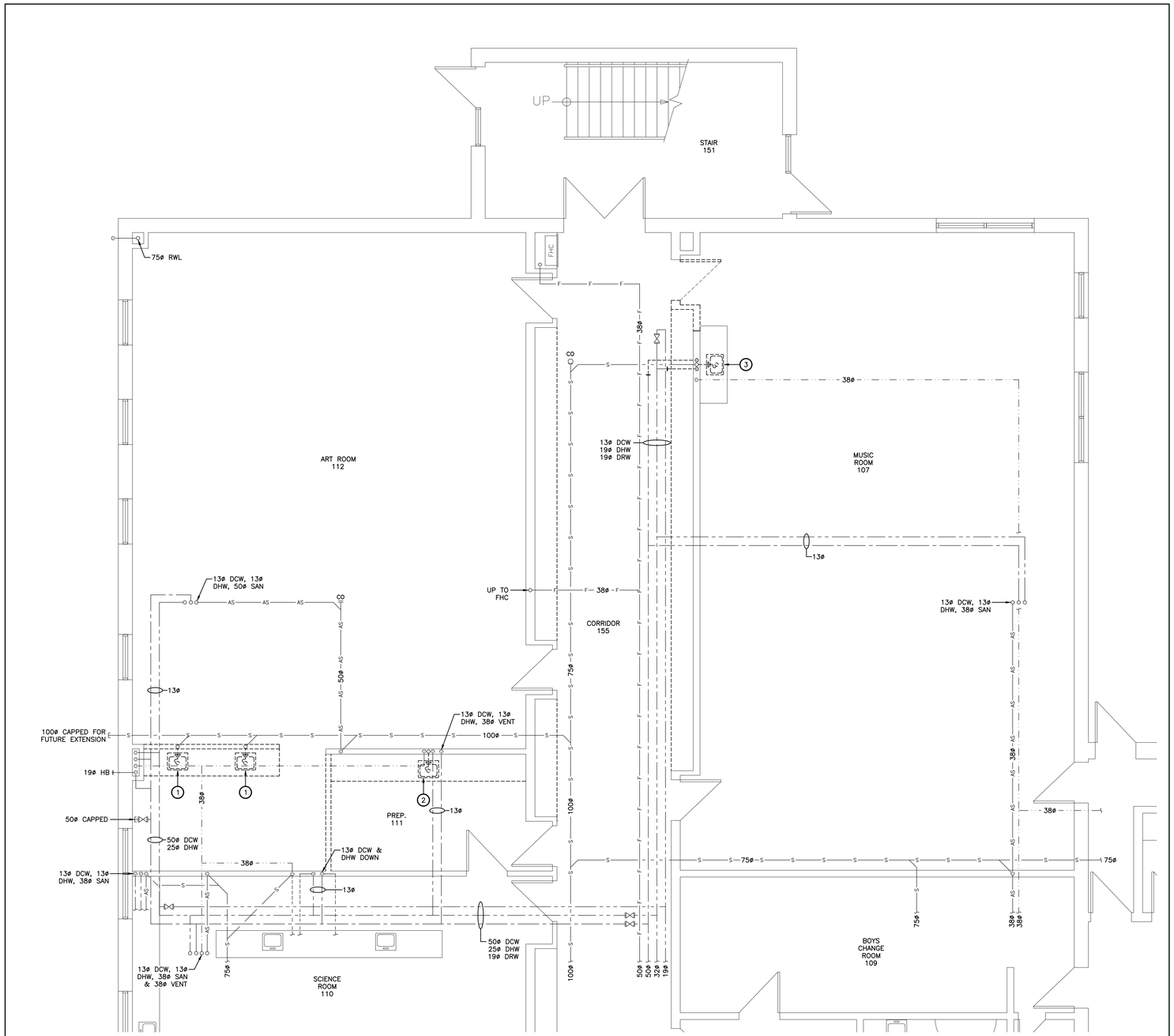
GENERAL DEMOLITION PLUMBING NOTES:

1. THE CONTRACTOR SHALL ALLOW FOR DETAILED SITE INVESTIGATION TO CONFIRM ALL SERVICES PRIOR TO CONSTRUCTION AND REPORT ANY DISCREPANCIES TO THE ENGINEER.
2. SCOPE/CAMERA EXISTING UNDERGROUND SANITARY PIPING THROUGH WORK AREA TO CONFIRM CONDITION OF PIPE, ROUTING AND INVERTS. SUBMIT REPORT AND VIDEO ON USB.
3. SCAN FLOOR PRIOR TO FLOOR CUTS AND UNDERGROUND PIPING INSTALLATION.
4. DISCONNECT AND REMOVE ALL REDUNDANT EQUIPMENT, FIXTURES, PIPING AND OTHER REDUNDANT SERVICES THROUGHOUT AREA OF WORK.
5. ABANDON ANY REDUNDANT UNDERGROUND SERVICES AND CAP FLUSH WITH FLOOR. REMOVE REDUNDANT UNDERGROUND SERVICES WHERE REQUIRED TO SUIT NEW UNDERGROUND SERVICES.
6. REMOVE OBSOLETE ABOVEGROUND SERVICES BACK TO SOURCE/MAINS AND CAP.
7. ANY REDUNDANT RISERS CAN REMAIN WITHIN EXISTING WALLS (WHERE WALLS ARE SCHEDULED TO REMAIN) BUT SERVICES SHALL BE CUT AND CAPPED WITHIN WALL SO FACE OF WALL CAN BE PATCHED AND FINISHED SMOOTH.
8. MAINTAIN VENT PIPING FOR REUSE WHERE POSSIBLE AND REMOVE ANY REDUNDANT.

WORKING NOTES:

1. REMOVE EXISTING SINKS AND ALL PIPING IN MILLWORK. CAP EXISTING DCW & DHW IN CHASE. 19ø DCW DOWN TO HOSEBIBB TO REMAIN. CAP EXISTING SANITARY SERVICES BELOW FLOOR.
2. REMOVE EXISTING SINK. EXISTING DCW & DHW TO REMAIN FOR REUSE. CAP SANITARY SERVICES IN WALL.
3. REMOVE EXISTING SINK AND CAP ALL SERVICES IN WALL. CUT BACK IN CORRIDOR CEILING AND PROVIDE BALL VALVE AND CAP AT MAIN.



NEW CHILDCARE AREA - DEMO PLUMBING LAYOUT

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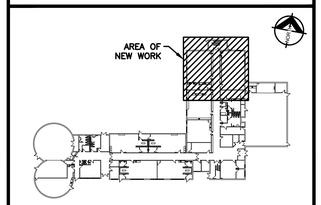

KEY PLAN - GROUND FLOOR

No.	Date	Revision
-	-	-

Date	Issue
21-01-08	ISSUED FOR PERMIT & TENDER
20-12-18	ISSUED FOR COORDINATION

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DES JOB No.: 20-419 DWG SIZE: D

Project

GLENGROVE PUBLIC SCHOOL CHILDCARE RENOVATION

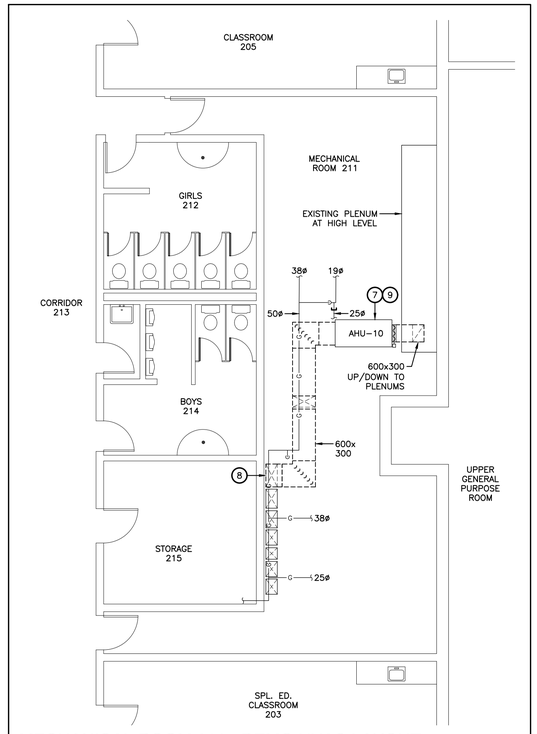
DURHAM DISTRICT SCHOOL BOARD
TENDER NO. T20-62

Pickering Ontario

Sheet Title

DEMO PLUMBING LAYOUT

Drawn	MRC
Checked	BRT
Scale	AS NOTED
Project No.	18042
Sheet No.	M101



MECHANICAL ROOM 211 - DEMO HVAC LAYOUT

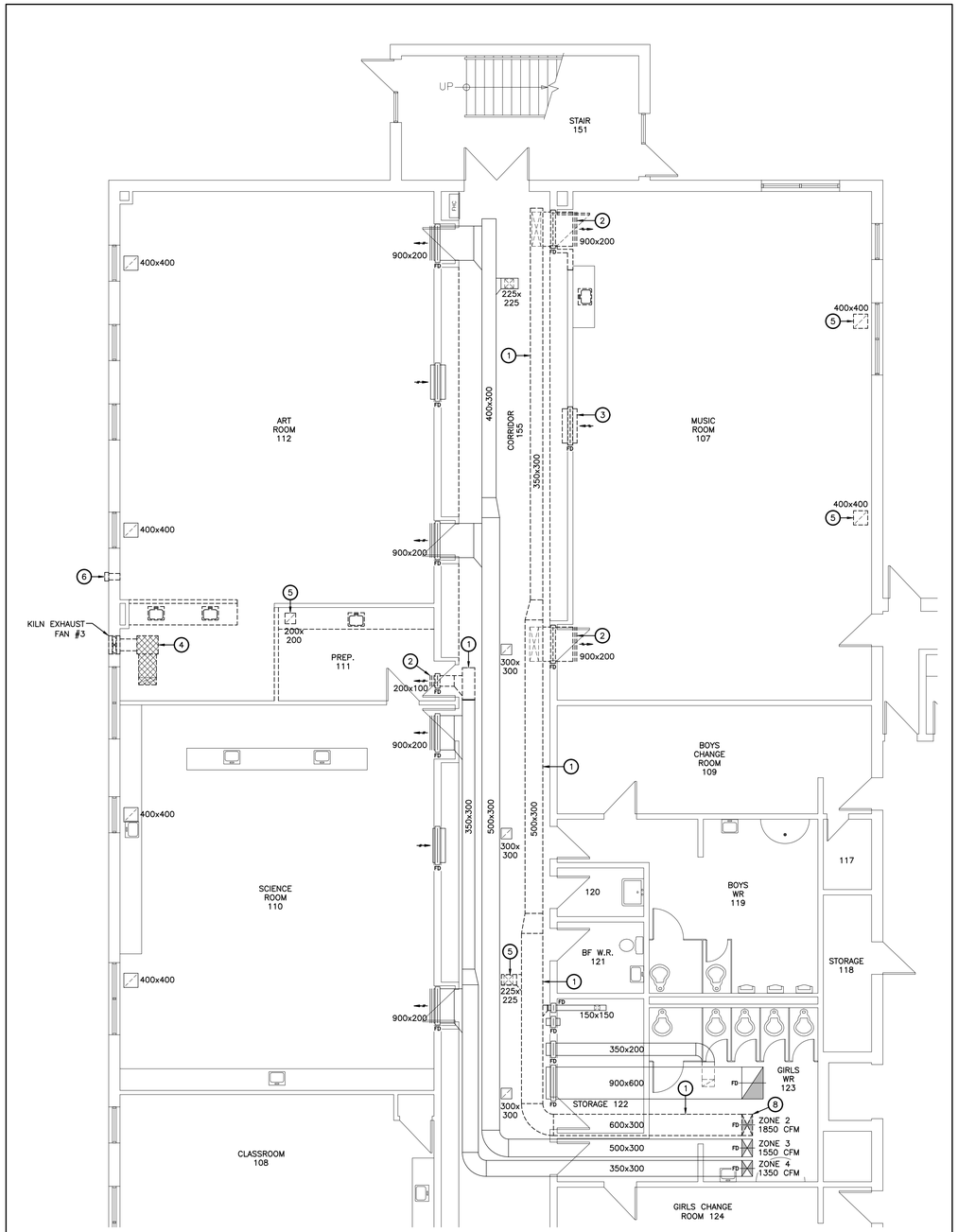
1:75

GENERAL DEMOLITION HVAC NOTES:

1. THE CONTRACTOR SHALL ALLOW FOR DETAILED SITE INVESTIGATION TO CONFIRM ALL SERVICES PRIOR TO CONSTRUCTION AND REPORT ANY DISCREPANCIES TO THE ENGINEER.
2. DISCONNECT AND REMOVE ALL REDUNDANT EQUIPMENT, FIXTURES, DUCTWORK, PIPING AND OTHER REDUNDANT SERVICES THROUGHOUT AREA OF WORK.
3. ABANDON ANY UNDERGROUND SERVICES AND CAP FLUSH WITH FLOOR. REMOVE UNDERGROUND SERVICES WHERE REQUIRED TO SUIT NEW UNDERGROUND SERVICES.
4. REMOVE OBSOLETE ABOVEGROUND SERVICES BACK TO SOURCE/MAINS AND CAP.
5. COORDINATE WITH GENERAL CONTRACTOR TO ENSURE ANY COMBUSTIBLE MATERIAL IS REMOVED FROM CEILING PLENUM PRIOR TO COMPLETION OF CONSTRUCTION.
6. TEMPORARILY SEAL ALL OPEN DUCTS THROUGHOUT CONSTRUCTION TO PREVENT DUST AND DIRT FROM ENTERING THE SYSTEM. WHERE THE CONTRACTOR DOES NOT CONFORM THEY ARE RESPONSIBLE FOR CLEANING OF THE SYSTEMS IN A MANNER APPROVED BY THE CONSULTANT.

WORKING NOTES:

1. REMOVE EXISTING S/A DUCT IN CORRIDOR AS SHOWN.
2. REMOVE EXISTING GRILLE, DAMPER, FIRE DAMPER AND SLEEVE. COORDINATE WALL PATCHING WITH GENERAL CONTRACTOR.
3. REMOVE EXISTING FIRE DAMPER AND SLEEVE. COORDINATE WALL PATCHING WITH GENERAL CONTRACTOR.
4. REMOVE EXISTING EXHAUST FAN C/W ALL ASSOCIATED DUCTWORK, DAMPERS AND ACCESSORIES. REMOVE EXISTING LOUVER AT WALL PENETRATION.
5. REMOVE EXISTING CEILING GRILLE C/W ELBOW.
6. REMOVE EXISTING VENT THROUGH WALL FROM OLD KILN (KILN HAS SINCE BEEN REMOVED).
7. REMOVE S/A DUCTWORK FROM AHU-10. REMOVE O/A & R/A DUCTWORK AND CAP AT COMMON PLENUM FOR UNIT BELOW. REMOVE ALL VENTING PIPING. REMOVE GAS PIPING BACK TO ISOLATION VALVE AND CAP. UNIT TO REMAIN ABANDONED IN PLACE ON EXISTING STAND.
8. CLOSE FIRE DAMPER LINKAGE AND CAP BOTH SIDES.
9. REMOVE ALL CONTROLS AND CONTROL WIRING FROM AHU-10. TURN OVER REMOVED DEVICES TO DDSB.



NEW CHILDCARE AREA - DEMO HVAC LAYOUT

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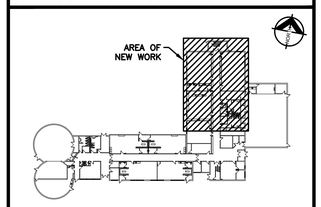
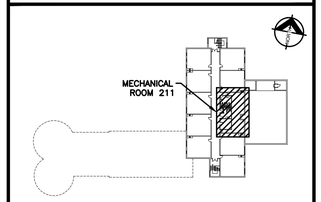


KEY PLAN - GROUND FLOOR



KEY PLAN - SECOND FLOOR

No.	Date	Revision
-	-	-

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DES JOB No.: 20-419 DWG SIZE: D

Project

GLENGROVE PUBLIC SCHOOL CHILDCARE RENOVATION

DURHAM DISTRICT SCHOOL BOARD
TENDER NO. T20-62

Pickering Ontario

Sheet Title

DEMO HVAC LAYOUT

Drawn	MRC
Checked	BRT
Scale	AS NOTED
Project No.	18042
Sheet No.	M102

GENERAL NEW PLUMBING NOTES:

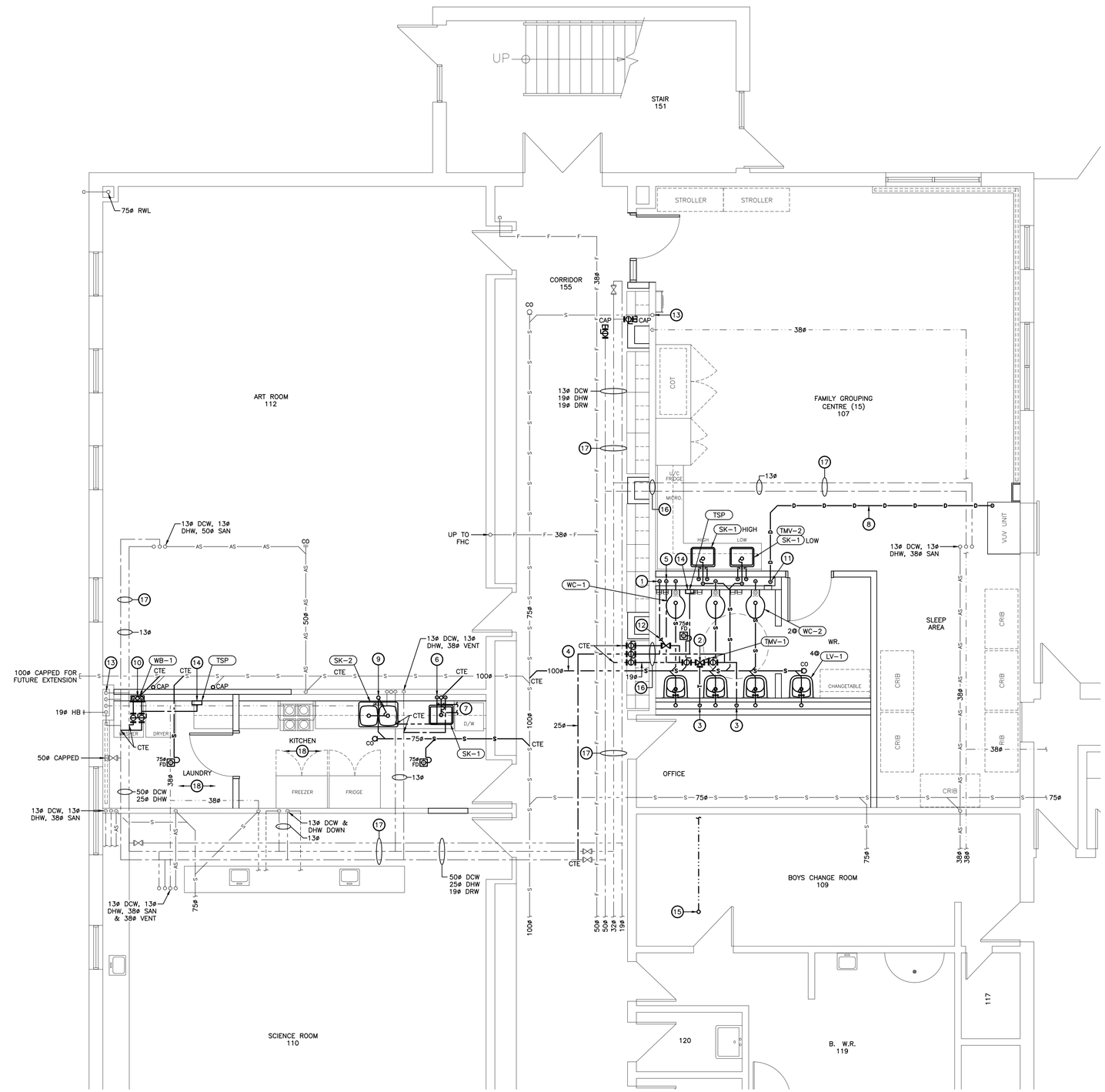
1. THE CONTRACTOR SHALL INVESTIGATE AND CONFIRM SERVICES ON SITE PRIOR TO CONSTRUCTION AND REPORT ANY DISCREPANCIES TO CONSULTANT.
2. SCAN FLOOR PRIOR TO FLOOR CUTS AND UNDERGROUND PIPING INSTALLATION.
3. REFER TO ARCHITECTURAL DRAWINGS AND/OR GENERAL CONTRACTOR FOR CEILING HEIGHTS TO ENSURE ALL SERVICES ARE CONCEALED WITHIN AVAILABLE CEILING SPACE. RUN ALL NEW SERVICES UP IN JOIST SPACE AND BETWEEN LIGHTS AS NOTED OR AS REQUIRED.
4. PREPARE INTERFERENCE DRAWINGS AND COORDINATE ALL SERVICES WITH ALL TRADES PRIOR TO INSTALLATION.
5. COVER ALL FLOOR DRAINS DURING CONSTRUCTION TO PREVENT DEBRIS FROM FALLING IN DRAINS OR GROUT BEING POURED DOWN DRAINS.
6. PROVIDE NEW PLUMBING VENTS THROUGH SECOND FLOOR AND THROUGH ROOF AS REQUIRED OR TIE INTO EXISTING WHERE POSSIBLE.
7. INSULATE AND LABEL ALL NEW PIPING WITHIN CEILING SPACE IN AREA OF WORK. PROVIDE LABELS ON ALL EXISTING PIPING.
8. FIRE STOP ALL EXISTING AND NEW PIPING THROUGH RATED WALLS IN AREA OF WORK.
9. SUPPLY ACCESS DOORS FOR MECHANICAL DEVICES CONCEALED BEHIND OR ABOVE DRYWALL AND TURN OVER TO GENERAL CONTRACTOR FOR INSTALLATION.
10. LABEL CEILING GRID AT ACCESS TO MECHANICAL EQUIPMENT AND DEVICES WITH LAMACOID NAMEPLATE.
11. THE CONTRACTOR SHALL FLUSH, SCOPE, AND PROVIDE VIDEO INSPECTION OF THE SANITARY SYSTEM AFTER COMPLETION OF WORK AND PRIOR TO SUBSTANTIAL COMPLETION. FLUSHING, SCOPING AND VIDEO SHALL INCLUDE AREA OF WORK TO WHERE IT TIES INTO THE MAIN. SUBMIT REPORT AND VIDEO ON USB.

