FERNDALE PUBLIC SCHOOLS

2017 SINKING FUND

SUMMER 2019 RENOVATION PROJECTS

ISSUED FOR: BIDS
DATE: FEBRUARY 1, 2019
PROJECT NO.: 181794

ARCHITECT:

WAKELY ASSOCIATES, INC./ ARCHITECTS
30500 VAN DYKE AVE, SUITE 209, WARREN, MI 48093, 586.573.4100

MECHANICAL ENGINEER:

PETER BASSO ASSOCIATES, INC.
5145 LIVERNOIS, SUITE 100, TROY, MI 48098, 248.879.5666

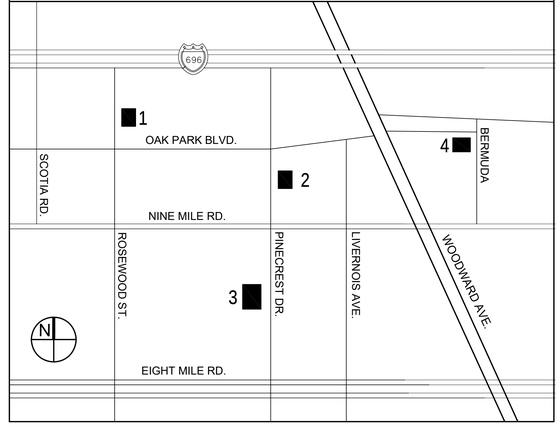
181794 - Ferndale Public Schools
2019 RENOVATION PROJECTS

Index of Drawings

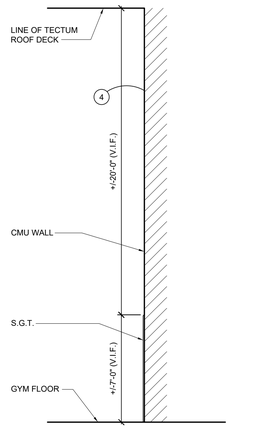
Building Addresses

1	UPPER ELEMENTARY SCHOOL 24220 ROSEWOOD OAK PARK, MI 48237	3	FERNDALE HIGH SCHOOL 881 PINECREST FERNDALE, MI 48220
2	LOWER ELEMENTARY SCHOOL 2610 PINECREST FERNDALE, MI 48220	4	UNIVERSITY HIGH SCHOOL 2521 BERMUDA FERNDALE, MI 48220

Location NOT TO SCALE



Ferndale Public Schools - Summer 2019 Renovation Projects
Project # 181794 • Issued for: BIDS • Date - February 1, 2019



2 A1.0LE WALL SECTION

SCALE: 1/4 = 1'-0"

DOOR SCHEDULE

DOOR OPENING			DOOR			FRAME			DETAILS						
NO.	WIDTH	HEIGHT	TYPE	MATL.	FINISH	TYPE	MATL	FINISH	HEAD	JAMB	SILL	THRESH.	U.L. LABEL	HW SET	REMARKS
100A	2@3'-0"	6'-8"	N	HM	PT	ETR	HM	PT	-	-	-	-	20MIN	1	1,2,3
100B	2@3'-0"	6'-8"	N	HM	PT	ETR	HM	PT	-	-	-	-	20MIN	1	1,2,3

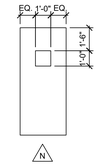
DOOR SCHEDULE REMARKS:

1. NEW DOOR IN EXISTING FRAME. VERIFY D.O. IN FIELD PRIOR TO FABRICATION OF NEW DOORS.
2. PROVIDE FIRE RATED GLASS IN OPENINGS.
3. DOORS TO HAVE NO CENTER MULLION

DOOR SCHEDULE ABBREVIATIONS

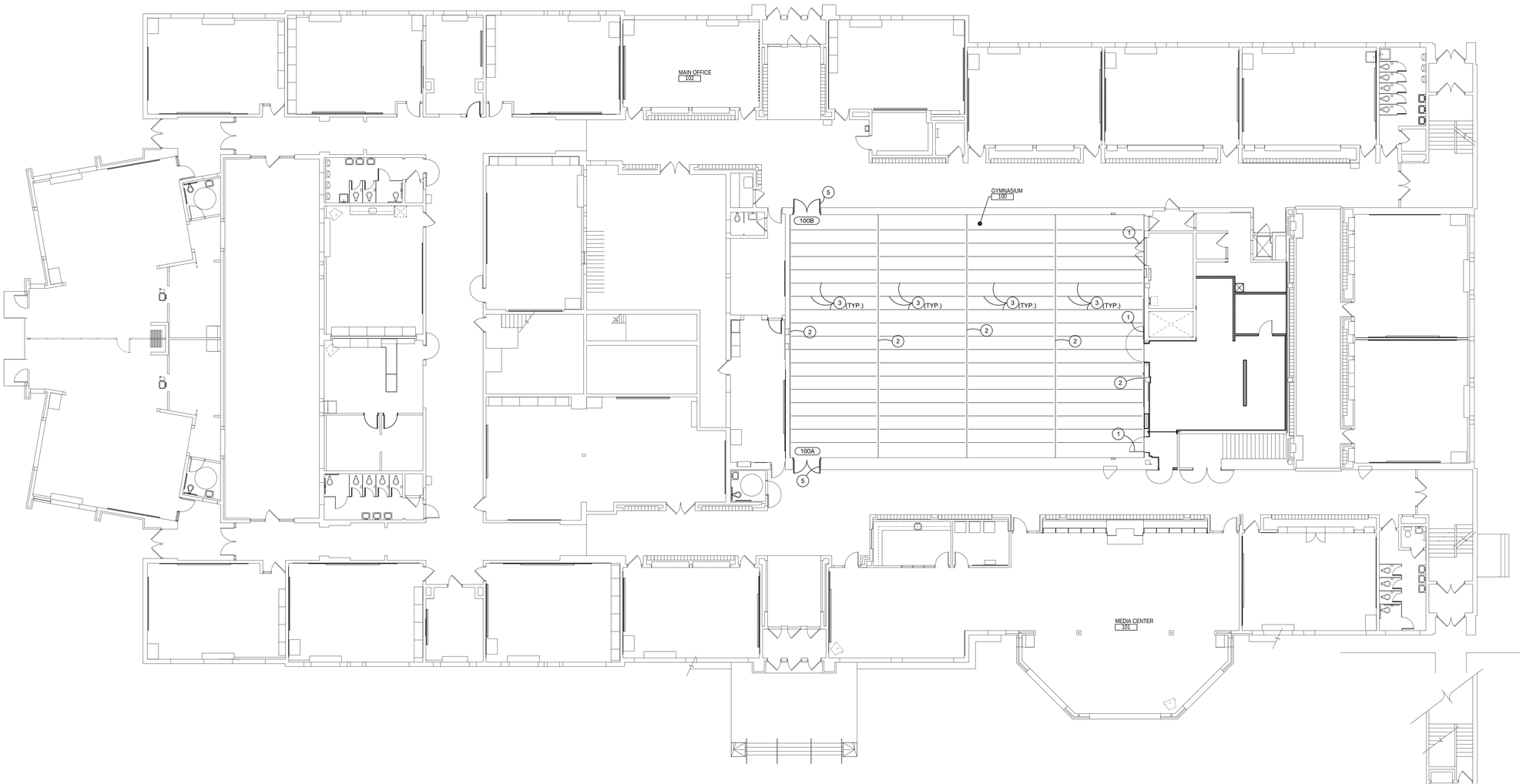
ETR	EXISTING TO REMAIN
HM	HOLLOW METAL
PT	PAINTED

DOOR ELEVATIONS:



FLOOR PLAN LEGEND:

1. PAINT BOTH SIDES OF EXISTING DOOR SW 7038-TONY TAUPE. PAINT BOTH SIDES OF EXISTING DOOR FRAMES SW 6811-HONORABLE BLUE
2. PAINT EXISTING STEEL ROOF BEAMS (5@32"H) SW 6811-HONORABLE BLUE
3. PAINT EXISTING TECTUM ROOF DECK AND STEEL PURLINS (32@16"H) SW 6252-ICE CUBE
4. PAINT CMU WALLS ABOVE S.G.T. FULL HT. TO ROOF DECK ABOVE SW 6252-ICE CUBE. SEE SECTION 2/A1.0LE.
5. REMOVE EXISTING WOOD DOORS, INSTALL NEW HM DOORS IN EXISTING FRAME PER SCHEDULE. PAINT NEW DOORS SW 7038 - TONY TAUPE. PAINT EXISTING DOOR FRAMES SW 6811 - HONORABLE BLUE.



N

1 A1.0LE COMPOSITE FIRST FLOOR PLAN

SCALE: 3/32" = 1'-0"

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FERNDALE PUBLIC SCHOOLS
2017 SINKING FUND
SUMMER 2019 RENOVATION PROJECTS

LOWER ELEMENTARY SCHOOL

COMPOSITE PLAN

PRELIMINARY ☐
DESIGN DEVELOPMENT ☐
CONSTRUCTION ■
FINAL RECORD ☐

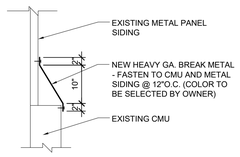
DRAWN BY MTS
CHECKED BY BJS

REVISIONS

DATE: FEBRUARY 1, 2019

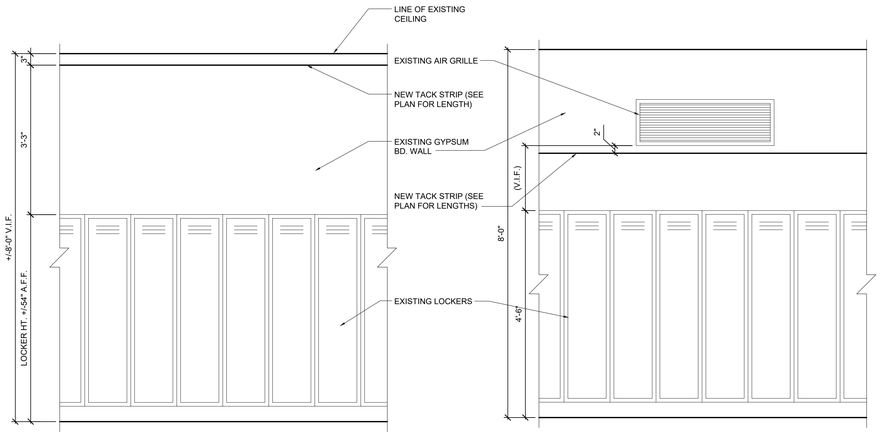
SHEET NO.
A1.0LE

JOB NO.
181794



4 A1.0UE — CORRIDOR ELEVATION

SCALE: 3/4" = 1'-0"

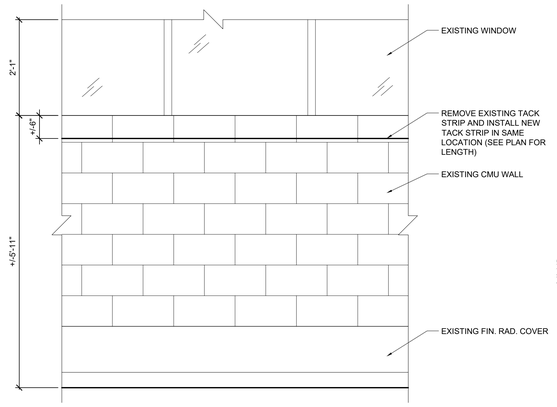


A A1.0UE — CORRIDOR ELEVATION 'A'

SCALE: 3/4" = 1'-0"

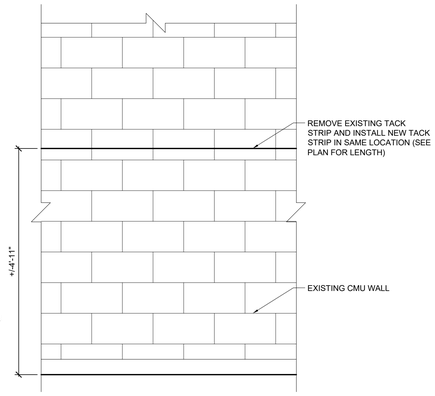
B A1.0UE — CORRIDOR ELEVATION 'B'

SCALE: 3/4" = 1'-0"



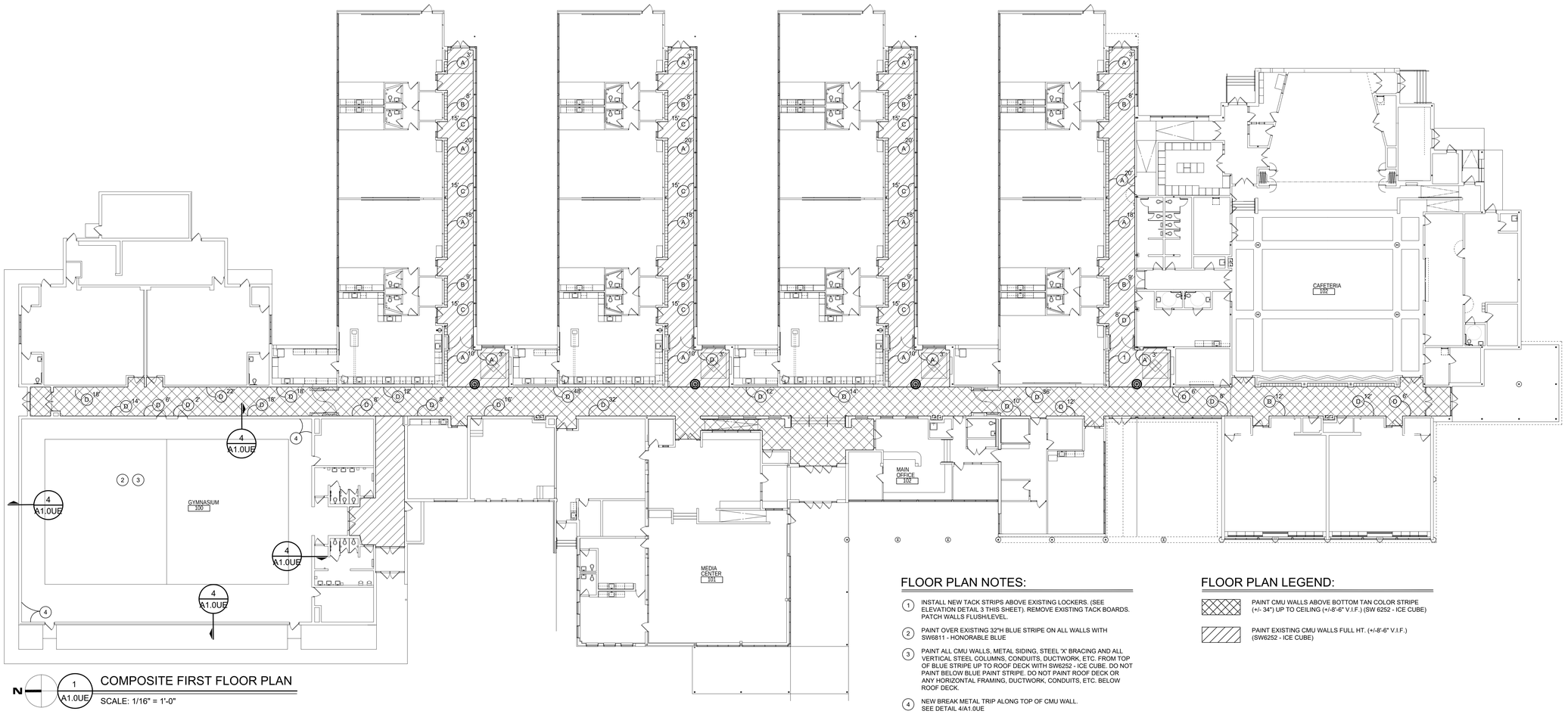
C A1.0UE — CORRIDOR ELEVATION 'C'

SCALE: 3/4" = 1'-0"



D A1.0UE — CORRIDOR ELEVATION 'D'

SCALE: 3/4" = 1'-0"



N — 1 A1.0UE — COMPOSITE FIRST FLOOR PLAN

SCALE: 1/16" = 1'-0"

FLOOR PLAN NOTES:

1. INSTALL NEW TACK STRIPS ABOVE EXISTING LOCKERS. (SEE ELEVATION DETAIL 3 THIS SHEET). REMOVE EXISTING TACK BOARDS. PATCH WALLS FLUSH/LEVEL.
2. PAINT OVER EXISTING 32"H BLUE STRIPE ON ALL WALLS WITH SW6811 - HONORABLE BLUE
3. PAINT ALL CMU WALLS, METAL SIDING, STEEL 'X' BRACING AND ALL VERTICAL STEEL COLUMNS, CONDUITS, DUCTWORK, ETC. FROM TOP OF BLUE STRIPE UP TO ROOF DECK WITH SW6252 - ICE CUBE. DO NOT PAINT BELOW BLUE PAINT STRIPE. DO NOT PAINT ROOF DECK OR ANY HORIZONTAL FRAMING, DUCTWORK, CONDUITS, ETC. BELOW ROOF DECK.
4. NEW BREAK METAL TRIP ALONG TOP OF CMU WALL. SEE DETAIL 4/A1.0UE

FLOOR PLAN LEGEND:

- PAINT CMU WALLS ABOVE BOTTOM TAN COLOR STRIPE (+/- 34") UP TO CEILING (+/-8'-6" V.I.F.) (SW 6252 - ICE CUBE)
- PAINT EXISTING CMU WALLS FULL HT. (+/-8'-6" V.I.F.) (SW6252 - ICE CUBE)

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FERNDALE PUBLIC SCHOOLS
2017 SINKING FUND
SUMMER 2019 RENOVATION PROJECTS

UPPER ELEMENTARY SCHOOL

COMPOSITE PLAN

PRELIMINARY ☐
DESIGN DEVELOPMENT ☐
CONSTRUCTION ■
FINAL RECORD ☐

DRAWN BY MTS
CHECKED BY BJS

REVISIONS

DATE: FEBRUARY 1, 2019

SHEET NO.
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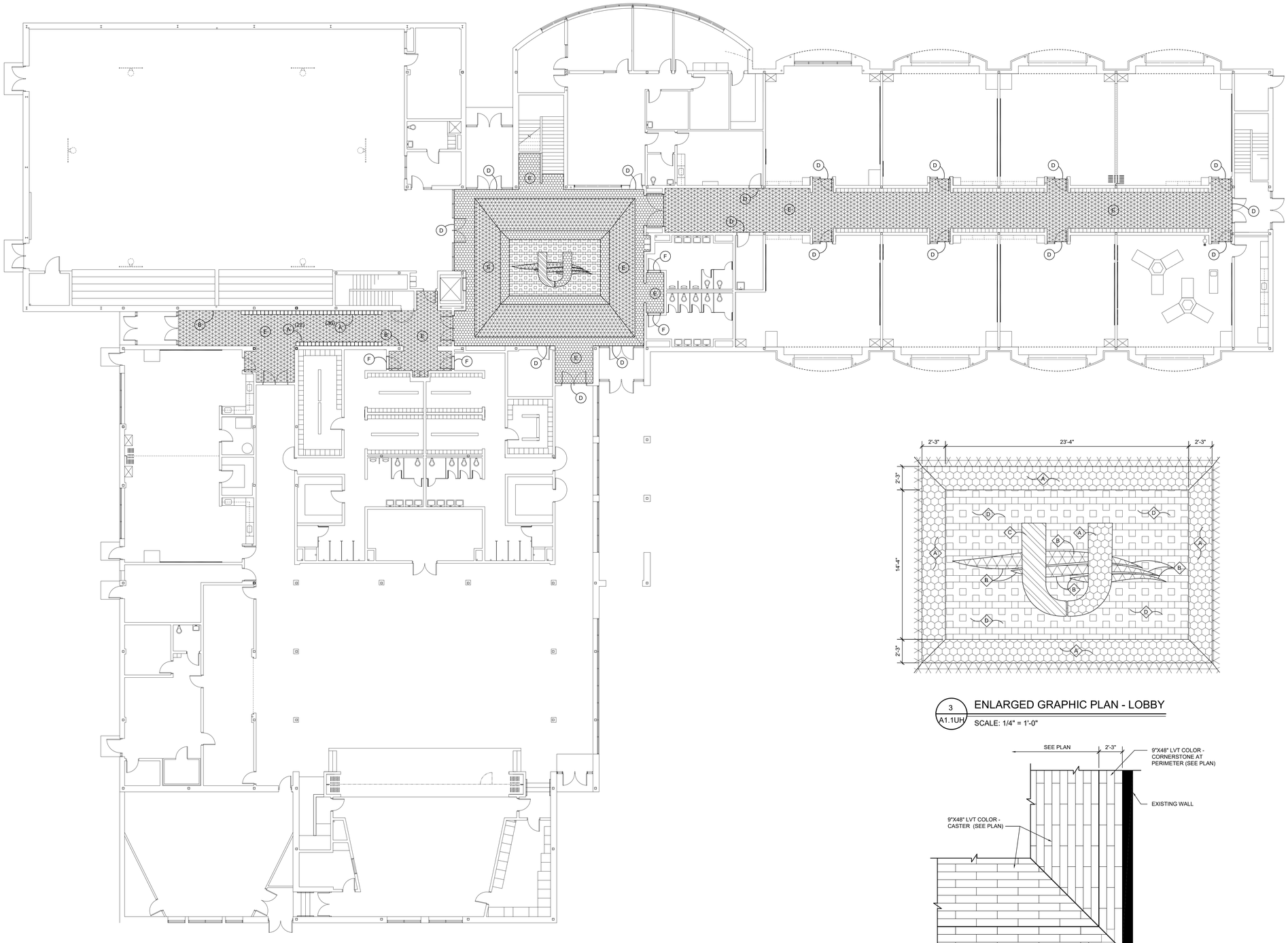
JOB NO. 181794

FLOOR PLAN LEGEND:

- (A) PROVIDE NEW 2-TIER 12"x12"x72" METAL LOCKER ON NEW METAL BASE WITH HEAVY GA. SLOPED TOP AND FINISHED END PANELS.
- (B) EXISTING ELECTRICAL RECEPTACLE. DO NOT COVER WITH NEW LOCKERS. (V.I.F.)
- (C) REMOVE EXISTING METAL LOCKERS, TURN OVER TO OWNER PATCH HOLES IN WALL FLUSH WITH WHITE CAULK (V.I.F.)
- (D) PROVIDE NEW VINYL REDUCER STRIP BETWEEN NEW/EXISTING FLOORING
- (E) REMOVE EXISING CARPET AND VINYL COVE BASE. SCRAPE MASTIC AND GLUE FROM CONCRETE FLOORS AND MASONRY WALLS
- (F) MARBLE THRESHOLD TO REMAIN

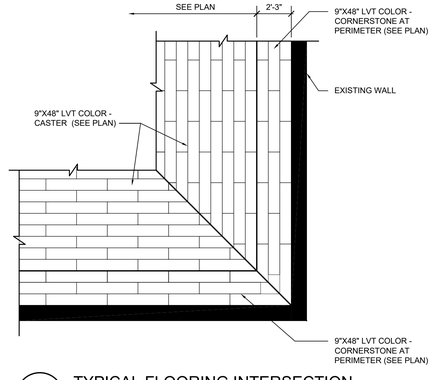
FLOORING LEGEND:

- SHAW CONTRACT, STYLE COVE 0927V COLOR 27585 CORNER STONE
- SHAW CONTRACT, STYLE COVE 0927V COLOR 27518 CASTER
- SHAW CONTRACT, STYLE COVE 0927V COLOR 27201 LURE
- SHAW CONTRACT, STYLE COVE 0927V COLOR 27520 GESSO



1 A1.1UH COMPOSITE FIRST FLOOR PLAN
SCALE: 3/32" = 1'-0"

3 A1.1UH ENLARGED GRAPHIC PLAN - LOBBY
SCALE: 1/4" = 1'-0"



2 A1.1UH TYPICAL FLOORING INTERSECTION
SCALE: 1/4" = 1'-0"

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FERNDALE PUBLIC SCHOOLS
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SUMMER 2019 RENOVATION PROJECTS

UNIVERSITY HIGH SCHOOL

COMPOSITE FIRST FLOOR PLAN

PRELIMINARY ☐
DESIGN DEVELOPMENT ☐
CONSTRUCTION ■
FINAL RECORD ☐

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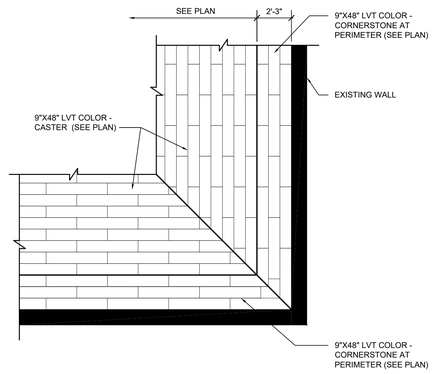
- (C) REMOVE EXISTING METAL LOCKERS, TURN OVER TO OWNER PATCH HOLES IN WALL FLUSH WITH WHITE CAULK (V.I.F.)
- (D) PROVIDE NEW VINYL REDUCER STRIP BETWEEN NEW/EXISTING FLOORING
- (E) REMOVE EXISING CARPET AND VINYL COVE BASE. SCRAPE MASTIC AND GLUE FROM CONCRETE FLOORS AND MASONRY WALLS
- (F) MARBLE THRESHOLD TO REMAIN

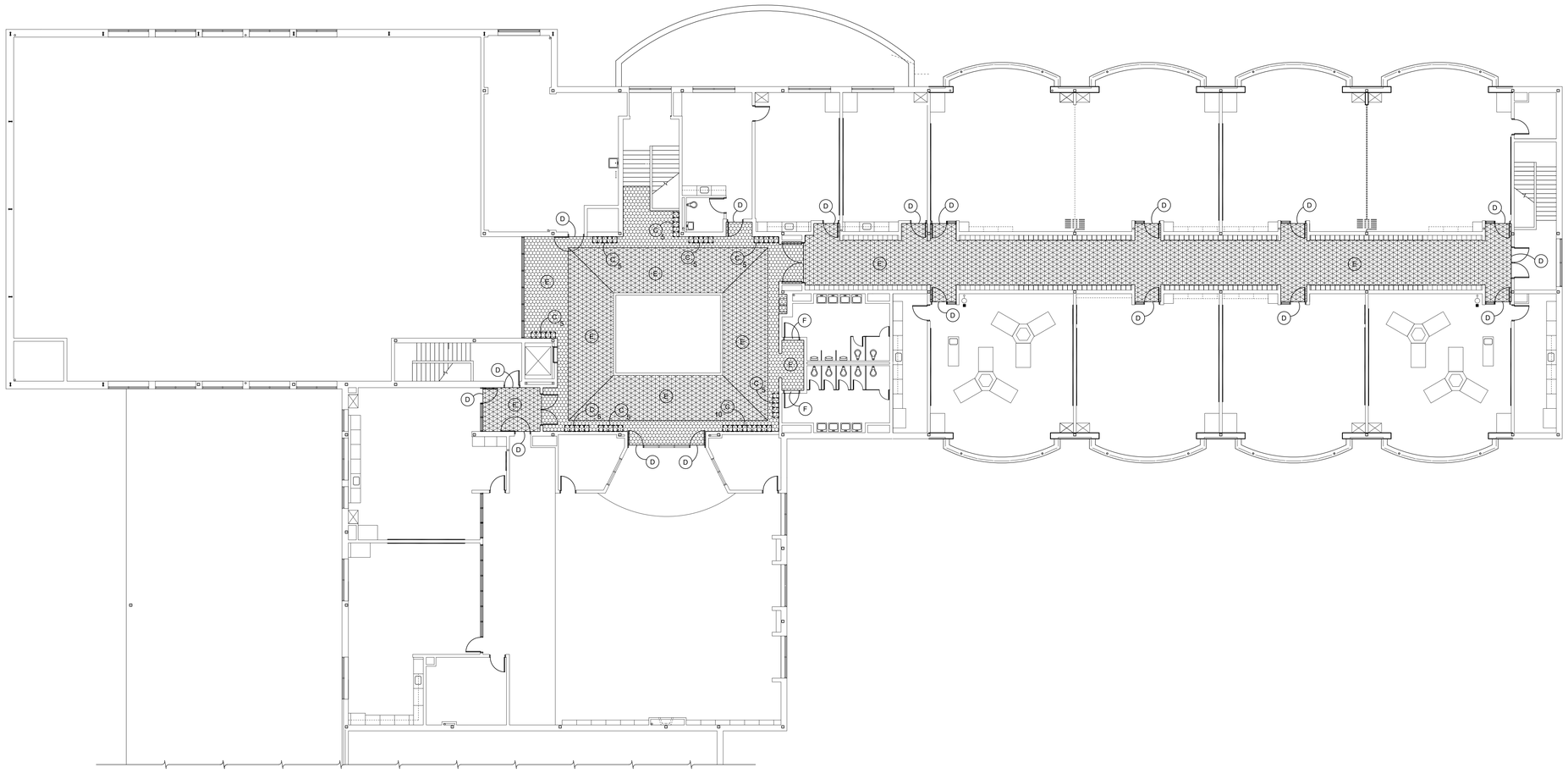
FLOORING LEGEND:

- SHAW CONTRACT, STYLE COVE 0927V COLOR 27585 CORNER STONE
- SHAW CONTRACT, STYLE COVE 0927V COLOR 27518 CASTER
- SHAW CONTRACT, STYLE COVE 0927V COLOR 27201 LURE
- SHAW CONTRACT, STYLE COVE 0927V COLOR 27520 GESSO



2 / A1.2UH — TYPICAL FLOORING INTERSECTION

SCALE: 1/4" = 1'-0"



N

1 / A1.2UH — COMPOSITE SECOND FLOOR PLAN

SCALE: 3/32" = 1'-0"

