THESE ITEMS.
9. – ALL NEW BOILERS SHALL BE DELIVERED TO SITE KNOCKDOWN, SHALL BE FULLY ASSEMBLED AT SITE, AND PRESSURE TESTED, AS INDICATED IN SECTION 23 50 11.
10. – THE NATURAL GAS PIPING ABOVE GRADE SHALL BE STEEL, ASTM A53 OR A120, SCHEDULE 40, BLACK, WITH MALLEABLE IRON FITTINGS ASME B16.3 (UP TO AND INCLUDING 2") AND FORGED STEEL ASTM A234 (ABOVE 2") WITH THREADED JOINTS (UP TO AND INCLUDING 2") AND WELDED JOINTS (ABOVE 2"), ANSI B31.1, B31.2 & B31.9. FLANGES, UNIONS AND COUPLING 2" AND UNDER SHALL BE FERROUS PIPE, MALLEABLE IRON WITH THREADED UNIONS, RATED FOR 150 PSI. ON PIPING OVER 2" USE FORGED STEEL SLIP ON FLANGES, 1/16" THICK PRE-FORMED NEOPRENE GASKETS. PLUG VALVES UP TO AND INCLUDING 2" SHALL BE BRONZE BODY, BRONZE TAPERED PLUG, NON-LUBRICATING, TEFLON PACKING, THREADED ENDS. OVER 2" USE CAST IRON BODY AND PLUG, NON-LUBRICATED, TEFLON PACKING, FLANGED ENDS. USE DIELECTRIC UNIONS WHEN DISSIMILAR MATERIALS ARE JOINED TOGETHER. ALL SUPPORTS AND ANCHORS SHALL BE CONFORMING WITH ASME B31.9, AND MSS SP58, 69 & 89. COORDINATE THE LOCATION OF THE GAS METER WITH THE GAS COMPANY. PROVIDE A MAIN GAS SHUTOFF VALVE ON GAS PIPING RISER AT METER. COVER ALL GAS PIPING WITH (1) LAYER OF PRIMER AND (2) COATS OF YELLOW WEATHER RESISTANT GLOSS TYPE PAINT AND IDENTIFY GAS PIPING WITH ANSI APPROVED TYPE PLASTIC MARKERS.
11. – THE FUEL OIL PIPING ABOVE GRADE SHALL BE COPPER TUBING ASTM B88, TYPE K HARD DRAWN, WITH CAST BRONZE FITTINGS ASME 16.18, AND BCuO SILVER BRAZED JOINTS NFPA-30, OR STEEL PIPE ASTM A53, SCHEDULE 40, WITH ASTM B16.3 MALLEABLE IRON FITTINGS ASTM B16.3 AND NFPA-30 THREADED JOINTS.
12. – THE HEATING PIPING ABOVE GRADE SHALL BE STEEL, ASTM A53, SCHEDULE 40, BLACK, WITH MALLEABLE IRON FITTINGS ASME B16.3 (UP TO AND INCLUDING 2") AND FORGED STEEL ASTM A234 (ABOVE 2") WITH THREADED JOINTS (UP TO AND INCLUDING 2") AND WELDED JOINTS (ABOVE 2") ANSI B31.1, B31.2 & B31.9. OR MECHANICAL JOINTS. FLANGES, UNIONS AND COUPLING 2" AND UNDER SHALL BE FERROUS PIPE, MALLEABLE IRON WITH THREADED UNIONS, RATED FOR 150 PSI. ON PIPING OVER 2" USE FORGED STEEL SLIP ON FLANGES, 1/16" THICK PRE-FORMED NEOPRENE GASKETS. EQUIPMENT DRAINS AND OVERFLOWS SHALL BE STEEL PIPE ASTM A53, SCHEDULE 40, GALVANIZED WITH GALVANIZED CAST IRON FITTINGS OR MALLEABLE IRON FITTINGS ASTM B16.3, AND THREADED OR GROOVED MECHANICAL JOINTS. THE COLD WATER PIPING ABOVE GRADE SHALL BE COPPER TUBING, ASTM B88, TYPE, HARD DRAWN, WITH ASME B16.18, CAST BRASS OR ASME B16.22 SOLDER WROUGHT COPPER FITTINGS, AND 95/5 SOLDER (ASTM B32) LEAD FREE JOINTS. GATE VALVES UP TO AND INCLUDING 2" SHALL BE BRONZE BODY, BRONZE TRIM, UNION BONNET, NON-RISING STEM, INSIDE SCREW, SOLID WEDGE DISC, SOLDER OR THREADED EDS. ABOVE 2" USE GATE VALVES WITH IRON BODY, BRONZE TRIM, BOLTED BONNET, NON-RISING STEM, HANDWHEEL, OUTSIDE SCREW AND YOKE, SOLID WEDGE DISK WITH BRONZE SEAT RINGS, AND FLANGED OR GROOVED ENDS. BALL VALVES UP TO AND INCLUDING 2" SHALL BE BRONZE TWO PIECE BODY, STAINLESS STEEL BALL, TEFLON SEATS AND STUFFING BOX RING, LEVER HANDLE., FLANGED. USE DIELECTRIC FITTINGS WHEN DISSIMILAR MATERIALS ARE JOINED TOGETHER. ALL SUPPORTS AND ANCHORS SHALL BE CONFORMING WITH ASME B31.9, AND MSS SP58, 69 & 89.
13. – COVER THE COLD AND HEATING HOT WATER UP TO AND INCLUDING 1" WITH FIBERGLASS RIGID MOLDED INSULATION, ASTM C547, WITH "K" VALUE OF .24 @ 75 F, FURNISHED WITH VAPOR BARRIER JACKET AND FINISHED WITH PVC JACKETS. COVER THE HEATING HOT WATER OVER TO 2" AND UP AND INCLUDING 4", WITH 1-1/2" THICK FIBERGLASS RIGID MOLDED INSULATION, ASTM C547, WITH "K" VALUE OF .24 @ 75 F, FURNISHED WITH VAPOR BARRIER JACKETS AND FINISHED WITH PVC JACKETS. COVER THE HEATING HOT WATER OVER 4" WITH 2" THICK INSULATION IN THE SAME MANNER. COVER THE EXISTING AND NEW AIR SEPARATORS WITH 1-1/2" THICK PRE-MOLDED RIGID FIBERGLASS INSULATION, FURNISHED WITH VAPOR BARRIER JACKET AND FINISHED WITH PVC JACKETS.
14. – FURNISH AND INSTALL INSTRUMENTATION AS INDICATED ON DRAWINGS AND REQUIRED. PRESSURE GAUGES SHALL BE AT LEAST 4-1/2" IN DIAMETER DRAWN STEEL CASE, PHOSPHOR BRONZE BOURDON TUBE, ROTARY BRASS MOVEMENT BRASS SOCKET WITH FRONT RECALIBRATION ADJUSTMENT, BLACK SCALE ON WHITE BACKGROUND, ON PERCENT MID-SCALE ACCURACY, ASME B40.1 & UL 393. STEM TYPE THERMOMETERS SHALL BE AT LEAST 7" SCALE, RED APPEARING MERCURY, LENS FRONT TUBE, CAST ALUMINUM CASE WITH ENAMEL FINISH AND POLYCARBONATE WINDOW, WITH 2 PERCENT ACCURACY, ASTM E1 AND ASTM B77.
15. – FURNISH AND INSTALL ELECTRIC/ELECTRONIC CONTROLS, SUCH AS CONTROL PANELS, SENSORS, MOTORIZED DAMPERS, CONTROL VALVES, ETC., WIRING/CONDUITS, AND PROVIDE ANN NECESSARY INCLUDING DEMONSTRATION AND TRAINING TO THE OWNER'S PERSONNEL, FOR COMPLETE OPERATIONAL SYSTEMS AS TO MEET THE INDICATED SEQUENCES OF OPERATION. PROVIDE ELECTRIC CONTROL PRODUCTS IN REQUIRED SIZES AND CAPACITIES, CONSISTING OF THERMOSTATS/TEMPERATURE SENSORS, ETC., APPLICABLE FOR THIS PROJECT. PROVIDE FACTORY-FABRICATED CONTROL VALVES OF TYPE, BODY MATERIAL AND PRESSURE CLASS AS TO MATCH EXISTING CONTROL VALVES TO BE REPLACED. THE CONTROL VALVES SHALL HAVE EQUAL PERCENTAGE CHARACTERISTICS WITH RANGEABILITY OF 50 TO 1, AND MAXIMUM PRESSURE DROP OF 5 PSI, AND FURNISHED WITH 24VAC ACTUATORS. PROVIDE 2-POSITION AUTOMATIC CONTROL DAMPERS AS INDICATED ON DRAWINGS, WITH DAMPER FRAMES NOT LESS THAN FORMED 13-GAUGE GALVANIZED STEEL, FURNISHED WITH 24VAC ACTUATORS. CONNECT ALL LOCAL CONTROLLERS, CONTROL PANELS, ETC. TO THE EXISTING EXPANDED ENERGY MANAGEMENT SYSTEM (EMS). REFER TO DRAWINGS FOR THE MINIMUM INPUT/OUTPUT CONTROL POINTS REQUIRED TO BE MONITORED VIA EMS. ALL CONTROL WIRING SHALL BE COPPER, TWISTED PAIR SHIELDED TYPE, #16 AWG OR BETTER. MOUNT ALL CONTROL WIRING IN EMT CONDUITS IN DRY INTERIOR SPACES, AND MOUNT SAME IN GALVANIZED STEEL CONDUITS WITH LIQUIDTIGHT FITTINGS IN INTERIOR WET SPACES (SUCH AS BOILER ROOM) OR IF EXPOSED OUTSIDE.
16. – FURNISH & INSTALL EQUIPMENT NAMEPLATES, PIPE MARKERS, DUCTWORK STENCILS, VALVE TAGS, ETC., MARKERS, IN COMPLIANCE WITH ANSI A13.1.
17. – PROVIDE THREE (3) SETS OF "AS-BUILT" DRAWINGS TO THE PROJECT ENGINEER FOR FINAL REVIEW AND APPROVAL AT PROJECT COMPLETION.
18. – THIS PROJECT SHALL BE DEEMED COMPLETE ONLY AFTER IS THOROUGHLY INSPECTED, DEMONSTRATED TO AND APPROVED IN WRITING BY THE LOCAL AUTHORITIES HAVING JURISDICTION, OWNER'S REPRESENTATIVE AND ARCHITECT/ENGINEER. ALL WARRANTIES SHALL START AFTER RECEIVING THESE APPROVALS.