WORKING NOTES:

1. 25ø DCW DOWN IN CHASE TO FEED ALL NEW TOILETS (x3) AND SINKS (x2).
2. PROVIDE NEW TMV IN CEILING SPACE IN ACCESSIBLE AREA. PROVIDE 19ø DCW & DHW AND 19ø DTW FROM TMV. LABEL CEILING GRID FOR TMV ACCESS WITH LAMACOID NAMEPLATE OR PERMANENT ADHESIVE LABEL.
3. 19ø DTW & DCW DOWN IN CHASE TO NEW LAVs(x4). COORDINATE LAV MOUNTING HEIGHT WITH ARCHITECTURAL DRAWINGS.
4. NEW 100ø UNDERGROUND SANITARY PIPING. CONNECT TO EXISTING UNDERGROUND SANITARY PIPING.
5. 13ø DCW & DHW DOWN IN CHASE TO NEW SINKS. COORDINATE SINK HEIGHTS IN MILLWORK WITH ARCHITECTURAL DRAWINGS.
6. 13ø DCW & 19ø DHW DOWN IN WALL TO NEW SK–1 & DISHWASHER.
7. PROVIDE 19ø DHW TO DISHWASHER C/W DEDICATED SHUT–OFF VALVE. TIE SANITARY UPSTREAM OF SINK TRAP.
8. PUMPED CONDENSATE THROUGH CEILING FROM VUV TO NEW CHASE WALL.
9. CONNECT NEW SINK TO EXISTING DCW & DHW SERVICES IN WALL. RUN NEW SANITARY DOWN IN CHASE WALL AND PROVIDE NEW UNDERGROUND SANITARY PIPING.
10. 13ø DCW & DHW DOWN TO WASHER BOX.
11. PROVIDE HUB DRAIN IN CHASE FOR INDIRECT DRAIN CONNECTION. LABEL DOOR WITH NOTE INDICATING CONCEALED INDIRECT DRAIN CONNECTION.
12. PROVIDE NEW 13ø LEAD FREE CBV AND BALANCE TO 0.5 gpm. CBV TO BE IMI TA BBV LF OR 76X SERIES. NO ALTERNATES ACCEPTED.
13. CAP ABANDONED SERVICES IN WALL.
14. PROVIDE TRAP SEAL PRIMER MOUNTED IN CEILING SPACE.
15. ALLOW FOR NEW VENT TO RUN UP THROUGH SECOND FLOOR AND UP THROUGH MECHANICAL ROOM TO ROOF. COORDINATE ROOFING WITH GENERAL CONTRACTOR.
16. FIRE STOP PIPING AT PENETRATION OF CORRIDOR WALL (BOTH SIDES).
17. PROVIDE LABELS ON EXISTING PIPING.
18. FIRE STOP ALL PIPING AT PENETRATION OF KITCHEN AND LAUNDRY ROOM WALLS (BOTH SIDES)

TYPICAL PLUMBING PIPE SIZING

	DCW	DHW	DTW	SANITARY	VENT
WC (TANK TYPE)	13ø	––	––	75ø	38ø
LAVATORY	––	––	13ø	32ø	32ø
SINK	13ø	13ø	13ø	38ø	32ø
CLOTHES WASHER	13ø	13ø	––	38ø	32ø
DISHWASHER	––	19ø	––	TIE INTO SINK	––
HOSEBIBB	19ø	––	––	––	––
75ø FD	––	––	––	75ø	38ø
100ø FD	––	––	––	100ø	38ø
PROVIDE ISOLATION VALVES AT ALL FIXTURES					



NEW CHILDCARE AREA - NEW PLUMBING LAYOUT

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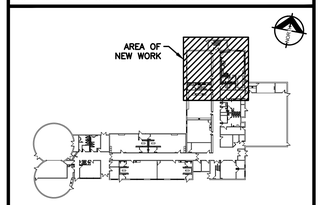

KEY PLAN - GROUND FLOOR

No.	Date	Revision
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DES JOB No.: 20–419 DWG SIZE: D

Project

GLENGROVE PUBLIC SCHOOL CHILDCARE RENOVATION

DURHAM DISTRICT SCHOOL BOARD
TENDER NO. T20-62

Pickering Ontario

Sheet Title

NEW PLUMBING LAYOUT

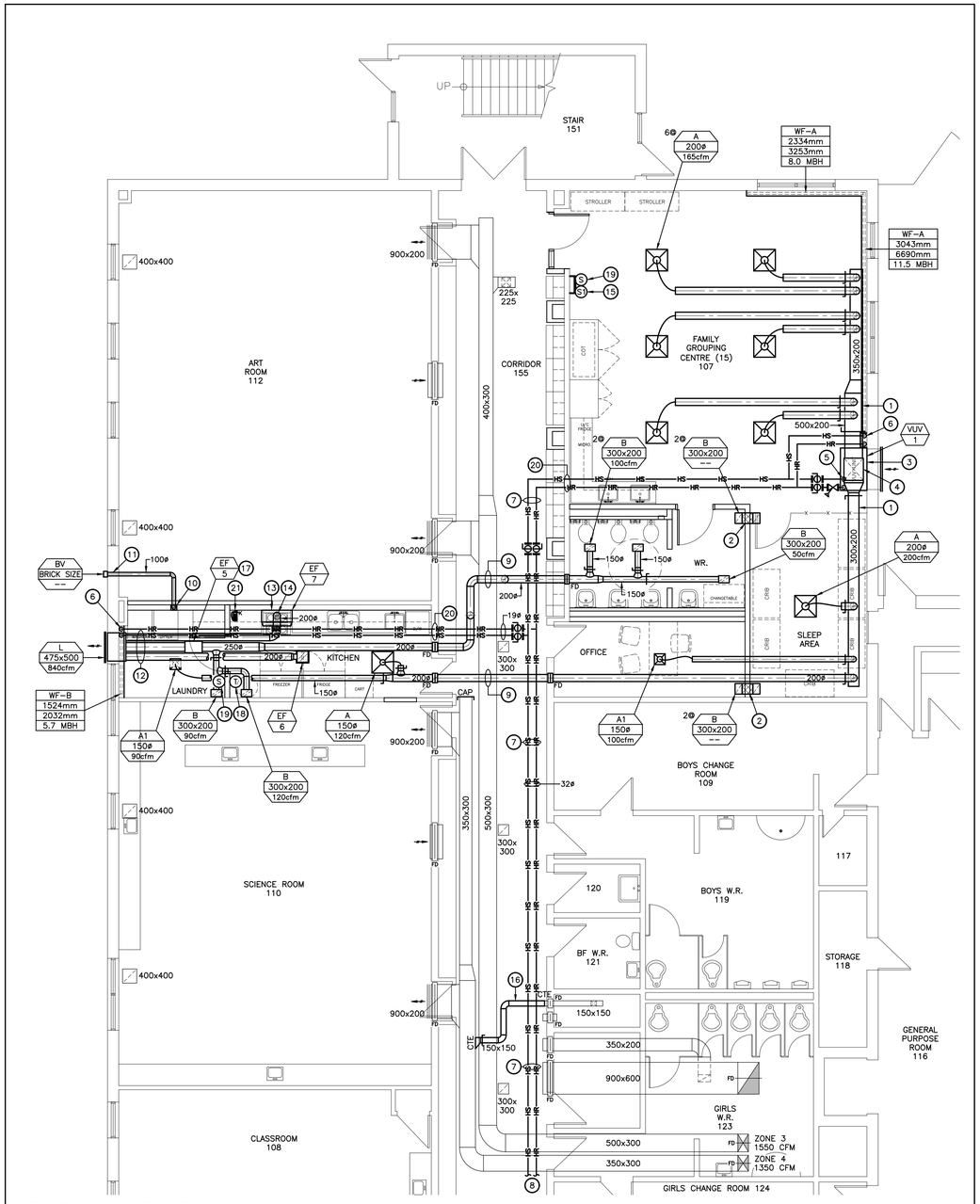
Drawn	MRC	Sheet No.
Checked	BRT	M201
Scale	AS NOTED	
Project No.	18042	

GENERAL NEW HVAC NOTES:

1. THE CONTRACTOR SHALL INVESTIGATE AND CONFIRM SERVICES ON SITE PRIOR TO CONSTRUCTION AND REPORT ANY DISCREPANCIES TO CONSULTANT.
2. REFER TO ARCHITECTURAL DRAWINGS AND/OR GENERAL CONTRACTOR FOR CEILING HEIGHTS TO ENSURE ALL SERVICES ARE CONCEALED WITHIN AVAILABLE CEILING SPACE. RUN ALL NEW SERVICES UP IN JOIST SPACE AND BETWEEN LIGHTS AS NOTED OR AS REQUIRED.
3. PREPARE INTERFERENCE DRAWINGS AND COORDINATE ALL SERVICES WITH ALL TRADES PRIOR TO INSTALLATION.
4. INSULATE AND LABEL ALL NEW PIPING WITHIN CEILING SPACE IN AREA OF WORK.
5. THERMALLY INSULATE ALL SUPPLY AIR DUCTWORK INCLUDING RIGID AND FLEXIBLE DUCT, AND ALL EXHAUST AIR DUCT 2.4m BACK FROM EXTERIOR WALL.
6. FIRE STOP ALL NEW PIPING THROUGH RATED WALLS IN AREA OF WORK.
7. SUPPLY ACCESS DOORS FOR MECHANICAL DEVICES CONCEALED BEHIND OR ABOVE DRYWALL AND TURN OVER TO GENERAL CONTRACTOR FOR INSTALLATION.
8. INCLUDE FOR THE SUPPLY AND INSTALLATION OF TWO(2) EXTRA BALANCE DAMPERS AFTER CONSTRUCTION AND BALANCING COMPLETION. (PENDING BALANCING RESULTS AND COMMENTS).
9. ELECTRICAL CONTRACTOR TO PROVIDE BACK BOX, CONDUIT AND PULL STRING FOR WALL SENSORS. COORDINATE WITH ELECTRICAL.
10. LABEL CEILING GRID AT ACCESS TO MECHANICAL EQUIPMENT AND DEVICES WITH LAMACOID NAMEPLATE.
11. TEMPORARILY SEAL ALL OPEN DUCTS THROUGHOUT CONSTRUCTION TO PREVENT DUST AND DIRT FROM ENTERING THE SYSTEM. WHERE THE CONTRACTOR DOES NOT CONFORM THEY ARE RESPONSIBLE FOR CLEANING OF THE SYSTEMS IN A MANNER APPROVED BY THE CONSULTANT.

HVAC WORKING NOTES:

1. RUN NEW S/A DUCTS FROM VUV UP TIGHT AGAINST JOISTS. RUN BRANCH DUCTS TO DIFFUSERS UP IN JOISTS AS REQUIRED AND PROVIDE OFFSETS AS NEEDED WITH SMOOTH 45° BENDS.
2. 300x200 ACOUSTICALLY LINED TRANSFER GRILLES AND ELBOW. REFER TO DETAIL.
3. PROVIDE NEW VUV. PROVIDE NEW SLEEVE THROUGH WALL AND LOUVER (SUPPLIED BY VUV MANUFACTURER). COORDINATE WITH GENERAL CONTRACTOR FOR OPENING THROUGH WALL, LINTEL AND WEATHER SEALING AROUND NEW LOUVER AND SLEEVE TO MAINTAIN BUILDING ENVELOPE VAPOUR BARRIER. REFER TO DETAIL.
4. ACOUSTICALLY LINED 500x350 S/A DUCT UP FROM VUV.
5. 25ø HS & HR DOWN TO VUV C/W ISOLATION VALVES AND 25ø CBV IN CEILING SPACE. CIRC PUMP SUPPLIED WITH VUV.
6. 19ø HS & HR DOWN IN NEW CHASE TO NEW WALLFIN C/W VALVES AND ACCESSORIES IN CEILING SPACE. REFER TO DETAIL.
7. NEW 32ø HS & HR IN CORIDOR CEILING. PROVIDE INSULATION AND LABELS.
8. REFER TO DRAWING M302 FOR CONTINUATION OF PIPING.
9. OFFSET 200ø DUCT OVER EXISTING S/A DUCT IN CORRIDOR AS REQUIRED C/W SMOOTH 45° ELBOWS.
10. PROVIDE RECESSED LINT TRAP ON RISER OF DRYER VENT. MOUNT ABOVE DRYER IN NEW CHASE WALL. REFER TO MATERIAL SPECIFICATIONS FOR MAKE AND MODEL.
11. 100ø SMOOTH RIGID DUCT DRYER VENT THROUGH EXISTING OPENING IN OUTSIDE WALL C/W EXHAUST HOOD. REFER TO MATERIAL SPECIFICATIONS FOR APPROVED VENTING.
12. 350x200 & 2x 200ø E/A DUCTS INTO COMMON INSULATED PLENUM. INSULATE LAST 2.4m(8') OF E/A DUCTS BACK FROM WALL. DISCHARGE THROUGH OUTSIDE WALL TO NEW LOUVER.
13. PROVIDE NEW RANGE HOOD C/W GUARDIAN 300B SUPPRESSION SYSTEM. REFER TO SPECIFICATIONS.
14. 200ø E/A UP FROM RANGE HOOD TO OUTSIDE WALL.
15. OBTAIN VUV SENSOR FROM UNIT MANUFACTURER AND MOUNT IN NEW CONTROL PANEL.
16. PROVIDE NEW 150x150 S/A DUCTWORK AND CONNECT TO EXISTING DUCT SERVING BARRIER FREE WASHROOM 121. PROVIDE ACCESS DOOR FOR FIRE DAMPER. BALANCE DIFFUSER TO 150 CFM.
17. NEW INLINE EXHAUST FAN SUSPENDED IN CEILING SPACE C/W ISOLATORS.
18. NEW THERMOSTAT FOR TEMPERATURE CONTROL OF EXHAUST FAN. SUPPLIED BY DDSB AND INSTALLED BY ELECTRICAL CONTRACTOR.
19. NEW BAS SPACE SENSOR BY CONTROLS CONTRACTOR.
20. FIRE STOP PIPING AT CORRIDOR WALL PENETRATION (BOTH SIDES).
21. PROVIDE TYPE 'K' FIRE EXTINGUISHER AND MOUNT ON WALL. CONFIRM EXACT LOCATION WITH GENERAL CONTRACTOR AND ARCHITECT.



NEW CHILDCARE AREA - NEW HVAC LAYOUT

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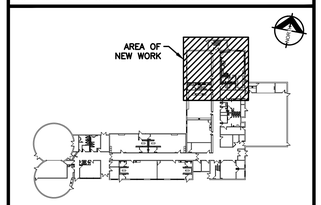

KEY PLAN - GROUND FLOOR

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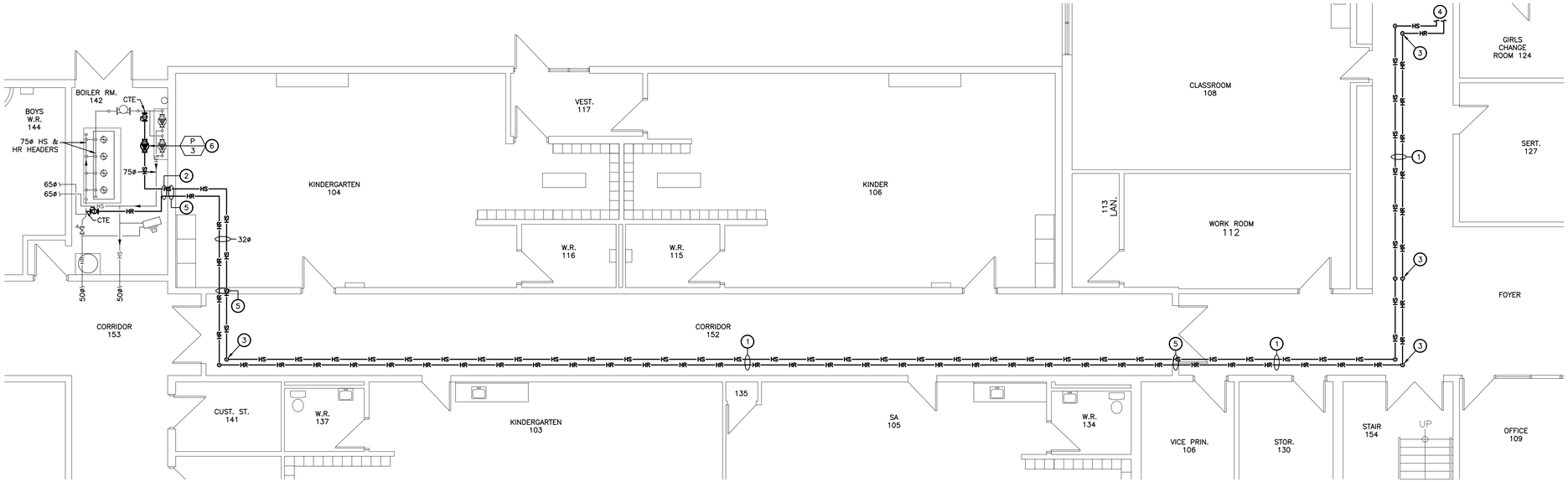
DURHAM DISTRICT SCHOOL BOARD
TENDER NO. T20-62

Pickering Ontario

Sheet Title

NEW HVAC LAYOUT

Drawn	MRC
Checked	BRT
Scale	AS NOTED
Project No.	18042
Sheet No.	M301



PARTIAL FIRST FLOOR PLAN - NEW HEATING PIPING LAYOUT

1:75

HEATING PIPING WORKING NOTES:

1. NEW 32ø HS & HR IN CORIDOR CEILING. PROVIDE INSULATION AND LABELS.
2. TIE NEW HS & HR INTO EXISTING 75ø MAINS IN BOILER ROOM. PROVIDE ISOLATION VALVES AT NEW CONNECTIONS IN BOILER ROOM AND BALANCE TO 8.5GPM.
3. OFFSET NEW HS & HR OVER EXISTING PIPING AND DUCTWORK IN CORRIDOR CEILING.
4. REFER TO DRAWING M301 FOR CONTINUATION.
5. FIRE STOP HEATING PIPING THROUGH FIRE SEPARATION (BOTH SIDES OF WALL).
6. PROVIDE NEW CIRCULATION PUMP C/W VALVES AND ACCESSORIES. REFER TO DETAIL.

GENERAL NEW HVAC NOTES:

1. THE CONTRACTOR SHALL INVESTIGATE AND CONFIRM SERVICES ON SITE PRIOR TO CONSTRUCTION AND REPORT ANY DISCREPANCIES TO CONSULTANT.
2. ENSURE ALL SERVICES ARE CONCEALED WITHIN AVAILABLE CEILING SPACE. RUN ALL NEW SERVICES UP IN JOIST SPACE AS REQUIRED.
3. PREPARE INTERFERENCE DRAWINGS AND COORDINATE ALL SERVICES WITH ALL TRADES PRIOR TO INSTALLATION.
4. INSULATE AND LABEL ALL NEW PIPING. PROVIDE PVC JACKET ON PIPING IN BOILER ROOM.
5. FIRE STOP ALL NEW PIPING THROUGH RATED WALLS IN AREA OF WORK.
6. LABEL CEILING GRID AT ACCESS TO MECHANICAL EQUIPMENT AND DEVICES WITH LAMACOID NAMEPLATE.

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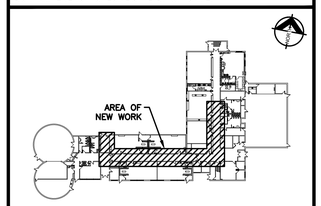

KEY PLAN - GROUND FLOOR

No.	Date	Revision
-	-	-

Date	Issue
21-01-08	ISSUED FOR PERMIT & TENDER

THE CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL FIELD DIMENSIONS AND SHALL NOTIFY THE ARCHITECT OF ANY SITE CONDITIONS OR FIELD DIMENSIONS WHICH MAY BE AT VARIANCE WITH THE DRAWINGS.

THIS DRAWING IS NOT TO BE SCALED.

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DES JOB No.: 20-419 DWG SIZE: D

Project

GLENGROVE PUBLIC SCHOOL CHILDCARE RENOVATION

DURHAM DISTRICT SCHOOL BOARD
TENDER NO. T20-62

Pickering Ontario

Sheet Title
PARTIAL FIRST FLOOR PLAN
NEW HEATING PIPING LAYOUT

Drawn	MRC
Checked	BRT
Scale	AS NOTED
Project No.	18042
Sheet No.	M302

PLUMBING NOTES:

1. PROVIDE BEFORE AND AFTER SCOPING/FLUSHING.
2. PROVIDE CLEANOUTS AS REQUIRED BY CODE. SIZE OF CLEANOUTS TO BE SAME SIZE AS SANITARY LINES.
3. PROVIDE ALL TRENCHING, EXCAVATING AND BACKFILL FOR UNDERGROUND PLUMBING. ALL SAW CUTTING AND RESTORATION OF CONCRETE FLOOR IS BY GENERAL CONTRACTOR. COORDINATE WITH SAME.
4. PROVIDE NEW PLUMBING VENTS THROUGH SECOND FLOOR AND THROUGH ROOF AS REQUIRED BY CODE OR TIE INTO EXISTING WHERE POSSIBLE. SUPPLY AND INSTALL ROOF VENTS AS PER SPECIFICATIONS. ALL ROOFING WORK INCLUDING CUTTING, FLASHING AND MODIFICATIONS TO ROOF MEMBRANE SHALL BE BY GENERAL CONTRACTOR. COORDINATE WITH SAME.
5. PROVIDE ISOLATION VALVES AT ALL FIXTURES.
6. INSULATE ALL NEW DOMESTIC HOT, COLD AND TEMPERED WATER PIPING WITH 1"(25mm) INSULATION. PROVIDE PVC JACKET OVER INSULATION IN EXPOSED AREAS.
7. ALL NEW HOSEBIBBS TO BE COMPLETE WITH VACUUM BREAKERS. OUTDOOR HOSEBIBBS TO BE COMPLETE WITH LOCKING COVER.
8. PROVIDE BALANCING VALVES AT START OF EACH BRANCH OF ALL HOT OR TEMPERED WATER RECIRCULATION LOOPS.
9. PROVIDE SLEEVES FOR PIPES THROUGH ALL NEW BLOCK WALLS. FILL VOIDS AROUND PIPES. ENSURE NO CONTACT BETWEEN DISSIMILAR METALS.
10. PROVIDE FIRE STOPPING AROUND ALL PIPING THROUGH FIRE SEPARATIONS.
11. COORDINATE EXACT LOCATION OF NEW FLOOR DRAINS WITH GENERAL CONTRACTOR TO SUIT FLOOR SLOPE.
12. PROVIDE TRAP SEAL PRIMER FOR ALL FLOOR DRAINS USING PRIMER SPECIFIED IN PLUMBING FIXTURE SCHEDULE. PRIMERS SHALL BE CONCEALED. MOUNT IN CEILING SPACE AND RUN LINE CONCEALED DOWN WALL AND UNDER FLOOR TO DRAIN.
13. PROVIDE CONDENSATE DRAINS C/W TRAPS FOR NEW INDOOR AIR HANDLING EQUIPMENT AND RUN TO CLOSEST PLUMBING DRAIN WITH INDIRECT DRAIN CONNECTION IN A VISIBLE AND ACCESSIBLE LOCATION.
14. LABEL ALL EXISTING AND NEW PIPING IN AREAS OF WORK COMPLETE WITH SERVICE AND FLOW ARROWS. LABELS SHALL BE MAX 3m(10') SPACING AND ON EITHER SIDE OF WALLS.
15. SUPPLY ACCESS DOORS WHERE REQUIRED AND TURN OVER TO GENERAL CONTRACTOR FOR INSTALLATION. REFER TO PLUMBING FIXTURE SCHEDULE.
16. PROVIDE ESCUTCHEONS AROUND WATER AND SANITARY PIPING THROUGH WALL, FLOOR OR MILLWORK AT ALL FIXTURES.
17. LABEL CEILING GRID AT ACCESS TO ALL DEVICES.
18. FLUSH AND PERFORM A VIDEO INSPECTION OF ALL UNDERGROUND PIPING SYSTEMS AFTER CONSTRUCTION AND IMMEDIATELY PRIOR TO APPLYING FOR SUBSTANTIAL COMPLETION.
19. PERFORM DOMESTIC WATER QUALITY TEST AFTER ALL NEW PLUMBING WORK. SUBMIT CERTIFICATE OF ANALYSIS FROM CERTIFIED TESTING AGENCY TO CONSULTANT AND INCLUSION IN CLOSEOUT DOCUMENTATION.