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COMPOSITE SECOND FLOOR PLAN

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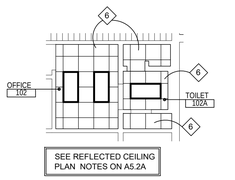
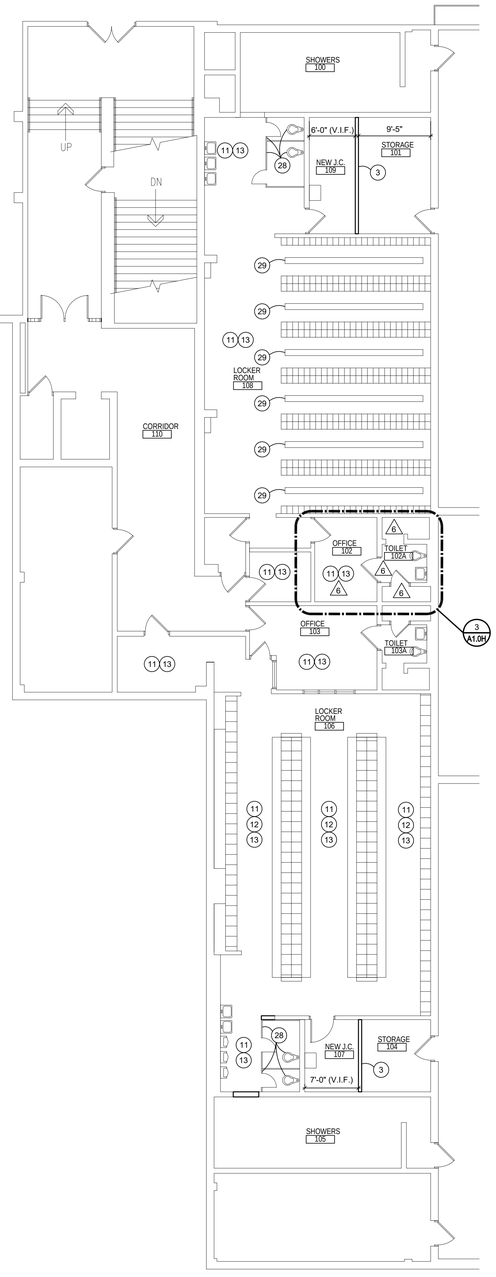


N

3 A1.0H

PARTIAL RFL. CEILING PLAN

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

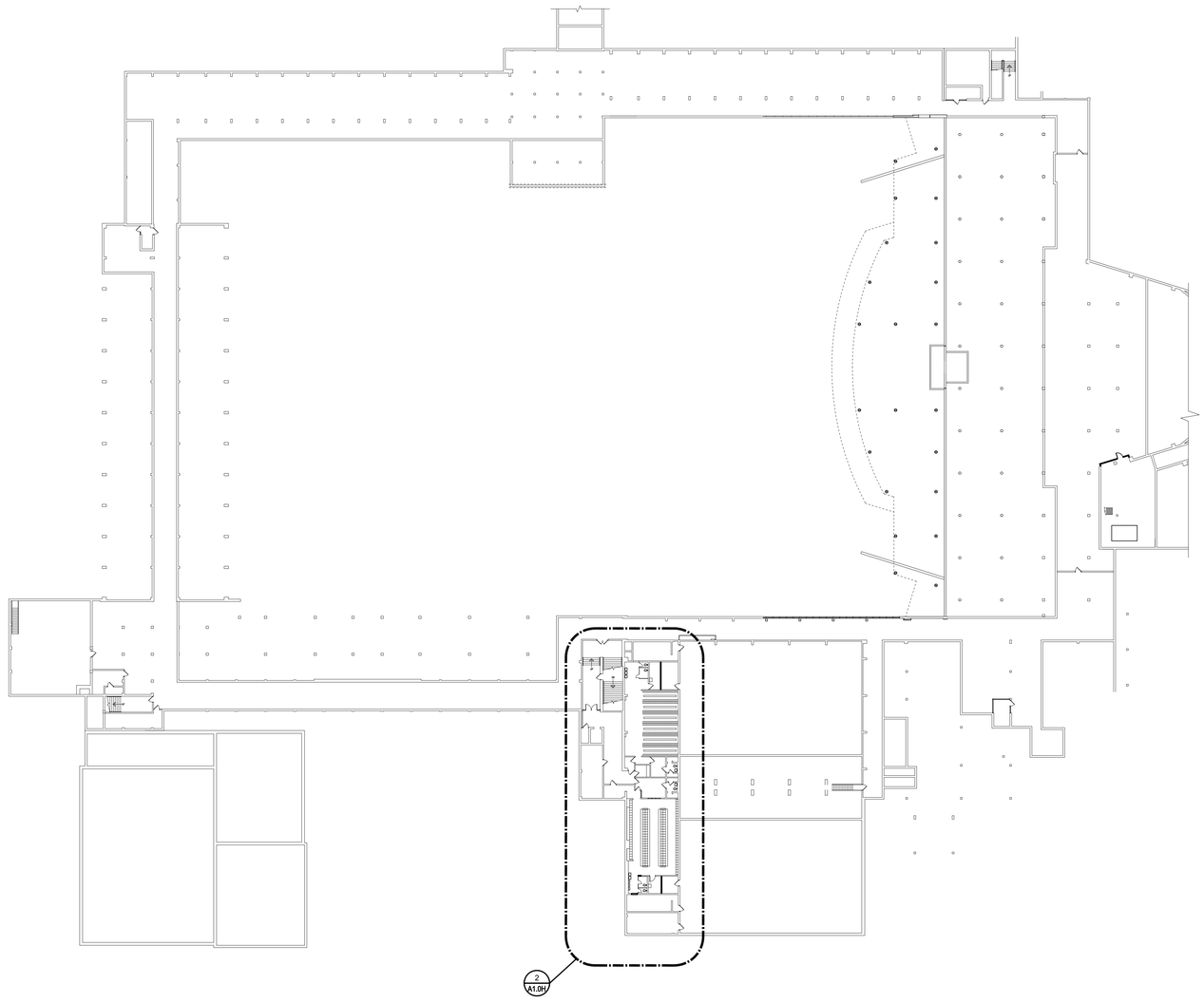


N

2 A1.0H

PARTIAL NEW WORK PLAN

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



N

1 A1.0H

COMPOSITE TUNNEL LEVEL PLAN

SCALE: 1/32" = 1'-0"

DEMOLITION PLAN NOTES

1. REMOVE EXISTING DOOR AND HARDWARE COMPLETE. FRAME TO REMAIN
2. REMOVE EXISTING DOOR, FRAME AND HARDWARE COMPLETE. PATCH CONCRETE FLOOR AND MASONRY WALLS FLUSH AND LEVEL TO MATCH ADJACENT FINISHES. VERIFY CONDITIONS IN FIELD.
3. REMOVE PORTION OF HARD CEILING SYSTEM. REFER TO REFLECTED CEILING PLAN.
4. REMOVE PORTION OF EXISTING MASONRY WALL FOR NEW DOOR OPENING. PROVIDE NEW 8" PC CMU LINTEL AT 7'-4" COURSING LINE AFF. PROVIDE NEW STEEL BRICK ANGLE 3 1/2"x3 1/2"x1/4" AT WALLS CONTAINING BRICK VENEER. TOOTH-IN NEW BULLNOSE CMU FULL HT. OF JAMBS AND BRICK FULL HT. AT JAMBS TO MATCH ADJACENT SURFACES AND COURSING. VERIFY CONDITIONS AND COURSING IN FIELD.
5. REMOVE WALLS SHOWN DASHED FULL HT. AND 8" BELOW EXISTING CONCRETE FLOOR. PATCH CONCRETE FLOOR FLUSH AND LEVEL WITH NEW CONCRETE. TOOTH-IN NEW CMU WHERE WALLS WERE REMOVED TO MATCH ADJACENT SURFACES AND COURSING. VERIFY CONDITIONS IN FIELD.
6. REMOVE EXISTING HARD CEILING COMPLETE IN ENTIRE ROOM INCLUDING ALL FRAMING
7. REMOVE EXISTING LOCKERS AND BASES COMPLETE. PATCH FLOOR AND WALLS FLUSH AND LEVEL TO MATCH ADJACENT SURFACES. VERIFY CONDITIONS IN FIELD.
8. REMOVE EXISTING WALL SINK. CAP UTILITIES BEHIND WALL AND PATCH WALL WITH CMU TO MATCH COURSING AND FINISHES. SEE MECHANICAL DRAWINGS.
9. REMOVE ALL CERAMIC WALL TILE AND FLOOR TILE IN SHOWER AREA COMPLETE. REMOVE SHOWER CONTROLS AND PLUMBING. CAP UTILITIES BEHIND WALL AND PATCH WITH CMU TO MATCH COURSING - PATCH FLOORS AND WALLS SMOOTH AND LEVEL.
10. REMOVE EXISTING WATER CLOSET, EXTEND UTILITIES FOR NEW FIXTURE. SEE MECHANICAL DRAWINGS.
11. REMOVE ALL WALL MOUNTED TOILET ACCESSORIES (MIRRORS, TOILET PAPER HOLDER, SOAP DISP., TOWEL DISP., ETC.). PATCH WALLS FLUSH AND LEVEL TO MATCH ADJACENT SURFACES.
12. REMOVE EXISTING LAY-IN CEILING SYSTEM COMPLETE
13. REMOVE RAISED CONC. BENCH COMPLETE. PATCH WALLS AND FLOORS FLUSH AND LEVEL TO MATCH ADJACENT SURFACES.
14. REMOVE STONE BENCH COMPLETE. PATCH WALLS FLUSH.
15. REMOVE RAISED CURB. PATCH FLOOR LEVEL.
16. EXISTING D.F. TO REMAIN.
17. REMOVE/REPLACE EXISTING C.U.H. (30"H x 36"W) - SEE MECH.
18. REMOVE LOCKERS AND SALVAGE FOR REINSTALLATION
19. REMOVE / RELOCATE F.A. STROBE AS SHOWN
20. REMOVE / RE-INSTALL F.A. PULL STATION AND WIRE MOLD
21. REMOVE WALL SIGNAGE
22. REMOVE / RE-INSTALL F.A. STROBE AND WIRE MOLD
23. REMOVE / RE-INSTALL VIDEO CAMERA AND WIRE MOLD
24. REMOVE / RE-INSTALL WALL THERMOSTAT
25. REMOVE / RE-INSTALL WALL BOX AND WIRE MOLD
26. REMOVE WIRE MOLD AT CEILING LINE AND RE-INSTALL ABOVE NEW LAY-IN CEILING (V.I.F.)

NEW WORK PLAN NOTES

1. NEW DOOR IN EXISTING FRAME. VERIFY D.O. DIMENSIONS IN FIELD PRIOR TO FABRICATION OF NEW DOOR.
2. PATCH WALLS AT REMOVED WALL LOCATIONS TO MATCH EXISTING SURFACES (V.I.F.)
3. NEW 8" CMU WALL UP FULL HT. TO FLOOR DECK ABOVE SMOKE TIGHT AROUND ALL PIPES, ETC. PROVIDE PC CMU AT 7'-4" AFF FOR NEW DOOR OPENING (PAINT FULL HT.)
4. GRIND AND POLISH EXISTING TERRAZZO FLOOR.
5. NEW DOOR AND FRAME IN NEW 3'-4"x7'-4" M.O.
6. NEW 60 MIN. FIRE RATED DOOR AND FRAME ASSEMBLY FULL WIDTH OF CORRIDOR UP TO CEILING HT. SEE ELEVATIONS. VERIFY OPENING DIMENSIONS IN FIELD (HEAT BARRIER FRAME SYSTEM).
7. INSTALL NEW 1 HOUR RATED WALL CONSTRUCTION @ TYPE X GYP. BD. EA. SIDE OF 20 GA. 6" METAL STUDS AT 16" O.C.) ABOVE NEW FRAME FROM CEILING HT. UP TO FLOOR DECK ABOVE. SEAL ALL VOIDS AND JOINTS SMOKE TIGHT.
8. INFILL EXISTING M.O. WITH BRICK AND CMU. TOOTH-IN TO MATCH COURSING.
9. CONSTRUCT NEW 8" CMU WALL EACH SIDE OF DRINKING FOUNTAIN (5'-0" APART), STACKED BOND, 40" HIGH AND 16" OUT FROM WALL WITH BULLNOSED VERTICAL EDGES AND SOLID CMU TOP COURSE. DRILL 2 NO. 4 BARS 6" INTO THE CONCRETE FLOOR AND SET IN EPOXY. EXTEND BAR FULL HT. OF WALL AND GROUT SOLID INSIDE EACH CMU CORE. COVER WITH NEW CERAMIC WALL TILE TO MATCH WALLS.
10. INSTALL NEW TERRAZZO TILE OVER EXISTING CONCRETE FLOOR.
11. REMOVE ALL EXISTING 6" HIGH CERAMIC COVE BASE IN ROOM. SCRAPE MORTAR OFF WALL, REPAIR WALLS SMOOTH AND LEVEL AS REQUIRED, INSTALL NEW 6" VINYL COVE BASE.
12. EXISTING CONCRETE BENCH, REPAIR SURFACES SMOOTH AND LEVEL. PAINT CONCRETE BENCH WITH EPOXY.
13. GRIND AND POLISH EXISTING CONCRETE FLOOR. REMOVE ALL PAINT FROM FLOOR AND PATCH CRACKS / DEPRESSIONS FLUSH AND LEVEL.
14. NEW 6" CMU WALL UP TO 8" ABOVE NEW CEILING HEIGHT (+/-8'-8" A.F.F.)
15. NEW TERRAZZO TILE OVER CONCRETE.
16. MODIFY EXISTING LAY-IN CEILING AS REQUIRED FOR NEW WALL CONSTRUCTION UP TO DECK ABOVE.
17. MODIFY EXISTING CMU WALL TO INSTALL NEW P.C. LINTEL. GROUT SOLID OPEN CORES BELOW LINTEL.
18. NEW WALL C.U.H. ENLARGE WALL OPENING AS NEEDED (V.I.F.). SEE MECH.
19. NEW PCT WALL TILE FULL HT. - CARRY SAME PATTERN AND ACCENTS 'A' AND 'B' AS IN ENTRY 04.
20. NEW ST. ST. VERTICAL CORNER SCHLUTER STRIP
21. NEW RAISED CONC. BENCH CONSTRUCTION. SEE DETAILS.
22. RELOCATED LOCKER ONTO NEW CONC. BENCH. SEE LOCKER SCHEDULE
23. FINISH OPEN ENDS WITH NEW CMU/CONC. TO MAKE FLUSH END
24. NEW METAL FILLER TO MATCH LOCKER COLOR AND HT. (V.I.F.)
25. LOCATE NEW WALL AT CUT END OF CONC. BENCH
26. PROVIDE NEW FINISHED END ON LOCKER TO MATCH EXISTING
27. EXISTING VERTICAL EXPANSION JOINT. INSTALL NEW EXPANSION JOINT IN NEW PCT WALL AT THIS LOCATION.
28. EXISTING TOILET PARTITIONS AND FLOOR TOILETS TO REMAIN IN PLACE
29. EXISTING PEDESTAL BENCH TO REMAIN IN PLACE
30. RELOCATED F.A. STROBE
31. NEW DOOR AND FRAME IN EXISTING M.O. (V.I.F.)

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SUMMER 2019 RENOVATION PROJECTS

HIGH SCHOOL
TUNNEL LEVEL

COMPOSITE PLAN

PRELIMINARY ☐
DESIGN DEVELOPMENT ☐
CONSTRUCTION ■
FINAL RECORD ☐

DRAWN BY MTS
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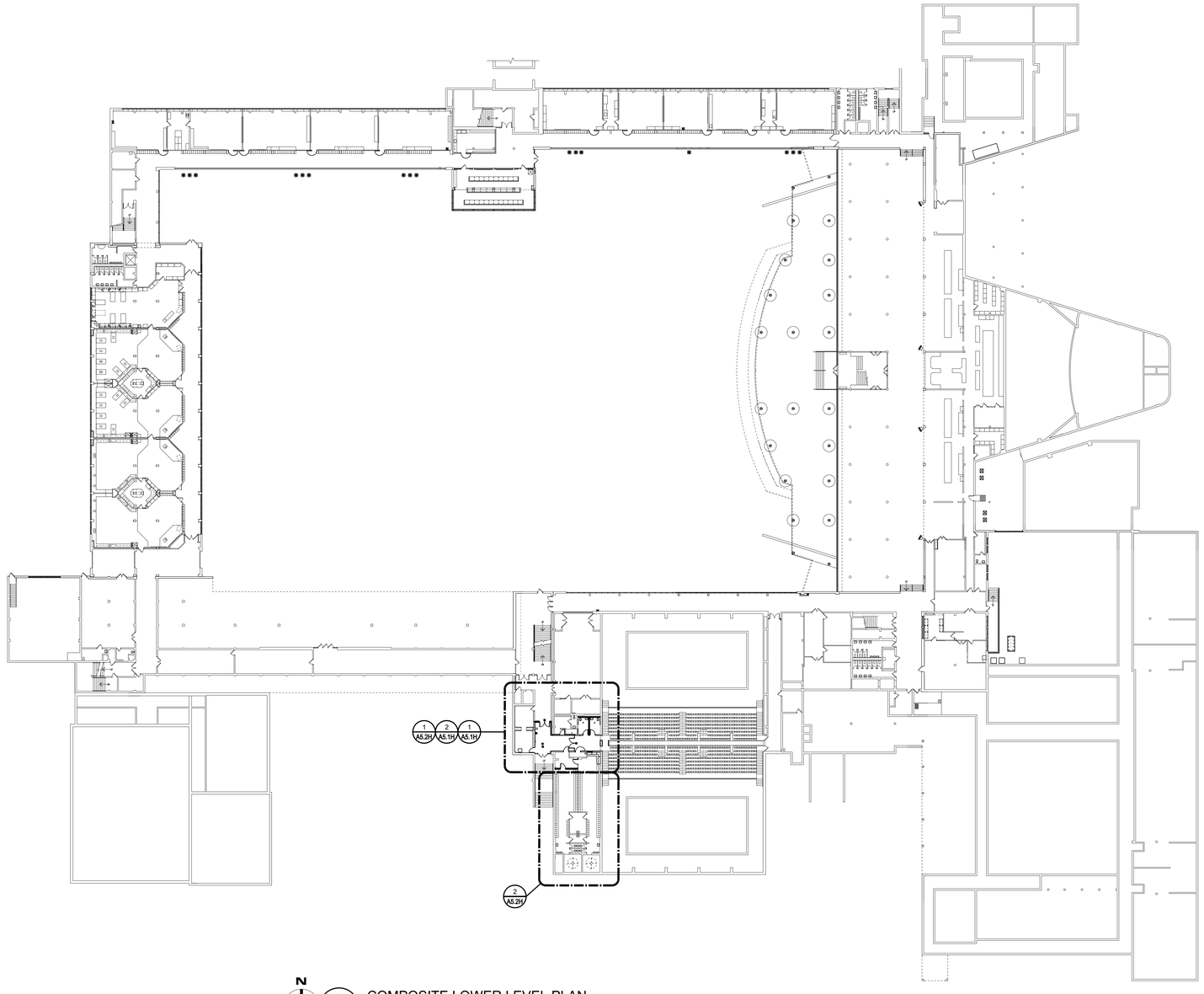

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A1.1H

COMPOSITE LOWER LEVEL PLAN

SCALE: 1/32" = 1'-0"

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HIGH SCHOOL
LOWER LEVEL

COMPOSITE PLAN

PRELIMINARY ☐
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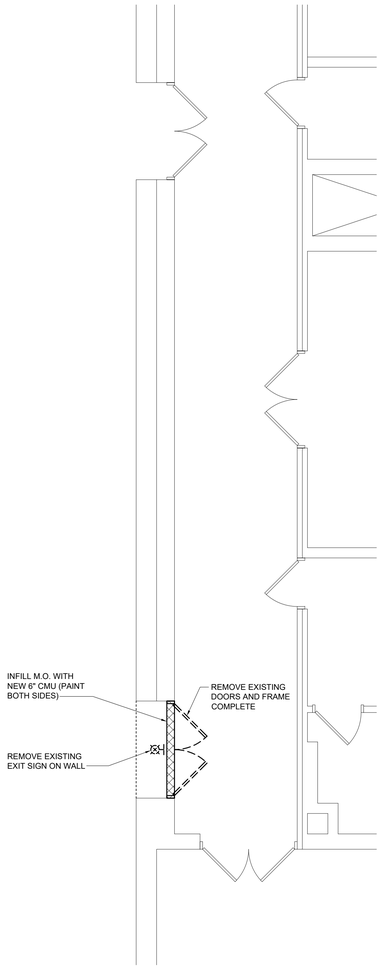
A1.1H

JOB NO. 181794

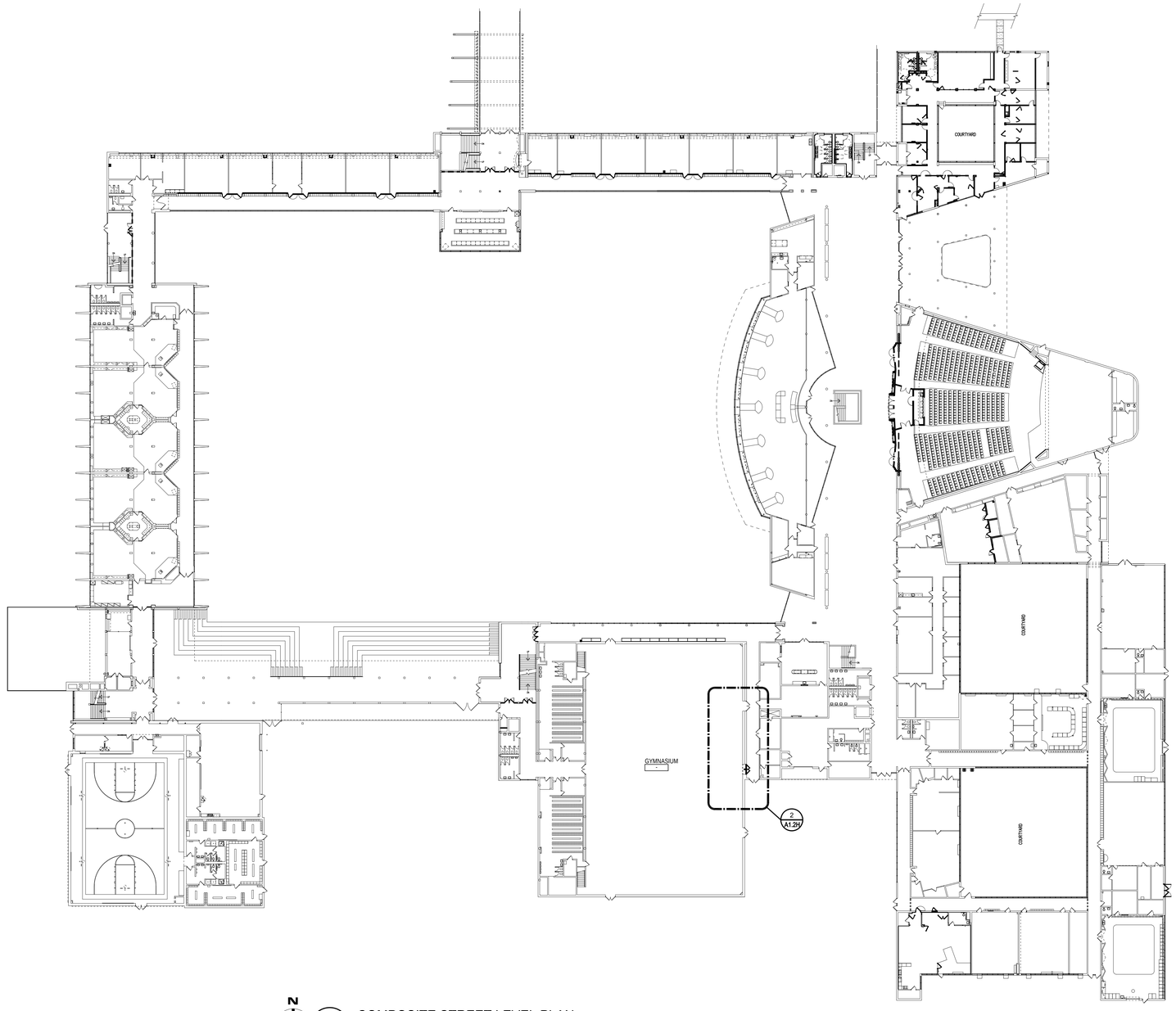


N

2
A1.2H

ENL. GYM FLOOR PLAN

SCALE: 3/32" = 1'-0"



N

1
A1.2H

COMPOSITE STREET LEVEL PLAN

SCALE: 1/32" = 1'-0"

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FERNDALE PUBLIC SCHOOLS

2017 SINKING FUND

SUMMER 2019 RENOVATION PROJECTS

HIGH SCHOOL
STREET LEVEL

COMPOSITE PLAN

PRELIMINARY ☐
DESIGN DEVELOPMENT ☐
CONSTRUCTION ■
FINAL RECORD ☐

DRAWN BY MTS
CHECKED BY BJS

REVISIONS

DATE: FEBRUARY 1, 2019

SHEET NO.

A1.2H

JOB NO. 181794

ROOM FINISH SCHEDULE

NO.	ROOM NAME	FLOOR	BASE	WALLS	CEILING		REMARKS
					MAT'L	HEIGHT	
01	CORRIDOR	ETR	PCT	PCT	TEC	8'-0"/9'-3"	1,2,3,4
02	TRAINING ROOM	EFC	ETR	EPT	TEC	7'-7"	1,3,4,7
03	CORRIDOR	ETR	ETR	ETR/EPT	ETR	9'-3"	5
04	ENTRY	ETR	PCT	PCT	TEC	8'-0"	1,2,3,4
05	TOILET	PCT	PCT	PCT	TEC	7'-8"	3,4
06	TOILET	PCT	PCT	PCT	TEC	7'-8"	3,4
07	COACHES	ETR	ETR	ETR	ETR	7'-8"	-
08	FOOTBALL LOCKER ROOM	ETR	ETR	EPT	EPT	8'-4"	1
09	WRESTLING LOCKER ROOM	ETR	ETR	EPT	EPT	9'-4"/9'-8"	1,3,4
10	COACHES	ETR	ETR	ETR	ETR	8'-4"	-
11	CLOSET	ETR	ETR	ETR	ETR	8'-4"	-
12	SHOWER	ETR	ETR	ETR	ETR	8'-4"	-
13	SHOWER	ETR	ETR	ETR	ETR	8'-4"	-
14	GIRL'S POOL	ETR	ETR/TT	ETR	ETR	-	6
15	BOY'S POOL	ETR	ETR/TT	ETR	ETR	-	6
16	STORAGE	ETR	ETR	ETR	ETR	8'-4"	-
17	ENTRY	ETR	ETR	EPT	EPT	8'-4"	1,3,4

ROOM FINISH SCHEDULE REMARKS:

1. GRIND AND POLISH TERRAZZO FLOOR
2. INSTALL NEW PCT WALL TILE OVER EXISTING BRICK VENEER
3. PROVIDE HOLD DOWN CLIPS IN TECTUM CEILING
4. NEW CEILING TO BE AT SAME ELEVATION AS EXISTING CEILING (V.I.F.)
5. PAINT ONLY NEW CMU WALLS
6. PROVIDE NEW TERRAZZO TILE AT ENTRY - SEE PLAN
7. PROVIDE PATCHING OF GYP. BD. WALLS (100 SF TBD IN FIELD.)

ROOM FINISH ABBREVIATIONS

PCT	PORCELAIN CERAMIC TILE
TEC	2x2 TECTUM LAY-IN PANELS IN NEW SUSPENDED GRID
EPT	EPOXY PAINT
PT	PAINT
TT	NEW TERRAZZO TILE
EFC	EPOXY FLOOR COATING

DOOR SCHEDULE

NO.	DOOR OPENING WIDTH	DOOR OPENING HEIGHT	DOOR TYPE	DOOR MAT'L.	DOOR FINISH	FRAME TYPE	FRAME MAT'L.	FRAME FINISH	DETAILS HEAD	DETAILS JAMB	DETAILS SILL	THRESH.	U.L. LABEL	HW SET	REMARKS
01	2@3'-0"	7'-0"	N	FRP	PFN	2	HM	PT	-	-	-	-	60MIN	-	2,4,5
02	3'-0"	7'-0"	F	FRP	PFN	ETR	HM	PT	-	-	-	-	20MIN	-	1,5
04	2@3'-0"	7'-0"	G	FRP	PFN	3	HB	PT	-	-	-	-	60MIN	-	2,4,5,6
05	3'-0"	7'-0"	F	HM	PT	1	HM	PT	-	-	-	MAR	-	-	3,5
06	3'-0"	7'-0"	F	HM	PT	1	HM	PT	-	-	-	MAR	-	-	3,5
07	3'-0"	7'-0"	F	FRP	PFN	ETR	HM	PT	-	-	-	-	20MIN	-	1,5
08	3'-0"	7'-0"	F	HM	PT	1	HM	PT	-	-	-	-	-	-	3,5
09	3'-0"	7'-0"	F	HM	PT	1	HM	PT	-	-	-	-	-	-	3,5
16	3'-0"	7'-0"	F	HM	PT	1	HM	PT	-	-	-	-	20MIN	-	2,5
17	3'-0"	7'-0"	F	FRP	PFN	ETR	HM	PT	-	-	-	-	20MIN	-	1,5

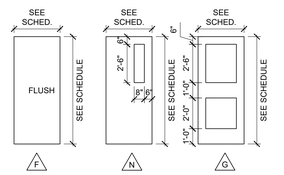
DOOR SCHEDULE REMARKS:

1. NEW DOOR IN EXISTING FRAME. VERIFY D.O. IN FIELD.
2. NEW DOOR AND FRAME. VERIFY M.O. IN FIELD.
3. NEW DOOR AND FRAME IN NEW M.O.
4. PROVIDE FIRE RATED GLASS IN DOOR AND FRAME.
5. PAINT BOTH SIDE OF DOOR AND FRAME.
6. NEW HEAT BARRIER FRAME SYSTEM - SEE SPEC.