HEATING BOILERS PIPING DETAIL
NTS



DOMESTIC WATER BOILER PIPING DETAIL
NTS

SEQUENCES OF OPERATION

HEATING BOILERS B1 & 2

THE OPERATION OF THE HEATING BOILERS SHALL BE CONTROLLED FROM THE THE BOILERS CONTROL PANEL BCP1. AND MONITORED VIA THE EXISTING EXPANDED ENERGY MANAGEMENT SYSTEM (EMS). EACH BOILER SHALL OPERATE ON ITS OWN OPERATING & SAFETY CONTROLS, AND SHALL ONLY BE ENERGIZED IF OUTSIDE AIR TEMPERATURE FALLS BELOW 65 F AND IF THERE IS A PRESENT HEATING DEMAND. THE BCP1 SHALL PROVIDE LEAD/LAG CONTROL FOR THESE BOILERS SUCH THAT THEY OPERATE ON EVEN TIME BASIS. ANY TIME ANY BURNER IS ENERGIZED, THE COMBUSTION AIR LOUVERS/DAMPERS L/D1 & 2 SHALL FULLY OPEN AND SHALL FULLY AND CLOSE IF THE RESPECTIVE BURNER IS DE-ENERGIZED. HOWEVER, THE L/D1 & 2 COULD STAY OPEN ONLY IF THE SPACE TEMPERATURE EQUALS OR EXCEEDS 85 F (I.E. ADJUSTABLE), AS CONTROLLED FROM A WALL MOUNTED LOW VOLTAGE HIGH LIMIT THERMOSTAT. THE BOILERS HWS TEMPERATURE SHALL BE RESET AS A FUNCTION OF OUTSIDE AIR TEMPERATURE, FOLLOWING THE FOLLOWING SCHEDULE: AT 10 F OUTSIDE AIR TEMPERATURE THE HWS TEMPERATURE SHALL BE 200 F, AND AT 60 F OUTSIDE AIR TEMPERATURE THE HWS TEMPERATURE SHALL BE 140 F.
IF EITHER THE HWS OR HWR TEMPERATURE FALLS BELOW A PRE-SET VALUE, SUCH AS 125 F, AS INDICATED BY THE WELL MOUNTED WATER TEMPERATURE SENSORS, THE BCP1 COMMUNICATION INTERFACE SHALL BE ENERGIZED AND WILL SEND OUT A WARNING MESSAGE TO A PRE-SET TELEPHONE NUMBER VIA ITS MODEM.
IF ANY BOILER'S FLUE TEMPERATURE MONITORED BY A TEMPERATURE SENSOR/CONTROLLER EXCEEDS THE PRESET LEVEL, THE BOILER WILL SHUT DOWN AND AN ALARM SHALL BE SENT THE EXISTING EXPANDED EMS.
THE DUAL FUEL SWITCHOVER PANEL (DFSP1) SHALL ENABLE THE SAFELY BURNERS' OPERATION USING EITHER NATURAL GAS OR FUEL OIL#2, USING AUTOMATIC MODE IN RESPONSE TO AN OUTSIDE AIR TEMPERATURE OR MANUAL MODE IN RESPONSE TO THE GAS COMPANY TELEPHONE'S REQUEST.
IF THE CARBON MONOXIDE LEVEL EXCEEDS ITS PRE-SET LEVEL, AN ALARM SHALL SOUND INSIDE THE BOILER ROOM.
PROVIDE THE FOLLOWING INPUT/OUTPUT CONTROL POINTS TO THE EXISTING EXPANDED EMS:

- OUTSIDE AIR TEMPERATURE
- BOILER ROOM TEMPERATURE
- COMBUSTION AIR MOTORIZED DAMPERS POSITION
- BOILERS' BURNERS START/STOP/STATUS
- HEATING PUMPS P1 THRU P6 START/STOP/STATUS
- HWS TEMPERATURE
- HWR TEMPERATURE
- FLUES TEMPERATURE
- NATURAL GAS VIA DFSP1
- FUEL OIL #2 VIA DFSP1
- CARBON MONOXIDE DETECTION/ALARM

DOMESTIC WATER BOILER B3

THE OPERATION OF THE DOMESTIC HOT WATER BOILER SHALL BE CONTROLLED FROM THE THE BOILERS CONTROL PANEL BCP1, AND MONITORED VIA THE EXISTING EXPANDED ENERGY MANAGEMENT SYSTEM (EMS).
THIS BOILER SHALL OPERATE ON ITS OWN OPERATING & SAFETY CONTROLS, BASED UPON THE DOMESTIC HOT HOT WATER DEMAND.ANY TIME THIS BOILER IS ENERGIZED, THE COMBUSTION AIR LOUVERS/DAMPERS L/D1 & 2 SHALL FULLY OPEN AND CLOSE IF THE BURNER IS DE-ENERGIZED. HOWEVER, THE L/D1 & 2 COULD STAY OPEN ONLY IF THE SPACE TEMPERATURE EQUALS OR EXCEEDS 85 F (I.E. ADJUSTABLE), AS CONTROLLED FROM A WALL MOUNTED LOW VOLTAGE HIGH LIMIT THERMOSTAT.
DURING THE OCCUPIED HOURS THE PRESENT IN-LINE PUMPS P7 & 8 SHALL CYCLE AS REQUIRED TO MEET THE DOMESTIC HOT WATER DEMAND. DURING THE UNOCCUPIED HOURS THE PUMPS P7 & 8 SHALL BE OFF, AS SCHEDULED FROM THE EXISTING EXPANDED EMS.
IF EITHER THE HWS OR HWR TEMPERATURE FALLS BELOW A PRE-SET VALUE, SUCH AS 125 F, AS INDICATED BY THE WELL MOUNTED WATER TEMPERATURE SENSORS, THE BCP1 COMMUNICATION INTERFACE SHALL BE ENERGIZED AND WILL SEND OUT A WARNING MESSAGE TO A PRE-SET TELEPHONE NUMBER VIA ITS MODEM.
IF THE BOILER'S FLUE TEMPERATURE MONITORED BY A TEMPERATURE SENSOR/CONTROLLER EXCEEDS THE PRESET LEVEL, THE BOILER WILL SHUT DOWN AND AN ALARM SHALL BE SENT THE EXISTING EXPANDED EMS.
THE DUAL FUEL SWITCHOVER PANEL (DFSP1) SHALL ENABLE THE SAFELY BURNERS' OPERATION USING EITHER NATURAL GAS OR FUEL OIL#2, USING AUTOMATIC MODE IN RESPONSE TO AN OUTSIDE AIR TEMPERATURE OR MANUAL MODE IN RESPONSE TO THE GAS COMPANY TELEPHONE'S REQUEST.
IF THE CARBON MONOXIDE LEVEL EXCEEDS ITS PRE-SET LEVEL, AN ALARM SHALL SOUND INSIDE THE BOILER ROOM.
PROVIDE THE FOLLOWING INPUT/OUTPUT CONTROL POINTS TO THE EXISTING EXPANDED EMS:

- OUTSIDE AIR TEMPERATURE
- BOILER ROOM TEMPERATURE
- COMBUSTION AIR MOTORIZED DAMPERS POSITION
- BOILER'S BURNER START/STOP/STATUS
- RECIRCULATING PUMPS P7 & P8 START/STOP/STATUS
- HWS TEMPERATURE
- HWR TEMPERATURE
- CW TEMPERATURE
- hW TEMPERATURE
- FLUE TEMPERATURE
- NATURAL GAS VIA DFSP1
- FUEL OIL #2 VIA DFSP1
- CARBON MONOXIDE DETECTION/ALARM

CARBON MONOXIDE DETECTOR

THE DETECTOR SHALL PROVIDE DUAL-COLOR LED INDICATOR THAT BLINKS TO INDICATE NORMAL STANDBY, ALARM OR END-OF-LIFE.
SAFE TEST FUNCTIONAL TEST: THIS TEST FACILITATES THE USE OF CO TEST SPRAY TO VERIFY THE CORRECT OPERATION OF THE DETECTOR, WHICH IS MANDATORY PER NFPA 720. THE SAFE TEST MODE IS ACTIVATED BY PRESSING AND HOLDING THE TEST/HUSH BUTTON FOR 5-10 SECONDS, WHILE IN SAFE TEST MODE DIRECTING UL-CLASSIFIED CO TESTING SPRAY AT THE SENSOR PORT WILL RESULT IN THE ACTIVATION OF THE ALARM RELAY, AND THE SOUNDER AND RED LED IN A TEMPORAL-FOUR PATTERN. PRESSING AND HOLDING THE TEST/HUSH BUTTON WILL EXIT THE SAFE TEST MODE.
DISTINCT TEMPORAL-FOUR SOUNDER ALARMS: THE 85dB TEMPORAL-FOUR SOUNDER PROVIDES A DISTINCTIVE ALARM NOTIFICATION THAT IS EASY TO DIFFERENTIATE FROM SMOKE ALARM NOTIFICATION DEVICES. THE ALARM BEEPS FOUR TIMES, RESTS FIVE SECONDS AND THEN REPEAT THE PATTERN.
TEST/HUSH BUTTON: USE THE TEST/HUSH BUTTON TO TEST THE ALARM AND SILENCE AN ACTIVATED ALARM. PUSHING PUSHING THE TEST/HUSH BUTTON SILENCES THE INTEGRATED SOUNDER FOR FIVE MINUTES. THE RED ALARM LIGHT STAYS ON AND IF CO IS STILL PRESENT AFTER FIVE MINUTES, THE DETECTOR ONCE AGAIN SOUNDS IN THE TEMPORAL-FOUR PATTERN.
END OF SENSOR LIFE INDICATOR: THE DETECTOR USES BOTH A FLASHING GREEN LED AND INTERMITTENT SOUNDER CHIRPS TO INDICATE THE DETECTOR NEEDS REPLACING. TO SILENCE THE DETECTOR, PUSH THE TEST/HUSH BUTTON. THE DETECTOR ALSO BEGINS SIGNALING A TROUBLE WHEN THE CO SENSOR IS APPROACHING END-OF-LIFE.
COMMON TROUBLE RELAY: THE TROUBLE RELAY OPENS TO INDICATE A TROUBLE CONDITION UPON LOST POWER, CO SENSOR CELL TROUBLE, OR CELL END-OF-LIFE. WHEN CONNECTED TO THE FIRE ALARM CONTROL PANEL, THE TROUBLE RELAY WILL REPORT A TROUBLE CONDITION LOCALLY AT THE FIRE ALARM CONTROL PANEL

GENERAL NOTES

1. – THE INFORMATION SHOWN ON THIS DRAWING IS BASED UPON THE INFORMATION SHOWN ON THE BUILDING PLANS AND LIMITED FIELD INVESTIGATIONS AND MAY OR MAY NOT REFLECT ACTUAL FIELD CONDITIONS. THIS CONTRACTOR SHALL VERIFY THE INFORMATION INDICATED ON THIS DRAWING AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO SUBMITTING HIS BID.
2. – THIS CONTRACTOR IS REQUIRED TO PERFORM THIS WORK IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, ORDINANCES, ETC., AND TO MEET THE REQUIREMENTS OF THE LOCAL AUTHORITIES HAVING JURISDICTION AND OWNER, WHETHER OR NOT SPECIFICALLY INDICATED OR SPECIFIED ON THIS DRAWING.
3. – ALL PENETRATIONS THRU WALLS SHALL BE FIRE STOPPED WITH "THOMAS AND BETTS" – FLAMESAFE, TYPE FST FIRESTOP COMPOUND OR APPROVED EQUIVALENT, CONFORMING TO ASME E814/UL1479. REFER TO DWG TH-EG101 FOR LOCATION OF FIRE RATED WALLS.

ROSE •TISO & CO. LLC.
ARCHITECTS • SURVEYORS • ENGINEERS
WWW.ROSETISO.COM
35 BRENTWOOD AVENUE, FAIRFIELD, CT 06825
TEL: (203)610-6262 • FAX: (203)610-6404

MUSCO ENGINEERING ASSOCIATES
375 Morgan Lane, Unit 307
West Haven, CT 06516
(203) 932-1901 FAX (203) 931-1550
www.muscoengineering.com

DUMITRU T. PETRESCU, P.E.
MECHANICAL ENGINEER

REVISIONS			
NO.	BY	DATE	DESCRIPTION

PROJECT TITLE

TURKEY HILL SCHOOL
441 TURKEY HILL ROAD
ORANGE, CT
STATE PROJECT NO: TMP-107-GMZN

BOILERS & UNIT VENT. REPLACEMENTS

ORANGE CONNECTICUT 1822 TOWN SEAL

Prepared For:
TOWN OF ORANGE, CT
637 ORANGE CENTER ROAD
ORANGE, CT 06477

SHEET TITLE
SCHEDULES AND DETAILS MECHANICAL

DESIGNED BY: DTP	SCALE: AS NOTED
DRAWN BY: CP/DTP	DATE: 6-17-13
CHECKED BY: DTP	PROJECT NUMBER: 1605
CAD FILE: M107.DWG	

SEAL

SHEET NUMBER
TH-M107

MEA# 130417-1

GENERAL REQUIREMENTS

GENERAL

AFTER CAREFULLY STUDYING THE DRAWINGS AND SPECIFICATIONS, AND BEFORE SUBMITTING THE PROPOSAL, EACH BIDDER SHALL VISIT THE SITE TO ASCERTAIN CONDITIONS OF THE SITE, AND THE NATURE AND EXACT QUANTITY OF WORK TO BE PERFORMED. NO EXTRA WILL BE ALLOWED IF THE CONTRACTOR FAILS TO NOTIFY THE ENGINEER/OWNER IN WRITING OF ANY DISCREPANCIES THAT HE MAY HAVE NOTED BETWEEN THE EXISTING CONDITIONS AND DRAWINGS AND SPECIFICATIONS.

THE CONTRACTOR SHALL VERIFY ALL MEASUREMENTS OF HIS OWN OR OTHERS AT THE SITE, AND SHALL BE RESPONSIBLE FOR CORRECTNESS OF SAME AS RELATED TO HIS WORK.