PLUMBING SPECIFICATIONS:

1. ALL PLUMBING PRODUCTS SHALL BE "LEAD–FREE" CERTIFIED TO ANSI/NSF 372.
2. ALL NEW ABOVE GROUND WATER PIPING SHALL BE TYPE 'L' HARD COPPER WITH SOLDER JOINTS. VICTAULIC FITTINGS ARE ACCEPTABLE FOR SIZES 2.5" AND OVER.
3. DRAINAGE SYSTEM (ABOVE GROUND):
   - .1 2–1/2"(63mm) AND OVER – CAST IRON MJ PIPE WITH MJ FITTINGS AND STAINLESS STEEL CLAMPS.
   - .2 2"(50mm) AND UNDER – COPPER DWV PIPE WITH WROUGHT COPPER SOLDER FITTINGS.
4. DRAINAGE SYSTEM (UNDERGROUND):
   - .1 PIPE UP TO AND INCLUDING 75mm(3") SHALL BE:
     - .1 ULC CERTIFIED PVC 40 DWV PIPE TO CAN/CSA B181.2 COMPLETE WITH PVC DWV FITTINGS TO CAN/CSA B181.2 WITH SOLVENT WELD JOINT.
   - .2 PIPE 75mm(3") UP TO AND INCLUDING 100mm(4") SHALL BE:
     - .1 ULC CERTIFIED PVC 40 DWV PIPE TO CAN/CSA B181.2 COMPLETE WITH PVC DWV FITTINGS TO CAN/CSA B181.2 WITH SOLVENT WELD JOINT, OR
     - .2 ULC CERTIFIED PVC SDR 28/35 BDS PIPE TO CAN/CSA B182.1 COMPLETE WITH PVC BDS FITTINGS TO CAN/CSA B182.2 WITH SOLVENT WELD JOINTS.
   - .3 PIPE 150mm(6") AND UP SHALL BE:
     - .1 ULC CERTIFIED PVC SDR 28/35 SEWER PIPE TO CAN/CSA B182.2 COMPLETE WITH PVC FITTINGS TO CAN/CSA B182.2 WITH RING GASKET JOINTS.
5. CONDENSATE PIPING SHALL BE COPPER C/W 1"(25mm) INSULATION. PLASTIC TUBING OR PIPE IS NOT ACCEPTABLE.
6. VENTS PASSING THROUGH ROOF SHALL USE HEAVY GAUGE, SEAMLESS, SPUN ALUMINUM PRE–INSULATED, VANDAL PROOF VENT FLASHING AS SUPPLIED BY NATIONAL ROOFING SUPPLY OR THALER METAL.
7. ALL NEW PIPE HANGERS SHALL BE:
   - .1 EPOXY COATED CLEVIS TYPE WITH THREADED SUSPENSION RODS WHERE HANGER DIRECTLY TOUCHES PIPING.
   - .2 ADJUSTABLE WROUGHT IRON CLEVIS TYPE AND/OR ADJUSTABLE RING WITH THREADED SUSPENSION RODS WHERE HANGERS WRAP AROUND OUTSIDE OF PIPE INSULATION. PROVIDE SADDLES TO PREVENT CRUSHING OF INSULATION.
   - .3 PIPE HANGER SPACING
     - –SIZES UP TO 1–1/4"(32mm) = 8'(2.5m) SPACING
     - –SIZES 1–1/2"(38mm) TO 2"(50mm) = 10'(3m) SPACING
     - –SIZES 2–1/2"(63mm) AND OVER = 12'(3.5m) SPACING
   - .4 PROVIDE HANGER WITHIN 12"(300mm) OF EVERY ELBOW
8. PROVIDE A SUPPLY SHUT OFF VALVE ON HOT, COLD AND/OR TEMPERED WATER SUPPLY TO EACH FIXTURE. SUPPLY SHUT OFF SHALL BE EQUAL TO MCGUIRE H165. ALL VALVES SHALL BE LINE SIZE.
9. BALL VALVES SHALL BE LEAD FREE WITH SOLDERED OR THREADED ENDS. BALL VALVES SHALL BE EQUAL TO KITZ #858 & #859. ALL VALVES SHALL BE LINE SIZE.
10. CHECK VALVES SHALL BE LEAD FREE. CHECK VALVES 2" AND SMALLER SHALL BE EQUAL TO KITZ #822 & #823 WITH SOLDER OR THREADED ENDS. 2–1/2" AND LARGER CHECK VALVES SHALL BE EQUAL TO KITZ #150UOAM WITH FLANGED ENDS. ALL VALVES SHALL BE LINE SIZE.
11. CIRCUIT BALANCING VALVES SHALL BE LEAD FREE. PROVIDE A CBV ON EACH DOMESTIC RECIRCULATION LOOP. CIRCUIT BALANCING VALVES SHALL BE IMI TA BBV LF OR 76X SERIES (NO ALTERNATES ACCEPTABLE). MOUNT WITH PORTS UPRIGHT OR AT LEAST 90° UP FROM BOTTOM. SUBMIT SHOP DRAWINGS COMPLETE WITH VALVE SIZING SCHEDULE (CBVS MAY BE SMALLER THAN LINE SIZE).
12. FLEXIBLE SUPPLIES ARE NOT ACCEPTABLE FOR FLUSH TANK TOILETS OR ANY EXPOSED INSTALLATION, WHERE SUPPLIES ARE INSTALLED UNDER COUNTER OR BEHIND SHROUDS FLEXIBLE SUPPLIES ARE ACCEPTABLE.
13. REFER TO PLUMBING FIXTURE SPECS INCLUDING FIXTURES, TRAP SEAL PRIMERS, WATER HAMMER ARRESTORS, ACCESS DOORS, ETC.
14. INSULATION:
   - .1 EXTERNAL PIPE INSULATION SHALL BE RIGID, SECTIONAL FIBERGLASS TYPE AND BE COMPLETE WITH FACTORY APPLIED ALL PURPOSE VAPOUR BARRIER. PRE–FORMED INSULATION SHALL BE USED AT PIPE FITTINGS, VALVES, ETC. PROVIDE NON–CRUSHING INSULATION AT ALL PIPE HANGERS AND PROVIDE SADDLES.
   - .2 INSULATE DCW, DHW, DRW AND DTW PIPING.
   - .3 INSULATE VENT LINES 1.5m BACK FROM ROOF.
   - .4 INSULATION THICKNESS: 1"(25mm)
15. ACCESS DOORS/COVERS
   - .1 FLUSH ACCESS DOOR – UNIVERSAL: ACUDOR #UF–5000 UNIVERSAL ACCESS DOORS, 14 GA. (1.7mm) STEEL, BAKED ENAMEL PRIME COAT, CONTINUOUS CONCEALED HINGE, WITH POSITIVE AND SELF–OPENING SCREWDRIVER OPERATED LOCK. DOORS IN WASHROOMS SHALL BE STAINLESS STEEL. ALL OTHER PANELS SHALL BE BAKED ENAMEL PRIME COATED FOR FIELD PAINTING. MINIMUM SIZE OF PANELS SHALL BE 12"x18" (300mmx450mm). WHEREVER POSSIBLE 24"x24" (600mmx600mm) PANELS SHALL BE USED.
   - .2 RECESSED ACCESS DOOR – DRYWALL AREA: ACUDOR #DW–5015 SERIES RECESSED ACCESS DOOR, 16 GA. (1.5mm) STEEL, BAKED ENAMEL PRIME COAT, WITH CONCEALED PIVOTING ROD TYPE HINGE AND SELF–OPENING SCREWDRIVER OPERATED LOCK. DOOR TO BE RECESSED 5/8" (14mm) TO RECEIVE DRYWALL. FLANGE OF DOOR TO BE GALVANIZED STEEL FOR FIELD PAINTING TAPING BEADING TO PROVIDE FINISH OF DRYWALL JOINTS.

GENERAL NOTES:

1. OBTAIN, ARRANGE AND PAY FOR ALL REQUIRED PERMITS AND INSPECTIONS.
2. THE CONTRACTOR AND ITS SUB–TRADES SHALL ATTEND BI–WEEKLY SITE MEETINGS OR AS ARRANGED BY CONSULTANT OR OWNER.
3. OBTAIN AND REVIEW THE DESIGNATED SUBSTANCE REPORT FROM THE CLIENT AND COORDINATE ANY DESIGNATED SUBSTANCE ISSUES WITH THE CLIENT PRIOR TO ANY WORK BEING DONE.
4. PROVIDE SHOP DRAWINGS ELECTRONICALLY IN PDF FORMAT TO CONSULTANT FOR REVIEW. ALL SHOP DRAWINGS MUST BE REVIEWED, STAMPED AND SIGNED BY THE MECHANICAL CONTRACTOR PRIOR TO SUBMITTING TO THE CONSULTANT. REVIEW SHALL INCLUDE BUT NOT BE LIMITED TO: VERIFYING UNIT VOLTAGE WITH ELECTRICIAN AND/OR SITE, EQUIPMENT PERFORMANCE, DIMENSIONS AND CLEARANCES. SUBMIT SHOP DRAWINGS ELECTRONICALLY TO INFO@DURHAMENERGY.COM.
5. THOROUGHLY REVIEW AND COORDINATE WITH SITE CONDITIONS AND COMPLETE DRAWING SET PRIOR TO PRICING AND INSTALLATION.
6. INSTALL ALL WORK IN CONFORMANCE WITH MANUFACTURER'S REQUIREMENTS AND RECOMMENDATIONS.
7. DO NOT USE ANY NEW PERMANENT EQUIPMENT FOR TEMPORARY USE DURING CONSTRUCTION WITHOUT WRITTEN APPROVAL. WHERE SYSTEMS ARE USED AND ARE CONTAMINATED BY DUST OR DIRT, THE CONTRACTOR SHALL CLEAN IN A MANNER ACCEPTABLE TO THE CONSULTANT.
8. MAINTAIN RECORD DRAWINGS ON AN ON–GOING BASIS. DRAWINGS SHALL BE AVAILABLE FOR PERIODIC REVIEW BY THE CONSULTANT DURING CONSTRUCTION.
9. ALL WORK SHALL COMPLY WITH APPLICABLE CODES.
10. REMOVE ALL REDUNDANT EQUIPMENT, MATERIALS AND GARBAGE FROM SITE AND DISPOSE OF IN AN APPROVED MANNER. REDUNDANT EQUIPMENT AND MATERIALS SHALL NOT BE ABANDONED IN PLACE.
11. ALL CUTTING AND CORING SHALL BE BY THIS CONTRACTOR. COORDINATE PATCHING WITH GENERAL CONTRACTOR. TRENCHING, EXCAVATION AND BACKFILL FOR UNDERGROUND PLUMBING SHALL BE BY THIS CONTRACTOR. ALL SAW CUTTING AND RESTORATION OF CONCRETE FLOOR BY GENERAL CONTRACTOR. COORDINATE WITH SAME.
12. COORDINATE ROOFING FOR DUCT AND PIPE ROOF PENETRATIONS WITH GENERAL CONTRACTOR. PROVIDE PITCH POCKETS FOR ALL SERVICES THROUGH ROOF UNLESS SERVICES CAN BE FED THROUGH BASE OF EQUIPMENT.
13. ANY FEED TO NEW ROOFTOP EQUIPMENT SHALL BE INSTALLED WITH GOOSENECK STYLE PITCH POCKET EQUAL TO THALER METAL MEF–2A OR DOGHOUSE. SIZE AS REQUIRED TO SUIT FEED.
14. MAINTAIN REQUIRED ACCESS AND CLEARANCE TO ALL EQUIPMENT AND SYSTEMS AS REQUIRED BY CODE AND AS PER MANUFACTURER'S REQUIREMENTS.
15. TAG ALL EQUIPMENT WITH LAMACOID NAMEPLATES. TAG ALL VALVES WITH LAMACOID NAMEPLATES OR BRASS TAGS ON CHAINS.
16. LABEL ALL EXISTING AND NEW PIPING IN AREA OF WORK WITH SERVICE AND FLOW ARROWS EVERY 10'(3m) AND ON EITHER SIDE OF WALLS.
17. THE CONTRACTOR SHALL ARRANGE FOR INSPECTIONS BY THE ENGINEER PRIOR TO CEILINGS AND WALLS BEING CLOSED IN. WHERE THIS HAS NOT BEEN ARRANGED IT IS THE CONTRACTOR'S RESPONSIBILITY TO REMOVE CEILING TILES OR ACCESS DOORS FOR INSPECTION AT THE DIRECTION OF THE CONSULTANT.
18. PERFORM TESTING AND START UP OF ALL SYSTEMS AS REQUIRED BY CODE, THE CONSULTANT, MANUFACTURER'S REQUIREMENTS, AND AUTHORITIES HAVING JURISDICTION. SUBMIT REPORTS TO THE CONSULTANT.
19. INSTRUCT AND DEMONSTRATE TO THE OWNER ON PROPER OPERATION OF THE SYSTEM. RECORD AND SUBMIT A LOG DATED AND SIGNED BY ALL ATTENDEES.
20. UPON COMPLETION OF THE PROJECT THE CONSULTANT WILL DO A FINAL REVIEW. UPON RECEIVING THE FINAL INSPECTION REPORT, THE CONTRACTOR MUST CORRECT AND SIGN BACK THE INSPECTION REPORT INDICATING ALL DEFICIENCIES ARE COMPLETED. A RE–INSPECTION WILL ONLY BE DONE ONCE THE CONSULTANT RECEIVES THIS IN WRITING. WHERE THE CONSULTANT PERFORMS THE RE–INSPECTION AND THE WORK IS NOT COMPLETE, THE CONTRACTOR IS RESPONSIBLE FOR REIMBURSING THE CONSULTANT FOR THE FIELD REVIEW. THE FEE FOR ADDITIONAL REVIEWS WILL BE AT THE CONSULTANT'S HOURLY RATES PLUS MILEAGE AND APPLICABLE TAXES TO BE PAID DIRECTLY TO THE CONSULTANT PRIOR TO PERFORMING THE NEXT FIELD REVIEW.
21. PROVIDE ONE (1) YEAR WARRANTY ON ALL MATERIAL AND LABOUR FROM THE DATE OF SUBSTANTIAL COMPLETION.
22. PROGRESS DRAWS SHALL INCLUDE MINIMUM $2,500.00 FOR MANUALS AND AS–BUILT DRAWINGS. TOTAL AMOUNT SHALL REMAIN UNBILLED UNTIL MANUALS AND AS–BUILT DRAWINGS HAVE BEEN SUBMITTED AND APPROVED.
23. PROVIDE ONE(1) ELECTRONIC COPY OF MAINTENANCE MANUALS ON USB. MANUAL SHALL INCLUDE:
   - – TABLE OF CONTENTS
   - – CONTRACTOR INFORMATION
   - – WARRANTY LETTER
   - – SHOP DRAWINGS
   - – O&Ms
   - – INSPECTION & TEST REPORTS
   - – AS–BUILT DRAWINGS.

   AS–BUILT DRAWINGS SHALL INCLUDE COMPLETE MECHANICAL DRAWING SET WITH ANY CHANGES MARKED CLEARLY AND NEATLY IN COLOUR. AS–BUILTS SHALL BE STAMPED ACCORDINGLY BY THE CONTRACTOR (ALL DRAWINGS). DRAWINGS SHALL BE SCANNED AND SUBMITTED IN FULL SIZE. HARD COPY SHALL ALSO BE SUBMITTED. SUBSTANTIAL COMPLETION WILL NOT BE AWARDED UNTIL THE MANUALS AND AS–BUILTS HAVE BEEN SUBMITTED TO THE CONSULTANT AND THE CONSULTANT HAS APPROVED.

PLUMBING LEGEND

	NEW
	EXISTING
	DEMOLITION
---AS-----AS---	DEMO ABOVEGROUND SANITARY
	DOMESTIC COLD WATER (DCW)
	DOMESTIC HOT WATER (DHW)
	DOMESTIC HOT WATER RECIRC (DRW)
—T——T—	DOMESTIC TEMPERED WATER LINE (DTW)
—AS——AS—	ABOVEGROUND SANITARY LINE
—S——S—	UNDERGROUND SANITARY LINE
—ST——ST—	ABOVEGROUND STORM LINE
	UNDERGROUND STORM LINE
—D——D—	CONDENSATE DRAIN LINE
	PLUMBING VENT
—F——F—	FIRE PROTECTION LINE
	CLASS 'K' FIRE EXTINGUISHER C/W WALL BRACKET
FD	FLOOR DRAIN / FUNNEL FLOOR DRAIN
RD RD	ROOF DRAIN / ROOF DRAIN ABOVE
CO CO	STACK / FLOOR CLEANOUT
	HOSEBIBB (HB)
WC–1	FIXTURE TAG
TYPE ID	EQUIPMENT TAG — TYPE OF EQUIPMENT NUMBER DESIGNATION
	ELBOW RISING
	ELBOW DROPPING
	BRANCH RISING FROM TEE
	BRANCH DROPPING FROM TEE
	SHUT–OFF BALL VALVE
	SHUT–OFF GATE VALVE
	CIRCUIT BALANCING VALVE (CBV)

PLUMBING ABBREVIATIONS

EX	EXISTING TO REMAIN
AFF	ABOVE FINISHED FLOOR
CTE	CONNECT TO EXISTING
C/W	COMPLETE WITH
U/S	UNDERSIDE
NFHB	NON FREEZE HOSE BIBB
RWL	RAIN WATER LEADER
TMV	THERMOSTATIC MIXING VALVE
TSP	TRAP SEAL PRIMER

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No.	Date	Revision
-	-	-

Date	Issue
21-01-08	ISSUED FOR PERMIT & TENDER
20-12-18	ISSUED FOR COORDINATION

THE CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL FIELD DIMENSIONS AND SHALL NOTIFY THE ARCHITECT OF ANY SITE CONDITIONS OR FIELD DIMENSIONS WHICH MAY BE AT VARIANCE WITH THE DRAWINGS.

THIS DRAWING IS NOT TO BE SCALED.

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DES JOB No.: 20–419 DWG SIZE: D

Project
GLENGROVE PUBLIC SCHOOL CHILDCARE RENOVATION
DURHAM DISTRICT SCHOOL BOARD
TENDER NO. T20-62

Pickering Ontario

Sheet Title
PLUMBING LEGENDS & NOTES

Drawn	MRC
Checked	BRT
Scale	NTS
Project No.	18042
Sheet No.	M801

HVAC MATERIAL SPECIFICATIONS:

1. DUCTWORK:
   - .1 IN CONFORMANCE WITH SMACNA, ASHRAE, OBC, NFPA 90A.
   - .2 SHEET METAL SHALL BE BEST QUALITY LOCK FORMING GALVANIZED SHEET METAL. GALVANIZING SHALL BE TO ASTM A525 (G90), HAVING A THICKNESS OF 0.054 MM AND WEIGHING NOT LESS THAN 0.31 KG/M2 ON EACH SURFACE.
   - .3 ALL ROUND DUCTWORK SHALL BE SPIRAL.
2. DRYER VENT:
   - .1 EXHAUST DUCT SHALL BE ROUND, CONSTRUCTED FROM 0.4mm THICK (MIN) METAL DUCT HAVING SMOOTH INTERIOR SURFACES AND JOINTS RUNNING IN DIRECTION OF AIR FLOW. JOINTS SHALL NOT BE FASTENED WITH SHEET METAL SCREWS OR OTHER MEANS WHICH EXTEND INTO THE AIR STREAM.
   - .2 IN-LINE LINT TRAP SHALL BE EQUAL TO REVERSOMATIC LT-200-44 WITH 4"(100mm) DUCT CONNECTIONS.
3. FLEXIBLE CONNECTIONS:
   - .1 PROVIDE FLEXIBLE CONNECTIONS AT AIR HANDLING UNITS WITH UL APPROVED FABRIC OF 6"(150mm) MINIMUM WIDTH AND WEIGHING NOT LESS THAN 0.8136 KG/M2.
4. HOT WATER HEATING PIPING:
   - .1 PIPING UP TO INCLUDING 2"(50mm): PIPING SHALL BE BLACK STEEL SCHEDULE 40 WITH MALLEABLE STEEL THREADED SCREW FITTINGS OR COPPER WITH SOLDER JOINTS.
   - .2 PIPING 2-1/2"(63mm) AND OVER: PIPING SHALL BE BLACK STEEL SCHEDULE 40 WITH WELDED FITTINGS.
   - .3 BRASS ADAPTERS SHALL BE PROVIDED AT ALL CONNECTIONS BETWEEN COPPER TUBING AND FERROUS PIPING.
   - .4 PROVIDE AUTOMATIC AIR VENTS C/W BALL VALVE AT ALL HIGH POINTS. REFER TO SPECIFICATIONS BELOW.
   - .5 PROVIDE DRAIN VALVES C/W HOSE CONNECTION AND CAP AT ALL LOW POINTS AND AS NOTED ON DETAILS.
   - .6 ALLOW FOR ANY CHEMICAL TREATMENT OR GLYCOL FILL TO BRING SYSTEM TO ACCEPTABLE LEVELS AND SUBMIT REPORTS.
5. PIPE HANGERS:
   - .1 ADJUSTABLE WROUGHT IRON CLEVIS TYPE AND/OR ADJUSTABLE RING WITH THREADED SUSPENSION RODS.
   - .2 FOR COPPER PIPING (INCLUDING PIPING WITHIN WALLFIN ENCLOSURE) PROVIDE COPPER PLATED OR EPOXY TYPE HANGERS OR PROVIDE SEPARATION OF DISSIMILAR METALS WITH APPROVED DIELECTRIC MATERIALS. INSULATING TAPE IS NOT ACCEPTABLE.
   - .3 WHERE HANGERS SHALL WRAP AROUND OUTSIDE OF PIPE INSULATION, PROVIDE SADDLES TO PREVENT CRUSHING OF INSULATION.
   - .4 PIPE HANGER SPACING
     - -SIZES UP TO 1-1/4"(32mm) = 8'(2.5m) SPACING
     - -SIZES 1-1/2"(38mm) TO 2"(50mm) = 10'(3m) SPACING
     - -SIZES 2-1/2"(63mm) AND OVER = 12'(3.5m) SPACING
   - .5 PROVIDE HANGER WITHIN 12"(300mm) OF EVERY ELBOW
6. VALVES AND ACCESSORIES:
   - .1 ALL VALVES SHALL BE LINE SIZED UNLESS OTHERWISE NOTED. (CBVs GENERALLY NOT LINE SIZE).
   - .2 CIRCUIT BALANCING VALVES SHALL BE IMI TA STAS/STAD/STAF SERIES (NO ALTERNATES ACCEPTABLE). MOUNT WITH PORTS UPRIGHT OR AT LEAST 90° UP FROM BOTTOM. SUBMIT SHOP DRAWINGS COMPLETE WITH VALVE SIZING SCHEDULE.
   - .3 BALL VALVES SHALL BE EQUAL TO KITZ 58 & 59.
   - .4 AUTOMATIC AIR VENTS SHALL BE EQUAL TO:
     - -WALLFINS, CONVECTORS, RADS: "MAID-O-MIST" #67 COMPLETE WITH BALL VALVE
     - -PIPE MAINS & LINES, MECHANICAL ROOMS, EQUIPMENT, COILS, CEILING SPACES AND ALL OTHER SPACES EXCEPT NOTED ABOVE: "MAID-O-MIST" #71 COMPLETE WITH BALL VALVE
7. WATER TREATMENT:
   - .1 ALLOW FOR CHEMICAL TREATMENT TO BRING SYSTEM TO ACCEPTABLE LEVELS AND SUBMIT REPORTS.
   - .2 OBTAIN THE SERVICES OF MK SERVICES FOR ALL WATER TREATMENT.
8. DUCT INSULATION:
   - .1 ACOUSTIC DUCT INSULATION
     - .1 FIBERGLASS INSULATION, COATED TO PREVENT FIBRE EROSION AT AIR VELOCITIES UP TO 400 fpm.
     - .2 ALL SUBSTRATE MATERIAL TO BE NON-DARKENED, CONTRASTING COLOUR FROM LINER LAYER.
     - .3 THICKNESS: 1" (25mm)
   - .2 THERMAL DUCT INSULATION
     - .1 INSULATION SHALL BE PRECOVERED, PREFORMED RIGID FIBROUS GLASS INSULATION COMPLETE WITH FOIL OR KRAFT ALL-PURPOSE JACKET.
     - .2 THICKNESS: 1" (25mm)
     - .3 RECOVERING JACKETS (INTERIOR): ULC LISTED "THERMO CANVAS", TREATED COTTON FABRIC.
9. DUCT ACCESS DOORS
   - .1 DUCT ACCESS DOORS SHALL BE EQUAL TO NAILOR 085CL(SQUARE) OR 0800(OVAL). REFER TO DETAIL.
10. PIPE INSULATION:
    - .1 PROVIDE 1-1/2"(38mm) PIPE INSULATION ON ALL HEATING PIPING SIZES UP TO AND INCLUDING 1-1/4"(32mm)
    - .2 PROVIDE 2"(50mm) PIPE INSULATION ON ALL HEATING PIPING SIZES 1-1/2"(38mm) AND OVER
    - .3 PROVIDE 1"(25mm) PIPE INSULATION ON ALL VENT PIPING 10'(3m) BACK FROM ROOF
    - .4 EXTERNAL PIPE INSULATION SHALL BE RIGID, SECTIONAL FIBERGLASS TYPE AND BE COMPLETE WITH FACTORY SUPPLIED ALL PURPOSE VAPOUR BARRIER. PRE-FORMED INSULATION SHALL BE USED AT PIPE FITTINGS, VALVES, ETC. PROVIDE NON-CRUSHING INSULATION AT ALL PIPE HANGERS AND PROVIDE SADDLES.
    - .5 PROVIDE PVC JACKET ON ALL INSULATION IN EXPOSED AREAS.
11. ACCESS DOORS/COVERS
    - .1 FLUSH ACCESS DOOR - UNIVERSAL: ACUDOR #UF-5000 UNIVERSAL ACCESS DOORS, 14 GA. (1.7mm) STEEL, BAKED ENAMEL PRIME COAT, CONTINUOUS CONCEALED HINGE, WITH POSITIVE AND SELF-OPENING SCREWDRIVER OPERATED LOCK. DOORS IN WASHROOMS SHALL BE STAINLESS STEEL. ALL OTHER PANELS SHALL BE BAKED ENAMEL PRIME COATED FOR FIELD PAINTING. MINIMUM SIZE OF PANELS SHALL BE 12"x18" (300mmx450mm). WHEREVER POSSIBLE 24"x24" (600mmx600mm) PANELS SHALL BE USED.
    - .2 RECESSED ACCESS DOOR - DRYWALL AREA: ACUDOR #DW-5015 SERIES RECESSED ACCESS DOOR, 16 GA. (1.5mm) STEEL, BAKED ENAMEL PRIME COAT, WITH CONCEALED PIVOTING ROD TYPE HINGE AND SELF-OPENING SCREWDRIVER OPERATED LOCK. DOOR TO BE RECESSED 5/8" (14mm) TO RECEIVE DRYWALL. FLANGE OF DOOR TO BE GALVANIZED STEEL TAPING BEADING TO PROVIDE FINISH OF DRYWALL JOINTS FOR FIELD PAINTING.