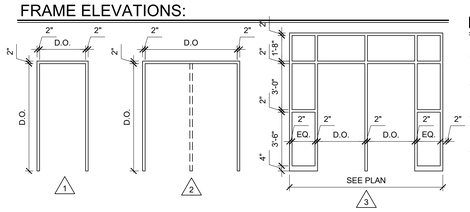
DOOR SCHEDULE ABBREVIATIONS

ETR	EXISTING TO REMAIN
HM	HOLLOW METAL
PT	PAINTED
MAR	MARBLE
FRP	FIBERGLASS REINFORCED POLYESTER
PFN	PRE-FINISHED
HB	HEAT BARRIER FRAME SYSTEM

DOOR ELEVATIONS:



FRAME ELEVATIONS:



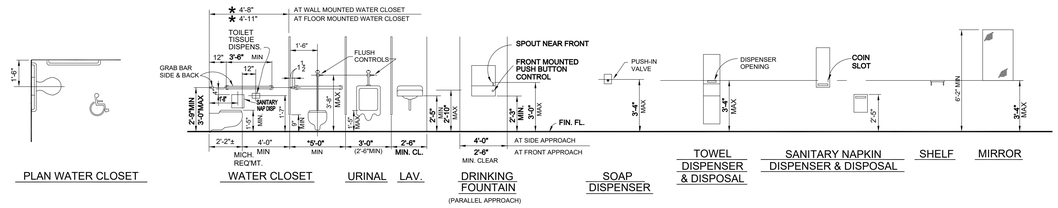
INTERIOR ELEVATION LEGEND:

1. NEW DOOR AND H.M. FRAME (SEE SCHEDULE)
2. NEW WALL TILE - FIELD COLOR
3. NEW WALL TILE - ACCENT BAND (WATER JET CUT TILE - SEE DETAIL 9/A5.2H)
4. EXISTING DOORS AND FRAME TO REMAIN
5. NEW WALL TILE OVER NEW CMU HALF WALL AT D.F.
6. NEW WALL TILE - ACCENT BAND 'B' (SOLID COLOR)
7. START FULL TILE AT 8'-0" CEILING LINE SO ANY CUT TILE IS AT BOTTOM OF WALL
8. PROVIDE EXPANSION JOINT IN NEW PCT WALL TILE (VERIFY LOCATION IN FIELD)
9. NEW WALL SIGNAGE

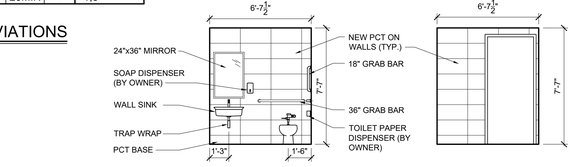
LOCKER SCHEDULE

(SALVAGE AND REINSTALL L-1 & L-2)

L-1 = 3'-0" x 6'-3" 2-TIER LOCKER (4 TOTAL)
L-2 = 4'-6" x 6'-3" 2-TIER LOCKER (4 TOTAL)
L-3 = 4'-0" x 6'-3" 2-TIER LOCKER (4 TOTAL)
L-4 = 2'-1" x 6'-3" 2-TIER LOCKER (4 TOTAL)

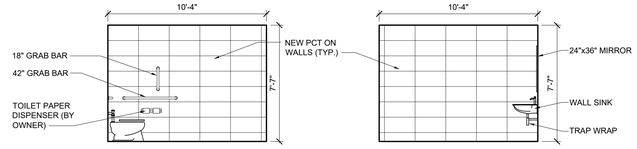


11 / A5.1H — TYPICAL ADA MOUNTING HEIGHTS FOR FIXTURES AND ACCESSORIES
SCALE: NTS



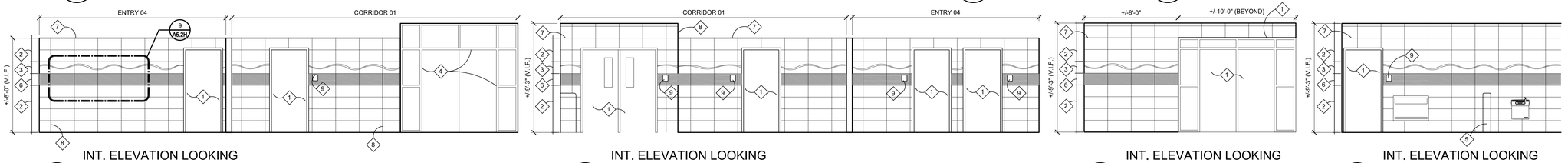
6 / A5.1H — INT. ELEVATION @ TOILET 05
SCALE: 1/4 = 1'-0"

5 / A5.1H — INT. ELEVATION @ TOILET 05
SCALE: 1/4 = 1'-0"



4 / A5.1H — INT. ELEVATION @ TOILET 05
SCALE: 1/4 = 1'-0"

3 / A5.1H — INT. ELEVATION @ TOILET 05
SCALE: 1/4 = 1'-0"

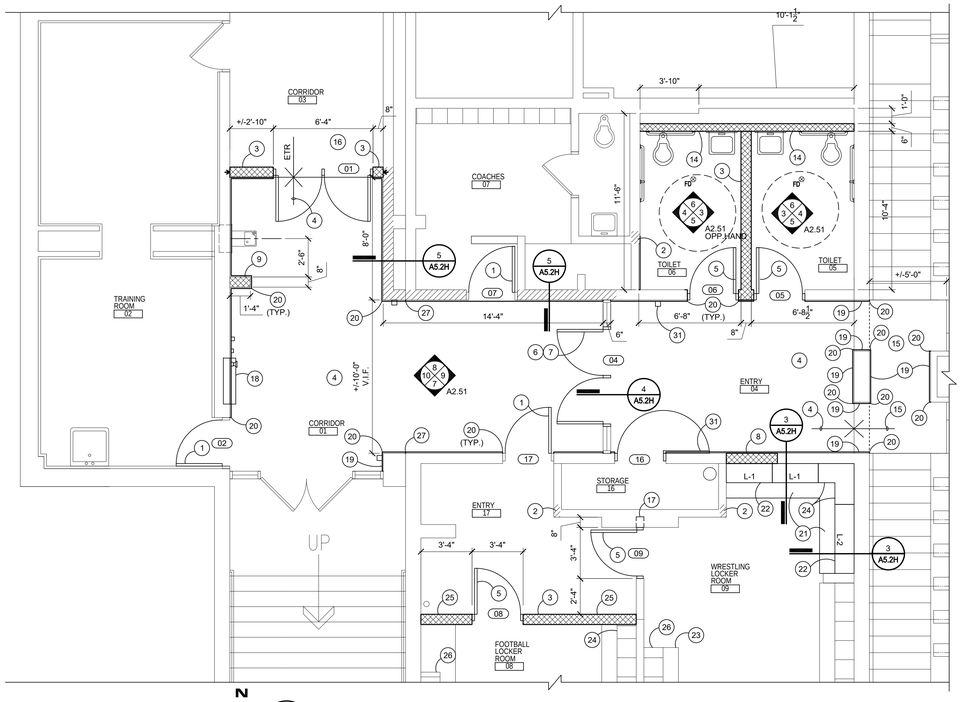


7 / A5.1H — INT. ELEVATION LOOKING SOUTH @ CORRIDOR 01 / ENTRY 04
SCALE: 1/4 = 1'-0"

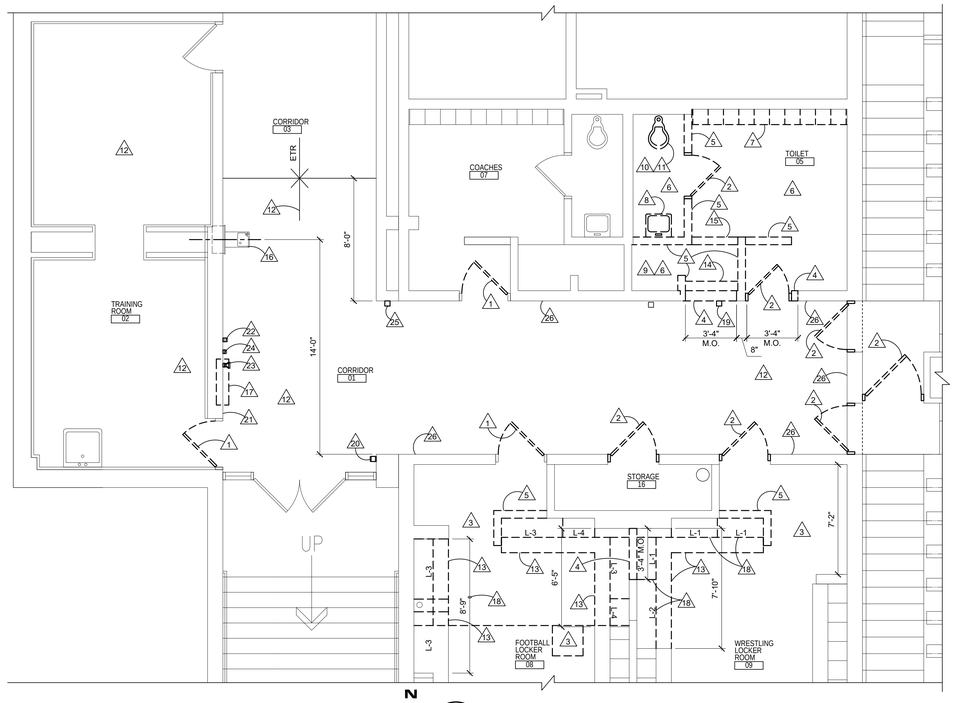
8 / A5.1H — INT. ELEVATION LOOKING NORTH @ CORRIDOR 01 / ENTRY 04
SCALE: 1/4 = 1'-0"

9 / A5.1H — INT. ELEVATION LOOKING EAST @ CORRIDOR 01
SCALE: 1/4 = 1'-0"

10 / A5.1H — INT. ELEVATION LOOKING WEST @ CORRIDOR 01
SCALE: 1/4 = 1'-0"



N — 2 / A5.1H — PARTIAL NEW WORK PLAN
SCALE: 1/4" = 1'-0"



N — 1 / A5.1H — PARTIAL DEMOLITION PLAN
SCALE: 1/4" = 1'-0"

DEMOLITION PLAN NOTES

1. REMOVE EXISTING DOOR AND HARDWARE COMPLETE. FRAME TO REMAIN
2. REMOVE EXISTING DOOR, FRAME AND HARDWARE COMPLETE. PATCH CONCRETE FLOOR AND MASONRY WALLS FLUSH AND LEVEL TO MATCH ADJACENT FINISHES. VERIFY CONDITIONS IN FIELD.
3. REMOVE PORTION OF HARD CEILING SYSTEM. REFER TO REFLECTED CEILING PLAN.
4. REMOVE PORTION OF EXISTING MASONRY WALL FOR NEW DOOR OPENING. PROVIDE NEW 8" PC CMU LINTEL AT 7'-4" COURSING LINE AFF. PROVIDE NEW STEEL BRICK ANGLE 3 ½"x3 ½"x¼" AT WALLS CONTAINING BRICK VENEER. TOOTH-IN NEW BULLNOSE CMU FULL HT. OF JAMBS AND BRICK FULL HT. AT JAMBS TO MATCH ADJACENT SURFACES AND COURSING. VERIFY CONDITIONS AND COURSING IN FIELD.
5. REMOVE WALLS SHOWN DASHED FULL HT. AND 8" BELOW EXISTING CONCRETE FLOOR. PATCH CONCRETE FLOOR FLUSH AND LEVEL WITH NEW CONCRETE. TOOTH-IN NEW CMU WHERE WALLS WERE REMOVED TO MATCH ADJACENT SURFACES AND COURSING. VERIFY CONDITIONS IN FIELD.
6. REMOVE EXISTING HARD CEILING COMPLETE IN ENTIRE ROOM INCLUDING ALL FRAMING
7. REMOVE EXISTING LOCKERS AND BASES COMPLETE. PATCH FLOOR AND WALLS FLUSH AND LEVEL TO MATCH ADJACENT SURFACES. VERIFY CONDITIONS IN FIELD.
8. REMOVE EXISTING WALL SINK. CAP UTILITIES BEHIND WALL AND PATCH WALL WITH CMU TO MATCH COURSING AND FINISHES. SEE MECHANICAL DRAWINGS.
9. REMOVE ALL CERAMIC WALL TILE AND FLOOR TILE IN SHOWER AREA COMPLETE. REMOVE SHOWER CONTROLS AND PLUMBING. CAP UTILITIES BEHIND WALL AND PATCH WITH CMU TO MATCH COURSING - PATCH FLOORS AND WALLS SMOOTH AND LEVEL.
10. REMOVE EXISTING WATER CLOSET, EXTEND UTILITIES FOR NEW FIXTURE. SEE MECHANICAL DRAWINGS.
11. REMOVE ALL WALL MOUNTED TOILET ACCESSORIES (MIRRORS, TOILET PAPER HOLDER, SOAP DISP., TOWEL DISP., ETC.). PATCH WALLS FLUSH AND LEVEL TO MATCH ADJACENT SURFACES.
12. REMOVE EXISTING LAY-IN CEILING SYSTEM COMPLETE
13. REMOVE RAISED CONC. BENCH COMPLETE. PATCH WALLS AND FLOORS FLUSH AND LEVEL TO MATCH ADJACENT SURFACES.
14. REMOVE STONE BENCH COMPLETE. PATCH WALLS FLUSH.
15. REMOVE RAISED CURB. PATCH FLOOR LEVEL.
16. EXISTING D.F. TO REMAIN.
17. REMOVE/REPLACE EXISTING C.U.H. (30"H x 36"W) - SEE MECH.
18. REMOVE LOCKERS AND SALVAGE FOR REINSTALLATION
19. REMOVE / RELOCATE F.A. STROBE AS SHOWN
20. REMOVE / RE-INSTALL F.A. PULL STATION AND WIRE MOLD
21. REMOVE WALL SIGNAGE
22. REMOVE / RE-INSTALL F.A. STROBE AND WIRE MOLD
23. REMOVE / RE-INSTALL VIDEO CAMERA AND WIRE MOLD
24. REMOVE / RE-INSTALL WALL THERMOSTAT
25. REMOVE / RE-INSTALL WALL BOX AND WIRE MOLD
26. REMOVE WIRE MOLD AT CEILING LINE AND RE-INSTALL ABOVE NEW LAY-IN CEILING (V.I.F.)

NEW WORK PLAN NOTES

1. NEW DOOR IN EXISTING FRAME. VERIFY D.O. DIMENSIONS IN FIELD PRIOR TO FABRICATION OF NEW DOOR.
2. PATCH WALLS AT REMOVED WALL LOCATIONS TO MATCH EXISTING SURFACES (V.I.F.)
3. NEW 8" CMU WALL UP FULL HT. TO FLOOR DECK ABOVE SMOKE TIGHT AROUND ALL PIPES, ETC. PROVIDE PC CMU AT 7'-4" AFF FOR NEW DOOR OPENING (PAINT FULL HT.)
4. GRIND AND POLISH EXISTING TERRAZZO FLOOR.
5. NEW DOOR AND FRAME IN NEW 3'-4"x7'-4" M.O.
6. NEW 60 MIN. FIRE RATED DOOR AND FRAME ASSEMBLY FULL WIDTH OF CORRIDOR UP TO CEILING HT. SEE ELEVATIONS. VERIFY OPENING DIMENSIONS IN FIELD (HEAT BARRIER FRAME SYSTEM).
7. INSTALL NEW 1 HOUR RATED WALL CONSTRUCTION @ TYPE X GYP. BD. EA. SIDE OF 20 GA. 6" METAL STUDS AT 16" O.C.) ABOVE NEW FRAME FROM CEILING HT. UP TO FLOOR DECK ABOVE. SEAL ALL VOIDS AND JOINTS SMOKE TIGHT.
8. INFILL EXISTING M.O. WITH BRICK AND CMU. TOOTH-IN TO MATCH COURSING.
9. CONSTRUCT NEW 8" CMU WALL EACH SIDE OF DRINKING FOUNTAIN (5'-0" APART), STACKED BOND, 40" HIGH AND 16" OUT FROM WALL WITH BULLNOSED VERTICAL EDGES AND SOLID CMU TOP COURSE. DRILL 2 NO. 4 BARS 6" INTO THE CONCRETE FLOOR AND SET IN EPOXY. EXTEND BAR FULL HT. OF WALL AND GROUT SOLID INSIDE EACH CMU CORE. COVER WITH NEW CERAMIC WALL TILE TO MATCH WALLS.
10. INSTALL NEW TERRAZZO TILE OVER EXISTING CONCRETE FLOOR.
11. REMOVE ALL EXISTING 6" HIGH CERAMIC COVE BASE IN ROOM. SCRAPE MORTAR OFF WALL, REPAIR WALLS SMOOTH AND LEVEL AS REQUIRED, INSTALL NEW 6" VINYL COVE BASE.
12. EXISTING CONCRETE BENCH, REPAIR SURFACES SMOOTH AND LEVEL. PAINT CONCRETE BENCH WITH EPOXY.
13. GRIND AND POLISH EXISTING CONCRETE FLOOR. REMOVE ALL PAINT FROM FLOOR AND PATCH CRACKS / DEPRESSIONS FLUSH AND LEVEL.
14. NEW 6" CMU WALL UP TO 8" ABOVE NEW CEILING HEIGHT (+/-8'-8" A.F.F.)
15. NEW TERRAZZO TILE OVER CONCRETE.
16. MODIFY EXISTING LAY-IN CEILING AS REQUIRED FOR NEW WALL CONSTRUCTION UP TO DECK ABOVE.
17. MODIFY EXISTING CMU WALL TO INSTALL NEW P.C. LINTEL. GROUT SOLID OPEN CORES BELOW LINTEL.
18. NEW WALL C.U.H. ENLARGE WALL OPENING AS NEEDED (V.I.F.). SEE MECH.
19. NEW PCT WALL TILE FULL HT. - CARRY SAME PATTERN AND ACCENTS 'A' AND 'B' AS IN ENTRY 04.
20. NEW ST. ST. VERTICAL CORNER SCHLUTER STRIP
21. NEW RAISED CONC. BENCH CONSTRUCTION. SEE DETAILS.
22. RELOCATED LOCKER ONTO NEW CONC. BENCH. SEE LOCKER SCHEDULE
23. FINISH OPEN ENDS WITH NEW CMU/CONC. TO MAKE FLUSH END
24. NEW METAL FILLER TO MATCH LOCKER COLOR AND HT. (V.I.F.)
25. LOCATE NEW WALL AT CUT END OF CONC. BENCH
26. PROVIDE NEW FINISHED END ON LOCKER TO MATCH EXISTING
27. EXISTING VERTICAL EXPANSION JOINT. INSTALL NEW EXPANSION JOINT IN NEW PCT WALL AT THIS LOCATION.
28. EXISTING TOILET PARTITIONS AND FLOOR TOILETS TO REMAIN IN PLACE
29. EXISTING PEDESTAL BENCH TO REMAIN IN PLACE
30. RELOCATED F.A. STROBE
31. NEW DOOR AND FRAME IN EXISTING M.O. (V.I.F.)

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PARTIAL DEMOLITION AND NEW WORK PLANS AND SCHEDULES

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DATE: FEBRUARY 1, 2019

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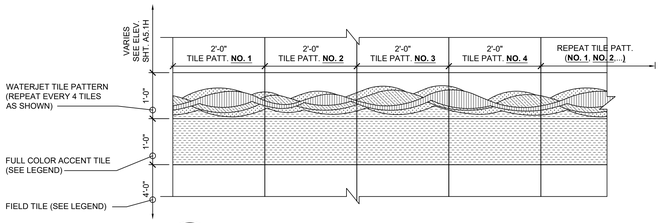


PCT FIELD TILE = CROSSVILLE • ARGENT 12"x24"
COLOR = CLEAN SLATE (A1417)

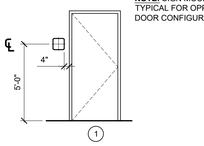
PCT ACCENT TILE = CROSSVILLE • ARGENT 12"x24"
COLOR = MEMPHIS BLUES (A1415)

PCT ACCENT TILE = CROSSVILLE • ARGENT 12"x24"
COLOR = CARNEGIE COOL (A1414)

PCT ACCENT TILE = CROSSVILLE • ARGENT 12"x24"
COLOR = ON THE ROCKS (A1420)

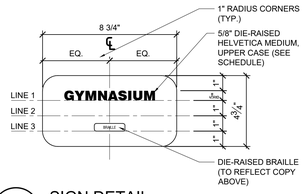
PCT ACCENT TILE = CROSSVILLE • ARGENT 12"x24"
COLOR = UNDER THE SEA (A1413)

9 A5.2H — WALL TILE PATTERN DETAIL
SCALE: 3/4" = 1'-0"

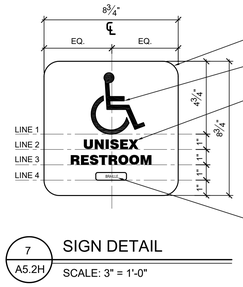


NOTE: SIGN MOUNTING TYPICAL FOR OPPOSITE DOOR CONFIGURATION

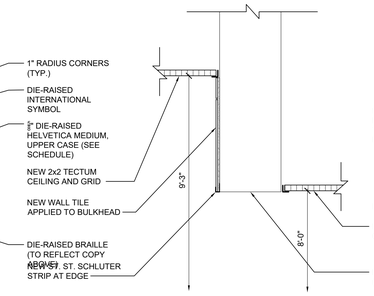
MOUNTING DETAILS
SCALE: 1/4" = 1'-0"



8 A5.2H — SIGN DETAIL
SCALE: 3" = 1'-0"

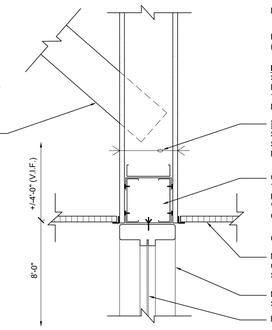


7 A5.2H — SIGN DETAIL
SCALE: 3" = 1'-0"

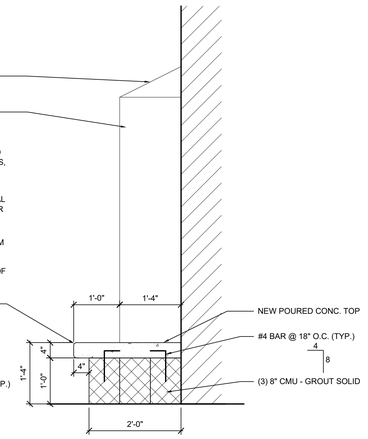


6 A5.2H — CEILING SOFFIT DETAIL
SCALE: 1-1/2" = 1'-0"

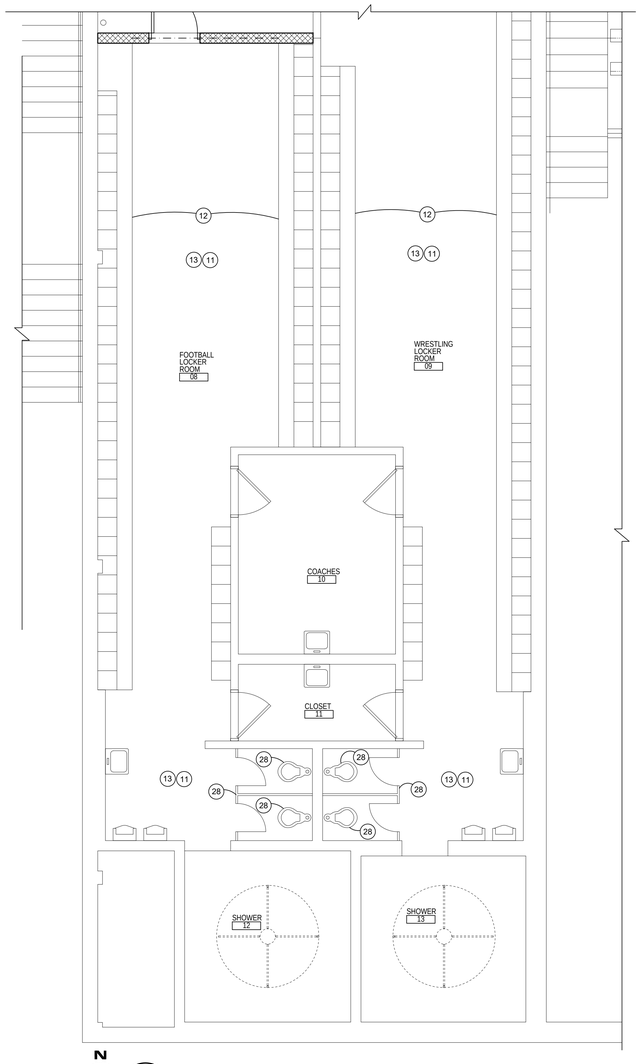
5 A5.2H — WALL SECTION
SCALE: 3/4" = 1'-0"



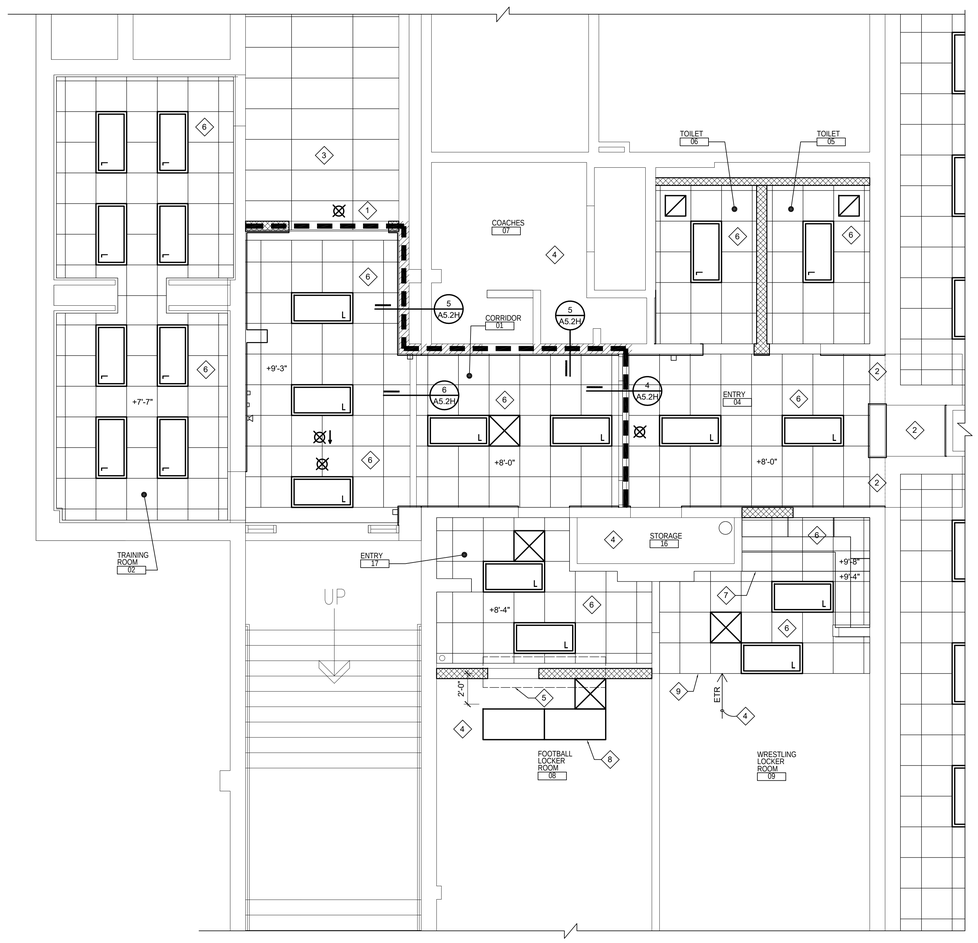
4 A5.2H — DOOR HEAD DETAIL
SCALE: 1-1/2" = 1'-0"



3 A5.2H — CONCRETE BENCH DETAIL
SCALE: 3/4 = 1'-0"



N
2 A5.2H — PARTIAL NEW WORK PLAN
SCALE: 1/4" = 1'-0"



N
1 A5.2H — PARTIAL REFLECTED CEILING PLAN
SCALE: 1/4 = 1'-0"

REFLECTED CEILING PLAN NOTES:

1. REMOVE/REINSTALL AND MODIFY EXISTING CEILING GRID SYSTEM AS REQUIRED FOR NEW WALL TO BE CONSTRUCTED UP SMOKE TIGHT TO FLOOR DECK ABOVE.
2. PAINT EXISTING HARD SURFACE, PATCH ALL HOLES FLUSH AND LEVEL
3. EXISTING 2x4 LAY-IN CEILING SYSTEM TO REMAIN
4. EXISTING HARD CEILING SYSTEM TO REMAIN
5. REMOVE EXISTING 8'-0" RECESSED LIGHT FIXTURE AND RE-INSTALL AS INDICATED. INFILL CEILING SURFACE TO MATCH ADJACENT FINISHES (PAINT).
6. NEW 2x2 TECTUM CEILING TILES IN NEW SUSPENDED GRID SYSTEM WITH HOLD DOWN CLIPS ON ALL TILES. REINSTALL HVAC GRILLES, DIFFUSERS AND LIGHT FIXTURES IN SAME LOCATION (V.I.F.)
7. STEP UP CEILING FROM 9'-4" TO 9'-8" WITH GRID SYSTEM
8. NEW LOCATION OF SALVAGED LIGHT FIXTURE. CUT/MODIFY EXISTING HARD CEILING AS REQUIRED TO RE-INSTALL LIGHT FIXTURE.
9. MATCH ELEVATIONS - NEW AND EXISTING CEILINGS

RCP LEGEND:

- 1 HOUR FIRE RATED WALL CONSTRUCTION UP TIGHT TO CONCRETE FLOOR DECK ABOVE SMOKE TIGHT.
- RECESSED 2x4 LIGHT FIXTURE (SEE MECH.)
- CEILING MOUNTED EXIT SIGN
- CEILING AIR DIFFUSER (SEE MECH.)