THE CONTRACTOR SHALL BE TOTALLY RESPONSIBLE FOR COORDINATION OF ANY RELATED ITEMS REGARDING UTILITIES COMPANIES AND INCLUDE THEM TO HIS COST.

CODES, REGULATIONS AND STANDARDS

ALL WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE FOLLOWING CODES:

A. 2005 NATIONAL ELECTRIC CODE, NFPA 70 (NEC)
B. INTERNATIONAL BUILDING CODE 2003 (ICC)
C. INTERNATIONAL MECHANICAL CODE 2003 (ICC)
D. INTERNATIONAL PLUMBING CODE 2003 (ICC)
E. 2011 CONNECTICUT STATE AMENDMENTS / 2005 STATE BUILDING CODE
F. 2005 CONNECTICUT STATE FIRE SAFETY CODE (CSFC)
G. LOCAL AUTHORITIES HAVING JURISDICTION (AHJ)
H. ICC/ANSI A 117.1/2003 ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES
I. O.S.H.A. REGULATIONS
J. AMERICANS WITH DISABILITIES ACT, ADA REQUIREMENTS (FEDERAL LAW)
K. INTERNATIONAL EXISTING BUILDING CODE/2003 (ICC)
L. INTERNATIONAL ENERGY CONSERVATION CODE 2009 (ICC) (2011 CT AMENDMENTS ADOPT 2009 EDITION)
M. 2009 & 2011 CONNECTICUT AMENDMENTS/STATE BUILDING CODE

GENERAL CONSTRUCTION NOTES

1. THIS IS AN EXISTING OPERATING FACILITY AND WILL CONTINUE TO OPERATE DURING THE CONSTRUCTION PERIOD. ALL WORK MUST BE COORDINATED WITH THE G.C. AND THE OWNER'S PERSONNEL. SCHEDULING AND CONTAINMENT OF WORK AREAS SHALL BE DONE IN CONJUNCTION WITH THE FACILITY OPERATING PERSONNEL.
2. ALL POWER OUTAGES MUST BE SCHEDULED WITH THE MANAGEMENT PERSONNEL A MINIMUM OF 36 HOURS IN ADVANCE OF THE OUTAGE. THE ELECTRICAL CONTRACTOR MUST PLAN FOR TOOLS, MATERIALS, MANPOWER, ETC. TO MAKE THE MOST EFFICIENT USE OF AND TO MINIMIZE THE FACILITY OUTAGE. PREMIUM TIME COSTS TO BE INCLUDED IN CONTRACTOR'S BID, NO ADDITIONAL ALLOWANCE WILL BE MADE FOR PREMIUM TIME.
3. PERSONNEL SAFETY IS OF PRIME IMPORTANCE. NO HAZARDOUS CONDITIONS SHALL BE ALLOWED. EVERY CARE MUST BE TAKEN TO PROTECT CONSTRUCTION AND OTHER PERSONNEL. CLEANUP SHALL BE DONE ON A DAILY BASIS.
4. THE ELECTRICAL CONTRACTOR SHALL INSTALL ALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURERS INSTRUCTION AND OR REQUIREMENTS FOR PROPER OPERATION AND MAINTENANCE.
5. THE TERM "PROVIDE" SHALL MEAN TO FURNISH AND INSTALL IN COMPLETE WORKING ORDER.
6. ALL THE WIRE SIZES ARE BASED ON COPPER THHN 75°C, ALUMINUM SHALL NOT BE USED.
7. AT NO TIME SHALL THIS BUILDING BE WITHOUT POWER, FIRE ALARM, LIFE SAFETY SYSTEMS, ETC. WHEN IT IS NECESSARY TO DISCONNECT ANY EXISTING ITEM BEFORE THE NEW DEVICE OR SYSTEM IS ACTIVE, THEN THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE REQUIRED SAFETY AND GIVE WRITTEN NOTICE 48 HOURS IN ADVANCE TO THE ARCHITECT/ENGINEER/OWNER.
8. THIS JOB IS COMPOSED OF ALTERATIONS IN AN EXISTING BUILDING. BEFORE SUBMITTING THE BID, THE ELECTRICAL CONTRACTOR SHALL VISIT THE SITE AND BECOME THOROUGHLY FAMILIAR WITH ALL EXISTING CONDITIONS UNDER WHICH THE WORK AND WORK OF OTHER TRADES WILL BE INSTALLED. THIS CONTRACT INCLUDES ALL NECESSARY OFFSETS, TRANSITIONS, MODIFICATIONS AND RELOCATION OF EXISTING EQUIPMENT FOR INSTALLATION OF NEW ELECTRICAL EQUIPMENT AND NEW EQUIPMENT OF OTHER TRADES. LIGHTING FIXTURES, DEVICES, CONDUIT, WIRING, ETC.). ALL NEW AND EXISTING EQUIPMENT AND SYSTEMS SHALL BE FULLY OPERATIONAL UNDER THIS CONTRACT BEFORE THE JOB IS CONSIDERED COMPLETE. THE ELECTRICAL CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY ASSUMPTIONS MADE, ANY OMISSIONS OR ERRORS MADE AS A RESULT OF THE ELECTRICAL CONTRACTOR'S FAILURE WITH HIS INSPECTION OF EXISTING CONDITIONS AND REVIEW OF ALL OTHER TRADE DOCUMENTS.
9. LOCATIONS OF EXISTING ELECTRICAL EQUIPMENT AND WIRING METHODS HAVE BEEN TAKEN FROM ON SITE SURVEYS. DUE TO OBSTRUCTIONS ALONG WALLS NOT EVERY DEVICE LOCATION MAY HAVE BEEN ACCURATELY DETERMINED. THE CONTRACTOR SHALL FIELD VERIFY EXACT LOCATIONS OF ALL EXISTING ELECTRICAL EQUIPMENT THAT WILL REQUIRE MODIFICATION DUE TO THE RENOVATION WORK PRIOR TO PRICING AND COMMENCEMENT OF WORK.
10. ALL LIGHTING CIRCUITS SHALL BE TERMINATED IN THE CEILING IN JUNCTION BOXES OR PULLED BACK TO THE PANEL WHERE THE CIRCUIT ORIGINATES. ALL OTHER AREAS TO REMAIN "AS IS" AND ALL ELECTRICAL APPURTENANCES, DEVICES AND ACCESSORIES SHALL REMAIN OPERATIONAL.
11. THE CONTRACTOR SHALL VERIFY THAT ANY EXISTING CIRCUIT WIRING TO BE REMOVED DOES NOT DISRUPT SERVICE TO EXISTING ELECTRICAL APPURTENANCES AND DEVICES TO REMAIN. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL NECESSARY DEVICES, EQUIPMENT AND ACCESSORIES REQUIRED TO MAINTAIN SERVICE TO ALL EXISTING ELECTRICAL DEVICES AND EQUIPMENT.
12. THE CONTRACTOR SHALL REMOVE ALL CONDUIT AND WIRING ASSOCIATED WITH DEVICES AND EQUIPMENT TO BE REMOVED BACK TO THE SOURCE OF POWER, UNLESS OTHERWISE NOTED.
13. THE CONTRACTOR SHALL PROVIDE AND INSTALL PANELBOARD LEGENDS DEPICTING REMOVED/ADDED CIRCUITS FOR ALL RENOVATION WORK IN PANELBOARDS IN THE SCOPE OF WORK AREAS.
14. ALL EMPTY CONDUIT SYSTEMS SHALL CONTAIN A PULL WIRE FOR FUTURE PULLING OF CONDUCTORS.
15. EXISTING INSTALLED CONDUIT (NOT WIRE) FOUND TO BE REUSABLE MAY BE USED. ALL OTHER MATERIAL SHALL BE REMOVED FROM THE JOB SITE UNLESS OTHERWISE NOTED.
16. ALL EXISTING WIRING NOT BEING REUSED SHALL BE REMOVED.
17. NO WIRING SHALL BE REUSED WITHOUT ENGINEERS APPROVAL.
18. ANY AND ALL ELECTRICAL CONDUIT STUB-UPS SHALL BE CUT TO FLOOR LEVEL.
19. WHERE WIRES ARE BEING REMOVED FROM A CONDUIT, CONTRACTOR SHALL PROVIDE AND INSTALL A DRAG LINE IN THE CONDUIT. TAG.
20. ALL EXISTING CONDUITS TO REMAIN SHALL BE TAGGED WITH SEATON TAGS OR EQUAL AS NECESSARY.
21. CONTRACTOR SHALL INSTALL TEMPORARY LIGHTING IN SCOPE AREAS AS NECESSARY.
22. DEMOLITION AND REMOVALS ARE A PART OF THE SCOPE OF WORK. ALL UNUSED ELECTRICAL ITEMS SHALL BE REMOVED AS MUCH AS POSSIBLE. THE ELECTRICAL PLANS DO NOT SHOW ALL OF THE ELECTRICAL REMOVAL WORK. CONTRACTOR SHALL REVIEW ALL TRADE DRAWINGS ARCHITECTURAL, PLUMBING, AND MECHANICAL FOR ANY ADDITIONAL ELECTRICAL ITEMS TO BE REMOVED.
23. ASBESTOS OR UNKNOWN MATERIAL ENCOUNTERED DURING THE CONSTRUCTION SUSPECTED TO BE ASBESTOS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER FOR RESOLUTION. STOP ALL WORK IN VICINITY OF SUSPECTED MATERIALS IMMEDIATELY IN THIS EVENT.
24. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS WITHIN THE DEMOLITION WORK DEPICTED ON THE DRAWING AND SHALL ASCERTAIN THE EXTENT OF WORK REQUIRED WITHIN THE DEMOLITION AREA PRIOR TO PRICING AND COMMENCEMENT OF WORK.
25. THE CONTRACTOR SHALL ENSURE THAT ALL CIRCUITS REQUIRED TO BE REMOVED OR RELOCATED, ARE DE-ENERGIZED AND REMAIN DE-ENERGIZED FOR THE DURATION OF THE DEMOLITION ACTIVITY. THE CONTRACTOR SHALL FIELD VERIFY THE CIRCUITS AND IDENTIFY ANY ADDITIONAL CIRCUITS THAT MAY INTERFERE WITH DEMOLITION BOUNDARY, SUCH THAT PERSONAL SAFETY IS ENSURED, AND EQUIPMENT REQUIRED TO REMAIN OPERABLE IS MAINTAINED.
26. ALL DEMOLITION ACTIVITIES MUST BE COORDINATED WITH THE ARCHITECT/ENGINEER AND GENERAL CONTRACTOR TO MINIMIZE INTERRUPTION OF REQUIRED SERVICES OR TO ALLOW FOR COMPENSATORY MEASURES TO BE TAKEN.