HVAC NOTES:

1. CONCEAL ALL SERVICES IN CEILING SPACES AND FURRED CONSTRUCTION.
2. COORDINATE INSTALLATION WITH ALL OTHER TRADES.
3. REFER TO REFLECTED CEILING PLAN TO CONFIRM EXACT LOCATION OF GRILLES AND DIFFUSERS. LIGHTING TAKES PRECEDENCE.
4. PROVIDE 4" FLEXIBLE CONNECTIONS AT ALL DUCT CONNECTIONS TO AIR HANDLING EQUIPMENT.
5. PROVIDE ACOUSTIC INSULATION IN FIRST 5' (1.5m) OF SUPPLY DUCTS OFF AIR HANDLING UNITS, ALL TRANSFER DUCTS AND AS INDICATED ON DRAWINGS. SEAL ALL EXPOSED ENDS OF INSULATION.
6. PROVIDE TURNING VANES IN ALL SQUARE ELBOWS AND SHORT RADIUS ELBOWS FOR SUPPLY AIR DUCTS.
7. TEMPORARILY SEAL ALL OPEN DUCTS THROUGHOUT CONSTRUCTION TO PREVENT DUST AND DIRT FROM ENTERING THE SYSTEM. WHERE THE CONTRACTOR DOES NOT CONFORM THEY ARE RESPONSIBLE FOR CLEANING OF THE SYSTEMS IN A MANNER APPROVED BY THE CONSULTANT.
8. SEAL ALL JOINTS ON ALL SUPPLY & RETURN AIR DUCTS WITH DURODYNE DUCT SEALER IN CONFORMANCE TO CLASS 'C' ASHRAE 90.1 AND SMACNA STANDARDS. USE CLEAR DUCT SEALER OR SEAL BEHIND JOINTS FOR ALL EXPOSED DUCTWORK.
9. BRANCH DUCTWORK TO DIFFUSERS TO BE SAME SIZE AS DIFFUSER NECK.
10. PROVIDE BALANCE DAMPERS ON ALL BRANCH DUCTS CLOSE TO MAIN TAKE-OFF. REVIEW WITH BALANCING CONTRACTOR TO CONFIRM LOCATIONS OF ALL BALANCE DAMPERS PRIOR TO CONSTRUCTION.
11. INCLUDE FOR THE SUPPLY AND INSTALLATION OF TWO(2) EXTRA BALANCE DAMPERS AFTER CONSTRUCTION AND BALANCING COMPLETION. (PENDING BALANCING RESULTS AND COMMENTS).
12. FLEXIBLE DUCT SHALL ONLY BE USED IN SUPPLY AIR APPLICATIONS FOR CONNECTIONS TO DIFFUSERS IN DROPPED CEILING. FLEXIBLE DUCT SHALL BE MAXIMUM 6' (1.8m) IN LENGTH AND SHALL BE SECURELY FASTENED TO DUCTS AND DIFFUSERS. PROVIDE HANGERS AND FLEXIBLE DUCTWORK WITHOUT SHARP 90°s, SAGGING, OR CRUSHING OF DUCT. FLEXIBLE DUCT IS NOT ACCEPTABLE IN ANY OTHER APPLICATION.
13. PROVIDE EXTERNAL INSULATION ON ALL SUPPLY AIR DUCTS INCLUDING RIGID AND FLEXIBLE DUCT, AND ON ALL EXHAUST DUCTS WITHIN 8' (2.4m) OF OUTSIDE WALL/ROOF.
14. CONFIRM EXACT LOCATIONS OF SENSORS AND THERMOSTATS WITH ENGINEER AND OWNER. MOUNT SENSORS AT 59" (1500mm) AFF. MOUNT THERMOSTATS AT 48" (1200mm) AFF. ENSURE THAT SENSOR AND THERMOSTAT LOCATIONS WILL NOT BE AFFECTED BY DIRECT SUNLIGHT, COLD WALLS OR MILLWORK.
15. ALL INDOOR CONTROL WIRING SHALL BE RUN IN EMT CONDUIT OR FT6 (EMT SHALL BE USED IN EXPOSED AREAS). LAST 3' SHALL BE BX WHEN USING CONDUIT. ALL OUTDOOR CONTROL WIRING SHALL BE RUN IN LIQUIDTIGHT. ALL CONTROL WIRING SHALL RUN PARALLEL TO BUILDING LINES AND TIGHT TO ROOF DECK OR WALLS. ALL CONTROL WIRING PASSING THROUGH WALLS SHALL BE RUN IN EMT CONDUIT C/W BUSHINGS AT EACH END.
16. PROVIDE FIRE DAMPERS AT ALL FIRE SEPARATIONS. FIRE DAMPERS SHALL BE TYPE 'B' C/W LINKAGE OUT OF THE AIR STREAM. FIRE DAMPER RATING TO MATCH THE RATING OF THE SEPARATION CROSSED. INSTALLATION MUST CONFORM TO LATEST NFPA/CUA 90A SPECIFICATIONS. ONLY USE ULC APPROVED EQUIPMENT. PROVIDE DUCT ACCESS DOORS AND BREAK AWAY FLANGES FOR ALL FIRE DAMPERS IN CONFORMANCE WITH CODE AND INSTALLATION INSTRUCTIONS. ACCESS DOORS SHALL BE TWIST LOCK TYPE - SCREWED PANELS ARE NOT ACCEPTABLE.
17. PROVIDE ACCESS DOOR IN DUCTWORK IMMEDIATELY UPSTREAM AND DOWNSTREAM OF REHEAT COILS. ACCESS DOORS SHALL BE TWIST LOCK TYPE - SCREWED PANELS ARE NOT ACCEPTABLE.
18. PROVIDE SLEEVES FOR PIPES THROUGH ALL NEW BLOCK WALLS. FILL VOIDS AROUND PIPES. ENSURE NO CONTACT BETWEEN DISSIMILAR METALS.
19. SUPPLY DRYWALL ACCESS DOORS FOR CONCEALED FIRE AND BALANCE DAMPERS AND ANY OTHER CONCEALED DEVICES AND TURN OVER TO THE GENERAL CONTRACTOR FOR INSTALLATION. DOORS TO BE GALVANIZED STEEL FOR FIELD PAINTING. DOORS SHALL BE RATED WHERE INSTALLED IN FIRE SEPARATIONS.
20. DRAIN HEATING SYSTEMS AS REQUIRED FOR NEW WORK. FILL, FLUSH, TEST AND TREAT (CHEMICAL TREATMENT) AFTER WORK IS COMPLETE. PROVIDE ALL PORTS, VALVES AND GAUGES AS REQUIRED. SUBMIT CHEMICAL TREATMENT REPORT TO ENGINEER. FREEZING OF PIPING TO ALLOW ISOLATION OF WORK AREA IS ACCEPTABLE IN LIEU OF DRAINING.
21. ALL CBVs SHALL BE MOUNTED WITH PORTS IN HORIZONTAL (90°) POSITION.
22. PROVIDE EXTERNAL INSULATION ON ALL HEATING PIPING EXCEPT IN WALLFIN ENCLOSURES.
23. PROVIDE FIRE STOPPING AROUND ALL EXISTING AND NEW PIPING THROUGH FIRE SEPARATIONS.
24. LABEL ALL NEW HEATING PIPING COMPLETE WITH FLOW ARROWS. LABELS SHALL BE MAX 3m(10') SPACING AND ON EITHER SIDE OF WALLS. LABELING MUST BE COMPLETE PRIOR TO NEW CEILING BEING INSTALLED OTHERWISE IT IS THE CONTRACTORS RESPONSIBILITY TO REMOVE CEILING TILES FOR INSPECTION AT THE DIRECTION OF THE CONSULTANT.
25. LABEL CEILING TILE WITH PERMANENT ADHESIVE LABELS OR LAMACOID NAMEPLATES FOR ACCESS TO MECHANICAL ITEMS.
26. PROVIDE CONDENSATE DRAINS C/W TRAPS FOR NEW INDOOR AIR HANDLING EQUIPMENT AND RUN TO CLOSEST PLUMBING DRAIN WITH INDIRECT DRAIN CONNECTION IN A VISIBLE AND ACCESSIBLE LOCATION (CEILING SPACE NOT ACCEPTABLE). PROVIDE CONDENSATE PUMP WHERE GRAVITY DRAINAGE IS NOT POSSIBLE.
27. OBTAIN THE SERVICES OF A NEBB, CAABC OR NBCTA ACCREDITED BALANCING COMPANY TO BALANCE THE COMPLETE HVAC SYSTEM. PROVIDE REPORT TO ENGINEER FOR REVIEW. REFER TO SPECIFICATIONS FOR APPROVED AGENTS.
28. PROVIDE TESTING AND STARTUP OF ALL NEW EQUIPMENT AND PROVIDE REPORTS TO THE ENGINEER FOR REVIEW.

GENERAL NOTES:

1. OBTAIN, ARRANGE AND PAY FOR ALL REQUIRED PERMITS AND INSPECTIONS.
2. THE CONTRACTOR AND ITS SUB-TRADES SHALL ATTEND BI-WEEKLY SITE MEETINGS OR AS ARRANGED BY CONSULTANT OR OWNER.
3. OBTAIN AND REVIEW THE DESIGNATED SUBSTANCE REPORT FROM THE CLIENT AND COORDINATE ANY DESIGNATED SUBSTANCE ISSUES WITH THE CLIENT PRIOR TO ANY WORK BEING DONE.
4. PROVIDE SHOP DRAWINGS ELECTRONICALLY IN PDF FORMAT TO CONSULTANT FOR REVIEW. ALL SHOP DRAWINGS MUST BE REVIEWED, STAMPED AND SIGNED BY THE MECHANICAL CONTRACTOR PRIOR TO SUBMITTING TO THE CONSULTANT. REVIEW SHALL INCLUDE BUT NOT BE LIMITED TO: VERIFYING UNIT VOLTAGE WITH ELECTRICIAN AND/OR SITE, EQUIPMENT PERFORMANCE, DIMENSIONS AND CLEARANCES. SUBMIT SHOP DRAWINGS ELECTRONICALLY TO INFO@DURHAMENERGY.COM.
5. THOROUGHLY REVIEW AND COORDINATE WITH SITE CONDITIONS AND COMPLETE DRAWING SET PRIOR TO PRICING AND INSTALLATION.
6. INSTALL ALL WORK IN CONFORMANCE WITH MANUFACTURER'S REQUIREMENTS AND RECOMMENDATIONS.
7. DO NOT USE ANY NEW PERMANENT EQUIPMENT FOR TEMPORARY USE DURING CONSTRUCTION WITHOUT WRITTEN APPROVAL. WHERE SYSTEMS ARE USED AND ARE CONTAMINATED BY DUST OR DIRT, THE CONTRACTOR SHALL CLEAN IN A MANNER ACCEPTABLE TO THE CONSULTANT.
8. MAINTAIN RECORD DRAWINGS ON AN ON-GOING BASIS. DRAWINGS SHALL BE AVAILABLE FOR PERIODIC REVIEW BY THE CONSULTANT DURING CONSTRUCTION.
9. ALL WORK SHALL COMPLY WITH APPLICABLE CODES.
10. REMOVE ALL REDUNDANT EQUIPMENT, MATERIALS AND GARBAGE FROM SITE AND DISPOSE OF IN AN APPROVED MANNER. REDUNDANT EQUIPMENT AND MATERIALS SHALL NOT BE ABANDONED IN PLACE.
11. ALL CUTTING AND CORING SHALL BE BY THIS CONTRACTOR. COORDINATE PATCHING WITH GENERAL CONTRACTOR. TRENCHING, EXCAVATION AND BACKFILL FOR UNDERGROUND PLUMBING SHALL BE BY THIS CONTRACTOR. ALL SAW CUTTING AND RESTORATION OF CONCRETE FLOOR BY GENERAL CONTRACTOR. COORDINATE WITH SAME.
12. COORDINATE ROOFING FOR DUCT AND PIPE ROOF PENETRATIONS WITH GENERAL CONTRACTOR. PROVIDE PITCH POCKETS FOR ALL SERVICES THROUGH ROOF UNLESS SERVICES CAN BE FED THROUGH BASE OF EQUIPMENT.
13. ANY FEED TO NEW ROOFTOP EQUIPMENT SHALL BE INSTALLED WITH GOOSENECK STYLE PITCH POCKET EQUAL TO THALER METAL MEF-2A OR DOGHOUSE. SIZE AS REQUIRED TO SUIT FEED.
14. MAINTAIN REQUIRED ACCESS AND CLEARANCE TO ALL EQUIPMENT AND SYSTEMS AS REQUIRED BY CODE AND AS PER MANUFACTURER'S REQUIREMENTS.
15. TAG ALL EQUIPMENT WITH LAMACOID NAMEPLATES. TAG ALL VALVES WITH LAMACOID NAMEPLATES OR BRASS TAGS ON CHAINS.
16. LABEL ALL EXISTING AND NEW PIPING IN AREA OF WORK WITH SERVICE AND FLOW ARROWS EVERY 10'(3m) AND ON EITHER SIDE OF WALLS.
17. THE CONTRACTOR SHALL ARRANGE FOR INSPECTIONS BY THE ENGINEER PRIOR TO CEILINGS AND WALLS BEING CLOSED IN. WHERE THIS HAS NOT BEEN ARRANGED IT IS THE CONTRACTOR'S RESPONSIBILITY TO REMOVE CEILING TILES OR ACCESS DOORS FOR INSPECTION AT THE DIRECTION OF THE CONSULTANT.
18. PERFORM TESTING AND START UP OF ALL SYSTEMS AS REQUIRED BY CODE, THE CONSULTANT, MANUFACTURER'S REQUIREMENTS, AND AUTHORITIES HAVING JURISDICTION. SUBMIT REPORTS TO THE CONSULTANT.
19. INSTRUCT AND DEMONSTRATE TO THE OWNER ON PROPER OPERATION OF THE SYSTEM. RECORD AND SUBMIT A LOG DATED AND SIGNED BY ALL ATTENDEES.
20. UPON COMPLETION OF THE PROJECT THE CONSULTANT WILL DO A FINAL REVIEW. UPON RECEIVING THE FINAL INSPECTION REPORT, THE CONTRACTOR MUST CORRECT AND SIGN BACK THE INSPECTION REPORT INDICATING ALL DEFICIENCIES ARE COMPLETED. A RE-INSPECTION WILL ONLY BE DONE ONCE THE CONSULTANT RECEIVES THIS IN WRITING. WHERE THE CONSULTANT PERFORMS THE RE-INSPECTION AND THE WORK IS NOT COMPLETE, THE CONTRACTOR IS RESPONSIBLE FOR REIMBURSING THE CONSULTANT FOR THE FIELD REVIEW. THE FEE FOR ADDITIONAL REVIEWS WILL BE AT THE CONSULTANT'S HOURLY RATES PLUS MILEAGE AND APPLICABLE TAXES TO BE PAID DIRECTLY TO THE CONSULTANT PRIOR TO PERFORMING THE NEXT FIELD REVIEW.
21. PROVIDE ONE (1) YEAR WARRANTY ON ALL MATERIAL AND LABOUR FROM THE DATE OF SUBSTANTIAL COMPLETION.
22. PROGRESS DRAWS SHALL INCLUDE MINIMUM $2,500.00 FOR MANUALS AND AS-BUILT DRAWINGS. TOTAL AMOUNT SHALL REMAIN UNBILLED UNTIL MANUALS AND AS-BUILT DRAWINGS HAVE BEEN SUBMITTED AND APPROVED.
23. PROVIDE ONE(1) ELECTRONIC COPY OF MAINTENANCE MANUALS ON USB. MANUAL SHALL INCLUDE:
    - TABLE OF CONTENTS
    - CONTRACTOR INFORMATION
    - WARRANTY LETTER
    - SHOP DRAWINGS
    - O&Ms
    - INSPECTION & TEST REPORTS
    - AS-BUILT DRAWINGS.

    AS-BUILT DRAWINGS SHALL INCLUDE COMPLETE MECHANICAL DRAWING SET WITH ANY CHANGES MARKED CLEARLY AND NEATLY IN COLOUR. AS-BUILTS SHALL BE STAMPED ACCORDINGLY BY THE CONTRACTOR (ALL DRAWINGS). DRAWINGS SHALL BE SCANNED AND SUBMITTED IN FULL SIZE. HARD COPY SHALL ALSO BE SUBMITTED. SUBSTANTIAL COMPLETION WILL NOT BE AWARDED UNTIL THE MANUALS AND AS-BUILTS HAVE BEEN SUBMITTED TO THE CONSULTANT AND THE CONSULTANT HAS APPROVED.

BALANCING SPECIFICATIONS:

1. OBTAIN THE SERVICES OF A 3rd PARTY ACCREDITED BALANCING COMPANY TO BALANCE THE RENOVATED AIR AND WATER HVAC SYSTEM.
2. PROVIDE PRELIMINARY REPORT TO ENGINEER FOR REVIEW AND COMMENTS.
3. ALLOW FOR ONE FOLLOW-UP SITE VISIT FOR ADJUSTMENTS.
4. RETURN TO SITE FOR ANY ADJUSTMENTS AND SUBMIT FINAL REPORT TO ENGINEER AND CONTRACTOR FOR INCLUSION INTO MAINTENANCE MANUAL.
5. ACCEPTABLE AGENTS:
   - .1 QUALITY AIR DISTRIBUTION INC
     CONTACT: DAREK NIEZGODA
     TEL: (905)492-3111
     EMAIL: darek@qualityairdistribution.com
   - .2 DESIGN TEST & BALANCE
     CONTACT: SURRINDER SINGH
     TEL: (905)886-6513
     EMAIL: mail@designtest.ca
   - .3 TECHNICAL AIRE
     CONTACT: LINVAL CHAROO
     PHONE: (416)492-9408
     EMAIL: lcharoo@technicalaire.com
   - .4 FLOWSET BALANCING
     CONTACT: CHRIS PITHER
     PHONE: (416)410-9793 OR (647)321-5114
     EMAIL: chrisp@flowset.com

HVAC LEGEND

	NEW
	EXISTING
	DEMOLITION
	SUPPLY DUCTS (UP / DOWN)
	RETURN DUCTS (UP / DOWN)
	EXHAUST DUCTS (UP / DOWN)
	ROUND DUCTS (UP / DOWN)
	FLEXIBLE DUCT
	ACOUSTIC LINED DUCT
	TURNING VANES
	BALANCE DAMPER
FD	FIRE DAMPER
SD	SPLITTER DAMPER
	SUPPLY DIFFUSER
	RETURN/EXHAUST CEILING GRILLE
HS	HOT WATER HEATING SUPPLY (HS)
HR	HOT WATER HEATING RETURN (HR)
	ELBOW RISING
	ELBOW DROPPING
	BRANCH RISING FROM TEE
	BRANCH DROPPING FROM TEE
	BALL SHUT-OFF VALVE
	GATE SHUT-OFF VALVE
	BUTTERFLY VALVE
	CHECK VALVE
	GLOBE VALVE
	BAS 2-WAY CONTROL VALVE
	BAS 3-WAY CONTROL VALVE
	CIRCUIT BALANCING VALVE (CBV)
	STRAINER
	UNION
AMV	AUTOMATIC AIR VENT C/W 1/4" BALL VALVE AND NIPPLE/COUPLING (MINI BALL VALVES NOT ACCEPTABLE)
	CONTROL/SENSING WIRING
S1	VUV SENSOR (BY UNIT MANUFACTURER)
S	BAS SPACE SENSOR
T	THERMOSTAT SUPPLIED BY DDSB INSTALLED BY ELECTRICAL
TYPE ID	EQUIPMENT SYMBOLS — TYPE OF EQUIPMENT NUMBER DESIGNATION
QTY TYPE SIZE AIR	GRILLE SYMBOLS — TYPE SIZE (mm) AIR FLOW (cfm)
QTY TYPE SIZE-1 SIZE-2 CAPACITY	RADIATION SYMBOLS — TYPE FIN LENGTH (mm) ENCLOSURE LENGTH (mm) CAPACITY (MBH)

HVAC ABBREVIATIONS

EX	EXISTING TO REMAIN
AFF	ABOVE FINISHED FLOOR
CTE	CONNECT TO EXISTING
C/W	COMPLETE WITH
U/S	UNDERSIDE
U/C [SIZE]	DOOR UNDERCUT [mm]
S/A	SUPPLY AIR
R/A	RETURN AIR
E/A	EXHAUST AIR
O/A	OUTSIDE AIR

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THE CONTRACTOR MUST CHECK AND BE RESPONSIBLE FOR SITE CONDITIONS THAT MAY DIFFER FROM THESE PLANS AND NOTIFY DURHAM ENERGY SPECIALIST LTD. OF SAME.

No.	Date	Revision
-	-	-

Date	Issue
21-01-08	ISSUED FOR PERMIT & TENDER
20-12-18	ISSUED FOR COORDINATION

THE CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL FIELD DIMENSIONS AND SHALL NOTIFY THE ARCHITECT OF ANY SITE CONDITIONS OR FIELD DIMENSIONS WHICH MAY BE AT VARIANCE WITH THE DRAWINGS.

THIS DRAWING IS NOT TO BE SCALED.

LICENSED PROFESSIONAL ENGINEER
B. R. TIMSON
100511696
JAN 8/21
PROVINCE OF ONTARIO

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DES JOB No.: 20-419 DWG SIZE: D

Project

GLENGROVE PUBLIC SCHOOL CHILDCARE RENOVATION

DURHAM DISTRICT SCHOOL BOARD
TENDER NO. T20-62

Pickering Ontario

Sheet Title

HVAC LEGENDS & NOTES

Drawn	MRC
Checked	BRT
Scale	NTS
Project No.	18042
Sheet No.	M802

PLUMBING FIXTURE SCHEDULE

WC–1 FLOOR MOUNTED TOILET – VITREOUS CHINA – FLUSH TANK

American Standard Cadet Pro Elongated #215CA.004.020.020 Low consumption Toilet, 3517C.101.020, 4188A.054.020, 381 mm high, Vitreous china with EverClean antimicrobial surface which inhibits the growth of stain and odor causing bacteria mold and mildew, elongated bowl, White Finish, Floor Mounted, Cadet Flushing system, 6.0 L (1.6 US Gal) per flush, Raised sanitary bar, 229 mm x 203 mm (9" x 8") water surface, two (2) piece, 'Speed Connect' tank assembly, bolted tank cover, 305 mm (12") rough–in, elongated bowl, 54 mm (2–1/8") fully glazed internal trapway, floor outlet, bolt caps, Toilet seat not included.
Centoco #1500STSCCSS.001 Toilet Seat, extra heavy duty, for elongated bowl, open front, solid plastic, less cover, stainless steel self–sustaining check hinges, metal flat washers stainless steel posts and nuts.
McGuire #LFH166LKN3 Toilet Supply, Chrome plated finish polished brass, heavy duty angle stops, 13 mm (1/2") I.P.S. Inlet x 76 mm (3") long rigid horizontal nipples, V.P. Loose keys, Escutcheon and flexible copper risers.
Provide Floor Flange, (Same material as the connecting pipe drain), with all brass bolts and with rubber gasket.

WC–2 FLOOR MOUNTED TOILET – VITREOUS CHINA – FLUSH TANK – TODDLER HEIGHT

American Standard Baby Devoro #2315.613.020 HET Toilet, 3128.001, 4019.613, 260 mm high, Vitreous china, Round Front Bowl, White Finish, Floor Mounted, Siphon jet flush action, 4.8 L (1.28 US Gal) per flush, Raised sanitary bar, 254 mm x 229 mm (10" x 9") water surface, two (2) piece, 'Speed Connect' tank assembly, Siphon jet flush action, Raised sanitary bar, Unlined Tank, bolted tank cover, 51 mm (2") flush valve with flapper, 'Pilot Valve' water control (without float) for quiet refill, 254 mm (10") rough–in, Round Front Bowl, 51 mm (2") fully glazed internal trapway, floor outlet, bolt caps, Toilet seat not included, designed for children.
Centoco #AM2300STSCC.001 Baby Toilet Seat, Heavy Duty, For round bowl, open front, Solid plastic, Less cover, Stainless steel check hinges, metal flat washers stainless steel posts and nuts.
McGuire #LFH166LKN3 Toilet Supply, Chrome plated finish polished brass, heavy duty angle stops, 13 mm (1/2") I.P.S. Inlet x 76 mm (3") long rigid horizontal nipples, V.P. Loose keys, Escutcheon and flexible copper risers.
Provide Floor Flange, (Same material as the connecting pipe drain), with all brass bolts and with rubber gasket.