SIGNAGE SCHEDULE

QTY	PLAN NO.	TYPE	MOUNTING	TEXT
2	02	1	1	LINE 1: TRAINING LINE 2: ROOM
2	04	1	1	LINE 1: AQUATIC LINE 2: CENTER
1	05	2	1	LINE 1: UNISEX LINE 2: RESTROOM
1	06	2	1	LINE 1: UNISEX LINE 2: RESTROOM
1	07	1	1	LINE 1: COACHES LINE 2: OFFICE
1	17	1	1	LINE 1: LOCKER LINE 2: ROOMS
1	08	1	1	LINE 1: FOOTBALL LINE 2: ROOM
1	09	1	1	LINE 1: WRESTLING LINE 2: ROOM

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FERNDALE PUBLIC SCHOOLS
2017 SINKING FUND
SUMMER 2019 RENOVATION PROJECTS

HIGH SCHOOL
LOWER LEVEL

PARTIAL NEW REFLECTED CEILING PLAN AND PARTIAL NEW WORK PLAN, SIGNAGE SCHEDULE, SECTIONS AND DETAILS

PRELIMINARY ☐
DESIGN DEVELOPMENT ☐
CONSTRUCTION ■
FINAL RECORD ☐

DRAWN BY MTS
CHECKED BY BJS

REVISIONS

DATE: FEBRUARY 1, 2019

SHEET NO.
A5.2H

JOB NO. 181794

MECHANICAL ABBREVIATION LIST

ABBREVIATION	DESCRIPTION
A	COMPRESSED AIR
A(___#)	COMPRESSED AIR (SPECIFIC PSIG)
AAV	AUTOMATIC AIR VENT
ACC	AIR COOLED CONDENSER
ACCU	AIR COOLED CONDENSING UNIT
AD	ACCESS DOOR
AD	AREA DRAIN
AE	AIR EXTRACTOR
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
ALT	ALTERNATE
AMP	AMPERE
APD	AIR PRESSURE DROP
AR	ARGON
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR-CONDITIONING ENGINEERS
ASR	AUTOMATIC SPRINKLER RISER
AUX	AUXILIARY
AV	ACID VENT
AVTR	ACID VENT THROUGH ROOF
AW	ACID WASTE
BAS	BUILDING AUTOMATION SYSTEM
BCU	BLOWER COIL UNIT
BDD	BACKDRAFT DAMPER
BFF	BELOW FINISHED FLOOR
BFP	BACKFLOW PREVENTER
BHP	BRAKE HORSEPOWER
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
BVC	BEVERAGE CONDUIT
BWV	BACKWATER VALVE
C	COMMON
CAP	CAPACITY
CAV	CONSTANT AIR VOLUME
CB	CATCH BASIN
CC	COOLING COIL
CD	COLD DECK
CD	CONDENSATE DRAIN
CFCI	CONTRACTOR FURNISHED, CONTRACTOR INSTALLED
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
CHW	CHILLED WATER
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CLG	COOLING
CNDS	CONDENSATE
CNDS (___#)	CONDENSATE (SPECIFIC PSIG)
CO	CLEAN OUT
CO2	CARBON DIOXIDE
CONT	CONTINUATION OR CONTINUED
CONTR	CONTRACTOR
CONV	CONVECTOR
COP	COEFFICIENT OF PERFORMANCE
CP	CIRCULATING PUMP
CRU	CONDENSATE RETURN UNIT
CSS	CLINICAL SERVICE SINK
CT	COOLING TOWER
CUH	CABINET UNIT HEATER
CW	DOMESTIC COLD WATER
CWF	DOMESTIC COLD WATER - FILTERED
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
D&T	DRIP AND TRAP
DA	DISCHARGE AIR
DAT	DISCHARGE AIR TEMPERATURE
DB	DRY BULB
DDC	DIRECT DIGITAL CONTROL
DEG	DEGREE
DFU	DRAINAGE FIXTURE UNITS
DIA	DIAMETER
DMPR	DAMPER
D/N	DAY/NIGHT
DN	DOWN
DNZ	DOWNSPOUT NOZZLE
DS	DUCT SILENCER
DT	DRAIN TILE
DTC	DRAIN TILE CONNECTION
DWH	DOMESTIC WATER HEATER
DWG	DRAWING
(E)	EXISTING
E	EXHAUST GRILLE OR REGISTER
EA	EACH
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EC	EXPANSION COMPENSATOR
ECUH	ELECTRIC CABINET UNIT HEATER
EDB	ENTERING DRY BULB
EER	ENERGY EFFICIENCY RATIO
EES	EMERGENCY EYE WASH / SHOWER
EEW	EMERGENCY EYE WASH
EF	EXHAUST FAN
EFF	EFFICIENCY
EHC	ELECTRIC HEATING COIL
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
EMS	ENERGY MANAGEMENT SYSTEM
ERL	ENERGY RECOVERY LOOP
ERLR	ENERGY RECOVERY LOOP RETURN
ERLS	ENERGY RECOVERY LOOP SUPPLY
ERU	ENERGY RECOVERY UNIT
ESH	EMERGENCY SHOWER
ESP	EXTERNAL STATIC PRESSURE
EUH	ELECTRIC UNIT HEATER
EWB	ENTERING WET BULB
EWC	ELECTRIC WATER COOLER
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
F	FIRE PROTECTION
°F	DEGREES FAHRENHEIT
F&B	FACE AND BYPASS
F&T	FLOAT AND THERMOSTATIC
FA	FACE AREA
FCU	FAN COIL UNIT
FD	FLOOR DRAIN
FFD	FUNNEL FLOOR DRAIN
FH	FIRE HYDRANT
FHC	FIRE HOSE CABINET
FHR	FIRE HOSE RACK
FHV	FIRE HOSE VALVE
FLA	FULL LOAD AMPS
FLR	FLOOR
FM	FLOW METER
FMS	FLOW MEASURING STATION
FPM	FEET PER MINUTE
FP	FIRE PUMP
FPTU	FAN POWERED (AIR) TERMINAL UNIT
FS	FLOOR SINK
FSEC	FOOD SERVICE EQUIPMENT CONTRACTOR
FT	FEET
FTR	FINNED TUBE RADIATION
FV	FACE VELOCITY
G	NATURAL GAS
GA	GAUGE
GAL	GALLON
GRH	GRAVITY RELIEF HOOD
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
H	HYDROGEN
HB	HOSE BIBB
HC	HEATING COIL
HD	HOT DECK
HEPA	HIGH EFFICIENCY PARTICULATE ARRESTANCE
HL	HIGH LIMIT
HOA	HAND/OFF/AUTO
HP	HEAT PUMP
HP	HORSEPOWER
HPDW	HIGH PRESSURE DOMESTIC COLD WATER
HPHW	HIGH PRESSURE DOMESTIC HOT WATER
HPHWR	HIGH PRESSURE DOMESTIC HOT WATER RETURN
HPL	HEAT PUMP LOOP
HPLR	HEAT PUMP LOOP RETURN
HPLS	HEAT PUMP LOOP SUPPLY
HR	HOUR
HTG	HEATING
HV	HEATING VENTILATING
HVAC	HEATING, VENTILATING, AIR CONDITIONING
HWH	HOT WATER HEATING
HWHR	HOT WATER HEATING RETURN
HWHS	HOT WATER HEATING SUPPLY
HW	DOMESTIC HOT WATER
HW(___)	DOMESTIC HOT WATER (SPECIFIC TEMP °F)
HWR	DOMESTIC HOT WATER RETURN
HX	HEAT EXCHANGER
HZ	HERTZ
IAQ	INDOOR AIR QUALITY
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IH	INTAKE HOOD
IN	INCHES
IR	INFRARED HEATER
IW	INDIRECT WASTE
JC	JANITOR'S CLOSET
JP	JOCKEY PUMP
KW	KILOWATT
KWH	KILOWATT-HOUR
LAT	LEAVING AIR TEMPERATURE
LAB	LABORATORY
LAV	LAVATORY
LBS	POUNDS
LDB	LEAVING DRY BULB
LL	LOW LIMIT
LPC	LOW PRESSURE CONDENSATE
LPS	LOW PRESSURE STEAM
LRA	LOCKED ROTOR AMPS
LWB	LEAVING WET BULB
LWT	LEAVING WATER TEMPERATURE
MA	MIXED AIR
MAT	MIXED AIR TEMPERATURE
MAU	MAKE-UP AIR UNIT
MAX	MAXIMUM
MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
MCA	MEDICAL COMPRESSED AIR
MCA	MINIMUM CIRCUIT AMPACITY
MCC	MOTOR CONTROL CENTER
MECH	MECHANICAL
MEZZ	MEZZANINE
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MMBH	MILLION BRITISH THERMAL UNITS PER HOUR
M/S	MOTOR STARTER
MTD	MOUNTED
MTR	MOTOR
MV	MANUAL AIR VENT
MVAC	MEDICAL VACUUM
N	NITROGEN
N2O	NITROUS OXIDE
NC	NOISE CRITERIA
NC	NORMALLY CLOSED
NCTC	NORMALLY CLOSED TIMED CLOSED
NCTO	NORMALLY CLOSED TIMED OPEN
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NOTC	NORMALLY OPEN TIMED CLOSED
NOTO	NORMALLY OPEN TIMED OPEN
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NOM	NOMINAL
NPCW	NON POTABLE COLD WATER
O	OXYGEN
OA	OUTSIDE AIR
OAT	OUTSIDE AIR TEMPERATURE
OB	OUTLET BOX
OBD	OPPOSED BLADE DAMPER
OC	ON CENTER/CENTER TO CENTER
OD	OUTSIDE DIAMETER
OED	OPEN ENDED DUCT
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED, OWNER INSTALLED
OL	OVERLOAD
ORC	OVERFLOW RAIN CONDUCTOR
ORD	OVERFLOW ROOF DRAIN
OS&Y	OUTSIDE SCREW AND YOKE
OV	OUTLET VELOCITY
OWS	OPERATOR WORKSTATION
PACU	PACKAGED AIR CONDITIONING UNIT
PBD	PARALLEL BLADE DAMPER
PC	PUMPED CONDENSATE
PCW	PROCESS COOLING WATER
PCWR	PROCESS COOLING WATER RETURN
PCWS	PROCESS COOLING WATER SUPPLY
PD	PRESSURE DROP (FEET OF WATER)
PH	PERIMETER HEAT
PHR	PERIMETER HEAT RETURN
PHS	PERIMETER HEAT SUPPLY
PNL	PANEL
PPM	PARTS PER MILLION
PRESS	PRESSURE
PRV	PRESSURE REDUCING VALVE
PSAN	PUMPED SANITARY
PST	PUMPED STORM
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH - ABSOLUTE
PSIG	POUNDS PER SQUARE INCH - GAUGE
PW	PURIFIED WATER
PWR	PURIFIED WATER RETURN
PWS	PURIFIED WATER SUPPLY
(R)	RELOCATED
R	RETURN GRILLE OR REGISTER
RA	RETURN AIR
RAT	RETURN AIR TEMPERATURE
RC	RAIN CONDUCTOR
RCP	RADIANT CEILING PANEL
RD	ROOF DRAIN
REQD	REQUIRED
REF	ROOF EXHAUST FAN
RF	RETURN FAN
RH	RELATIVE HUMIDITY
RL	REFRIGERANT LIQUID
RLFA	RELIEF AIR
RPM	REVOLUTIONS PER MINUTE
RPDA	REDUCED PRESSURE BACKFLOW PREVENTION DETECTION ASSY
RPZA	REDUCED PRESSURE BACKFLOW PREVENTION ZONE ASSY
RS	REFRIGERANT SUCTION
RTU	ROOFTOP UNIT
S	SUPPLY AIR DIFFUSER OR GRILLE
SA	SOUND ATTENUATOR
SA	SUPPLY AIR
SAN	SANITARY WASTE
SAT	SUPPLY AIR TEMPERATURE
SECT	SECTION
SF	SUPPLY FAN
SH	SHOWER
SK	SINK
SMR	SNOW MELT RETURN
SMS	SNOW MELT SUPPLY
SP	STATIC PRESSURE
SPEC	SPECIFICATION
SPKLR	SPRINKLER
SQFT	SQUARE FOOT/SQUARE FEET
S/S	START/STOP
SS	SERVICE SINK
ST	STORM
STD	STANDARD
STK	STACK
STM	STEAM
STM(___#)	STEAM (SPECIFIC PSIG)
S/W	SUMMER/WINTER
SW	SWITCH
T	TRANSFER GRILLE
TC	TEMPERATURE CONTROL
TC	TEMPERING COIL
TCP	TEMPERATURE CONTROL PANEL
TD	TRENCH DRAIN
TEMP	TEMPERATURE
TEMP	TEMPORARY
TH	TERMINAL HEATING
THA	TOTAL HEAT ABSORBED
THR	TERMINAL HEATING RETURN
THR	TOTAL HEAT REJECTED
THS	TERMINAL HEATING SUPPLY
TSP	TOTAL STATIC PRESSURE
TU	(AIR) TERMINAL UNIT
TV	TURNING VANES
TYP	TYPICAL
V	VALVE
V	VENT
VAC	VACUUM
VAV	VARIABLE AIR VOLUME
VB	VACUUM BREAKER
VD	VOLUME DAMPER (MANUALLY ADJUSTABLE)
VOL	VOLUME
VFC	VARIABLE FREQUENCY CONTROLLER
VTR	VENT THROUGH ROOF
VTU	VENTURI TERMINAL UNIT
VUV	VERTICAL UNIT VENTILATOR
W	WASTE
W&V	WASTE AND VENT
WAGD	WASTE ANESTHETIC GAS DISPOSAL
WB	WET BULB
WC	WATER CLOSET
WC	WATER COLUMN
WG	WATER GAUGE
WH	WALL HYDRANT
WMSD	WASHING MACHINE SUPPLY AND DRAIN BOX
WPD	WATER PRESSURE DROP
WT	WEIGHT
XFMR	TRANSFORMER

TEMPERATURE CONTROL - PARTIAL SYMBOLS LIST

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
CO2	CARBON DIOXIDE SENSOR	OS	OCCUPANCY SENSOR
CO	CARBON MONOXIDE SENSOR	PT	PRESSURE TRANSMITTER
DPT	DIFFERENTIAL PRESSURE TRANSMITTER	SP	STATIC PRESSURE SENSOR OR PROBE
FM	FLOW METER		VALVE - 2 WAY CONTROL VALVE
	GUARD FOR STAT OR SENSOR		VALVE - 3 WAY CONTROL VALVE
H	HUMIDISTAT OR HUMIDITY SENSOR (AS DEFINED ON TC DRAWINGS)	T	THERMOSTAT OR TEMPERATURE SENSOR (AS DEFINED ON TC DRAWINGS)

NOTE: LIST OF ADDITIONAL SYMBOLS & ABBREVIATIONS ASSOCIATED WITH TEMPERATURE CONTROLS ARE IDENTIFIED ON TC DRAWINGS.

MECHANICAL SYMBOL LIST

PIPING SYMBOLS

SYMBOL	DESCRIPTION
AV	AIR VENT - AUTOMATIC
MV	AIR VENT - MANUAL
BFP	BACKFLOW PREVENTER
	CATCH BASIN
	CIRCULATING PUMP
CO	CLEAN OUT - IN FLOOR
CO	CLEAN OUT - FLANGE
	DIRECTION OF FLOW
	DIRECTION OF PITCH - DOWN
	FINNED TUBE RADIATION
	FIRE PROTECTION - SIAMESE CONNECTION - FREE STANDING
	FIRE PROTECTION - SIAMESE CONNECTION - WALL MOUNTED
	FIRE PROTECTION - SPRINKLER HEAD, CONCEALED
	FIRE PROTECTION - SPRINKLER HEAD, PENDANT
	FIRE PROTECTION - SPRINKLER HEAD, UPRIGHT
	FIRE PROTECTION - SPRINKLER HEAD, SIDEWALL
	FLOOR DRAIN
	FLOOR DRAIN - ELEVATION
	FLOOR DRAIN - FUNNEL
	FLOOR DRAIN - FUNNEL, ELEVATION
FS	FLOW MEASURING DEVICE (FOR TEST AND BALANCING)
FM	FLOW SWITCH
	FLOW METER
HB	HOSE BIBB
MH	MANHOLE
	OPEN SITE DRAIN
	PIPE - ANCHOR
	PIPE - CAP OR PLUG
	PIPE - ELBOW DOWN
	PIPE - ELBOW UP
	PIPE - EXPANSION JOINT OR COMPENSATOR
	PIPE - FLANGE
	PIPE - HOSE AND BRAID FLEXIBLE CONNECTION
	PIPE - RUBBER FLEXIBLE CONNECTION
	PIPE - GUIDE
	PIPE - TEE DOWN
	PIPE - TEE UP
	PIPE - UNION
P/T	PRESSURE AND TEMPERATURE TEST PLUG
	PRESSURE GAUGE AND COCK
	REDUCER - CONCENTRIC
	REDUCER - ECCENTRIC
	ROOF/OVERFLOW DRAIN
	STEAM TRAP - FLOAT AND THERMOSTATIC
	STEAM TRAP - BUCKET
	STRAINER
	STRAINER WITH VALVE AND BLOW-OFF
	THERMOMETER
	TRAP
	VALVE - ANGLE
	VALVE - BALL
	VALVE - BUTTERFLY
0.5	VALVE - BALANCE (i.e. BALANCE VALVE TO 0.5 GPM)
0.5	VALVE - COMBINATION BALANCE & FLOW MEASURING (i.e. BALANCE VALVE TO 0.5 GPM)
	VALVE - CHECK
	VALVE - SPRING CHECK
	VALVE - GAS (MANUAL)
	VALVE - GLOBE
	VALVE - ISOLATION
	VALVE - NEEDLE
	VALVE - OS&Y
	VALVE - PLUG
	VALVE - PRESSURE REGULATING
	VALVE - PRESSURE REDUCING
	VALVE - PRESSURE RELIEF
	VALVE - PRESSURE & TEMPERATURE RELIEF
VTR	VENT THROUGH ROOF
WH	WALL HYDRANT

DOUBLE LINE PIPING SYMBOLS

SYMBOL	DESCRIPTION
	FLANGE
	FLEX CONNECTION
	STRAINER - BASKET
	STRAINER - Y TYPE
	VALVE - 2 WAY CONTROL
	VALVE - 3 WAY CONTROL
	VALVE - BUTTERFLY
	VALVE - CHECK
	VALVE - DETECTOR CHECK
	VALVE - OS&Y HORIZONTAL STEM
	VALVE - OS&Y VERTICAL STEM

DUCTWORK SYMBOLS

SYMBOL	DESCRIPTION
	AIR TERMINAL UNIT
TU-101	AIR TERMINAL UNIT WITH HEATING COIL
	VENTURI AIR TERMINAL UNIT
VTU-101	VENTURI AIR TERMINAL UNIT WITH HEATING COIL
	DAMPER - HORIZONTAL FIRE (EXISTING, NEW)
	DAMPER - HORIZONTAL FIRE / SMOKE (EXISTING, NEW)
	DAMPER - SMOKE (EXISTING, NEW)
	DAMPER - VERTICAL FIRE (EXISTING, NEW)
	DAMPER - VERTICAL FIRE / SMOKE (EXISTING, NEW)
BDD	DAMPER - BACK DRAFT
M	DAMPER - MOTORIZED
	DAMPER - VOLUME (MANUALLY ADJUSTABLE)
	DIFFUSER - BLANK OFF
	DIFFUSER - LINEAR SLOT
	DIFFUSER - SQUARE OR RECTANGULAR
	DUCT CROSS SECTION - SUPPLY
	DUCT CROSS SECTION - RETURN
	DUCT CROSS SECTION - EXHAUST
	DUCT - FLEXIBLE CONNECTION
	DUCT - FLEXIBLE DUCT
	DUCT TAKE-OFF - ROUND CONICAL
	DUCT TAKE-OFF - RECTANGULAR WITH SHOE TAP
	ELBOW - RECTANGULAR WITH TURNING VANES
	ELBOW - RECTANGULAR/ ROUND SMOOTH RADIUS
	ELBOW DOWN - RECTANGULAR
	ELBOW DOWN - ROUND
	ELBOW UP - RECTANGULAR
	ELBOW UP - ROUND
	FAN - AXIAL
	FAN - CENTRIFUGAL (ELEVATION)
	HEATING COIL
D	INCLINED DROP IN DIRECTION OF AIRFLOW
R	INCLINED RISE IN DIRECTION OF AIRFLOW
	INTAKE OR RELIEF HOOD
	REGISTER - RETURN OR EXHAUST
	REGISTER - RETURN WITH BOOT
	REGISTER - TRANSFER GRILLE
	ROOF EXHAUST FAN
	TRANSITION - CONCENTRIC
	TRANSITION - ECCENTRIC
	UNIT HEATER - HORIZONTAL THROW
	UNIT HEATER - VERTICAL THROW

DOUBLE LINE DUCTWORK SYMBOLS

SYMBOL	DESCRIPTION
	DUCT TAKE-OFF - RECTANGULAR WITH SHOE TAP
	DUCT TAKE-OFF - ROUND CONICAL
	ELBOW - RECTANGULAR WITH TURNING VANES
	ELBOW - RECTANGULAR SHORT RADIUS WITH SPLITTER VANES
	ELBOW - ROUND
	ELBOW - RECTANGULAR SMOOTH RADIUS
	ELBOW DOWN - RECTANGULAR
	ELBOW DOWN - ROUND
	ELBOW UP - RECTANGULAR
	ELBOW UP - ROUND
	HEATING COIL
D	INCLINED DROP IN DIRECTION OF AIRFLOW
R	INCLINED RISE IN DIRECTION OF AIRFLOW
	TRANSITION - CONCENTRIC
	TRANSITION - ECCENTRIC

MECHANICAL DRAWING INDEX

STANDARD METHODS OF NOTATION

S-1
10ø
350-4
SUPPLY DIFFUSER WITH SCHEDULE TAG "1",
10" DIAMETER NECK SIZE
350 CFM TYPICAL FOR 4

R-1
22x22
640-2
RETURN REGISTER WITH SCHEDULE TAG "1",
22"x 22" NECK SIZE
640 CFM TYPICAL FOR 2
EXHAUST REGISTER E DESIGNATION SIMILAR.

TU-101
AIR TERMINAL UNIT WITH HEATING COIL NO. 101 WITH SERVICE CLEARANCE SHOWN

VTU-101
VENTURI AIR TERMINAL WITH HEATING COIL NO. 101 WITH SERVICE CLEARANCE SHOWN

8-8
PIPE DIAMETER NOTATION
ALL SIZES IN INCHES

8ø
22x10
18x14ø
DUCT SIZE NOTATION
ALL SIZES IN INCHES
OVAL DUCT
RECTANGULAR DUCT

1
CONSTRUCTION KEY NOTE (NUMBER) OR DEMOLITION KEY NOTE (LETTER)

EF 1
EQUIPMENT DESIGNATION,
(i.e. EXHAUST FAN NUMBER 1)

HW-1
PIPING RISER DESIGNATION
(i.e. HOT WATER RISER NUMBER 1)

NEW SYSTEM COMPONENT
EXISTING SYSTEM COMPONENT TO REMAIN
POINT OF NEW CONNECTION SYMBOL

1 / M5.1
SECTION OR PLAN NUMBER
SHEET WHERE SECTION IS DRAWN

AREA OF ENLARGEMENT
PLAN NUMBER
1 / M5.1
SHEET WHERE ENLARGED PLAN IS DRAWN

1 / M5.1
SECTION OR PLAN NUMBER
SHEET WHERE SECTION IS CUT OR ENLARGED PLAN IS REFERENCED

SHEET M1.0
SHEET M1.1
MATCH LINE

HEAVY LINE WEIGHT INDICATES NEW WORK

LIGHT LINE WEIGHT INDICATES EXISTING EQUIPMENT OR REFERENCED INFORMATION

GRAY LINE INDICATES BACKGROUND INFORMATION

DASHED LINES INDICATE PIPING ROUTED BELOW SLAB OR GRADE

HATCH MARKS INDICATE EQUIPMENT OR MATERIALS TO BE DISCONNECTED AND REMOVED.

SECTION OR ENLARGED PLAN

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

NOTE: SOME SYMBOLS AND ABBREVIATIONS SHOWN MAY NOT APPLY TO THIS PROJECT.

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FERNDALE PUBLIC SCHOOLS
2017 SINKING FUND
SUMMER 2019 RENOVATION PROJECTS

MECHANICAL STANDARDS AND DRAWING INDEX

FERNDALE HIGH SCHOOL

PRELIMINARY ☐
DESIGN DEVELOPMENT ☐
CONSTRUCTION ■
FINAL RECORD ☐

DRAWN BY: CAY
CHECKED BY: SVM

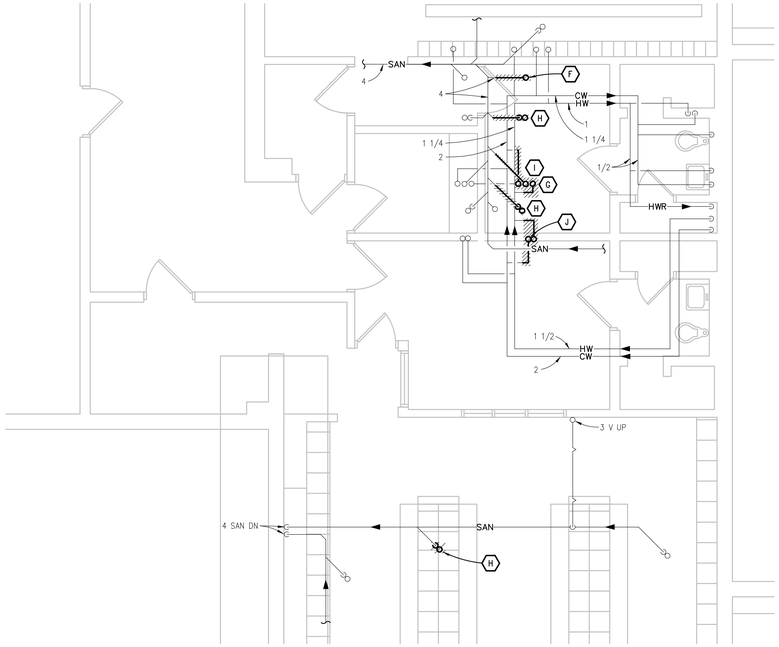
REVISIONS:

DATE: FEBRUARY 1, 2019

SHEET NO.:
M0.01

JOB NO.: 181794

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



PARTIAL DEMOLITION TUNNEL LEVEL PLUMBING PLAN

SCALE: 1/4" = 1' - 0"

MECHANICAL GENERAL DEMOLITION NOTES:

1. ANY INTERRUPTION OF EXISTING SERVICES AND/OR EQUIPMENT SHALL BE PERFORMED AT A TIME APPROVED IN ADVANCE BY THE OWNER'S REPRESENTATIVE.
2. THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL EXTENT OF THE WORK. ACTUAL ROUTING AND SIZES OF EXISTING PIPING AND DUCTWORK MIGHT DIFFER TO A LIMITED EXTENT FROM WHAT IS SHOWN. MAJOR DISCREPANCIES BETWEEN THE DRAWINGS AND ACTUAL EXISTING CONDITIONS SHALL BE REPORTED TO THE ENGINEER.
3. THE EXACT EXTENT OF DEMOLITION SHALL BE AS REQUIRED BY THE NEW WORK.
4. ALL MECHANICAL ITEMS TO BE REMOVED SHALL BE REMOVED COMPLETE, INCLUDING ALL RELATED ITEMS SUCH AS HANGERS, SUPPORTS, CONTROLS, ETC. CAP ALL OPEN ENDED PIPES AND DUCTWORK.

(#) DEMOLITION KEY NOTES:

A. REMOVE FLOOR MOUNTED WATER CLOSET AND ASSOCIATED SANITARY PIPING. PREPARE FOR NEW WORK.

B. REMOVE WALL MOUNTED LAVATORY, AND ASSOCIATED CW, HW, WASTE AND V PIPING COMPLETE.

C. REMOVE SHOWER HEAD, MIXING VALVE AND ASSOCIATED CW & HW PIPING COMPLETE.

D. REMOVE FLOOR DRAIN AND ASSOCIATED WASTE PIPING. PREPARE FOR NEW WORK.

E. EXISTING FLOOR DRAIN TO REMAIN.

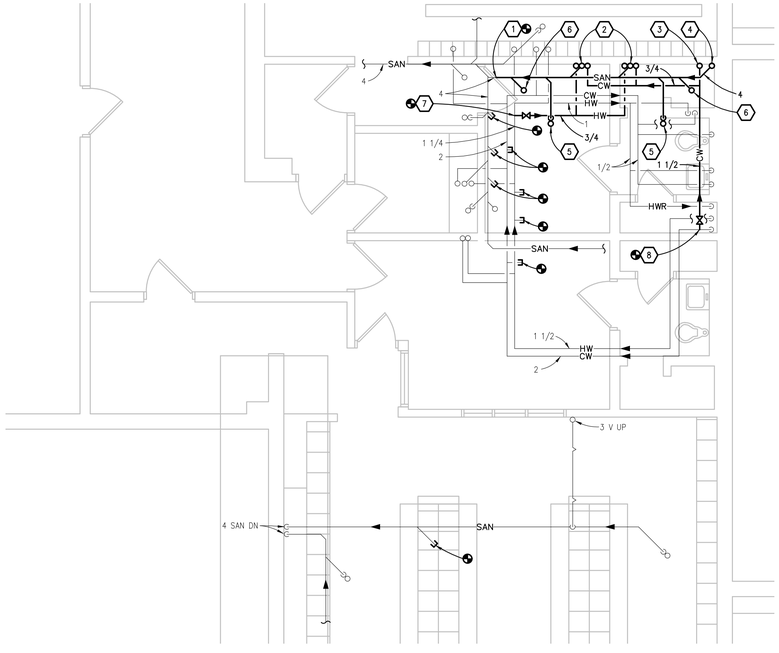
F. REMOVE SANITARY UP TO WATER CLOSET AS SHOWN. PREPARE FOR NEW WORK.