GENERAL NOTES

NOTE: CONTRACTOR SHALL MEAN ELECTRICAL CONTRACTOR

1. ALL DIMENSIONS AND EXACT EQUIPMENT LOCATIONS ARE TO BE VERIFIED WITH MECHANICAL AND ELECTRICAL DRAWINGS AND CONDITIONS IN THE FIELD.
2. THE CONTRACTOR SHALL COORDINATE WITH OTHER TRADES AND CONSULT WITH MECHANICAL DRAWINGS FOR POWER REQUIREMENTS OF THOSE TRADES. ALL EXISTING PANELBOARDS SHALL BE PROVIDED WITH A TYPED SCHEDULE.
3. A COPY OF ALL SCHEDULES SHALL BE SUBMITTED TO THE ENGINEER.
4. THE WORK SHALL BE COORDINATED WITH ALL OTHER TRADES AND PROVIDE OTHERS WITH NECESSARY INFORMATION TO COMPLETE THIS INSTALLATION. DRAWINGS ARE TO BE USED IN CONJUNCTION WITH SPECIFICATIONS ISSUED FOR THIS INSTALLATION.
5. ANY WORK INSTALLED CONTRARY TO, OR WITHOUT APPROVAL BY THE ENGINEER SHALL BE SUBJECT TO CHANGE AS DIRECTED BY THE ENGINEER AND NO EXTRA COMPENSATION WILL BE ALLOWED THE CONTRACTOR FOR MAKING THESE CHANGES.
6. CONDUIT & CABLE RUNS ARE SHOWN DIAGRAMMATICALLY ONLY AND SHALL BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT AND STRUCTURAL CONDITIONS.
7. THE WIRING DIAGRAMS, QUANTITY AND SIZE OF WIRES AND CONDUIT REPRESENTS A SUGGESTED ARRANGEMENT BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL EQUIPMENT. MODIFICATIONS APPROVED BY THE ENGINEER MAY BE MADE BY THE CONTRACTOR TO ACCOMMODATE EQUIPMENT ACTUALLY PURCHASED. THE BASIC SEQUENCE AND METHOD OF CONTROL SHALL BE MAINTAINED AS INDICATED ON THE DRAWINGS.
8. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ACCESS TO ANY CONCEALED EQUIPMENT. LABEL ALL CONCEALED JUNCTION BOXES.
9. THE CONTRACTOR SHALL SEAL ALL PENETRATIONS THROUGH FIRE RATED WALLS AS INDICATED ON DRAWING TH-EG101 WITH A UL LISTED FIRE STOP TO MAINTAIN THE INTEGRITY OF THE FIRE RATING.
10. VERIFY THAT LIGHTING FIXTURES AND ARRANGEMENTS ARE TO BE COMPATIBLE WITH TYPE OF CEILING WHICH FIXTURE IS TO BE MOUNTED.
11. ALL EXISTING WIRING THAT IS NOT IN USE SHALL BE REMOVED. SURFACE MOUNTED PANEL BOARD AND OTHER SUCH EQUIPMENT SHALL BE MOUNTED WITH A 1/4" AIR SPACE BETWEEN THE ENCLOSURE AND WALL. THE DISTANCE FROM TOP CIRCUIT BREAKER HANDLE TO FLOOR SHALL NOT EXCEED 6'-6" AFF. UNLESS NOTED OTHERWISE. A 1/2" UNISTRUT MAY BE USED.
12. CONTROL STATIONS SHALL HAVE PLASTIC ENGRAVED NAMEPLATES DENOTING EQUIPMENT CONTROLLED. (USE WHITE LETTERS ON BLACK BACKGROUND)
13. ALL PULLBOXES, JUNCTION BOXES, AND SWITCH BOXES INSIDE AREA SHALL BE NEMA 1.
14. ALL JUNCTION BOXES INDICATED AND/OR REQUIRED SHALL BE SIZED TO ACCOMMODATE INCOMING AND OUTGOING FEEDERS.
15. MC CABLE SHALL BE USED IN FURRED OUT WALLS AND HUNG CEILING AREA'S FOR LIGHTING AND GENERAL RECEPTACLES.
16. SWITCHES SHALL BE MOUNTED 4'-0" AND RECEPTACLES 1'-6" ABOVE FINISHED FLOOR UNLESS NOTED OTHERWISE.
17. ALL BRANCH CIRCUIT WIRES & ALL FEEDERS SHALL BE PERMANENTLY TAGGED AT THE PANEL CONNECTIONS WITH "BRADY" MARKERS.
18. ELECTRICAL CONTRACTOR SHALL REVISE ALL EXISTING CIRCUITING & CONDUIT AS NOTED. CONTRACTOR SHALL VERIFY CONDITION OF EXISTING WIRING TO BE REUSED & REPLACE AS REQUIRED.
19. IN ALL AREAS WHERE EXISTING ELECTRICAL WORK IS TO REMAIN, RESTORE ALL CIRCUITS INTERRUPTED BY NEW WORK.
20. MAINTAIN AND RESTORE, IF INTERRUPTED, ALL CONDUITS AND FEEDERS PASSING THROUGH RENOVATED AREAS AND SERVICING UNDISTURBED AREAS.
21. PARTIAL BRANCH CIRCUIT WIRING DENOTING EXISTING CONTROL OR SWITCHING ON THE DRAWINGS IS SHOWN FOR REFERENCE/CLARIFICATION ONLY, AND IS NOT TO BE CONSTRUED TO IMPLY COMPLETE CIRCUIT WIRING. THE LOCATION OF THE INTERCONNECTION OF CONTROL DEVICE, AND EQUIPMENT CONTROLLED IS DIAGRAMMATIC ONLY.
22. THE ELECTRICAL CONTRACTOR SHALL SEISMICALLY BRACE ALL ELECTRICAL ITEMS AS REQUIRED BY STATE OF CT. BUILDING CODE. PROVIDE ALL SEISMIC ANCHORS AND SUPPORTS. PROVIDE DETAILS ACCEPTABLE TO REVIEW AGENCIES FOR SUPPORTS AND ANCHORS OF ACTUAL EQUIPMENT SUPPLIED. REFER TO "GUIDELINES AND DETAILS FOR SEISMIC RESTRAINTS".
23. EACH CIRCUIT SHALL HAVE ITS OWN NEUTRAL. NEUTRALS ARE NOT ALLOWED TO BE SHARED, ESPECIALLY ON LIGHTING CIRCUITS.
24. ALL EMERGENCY LIGHTS SHALL OPERATE FOR A MINIMUM OF 90 MINUTES AND SHALL BE TESTED AS PER NFPA 72 STANDARDS.
25. ALL RECEPTACLES LOCATED WITHIN SIX FEET OF ANY SINK, TOILET OR ANY WATER SOURCE, INCLUDING EXTERIOR RECEPTACLES SHALL BE GFCI TYPE.
26. PROVIDE JUNCTION BOX AND RUN 1" CONDUIT TO ABOVE CEILING FOR EACH TIME CLOCK AND THERMOSTAT LOCATIONS AS SHOWN ON MECHANICAL PLANS.

ELECTRICAL ABBREVATIONS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
A	AMPS	JB	JUNCTION BOX
AC	ABOVE COUNTER	KCMIL	THOUSAND CIRCULAR MILLS
AFF	ABOVE FINISHED FLOOR	KVA	KILOVOLT-AMPERE
AFG	ABOVE FINISHED GRADE	KW	KILOWATT
AL	ALUMINUM	LP	LIGHTING PANEL
AM	AMMETER	MCB	MAIN CIRCUIT BREAKER
ATC	AUTOMATIC TEMPERATURE CONTROL	MCC	MOTOR CONTROL CENTER
ATS	AUTOMATIC TRANSFER SWITCH	MLO	MAIN LUGS ONLY
AWG	AMERICAN WIRE GAUGE	MTD	MOUNTED
C	CONDUIT	NIC	NOT IN CONTRACT
CAT.	CATALOG	NTS	NOT TO SCALE
CB	CIRCUIT BREAKER	NC	NORMALLY CLOSED
CATV	CABLE TELEVISION	NL	NEW LOCATION OF EXISTING
CCTV	CLOSED CIRCUIT TELEVISION	NO	NORMALLY OPEN
CKT	CIRCUIT	NR	NEW TO REPLACE EXISTING
CLG	CEILING	P	POLE
CU	COPPER	PNL	PANEL
DP	DISTRIBUTION PANEL	PH, ø	PHASE
DISC. SW.	DISCONNECT SWITCH	PP	POWER PANEL
CONTR.	CONTRACTOR	RE	REMOVE EXISTING
EF	EXHAUST FAN	RL	RELOCATE EXISTING
EM	EMERGENCY	RR	REMOVE AND REPLACE
EWC	ELECTRIC WATER COOLER	RGS	RIGID GALVANIZED STEEL
EX	EXISTING	TEL	TELEPHONE
EXT	EXTERIOR	TYP	TYPICAL
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	U.G.	UNDERGROUND
GND	GROUND	V	VOLTS
HOA	HAND-OFF-AUTOMATIC	VIF	VERIFY IN FIELD
HP	HORSE POWER	W	WATTS
HZ	HERTZ	WP	WEATHER PROOF
IG	ISOLATED GROUND	XFMR	TRANSFORMER

ELECTRICAL SCOPE OF WORK

THE WORK INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING:

1. ELECTRICAL SYSTEM MODIFICATIONS. (BOILER FEEDS & CONTROLS)
2. EMERGENCY LIGHTING SYSTEM MODIFICATIONS AS INDICATED.
3. LIFE SAFETY (EXIT SIGNS) AS INDICATED.
4. GROUNDING SYSTEM PROVIDED AS REQUIRED BY ALL LOCAL CODES.
5. FIRESTOPPING AND SMOKE STOPPING REQUIREMENTS PER DIVISION 7 AND THE CONTRACT DOCUMENTS.
6. SEISMIC BRACING OF ELECTRICAL EQUIPMENT WHERE REQUIRED BY THE SPECIFICATIONS AND STATE OF CONNECTICUT.
7. SHOP DRAWINGS AND OPERATION MANUALS AS REQUIRED BY THE SPECIFICATIONS.

MECHANICAL DRAWING LIST

DWG. NO.	REV.	DRAWING TITLE
TH-M101	-	PARTIAL FLOOR PLAN MECHANICAL
TH-M102	-	PARTIAL FLOOR PLAN MECHANICAL
TH-M103	-	PARTIAL FLOOR PLAN MECHANICAL
TH-M104	-	PARTIAL FLOOR PLAN MECHANICAL
TH-M105	-	BOILER ROOM PLAN DEMOLITION MECHANICAL
TH-M106	-	BOILER ROOM PLAN MECHANICAL
TH-M107	-	SCHEDULES AND DETAILS MECHANICAL

ELECTRICAL DRAWING LIST

DWG. NO.	REV.	DRAWING TITLE
TH-EG1	-	GENERAL NOTES, SYMBOL LEGENDS, ABBREVIATIONS AND DRAWING LISTS
TH-E100	-	LUMINAIRE & MECHANICAL EQUIPMENT WIRING SCHEDULES, DETAILS & NOTES
TH-ED101	-	ELECTRICAL DEMOLITION PLAN BOILER ROOM
TH-E101	-	PARTIAL FLOOR PLAN ELECTRICAL
TH-E102	-	PARTIAL FLOOR PLAN ELECTRICAL
TH-E103	-	ELECTRICAL FLOOR PLAN BOILER ROOM

FIRE ALARM DEVICES

SYMBOL	DESCRIPTION
FACP	FIRE ALARM SPEAKER/A.D.A. STROBE
H	AUTOMATIC FIRE ALARM HEAT DETECTOR
F	FIRE ALARM PULL STATION
MM	FIRE ALARM MONITOR MODULE
CM	FIRE ALARM CARBON MONOXIDE DETECTOR

DEVICE MOUNTING HEIGHTS

SYMBOL	DESCRIPTION
	DUPLEX RECEPTACLE AT 18" TO CENTER A.F.F., UNLESS OTHERWISE NOTED
S_S	SINGLE OR THREE-WAY POLE TOGGLE SWITCH AT 48" TO TOP OF PLATE A.F.F., UNLESS OTHERWISE NOTED

POWER & BRANCH CIRCUITING

SYMBOL	DESCRIPTION
	EXISTING DUPLEX RECEPTACLE
	EXISTING MOTOR STARTER
	EXISTING PANEL BOARD
	EXISTING DISCONNECT SWITCH
	EXISTING JUNCTION BOX
	NEW DUPLEX RECEPTACLE

LIGHTING DEVICES

SYMBOL	DESCRIPTION
	EXISTING 6" X 4' FLUORESCENT STRIP LUMINAIRE
	EXISTING INCANDESCENT PENDANT LUMINAIRE
	NEW 6" X 4' FLUORESCENT STRIP LUMINAIRE
S	SINGLE-POLE TOGGLE SWITCH
S_3	THREE-WAY TOGGLE SWITCH
	EXISTING INCANDESCENT SOCKET LUMINAIRE
	NEW EMERGENCY WALL PACK
EXIT	NEW COMBINATION EXIT SIGN/EMERGENCY LIGHT
	EXISTING EMERGENCY WALL PACK

COMMUNICATIONS DEVICES

SYMBOL	DESCRIPTION
W	EXISTING WALL MOUNTED TELEPHONE

SYMBOLS SHOWN FOR REFERENCE ONLY AND DO NOT CONSTITUTE A CHECK LIST OF DEVICES REQUIRED BY THE CONTRACTOR

THE EXIT SIGNS SHALL BE VISIBLE AT A MINIMUM OF 100 FEET. AT NO POINT SHALL EXIT SIGNS EXCEED 100 FEET FROM ONE TO THE OTHER IN ACCESS CORRIDOR. CHEVRONS SHALL BE IDENTIFIABLE AT A MINIMUM DISTANCE OF 40 FEET.