LV–1 WALL HUNG BASIN – TWO HANDLE FAUCET

American Standard Lucerne #0355.912.020 Basin Sealed overflow, 3 holes, 4" (102 mm) center, 521 mm x 464 mm x 308 mm (20–1/2" x 18–1/4" x 12–1/8") high, Vitreous china, White Finish, for carrier with concealed arms, self–draining faucet ledge, contoured back and side splash shield.
Moen Commercial #8210 M–DURA faucet with 4" centreset, chrome plated brass construction, vandal resistant, ADA lever style handles with hot and cold colour indicators, brass shell, ceramic disc cartridge, 1/4 turn operation, 0.5 gpm (1.9L/min) vandal–resistant aerator.
McGuire #PRODRAIN Open Grid Drain, cast brass one piece top, 17 GA. (1.5 mm) mm tubular 32 mm (1–1/4") tailpiece, Less overflow holes.
McGuire #LFH170BV Faucet Supplies, Chrome plated finish polished brass, commercial duty 1/4 turn ball valve angle stops, 13 mm (1/2") I.D. Inlet x 127 mm (5") horizontal extension tubes, convertible 1/4 turn/loose key handles, Escutcheon and flexible copper risers.
McGuire #8872C P–Trap, heavy cast brass adjustable body, with slip nut, 32 mm (1–1/4") size, Shallow wall flange and Seamless tubular wall bend.
Watts #WCA–411 Basin Carrier, concealed arms, wall flanges to attach to backing plate secured in wall with locking device and levelling screws, heavy gauge steel uprights with integral welded feet. For one unit: 102 mm (4") for two to six units in a row: 152 mm (6") finished metal stud wall to back of pipe space.

SK–1 – COUNTERTOP MOUNT SINK – SINGLE BOWL – TWO HANDLE FAUCET

Franke Commercial #LBS6808–1/3 Single Bowl Countertop Mount Sink, 3 holes, 8" (203 mm) center, 508 mm (20") wide x 521 mm (20–1/2") long x 203 mm (8") high deep, Counter mounted, backledge, Grade 18–10 20 GA. (0.9 mm) type 302 stainless steel, self–rimming, Satin finish rim and bowls, Mounting kit provided. Fully undercoated to reduce condensation and resonance, factory applied rim seal, 3–1/2" (89 mm) crumb cup waste assembly with 1–1/2" (38 mm) tailpiece.
Moen Commercial #8287 two handle kitchen faucet, deck mount, brass construction with chrome plated finish, vandal resistant torx head screws, lever style handles with hot and cold water colour indicators, 1.5 gpm max (5.7L/min) @ 60 psi, 8" (203 mm) center.
McGuire #LFBV170 Faucet Supplies, Chrome plated finish polished brass, commercial duty 1/4 turn ball valve angle stops, 13 mm (1/2") I.D. Inlet x 127 mm (5") horizontal extension tubes, convertible 1/4 turn/loose key handles, Escutcheon and flexible copper risers.
McGuire #8912CB P–Trap, heavy cast brass adjustable body, with slip nut, 38 mm (1–1/2") size, Box flange and Seamless tubular wall bend.

SK–2 – COUNTERTOP MOUNT DOUBLE SINK – TWO HANDLE – MANUAL FAUCET

Franke Commercial #LBD6408P–1/3 Double Bowl Countertop Mount Sink, 3 holes, 8" (203 mm) center, 794 mm (31–1/4") wide x 521 mm (20–1/2") long x 203 mm (8") high deep, spillway, counter mounted, backledge, grade 18–10 18 GA. (1.2 mm) type 304 stainless steel, self–rimming, satin finish rim and bowls, mounting kit provided, fully undercoated to reduce condensation and resonance, factory applied rim seal, 3–1/2" (89 mm) crumb cup waste assembly with 1–1/2" (38 mm) tailpiece.
Moen Commercial #8287 Deckmount Two handle manual faucet, 8" (203mm) centerset, lead free chrome plated solid brass with one piece concealed rough body, ceramic 1/4 turn cartridges, 8"(203mm) swing spout. 52611 Vandal Resistant 5.7LPM (1.5 GPM) aerator outlet, metal red and blue index buttons, 2–1/2" (64mm) lever style handles with hot and cold colour indicators and vandal resistant screws.
McGuire #LFH170BV Faucet Supplies, chrome plated finish polished brass, commercial duty 1/4 turn ball valve angle stops, 13 mm (1/2") I.D. Inlet x 127 mm (5") horizontal extension tubes, combination V.P. Loose key handles, escutcheon and flexible copper risers.
McGuire #8912CB P–Trap, heavy cast brass adjustable body, with slip nut, 38 mm (1–1/2") size, box flange and seamless tubular wall bend.

TMV–1 – THERMOSTATIC MIXING VALVE

Lawler #570–86822, Point Of Use Thermostatic Water Mixing Valve, nickel plated bronze body, temperature adjusting spindle, 3/4" inlets and outlet FNPT connections, integral checks, offer temperature range between 35 °C (95 °F) and 46 °C (114.8 °F). Set valve temperature at 46 °C (114.8 °F). Provide tee, adaptors and flex. copper tubing to suit installation. Provide tempered water to hot side of faucet.

TMV–2 – THERMOSTATIC MIXING VALVE – POINT–OF–USE

Lawler TMM–1070, bronze body construction, high temperature limit stop with shut off temperature of 118° (+/– 3°F), integral rubber duck–bill back–flow checks within inlets, temperature adjustment dial, thermostatic mechanical mixing valve with outlet temperature range within 95–115°F (35–46°C), ASSE 1070 approved, valve shall control temperature from a low of 1/2gpm, 1gpm at 10psi and 1.6gpm at 20psi drop across the valve, 3/8"Ø compression fit inlets and outlets, ASSE Lead Free Certified.
Alternates: Symmons, Powers, Leonard, RADA.

WB–1 – LAUNDRY METAL WASHER BOX

#MM–500MLB Ice and Laundry Boxes – constructed of 20 GA. (1.0 mm) steel box, white powder coat finish, includes necessary mounting brackets and faceplate, 2"Ø (51 mm) rubber drain pipe coupling for connection, water hammer arrestor–fabricated of type L hard drawn copper, cap machined of free turning brass, composite materials for piston, EPDM seal, Dow–Corning silicone compound #111, FDA listed for use in potable water systems, designed to operate on all domestic and commercial systems. Normal operating pressure 0 to 80psig, max spike pressure 250psig. For system pressures above 80psi, consult factory –40°F to 212°F (–4.4°C to 100°C), quarter turn ball valve.

FD – FLOOR DRAINS – FINISHED AREA – ADJUSTABLE STRAINER

Watts #FD–100–C–7–A5–1 Floor Drain – epoxy coated, cast iron body, reversible flashing clamp with primary and secondary weepholes, trap primer connection with plug, no hub outlet. Watts–A5–1 5" (127mm) diameter, nickel bronze, adjustable, round strainer.
Alternates: Zurn, J.R. Smith

CO – CLEANOUTS / ACCESS COVERS – ADJUSTABLE CLEANOUTS

Watts #CO–200–R–34G Cleanout – epoxy coated, cast iron body, with 5" (127mm) round, adjustable, gasketed, nickel bronze top, ABS plug with neoprene gasket, no hub outlet.
Alternates: Zurn, J.R. Smith

ACCESS DOORS/COVERS – FLUSH ACCESS DOOR – UNIVERSAL

Acudor #UF–5000 Universal Access Doors, 14 GA. (1.7mm) steel, baked enamel prime coat, continuous concealed hinge, with positive and self–opening screwdriver operated lock. Doors in tile walls shall be stainless steel and shall suit tile pattern. All other panels shall be prime painted steel. Minimum size of panels shall be 12" x 18" (300mm x 450mm). Wherever possible 24" x 24" (600mm x 600mm) panels shall be used universal Flush Access Door – For Walls and Ceilings.

WATER HAMMER ARRESTORS – PPP SC SERIES

SMS INC. #SC Series Water Hammer Arrestors with brass piston in a type 'K' copper casing size according to manufacturer's recommendations to eliminate water hammer and shock from piping system. Provide Water Hammer Arrestors on hot and cold water supplies to all quick valves, solenoids, and plumbing fixtures, and locate in an upright position between the last two fixtures on a line, or horizontally at the end of line closest to supply source. On projects exceeding five stories in height, provide water hammer arrestors on domestic water risers as follows. Locate arrestors at the end of riser opposite supply source.

TSP – TRAP SEAL PRIMERS

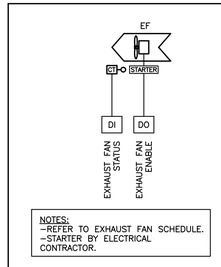
Sioux Chief #695–ES01, surface mount electronic trap primer, single outlet, solenoid valve, vacuum breaker, configurable electronic primer controller, water hammer arrestor, 120VAC power, 1/2" (13mm) inlet and outlet. Provide manifold as required to suit number of traps.

HEATING PUMP SCHEDULE

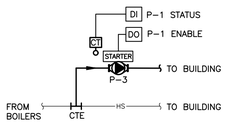
TAG		P–3
SERVICE		NEW HEATING BRANCH
TYPE		INLINE MOUNTED – CIRCULATING
MANUFACTURER		XYLEM–BELL & GOSSETT
MODEL		NBF–36
SERIES		NBF CIRCULATORS
FLUID		100% WATER
FLOW	gpm	8.52
PRESSURE LOSS	feet	20
SUCTION SIZE	inches	1.25
DISCHARGE SIZE	inches	1.25
MOTOR	W	270
RPM	rpm	4600
ELECTRICAL	volt/ph	120/1
APPROX. WEIGHT	lbs	13
NOTES		–THERMALLY PROTECTED MOTOR –BRONZE FITTED CONSTRUCTION –125# ANSI FLANGE DRILLING –WET ROTOR CIRCULATOR
ALTERNATE MANUFACTURERS		ARMSTRONG

CONTROLS SCOPE OF WORK:

1. THE GENERAL PRIME CONTRACTOR SHALL RETAIN THE INSTALLING CONTROLS CONTRACTOR UNDER A CASH ALLOWANCE. FOLLOWING THE AWARD OF THE TENDER, THE DDSB SHALL SELECT A PRE–QUALIFIED INSTALLING CONTROLS CONTRACTORS BASED ON THE SCOPE OF WORK OUTLINED ON THE DRAWINGS. THE GENERAL PRIME CONTRACTOR SHALL CARRY THE SUCCESSFUL INSTALLING CONTROLS CONTRACTOR AS A SUB–TRADE UNDER THE ALLOTTED CASH ALLOWANCE (REFER TO CASH ALLOWANCE SPECIFICATION). DDSB TO SUPPLY ALL PARTS (NOT PART OF CASH ALLOWANCE OR TENDER PRICE). THE MECHANICAL CONTRACTOR SHALL OFFER ASSISTANCE AS REQUIRED.
2. THE INSTALLING CONTROLS CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEMO AND NEW ELECTRONIC AND BAS CONTROLS WORK.
3. DDSB SHALL SUPPLY ALL REQUIRED SENSORS, RELAYS, CURRENT SWITCHES, CONTROL ENCLOSURES, AND ALL OTHER NECESSARY CONTROL DEVICES FOR A FULLY OPERATIONAL SYSTEM EXCEPT AS NOTED HEREIN AND TURN OVER TO INSTALLING CONTROLS CONTRACTOR FOR INSTALLATION. (THE EXISTING BAS SYSTEM IS SIEMENS CONTROLS).
4. DDSB SHALL SUPPLY ALL ELECTRIC (24V) AND NEW BAS CONTROL VALVES AND TURN OVER CONTROL VALVE BODIES TO MECHANICAL CONTRACTOR FOR INSTALLATION. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PICKING UP VALVES FROM DDSB OFFICE AND TRANSPORTING VALVES TO SITE. COORDINATE WITH DDSB.
5. DDSB SHALL SUPPLY ALL NEW TEMPERATURE WELLS AND TURN OVER TO MECHANICAL CONTRACTOR FOR INSTALLATION. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PICKING UP WELLS FROM DDSB OFFICE AND TRANSPORTING WELLS TO SITE. COORDINATE WITH DDSB.
6. SCOPE OF WORK SHALL INCLUDE BUT IS NOT LIMITED TO:
   - .1 REMOVAL OF REDUNDANT CONTROLS. TURN OVER REMOVED DEVICES TO DDSB OR DISPOSE OF IN APPROVED MANNER.
   - .2 PROVIDE NEW SPACE SENSORS, RELOCATE EXISTING SENSORS, OR REWIRE EXISTING SENSORS TO SUIT NEW CONTROLS AS REQUIRED AND AS INDICATED ON DRAWINGS.
   - .3 PROVIDE NEW OR UPGRADE EXISTING BAS CONTROLLERS AS INDICATED AND FOR COMPLETELY FUNCTIONAL SYSTEMS. NEW MAIN PANELS SHALL BE PCXM. TIE NEW CONTROLLERS INTO EXISTING BAS CONTROL NETWORK. RELOCATE EXISTING CONTROLLERS AS REQUIRED AND TIE BACK INTO EXISTING BAS CONTROL NETWORK.
   - .4 OBTAIN VUV CONTROL SENSOR FROM UNIT MANUFACTURER AND INSTALL AS INDICATED ON DRAWINGS. TIE INTO BAS AND PROVIDE CONTROL POINTS AS INDICATED IN SCHEMATICS AND SPECIFICATIONS.
   - .5 PROVIDE CONTROLS FOR NEW WALLFIN. VALVES AND ACTUATORS SUPPLIED BY DDSB. VALVE INSTALLATION BY MECHANICAL. ACTUATOR INSTALLATION BY CONTROLS CONTRACTOR.
   - .6 PROVIDE CONTROLS FOR NEW EXHAUST FANS AS PER SCHEDULES AND SCHEMATICS.
7. MECHANICAL CONTRACTOR AND INSTALLING CONTROLS CONTRACTOR SHALL TAKE PRECAUTIONS DURING DEMOLITION AND NEW WORK TO ENSURE BAS COMMUNICATIONS WIRING REMAINS FULLY FUNCTIONAL AND OPERATIONAL DURING RENOVATION. CONTROLS CONTRACTOR SHALL PROVIDE ANY TEMPORARY WIRING REQUIRED TO MAINTAIN SYSTEM UPTIME AND INTEGRITY.
8. GENERAL PRIME CONTRACTOR SHALL BE RESPONSIBLE FOR PATCHING, REPAIRING, AND SEALING ANY WALLS, CEILINGS, OR EQUIPMENT WHERE EXISTING CONTROLS DEVICES ARE REMOVED. COORDINATE LOCATION AND PATCHING FOR NEW CONTROLS WITH INSTALLING CONTROLS CONTRACTOR.



EXHAUST FAN CONTROL BY TIME–OF–DAY SCHEDULE
NTS



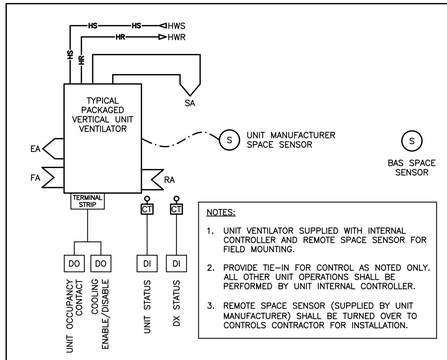
NEW PUMP CONTROL SCHEMATIC
NTS

HOT WATER WALLFIN SCHEDULE

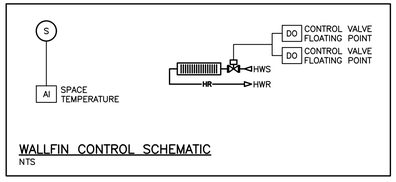
TAG		WF–A	WF–B
MANUFACTURER		SIGMA	SIGMA
WALLFIN MODEL		SWE–S (PAINTED)	SWE–S (PAINTED)
ELEMENT		ELMT–44C075	ELMT–44C075
TYPE		SLOPE TOP OUTLET LOUVERED BOTTOM INLET	SLOPE TOP OUTLET OPEN BOTTOM INLET
FLUID		100% WATER	100% WATER
ENCLOSURE HEIGHT	in.	24	24
ENCLOSURE DEPTH	in.	5–1/4	5–1/4
ENCLOSURE LENGTH		SITE MEASURE	SITE MEASURE
ENCLOSURE COLOUR		SNOW WHITE (SUBMIT COLOUR CHART)	SNOW WHITE (SUBMIT COLOUR CHART)
ELEMENT LENGTH		REFER TO DRAWINGS	REFER TO DRAWINGS
HEATING CAPACITY	btuh/ft	1147	1147
EWT/LWT	°F	160/140	160/140
NO OF TIERS/ROWS		2	2
COPPER TUBING DIA.	in.	3/4"	3/4"
ALUMINUM FINS	in.	4"x4"	4"x4"
CONTROLS		–CONTROL VALVE AND SENSOR. REFER TO DETAILS.	
ACCESSORIES		–CONTINUOUS COVER C/W SPACERS, JOINERS ETC. AS REQUIRED –SLOPE TOP OUTLET –LOUVERED BOTTOM INLET (WF–A) –OPEN BOTTOM INLET (WF–B)	
NOTES		CONTRACTOR / SUPPLIER SHALL SITE MEASURE ALL WALLFIN AND ENCLOSURE LENGTHS & HEIGHTS PRIOR TO ORDERING MATERIAL. LENGTHS & HEIGHTS ARE THE RESPONSIBILITY OF THE CONTRACTOR.	
ALTERNATE MANUFACTURERS		ENGINEERED AIR, E.H. PRICE, TRANE	

NEW CONTROL VALVE SCHEDULE – WALLFIN

SERVICE		LAUNDRY	FAMILY GROUPING
APPLICATION		WALLFIN	WALLFIN
MANUFACTURER		SIEMENS	SIEMENS
VALVE TYPE/SERIES		POWERMITE 599	POWERMITE 599
ASSEMBLY PART NUMBER		366–02032	366–02038
VALVE PART NUMBER		599–02032	599–02038
ACTUATOR PART NUMBER		SAS81.33U	SAS81.33U
FLOW	gpm	0.57	1.95
MEDIUM		100% WATER	100% WATER
MAX DESIGN PRES DROP	psi	1.0	1.0
VALVE CV		0.63	2.5
ACTUAL PRES DROP	psi	0.82	0.61
VALVE SIZE	inches	1/2	1/2
PORTING		2–WAY N.O.	2–WAY N.O.
TRIM		BRONZE	BRONZE
CONNECTION		FxF NPT	FxF NPT
FAIL POSITION		N.O.	N.O.
ACTUATOR SIGNAL		FLOATING	FLOATING
NOTES		–VALVES AND ACTUATORS SUPPLIED BY DDSB. VALVES TURNED OVER TO MECHANICAL CONTRACTOR FOR INSTALLATION. ACTUATORS WIRED AND INSTALLED BY DDSB.	



NEW VERTICAL UNIT VENTILATOR CONTROL SCHEMATIC
NTS



WALLFIN CONTROL SCHEMATIC
NTS

FAN SCHEDULE

TAG		EF–5	EF–6	EF–7
SERVICE		WASHROOMS	KITCHEN	KITCHEN
TYPE		INLINE CENTRIFUGAL	CEILING MOUNTED	ABOVE RANGE MOUNT
MANUFACTURER		COOK	BROAN	BROAN
MODEL		90SQN15D	L200MG	BP130WWN
AIR FLOW	cfm	460	200	180
EXTERNAL STATIC	in.wc.	0.3	0.2	0.2
SOUND		56dBA/8.4 SONES	1.9 SONES	7.5 SONES
FAN RPM		1517	––	––
FAN MOTOR	hp	1/6	FRACTIONAL	FRACTIONAL
FAN TYPE		DIRECT DRIVE C/W FSC	DIRECT DRIVE	–
AMPS	amps	–	1.3	1.9
ELECTRICAL	volt/ph	120/1	120/1	120/1
DIMENSIONS	inches	14 SQ x 17 L	12.25 SQ x 11.75 L	30 W
APPROX. WEIGHT	lbs	52	23.7	–
CONTROLS		–TIE INTO BAS TO RUN DURING OCCUPIED HOURS	–TIE INTO THERMOSTAT (BY ELECTRICAL) FOR TEMPERATURE CONTROL. FAN ENABLE ON TEMPERATURE RISE.	–BUILT IN SWITCH
ACCESSORIES		–HANGING ISOLATOR KIT –FAN SPEED CONTROLLER –NEMA–1 DICONNECT –BACKDRAFT DAMPER –FAN CASING INSULATION	–BACKDRAFT DAMPER –METAL GRILLE	–ALUMINUM FILTER –7" ROUND DAMPER/ADAPTER –PROVIDE LAMPS TO SUIT
ALTERNATE MANUFACTURERS		GREENHECK, PENN, ZONEX, CARNES		

VERTICAL HOT WATER UNIT VENTILATOR SCHEDULE

TAG		VUV–1
SERVICE		NEW DAYCARE
MANUFACTURER		AIREDALE
MODEL		CMP48 DAMBAB NNN94
CABINET COLOUR		WHITE
DISCHARGE		TOP DUCTED
FILTER SIZE	inches	2" PLEATED DIPOSABLE MERV8
AIR FLOW		
TOTAL	cfm	1,500
SUPPLY FAN MOTOR	hp	0.75 ECM
MIN. O/A	cfm	360
MAX ESP	in.wc.	0.50
POWERED EXHAUST		
MAX AIR FLOW	cfm	2,800
FAN MOTOR	hp	2.5 ECM
MAX ESP	in.wc.	0.5
DX COOLING		
CAPACITY	btuh	45,200(TOTAL)/32,200(SENSIBLE)
TYPE		SCROLL
EFFICIENCY		11.0 EER/15.4 IPLV
STEPS		2
REFRIGERANT		R410A
HOT WATER COIL		
COIL INFO	rows	1
MAT	db°F	50.8
GPM	gpm	6.0
WPD	feet/H2O	2.84
EWT	°F	160
LWT	°F	131
CAPACITY	btuh	82,575
ELECTRICAL	volt/ph	208/3
FULL LOAD AMPS	amps	27.5
MIN. CIRCUIT AMPERAGE	amps	31.0
MAX FUSE	amps	45.0
CABINET DIMENSIONS	inches	48"W x 30"D x 90"H
APPROX. WEIGHT	lbs	765
CONTROLS		–MANUFACTURER SHALL PROVIDE INTEGRAL UNIT CONTROLLER. INTEGRAL CONTROLLER SHALL PROVIDE COMPLETE CONTROL OF INTAKE & EXHAUST FANS, DAMPER, DX COOLING, HEATING COIL, COIL CIRCULATION PUMP, AND SAFETIES. REFER TO CONTROL SCHEMATIC FOR MINIMUM POINT CAPACITY. –MANUFACTURER SHALL SUPPLY STANDALONE SPACE SENSOR FOR INTEGRAL UNIT CONTROLLER. SENSOR SHALL BE TURNED OVER TO DDSB (CONTROLS CONTRACTOR) FOR INSTALLATION ON SITE. –MANUFACTURER STANDALONE CONTROLLER SHALL BE CAPABLE OF INTEGRATION THROUGH BACNET FOR ADDITIONAL CONTROL POINT MONITORING. –MANUFACTURER INTEGRAL CONTROLLER SHALL NOT CONTROL SCHEDULING.
ACCESSORIES/OPTIONS		–DX COOLING, 2 STAGES –1–ROW HOT WATER HEATING COIL C/W 3–WAY VALVE CONTROL AND COIL CIRCULATION PUMP –HEAT PUMP –LOW LEAKAGE DAMPER EQUAL TO TAMCO 9000 –2" PLEATED DISPOSABLE FILTERS, MERV8 & SPARE SET –FACTORY INSTALLED INTERNAL DISCONNECT –1" ACOUSTIC LINER –26" HIGH TOP DUCT SHROUD (FIELD TRIMMED BY INSTALLING CONTRACTOR TO SUIT CEILING HEIGHT) –WALL SLEEVE C/W INSULATED SPLITTER PLATE AND DOUBLE SIDED GASKET (ADJUSTABLE UP TO 14") –47"H x 45"W WALL LOUVRE C/W FLANGE AND BIRDSCREEN –SIDE RETURN GRILLE –INTEGRAL CONDENSATE PUMP –TOUCH UP PAINT
ALTERNATE MANUFACTURER		CHANGE AIR, ENGINEERED AIR

AIR OUTLET SCHEDULE

TAG	A	A1	B	L	BV
TYPE	SQUARE CONE DIFFUSER	SQUARE CONE DIFFUSER	EGG CRATE RETURN	DRAINABLE LOUVRE	OUTDOOR EXTRUDED ALUMINUM BRICK/BLOCK EXHAUST VENT
MANUFACTURER	PRICE	PRICE	PRICE	VENTEX	NAILOR
MODEL	SCD–FR–3C	SCD–FR–3C	80–FR	2435	16BVE OR LARGER
SIZE	SEE DRAWINGS	SEE DRAWINGS	SEE DRAWINGS	SEE DRAWINGS	CONFIRM WITH GENERAL TO SUIT BRICK SIZE
COLOUR	B12	B12	B12	V1193 BLACK (COORD WITH ARCH)	STANDARD FINISH
NOTES	–24x24 CEILING MODULE FOR T–BAR MOUNTING –THERMAL BLANKET –STANDARD 165°F FUSIBLE LINK –ULC LISTED	–12x12 CEILING MODULE FOR T–BAR MOUNTING –THERMAL BLANKET –STANDARD 165°F FUSIBLE LINK –ULC LISTED	–CEILING MODULE FOR T–BAR MOUNTING –CEILING FIRESTOP FLAP –STANDARD 165°F FUSIBLE LINK –ULC LISTED	–ALUMINUM CONSTRUCTION –BIRDSCREEN	–4" DEEP –ALUMINUM INSECT SCREEN
ALTERNATE MANUFACTURERS	NAILOR, TITUS, METALAIRE, KREUGER				

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THE CONTRACTOR MUST CHECK AND BE RESPONSIBLE FOR SITE CONDITIONS THAT MAY DIFFER FROM THESE PLANS AND NOTIFY DURHAM ENERGY SPECIALIST LTD. OF SAME.