G. REMOVE HW & CW BRANCH PIPING UP TO LAVATORY AS SHOWN. PREPARE FOR NEW WORK.

H. REMOVE WASTE UP TO FLOOR DRAIN AS SHOWN. PREPARE FOR NEW WORK.

I. REMOVE WASTE UP TO LAVATORY AS SHOWN. PREPARE FOR NEW WORK.

J. REMOVE HW & CW UP TO SHOWER MIXING VALVE AND SHOWER HEAD AS SHOWN. PREPARE FOR NEW WORK.



PARTIAL NEW WORK TUNNEL LEVEL PLUMBING PLAN

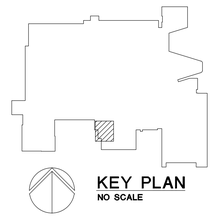
SCALE: 1/4" = 1' - 0"

PLUMBING GENERAL NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, SHEET METAL, OTHER PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.
2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
3. PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.
4. COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
5. PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.
6. REFER TO ARCHITECTURAL PLANS FOR DIMENSIONED LOCATIONS OF PLUMBING FIXTURES.
7. HOT AND COLD WATER PIPING RUN-OUTS TO LAVATORIES AND SINKS SHALL BE 1/2" UNLESS OTHERWISE NOTED.
8. PLUMBING VENT PIPING THROUGH ROOF SHALL BE LOCATED A MINIMUM OF 10'-0" FROM ANY FRESH AIR INTAKE LOCATION AND A MINIMUM OF 18" CLEAR FROM THE INSIDE FACE OF PARAPET.
9. PROVIDE CODE REQUIRED CLEARANCE FOR ALL CLEANOUTS INSTALLED IN SANITARY WASTE AND VENT PIPING.
10. MINIMUM UNDERGROUND PIPE SIZE SHALL BE 3".

(#) CONSTRUCTION KEY NOTES:

1. CONNECT NEW 4 SAN TO EXISTING 4 SAN ABOVE CEILING.
2. 1/2 HW, 2 WASTE AND 1/2 CW UP TO LAVATORY.
3. 1 1/2 CW UP TO WATER CLOSET.
4. 4 SAN UP TO WALL CLEANOUT AND 2 VENT CONTINUATION.
5. 3 WASTE UP TO FLOOR DRAIN.
6. 4 SAN UP TO WATER CLOSET.
7. CONNECT 3/4 HW TO EXISTING 1 1/4 HW ABOVE CEILING.
8. CONNECT 1 1/2 CW TO EXISTING 2 CW ABOVE CEILING.
9. 2 V DOWN TO 4 SAN WALL CLEANOUT.
10. CONNECT 1 1/2 CW TO EXISTING CW, AND EXTEND TO WATER CLOSET.
11. CONNECT 2 V TO EXISTING 3 V IN WALL, ABOVE CEILING.
12. EXISTING FLOOR DRAIN.



KEY PLAN

NO SCALE

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PBA Project No.: 2019.0011

FERNDALE PUBLIC SCHOOLS
2017 SINKING FUND
SUMMER 2019 RENOVATION PROJECTS

PARTIAL DEMO AND NEW WORK TUNNEL LEVEL PLUMBING PLANS

FERNDALE HIGH SCHOOL

PRELIMINARY	☐
DESIGN DEVELOPMENT	☐
CONSTRUCTION	■
FINAL RECORD	☐

DRAWN BY: CAY
CHECKED BY: SVM

REVISIONS:

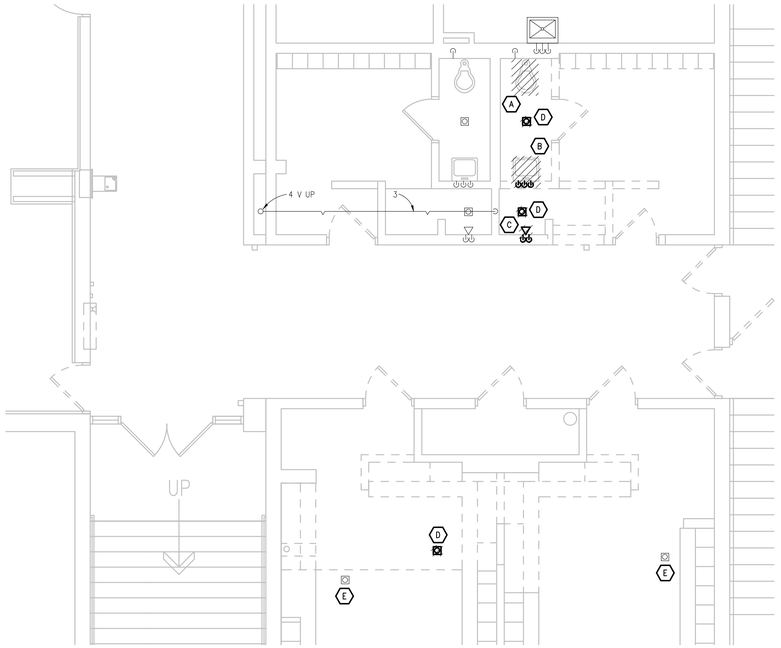
DATE: FEBRUARY 1, 2019

SHEET NO.:

M2.0H

JOB NO.: 181794

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



PARTIAL DEMOLITION PLUMBING PLAN
SCALE: 1/4" = 1' - 0"

MECHANICAL GENERAL DEMOLITION NOTES:

1. ANY INTERRUPTION OF EXISTING SERVICES AND/OR EQUIPMENT SHALL BE PERFORMED AT A TIME APPROVED IN ADVANCE BY THE OWNER'S REPRESENTATIVE.
2. THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL EXTENT OF THE WORK. ACTUAL ROUTING AND SIZES OF EXISTING PIPING AND DUCTWORK MIGHT DIFFER TO A LIMITED EXTENT FROM WHAT IS SHOWN. MAJOR DISCREPANCIES BETWEEN THE DRAWINGS AND ACTUAL EXISTING CONDITIONS SHALL BE REPORTED TO THE ENGINEER.
3. THE EXACT EXTENT OF DEMOLITION SHALL BE AS REQUIRED BY THE NEW WORK.
4. ALL MECHANICAL ITEMS TO BE REMOVED SHALL BE REMOVED COMPLETE, INCLUDING ALL RELATED ITEMS SUCH AS HANGERS, SUPPORTS, CONTROLS, ETC. CAP ALL OPEN ENDED PIPES AND DUCTWORK.

(#) DEMOLITION KEY NOTES:

A. REMOVE FLOOR MOUNTED WATER CLOSET AND ASSOCIATED SANITARY PIPING. PREPARE FOR NEW WORK.

B. REMOVE WALL MOUNTED LAVATORY, AND ASSOCIATED CW, HW, WASTE AND V PIPING COMPLETE.

C. REMOVE SHOWER HEAD, MIXING VALVE AND ASSOCIATED CW & HW PIPING COMPLETE.

D. REMOVE FLOOR DRAIN AND ASSOCIATED WASTE PIPING. PREPARE FOR NEW WORK.

E. EXISTING FLOOR DRAIN TO REMAIN.

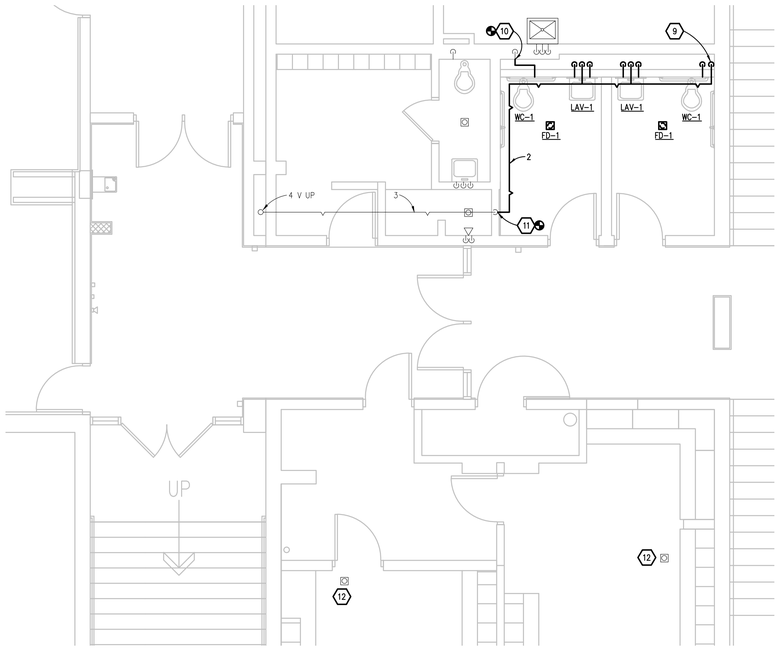
F. REMOVE SANITARY UP TO WATER CLOSET AS SHOWN. PREPARE FOR NEW WORK.

G. REMOVE HW & CW BRANCH PIPING UP TO LAVATORY AS SHOWN. PREPARE FOR NEW WORK.

H. REMOVE WASTE UP TO FLOOR DRAIN AS SHOWN. PREPARE FOR NEW WORK.

I. REMOVE WASTE UP TO LAVATORY AS SHOWN. PREPARE FOR NEW WORK.

J. REMOVE HW & CW UP TO SHOWER MIXING VALVE AND SHOWER HEAD AS SHOWN. PREPARE FOR NEW WORK.



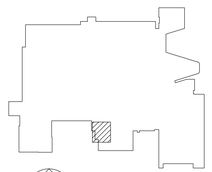
PARTIAL NEW WORK PLUMBING PLAN
SCALE: 1/4" = 1' - 0"

PLUMBING GENERAL NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, SHEET METAL, OTHER PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.
2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
3. PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.
4. COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
5. PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.
6. REFER TO ARCHITECTURAL PLANS FOR DIMENSIONED LOCATIONS OF PLUMBING FIXTURES.
7. HOT AND COLD WATER PIPING RUN-OUTS TO LAVATORIES AND SINKS SHALL BE 1/2" UNLESS OTHERWISE NOTED.
8. PLUMBING VENT PIPING THROUGH ROOF SHALL BE LOCATED A MINIMUM OF 10'-0" FROM ANY FRESH AIR INTAKE LOCATION AND A MINIMUM OF 18" CLEAR FROM THE INSIDE FACE OF PARAPET.
9. PROVIDE CODE REQUIRED CLEARANCE FOR ALL CLEANOUTS INSTALLED IN SANITARY WASTE AND VENT PIPING.
10. MINIMUM UNDERGROUND PIPE SIZE SHALL BE 3".

(#) CONSTRUCTION KEY NOTES:

1. CONNECT NEW 4 SAN TO EXISTING 4 SAN ABOVE CEILING.
2. 1/2 HW, 2 WASTE AND 1/2 CW UP TO LAVATORY.
3. 1 1/2 CW UP TO WATER CLOSET.
4. 4 SAN UP TO WALL CLEANOUT AND 2 VENT CONTINUATION.
5. 3 WASTE UP TO FLOOR DRAIN.
6. 4 SAN UP TO WATER CLOSET.
7. CONNECT 3/4 HW TO EXISTING 1 1/4 HW ABOVE CEILING.
8. CONNECT 1 1/2 CW TO EXISTING 2 CW ABOVE CEILING.
9. 2 V DOWN TO 4 SAN WALL CLEANOUT.
10. CONNECT 1 1/2 CW TO EXISTING CW, AND EXTEND TO WATER CLOSET.
11. CONNECT 2 V TO EXISTING 3 V IN WALL, ABOVE CEILING.
12. EXISTING FLOOR DRAIN.



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2017 SINKING FUND
SUMMER 2019 RENOVATION PROJECTS

PARTIAL DEMOLITION AND NEW WORK PLUMBING PLANS

FERNDALE HIGH SCHOOL

PRELIMINARY	☐
DESIGN DEVELOPMENT	☐
CONSTRUCTION	■
FINAL RECORD	☐

DRAWN BY: CAY
CHECKED BY: SVM

REVISIONS:

DATE: FEBRUARY 1, 2019

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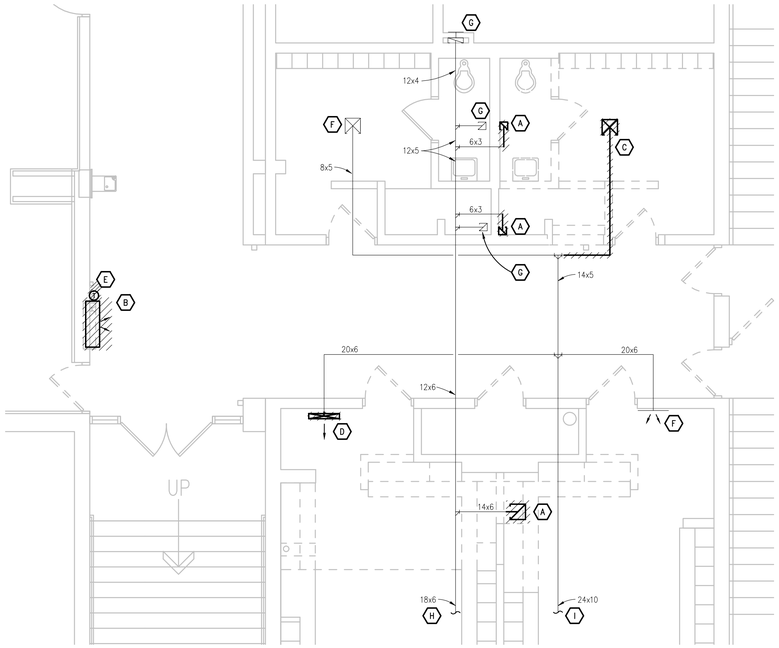


PARTIAL DEMOLITION MECHANICAL PLAN
SCALE: 1/4" = 1' - 0"

MECHANICAL GENERAL DEMOLITION NOTES:

1. ANY INTERRUPTION OF EXISTING SERVICES AND/OR EQUIPMENT SHALL BE PERFORMED AT A TIME APPROVED IN ADVANCE BY THE OWNER'S REPRESENTATIVE.
2. THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL EXTENT OF THE WORK. ACTUAL ROUTING AND SIZES OF EXISTING PIPING AND DUCTWORK MIGHT DIFFER TO A LIMITED EXTENT FROM WHAT IS SHOWN. MAJOR DISCREPANCIES BETWEEN THE DRAWINGS AND ACTUAL EXISTING CONDITIONS SHALL BE REPORTED TO THE ENGINEER.
3. THE EXACT EXTENT OF DEMOLITION SHALL BE AS REQUIRED BY THE NEW WORK.
4. ALL MECHANICAL ITEMS TO BE REMOVED SHALL BE REMOVED COMPLETE, INCLUDING ALL RELATED ITEMS SUCH AS HANGERS, SUPPORTS, CONTROLS, ETC. CAP ALL OPEN ENDED PIPES AND DUCTWORK.

(#) DEMOLITION KEY NOTES:

A. REMOVE EXHAUST GRILLE AND PORTION OF BRANCH DUCT AS INDICATED. PREPARE FOR NEW WORK.

B. REMOVE SEMI-RECESSED HOT WATER CABINET UNIT HEATER AND PIPE ACCESSORIES. PREPARE FOR NEW WORK.

C. REMOVE SUPPLY AIR DIFFUSER AND ASSOCIATED BRANCH DUCT AS INDICATED. PREPARE FOR NEW WORK. PRIOR TO THE START OF DEMOLITION, PROVIDE PRE-CONSTRUCTION AIRFLOW READING. SUBMIT RESULT TO THE ENGINEER FOR REVIEW. AIRFLOW READING TO BE USED IN POST CONSTRUCTION AIR BALANCING.

D. REMOVE SUPPLY AIR REGISTER AND ASSOCIATED BRANCH DUCT AS INDICATED. PREPARE FOR NEW WORK. PRIOR TO THE START OF DEMOLITION, PROVIDE PRE-CONSTRUCTION AIRFLOW READING. SUBMIT RESULT TO THE ENGINEER FOR REVIEW. AIRFLOW READING TO BE USED IN POST CONSTRUCTION AIR BALANCING.

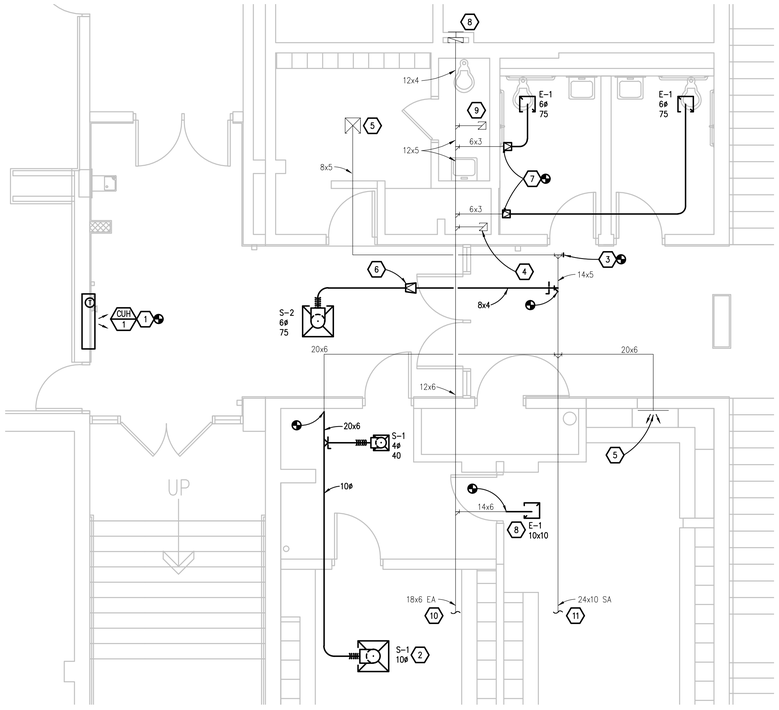
E. REMOVE PNEUMATIC THERMOSTAT FOR DEMOLISHED CABINET UNIT HEATER. CAP PNEUMATIC TUBING AIR TIGHT IN A CONCEALED MANNER.

F. EXISTING SUPPLY AIR DIFFUSER OR REGISTER TO REMAIN. PRIOR TO THE START OF DEMOLITION, PROVIDE PRE-CONSTRUCTION AIRFLOW READING. SUBMIT RESULT TO THE ENGINEER FOR REVIEW. AIRFLOW READING TO BE USED IN POST CONSTRUCTION AIR BALANCING.

G. EXISTING EXHAUST REGISTER TO REMAIN. PRIOR TO THE START OF DEMOLITION, PROVIDE PRE-CONSTRUCTION AIRFLOW READING. SUBMIT RESULT TO THE ENGINEER FOR REVIEW. AIRFLOW READING TO BE USED IN POST CONSTRUCTION AIR BALANCING.

H. PRIOR TO THE START OF DEMOLITION, PROVIDE PRE-CONSTRUCTION AIRFLOW AND TOTAL STATIC PRESSURE READINGS FOR EXISTING UTILITY SET EXHAUST FAN EF-F1, LOCATED IN THE UPPER LEVEL MECHANICAL ROOM, OFF THE SOUTHWEST CORNER OF THE GYMNASIUM MEZZANINE. SUBMIT RESULT TO THE ENGINEER FOR REVIEW. READING TO BE USED IN POST CONSTRUCTION AIR BALANCING.

I. PRIOR TO THE START OF DEMOLITION, PROVIDE PRE-CONSTRUCTION AIRFLOW AND TOTAL STATIC PRESSURE READINGS FOR EXISTING AIR HANDLING UNIT SF-1, LOCATED IN THE MECHANICAL ROOM, SOUTH OF THE NATATORIUM BOY'S LOCKER ROOM AT THE SERVICE TUNNEL LEVEL. SUBMIT RESULT TO THE ENGINEER FOR REVIEW. READING TO BE USED IN POST CONSTRUCTION AIR BALANCING.



PARTIAL NEW WORK MECHANICAL PLAN
SCALE: 1/4" = 1' - 0"

HVAC PIPING GENERAL NOTES:

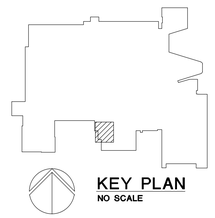
1. THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, SHEET METAL, OTHER PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.
2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
3. PIPING AND DUCTWORK SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.
4. COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
5. PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.
6. SUBMIT PROPOSED METHODS OF ANCHORING AND GUIDING PIPING SYSTEMS TO STRUCTURAL ENGINEER FOR APPROVAL.
7. COORDINATE LOCATION OF DUCT-MOUNTED HYDRONIC DEVICES WITH SHEET METAL TRADES.
8. BRANCH PIPING SERVING TERMINAL UNIT HEATING COILS OR RADIANT CEILING PANELS SHALL BE 3/4" UNLESS OTHERWISE NOTED. BRANCH PIPING SERVING MORE THAN ONE TERMINAL UNIT HEATING COIL SHALL BE 1" UNLESS OTHERWISE NOTED. BRANCH PIPING SERVING HOT WATER UNIT HEATERS AND CABINET UNIT HEATERS SHALL BE 1" UNLESS OTHERWISE NOTED.

SHEET METAL GENERAL NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.
2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
3. PIPING AND DUCTWORK SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.
4. COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
5. PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.
6. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR DIMENSIONED LOCATION OF GRILLES, REGISTERS, AND DIFFUSERS.

(#) CONSTRUCTION KEY NOTES:

1. SEMI-RECESSED CABINET UNIT HEATER WITH UNIT MANUFACTURER'S BUILT-IN THERMOSTAT. REWORK EXISTING HWMS & HWHR PIPING AS REQUIRED TO ACCOMMODATE NEW CABINET UNIT HEATER. REFER TO PIPING DIAGRAM. REWORK WALL OPENING AS REQUIRED TO ACCOMMODATE DIMENSIONS OF NEW CABINET UNIT HEATER. PROVIDE CLOSURE TRIM PIECE, COLOR AN FINISH TO MATCH UNIT CABINET, TO SEAL OFF GAP BETWEEN THE CABINET AND THE WALL OPENING.
2. BALANCE SUPPLY DIFFUSER TO THE RECORDED PRE-CONSTRUCTION AIRFLOW FOR DEMOLISHED SUPPLY REGISTER, MINUS 50 CFM.
3. CAP DUCT.
4. BALANCE EXISTING EXHAUST REGISTER TO 50 CFM.
5. BALANCE EXISTING SUPPLY AIR DIFFUSER OR REGISTER TO THE RECORDED PRE-CONSTRUCTION AIRFLOW.
6. RECTANGULAR TO ROUND DUCT TRANSITION.
7. RECTANGULAR TO ROUND DUCT TRANSITION CONNECT TO EXISTING EXHAUST BRANCH DUCT.
8. BALANCE EXHAUST REGISTER TO THE RECORDED PRE-CONSTRUCTION AIRFLOW FOR DEMOLISHED EXHAUST REGISTER.
9. BALANCE EXISTING EXHAUST REGISTER TO 75 CFM.
10. REBALANCE EXISTING UTILITY SET EXHAUST FAN EF-F1, LOCATED IN THE UPPER LEVEL MECHANICAL ROOM, OFF THE SOUTHWEST CORNER OF THE GYMNASIUM MEZZANINE, AS REQUIRED TO ACHIEVE AIRFLOWS AT REGISTERS ASSOCIATED WITH THE REMODELED WORK SCOPE AREA.
11. REBALANCE EXISTING AIR HANDLING UNIT SF-1, LOCATED IN THE MECHANICAL ROOM, SOUTH OF THE NATATORIUM BOY'S LOCKER ROOM AT THE SERVICE TUNNEL LEVEL, AS REQUIRED TO ACHIEVE AIRFLOWS AT REGISTERS AND DIFFUSERS ASSOCIATED WITH THE REMODELED WORK SCOPE AREA.



KEY PLAN
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PARTIAL DEMOLITION AND NEW WORK MECHANICAL PLANS

FERNDALE HIGH SCHOOL

PRELIMINARY	☐
DESIGN DEVELOPMENT	☐
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FINAL RECORD	☐

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CHECKED BY: SVM

REVISIONS:

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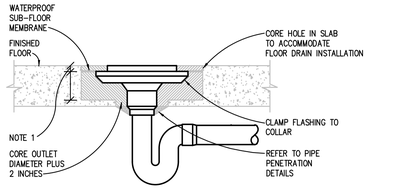
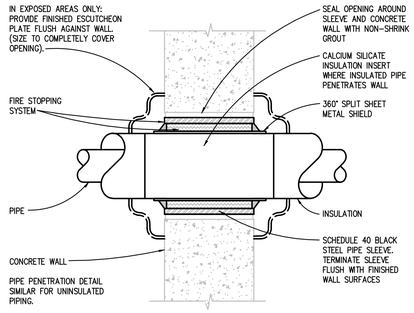


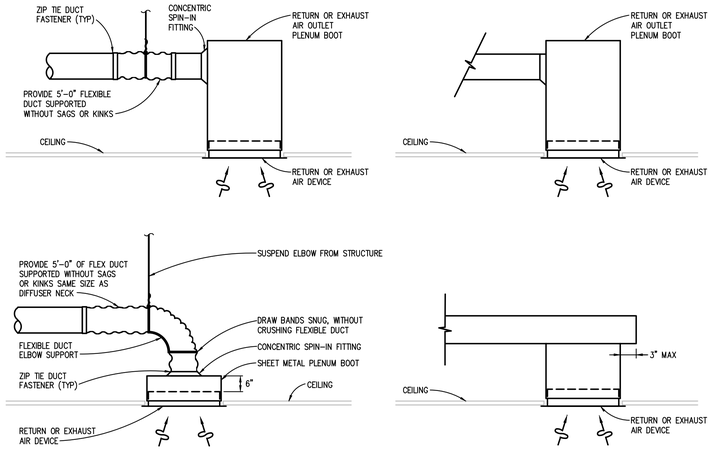
NOTES
1. REFER TO ARCHITECTURAL DRAWINGS FOR FLOOR THICKNESS AND FINISHES.
2. WHERE WATERPROOF FLOOR COVERINGS OCCUR, PROVIDE WIDE FLANGE STRAINER AND PLUG SEEPAGE OPENINGS.
3. PROVIDE EXTENSIONS WHERE REQUIRED TO ACCOMMODATE FLOOR THICKNESS.

FLOOR DRAIN DETAIL (EXISTING FLOORS)
NO SCALE



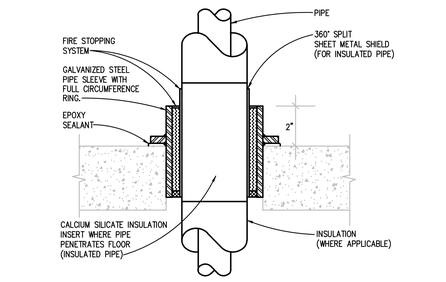
DETAIL INDICATES THE INSTALLATION REQUIREMENTS FOR A FIRE RATED ASSEMBLY. FOR A NON-FIRE RATED ASSEMBLY PACK SLEEVED OPENING WITH INSULATION MATERIAL AND CAULK WITH NON-HARDENING SEALANT.

FIRE RATED AND NON-FIRE RATED POURED CONCRETE OR BLOCK WALL PIPE PENETRATION DETAIL
NO SCALE

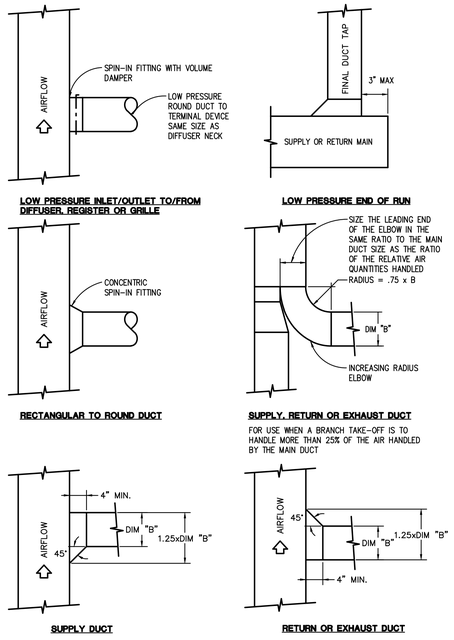


RETURN OR EXHAUST AIR DEVICE INSTALLATION DETAIL
NO SCALE

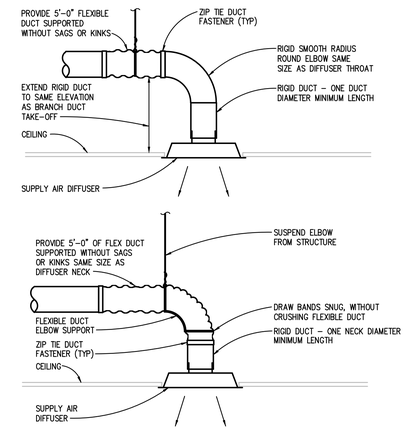
NOTE: PAINT INTERIOR SURFACE OF PLENUM BOX FLAT BLACK.