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MUSCO ENGINEERING ASSOCIATES
375 Morgan Lane, Unit 307
West Haven, CT 06516
(203) 932-1901 FAX (203) 931-1550
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REVISIONS

NO.	BY	DATE	DESCRIPTION

PROJECT TITLE

TURKEY HILL SCHOOL
441 TURKEY HILL ROAD
ORANGE, CT
STATE PROJECT NO:
TMP-107-GMZN

BOILERS & UNIT VENT. REPLACEMENTS

Prepared For:

TOWN OF ORANGE, CT
637 ORANGE CENTER ROAD
ORANGE, CT 06477

SHEET TITLE

GENERAL NOTES, SYMBOL LEGENDS, ABBREVIATIONS AND DRAWING LISTS

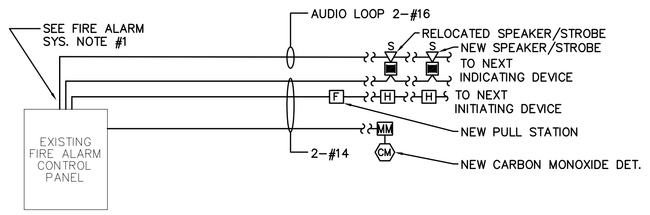
DESIGNED BY: TJB	SCALE: AS NOTED
DRAWN BY: TJB	DATE: 06-17-13
CHECKED BY: MVM	PROJECT NUMBER: 1605
CAD FILE: EG1.DWG	

SEAL

SHEET NUMBER

TH-EG1

MEA# 130417-1



FIRST FLOOR

FIRE ALARM SYSTEM NOTES:

1. CONTRACTOR SHALL PROVIDE ALL CONNECTIONS TO THE EXISTING FIRE ALARM SYSTEM AS REQUIRED. COORDINATE ALL WIRING REQUIREMENTS AND METHODS WITH THE MANUFACTURER, SIMPLEX–GRINNELL AS NECESSARY.
2. CARBON MONIOXIDE (CO) DETECTION SHALL ACTIVATE A SUPERVISORY SIGNAL IN THE EXISTING SIMPLEX/GRINNELL FIRE ALARM CONTROL PANEL AND ALL REMOTE ANNUNCIATORS, AS PER CT. GENERAL STATUTE #29–292.
3. CARBON MONIOXIDE (CO) DETECTION SHALL NOT CAUSE AN EVACUATION OF THE BUILDING, AS PER CT. GENERAL STATUTE #29–292.
4. FIRE ALARM DEVICES AND WIRING INSTALLATION SHALL BE AS PER MANUFACTURER'S INSTRUCTIONS LOCATE CO DETECTOR AS FAR AS POSSIBLE FROM HEATING APPLIANCE AND AS PER MANUFACTURERS INSTRUCTIONS AND NFPA 72.
5. FIRE ALARM SYSTEM SHALL BE TESTED AND MAINTAINED AS PER MANUFACTURER'S INSTRUCTIONS AND AS PER NFPA 72.

TYPICAL FIRE ALARM RISER

NOT TO SCALE

GENERAL NOTES:

1. INSTALLATIONS SHALL COMPLY TO FEDERAL, STATE, AND LOCAL BUILDING CODES.
2. ALL WIRING SHALL COMPLY WITH APPLICABLE SECTIONS OF THE NATIONAL ELECTRICAL CODE 2005.
3. WIRING REQUIREMENTS ARE AS FOLLOWS:
   USE OF STRANDED CONDUCTORS WITH MAXIMUM 7 STRANDS FOR #16 AND MAX. 19 STRANDS FOR SIZES #14 OR LARGER IS PERMITTED.
   USE ONLY APPROVED FIRE ALARM CABLES OR WIRES WITHIN METAL CONDUITS, TERMINATE ALL WIRING WITH U.L. LISTED DEVICES.
4. NO SMOKE DETECTOR SHALL BE LOCATED WITHIN 3 FEET OF A SUPPLY AIR OUTLET REFER TO NFPA 72 FOR MORE GUIDELINES.
5. ALL INITIATION AND SIGNALING CIRCUITS SHALL BE CLASS B.
6. ALL LOW VOLTAGE WIRING MAY RUN IN A COMMON CONDUIT.
7. RUN AC POWER IN SEPARATE CONDUIT, DO NOT RUN WITHIN ANY OTHER CONDUIT CARRYING FIRE ALARM SYSTEM WIRING.
8. NO PARALLEL BRANCHING OR "T" SPLICES ARE PERMITTED ON SIGNALING CIRCUITS.
9. DETECTOR AND SIGNALING POLARITY SHALL BE OBSERVED.
10. ALL WIRING SHALL BE CHECKED FOR OPENS, SHORTS, AND GROUNDS.
11. ALL ENCLOSURES AND CONDUITS SHALL BE PROPERLY GROUNDED IN ACCORDANCE WITH THE 2005 EDITION OF THE NATIONAL ELECTRICAL CODE.
12. INTERLOCKS SHALL NOT EXCEED RATED CURRENT OF CONTACTS.
13. INSTALLATION TO BE COMPLETED IN A PROFESSIONAL, WORKMANLIKE MANNER.

SYSTEM INITIATION:

1. THE FOLLOWING DEVICES WILL CAUSE A LOCAL ALARM WHICH INCLUDES ACTIVATION OF ALL NOTIFICATION DEVICES (SPEAKER/STROBES) & EVACUATION OF BUILDING AS PER THE LOCAL FIRE MARSHAL (AHU)
   A. SMOKE DETECTORS
   B. PULL STATIONS
14. THE FOLLOWING DEVICES WILL SEND TROUBLE SIGNAL TO THE MAIN FIRE ALARM PANEL AND WILL ALSO SEND A SIGNAL TO THE LOCAL FIRE DEPARTMENT. THIS TROUBLE ALARM WILL NOT ACTIVATE THE SPEAKERS OR STROBES AND WILL NOT CAUSE AN EVACUATION OF BUILDING.
   A. TAMPER SWITCHES
   B. CARBON MONOXIDE DETECTORS
15. THE DEVICES SHOWN ON THE RISER DO NOT REPRESENT THE ACTUAL COUNT. ELECTRICAL CONTRACTOR SHALL REFER TO FIRE ALARM FLOOR PLANS FOR EXACT COUNTS OF DEVICES, AND BE RESPONSIBLE FOR ALL REQUIRED UNITS.
16. DO NOT LOAD EACH CIRCUIT ZONE WITH MORE THAN 60% OF CAPACITY.
17. IN EXPOSED AND/OR FINISHED AREAS, NEW FIRE ALARM WIRING SHALL BE RUN IN SURFACE METAL RACEWAY (WIREMOLD OR EQUAL).
18. ALL FIRE ALARM CABLE SHALL BE RUN IN AC CABLE AND/OR CONDUIT AND CONCEALED IN WALLS AND CEILINGS.

MECHANICAL EQUIPMENT WIRING SCHEDULE

DESCRIPTION	LOAD AMPS	VOLTAGE	CONDUCTORS NO.	SIZE	GND.	TYPE	CONDUIT SIZE	CIRCUIT BREAKER	CIRCUIT	REMARKS
BOILER #1	8.8	208/1Ø	3	12	12	THWN	–	20A–2P	PANEL 'PP1'	–
BOILER #2	8.8	208/1Ø	3	12	12	THWN	–	20A–2P	PANEL 'PP1'	–
BOILER #3	9.8	120/1Ø	3	12	12	THWN	–	20A–1P	PANEL 'Y'	–
BOILER #1–CONTROLS	0.12	120/1Ø	3	12	12	THWN	–	20A–1P	PANEL 'PP1'	–
BOILER #2–CONTROLS	0.12	120/1Ø	3	12	12	THWN	–	20A–1P	PANEL 'PP1'	–
BOILER #3–CONTROLS	0.12	120/1Ø	3	12	12	THWN	–	20A–1P	PANEL 'Y'	–
BOILER CONTROL PANEL	30.0	120/1Ø	3	10	10	THWN	–	40A–1P	PANEL 'Y'	–
NEW TIMECLOCK	0.6	120/1Ø	3	12	12	THWN	–	20A–1P	PANEL 'Y'	–
CARBON MONOXIDE DET.	0.09	120/1Ø	3	12	12	THWN	–	20A–1P	PANEL 'Y'	PLUG–IN

MECHANICAL EQUIPMENT NOTES:

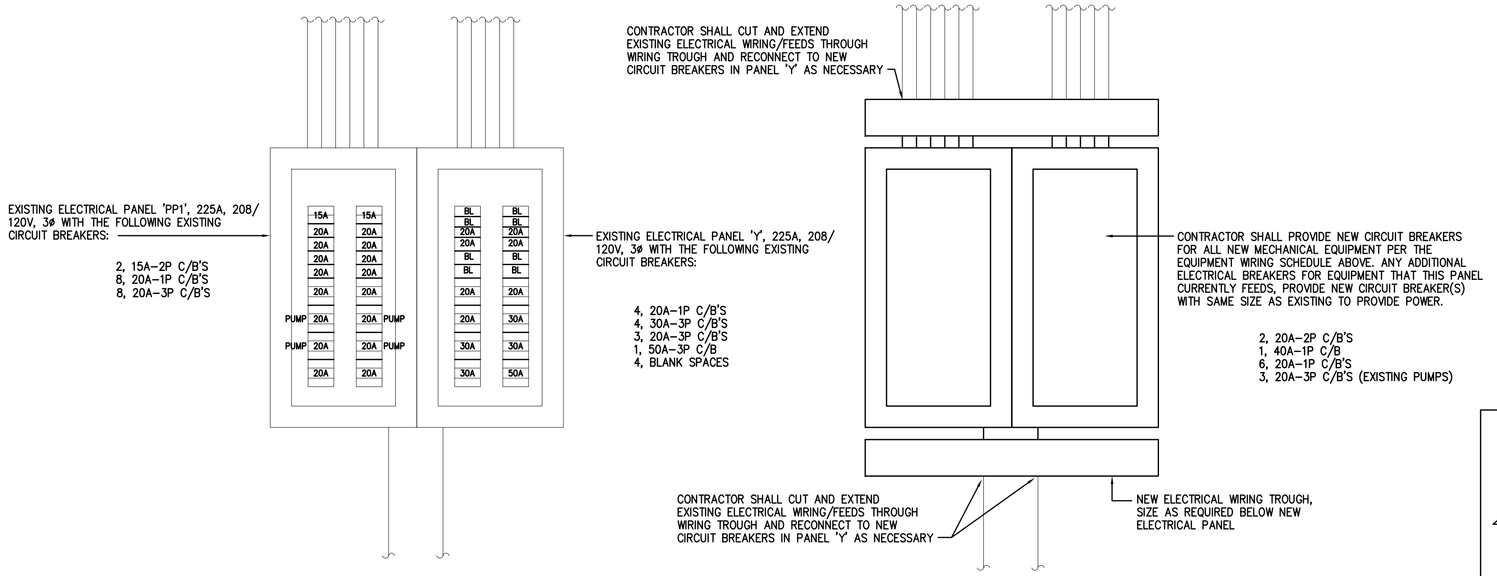
1. CONTRACTOR SHALL VERIFY ALL OUTLET CONFIGURATIONS AND LOCATIONS WITH EQUIPMENT SUPPLIER PRIOR TO ROUGH–IN.
2. CONTRACTOR TO INSTALL ELECTRICAL CIRCUITS AND ASSOCIATED J–BOXES FOR ALL EQUIPMENT PROVIDED BY OTHERS.
3. MECHANICAL EQUIPMENT SHOWN ON THE DRAWINGS WERE OBTAINED AT TIME OF DESIGN AND MAY HAVE CHANGED. VERIFY WIRE/CONDUIT, BREAKER SIZE CONNECTION TO EQUIPMENT PRIOR TO ROUGH–IN.
4. REFER TO SPECIFICATIONS AND MECHANICAL DRAWINGS FOR ADDITIONAL ELECTRICAL REQUIREMENTS.