No.	Date	Revision
-	-	-

Date	Issue
21-01-08	ISSUED FOR PERMIT & TENDER
20-12-18	ISSUED FOR COORDINATION

THE CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL FIELD DIMENSIONS AND SHALL NOTIFY THE ARCHITECT OF ANY SITE CONDITIONS OR FIELD DIMENSIONS WHICH MAY BE AT VARIANCE WITH THE DRAWINGS.

THIS DRAWING IS NOT TO BE SCALED.

LICENSED PROFESSIONAL ENGINEER
B. R. TIMSON
100511696
JAN 8/21
PROVINCE OF ONTARIO

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CONSULTING ENGINEERS
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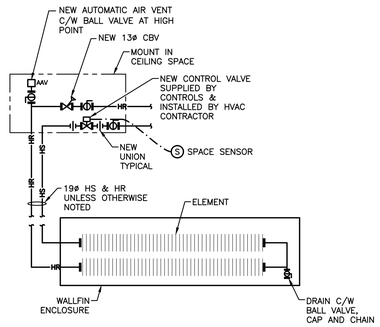
info@durhamenergy.com / www.durhamenergy.com

DES JOB No.: 20–419 DWG SIZE: D

Project
GLENGROVE PUBLIC SCHOOL
CHILDCARE RENOVATION
DURHAM DISTRICT SCHOOL BOARD
TENDER NO. T20-62
Pickering Ontario

Sheet Title
CONTROLS & SCHEDULES

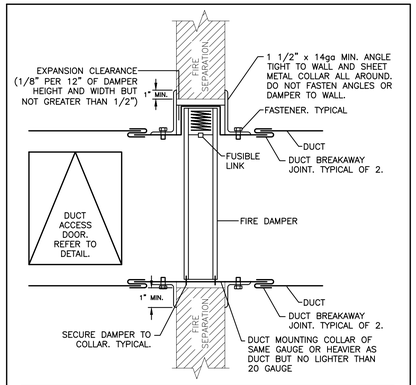
Drawn	MRC
Checked	BRT
Scale	NTS
Project No.	18042
Sheet No.	M803



NOTES:

1. PIPE HANGERS SHALL BE EPOXY COATED FOR ALL COPPER PIPING.
2. EXACT PIPING ARRANGEMENT MAY VARY. COORDINATE WITH PIPE RISER LOCATIONS FOR EACH.
3. WHERE RADIATION PIPING IS LARGER THAN SUPPLY AND RETURN USE BRASS ECCENTRIC REDUCING ADAPTERS.

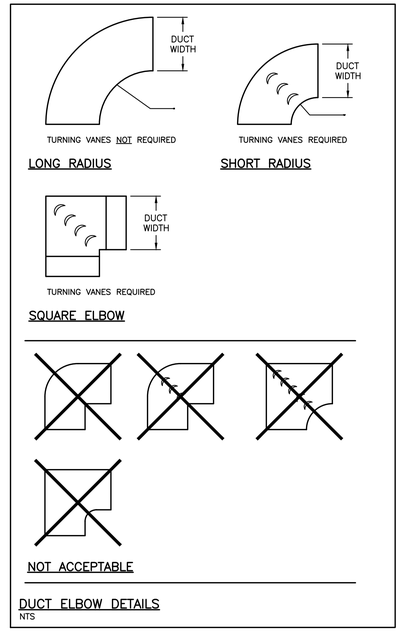
HOT WATER WALLFIN DETAIL
NTS



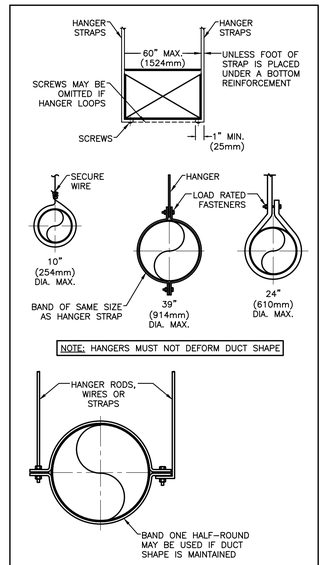
NOTE:

WHERE ACCESS IS BELOW FIRE DAMPERS IN HORIZONTAL INSTALLATIONS, PULL TAB MUST BE SPECIFIED TO ALLOW RESETTING OF LINKAGE FROM BELOW.

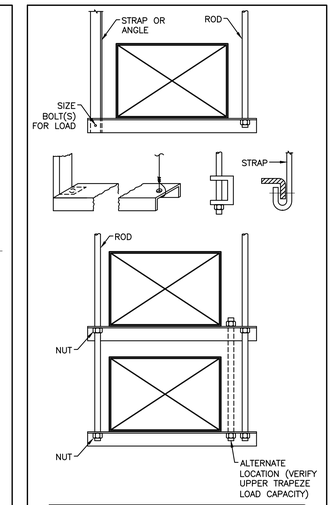
FIRE DAMPER DETAIL
NTS



DUCT ELBOW DETAILS
NTS



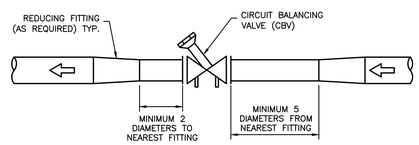
STRAP HANGERS
NTS



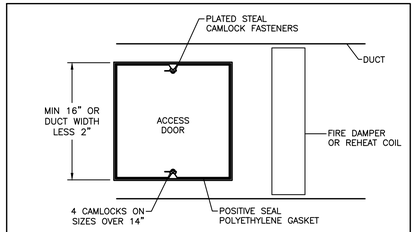
NOTES:

1. REINFORCEMENT MAY BE USED FOR ATTACHMENT IF IT QUALIFIES FOR BOTH DUTIES.
2. DO NOT EXCEED ALLOWABLE LOAD LIMITS.

TRAPEZE HANGERS
NTS

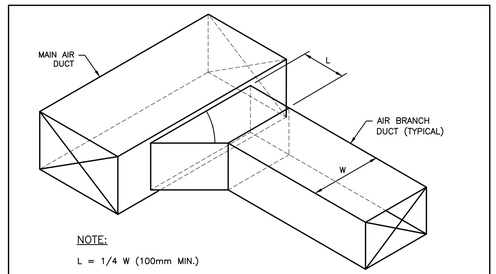


CIRCUIT BALANCING VALVE INSTALLATION DETAIL
NTS



ACCESS DOOR EQUAL TO:
SQUARE/RECTANGLE: NAILOR 085CL
FLAT OVAL: NAILOR 0800
SIZE:
SQUARE/RECTANGLE: 16x16" (STANDARD)
FLAT OVAL: 18x10" (STANDARD)

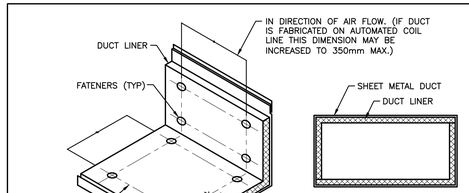
DUCT ACCESS DOOR DETAIL
NTS



NOTE:

L = 1/4 W (100mm MIN.)

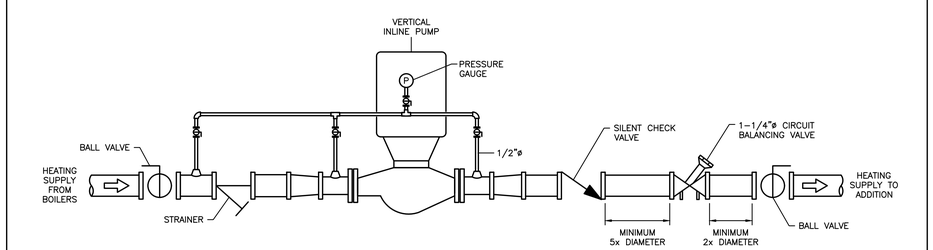
SUPPLY OR RETURN AIR DUCT BRANCH CONNECTION DETAIL
NTS



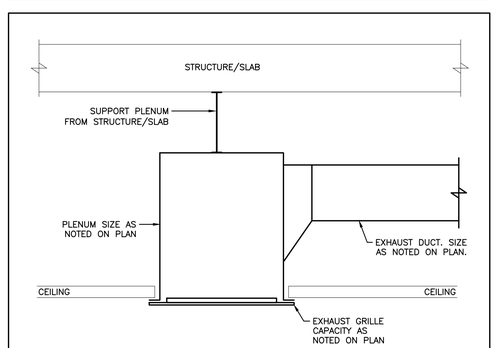
NOTE:

ALL TRANSVERSE AND LONGITUDINAL EDGES OF LINER TO BE COATED WITH ADHESIVE.

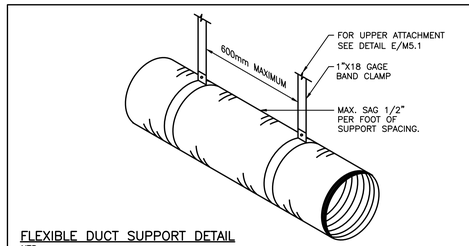
DUCT LINER DETAIL
NTS



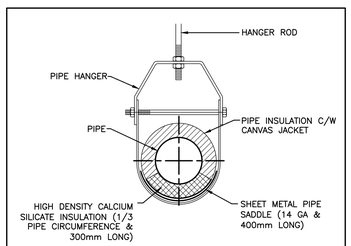
VERTICAL IN-LINE HEATING PUMP (HORIZONTAL INSTALLATION) PIPING DETAIL
NTS



CEILING EXHAUST PLENUM DETAIL
NTS

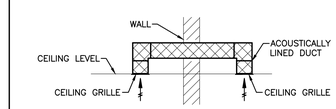


FLEXIBLE DUCT SUPPORT DETAIL
NTS



PIPE SIZES 38ø TO 100ø
(<38ø MAY BE LINE SIZE)

INSULATED PIPE HANGER DETAIL
NTS



SOUND ATTENUATION ELBOW DETAIL (ELEVATION VIEW)
NTS

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No.	Date	Revision
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20-12-18	ISSUED FOR COORDINATION

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DES JOB No.: 20-419 DWG SIZE: D

Project

GLENGROVE PUBLIC SCHOOL CHILDCARE RENOVATION

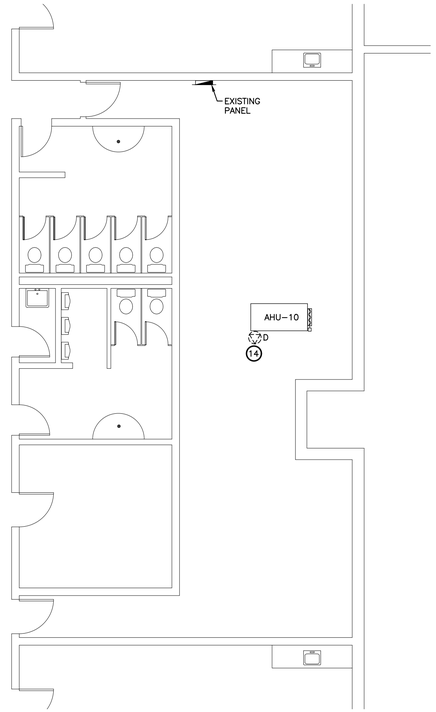
DURHAM DISTRICT SCHOOL BOARD
TENDER NO. T20-62

Pickering Ontario

Sheet Title

DETAILS

Drawn	MRC	Sheet No.
Checked	BRT	M901
Scale	NTS	
Project No.	18042	9 of 9

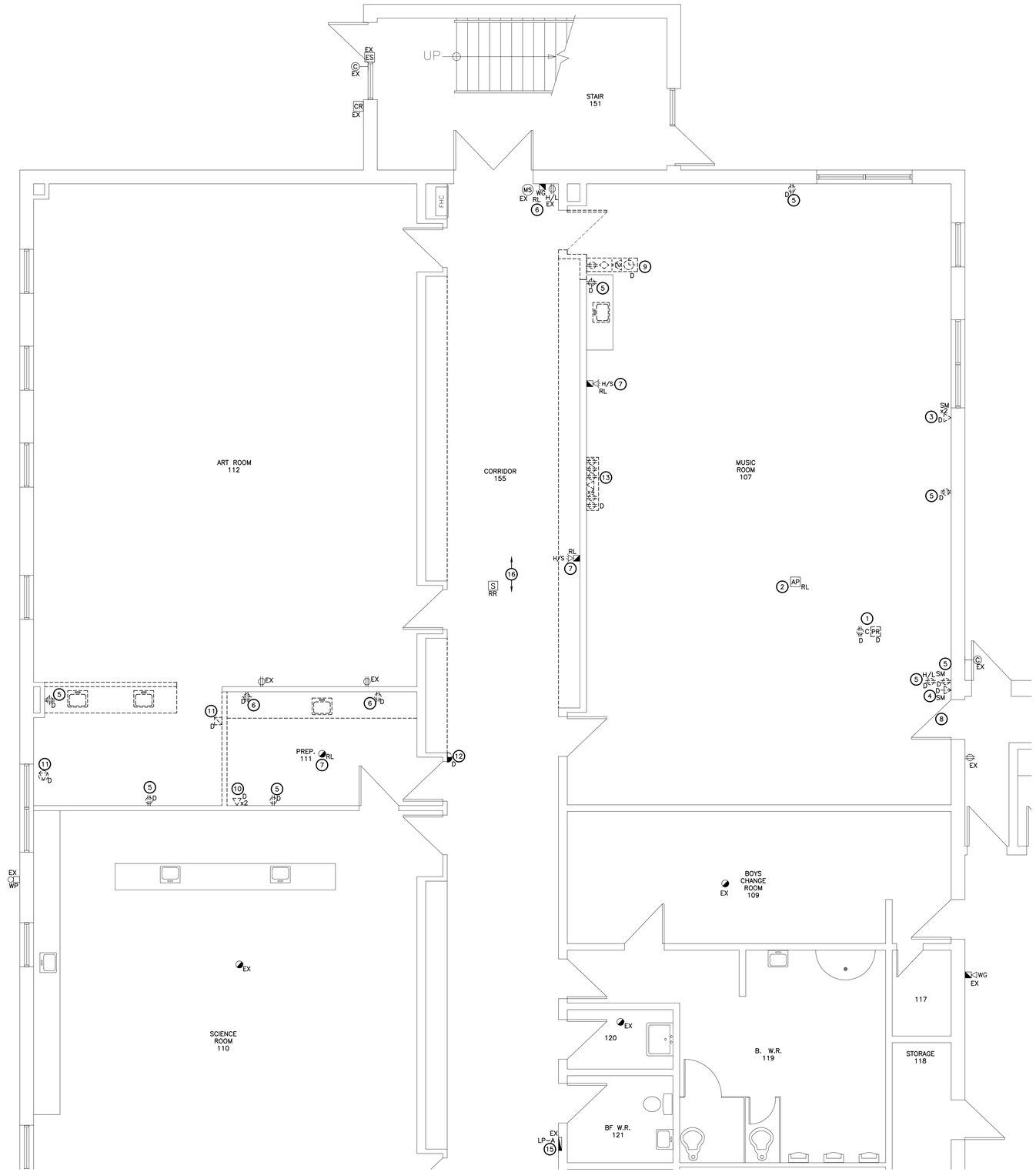


MECHANICAL ROOM 211 - DEMO POWER LAYOUT

1:75

DEMO POWER WORKING NOTES:

1. DISCONNECT AND REMOVE PROJECTOR AND CEILING RECEPTACLE. TURN OVER TO DDSB. REMOVE FEED FOR RECEPTACLE BACK TO PANEL LP–A.
2. DISCONNECT AND REMOVE ACCESS POINT. COIL AND TAG CABLE IN CEILING SPACE FOR FUTURE USE WITH SAME DEVICE. RETAIN DEVICE FOR RELOCATION.
3. DISCONNECT AND REMOVE COMMUNICATION DEVICE. REMOVE ONE CABLE UP TO CEILING SPACE FOR FUTURE USE. REMOVE REMAINING DATA CABLE BACK TO SOURCE. REMOVE SURFACE MOUNTED CONDUIT AS REQUIRED.
4. DISCONNECT AND REMOVE EXISTING VIDEO OUTLET C/W VIDEO CABLE. TURN OVER CABLE TO DDSB WITH PROJECTOR. REMOVE SURFACE MOUNTED CONDUIT WHERE APPLICABLE.
5. DISCONNECT AND REMOVE RECEPTACLE C/W FEED BACK TO PANEL LP–A. PROVIDE COVER PLATE FOR BACK BOX AS REQUIRED.
6. DISCONNECT AND REMOVE EXISTING PULL STATION. RETAIN FOR RELOCATION AT PROPER MOUNTING HEIGHT.
7. DISCONNECT AND REMOVE FA DEVICE. RETAIN FOR RELOCATION. PROVIDE COVER PLATE FOR BACK BOX.
8. ALLOW FOR REMOVAL OF ABANDONED FEEDS LOCATED IN BACK BOX ABOVE DOOR BACK TO SOURCE.
9. DISCONNECT AND REMOVE DEVICES IN EXISTING CONTROL PANEL. REMOVE CLOCK COVER PLATE, BACK BOX AND WIRING. FOR ALL OTHER DEVICES, REMOVE FEED UP TO CEILING FOR POSSIBLE REUSE.
10. DISCONNECT AND REMOVE COMMUNICATION DEVICE. REMOVE WIRING BACK TO SOURCE.
11. DISCONNECT AND REMOVE 120V POWER FOR KILN EXHAUST FAN C/W WALL MOUNTED STARTER. REMOVE FEED BACK TO PANEL A.
12. DISCONNECT AND REMOVE KILN PILOT LIGHT. REMOVE WIRING BACK TO SOURCE. PROVIDE COVER PLATE FOR EMPTY BACK BOX.
13. DISCONNECT AND REMOVE SURFACE MOUNTED RACEWAYS C/W RECEPTACLES AND DATA DEVICES. REMOVE ALL WIRING BACK TO SOURCE.
14. DISCONNECT AND REMOVE 120V POWER C/W UNIT MOUNTED STARTER FOR EXISTING AHU–10. REMOVE FEED BACK TO EXISTING PANEL IN MECHANICAL ROOM. COORDINATE WITH MECHANICAL CONTRACTOR.
15. PROJECT AREA IS FED FROM EXISTING PANEL LP–A. PROVIDE NEW TYPED REVISED PANEL SCHEDULE.
16. ALLOW FOR REMOVAL AND REINSTALLATION OF CORRIDOR CEILING DEVICES TO SUIT REMOVAL OF DUCTWORK ABOVE CEILING. COORDINATE WITH MECHANICAL CONTRACTOR.



NEW CHILDCARE AREA - DEMO POWER LAYOUT

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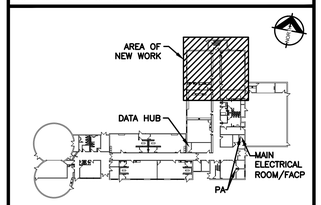

KEY PLAN - GROUND FLOOR

No.	Date	Revision
-	-	-

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DES JOB No.: 20–419 DWG SIZE: D

Project

GLENGROVE PUBLIC SCHOOL CHILDCARE RENOVATION

DURHAM DISTRICT SCHOOL BOARD
TENDER NO. T20-62

Pickering Ontario

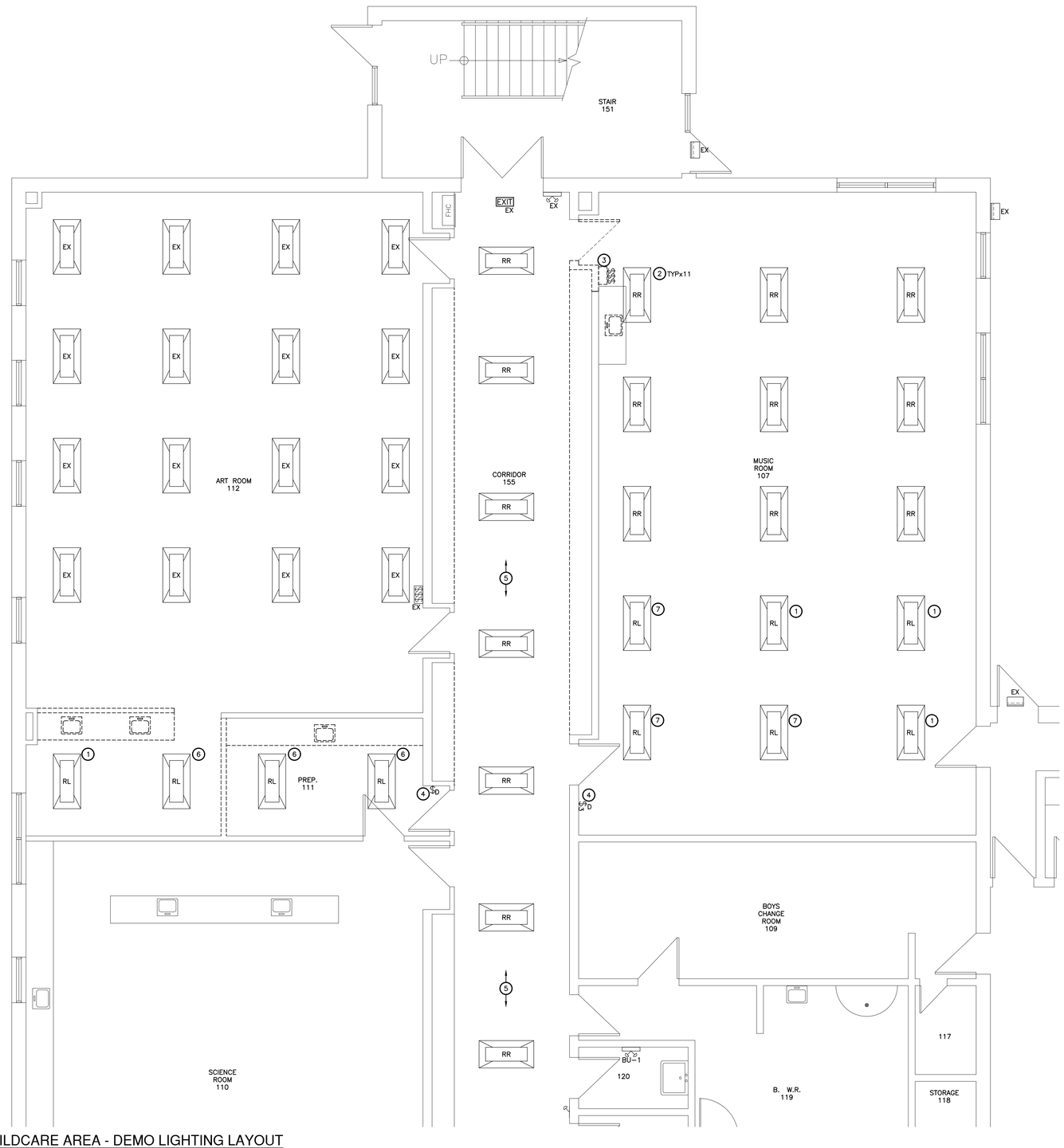
Sheet Title

DEMO POWER LAYOUT

Drawn	DCP	Sheet No.
Checked	LC/DCP	E101
Scale	AS NOTED	
Project No.	18042	1 of 7

DEMO LIGHTING WORKING NOTES:

1. DISCONNECT AND REMOVE LUMINAIRE. RETAIN FOR RELOCATION. REMOVE EXISTING DAISY CHAINED FEED BACK TO NEAREST JUNCTION BOX AT CORRIDOR WALL TO ALLOW FOR NEW WIRING AS PER SPECIFICATIONS.
2. DISCONNECT AND REMOVE LUMINAIRE. RETAIN FOR REINSTALLATION. REMOVE EXISTING DAISY CHAINED FEED BACK TO NEAREST JUNCTION BOX AT CORRIDOR WALL TO ALLOW FOR NEW WIRING AS PER SPECIFICATIONS.
3. DISCONNECT AND REMOVE SWITCHES MOUNTED IN CONTROL PANEL. REMOVE FEED BACK TO NEAREST JUNCTION BOX.
4. DISCONNECT AND REMOVE SWITCH. REMOVE FEED BACK TO NEAREST JUNCTION BOX.
5. ALLOW FOR REMOVAL AND REINSTALLATION OF CORRIDOR LIGHTING TO SUIT REMOVAL OF DUCTWORK ABOVE CEILING. COORDINATE WITH MECHANICAL CONTRACTOR.
6. DISCONNECT AND REMOVE LUMINAIRE. RETAIN FOR RELOCATION. REMOVE EXISTING DAISY CHAINED FEED BACK TO NEAREST JUNCTION BOX AT CORRIDOR WALL TO ALLOW FOR NEW WIRING AS PER SPECIFICATIONS. LUMINAIRE TO BE RELOCATED INTO NEW WASHROOM. REFER TO E301 FOR LOCATION.
7. DISCONNECT AND REMOVE LUMINAIRE. RETAIN FOR RELOCATION. REMOVE EXISTING DAISY CHAINED FEED BACK TO NEAREST JUNCTION BOX AT CORRIDOR WALL TO ALLOW FOR NEW WIRING AS PER SPECIFICATIONS. LUMINAIRE TO BE RELOCATED INTO NEW KITCHEN. REFER TO E301 FOR LOCATION.