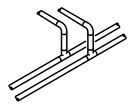
EXISTING FLOOR PIPE PENETRATION DETAIL
NO SCALE



RECTANGULAR DUCT BRANCH TAKE-OFF DETAILS
NO SCALE



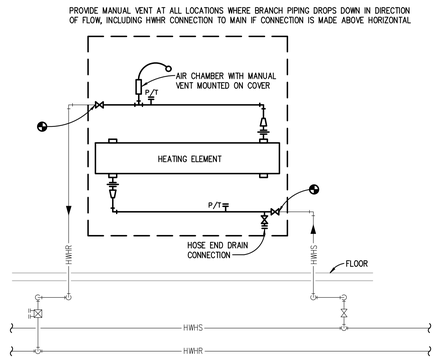
ROUND NECK SUPPLY AIR DIFFUSER DETAIL
NO SCALE



BRANCH CONNECTION OFF TOP

APPLIES TO THE FOLLOWING SYSTEMS:
DOMESTIC WATER

TYPICAL BRANCH TAKE-OFF CONNECTION PIPING DETAIL
NO SCALE



UPFEED CUH PIPING DIAGRAM
NO SCALE

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PBA Project No.: 2019.001

FERNDALE PUBLIC SCHOOLS
2017 SINKING FUND
SUMMER 2019 RENOVATION PROJECTS

MECHANICAL DETAILS

FERNDALE HIGH SCHOOL

PRELIMINARY	☐
DESIGN DEVELOPMENT	☐
CONSTRUCTION	■
FINAL RECORD	☐

DRAWN BY: CAY
CHECKED BY: SVM

REVISIONS:

DATE: FEBRUARY 1, 2019

SHEET NO.:
M6.01

JOB NO.:
181794

PLUMBING PIPING & VALVE APPLICATION SCHEDULE

PIPE SIZE (INCHES)	MATERIAL: SOFT COPPER TYPE K	HARD COPPER TYPE L	HARD COPPER TYPE M	CARBON STEEL (SCHED. 40)	CARBON STEEL (STD.)	GALV. STEEL (SCHED. 40)	PEX	PE PIPE	PE SHEATHED CARBON STEEL PIPE	CSST	PRESSURE CONNECTIONS: NO-HUB CISP	PVC TYPE DWV	PP DRAINAGE PIPE	COPPER TYPE DWV	DUCTILE IRON PIPE	SOLDERED	BRAZED	WELDED	THREADED	FLANGED	GROOVED	INSERT & CRIMP	FUSION	PRESSURE-SEAL	MECHANICALLY-FORMED TEE	MECHANICAL JOINT	PUSH-ON-JOINT	GRAVITY DWV CONNECTIONS: SOLVENT WELDED	SOLDERED	FUSION	CISPI HUBLESS	HEAVY-DUTY HUBLESS	ISOLATION VALVES: BALL	AGA BALL	GENERAL SERVICE BUTTERFLY	LUBRICATED PLUG	GATE	KEYED NOTES
ABOVEGROUND DOMESTIC WATER (POTABLE AND NON-POTABLE) ON DISTRIBUTION SIDE OF METER - MIN. WORKING PRESS. & TEMP., 125 PSIG AT 200 DEG F																																						
UP TO 4		X														X	X			X	X			X	X							X			X			A
6		X															X			X	X				X										X			A
ABOVEGROUND SANITARY WASTE & VENT - MIN. WORKING PRESS., 10-FOOT HEAD OF WATER																																						
1-1/2 TO 15											X																				X							
UNDERGROUND SANITARY WASTE & VENT - MIN. WORKING PRESS., 10-FOOT HEAD OF WATER																																						
3 TO 12											X																					X							
3 TO 12												X																X											

GENERAL NOTES

1. 'X' INDICATES ACCEPTABLE SELECTION. IF MORE THAN ONE SELECTION IS INDICATED FOR A PIPING SYSTEM, CONTRACTOR MAY SELECT FROM THOSE INDICATED SELECTIONS.
2. DISSIMILAR-METAL PIPING JOINTS: CONSTRUCT JOINTS USING DIELECTRIC FITTINGS COMPATIBLE WITH BOTH PIPING MATERIALS.
   a. NPS 2 AND SMALLER: USE DIELECTRIC NIPPLE/WATERWAY.
   b. NPS 2-1/2 AND LARGER: USE DIELECTRIC FLANGE KITS.
3. USE UNIONS OR FLANGES AT VALVE AND EQUIPMENT CONNECTIONS.
4. PLUMBING EQUIPMENT DRAINS, VENTS, SAFETY VALVE PIPING, BLOWDOWN PIPING AND THE LIKE SHALL BE SAME PIPING MATERIAL AS ASSOCIATED PIPING SYSTEM.
5. GROOVED END VALVES MAY BE USED WITH GROOVED PIPING.

KEYED NOTES

A. GROOVED AND FLANGED FITTINGS, JOINTS, AND COUPLINGS, IF INDICATED AS AN ACCEPTABLE SELECTION, MAY BE USED IN ACCESSIBLE LOCATIONS ONLY FOR THIS PIPING SYSTEM. ACCESSIBLE LOCATIONS ARE DEFINED AS EXPOSED CONSTRUCTION OR ABOVE LAY-IN CEILINGS.
B. JOINTS ARE NOT PERMITTED ON UNDERGROUND WATER PIPING.
C. USE CAST IRON DRAINAGE PATTERN (DURHAM) FITTINGS.
D. INSTALL IN CONTAINMENT JACKET, REFER TO SPECIFICATIONS.
E. VALVES, UNIONS, AND FLANGED JOINTS MAY BE USED IN ACCESSIBLE LOCATIONS ONLY, EXCLUDING CEILINGS USED AS AIR PLENUMS. ACCESSIBLE LOCATIONS ARE DEFINED AS EXPOSED CONSTRUCTION OR ABOVE LAY-IN CEILINGS. USE ONLY STEEL WELDED FITTINGS AND WELDED JOINTS IN CEILING USED AS AIR PLENUMS.
F. NO JOINTS ALLOWED UNDERGROUND.

ABOVEGROUND HVAC PIPING & VALVE APPLICATION SCHEDULE

PIPE SIZE (INCHES)	MATERIAL: SOFT COPPER TYPE K	HARD COPPER TYPE L	HARD COPPER TYPE M	CARBON STEEL (SCHED. 40)	CARBON STEEL (SCHED. 80)	CARBON STEEL (STD.)	COPPER TYPE DWV	CONNECTION: SOLDERED	BRAZED	WELDED	THREADED	FLANGED	GROOVED	PRESSURE SEAL	MECHANICALLY FORMED TEE	ISOLATION VALVES: BALL	GENERAL SERVICE BUTTERFLY	HI-PERF BUTTERFLY	GATE	KEYED NOTES
HEATING HOT WATER SUPPLY & RETURN - MIN. WORKING PRESS. & TEMP., 125 PSIG AT 200 DEG F																				
UP TO 2				X							X					X				
UP TO 2		X						X	X					X	X	X				
2-1/2 TO 4				X						X		X	X				X			A
2-1/2 TO 4		X								X				X	X	X	X			A
6 TO 8				X							X		X	X			X			A
6 TO 8		X								X				X		X	X			A
10				X							X		X	X			X			A
12						X					X		X	X			X			A
14 AND LARGER						X					X		X				X			A

GENERAL NOTES

1. 'X' INDICATES ACCEPTABLE SELECTION. IF MORE THAN ONE SELECTION IS INDICATED FOR A PIPING SYSTEM, CONTRACTOR MAY SELECT FROM THOSE INDICATED SELECTIONS.
2. DISSIMILAR-METAL PIPING JOINTS: CONSTRUCT JOINTS USING DIELECTRIC FITTINGS COMPATIBLE WITH BOTH PIPING MATERIALS. IF A BRONZE VALVE CONNECTS THE DISSIMILAR METALS NO FURTHER DIELECTRIC ISOLATION IS REQUIRED.
   a. NPS 2 AND SMALLER: USE BRASS COUPLING, NIPPLE, OR UNION.
   b. NPS 2-1/2 AND LARGER: USE DIELECTRIC FLANGE KITS.
3. USE UNIONS OR FLANGES AT VALVE AND EQUIPMENT CONNECTIONS.
4. HVAC EQUIPMENT DRAINS, VENTS, SAFETY VALVE PIPING, BLOWDOWN PIPING AND THE LIKE SHALL BE SAME PIPING MATERIAL AS ASSOCIATED PIPING SYSTEM.
5. GROOVED END VALVES MAY BE USED WITH GROOVED PIPING.

KEYED NOTES

A. GROOVED AND FLANGED FITTINGS, JOINTS, AND COUPLINGS, IF INDICATED AS AN ACCEPTABLE SELECTION, MAY BE USED IN ACCESSIBLE LOCATIONS FOR THIS PIPING SYSTEM ONLY. ACCESSIBLE LOCATIONS ARE DEFINED AS EXPOSED CONSTRUCTION OR ABOVE LAY-IN CEILINGS.
B. BALL VALVE WITH 250 PSIG STEAM TRIM.
C. BALL VALVE WITH 150 PSIG STEAM TRIM.

SCHEDULES GENERAL NOTES:

TYPICAL FOR ALL SCHEDULE SHEETS:

1. REFER TO ELECTRICAL STANDARD SCHEDULES, ONE LINE DIAGRAM AND PANEL SCHEDULES FOR ADDITIONAL ELECTRICAL INFORMATION
2. PROVIDE THE FOLLOWING FACTORY-WIRED ELECTRICAL OPTIONS/ACCESSORIES WHERE INDICATED IN SCHEDULE:
   A – NON-FUSED DISCONNECT SWITCH
   B – UNIT SHALL BE SINGLE POINT ELECTRICAL CONNECTION WITH FACTORY INSTALLED DISCONNECTING MEANS AND ALL REQUIRED STARTERS AND CONTROLS
   C – SERVICE RECEPTACLE
   D – FUSED DISCONNECT SWITCH
   E – COMBINATION STARTER
   F – UNIT SHALL HAVE (2) SINGLE POINT CONNECTIONS WITH FACTORY INSTALLED DISCONNECTING MEANS AND ALL REQUIRED STARTERS AND CONTROLS. (1) CONNECTION SHALL BE FOR CONDENSING SECTION AND (1) CONNECTION SHALL BE FOR THE REMAINDER OF THE UNIT.
3. FOR MODULATION/CONTROL TYPE COLUMN, "VFC" INDICATES VARIABLE FREQUENCY CONTROLLERS, "AUTO" INDICATES AUTOMATIC OPERATION (CONTROLLED BY TEMPERATURE CONTROLS OR SELF CONTAINED CONTROLS), "MANUAL" INDICATES HAND OPERATION.
4. IF VARIABLE FREQUENCY CONTROLLERS ARE INDICATED TO BE PROVIDED AND ARE NOT INSTALLED INTEGRAL TO THE UNIT, VARIABLE FREQUENCY CONTROLLERS SHALL BE SUPPLIED BY THE MECHANICAL CONTRACTOR (UNLESS OTHERWISE NOTED) AND INSTALLED BY THE ELECTRICAL CONTRACTOR INCLUDING THE LINE SIDE AND LOAD SIDE WIRING TO THE MOTOR AND INCLUDING MISCELLANEOUS STEEL REQUIRED FOR THE SUPPORT AND MOUNTING OF THE VFC. REFER TO FLOOR PLANS FOR LOCATION.
5. WHERE EQUIPMENT IS INDICATED TO HAVE A SINGLE POINT ELECTRICAL CONNECTION, THAT EQUIPMENT SHALL COME COMPLETE WITH FACTORY INSTALLED STARTERS, MOTOR OVERLOAD PROTECTION, CONTACTORS, FUSING AND ALL NECESSARY INTERNAL WIRING AND CONTROLS. PROVIDE A FACTORY MOUNTED UNIT DISCONNECTING MEANS WHERE THE ELECTRICAL CONTRACTOR SHALL MAKE SINGLE POINT CONNECTION. INSTALL PACKAGED EQUIPMENT SUCH THAT THE ELECTRICAL CONNECTION AND CONTROLS ARE ACCESSIBLE AND HAVE CLEARANCES MEETING THE NATIONAL ELECTRICAL CODE.
6. WHERE PACKAGED EQUIPMENT IS PROVIDED, NAMEPLATE MUST INDICATE MAXIMUM OVERCURRENT PROTECTION BY HACR RATED CIRCUIT BREAKERS OR FUSES. IF FUSE PROTECTION ONLY IS INDICATED, PROVIDE A FUSIBLE DISCONNECT AND FUSES WITH THE UNIT.
7. WHERE EQUIPMENT IS DESIGNATED BY MANUFACTURER AND MODEL NUMBER, THIS IS THE BASIS OF DESIGN. IF THE CONTRACTOR ELECTS TO PROVIDE EQUIPMENT BY OTHER SPECIFIED MANUFACTURERS OR PROPOSED ALTERNATE EQUIPMENT BY THE BASIS OF DESIGN MANUFACTURER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY REVISIONS TO ELECTRICAL REQUIREMENTS, STRUCTURAL LOADING, OR ARCHITECTURAL APPURTENANCES AND SHALL INCLUDE THE COST OF SUCH REVISIONS IN HIS BID.
8. WHERE EQUIPMENT IS SCHEDULED TO INCLUDE A SERVICE RECEPTACLE, PROVIDE A FACTORY MOUNTED SERVICE RECEPTACLE WITH APPROPRIATE FUSES AND TRANSFORMERS CONNECTED ON THE LINE SIDE OF THE UNIT DISCONNECT. PROVIDE A NAMEPLATE ON THE DISCONNECT SWITCH INDICATING THE PRESENCE OF LIVE POWER TO THE SERVICE RECEPTACLE WHEN THE UNIT DISCONNECT IS IN THE OFF POSITION.
9. SIZE ALL EQUIPMENT FEEDERS BASED ON THE LISTED MOP (MAXIMUM OVERCURRENT PROTECTION). REFER TO THE FEEDER AND BRANCH CIRCUIT SIZING SCHEDULE ON THE ELECTRICAL STANDARD SCHEDULES SHEET.

ABOVEGROUND PLUMBING PIPE & ACCESSORY INSULATION APPLICATION SCHEDULE

	INSULATION MATERIAL & THICKNESS (INCHES): FLEXIBLE ELASTOMERIC	FIBERGLASS	MINERAL WOOL	POLYISOCYANURATE	PHENOLIC	CELLULAR GLASS	CALCIUM SILICATE	FIELD-APPLIED JACKET MATERIAL: ALUMINUM	STAINLESS STEEL	PVC	SELF-ADHESIVE (FOR OUTDOOR APPLICATIONS)	PVDC (INDOOR)	PVDC (OUTDOOR)	KEYED NOTES
INDOOR PIPE SYSTEM AND SIZE (INCHES)														
DOMESTIC COLD WATER	1	1						X		X				A
DOMESTIC HOT WATER SUPPLY & RETURN 140 DEG F AND LESS:														
NPS 1-1/4 AND SMALLER	1	1						X		X				A
NPS 1-1/2 AND LARGER	1.5	1.5						X		X				A

UNLESS OTHERWISE INDICATED OR SCHEDULED, DO NOT INSULATE THE FOLLOWING:
UNDERGROUND PIPING

GENERAL NOTES

1. 'X' OR THICKNESS IN INCHES INDICATES ACCEPTABLE SELECTION. IF MORE THAN ONE SELECTION IS INDICATED FOR A SYSTEM, CONTRACTOR MAY SELECT FROM THOSE INDICATED SELECTIONS.
2. INSULATE PIPING WITHIN AIR HANDLING EQUIPMENT THE SAME AS INDOOR PIPING. PROVIDE ALUMINUM OR STAINLESS STEEL JACKET.

KEYED NOTES

A. PROVIDE FIELD APPLIED JACKET FOR PIPING EXPOSED IN EQUIPMENT ROOMS, STORAGE ROOMS, JANITORS CLOSETS, RECEIVING ROOMS, TEST AREAS, CIRCULATION AREAS AND SUCH AREAS SUBJECT TO DAMAGE, WITHIN 10 FEET (3 METERS) OF FINISHED FLOOR.
B. PROVIDE MANUFACTURER'S RECOMMENDED PROTECTIVE COATING FOR FLEXIBLE ELASTOMERIC THERMAL INSULATION.

ABOVEGROUND HVAC PIPE & ACCESSORY INSULATION APPLICATION SCHEDULE

	INSULATION MATERIAL & THICKNESS (INCHES): FLEXIBLE ELASTOMERIC	FIBERGLASS	MINERAL WOOL	POLYISOCYANURATE	PHENOLIC	CELLULAR GLASS	CALCIUM SILICATE	FIELD-APPLIED JACKET MATERIAL: ALUMINUM	STAINLESS STEEL	PVC	SELF-ADHESIVE (FOR OUTDOOR APPLICATIONS)	PVDC (INDOOR)	PVDC (OUTDOOR)	KEYED NOTES
INDOOR PIPE SYSTEM AND SIZE (INCHES)														
HEATING HOT WATER SUPPLY & RETURN 200 DEG F AND LOWER														
NPS 1-1/4 AND SMALLER		1.5						X		X				A
NPS 1-1/2 AND LARGER		2						X		X				A

UNLESS OTHERWISE INDICATED OR SCHEDULED, THE FOLLOWING DO NOT REQUIRE INSULATION:
DIRECT BURIED COOLING SYSTEM PIPING
PIPING THAT CONVEYS FLUIDS HAVING DESIGN OPERATING TEMPERATURE RANGE BETWEEN 60 DEG F. AND 105 DEG F., INCLUSIVE.

GENERAL NOTES

1. 'X' OR THICKNESS IN INCHES INDICATES ACCEPTABLE SELECTION. IF MORE THAN ONE SELECTION IS INDICATED, CONTRACTOR MAY SELECT FROM THOSE INDICATED SELECTIONS.
2. INSULATE PIPING WITHIN AIR HANDLING EQUIPMENT THE SAME AS INDOOR PIPING. PROVIDE ALUMINUM OR STAINLESS STEEL JACKET.
3. FOR PIPING NPS 1-1/4 AND SMALLER WITHIN PARTITIONS IN CONDITIONED SPACES INSULATION MAY BE REDUCED BY ONE-INCH THICKNESS, BUT NOT TO LESS THAN ONE-INCH THICKNESS.
4. FOR PIPING NPS 1 AND SMALLER, INSULATION IS NOT REQUIRED FOR STRAINERS, CONTROL VALVES, AND BALANCING VALVES.

KEYED NOTES

A. PROVIDE FIELD APPLIED JACKET FOR PIPING EXPOSED IN EQUIPMENT ROOMS, STORAGE ROOMS, JANITORS CLOSETS, RECEIVING ROOMS, TEST AREAS, CIRCULATION AREAS AND SUCH AREAS SUBJECT TO DAMAGE WITHIN 10 FEET (3 METERS) OF FINISHED FLOOR.

HORIZONTAL PIPING AND SUPPORT APPLICATION SCHEDULE

METAL PIPE TYPE & SIZE	HANGER OR SUPPORT TYPE: MSS TYPE 1 CLEVIS HANGER	MSS TYPE 10 SWIVEL RING BAND HANGER	MSS TYPE 41 DOUBLE ROD PIPE ROLLER	MSS TYPE 43 SINGLE ROD ROLLER HANGER	MSS TYPE 44 PIPE ROLLER & STAND	MSS TYPE 46 ADJUSTABLE PIPE ROLL STAND	SHIELD TYPE: MSS TYPE 39 PROTECTION SADDLE	MSS TYPE 40 INSULATION PROTECTION SHIELD	THERMAL-HANGER SHIELD	KEYED NOTES
UNINSULATED SINGLE PIPE										
UP TO 2 INCH	X	X								
2-1/2 INCH TO 4 INCH	X	X								
6 INCH TO 8 INCH	X									
10 INCH	X									
12 INCH			X							
14 INCH AND LARGER			X							
INSULATED SINGLE COLD PIPES										
UP TO 2 INCH	X	X						X	X	A
2-1/2 INCH TO 4 INCH	X								X	
6 INCH TO 8 INCH	X								X	
10 INCH	X								X	
12 INCH	X								X	
14 INCH AND LARGER	X								X	
INSULATED SINGLE HOT PIPES										
UP TO 2 INCH	X	X					X	X	X	A, C
2-1/2 INCH TO 4 INCH			X	X	X	X			X	B, C
6 INCH TO 8 INCH			X	X	X	X	X		X	B, C
10 INCH			X	X	X	X	X		X	B, C
12 INCH			X		X	X	X		X	B, C
14 INCH AND LARGER			X				X		X	B, C

GENERAL NOTES

1. "X" INDICATES APPROVED HANGER OR SUPPORT ELEMENTS. IF MORE THAN ONE HANGER OR SUPPORT ELEMENT IS INDICATED, SELECTION FROM APPROVED ELEMENTS IS CONTRACTOR'S OPTION.
2. REFER TO HANGER AND SUPPORT SECTION FOR APPROVED MANUFACTURERS.
3. HANGERS AND SUPPORTS USED FOR FIRE PROTECTION SERVICES SHALL BE UL LISTED OR FMG APPROVED.
4. HANGER ELEMENTS IN CONTACT WITH BARE COPPER PIPE SHALL BE COPPER PLATED, PLASTIC COATED, FELT LINED, OR USE MANUFACTURED COPPER TUBE ISOLATORS.
5. REFER TO INDIVIDUAL PIPING SPECIFICATION SECTIONS FOR HANGER SPACING.
6. MULTIPLE PARALLEL COLD PIPES MAY BE TRAPEZE SUPPORTED FROM BELOW USING U-BOLTS OR STRUT CLAMPS AND THERMAL HANGER SHIELDS. REFER TO KEYED NOTE A.
7. MULTIPLE PARALLEL COLD PIPES MAY BE TRAPEZE SUPPORTED FROM ABOVE USING STANDARD HANGER ELEMENTS INDICATED FOR SINGLE COLD PIPES.
8. MULTIPLE PARALLEL HOT PIPES MAY BE TRAPEZE SUPPORTED FROM BELOW USING ROLLER ELEMENTS AND THERMAL HANGER SHIELD OR INSULATION PROTECTION SADDLE. REFER TO KEYED NOTES B AND C.
9. MULTIPLE PARALLEL HOT PIPES MAY BE TRAPEZE SUPPORTED FROM ABOVE USING STANDARD ROLLER HANGERS INDICATED AND THERMAL HANGER SHIELD OR INSULATION PROTECTION SADDLE. REFER TO KEY NOTES B AND C.
10. REFER TO INDIVIDUAL PIPING SPECIFICATION SECTIONS FOR ADDITIONAL SYSTEM SPECIFIC HANGER APPLICATIONS.

KEYED NOTES

A. USE THERMAL HANGER SHIELD ON TRAPEZE SUPPORTED INSULATED PIPE TO PREVENT CRUSHING OF INSULATION.
B. USE THERMAL HANGER SHIELD DESIGNED FOR USE ON ROLLER SUPPORTS FOR INSULATED HOT PIPE .
C. USE TYPE 39 PROTECTION SADDLES IF INSULATION WITHOUT VAPOR BARRIER IS INDICATED. FILL INTERIOR VOIDS WITH INSULATION MATCHING ADJOINING INSULATION.

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MECHANICAL SCHEDULES

FERNDALE HIGH SCHOOL

PRELIMINARY ☐
DESIGN DEVELOPMENT ☐
CONSTRUCTION ■
FINAL RECORD ☐

DRAWN BY: CAY
CHECKED BY: SVM

REVISIONS:

DATE: FEBRUARY 1, 2019

SHEET NO.:
M7.01

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COMBINATION BALANCE VALVE AND FLOW MEASURING DEVICE SCHEDULE

MANUFACTURER	VALVE SIZE	FLOW RANGE		DIFFERENTIAL PRESSURE READING AT PRESSURE TAPS		VALVE PERMANENT PRESSURE LOSS (VALVE FULL OPEN)		MODEL NUMBER
		GPM		INCHES W.G.		FT. HEAD		
		MINIMUM	MAXIMUM	AT MINIMUM GPM	AT MAXIMUM GPM	AT MINIMUM GPM	AT MAXIMUM GPM	
FLOW DESIGN ACCUSETTER	1/2	0.4	0.9	22	109	0.7	3.8	UA
	3/4	0.9	2.4	23	148	0.5	2.9	UA
	3/4	2.2	3.4	26	62	0.5	1.2	UA
	1	3.4	6.6	40	150	0.8	2.8	UA
PRO HYDRONIC SPECIALTIES	3/4	0.3	2.5	7	147	0.1	1.3	CBV075UL
	1	2.5	5.5	10	145	0.1	1.2	CBV100
NEXUS	1/2	0.4	1.5	2.6	36	0.2	2.3	XB
	3/4	1.5	3.4	5.1	26	0.3	1.7	XB
	1	2.9	7	4.3	25	0.1	0.7	XB
HCI	1/2	0.5	0.5	5.4	8.1	0.3	0.4	TB-B VEN-4
	3/4	0.5	1.5	3.2	26.7	0.1	0.7	TB-B VEN-6
	3/4	1.5	2	8.8	16.3	0.4	0.7	TB-B VEN-7.5
	1	2	3.9	5.3	20.8	0.2	0.7	TB-C VEN-10
	1	3.9	5.5	5	10	0.2	0.3	TB-C VEN-14.5
GRISWOLD	3/4L	0.4	0.8	5	32	0.1	2.4	QS2 (CV 0.8)
	3/4L	0.7	1.9	5	45	0.1	2.9	QS2 (CV 1.7)
	3/4L	1.3	3.8	5.2	45	0.1	2.8	QS2 (CV 3.5)
	3/4L	2.6	8.4	5.2	54	0.1	2.9	QS2 (CV 7.5)
	1	1.3	3.6	5.2	40	0.1	2.8	QS3 (CV 3.3)
	1	2.6	6.6	5.2	34	0.1	2.1	QS3 (CV 7.0)
	1	4.1	12.3	5.2	47	0.1	2.8	QS3 (CV 11.35)
VICTAULIC	1/2	0.1	0.5	12	240	0.1	1.5	S/786
	3/4	0.5	2.5	12	240	0.3	1.4	S/786
	1	2.5	5.5	12	240	0.7	1.4	S/786

NOTE:
1. SELECTED VALVE SHALL MATCH PIPE SIZE UNLESS REQUIRED FLOW RATE IS BELOW THE FLOW RANGE FOR THAT SIZE VALVE. PROVIDE REDUCERS AS REQUIRED IF VALVE SIZE IS LESS THAN PIPE SIZE.
2. VALVE FLOW RANGES AND PRESSURE DROPS BASED ON WATER.

PLUMBING CONNECTION SCHEDULE

UNIT IDENTIFICATION	CW INCHES	HW INCHES	SAN INCHES	VENT INCHES	REMARKS
WC-1	1 1/2	–	4	2	
LAV-1	1/2	1/2	1 1/2	1 1/2	PROVDE ASSE 1070 MIXING VALVE
FD-1	–	–	3	–	

NOTE: INDIVIDUAL WATER LINE BRANCHES, WASTE LINES, VENTS, AND TRAPS FOR CONNECTION TO INDIVIDUAL FIXTURES, FIXTURE FITTINGS, AND SPECIALTIES SHALL BE IN ACCORDANCE WITH THE FOLLOWING SCHEDULE OR AS INDICATED ON DRAWINGS, WHICHEVER IS GREATER.

DUCT SYSTEM APPLICATION SCHEDULE

	DUCT MATERIAL																
AIR SYSTEMS	G90 GALV. SHEET METAL	DOUBLE-WALL LINED G90 GALV. SHEET METAL (SOLID INNER WALL)	DOUBLE-WALL LINED G90 GALV. SHEET METAL (PERF. INNER WALL)	G90 GALV. SHEET METAL WITH 1-INCH LINING	GALVANNEALED SHEET METAL	ALUMINUM	TYPE 304 STAINLESS STEEL	TYPE 316 STAINLESS STEEL	PVC COATED GALV. SHEET METAL (4X1)	PVC COATED GALV. SHEET METAL (1X4)	PVC COATED GALV. SHEET METAL (4X4)	16 GA. CARBON STEEL	ZERO-CLEARANCE PREFABRICATED RANGE HOOD EXHAUST DUCT	FABRIC	DESIGN PRESSURE CLASS (INCHES WG)	SEAL CLASS	MAX. ALLOWABLE LEAKAGE RATE (PERCENT)	KEYED NOTES
SUPPLY AIR WITHOUT TERMINAL UNITS	X														+2	A	5	
EXHAUST AIR WITHOUT TERMINAL UNITS	X														-2	A	5	
LOCKER ROOM AND WET AREA EXHAUST						X	X								-2	A	5	

GENERAL NOTES

1. "X" INDICATES ACCEPTABLE SELECTION. IF MORE THAN ONE SELECTION IS INDICATED FOR A DUCT SYSTEM, CONTRACTOR MAY SELECT FROM THOSE INDICATED SELECTIONS.

KEYED NOTES

A. SCREWS, DAMPERS, OR PROJECTIONS OF ANY TYPE ON INTERIOR OF DUCT SURFACE ARE PROHIBITED.
B. DUCT SHALL BE LINED WITHIN 25 FEET UPSTREAM OF FANS.
C. ALL WELDED CONSTRUCTION.