LUMINAIRE SCHEDULE

TYPE	MANUFACTURER	EST. WATTS	CATALOG NUMBER	LAMP QTY.	LAMP TYPE	VOLTS	BALLAST QTY.	BALLAST TYPE	MOUNTING	REMARKS	LOCATION
A	DAY–BRITE	57.6	IS232–120–1/2–EB–FKR–173–FL–123	2	32W T8 3500° K 75 CRI	120	1	ELECTRONIC PROG START	STRUCT. ABOVE	4" X 48" FLUORESCENT STRIP LUMINAIRE WITH WIRE GUARD, CHAINS & 'S' HOOKS	SEE PLANS
B	NITE BRITES	50	WLT–050–M–12–LP	1	50W MH	120	1	ELECTRONIC PROG START	WALL MOUNT	8 1/2" X 7 1/2" SMALL LOW PROFILE WALL PACK, ALUMINUM HOUSING, DARK BRONZE FINISH	SEE PLANS
EM	MCPHILBIN	10.8	VU6	2	5.4W TNGST.	120	–	–	WALL	SELF–CONTAINED EMERGENCY BATTERY PACK LEAD CALCIUM BATTERY & SELF–DIAGNOSTICS	SEE PLANS
EX	MCPHILBIN	2.1	VE–R–W–EM	–	LED	120	–	–	UNIVERSAL	THERMOPLASTIC EXIT SIGN, RED LETTERING, WHITE HOUSING, NI CAD BATTERY	SEE PLANS
EX1	MCPHILBIN	22	VCRW	2	LED 5.4W TNGST.	120	–	–	UNIVERSAL	COMBINATION EMERG./LED EXIT SIGN–WHITE THERMO–PLASTIC WHITE HOUSING WITH LEAD CALCIUM BATTERY, CHARGER & SELF–DIAGNOSTICS, W/REMOTE CAPABLTY	SEE PLANS
RH	MCPHILBIN	10.8	CT DOUBLE REMOTE HEAD	2	5.4W TNGST.	120	–	–	UNIVERSAL	REMOTE LAMP HEAD, MOUNT ON EXTERIOR WALL WHITE HOUSING, TUNGSTEN LAMPS	SEE PLANS

NOTES:

1. ALL FLUORESCENT BALLASTS: THD MAX. = 10%, PROGRAMMED RAPID START.
2. ALL FLUORESCENT LAMPS TO HAVE MIN. CRI 85 AND COLOR TEMPERATURE OF 4100, 2850 INITIAL LUMENS MINIMUM, 24,000 HR. LIFE EXCEPT "U" OR COMPACT LAMPS.

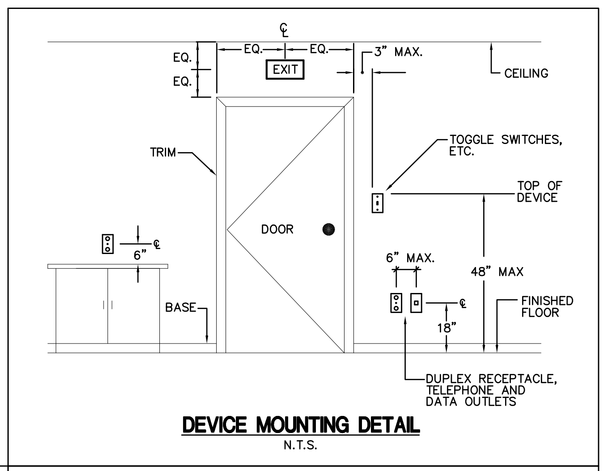


EXISTING ELECTRICAL PANELS (BOILER ROOM)

N.T.S.

NEW ELECTRICAL PANELS (BOILER ROOM)

N.T.S.



DEVICE MOUNTING DETAIL

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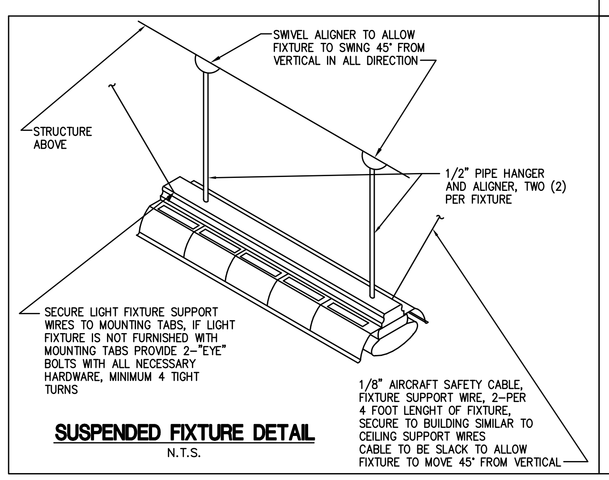

SUSPENDED FIXTURE DETAIL

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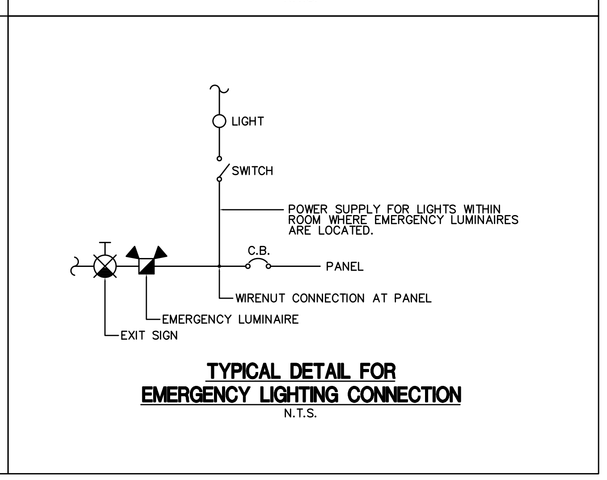

TYPICAL DETAIL FOR EMERGENCY LIGHTING CONNECTION

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375 Morgan Lane, Unit 307
West Haven, CT 06516
(203) 932-1901 FAX (203) 931-1550
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REVISIONS			
NO.	BY	DATE	DESCRIPTION

PROJECT TITLE

TURKEY HILL SCHOOL
441 TURKEY HILL ROAD
ORANGE, CT
STATE PROJECT NO: TMP–107–GMZN

BOILERS & UNIT VENT. REPLACEMENTS

Prepared For:

TOWN OF ORANGE, CT
637 ORANGE CENTER ROAD
ORANGE, CT 06477

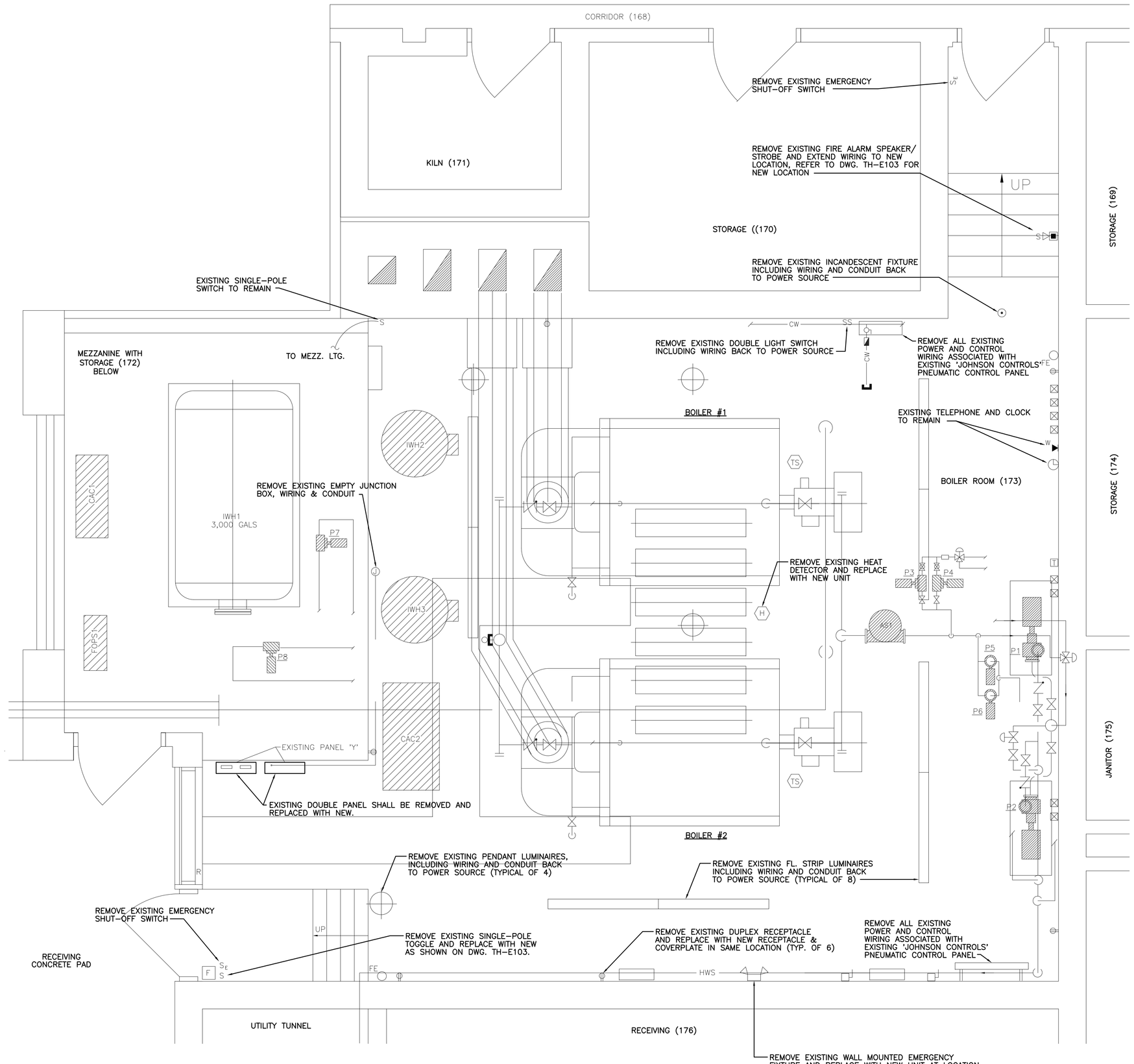
SHEET TITLE

LUMINAIRE & MECHANICAL EQUIP. WIRING SCHEDULES, DETAILS & NOTES

DESIGNED BY: TJB	SCALE: AS NOTED
DRAWN BY: TJB	DATE: 06–17–13
CHECKED BY: MVM	PROJECT NUMBER: 1605
CAD FILE: E101.DWG	

SEAL	SHEET NUMBER
	TH–E100

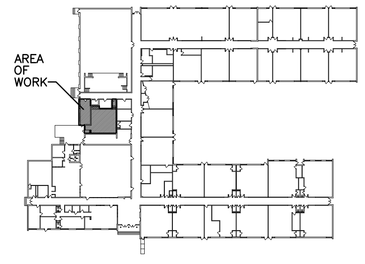
MEA# 130417–1



ELECTRICAL DEMOLITION PLAN – BOILER ROOM
SCALE: 1/2"=1'-0"