NEW CHILDCARE AREA - DEMO LIGHTING LAYOUT

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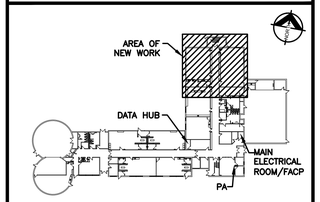

KEY PLAN - GROUND FLOOR

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GLENGROVE PUBLIC SCHOOL CHILDCARE RENOVATION

DURHAM DISTRICT SCHOOL BOARD
TENDER NO. T20-62

Pickering Ontario

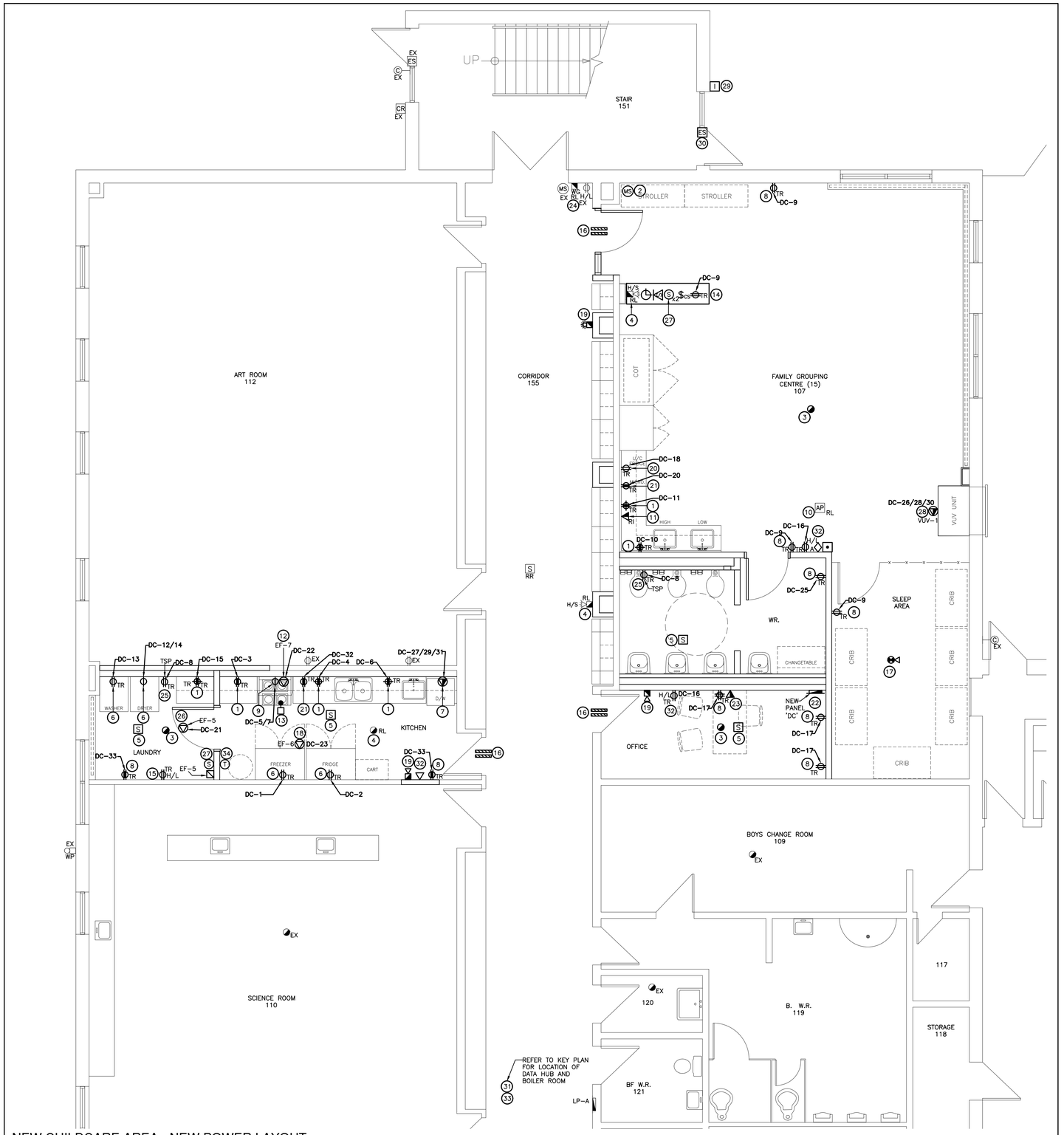
Sheet Title

DEMO LIGHTING LAYOUT

Drawn	DCP
Checked	LC/DCP
Scale	AS NOTED
Project No.	18042
Sheet No.	E102

NEW POWER WORKING NOTES:

1. PROVIDE NEW RECEPTACLE MOUNTED APPROXIMATELY 40" AFF C/W NEW DEDICATED CIRCUIT. COORDINATE HEIGHT WITH GENERAL CONTRACTOR TO SUIT MILLWORK.
2. PROVIDE NEW MOTION SENSOR. TIE INTO SCHOOL MAIN SECURITY SYSTEM AS SEPARATE ZONE.
3. PROVIDE NEW FIRE ALARM DEVICE. TIE INTO EXISTING INITIATING CIRCUIT.
4. RELOCATE EXISTING FIRE ALARM DEVICE. EXTEND WIRING AS REQUIRED.
5. PROVIDE NEW PA SPEAKER. TIE INTO EXISTING CIRCUIT.
6. PROVIDE NEW RECEPTACLE FOR NEW EQUIPMENT AS NOTED C/W NEW DEDICATED CIRCUIT. COORDINATE WITH CLIENT FOR EQUIPMENT SPECS TO CONFIRM POWER CONNECTION PRIOR TO ROUGH-IN.
7. PROVIDE 208V/3Ø CONNECTION FOR DISHWASHER C/W NEUTRAL WIRE. COORDINATE EXACT POWER REQUIREMENTS WITH DDSB PRIOR TO ROUGH-IN.
8. PROVIDE NEW TAMPER RESISTANT RECEPTACLE.
9. PROVIDE 208V RECEPTACLE C/W DEDICATED CIRCUIT FOR STOVE. REFER TO FIRE SUPPRESSION SYSTEM DETAIL FOR ADDITIONAL WIRING REQUIREMENTS.
10. RELOCATE EXISTING ACCESS POINT AS NOTED.
11. PROVIDE EMPTY BACK BOX C/W COVER PLATE AND 3/4"C UP TO CEILING SPACE WITH PULL STRING.
12. PROVIDE 120V POWER FOR EXHAUST FAN EF-7 MOUNTED ABOVE NEW RANGE HOOD. COORDINATE LOCATION WITH MECHANICAL CONTRACTOR.
13. PROVIDE NEW ALARM POINT FROM FACP FOR SUPPRESSION SYSTEM. REFER TO DETAIL FOR GUARDIAN 300B POWER SHUT-OFF INSTALLATION REQUIREMENTS.
14. PROVIDE NEW DEVICES IN CONTROL PANEL AS NOTED. REFER TO CONTROL PANEL DETAIL. COORDINATE INSTALLATION WITH GENERAL CONTRACTOR.
15. PROVIDE NEW RECEPTACLE AT HIGH LEVEL FOR NEW EMERGENCY BATTERY UNIT. TIE INTO CIRCUIT AS NOTED.
16. PROVIDE 2x1"C SLEEVES FOR CONTROLS AND COMMUNICATION WIRING.
17. PROVIDE NEW FIRE ALARM DEVICE AND TIE INTO EXISTING LIGHTING CIRCUIT.
18. PROVIDE 120V POWER FOR NEW EXHAUST FAN EF-6 C/W UNIT MOUNTED ISOLATION SWITCH. COORDINATE WITH MECHANICAL CONTRACTOR.
19. PROVIDE NEW FIRE ALARM DEVICE. TIE INTO EXISTING SIGNALING CIRCUIT.
20. PROVIDE NEW RECEPTACLE FOR UNDER COUNTER FRIDGE. COORDINATE FINAL MOUNTING HEIGHT WITH ARCHITECTURAL ELEVATIONS AND GENERAL CONTRACTOR PRIOR TO ROUGH-IN.
21. PROVIDE NEW RECEPTACLE FOR MICROWAVE MOUNTED APPROXIMATELY 59"AFF IN CABINET SPACE. COORDINATE FINAL MOUNTING HEIGHT WITH ARCHITECTURAL ELEVATIONS AND GENERAL CONTRACTOR PRIOR TO ROUGH-IN.
22. PROVIDE NEW 225A POWER PANEL DEDICATED TO DAYCARE AREA. REFER TO SINGLE LINE DIAGRAM AND PANEL SCHEDULE FOR DETAILS. PROVIDE 4#4/0 + GND IN 2-1/2"C FOR FEED FROM EXISTING MAIN SWITCHBOARD.
23. PROVIDE NEW DATA/VOICE COMMUNICATION DEVICE. REUSE EXISTING DATA WIRING COILED IN CEILING SPACE. PROVIDE NEW VOICE WIRING.
24. LOWER EXISTING PULL STATION TO BE MOUNTED 45" AFF TO CENTER OF DEVICE. ALLOW FOR TWO (2) JUNCTION BOXES FOR RELOCATION TO SUIT EXISTING DEVICES ON WALL.
25. PROVIDE NEW RECEPTACLE FOR TRAP SEAL PRIMER LOCATED IN CEILING SPACE. TIE INTO CIRCUIT AS NOTED. COORDINATE WITH MECHANICAL CONTRACTOR.
26. PROVIDE 120V POWER FOR NEW EXHAUST FAN EF-5 C/W WALL MOUNTED STARTER. COORDINATE WITH MECHANICAL CONTRACTOR.
27. PROVIDE BACK BOX FOR MECHANICAL SENSORS MOUNTED AT 59" AFF. COORDINATE WITH MECHANICAL CONTRACTOR.
28. PROVIDE 208V/3Ø POWER FOR NEW VUV. FEED WITH 3#8 CU + GND IN 1"C FROM NEW DAYCARE PANEL. COORDINATE WITH MECHANICAL CONTRACTOR.
29. PROVIDE NEW VIKING K-1275-EWP INTERCOM PANEL COMPLETE WITH 120V POWER AND RECESSED MOUNTED BOX. PROVIDE ALL COMPONENTS AND INTERLOCK WIRING AS REQUIRED FOR FUNCTIONAL SYSTEM AND AS REQUIRED TO SUPPORT DEVICES NOTED IN WORKING NOTE 32 AND VESTIBULE DOOR. COORDINATE RECESSING OF BACK BOX WITH GENERAL CONTRACTOR. PROVIDE 3/4" CONDUIT FROM BACK BOX TO ACCESSIBLE CEILING SPACE.
30. PROVIDE 3/4"C INSIDE DOOR FRAME TO ACCESSIBLE CEILING SPACE C/W LOW VOLTAGE WIRING FOR NEW ELECTRIC STRIKE.
31. INSTALL NEW DVR FOR DAYCARE IN HUB ROOM COMPLETE WITH HDMI OUTPUT SPLITTER TO BE CONNECTED TO DAYCARE MONITORS VIA HDMI CONNECTION. DVR TO BE CONNECTED TO DDSB NETWORK AND COORDINATED WITH CLIENT. EXACT LOCATION TO BE COORDINATED WITH CLIENT. REFER TO KEY PLAN FOR HUB ROOM LOCATION.
32. PROVIDE ACCESS SYSTEM MONITOR COMPLETE WITH POWER AT HIGH LEVEL. PROVIDE VIDEO WIRING BACK TO MAIN ACCESS PANEL. PROVIDE PHONE AND DOOR RELEASE BUTTON WHERE SHOWN COMPLETE WITH INTERLOCK WIRING BACK TO MAIN ACCESS PANEL. ALLOW FOR MOUNTING PHONE AND DOOR RELEASE BUTTON IN CLASSROOM CONTROL PANEL. FINAL LOCATION TO BE COORDINATED WITH OWNER.
33. PROVIDE 120V POWER FOR NEW PUMP IN BOILER ROOM 142 C/W NEW HOA STARTER. TIE INTO BOILER ROOM PANEL COMPLETE WITH NEW 15A BREAKER. COORDINATE WITH MECHANICAL CONTRACTOR. REFER TO KEY PLAN FOR BOILER ROOM LOCATION.
34. INSTALL NEW THERMOSTAT FOR EF-6 PROVIDED BY DDSB. MOUNT AT 47" AFF. COORDINATE WITH MECHANICAL CONTRACTOR.



NEW CHILDCARE AREA - NEW POWER LAYOUT

1:50

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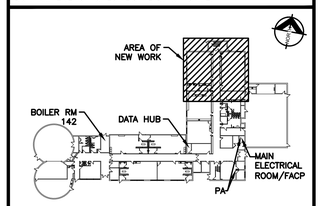

KEY PLAN - GROUND FLOOR

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Project

GLENGROVE PUBLIC SCHOOL CHILDCARE RENOVATION

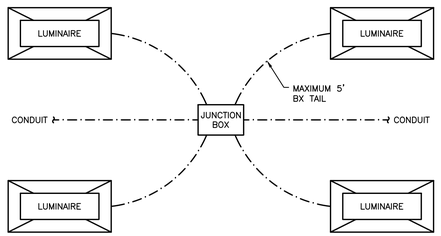
DURHAM DISTRICT SCHOOL BOARD
TENDER NO. T20-62

Pickering Ontario

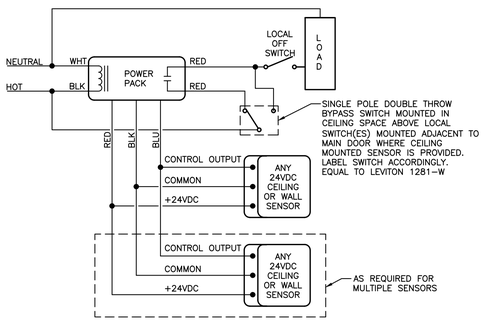
Sheet Title

NEW POWER LAYOUT

Drawn	DCP	Sheet No.
Checked	LC/DCP	E201
Scale	AS NOTED	
Project No.	18042	3 of 7



LUMINAIRE WIRING DETAIL
NTS



TYPICAL OCCUPANCY SENSOR WIRING SCHEMATIC
NTS

NEW WORKING NOTES:

1. RELOCATE EXISTING LUMINAIRES. PROVIDE NEW WIRING AS PER WIRING DETAIL. ALLOW FOR PROVIDING JUNCTION BOX AT CORRIDOR WALL AND EXTENDING FEED IN NEW CONDUIT TO MATCH WIRING DETAIL. PROVIDE NEW FIRE RATED ENCLOSURES (TENMAT FF130).
2. REINSTALL EXISTING LUMINAIRES. PROVIDE NEW WIRING AND CONDUIT TO MATCH WIRING DETAIL. TIE INTO SWITCHES AS NOTED. PROVIDE NEW FIRE RATED ENCLOSURES (TENMAT FF130).
3. PROVIDE NEW SWITCHES MOUNTED IN CONTROL PANEL FOR LIGHTING CONTROL. CLOSEST SWITCH TO DOOR TO CONTROL INNER LAMP BALLAST.
4. PROVIDE NEW SWITCHES FOR LIGHTING CONTROL. CLOSEST SWITCH TO DOOR TO CONTROL INNER LAMP BALLAST.
5. PROVIDE NEW SWITCH FOR LIGHTING CONTROL. MOUNT TO MEET NEW BARRIER FREE REQUIREMENTS
6. PROVIDE NEW OCCUPANCY SENSOR FOR LIGHTING CONTROL. REFER TO OCCUPANCY SENSOR SPECIFICATIONS AND WIRING DETAIL.
7. PROVIDE NEW EMERGENCY DEVICE AS NOTED. TIE INTO NEW EMERGENCY CIRCUIT.
8. PROVIDE NEW EMERGENCY BATTERY UNIT.
9. PROVIDE NEW EMERGENCY EXIT SIGN TO REPLACE EXISTING. TIE INTO EXISTING EMERGENCY LIGHTING CIRCUIT. DEVICE VOLTAGE TO MATCH EXISTING CIRCUIT. CONTRACTOR TO VERIFY ON SITE PRIOR TO ORDERING.
10. PROVIDE NEW LUMINAIRE C/W NEW WIRING AS PER WIRING DETAIL. PROVIDE NEW FIRE RATED ENCLOSURES (TENMAT FF130).

NEW CHILDCARE AREA - NEW LIGHTING LAYOUT
1:50

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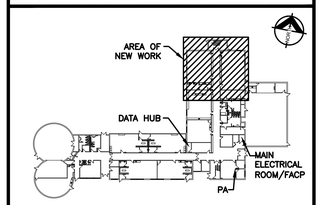

KEY PLAN - GROUND FLOOR

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GLENGROVE PUBLIC SCHOOL CHILDCARE RENOVATION

DURHAM DISTRICT SCHOOL BOARD
TENDER NO. T20-62

Pickering Ontario

Sheet Title

NEW LIGHTING LAYOUT

Drawn	DCP
Checked	LC/DCP
Scale	AS NOTED
Project No.	18042
Sheet No.	E301

POWER LEGEND

TAG	DESCRIPTION	MAKE/MODEL
TR	15A 120V 1PH GROUNDED QUAD RECEPTACLE TAMPER RESISTANT C/W STAINLESS STEEL COVER PLATE	HUBBELL BR15WHITR OR EQUAL
TR	15A 120V 1PH GROUNDED DUPLEX RECEPTACLE TAMPER RESISTANT C/W STAINLESS STEEL COVER PLATE	HUBBELL BR15WHITR OR EQUAL
TR	20A 120V 1PH T-SLOT GROUNDED DUPLEX RECEPTACLE, TAMPER RESISTANT C/W STAINLESS STEEL COVER PLATE.	HUBBELL GFTR20W OR EQUAL
TR	20A 120V 1PH GROUNDED DUPLEX RECEPTACLE TAMPER RESISTANT C/W STAINLESS STEEL COVER PLATE	HUBBELL BR20WHITR OR EQUAL
	240V 1PH GROUNDED RECEPTACLE CONFIGURATION TO SUIT EQUIPMENT	HUBBELL HBL OR EQUAL
	120V 1PH GROUNDED DIRECT EQUIPMENT CONNECTION	N/A
	208V 3PH GROUNDED DIRECT EQUIPMENT CONNECTION	N/A
	2-POLE MANUAL STARTER C/W 3 POSITION SELECTOR SWITCH FOR HAND/OFF/AUTO. TRANSFORMER AND 24V COIL FOR CONTROLS INTERLOCK.	FRANKLIN BAS-1P
	NEW 225A 42 CIRCUIT PANEL	EQUAL TO SIEMENS TYPE P1
ES	ELECTRIC STRIKE BY GENERAL CONTRACTOR. ELECTRICAL CONTRACTOR TO PROVIDE WIRING.	N/A
S	WALL CONTROL SENSOR BY MECHANICAL. ELECTRICAL TO PROVIDE BACK BOX, EMPTY CONDUIT UP WALL C/W PULL STRING. PROVIDE WIREMOLD BACK BOX AND CONDUIT WHERE 'SM' IS NOTED.	N/A
T	LINE VOLTAGE THERMOSTAT (SUPPLIED BY DDSB AND INSTALLED BY ELECTRICAL)	N/A

COMMUNICATIONS LEGEND

TAG	DESCRIPTION	MAKE/MODEL
	DATA ONLY OUTLET BOX - WALL BOX, OUTLET & 3/4" CONDUIT C/W PULL STRING UP WALL TO CEILING SPACE	REFER TO SPECIFICATIONS
	DATA AND VOICE OUTLET BOX - WALL BOX, OUTLET & 3/4" CONDUIT C/W PULL STRING UP WALL TO CEILING SPACE	REFER TO SPECIFICATIONS
S	CEILING MOUNTED P.A. SPEAKER	REFER TO SPECIFICATIONS
S	WALL MOUNTED P.A. SPEAKER	REFER TO SPECIFICATIONS
AP	ACCESS POINT	EXISTING
I	INTERCOM W/ BUILT-IN CAMERA	REFER TO ACCESS SPECIFICATIONS
	BATTERY OPERATED CLOCK AT 7' ABOVE FLOOR	EQUAL TO PRIMEX OR SIMPLEX
	PUSH BUTTON FOR DOOR RELEASE	REFER TO ACCESS SPECIFICATIONS
MS	MOTION SENSOR	BOSCH ISC-BDL2-W12. ALTERNATE: HONEYWELL DT4357/DT7435 OR OPTEX DX40/60
A	ACCESS SYSTEM CORDLESS PHONE	REFER TO ACCESS SPECIFICATIONS

FIRE ALARM LEGEND

	EXISTING TO BE RELOCATED
	FIRE ALARM HORN
	COMBINATION SMOKE ALARM/CO/STROBE EQUAL TO BRK7030BSLA
	ALARM POINT
'##' cd	STROBE ONLY. '##' DENOTES STROBE CANDELA RATING. PROVIDE 15cd UNLESS OTHERWISE NOTED.
	HEAT DETECTOR FIXED TEMPERATURE
H/S	EXISTING COMBINATION HORN/STROBE TO BE RELOCATED

LIGHT FIXTURE SCHEDULE

TAG	DESCRIPTION	MAKE / MODEL	ALTERNATES
	EXISTING LIGHT FIXTURE TO BE RESINSTALLED	N/A	N/A
A	RECESSED 2x4 LED LUMINAIRE, K12 0.125" PATTERN ACRYLIC LENS, 2-14W LED LAMPS, 1 INSTANT START BALLAST, 4000K, 120V	SIGNIFY TG8 2TG8232-12-UNV-1/2	LITHONIA PEERLESS-ELECTRIC VISIONEERING
$ $3	LIGHT SWITCH - '3' DENOTES 3-WAY	HUBBELL 1200 SERIES (120V)	EQUAL
$DS	SWITCH PLATE MOUNTED PASSIVE INFRARED OCCUPANCY SENSOR WITH BUTTON, WHITE, 120V	LEVITON ODS10-IDW	HUBBELL LEGRAND COOPER
OS	WALL/CORNER MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR, WHITE, 24V	EQUAL TO LEVITON OSW12-MOW	HUBBELL ACUITY WATTSTOPPER
OS	CEILING MOUNTED DUAL TECHNOLOGY LOW PROFILE OCCUPANCY SENSOR 24V, INCLUDE POWER PACKS AS REQUIRED	EQUAL TO LEVITON OSC10-MOW	HUBBELL ACUITY WATTSTOPPER

EMERGENCY LIGHTING SCHEDULE

TAG	DESCRIPTION	MAKE / MODEL
## ## ##	ALL METAL EXIT SIGN, WHITE LED LIGHT SOURCE, FACTORY WHITE, GREEN RUNNING MAN WITH LEGEND PLATE AS NOTED, SINGLE FACE, UNIVERSAL MOUNTING (WALL, END OR CEILING), 120/347V AC INPUT (NORMAL), 6-24V DC INPUT (EMERGENCY).	EQUAL TO LUMACELL LS1WU.
BU-1	STEEL BATTERY UNIT COMPLETE 1 4W LED HEAD, CORROSION RESISTANT, FACTORY WHITE, REMOVABLE FRONT ACCESS PANEL, LEAD ACID BATTERY, SOLID STATE PULSE-TYPE CHARGER, TEST SWITCH, LED INDICATOR LIGHTS, 120/347V INPUT WITH LINE CORD KIT, 12V OUTPUT.	EQUAL TO LUMACELL RG12S-72-1-MQM-LD7
	CEILING MOUNTED REMOTE DUAL HEAD 12V 4W LED EMERGENCY LIGHT, INJECTION MOLDED IMPACT RESISTANT FLAME RETARDANT THERMOPLASTIC, ADJUSTABLE LENSES, SUITABLE FOR INSTALLATION ON 4" OCTAGON BOX.	EQUAL TO LUMACELL RSQB2LD7
	CEILING MOUNTED REMOTE SINGLE HEAD 4W LED EMERGENCY LIGHT, INJECTION MOLDED IMPACT RESISTANT FLAME RETARDANT THERMOPLASTIC, ADJUSTABLE LENSES, SUITABLE FOR INSTALLATION ON 4" OCTAGON BOX.	EQUAL TO LUMACELL RSQBLD7

APPROVED ALTERNATES: BEGHELLI, EMERGI-LITE, AIMLITE, STAN PRO

NOTE:
1. ## DENOTES BATTERY UNIT.
2. 'DS' DENOTES DOUBLE SIDED.
3. ALLOW 20% SAFETY ON BACK-UP BATTERY PACK SIZING.
4. ALL UNITS TO BE CSA CERTIFIED.
5. EMERGENCY LIGHTING LIGHT LEVELS ARE TO BE TAKEN IN FOOT CANDLES BY THE CONTRACTOR AFTER PROJECT COMPLETION. ADVISE CONSULTANT OF TEST DATE FOR WITNESS AND OWN READINGS.