DUCT SYSTEM INSULATION APPLICATION SCHEDULE

	INSULATION MATERIAL & THICKNESS (INCHES)						FIELD APPLIED JACKET MATERIAL		
	FIBERGLASS BLANKET 0.75 LB/CU FT	FIBERGLASS BLANKET 1.0 LB/CU FT	FIBERGLASS BOARD 2.25 LB/CU FT	FIBERGLASS BOARD 6.0 LB/CU FT	FLEXIBLE ELASTOMERIC	ASTM E2336 2-HOUR FIRE RATED BLANKET	2-HOUR FIRE RATED BLANKET	ALUMINUM	SELF-ADHESIVE (FOR OUTDOOR APPLICATIONS)	KEYED NOTES
DUCT SYSTEMS LOCATED INDOORS										
SUPPLY AIR, EXCEPT AS NOTED BELOW		1.5								A, E

PLENUMS, DUCTS, AND DUCT ACCESSORIES NOT REQUIRING INSULATION:
- FIBROUS-GLASS DUCTS
- DOUBLE-WALL METAL DUCTS WITH INSULATION OF SUFFICIENT THICKNESS TO COMPLY WITH ENERGY CODE AND ASHRAE/IESNA 90.1 – 2013
- METAL DUCTS WITH DUCT LINER OF SUFFICIENT THICKNESS TO COMPLY WITH ENERGY CODE AND ASHRAE/IESNA 90.1 – 2013
- FABRIC SUPPLY DUCTS
- FACTORY-INSULATED FLEXIBLE DUCTS
- FACTORY-INSULATED PLENUMS AND CASINGS
- FLEXIBLE CONNECTORS
- VIBRATION-CONTROL DEVICES
- FACTORY-INSULATED ACCESS PANELS AND DOORS

GENERAL NOTES

1. "X" OR THICKNESS IN INCHES INDICATE ACCEPTABLE SELECTION. IF MORE THAN ONE SELECTION IS INDICATED FOR A DUCT SYSTEM, CONTRACTOR MAY SELECT FROM THOSE INDICATED SELECTIONS.
2. REFER TO METAL DUCT SECTION OF SPECIFICATIONS FOR DUCT LINING AND DOUBLE-WALL INSULATED DUCT.
3. REFER TO HVAC CASINGS SECTION OF SPECIFICATIONS FOR DOUBLE-WALL INSULATED PLENUMS.

KEYED NOTES

A. INCLUDE INSULATION AROUND DUCT MOUNTED COILS AND AIR TERMINAL UNIT COILS.
B. NUMBER OF LAYERS AND TOTAL INSULATION THICKNESS AS RECOMMENDED BY SELECTED MANUFACTURER.
C. DOES NOT APPLY TO PREFABRICATED, ZERO-CLEARANCE GREASE DUCT.
D. PROVIDE MANUFACTURER'S RECOMMENDED PROTECTIVE COATING FOR FLEXIBLE ELASTOMERIC THERMAL DUCT INSULATION.
E. EXPOSED SUPPLY DUCTWORK LOCATED IN CONDITIONED SPACE SERVED BY THAT SYSTEM IS NOT REQUIRED TO BE INSULATED.

GRILLE, REGISTER, AND DIFFUSER SCHEDULE

UNIT IDENTIFICATION	TYPE	FACE SIZE	NECK SIZE	FRAME TYPE	ACCESSORY	CONSTRUCTION	FINISH	MODEL NUMBER	REMARKS
S-1	DIFFUSER	12x12	SEE PLANS	LAY-IN	---	STEEL	WHITE	OMNI	
S-2	DIFFUSER	24x24	SEE PLANS	LAY-IN	---	STEEL	WHITE	OMNI	
E-1	REGISTER	12x12	SEE PLANS	LAY-IN	OPPOSED BLADE DAMPER	STEEL	WHITE	PAR	

NOTE:
1. MODEL NUMBERS ARE TITUS UNLESS OTHERWISE NOTED.

HOT WATER CABINET UNIT HEATER SCHEDULE

UNIT IDENTIFICATION	CAPACITY MBH	AIR			FAN		WATER				DIMENSIONS			RECESS DEPTH INCHES	FILTER		MODULATION/ CONTROL TYPE	ELECTRICAL			MODEL NUMBER	REMARKS
		AIRFLOW CFM	E.D.B. °F	L.D.B. °F	HP	RPM	FLOW GPM	E.W.T. °F	L.W.T. °F	MAXIMUM W.P.D. FT. HEAD	LENGTH INCHES	HEIGHT INCHES	DEPTH INCHES		TYPE	AREA SQ. FT.		VOLTS	PHASE	OPTIONS/ ACCESSORIES		
CUH-1	28.3	330	60	139.2	1/15	1050	2	180	151.6	0.38	43	9.5	25	5.5	THROWAWAY	1.9	AUTO	115	1	B	RW-1120-03	2-ROW COIL

NOTE:
1. REFER TO SCHEDULES GENERAL NOTES.
2. MODEL NUMBERS ARE STERLING UNLESS OTHERWISE NOTED.

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FERNDALE PUBLIC SCHOOLS
2017 SINKING FUND
SUMMER 2019 RENOVATION PROJECTS

MECHANICAL SCHEDULES

FERNDALE HIGH SCHOOL

PRELIMINARY ☐
DESIGN DEVELOPMENT ☐
CONSTRUCTION ■
FINAL RECORD ☐

DRAWN BY: CAY
CHECKED BY: SVM

REVISIONS:

DATE: FEBRUARY 1, 2019

SHEET NO.:
M7.02

JOB NO.: 181794

ELECTRICAL SYMBOL LIST

(NOTE: SOME SYMBOLS AND ABBREVIATIONS SHOWN MAY NOT APPLY TO THIS PROJECT)

SYMBOL	DESCRIPTION
FX	FIXTURE TYPE
	LIGHTING FIXTURE
	DIRECT/INDIRECT LIGHTING FIXTURE
	EMERGENCY FIXTURE
FX-NL	NIGHT LIGHTING FIXTURE
	LIGHTING FIXTURE
	EMERGENCY FIXTURE
	WALL MOUNTED LIGHTING FIXTURE
	LIGHTING FIXTURE
	DIRECTIONAL LIGHTING FIXTURE
	PENDANT LIGHTING FIXTURE
	WALL SCONCE
	LIGHTING TRACK
	TRACK LIGHTING FIXTURE
	POLE MOUNTED LIGHTING FIXTURE
	POLE MOUNTED LIGHTING FIXTURE – POST TOP
	BOLLARD LIGHTING FIXTURE
	EMERGENCY LIGHTING UNIT
	EXIT LIGHTING FIXTURE WITH DIRECTIONAL ARROWS (SHADED AREA INDICATES FACE)
	EXIT LIGHTING FIXTURE WITH DIRECTIONAL ARROWS (SHADED AREA INDICATES FACE)
	EXIT LIGHTING FIXTURE – WALL MOUNTED
ELTD	EMERGENCY LOAD TRANSFER DEVICE
ALCR	AUTOMATIC LOAD CONTROL RELAY
LC	LIGHTING CONTROL DEVICE – REFER TO LIGHTING CONTROL SCHEDULE
123	ROOM CONTROL DESIGNATION – REFER TO LIGHTING CONTROL SCHEDULE
S	SINGLE POLE TOGGLE SWITCH
S2	TWO POLE TOGGLE SWITCH
S3	3 WAY TOGGLE SWITCH
S4	4 WAY TOGGLE SWITCH
K	KEY OPERATED SWITCH
K3	3 WAY KEY OPERATED SWITCH
K4	4 WAY KEY OPERATED SWITCH
D	DIMMER SWITCH
D3	3 WAY DIMMER SWITCH
DO	DIMMER OCCUPANCY SENSOR SWITCH
DL	LOW VOLTAGE DIMMER SWITCH
SP	PILOT SWITCH

SYMBOL	DESCRIPTION
TWC	TWO-WAY COMMUNICATION SYSTEM CALL STATION
TWCD	TWO-WAY COMMUNICATION SYSTEM AUTO DIALER
TWCA	TWO-WAY COMMUNICATION SYSTEM ANNUNCIATOR & COMMUNICATION PANEL
TWCP	TWO-WAY COMMUNICATION SYSTEM POWER SUPPLY WITH BATTERY BACK-UP
TWCDP	TWO-WAY COMMUNICATION SYSTEM AUTO DIALER POWER SUPPLY WITH BATTERY BACK-UP
RGP	REMOTE GENERATOR ANNUCIATOR PANEL
ATS	AUTOMATIC TRANSFER SWITCH
UPS	UN-INTERRUPTABLE POWER SUPPLY
CSX	LOW VOLTAGE CONTROL STATION "X" INDICATES TYPE
	SINGLE / DUPLEX RECEPTACLE
DP	SINGLE/DUPLEX RECEPTACLE CONTROLLED BY AUTOMATIC CONTROL DEVICE/SYSTEM
	QUAD RECEPTACLE
	ABOVE COUNTER DUPLEX RECEPTACLE (SIMILAR FOR TAMPER RESISTANT, QUADS, EMERGENCY AND GFI RECEPTACLES)
X	DUPLEX RECEPTACLE–GROUND FAULT CIRCUIT INTERRUPTER
	DUPLEX EMERGENCY RECEPTACLE
	DUPLEX TAMPER RESISTANT RECEPTACLE
	QUAD TAMPER RESISTANT RECEPTACLE
	ABOVE COUNTER DUPLEX TAMPER RESISTANT RECEPTACLE
	DUPLEX UPS RECEPTACLE
	DUPLEX RECEPTACLE WITH 2 USB PORTS
X	4 PORT USB CHARGING STATION
	CEILING MOUNTED DUPLEX RECEPTACLE
	POWER POLE
X	SPECIAL RECEPTACLE – REFER TO ELECTRICAL STANDARD SCHEDULES
	MULTI-OUTLET RACEWAY
"X"	MULTI-SERVICE DROP SEE ELECTRICAL DETAILS AND DIAGRAMS SHEET "X" INDICATES TYPE
IC	INTERCOM OUTLET
PTX	POKE-THROUGH ASSEMBLY "X" INDICATES TYPE
FBX	FLOOR SERVICE FITTING "X" INDICATES TYPE
AFX	ACCESS FLOOR SERVICE FITTING "X" INDICATES TYPE
RX	CORD REEL "X" INDICATES TYPE
S3S	DUAL SWITCHING FOR INNER/OUTER LAMPS OF FLUORESCENT LIGHT FIXTURES
S3S3	3-WAY DUAL SWITCHING FOR INNER/OUTER LAMPS OF FLUORESCENT LIGHT FIXTURES
S4S4	4-WAY DUAL SWITCHING FOR INNER/OUTER LAMPS OF FLUORESCENT LIGHT FIXTURES
ST	DIGITAL TIME SWITCH
SI	ILLUMINATED TOGGLE SWITCH FOR CONTROL OF LIGHTING ON CRITICAL POWER–ILLUMINATED WHEN SWITCH IS IN "OFF" POSITION
SL	LOW VOLTAGE SWITCH
SO	OCCUPANCY SENSOR
SO2	OCCUPANCY SENSOR
OS X	OCCUPANCY SENSOR "X" INDICATES TYPE

REFER TO ELECTRICAL STANDARD SCHEDULES

SYMBOL	DESCRIPTION
CP	CONTROL PANEL
	MOTOR
VFC	VARIABLE FREQUENCY CONTROLLER.
	MANUAL CONTROLLER
	MAGNETIC CONTROLLER
	COMBINATION MAGNETIC CONTROLLER
	NON-FUSIBLE DISCONNECT SWITCH
	FUSIBLE DISCONNECT SWITCH
CB	ENCLOSED CIRCUIT BREAKER
	PUSH BUTTON STATION
J	JUNCTION BOX
	HARD WIRE POWER CONNECTION
DP	AUTOMATIC DOOR CONTROLLER
PP	AUTOMATIC DOOR PUSH PAD OPERATOR
	GROUND ROD
	GROUND CONNECTION
X	CONDUIT SLEEVE WITH BUSHINGS LENGTH AS REQUIRED "X" INDICATES CONDUIT SIZE
	CONDUIT UP
	CONDUIT DOWN
	EMPTY BOX FOR FUTURE TELECOMMUNICATION OUTLET
	ABOVE COUNTER EMPTY BOX FOR FUTURE TELECOMMUNICATION OUTLET
	EMPTY BOX FOR FUTURE CEILING MOUNTED TELECOMMUNICATION OUTLET
X	TELECOMMUNICATION OUTLET "X" INDICATES TYPE
X	ABOVE COUNTER TELECOMMUNICATION OUTLET "X" INDICATES TYPE
X	TELECOMMUNICATION CEILING MOUNTED OUTLET "X" INDICATES TYPE
	TELECOMMUNICATION BACKBOARD
TGB	TELECOMMUNICATION GROUNDING BUS BAR
TMGB	TELECOMMUNICATION MAIN GROUNDING BUS BAR
S	SPEAKER
S	SPEAKER – WALL MOUNTED
MIC	MICROPHONE
VC	VOLUME CONTROL/STATION SELECTOR
B	SIGNALING BELL
	SINGLE FACE CLOCK – CEILING MOUNTED
	SINGLE FACE CLOCK – WALL MOUNTED
	DOUBLE FACE CLOCK – CEILING MOUNTED
S	DOUBLE FACE COMBINATION CLOCK/SPEAKER CEILING MOUNTED
	DOUBLE FACE CLOCK – WALL MOUNTED
S	DOUBLE FACE COMBINATION CLOCK/SPEAKER WALL MOUNTED
TC	TIME CLOCK
C	CONTACTOR
P	PHOTOCELL
TT	TWIST TIMER

SYMBOL	DESCRIPTION
	SECURITY CAMERA
MD	MOTION DETECTOR
K	SECURITY KEY SWITCH
DC	DOOR CONTACT
KP	KEY PAD
CR	ACCESS CONTROL STATION
DB	DURESS PUSH BUTTON STATION
DE	DELAYED EGRESS
REX	REQUEST TO EXIT STATION
	CIRCUIT BREAKER
	DRAWOUT CIRCUIT BREAKER MANUALLY/ OPERATED
	DRAWOUT CIRCUIT BREAKER ELECTRICALLY/ OPERATED
	SWITCH
	AUTOMATIC OR MANUAL TRANSFER SWITCH
	FUSE
	TRANSFORMER
	CURRENT TRANSFORMER
	POTENTIAL TRANSFORMER
	LIGHTNING ARRESTOR
X	PANELBOARD "X" INDICATES PANELBOARD NAME
	GROUND
	STRESS CONE TERMINATION
K	SECURITY KEY INTERLOCK
G	ENGINE GENERATOR
M	UTILITY METER
EMU	ELECTRONIC METERING UNIT
A	AMMETER
V	VOLTMETER
AS	AMMETER SWITCH
VS	VOLTMETER SWITCH
SPD	SURGE PROTECTIVE DEVICE
CR	CONTROL RELAY
TDR	TIME DELAY RELAY
	THERMAL OVERLOAD RELAY
	NORMALLY OPEN CONTACTS
	NORMALLY CLOSED CONTACTS
	N.O. PUSH BUTTON SINGLE CIRCUIT
	N.C. PUSH BUTTON SINGLE CIRCUIT
X–X	CABLE VAULT "X–X" INDICATES TYPE
	BRANCH CIRCUIT PANELBOARD
	LOAD CENTER
	MOTOR CONTROL CENTER
T	TRANSFORMER
	DISTRIBUTION PANEL
GB	GROUND BUS
PB	PLUG IN BUSWAY
FB	FEEDER BUSWAY

SYMBOL	DESCRIPTION
F	MANUAL FIRE ALARM BOX
SD	SMOKE DETECTOR
DD	DUCT SMOKE DETECTOR
CO	CARBON MONOXIDE DETECTOR
RT	REMOTE TEST STATION (FOR DUCT DETECTOR)
TD	THERMAL DETECTOR
BD	PROJECTED BEAM DETECTOR
F	FIRE ALARM BELL
F	FIRE ALARM AUDIBLE NOTIFICATION APPLIANCE
XX	FIRE ALARM VISUAL NOTIFICATION APPLIANCE "XX" INDICATES CANDELA RATING IF NO RATING SHOWN, APPLIANCE IS 15cd
XX	FIRE ALARM COMBINATION VISUAL/ AUDIBLE "XX" INDICATES CANDELA RATING IF NO RATING SHOWN, APPLIANCE IS 15cd
F XX	FIRE ALARM COMBINATION VISUAL/ AUDIBLE NOTIFICATION APPLIANCE– CEILING MOUNTED "XX" INDICATES CANDELA RATING IF NO RATING SHOWN, APPLIANCE IS 15cd
XX	FIRE ALARM VISUAL NOTIFICATION APPLIANCE CEILING MOUNTED "XX" INDICATES CANDELA RATING IF NO RATING SHOWN, APPLIANCE IS 15cd
F	FIRE ALARM AUDIBLE NOTIFICATION APPLIANCE – CEILING MOUNTED
F	FIREFIGHTERS PHONE JACK
FACP	FIRE ALARM CONTROL PANEL
FAA	FIRE ALARM ANNUNCIATOR PANEL
NAC	NOTIFICATION APPLIANCE CIRCUIT EXTENDER PANEL
IM	ADDRESSABLE MONITORING MODULE
CM	ADDRESSABLE CONTROL MODULE
TS	TAMPER SWITCH
FS	FLOW SWITCH
DR	MAGNETIC DOOR RELEASE

ELECTRICAL DRAWING INDEX

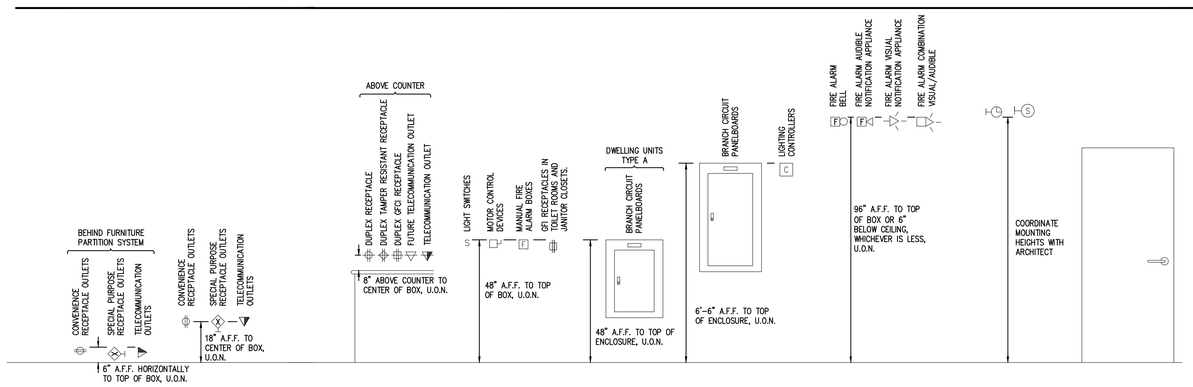
ELECTRICAL ABBREVIATION LIST

ABBREVIATION	DESCRIPTION
A	AMPERES
AF	AMPERES FRAME (BREAKER RATING)
AFCI	ARC FAULT CIRCUIT INTERRUPTER
A.F.F.	ABOVE FINISH FLOOR
AIC	AMPS INTERRUPTING CAPACITY
AL	AUDIENCE LEFT
AR	AUDIENCE RIGHT
AT	AMPERES TRIP (BREAKER SETTING)
ATS	AUTOMATIC TRANSFER SWITCH
AUX	AUXILIARY
BKR	BREAKER
BPS	BOLTED PRESSURE SWITCH
C	CONDUIT
CB	CIRCUIT BREAKER
CFCI	CONTRACTOR FURNISHED, CONTRACTOR INSTALLED
CKT	CIRCUIT
CT	CURRENT TRANSFORMER
DEMO	DEMOLITION
DIM	DIMENSION
DISC	DISCONNECT
DP	DISTRIBUTION PANEL
DS	DOWNSTAGE
DWG	DRAWING
EBU	EMERGENCY BATTERY UNIT
EC	ELECTRICAL CONTRACTOR
ELEC	ELECTRICAL
EM/ EMERG	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
EO	ELECTRICALLY OPERATED
EPO	EMERGENCY POWER OFF
EWC	ELECTRIC WATER COOLER
EXIST	EXISTING
FA	FIRE ALARM
FLA	FULL LOAD AMPS
FLR	FLOOR
FOH	FRONT OF HOUSE
FSEC	FOOD SERVICE EQUIPMENT CONTRACTOR
FU	FUSE

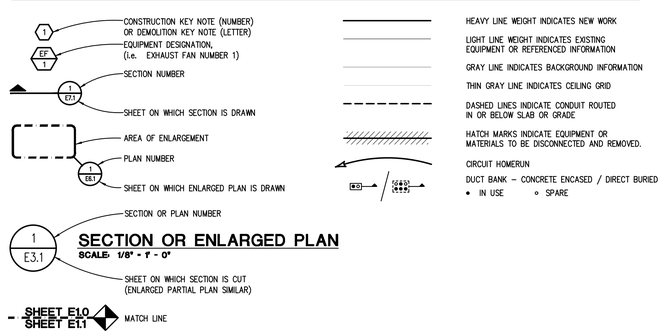
ABBREVIATION	DESCRIPTION
G/GRD/EG	GROUND
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFP	GROUND FAULT PROTECTION
HOA	HAND–OFF–AUTO
HP	HORSEPOWER
HV	HIGH VOLTAGE
HZ	HERTZ
IG	ISOLATED GROUND
JB	JUNCTION BOX
KV	KILOVOLT
KVA	KILOVOLT – AMPERES
KW	KILOWATT
KWH	KILOWATT – HOURS
LA	LIGHTNING ARRESTOR
LP	LIGHTING PANEL
LDP	LIGHTING DISTRIBUTION PANEL
MAX	MAXIMUM
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MECH	MECHANICAL
MIN	MINIMUM
MISC.	MISCELLANEOUS
MLO	MAIN LUGS ONLY
MTD	MOUNTED
MTG	MOUNTING
MTR	MOTOR
N	NEUTRAL
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NF	NON–FUSIBLE
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NTS	NOT TO SCALE

ABBREVIATION	DESCRIPTION
OC	ON CENTER
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED, OWNER INSTALLED
P	POLE
PB	PUSHBUTTON STATION
PH	PHASE
PT	POTENTIAL TRANSFORMER
PDP	POWER DISTRIBUTION PANEL
RECEPT.	RECEPTACLE
RDP	RECEPTACLE DISTRIBUTION PANEL
RP	RECEPTACLE PANEL
RSC	RIGID STEEL CONDUIT
SCHED	SCHEDULE
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TB	TERMINAL BOX
TELECOM	TELECOMMUNICATIONS
TR	TAMPER RESISTANT
TTB	TELEPHONE TERMINAL BACKBOARD
TYP	TYPICAL
U.O.N.	UNLESS OTHERWISE NOTED
US	UPSTAGE
V	VOLTS
W	WIRE OR WATTS
WG	WIRE GUARD
WP	WEATHERPROOF
XFMR	TRANSFORMER
XP	EXPLOSION PROOF
(E)	EXISTING
(R)	RELOCATED

STANDARD MOUNTING HEIGHTS



STANDARD METHODS OF NOTATION



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TBA Project No.: 2019.0011

FERNDALE PUBLIC SCHOOLS
2017 SINKING FUND
SUMMER 2019 RENOVATION PROJECTS

ELECTRICAL STANDARDS AND DRAWING INDEX

FERNDALE HIGH SCHOOL

PRELIMINARY ☐
DESIGN DEVELOPMENT ☐
CONSTRUCTION ■
FINAL RECORD ☐

DRAWN BY: JRD
CHECKED BY: STP

REVISIONS:

DATE: FEBRUARY 1, 2019

SHEET NO.:

E0.01

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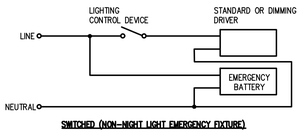


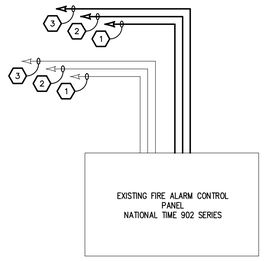
SWITCHED (NON-NIGHT LIGHT EMERGENCY FIXTURE)

EMERGENCY DRIVER WIRING DIAGRAM

NO SCALE

NOTE:

PRIMARY CIRCUIT ONLY.



KEY NOTES:

1. ADDRESSABLE INITIATING DEVICE LOOP (SIGNALING LINE CIRCUIT), CLASS B, STYLE 4 WIRING. INCLUDES MANUAL PULL STATIONS, SMOKE DETECTORS, THERMAL DETECTORS, WATER FLOW SWITCHES, TAMPER SWITCHES, ETC. SEE PLAN DRAWINGS FOR DEVICE LOCATIONS AND QUANTITIES. PROVIDE WIRING AS SPECIFIED BY SYSTEM MANUFACTURER.
2. VISUAL NOTIFICATION APPLIANCE CIRCUIT, CLASS B, STYLE Y WIRING. SEE PLAN DRAWINGS FOR FOR DEVICE LOCATION AND QUANTITIES. PROVIDE WIRING AND NUMBER OF CIRCUITS AS REQUIRED BY SYSTEM MANUFACTURER BASED ON MANUFACTURERS CIRCUIT LOAD CALCULATIONS.
3. AUDIBLE NOTIFICATION APPLIANCE CIRCUIT, CLASS B, STYLE Y WIRING. SEE PLAN DRAWINGS FOR FOR DEVICE LOCATION AND QUANTITIES.

FIRE ALARM RISER DIAGRAM

NO SCALE

NOTES:

1. COORDINATE ROOM NAMES AND/OR NUMBERS WITH OWNER PRIOR TO FINAL PROGRAMMING.
2. PROVIDE MANUFACTURER'S FIELD SERVICES FOR SUPERVISING FINAL WIRING CONNECTIONS, INSPECTION AND ADJUSTING OF COMPLETED INSTALLATION, AND SYSTEMS DEMONSTRATION.

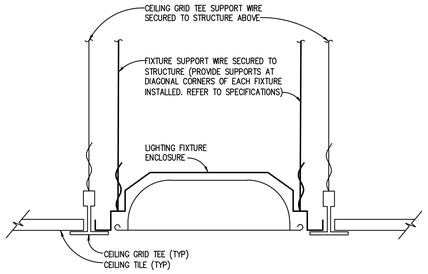
SYSTEM INPUTS	ACTUATE COMMON ALARM SIGNAL INDICATOR	ACTUATE EVACUATION SIGNALS	ACTUATE COMMON SUPERVISORY SIGNAL INDICATOR	ACTUATE AUDIBLE SUPERVISORY SIGNAL	ACTUATE COMMON TROUBLE SIGNAL INDICATOR	ACTUATE AUDIBLE TROUBLE SIGNAL	DISPLAY CHANGE OF STATUS	ACTUATE ALARM SEQUENCE ON CENT FA CONTROL PNL	TRANSMIT FIRE ALARM SIGNAL TO SECURITY	TRANSMIT SUPERVISORY SIGNAL TO SECURITY	TRANSMIT TROUBLE SIGNAL TO SECURITY	RELEASE MAGNETICALLY HELD SMOKE DOORS
MANUAL FIRE ALARM BOXES	●	●					●	●	●			
SMOKE AND HEAT DETECTOR ACTIVATION	●	●					●	●	●			
DUCT DETECTOR ACTIVATION	●	●					●	●	●			
FLOW SWITCH ACTIVATION	●	●					●	●	●			●
TAMPER SWITCH ACTIVATION			●	●						●		
FIRE ALARM AC POWER FAILURE			●	●						●		
FIRE ALARM SYSTEM LOW BATTERY					●	●					●	
OPEN CIRCUIT					●	●					●	
GROUND FAULT					●	●					●	
NOTIFICATION APPLIANCE CIRCUIT SHORT					●	●					●	
EXIST. FA PANEL ALARM CONDITION	●	●					●		●			
EXIST. FA PANEL TROUBLE CONDITION					●	●						

FIRE ALARM MATRIX

NO SCALE

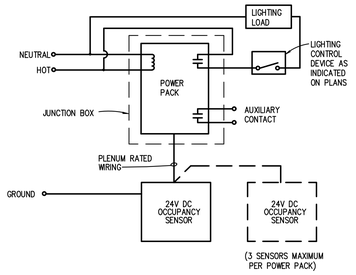
NOTES:

1. PROVIDE ALL RELAYS, CONTROL MODULES AND MATERIAL AND LABOR REQUIRED TO SHUT DOWN AIR HANDLING UNITS. COORDINATE WORK WITH THE TEMPERATURE CONTROL CONTRACTOR.
2. FIRE ALARM VENDER SHALL CONFIRM THE ABOVE OPERATION MATRIX WITH THE AUTHORITIES HAVING JURISDICTION. REVISE AS REQUIRED.



RECESSED LIGHTING FIXTURE INSTALLATION DETAIL

NO SCALE



NOTES:

1. REFER TO SPECIFICATIONS FOR ACCEPTED MANUFACTURERS.
2. PROVIDE POWER PACKS AND SLAVE PACKS AS REQUIRED FOR SWITCHING AS INDICATED ON PLAN. REVISE DETAIL AS REQUIRED BY MANUFACTURER.
3. MOUNTING LOCATION PER MANUFACTURER'S RECOMMENDATION.
4. ADJUST SENSITIVITY LEVELS PER THE OWNER REQUIREMENTS.
5. PROVIDE FACTORY SUPPORT FOR AIMING/ADJUSTING OF SENSORS.
6. PLACE CEILING MOUNTED OCCUPANCY SENSORS IN CENTER OF A FULL CEILING TILE, WHERE APPLICABLE.
7. SENSOR ADJUSTMENT: BEFORE MAKING ADJUSTMENTS, MAKE SURE ROOM FURNITURE IS INSTALLED, LIGHTING CIRCUITS ARE TURNED ON, AND THE HVAC SYSTEMS ARE IN THE ON POSITION. VAV SYSTEMS SHOULD BE SET TO THEIR HIGHEST AIRFLOW. SET THE LOGIC CONFIGURATION DIP SWITCHES TO "EITHER". EITHER REQUIRES MOTION DETECTION BY ONLY ONE TECHNOLOGY. SET THE TIME DELAY PER OWNERS DIRECTION.