DEMOLITION NOTES

1. LOCATION OF ALL EXISTING ELECTRICAL WORK SHOWN ON FLOOR PLANS ARE BASED ON BEST AVAILABLE INFORMATION. CONTRACTOR SHALL VERIFY ALL LOCATIONS OF EXISTING ELECTRICAL WORK IN THE FIELD.
2. DEMOLITION INSIDE THE BUILDING SHALL CONSIST OF THE REMOVAL AND/OR REPLACEMENT OF ELECTRICAL, COMMUNICATION AND/OR FIRE ALARM DEVICES AS SHOWN ON THE PLANS. CONTRACTOR SHALL GIVE ATTENTION TO SALVAGEABLE/RELOCATED FIXTURES AND HAND THEM OVER TO THE OWNER. ALL NONSALVAGEABLE MATERIAL SHALL BE DISPOSED OF PROPERLY ACCORDING WITH THE CODE AND REGULATIONS.
3. IT IS NOT THE INTENT OF THESE DRAWINGS TO SHOW ENTIRE EXISTING EQUIPMENT LAYOUT AND ELECTRICAL WORK. THE CONTRACTOR SHALL REMOVE ALL ELECTRICAL WORK AS SHOWN OR NOTED ON DRAWING AND ALSO ALL EQUIPMENT AND ELECTRICAL WORK NOT BEING USED. THE CONTRACTOR SHALL REMOVE ALL ELECTRICAL WORK ASSOCIATED WITH EQUIPMENT BEING REMOVED. FULL EXTENT OF DEMOLITION/RELOCATIONS SHALL BE DETERMINED BY THE CONTRACTOR DURING HIS SITE VISIT AND SHALL INCLUDE, BUT NOT BE LIMITED TO: LIGHTING FIXTURES, RECEPTACLES, SWITCHES, FIRE ALARM, TELEPHONE, JUNCTION BOXES, CONDUIT, WIRING AND PANELS.
4. ALL OTHER EXISTING ELECTRICAL WORK SHALL REMAIN UNLESS OTHERWISE NOTED.
5. ALL HANGERS AND SUPPORTS SHALL BE REMOVED ALONG WITH CONDUIT BEING REMOVED AS A PART OF THIS CONTRACT. ALL EQUIPMENT SUPPORTS SHALL BE REMOVED ALONG WITH EQUIPMENT BEING REMOVED AS PART OF THIS CONTRACT.
6. ANY CONDUIT AND WIRING FOUND IN WALLS OR CEILINGS DURING DEMOLITION WALL BECOME PART OF THIS CONTRACT. ENGINEER SHALL BE NOTIFIED PRIOR TO REMOVAL. IF CONDUIT AND WIRING IS FEEDING EQUIPMENT TO REMAIN IN SERVICE, CONTRACTOR SHALL RELOCATE CONDUIT AND WIRING AND REFEED AFFECTED EQUIPMENT IN FULL OPERATING ORDER.
7. REFER TO DRAWINGS TH-EG1 FOR GENERAL NOTES, SYMBOL LEGENDS, ABBREVIATIONS AND DRAWING LISTS.
8. THE CONTRACTOR SHALL SEAL ALL PENETRATIONS THROUGH SMOKE & FIRE RATED PARTITIONS AND FLOORS WITH A UL LISTED SMOKE AND/OR FIRE STOP TO MAINTAIN THE INTEGRITY OF THE SMOKE/FIRE RATING. REFER TO ARCHITECTURAL DRAWINGS FOR FIRE/SMOKE RATINGS. PROVIDE SHOP DRAWINGS FOR ALL PENETRATIONS. REFER TO DIVISION 7 FOR ADDITIONAL REQUIREMENTS. ALL FLOOR/WALL PENETRATIONS SHALL BE SEALED AS PER ASTM E814.
9. REMOVE ALL JUNCTION BOXES, BACKBOXES, COVER PLATES, WIRING AND CONDUIT IN ITS ENTIRETY BACK TO SOURCE, FOR ALL ELECTRICAL DEVICES INDICATED ON THE FLOOR PLANS, UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS.
10. THE OWNER IS RESPONSIBLE FOR THE REMOVAL OR ABATEMENT OF ANY AND ALL ASBESTOS RELATED MATERIALS PRIOR TO THE CONTRACTOR COMMENCING WITH HIS WORK. HOWEVER, OF THE CONTRACTOR SHOULD ENCOUNTER ANY MATERIALS WHICH HE SUSPECTS TO BE LADEN WITH ASBESTOS, HE SHALL CEASE WORK AT ONCE AND REPORT HIS FINDING TO THE OWNERS REPRESENTATIVE.
11. ANY ELECTRICAL SHUTDOWNS REQUIRED TO COMPLETE THE DEMOLITION WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. SHUTDOWNS SHALL BE COORDINATED 48 HOURS IN ADVANCE WITH THE OWNERS REPRESENTATIVE.
12. ALL AREAS NOT UNDER CONSTRUCTION SHALL BE KEPT OPERATIONAL DURING CONSTRUCTION. TO ACCOMPLISH THIS, PROVIDE THE NECESSARY TEMPORARY ELECTRICAL SERVICES. REMOVE TEMPORARY DEVICES UPON COMPLETION OF THE PROJECT.
13. RELOCATE OR REMOVE ALL ELECTRICAL DEVICES IN ACCORDANCE WITH THE 2005 NEC. WHEN RELOCATION OR REMOVAL OF AN ELECTRICAL DEVICE INTERRUPTS THE CONTINUITY OF A CIRCUIT, REROUTE THESE CIRCUITS AS REQUIRED TO MAINTAIN CIRCUIT CONTINUITY.
14. WHERE REMOVAL OR RELOCATION OF EXISTING CONDUIT(S) PASSES THROUGH EXISTING WALLS, THE OPENINGS SHALL BE SEALED AND PAINTED TO MATCH THE EXISTING WALLS/AREAS.
15. EXISTING LUMINAIRES SHALL BE REMOVED AND REPLACED WITH NEW FIXTURES AS INDICATED ON THE FLOOR PLANS AND LIGHTING FIXTURE SCHEDULE.



KEY PLAN
SCALE: NTS

NOTES:

1. REFER TO DRAWING TH-EG1 FOR GENERAL NOTES, SYMBOL LEGENDS, ABBREVIATIONS AND DRAWING LISTS.
2. REFER TO PROJECT MANUAL FOR ELECTRICAL SPECIFICATIONS.
3. REFER TO DRAWING TH-E100 FOR LUMINAIRE SCHEDULE, EQUIP. WIRING SCHEDULE, DETAILS AND NOTES.

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REVISIONS			
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PROJECT TITLE

TURKEY HILL SCHOOL
441 TURKEY HILL ROAD
ORANGE, CT
STATE PROJECT NO:
TMP-107-GMZN

BOILERS & UNIT VENT. REPLACEMENTS

ORANGE CONNECTICUT 1822 TOWN SEAL

Prepared For:

TOWN OF ORANGE, CT
637 ORANGE CENTER ROAD
ORANGE, CT 06477

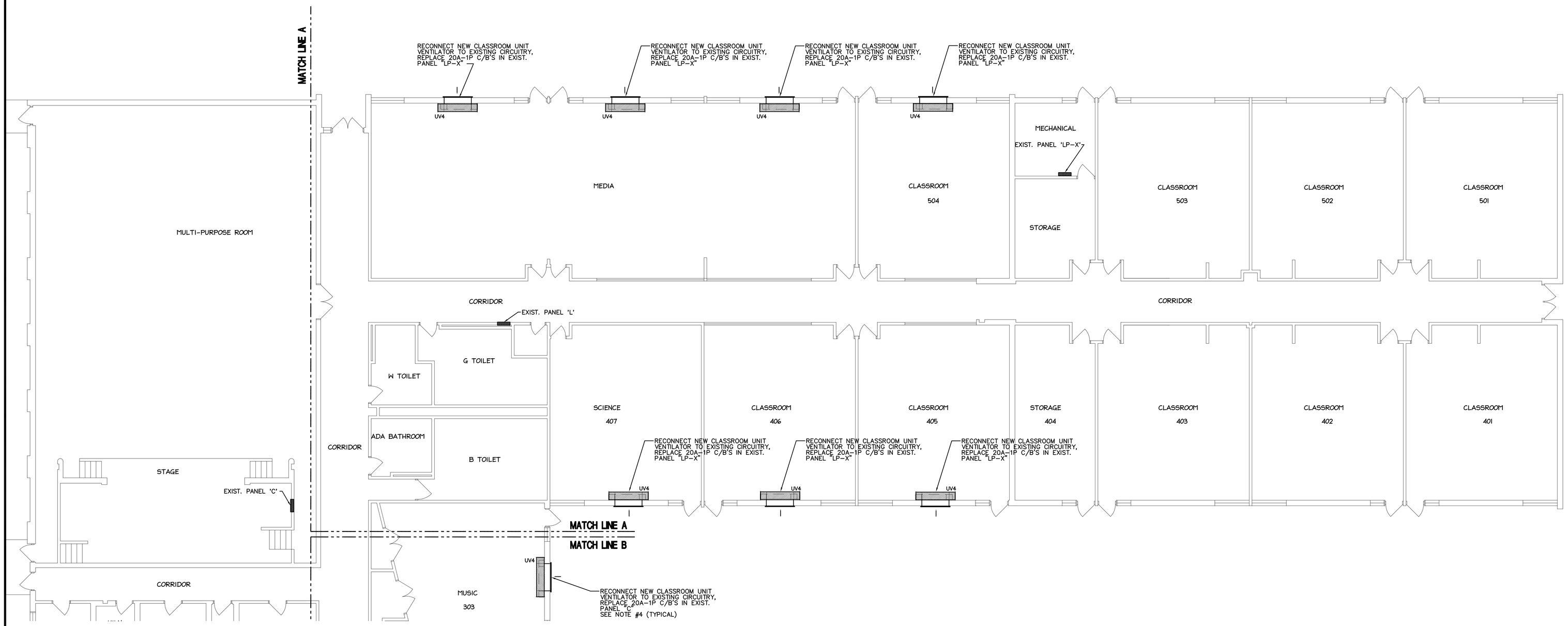
SHEET TITLE

PARTIAL FLOOR PLAN ELECTRICAL DEMOLITION

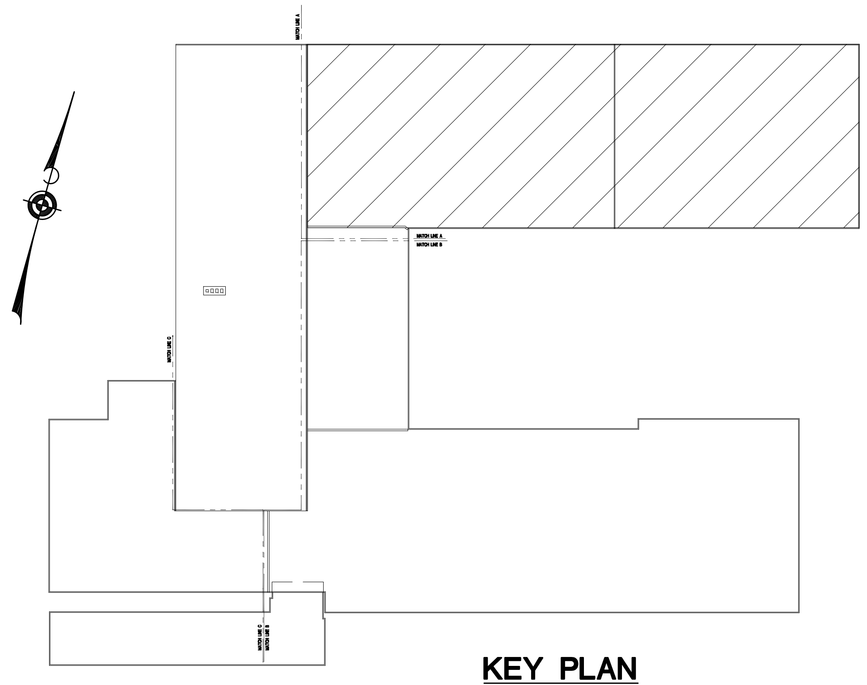
DESIGNED BY: TJB	SCALE: AS NOTED
DRAWN BY: TJB	DATE: 06-17-13
CHECKED BY: MVM	PROJECT NUMBER: 1605
CAD FILE: ED101.DWG	

SEAL	SHEET NUMBER
	TH-ED101

MEA# 130417-1



ELECTRICAL FLOOR PLAN
SCALE: 1/8" = 1'-0"



KEY PLAN

NOTES:

1. REFER TO PROJECT MANUAL FOR SPECIFICATIONS.
2. REFER TO DRAWING TH-M107 FOR MECHANICAL SEQUENCE OF OPERATIONS, AND SCOPE OF WORK. REFER TO DRAWING TH-M101 FOR EQUIPMENT SELECTION.
3. THE CONTRACTOR SHALL SEAL ALL PENETRATIONS THROUGH FIRE RATED WALLS AS INDICATED ON DRAWING TH-EG101 WITH A U.L. LISTED FIRESTOP TO MAINTAIN THE INTEGRITY OF THE FIRE RATING. PROVIDE SHOP DRAWINGS FOR ALL PENETRATIONS. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
4. CONTRACTOR SHALL VERIFY TYPE AND QUANTITY OF EXISTING CIRCUIT BREAKERS TO BE REPLACED IN EXISTING PANELS.