OCCUPANCY SENSOR WIRING DIAGRAM

NO SCALE

FEEDER AND BRANCH CIRCUIT SIZING SCHEDULE - GENERAL PURPOSE

OVERCURRENT DEVICE RATING (AMPERES)	COPPER CONDUCTORS: WIRE SIZE (AWG OR KCMIL) PHASE & NEUTRAL	GROUND	CONDUIT SIZE: SINGLE PHASE 2 WIRE+G (1PH, 1N, 1G)	SINGLE PHASE 3 WIRE+G (2PH, 1N, 1G)	THREE PHASE 3 WIRE+G (3PH, 1G)	THREE PHASE & NEUTRAL 4 WIRE+G (3PH, 1N, 1G)
15–20	12	12	3/4"	3/4"	3/4"	3/4"
25–30	10	10	3/4"	3/4"	3/4"	3/4"
35–40	8	10	3/4"	3/4"	3/4"	3/4"
* 45–50	8 (6)	10	3/4"	3/4"	3/4"	3/4"
* 60	6 (4)	10	3/4" (1")	3/4" (1")	3/4" (1")	1" (1 1/4")
70	4	8	1"	1 1/4"	1 1/4"	1 1/4"
* 80	4 (3)	8	1"	1 1/4"	1 1/4"	1 1/4"
* 90–100	3 (2)	8	1 1/4"	1 1/4"	1 1/4"	1 1/4"
* 110	2 (1)	6	–	1 1/4"	1 1/4"	1 1/4" (1 1/2")
* 125	1 (1/0)	6	–	1 1/4" (1 1/2")	1 1/4" (1 1/2")	1 1/2"
150	1/0	6	–	1 1/2"	1 1/2"	1 1/2"
175	2/0	6	–	2"	2"	2"
200	3/0	6	–	2"	2"	2 1/2"
225	4/0	4	–	2"	2"	2 1/2"
250	250	4	–	2 1/2"	2 1/2"	2 1/2"
300	350	4	–	2 1/2"	2 1/2"	3"
350	500	3	–	3"	3"	3"
400	500	3	–	3"	3"	3"

* = SEE NOTE 4

NOTES:

1. CONTRACTOR TO SIZE FEEDERS AND BRANCH CIRCUITS BASED ON THIS SCHEDULE AND OVER CURRENT DEVICE SIZE, UNLESS NOTED OTHERWISE.
2. CONTRACTOR MAY COMBINE 20A CIRCUITS AS NOTED IN SPECIFICATION.
3. CONDUCTORS ARE BASED ON THHN/THWN UP TO AND INCLUDING #4/0. LARGER THAN #4/0 ARE BASED ON TYPE XHHW.
4. CONDUCTORS ARE BASED ON 90°C, 600V. INSULATED COPPER WIRE APPLIED AT 75°C FOR TERMINATION RATED 60/75°C OR 75°C. FOR TERMINATION RATED AT 60°C, USE CONDUCTORS AND CONDUIT SIZES INDICATED IN PARENTHESES.
5. CONDUIT SIZES ARE VALID FOR EMT OR RGS. CONDUIT SIZES SHALL BE ADJUSTED AS REQUIRED FOR OTHER TYPES OF CONDUIT.
6. ELECTRICAL CONTRACTOR TO COORDINATE WITH MECHANICAL CONTRACTOR AND PROVIDE REQUIRED WIRE SIZES TO ACCOMMODATE MECHANICAL EQUIPMENT LUG SIZES.
7. SIZE OF DISCONNECT SWITCH LOCATED AT EQUIPMENT SHALL BE SIZED BASED UPON OVERCURRENT PROTECTION OF THAT DEVICE.
8. OBTAIN APPROVAL FROM ENGINEER PRIOR TO INSTALLING DIFFERENT SIZE/QUANTITY OF CONDUCTORS TO OBTAIN AN EQUIVALENT AMPACITY.
9. SPLICE FROM ALUMINUM TO COPPER PRIOR TO ENTERING EQUIPMENT LISTED FOR USE WITH COPPER CONDUCTORS ONLY OR USE COPPER CONDUCTORS FOR THE ENTIRE LENGTH OF FEEDER.

BRANCH CIRCUIT VOLTAGE DROP WIRING SCHEDULE FOR SINGLE PHASE CIRCUITS

BRANCH CKT RATING (A)	WIRE SIZE (AWG)	MAXIMUM BRANCH CIRCUIT LENGTH (IN FEET) 120V	208V	240V	277V	480V
20A	12	83	143	165	191	331
	10	128	222	256	295	511
	8	201	348	402	464	804
	6	313	542	625	721	1250
30A	10	85	148	170	197	341
	8	134	232	268	309	536
	6	208	361	417	481	833
	4	313	542	625	721	1250

NOTES:

1. THE ABOVE TABLE VALUES ARE BASED ON COPPER CONDUCTORS, IN STEEL CONDUIT, WITH A LOAD POWER FACTOR OF 0.85 PER NEC CHAPTER 9, TABLE 9.
2. PROVIDE BRANCH CIRCUIT CONDUCTORS AS INDICATED IN THE TABLE ABOVE FOR ALL LIGHTING AND RECEPTACLE BRANCH CIRCUITS. WHERE BRANCH CIRCUITS SERVE DEDICATED EQUIPMENT, THE CONTRACTOR MAY PERFORM VOLTAGE DROP CALCULATIONS BASED ON ACTUAL EQUIPMENT CONNECTED LOAD AND PROVIDE CONDUCTORS APPROPRIATELY SIZED TO LIMIT VOLTAGE DROP TO A MAXIMUM OF 3%.
3. CONDUCTOR SIZES ARE BASED ON MAXIMUM OF 9 CURRENT CARRYING CONDUCTORS IN A SINGLE CONDUIT.
4. LIMITS FOR CONDUCTOR LENGTHS SHOWN ARE BASED ON A MAXIMUM BRANCH CIRCUIT LOADING OF 64% OF THE BRANCH BREAKER RATING AND A MAXIMUM OF 3 PERCENT VOLTAGE DROP TO COMPLY WITH ASHRAE 90.1 AND THE NEC. FOR CIRCUITS LOADED GREATER THAN 64% OF BRANCH BREAKER RATING, THE CONTRACTOR SHALL PROVIDE CONDUCTORS APPROPRIATELY SIZED TO LIMIT VOLTAGE DROP TO 3%

LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER(S)	VOLTAGE	LIGHT CHARACTERISTICS
L1/L1E	LED 2'X4' RECESSED LAY IN LIGHT FIXTURE: 4" MAXIMUM DEEP HOUSING. STEEL WHITE HOUSING WITH DIFFUSED LENS. FOR FIXTURES INDICATED AS EMERGENCY ON PLAN PROVIDE EMERGENCY BATTERY PACK WITH 1,400 LUMENS FULL OUTPUT FOR A MINIMUM OF 90 MINUTES.	1. METALUX GRLED SERIES 2. LITHONIA 2GTL SERIES 3. COLUMBIA LTGR SERIES 4. LSI LPRT SERIES	MULTI	4,000 LUMENS 4000K 80CRI
X	EXIT LIGHT SHALL BE MOUNTED AS REQUIRED, WITH WHITE DIE CAST ALUMINUM HOUSING, HIGH OUTPUT LED DIFFUSE LIGHT PANEL, SINGLE STENCIL FACE WITH RED LETTERS AND SUITABLE FOR MULTI VOLT (FUSED) OPERATION. PROVIDE DIRECTIONAL ARROW AS INDICATED ON PLAN. UNIT SHALL BE COMPLETELY SELF-CONTAINED WITH SEALED MAINTENANCE FREE BATTERY CAPABLE OF PROVIDING 90 MINUTE FULL LIGHT OPERATION. UNIT SHALL HAVE AUTOMATIC CONSTANT CURRENT SERIES CHARGER, TRANSFER CIRCUIT AND TEST SWITCH. WARRANTY FOR 3 YEARS WITH AN ADDITIONAL 3 YEAR PRO RATA WARRANTY ON THE BATTERY.	1. LITHONIA SIGNATURE SERIES 2. SURLITE CX SERIES 3. CHLORIDE CE SERIES 4. CALAXY XD SERIES 5. EXITRONIX 400U SERIES	MULTI	RED LED

INTERIOR LIGHTING CONTROL SCHEDULE

PLAN REFERENCE	ROOM TYPE	LOCAL CONTROL: SWITCH TYPE	SWITCH CONTROL	CONTROL ON / OFF	SENSOR TYPE	TURN ON LIGHTING TO %	BI-LEVEL CONTROL	SENSOR FULL OFF TIME	EMERGENCY LIGHTING CIRCUIT CONTROL	HVAC CONTROL	NOTES
A	CORRIDOR (ALL OTHER CORRIDORS)	LINE VOLTAGE	ON-OFF (KEYED)	SENSOR ON / SENSOR OFF	ULTRASONIC	FULL 100%	NA	20 MIN	BATTERY	NA	
B	RESTROOM (ALL OTHER RESTROOMS)	LOW VOLTAGE	ON-OFF-DIM	SENSOR ON / SENSOR OFF	ULTRASONIC	PARTIAL 50%	CONTINUOUS DIM	10 MIN	BATTERY	NA	

NOTE:
1. REFER TO PLANS FOR LOCATION OF LOCAL CONTROL.
2. REFER TO PLANS FOR SCENE CONTROL.
3. REFER TO PLANS FOR PRIMARY AND SECONDARY DAYLIGHT ZONES.
4. PROVIDE EMERGENCY LIGHTING CIRCUIT CONTROL (ELTD OR ALCR) PER SWITCHING CIRCUIT AS REQUIRED.
5. CONTRACTOR SHALL PROVIDE FLOOR PLAN INDICATING SENSOR LOCATIONS OF CHOSEN CONTROL SYSTEM.
6. REFER TO LUMINAIRE SCHEDULE FOR FIXTURE CHARACTERISTICS.
7. LIGHTING SENSOR SHALL HAVE CONTACT FOR HVAC CONTROL WHEN A "YES" SELECTION IS MADE IN THE HVAC CONTROL COLUMN.

NA = NOT APPLICABLE

RACEWAY / CONDUCTOR / CABLE APPLICATION SCHEDULE

		WIRE: COPPER, TYPE THHN/THWN-2	COPPER, TYPE XHHW-2	RACEWAYS: ELECTRICAL METALLIC TUBING (EMT)	INTERMEDIATE METAL CONDUIT (IMC)	RIGID STEEL CONDUIT (RSC)	PVC COATED RIGID STEEL CONDUIT	RIGID NON-METALLIC CONDUIT (RNC) TYPE EPC-40	FLEXIBLE METAL CONDUIT (FMC)	LIQUID TIGHT FLEXIBLE METAL CONDUIT (LFMC)	SURFACE RACEWAY	CABLE/CORD: METAL CLAD TYPE CABLE WITH INSULATED GROUND WIRE (TYPE MC)
BRANCH CIRCUITS - INTERIOR	BELOW SLAB ON GRADE (NOTE 1)	X						X				
	EMBEDDED IN ELEVATED CONCRETE SLAB (NOTE 1)	X						X				
	EXPOSED, BELOW 10' AFF AND SUBJECT TO DAMAGE	X			X	X						
	EXPOSED, ABOVE 10' AFF UNFINISHED SPACES	X		X								
	CONCEALED, ACCESSIBLE CEILINGS (NOTE 2)	X		X								X
	CONCEALED, INACCESSIBLE CEILINGS	X		X								
	CONCEALED IN GYPSUM BOARD PARTITION WALLS	X		X					X			X
	CONCEALED IN CMU WALLS	X		X								
	EXPOSED, FINISHED SPACES	X									X	
	EXPOSED, UNFINISHED SPACES	X		X								
	EXPOSED, EXISTING CONSTRUCTION	X									X	
	DAMP AND WET LOCATIONS	X			X	X	X	X		X		

GENERAL NOTES:

1. PROVIDE RIGID STEEL SWEEPS WHERE CONDUITS PENETRATE WALLS, CONCRETE SLABS, AND CONCRETE BASES.
2. REFER TO SPECIFICATIONS FOR RESTRICTIONS ON MC CABLE INSTALLATION.
3. CONDUIT AND WIRE ALLOWED WHEN ENCASED IN MINIMUM 2" CONCRETE.

OCCUPANCY SENSOR LEGEND

TYPE	DESCRIPTION
OS$_A$	360° CEILING MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR
OS$_B$	90° CEILING/WALL MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR
OS$_C$	360° CEILING MOUNTED PASSIVE INFRARED OCCUPANCY SENSOR
OS$_D$	360° CEILING MOUNTED ULTRASONIC OCCUPANCY SENSOR
OS$_E$	360° CEILING MOUNTED ULTRASONIC OCCUPANCY SENSOR – CORRIDOR OPTIMIZED
So	WALL SWITCH OCCUPANCY SENSOR
So2	WALL SWITCH OCCUPANCY SENSOR – DUAL LEVEL SWITCHING
Do	WALL DIMMER SWITCH OCCUPANCY SENSOR

NOTE: SOME SYMBOLS AND ABBREVIATIONS SHOWN MAY NOT APPLY TO THIS PROJECT.

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FERNDALE PUBLIC SCHOOLS
2017 SINKING FUND
SUMMER 2019 RENOVATION PROJECTS

ELECTRICAL STANDARD SCHEDULES AND DETAILS

FERNDALE HIGH SCHOOL

PRELIMINARY ☐
DESIGN DEVELOPMENT ☐
CONSTRUCTION ■
FINAL RECORD ☐

DRAWN BY: JRD
CHECKED BY: STP

REVISIONS:

DATE: FEBRUARY 1, 2019

SHEET NO.:

E0.02

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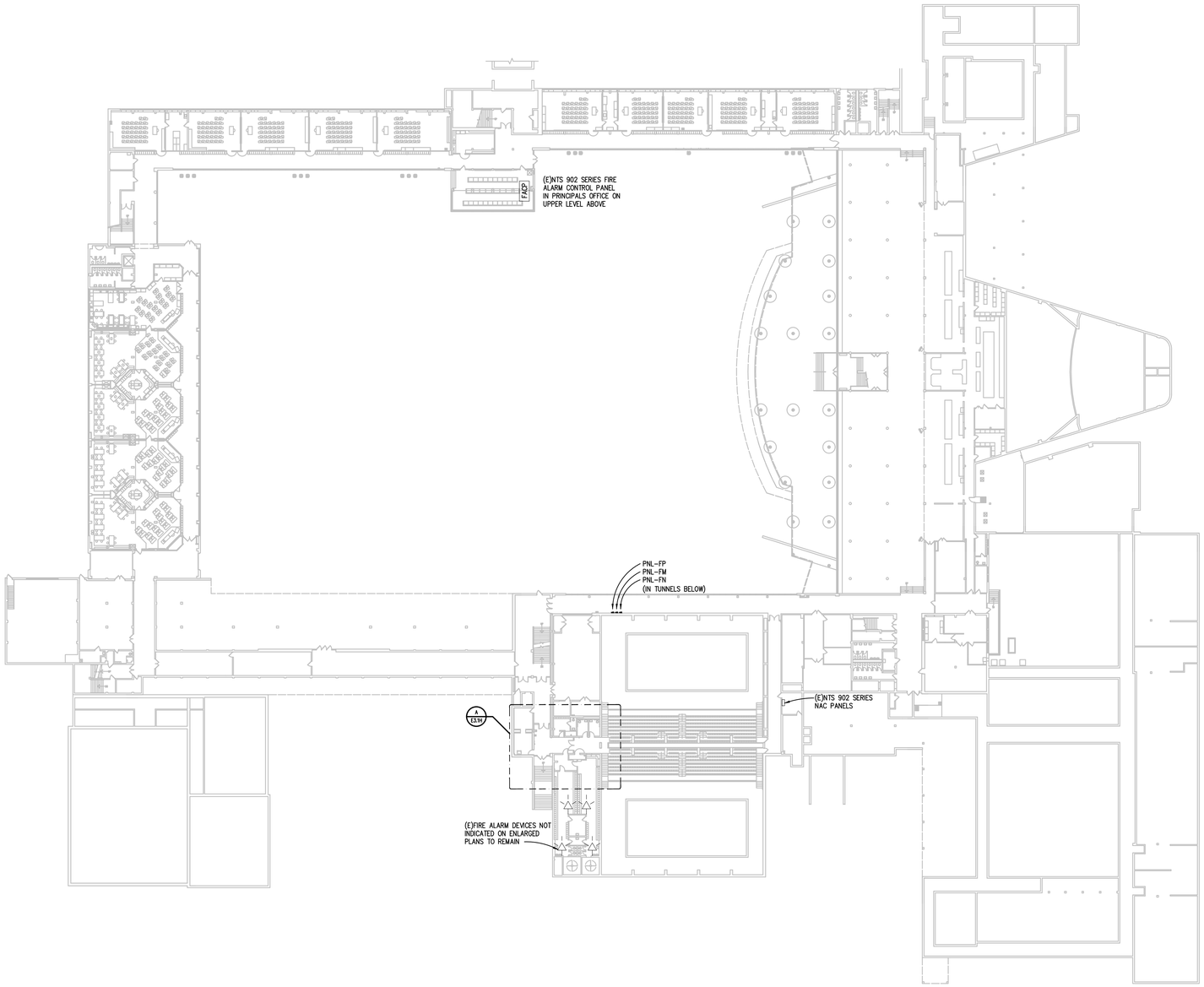
THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



ELECTRICAL FIRST FLOOR COMPOSITE PLAN

SCALE: 1/32" = 1' - 0"

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FERNDALE PUBLIC SCHOOLS
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ELECTRICAL FIRST FLOOR COMPOSITE PLAN

FERNDALE HIGH SCHOOL

PRELIMINARY	☐
DESIGN DEVELOPMENT	☐
CONSTRUCTION	■
FINAL RECORD	☐

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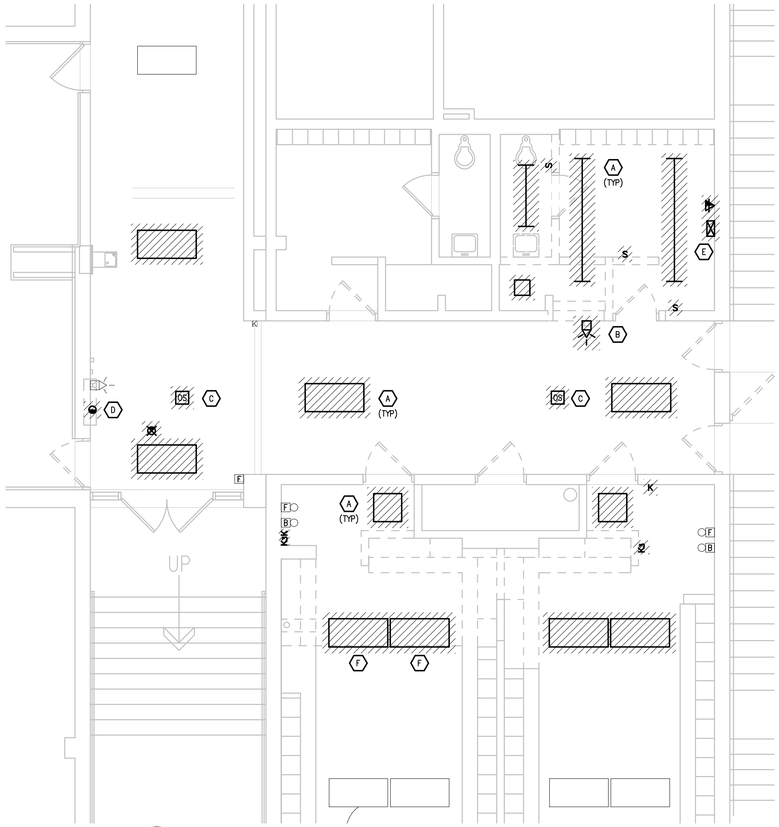
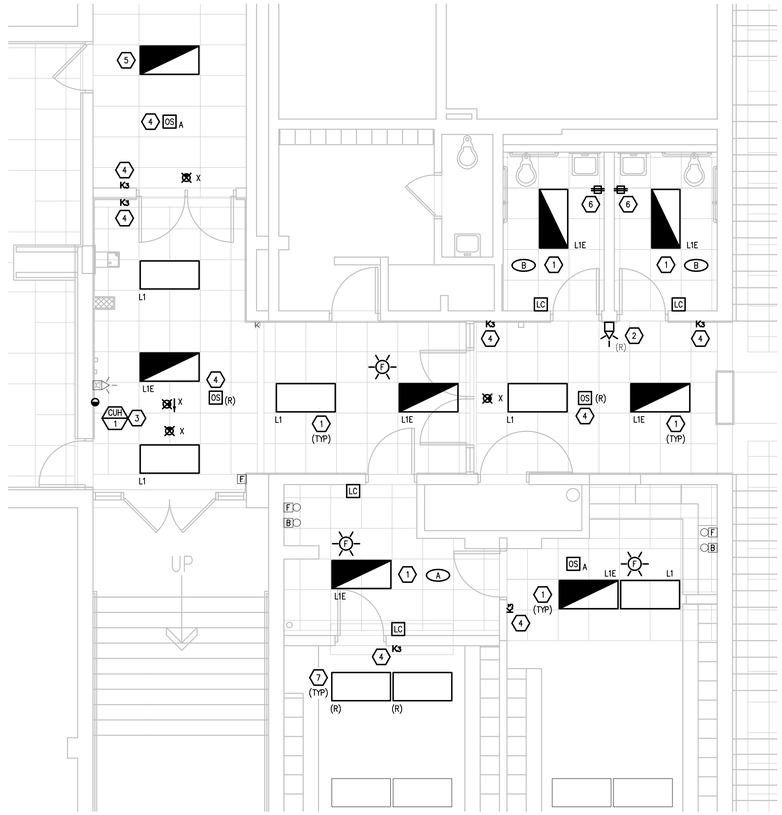
THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



PARTIAL DEMOLITION ELECTRICAL PLAN
SCALE: 1/4" = 1' - 0"



PARTIAL NEW WORK ELECTRICAL PLAN
SCALE: 1/4" = 1' - 0"

ELECTRICAL DEMOLITION GENERAL NOTES:

1. VISIT THE SITE PRIOR TO SUBMISSION OF BID TO EXAMINE THE EXISTING CONDITIONS AND THE EXTENT OF DEMOLITION WORK.
2. EXAMINE THE DRAWINGS OF OTHER TRADES AND BE FAMILIAR WITH THE DEMOLITION REQUIRED BY OTHER TRADES. PERFORM ALL INCIDENTAL ELECTRICAL DEMOLITION AND/OR RELOCATION REQUIRED TO FACILITATE THE DEMOLITION WORK OF OTHER TRADES, WHETHER OR NOT SPECIFICALLY INDICATED.
3. REMOVE EQUIPMENT OR MATERIALS AS INDICATED ON PLAN WITH CROSS HATCHING. DEMOLITION SHALL INCLUDE, BUT NOT BE LIMITED TO, THOSE COMPONENTS SHOWN.
4. COORDINATE WITH NEW WORK PLANS FOR EXTENT OF DEMOLITION WORK.
5. PROVIDE PROPER SUPPORT FOR EXISTING TO REMAIN CONDUITS AND BOXES WHERE EXISTING SUPPORT IS TO BE REMOVED. RE-ROUTE BRANCH CIRCUIT CONDUITS AND RELOCATE JUNCTION BOXES AS REQUIRED TO FACILITATE INSTALLATION OF NEW EQUIPMENT AND SYSTEMS IN CEILING SPACES.
6. REMOVE ALL CONDUIT AND WIRE BACK TO THE SOURCE OR NEAREST UPSTREAM DEVICE REMAINING IN SERVICE.
7. MAINTAIN ELECTRICAL SERVICE TO ALL LIGHTING FIXTURES, DEVICES AND EQUIPMENT THAT ARE TO REMAIN. EXTEND CONDUIT AND WIRE AS REQUIRED WHERE DEMOLITION WORK AFFECTS ELECTRICAL SERVICE TO DOWNSTREAM LOADS THAT ARE TO REMAIN.
8. DISPOSE OF ALL MATERIALS OFF SITE AND INCLUDE ALL COSTS FOR DISPOSAL IN BID. ALL MATERIALS SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS, INCLUDING TCLP TESTING, PROPER DISPOSAL AND/OR RECYCLING OF FLUORESCENT LAMPS.
9. PROVIDE BLANK COVER PLATES WHERE SWITCHES AND DEVICES ARE REMOVED BUT EXISTING WALLS REMAIN INTACT.
10. RING OUT AND TAG ALL CIRCUITS AFFECTED BY THIS ALTERATION AT BOTH ENDS. MARK ALL UNUSED CIRCUIT BREAKERS "SPARE".
11. PROVIDE UPDATED TYPED-IN DIRECTORIES FOR ALL PANELS AFFECTED BY THIS ALTERATION.
12. VERIFY ALL UNDERGROUND AND IN SLAB UTILITY LOCATIONS PRIOR TO SAW-CUTTING OR PENETRATING ANY FLOOR SLAB.
13. COORDINATE ANY SHUT DOWN OF EXISTING SERVICES AND EQUIPMENT THAT ARE REMAINING IN USE WITH THE OWNER'S REPRESENTATIVE. WHERE EXISTING BUILDING SERVICE IS REQUIRED TO BE SHUT DOWN, INCLUDE ALL ASSOCIATED OVERTIME COSTS TO PERFORM THIS WORK DURING WEEKENDS AND EVENINGS INCLUDE ALL COSTS FOR PROVIDING TEMPORARY POWER WHERE SHUT DOWNS MUST OCCUR FOR PERIODS LONGER THAN THESE HOURS. COORDINATE ELECTRICAL SHUT DOWNS WITH THE OWNER 72 HOURS PRIOR TO SHUT DOWN.

(#) DEMOLITION KEY NOTES:

A. REMOVE LIGHT FIXTURE. MAINTAIN BRANCH CIRCUIT FOR REUSE.

B. REMOVE AND SALVAGE FIRE ALARM DEVICE. MAINTAIN BRANCH CIRCUIT FOR REUSE. REFER TO NEW WORK PLANS.

C. REMOVE AND SALVAGE CEILING MOUNTED OCCUPANCY SENSOR FOR REUSE. REFER TO NEW WORK PLANS.

D. DISCONNECT POWER TO MECHANICAL EQUIPMENT. MAINTAIN BRANCH CIRCUIT FOR REUSE.

E. REMOVE DUAL CHANNEL RACEWAY COMPLETE. REMOVE TECHNOLOGY CABLING COMPLETE AS REQUIRED. EXISTING BRANCH CIRCUIT TO REMAIN FOR REUSE.

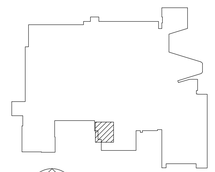
F. REMOVE AND SALVAGE LIGHT FIXTURE FOR REUSE. REFER TO NEW WORK PLANS.

ELECTRICAL GENERAL NOTES:

1. THESE DRAWINGS REPRESENT THE GENERAL EXTENT AND ARRANGEMENT OF SYSTEMS, BUT ARE NOT TO BE CONSIDERED FABRICATION DRAWINGS. COORDINATE WITH OTHER TRADES, AND PROVIDE EACH SYSTEM COMPLETE, INCLUDING ALL NECESSARY COMPONENTS, FITTINGS, AND OFFSETS.
2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
3. COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
4. PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.
5. COORDINATE THE MOUNTING HEIGHTS OF DEVICES WITH ARCHITECTURAL ELEVATIONS AND THE TRADES INSTALLING THE WORK.
6. REFER TO TEMPERATURE CONTROLS SHEETS FOR REQUIRED MOTOR CONTROLLERS. PROVIDE ALL ACCESSORIES INDICATED.
7. ALL FIRE ALARM DEVICES SHALL BE COMPATIBLE WITH EXISTING NATIONAL TIME AND SIGNAL FIRE ALARM SYSTEM. PROVIDE NECESSARY COMPONENTS, MODULES, ETC. AS REQUIRED FOR A FULLY FUNCTIONAL SYSTEM. RE-TEST AND CERTIFY EXISTING FIRE ALARM SYSTEM AT COMPLETION OF PROJECT.
8. CIRCUIT EXIT SIGNS TO UNSWITCHED HOT-LEG OF ADJACENT LIGHTING CIRCUIT.

(#) CONSTRUCTION KEY NOTES:

1. CIRCUIT LIGHT FIXTURE(S) TO MAINTAINED BRANCH CIRCUIT. MODIFY SWITCHLEG AS REQUIRED FOR WORK INDICATED. EXTEND CONDUIT AND WIRE, AS REQUIRED.
2. CIRCUIT RELOCATED FIRE ALARM DEVICE TO MAINTAINED BRANCH CIRCUIT. EXTEND CONDUIT AND WIRE AS REQUIRED.
3. CIRCUIT MECHANICAL EQUIPMENT TO MAINTAINED BRANCH CIRCUIT. EXTEND CONDUIT AND WIRE AS REQUIRED.
4. CIRCUIT NEW/RELOCATED CONTROLS TO EXISTING LIGHTING BRANCH CIRCUIT SERVING SPACE. REWORK SWITCHED LEG OF BRANCH CIRCUIT AS REQUIRED.
5. PROVIDE NEW EMERGENCY BATTERY BACKUP AT EXISTING FLUORESCENT LIGHT FIXTURE. BATTERY SHALL BE CAPABLE OF PRODUCING A MINIMUM OF 1300 LUMENS FOR 90 MINUTES.
6. CIRCUIT RECEPTACLE TO EXISTING BRANCH CIRCUIT THAT PREVIOUSLY SERVED RACEWAY RECEPTACLES. THERE IS NO OVERALL CHANGE TO BRANCH CIRCUIT LOAD.
7. CIRCUIT RELOCATED LIGHT FIXTURE TO EXISTING LIGHTING BRANCH CIRCUIT SERVING SPACE VIA NEW AND EXISTING CONTROLS (EXISTING CONTROLS NOT INDICATED). REWORK SWITCHED LEG OF BRANCH CIRCUIT AS REQUIRED.



KEY PLAN
NO SCALE

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