ROSE •TISO & CO. LLC.
ARCHITECTS • SURVEYORS • ENGINEERS
WWW.ROSETISO.COM
35 BRENTWOOD AVENUE, FAIRFIELD, CT 06825
TEL: (203)610-6262 • FAX: (203)610-6404

MEA MUSCO ENGINEERING ASSOCIATES
375 Morgan Lane, Unit 307
West Haven, CT 06516
(203) 932-1901 FAX (203) 931-1550
www.muscoengineering.com

REVISIONS			
NO.	BY	DATE	DESCRIPTION

PROJECT TITLE

TURKEY HILL SCHOOL
441 TURKEY HILL ROAD
ORANGE, CT
STATE PROJECT NO:
TMP-107-GMZN

BOILERS & UNIT VENT. REPLACEMENTS

ORANGE CONNECTICUT 1822 TOWN SEAL

Prepared For:

TOWN OF ORANGE, CT
637 ORANGE CENTER ROAD
ORANGE, CT 06477

SHEET TITLE

PARTIAL FLOOR PLAN ELECTRICAL

DESIGNED BY: TJB	SCALE: AS NOTED
DRAWN BY: TJB	DATE: 06-17-13
CHECKED BY: MVM	PROJECT NUMBER: 1605
CAD FILE: E101.DWG	

SEAL	SHEET NUMBER
	TH-E101

MEA# 130417-1

MATCH LINE A

MATCH LINE B

CORRIDOR

KILN

STORAGE

STORAGE

STORAGE

BOILER ROOM

JANITOR

EXIST. PANEL 'Y'

EXIST. PANEL 'PP1'

RECEIVING

CAFETERIA

CORRIDOR

MUSIC
303

RESOURCE
302

ART
301

OFFICE
300

STORAGE

STORAGE

JANITOR

UV4

RECONNECT NEW CLASSROOM UNIT VENTILATOR TO EXISTING CIRCUITRY, REPLACE 20A-1P C/B'S IN EXIST. PANEL 'C'

RECONNECT NEW CLASSROOM UNIT VENTILATOR TO EXISTING CIRCUITRY, REPLACE 20A-1P C/B'S IN EXIST. PANEL 'B'

STOR

CLASSROOM
205

CLASSROOM
204

CLASSROOM
203

CLASSROOM
202

CLASSROOM
201

EXIST. PANEL 'B'

CORRIDOR

CORRIDOR

GENERAL OFFICE

EXIST. PANEL 'A'

LOBBY

CLASSROOM
107

CLASSROOM
106

SPEECH
105

CLASSROOM
104

CLASSROOM
103

SCIENCE
102

CLASSROOM
101

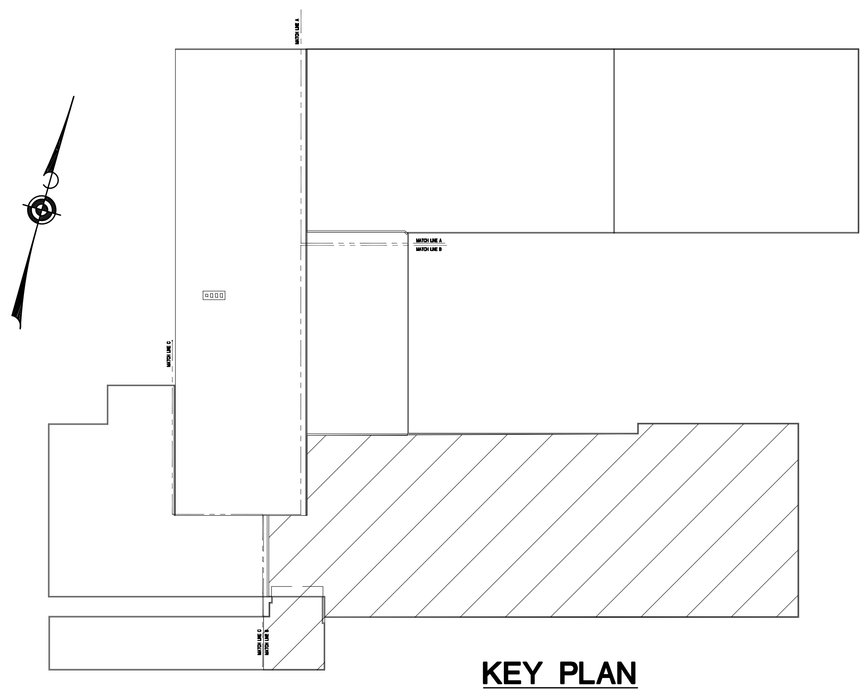
UV2

UV3

MATCH LINE B

ELECTRICAL FLOOR PLAN

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



KEY PLAN

NOTES:

1. REFER TO PROJECT MANUAL FOR SPECIFICATIONS.
2. REFER TO DRAWING TH-M107 FOR MECHANICAL SEQUENCE OF OPERATIONS, AND SCOPE OF WORK. REFER TO DRAWING TH-M101 FOR EQUIPMENT SELECTION.
3. THE CONTRACTOR SHALL SEAL ALL PENETRATIONS THROUGH FIRE RATED WALLS AS INDICATED ON DRAWING TH-EG101 WITH A U.L. LISTED FIRESTOP TO MAINTAIN THE INTEGRITY OF THE FIRE RATING. PROVIDE SHOP DRAWINGS FOR ALL PENETRATIONS. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
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REVISIONS			
NO.	BY	DATE	DESCRIPTION

PROJECT TITLE

TURKEY HILL SCHOOL
441 TURKEY HILL ROAD
ORANGE, CT
STATE PROJECT NO:
TMP-107-GMZN

BOILERS & UNIT VENT. REPLACEMENTS

ORANGE CONNECTICUT 1822 TOWN SEAL

Prepared For:

TOWN OF ORANGE, CT
637 ORANGE CENTER ROAD
ORANGE, CT 06477

SHEET TITLE

PARTIAL FLOOR PLAN ELECTRICAL

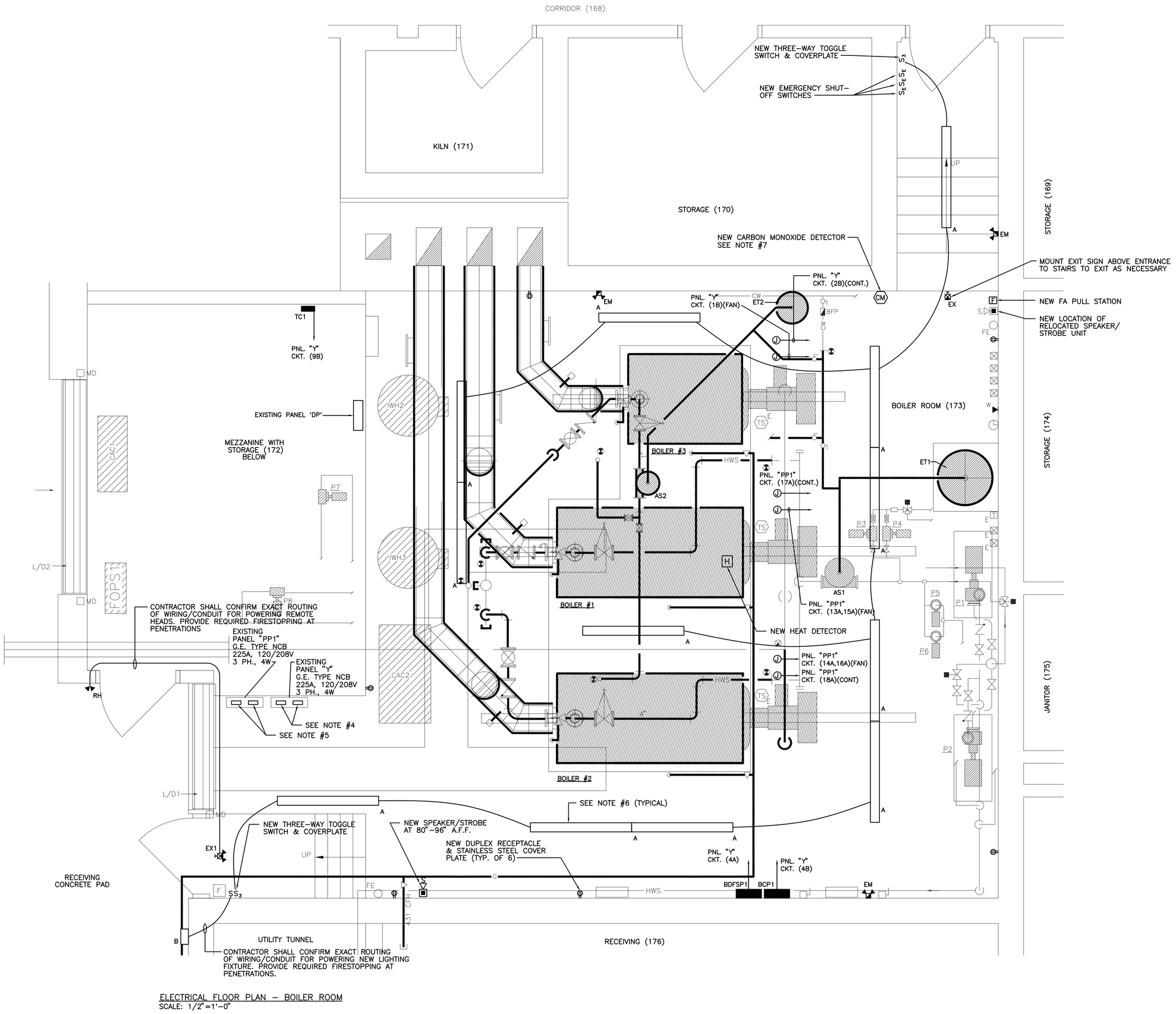
DESIGNED BY: TJB	SCALE: AS NOTED
DRAWN BY: TJB	DATE: 06-17-13
CHECKED BY: MVM	PROJECT NUMBER: 1605
CAD FILE: E102.DWG	

SEAL

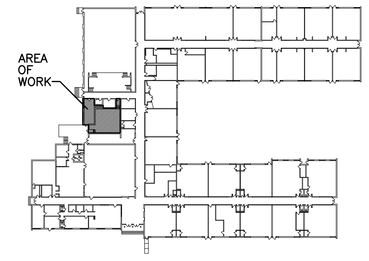
SHEET NUMBER

TH-E102

MEA# 130417-1



ELECTRICAL FLOOR PLAN – BOILER ROOM
SCALE: 1/2"=1'-0"



KEY PLAN
SCALE: NTS

NOTES:

1. REFER TO DRAWING TH-EG1 FOR GENERAL NOTES, SYMBOL LEGENDS, ABBREVIATIONS AND DRAWING LISTS.
2. REFER TO PROJECT MANUAL FOR SPECIFICATIONS.
3. REFER TO DRAWING TH-E100 FOR LUMINAIRE SCHEDULE, EQUIP. WIRING SCHEDULE, DETAILS AND NOTES.
4. PROVIDE FOUR (4), 20A-1P C/B'S, AND ONE (1) 40A-1P C/B IN NEW PANEL "Y", IN SPACES #1,2,3,4 & 9.
5. PROVIDE TWO (2) 20A-2P C/B'S, AND TWO (2) 20A-1P C/B'S IN NEW PANEL "PP1", IN SPACES 13,14,15,16,17 & 18.
6. THE CONTRACTOR SHALL COORDINATE THE EXACT LOCATION OF NEW LUMINAIRES WITH THE EXISTING PLUMBING AND MECHANICAL EQUIPMENT AND DEVICES AT THE CEILING LEVEL AS NECESSARY.
7. REFER TO DRAWING TH-E100 FOR FIRE ALARM RISER DIAGRAM AND NOTES.

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REVISIONS			
NO.	BY	DATE	DESCRIPTION

PROJECT TITLE

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441 TURKEY HILL ROAD
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STATE PROJECT NO:
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BOILERS & UNIT VENT. REPLACEMENTS

ORANGE CONNECTICUT 1822 TOWN SEAL

Prepared For:

TOWN OF ORANGE, CT
637 ORANGE CENTER ROAD
ORANGE, CT 06477

SHEET TITLE

ELECTRICAL FLOOR PLAN BOILER ROOM

DESIGNED BY: TJB	SCALE: AS NOTED
DRAWN BY: TJB	DATE: 06-17-13
CHECKED BY: MVM	PROJECT NUMBER: 1605
CAD FILE: E103.DWG	

SEAL	SHEET NUMBER
	TH-E103

MEA# 130417-1