ELECTRICAL ABBREVIATIONS

EX	EXISTING TO REMAIN
D	EXISTING TO BE REMOVED C/W CONDUIT/WIRING BACK TO SOURCE
RL	EXISTING TO BE RELOCATED. EXTEND FEED AS REQUIRED.
RR	EXISTING TO BE REMOVED & REINSTALLED IN SAME LOCATION.
x#	QUANTITY OF DEVICES
H/L	HIGH LEVEL
AFF	ABOVE FINISHED FLOOR
C/W	COMPLETE WITH
WG	PROVIDE WIRE GUARD OR VANDAL COVER
SM	SURFACE MOUNTED
RI	PROVIDE ROUGH-INS ONLY

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THE CONTRACTOR MUST CHECK AND BE RESPONSIBLE FOR SITE CONDITIONS THAT MAY DIFFER FROM THESE PLANS AND NOTIFY DURHAM ENERGY SPECIALIST LTD. OF SAME.

No.	Date	Revision
-	-	-

Date	Issue
21-01-08	ISSUED FOR PERMIT & TENDER
20-12-18	ISSUED FOR COORDINATION

THE CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL FIELD DIMENSIONS AND SHALL NOTIFY THE ARCHITECT OF ANY SITE CONDITIONS OR FIELD DIMENSIONS WHICH MAY BE AT VARIANCE WITH THE DRAWINGS.

THIS DRAWING IS NOT TO BE SCALED.

LICENSED PROFESSIONAL ENGINEER
L CONFORTI
100178622
JAN 8/21
PROVINCE OF ONTARIO

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DES JOB No.: 20-419 DWG SIZE: D

Project

GLENGROVE PUBLIC SCHOOL CHILDCARE RENOVATION

DURHAM DISTRICT SCHOOL BOARD
TENDER NO. T20-62

Pickering Ontario

Sheet Title

LEGENDS

Drawn	DCP
Checked	LC/DCP
Scale	NTS
Project No.	18042
Sheet No.	E801

FIRE ALARM SCOPE OF WORK:

1. EXISTING FIRE ALARM CONTROL PANEL IS SIMPLEX 4100ES.
2. FIRE ALARM MANUFACTURER TO ATTEND SITE PRIOR TO PRICING TO REVIEW EXISTING SYSTEM FOR CONFORMANCE WITH NEW PROPOSED DEVICES. FIRE ALARM MANUFACTURER TO INCLUDE FOR ALL LABOUR AND COMPONENTS REQUIRED TO CONNECT EXISTING DEVICES TO EXISTING FIRE ALARM CONTROL PANEL IN CONFORMANCE WITH ALL APPLICABLE CODES. ALLOW FOR WIRING BACK TO FIRE ALARM CONTROL PANEL TO SUPPORT NEW ZONE IF REQUIRED.
3. INSTALL NEW DEVICES AS INDICATED ON DRAWINGS.
4. ADD ADDITIONAL HORN/STROBES AND STROBES AS INDICATED. FIRE ALARM MANUFACTURER TO CONFIRM CIRCUIT LOADING PRIOR TO PRICING IF CONNECTING NEW DEVICES TO EXISTING CIRCUITS.
5. PROVIDE NEW ZONE FOR FIRE SUPPRESSION SYSTEM.
6. UPDATE EXISTING ACTIVE GRAPHIC TO REFLECT ZONE ADDITIONS. OBTAIN THE SERVICES OF THE FIRE ALARM MANUFACTURER FOR ANY PROGRAMMING CHANGES. FIRE ALARM MANUFACTURER AND/OR CONTRACTOR TO PROVIDE TEMPORARY GRAPHIC, TO THE SATISFACTION OF THE AUTHORITIES HAVING JURISDICTION AND THE CONSULTANT, IF THE NEW PERMANENT GRAPHIC WILL NOT BE COMPLETED AND POSTED FOR OCCUPANCY.
7. ALL DEVICE AND SIGNAL CIRCUITS TO BE WIRED TO MATCH EXISTING.
8. NEW END OF LINE RESISTORS TO BE MOUNTED BY FIRE ALARM CONTROL PANEL..
9. LABELING:
   - .1 PAINT ALL FIRE ALARM JUNCTION BOXES RED. IDENTIFY EACH JUNCTION BOX AS EITHER SIGNAL OR INITIATING CIRCUIT.
   - .2 LABEL ALL POWER JUNCTION BOXES WITH PANEL AND CIRCUIT NUMBER.
   - .3 BREAKER FOR FACP AND FIRE COMMUNICATOR SHALL BE LOCKED AND PAINTED RED.
10. TEST AND VERIFY THE FIRE ALARM SYSTEM IN CONFORMANCE WITH CAN/ULC-S537-M "STANDARD FOR THE VERIFICATION OF FIRE ALARM SYSTEMS" TO ENSURE SATISFACTORY OPERATION.
11. PERFORM AUDIBILITY TESTS AS PER ONTARIO FIRE CODE (MINIMUM 65DBA, MAXIMUM 100DBA THROUGHOUT) AND PROVIDE REPORT TO THE CONSULTANT. ALL SPACES WITHIN THE PROJECT AREA MUST BE TESTED. DOORS SHALL BE CLOSED DURING TESTING. CONTRACTOR AND VERIFIER TO ALLOW FOR SYSTEM MODIFICATIONS AND REVERIFICATIONS AS REQUIRED TO MEET AUDIBILITY REQUIREMENTS.
12. PROVIDE VERIFICATION REPORT AND AUDIBILITY TESTS TO THE CONSULTANT FOR REVIEW. SUBMIT FINAL COPY OF REPORT TO THE BUILDING DEPARTMENT/FIRE PREVENTION.
13. ARRANGE FOR A SITE INSPECTION BY THE BUILDING DEPARTMENT/FIRE PREVENTION, CONSULTANT AND ESA AT COMPLETION OF THE PROJECT FOR FINAL ACCEPTANCE. PERFORM ADDITIONAL AUDIBILITY TESTS AS REQUESTED.

FIRE ALARM SPECIFICATIONS:

1. THE CONTRACTOR SHALL RELOCATE OR FURNISH NEW LABOUR, SERVICES AND MATERIALS NECESSARY TO PROVIDE A COMPLETE, FUNCTIONAL LIFE SAFETY FIRE SYSTEM. THE SYSTEM SHALL COMPLY IN ALL RESPECTS WITH ALL PERTINENT CODES, RULES, REGULATIONS AND LAWS OF THE LOCAL JURISDICTION. THE SYSTEM SHALL COMPLY IN ALL RESPECTS WITH THE REQUIREMENTS OF THE SPECIFICATIONS, MANUFACTURER'S RECOMMENDATIONS AND UNDERWRITERS LABORATORIES OF CANADA (ULC) LISTINGS. ALL COMPONENTS SHALL BE ULC LISTED.
2. THE EQUIPMENT AND INSTALLATION SHALL COMPLY WITH THE CURRENT PROVISIONS OF THE FOLLOWING CODES AND STANDARDS:
   - .1 LOCAL AND PROVINCIAL BUILDING CODES
   - .2 LOCAL AND PROVINCIAL FIRE CODES
   - .3 LOCAL, PROVINCIAL AND CANADIAN ELECTRICAL CODES
   - .4 NFPA 72 – NATIONAL FIRE ALARM CODE
   - .5 NFPA 101 – LIFE SAFETY CODE
   - .6 CAN/ULC-S524 AND OTHER APPLICABLE ULC STANDARDS
   - .7 AUTHORITY HAVING JURISDICTION
3. THE FIRE ALARM SYSTEM AS A WHOLE – INCLUDING BUT NOT LIMITED TO ALL INITIATING DEVICES, HORNS, STROBES AND ELECTRONICS, AND FIRE COMMUNICATOR WILL BE UNDER A FULL REPLACEMENT WARRANTY FOR A PERIOD OF ONE(1) YEAR REGARDLESS OF THE NUMBER OF FAILURES THAT ANY ONE DEVICE OR COMPONENT EXPERIENCES. THE WARRANTY WILL INCLUDE THE TOTAL COST OF THE SERVICE VISIT TO RETURN THE SYSTEM TO NORMAL OPERATION. THE TOTAL COST WILL INCLUDE BUT NOT LIMITED TO LABOUR, PARTS, TRUCK TIME, ADMINISTRATION, ETC. THE FIRE ALARM MANUFACTURER/INSTALLER WILL GUARANTEE SAME DAY SERVICE TO ALL CALLS PLACED DURING WARRANTY PERIOD.
4. ALL SIGNAL DEVICES SHALL HAVE FIELD ADJUSTABLE DB SETTINGS VIA DIP SWITCHES OR PROGRAMMING FOR LOW, MEDIUM AND HIGH. PERMANENT MODIFICATION TO DEVICE TO CHANGE AUDIBLE LEVEL IS NOT ACCEPTABLE.
5. FIRE DETECTOR MOUNTING:
   - .1 FIRE DETECTORS SHALL NOT BE LOCATED CLOSER THAN 1000mm HORIZONTALLY FROM TIP OF A CEILING SUSPENDED (PADDLE) FAN OR CEILING MOUNTED UNIT HEATER MEASURED TO THE EDGE OF THE DETECTOR.
   - .2 FIRE DETECTORS SHALL NOT BE LOCATED CLOSER THAN 450mm FROM ANY SUPPLY OUTLET OR EXHAUST OUTLET AS MEASURED TO THE EDGE OF THE DETECTOR.
6. DEVICE MOUNTING HEIGHT:
   - .1 PULL STATION(S) TO BE MOUNTED 45" (1150mm) A.F.F. TO CENTER OF DEVICE
   - .2 WALL MOUNTED AUDIBLE SIGNAL TO BE MOUNTED MINIMUM 6" (150mm) BELOW CEILING AND NO LESS THAN 90"(2300mm) A.F.F. TO THE TOP OF THE DEVICE
   - .3 STROBE(S) TO BE MOUNTED SO THAT ENTIRE LENS IS 78"–94" (2000–2400mm) A.F.F.
   - .4 COMBINATION HORN/STROBE(S) SHALL CONFORM TO BOTH 5.1 AND 5.2
   - .5 END OF LINE RESISTORS TO BE MOUNTED LESS THAN 70" (1800mm) A.F.F
7. CONDUIT AND WIRE:
   - .1 WIRING SHALL BE IN ACCORDANCE WITH LOCAL, PROVINCIAL AND NATIONAL CODES, AND AS RECOMMENDED BY THE MANUFACTURER OF THE FIRE ALARM SYSTEM.
   - .2 NUMBER AND SIZE OF CONDUCTORS SHALL BE AS RECOMMENDED BY THE FIRE ALARM SYSTEM MANUFACTURER, BUT NOT LESS THAN 18 AWG (1.02 MM) FOR INITIATING DEVICE CIRCUITS AND SIGNALING LINE CIRCUITS, AND 14 AWG (1.63 MM) FOR NOTIFICATION APPLIANCE CIRCUITS (UNLESS OTHERWISE DIRECTED BY MANUFACTURER).
   - .3 ALL WIRE AND CABLE SHALL BE LISTED AND/OR APPROVED BY A RECOGNIZED TESTING AGENCY FOR USE WITH A PROTECTIVE SIGNALING SYSTEM.
   - .4 ALL FIELD WIRING SHALL BE ELECTRICALLY SUPERVISED FOR OPEN CIRCUIT AND GROUND FAULT.
   - .5 ALL WIRE SHALL BE INSTALLED IN CONDUIT. PROVIDE WIREMOLD FOR ALL WIRING IN EXPOSED AREAS: ALL SURFACE MOUNTED CONDUIT MUST BE APPROVED BY OWNER OR CONSULTANT PRIOR TO INSTALLATION.
   - .6 WIRE AND CABLE NOT INSTALLED IN CONDUIT SHALL HAVE A FIRE RESISTANCE RATING SUITABLE FOR THE INSTALLATION AS INDICATED IN NFPA 70 (E.G., FPLR) AND AS PER OBC.
   - .7 ALL JUNCTION BOXES SHALL BE PAINTED 'RED' AND IDENTIFIED AS SIGNAL OR INITIATING. ALL LBs SHALL BE PAINTED RED. ANY CONDUIT LENGTH EXCEEDING 10'(3m) SHALL HAVE COUPLING PAINTED RED FOR IDENTIFICATION.
8. SURFACE DEVICES AND EXPOSED CONDUIT:
   - .1 ALL SURFACE MOUNTED CONDUIT MUST BE APPROVED BY OWNER OR CONSULTANT PRIOR TO INSTALLATION.
   - .2 PROVIDE WIREMOLD (PANDUIT) FOR ALL WIRING IN EXPOSED AREAS.
   - .3 ANY SURFACE BOXES SHALL BE 'FS' (NO KNOCKOUTS) AND BE PRE-APPROVED BY OWNER OR CONSULTANT.

ELECTRICAL NOTES:

1. ALL WORK SHALL CONFORM TO ESA REQUIREMENTS.
2. PROVIDE CHAINS FOR ALL LIGHT FIXTURES. CHAINS SHALL BE PROVIDED AT ALL FOUR CORNERS.
3. BOND ALL METALLIC WATER, DRAIN AND GAS PIPING AS PER ESA REQUIREMENTS.
4. PROVIDE JUNCTION BOXES C/W COVERPLATES AS REQUIRED.
5. COORDINATE INSTALLATION WITH ALL OTHER TRADES.
6. ALL PANEL BOARDS SHALL BE COMPLETE WITH HINGED DOORS. PROVIDE LOCKING DOORS IN PUBLIC AREAS OR CORRIDORS.
7. ALL DISTRIBUTION EQUIPMENT SHALL HAVE COPPER BUS UNLESS OTHERWISE NOTED. ALUMINUM BUS WILL NOT BE ACCEPTED.
8. REFER TO "EMT (ELECTRICAL METALLIC TUBING) vs. LIQUIDTIGHT vs. FLEXIBLE CABLE" FOR ACCEPTABLE USE OF EACH.
9. EMT AND BOXES SHALL BE SIZED ACCORDING TO CODE REQUIREMENT BASED ON THE NUMBER OF CONDUCTORS.
10. FOR EMT AND/OR CONDUITS BENDS GREATER THAN OR EQUAL TO 270°, A PULL BOX MUST BE PROVIDED.
11. ALL EMT (ELECTRICAL METALLIC TUBING) SHALL BE FIRMLY FASTENED IN PLACE SO AS TO SUPPORT THE WEIGHT OF CONDUIT AND TO PREVENT ANY STRAIN OR STRESS AT TERMINATIONS ACCORDING TO ELECTRICAL CODE 12–1010.
12. CONTRACTORS SHALL ATTEMPT TO FISH NEW FEEDS DOWN EXISTING WALLS WHERE THIS IS NOT POSSIBLE (ONLY), SURFACE INSTALLATION IS ACCEPTABLE ON EXISTING BLOCK WALLS IN FINISHED AREAS AS FOLLOWS:
   - .1 BOXES SHALL BE SHALLOW WIRE MOLD BOX WITH NO KNOCKOUTS.
   - .2 CONDUIT SHALL BE WIRE MOLD. COLOUR TO BE WHITE.
13. CONCEAL ALL EMT (ELECTRICAL METALLIC TUBING) AND COMPONENTS IN CEILING SPACE OR WALLS. RUN TIGHT TO ROOF DECK OR FLOOR ABOVE WHERE CEILING IS EXPOSED. RUN TIGHT TO WALL OR COLUMN WHERE WALLS ARE EXPOSED.
14. WHERE EMT RUNS HORIZONTALLY ACROSS WALL STUDS, NOTCHES SHOULD BE CUT AND PROTECTED BY STEEL PLATES.
15. MOUNTING HEIGHTS
   - .1 MOUNT NEW CONTROL DEVICES, INCLUDING BUT NOT LIMITED TO, P.A. CALL SWITCHES, OPERATORS, LIGHT SWITCHES OR SWITCH PLATE OCCUPANCY SENSORS NO LESS THAN 36" (900mm) A.F.F TO BOTTOM OF BOX AND 43"(1100mm) MAXIMUM A.F.F TO TOP OF BOX. UNLESS OTHERWISE NOTED.
   - .2 MOUNT NEW RECEPTACLES 16" (400mm) A.F.F. UNLESS OTHERWISE NOTED.
   - .3 SPACE SENSORS SHALL BE MOUNTED 59"(1500mm)
16. RECEPTACLES LOCATED WITHIN 5'(1.5m) OF A DAMP OR WET LOCATION SHALL BE GROUND FAULT CIRCUIT INTERRUPTER TYPE.
17. CONTRACTOR TO ALLOW FOR THE RELOCATION OF ANY RECEPTACLE OR DEVICE/EQUIPMENT CONNECTION WITHIN 10' OF LOCATION SHOWN AT NO EXTRA COST.
18. DEVICE COVER PLATES SHALL BE STAINLESS STEEL IN ALL AREAS.
19. BRANCH CIRCUIT BREAKER AMPERE INTERRUPTING CAPACITY TO MATCH BUS RATING. PROVIDE 10% SPARE FOR FUTURE.
20. MAXIMUM VOLTAGE DROP IN BRANCH CIRCUITS TO BE 3%. CONDUCTORS SHALL BE OVERSIZED TO SUIT VOLTAGE DROP WHERE APPLICABLE.
21. CONDUCTORS TO BE COPPER UNLESS OTHERWISE NOTED. CONDUCTORS IN RACEWAYS SHALL BE T75 NYLON (T90 ACCEPTABLE IF DERATED AS PER OESC). ALL CONDUCTORS SHALL BE MINIMUM #10AWG FOR EMERGENCY BATTERY CIRCUITS AND EXTERIOR LIGHTING, #14AWG FOR CONTROL WIRING AND MINIMUM #12AWG FOR ALL OTHER APPLICATIONS.
22. ALL WIRE SIZES INDICATED ON DRAWINGS ARE BASED ON A 75°C TERMINATION TEMPERATURE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE TERMINATION TEMPERATURE OF EACH DEVICE AND MODIFY THE WIRE SIZE TO SUIT OR NOTIFY ENGINEER FOR DIRECTION.
23. IDENTIFY EACH WIRE AND CABLE AT EVERY TERMINATION POINT. IDENTIFY ALL EMT AND/OR CONDUITS WITH "NEAT" COLOUR BANDS AT NO MORE THAN 25'(7.5m) INTERVALS AND ON BOTH SIDES OF WALLS & FLOOR.
24. NON-CURRENT CARRYING METAL PARTS FOR FIXED EQUIPMENT SHALL BE BONDED TO GROUND. INSTALL SEPARATE BONDING IN LIQUIDTIGHT CONDUITS.
25. WHERE CEILING SPACE IS USED AS A RETURN AIR PLENUM, ALL WIRING SHALL CONFORM TO CODES FOR THIS APPLICATION.
26. SUPPLY AND INSTALL 2" EMT CONDUIT SLEEVES COMPLETE WITH BUSHING OVER EVERY DOOR FROM CORRIDOR TO FACILITATE INSTALLATION OF COMMUNICATION AND CONTROL WIRING. COORDINATE ANY ADDITIONAL CONDUIT SLEEVE REQUIREMENTS WITH ALL TRADES AS REQUIRED.
27. CONTRACTOR IS RESPONSIBLE FOR LOAD BALANCING ALL DISTRIBUTION PANEL INSTALLATIONS. MEASURE PHASE CURRENT TO PANELBOARDS WITH NORMAL LOADS (LIGHTING) OPERATING AT TIME OF ACCEPTANCE. ADJUST BRANCH CIRCUIT CONNECTIONS AS REQUIRED TO OBTAIN BEST BALANCE OF CURRENT BETWEEN PHASES AND RECORD CHANGES. SUBMIT AT COMPLETION OF WORK, REPORT LISTING PHASE AND NEUTRAL CURRENTS ON PANELBOARDS, DRY-CORE TRANSFORMERS AND MOTOR CONTROL CENTERS OPERATING UNDER NORMAL LOAD. STATE HOUR AND DATE ON WHICH EACH LOAD WAS MEASURED, AND VOLTAGE AT TIME OF TEST.
28. FIRE STOP ALL EXISTING AND NEW CONDUIT THROUGH FIRE SEPARATIONS.
29. ARRANGE FOR ESA INSTALLATION PERMIT AND INSPECTION AND FORWARD A COPY OF THE ESA CERTIFICATE TO THE ENGINEER UPON ACCEPTANCE (INCLUDING FIRE ALARM LISTED AS A SEPARATE ITEM). ARRANGE AND PAY FOR OCCUPANCY PERMIT IF FINAL INSPECTION CANNOT BE SCHEDULED BY COMPLETION DATE SET FORTH IN TENDER DOCUMENTS.

ADDITIONAL MEASURES TO SUIT COVID-19:

ANY OPERATING COSTS OR OTHER COSTS RELATED TO COVID-19 SHALL BE A PART OF YOUR TENDERED PRICE (AS PART OF YOUR GENERAL CONDITIONS AND OVERHEAD).

OCCUPANCY SENSOR SPECIFICATIONS:

1. ALL SENSORS SHALL BE INSTALLED AS PER MANUFACTURERS RECOMMENDATIONS.
2. ALL SENSORS SHALL BE 24V. PROVIDE POWER PACKS FOR ALL SENSORS.
3. SWITCH PLATE SENSORS SHALL BE SINGLE TECHNOLOGY USING INFRARED DETECTION. CEILING MOUNTED OR WALL MOUNTED SENSORS SHALL BE DUAL TECHNOLOGY USING BOTH ULTRASONIC AND INFRARED.
4. CEILING AND WALL MOUNTED SENSORS SHALL UTILIZE BOTH ULTRASONIC AND INFRARED TO VERIFY AND ACTIVATE LIGHTING SYSTEM. UPON VERIFICATION, DETECTION BY EITHER TECHNOLOGY SHALL HOLD LIGHTING ON.
5. CEILING AND WALL MOUNTED SENSORS SHALL HAVE A RE-TRIGGER FEATURE IN WHICH DETECTION BY EITHER TECHNOLOGY SHALL RE-TRIGGER THE LIGHTING SYSTEM ON WITHIN 5 SECONDS OF BEING SWITCHED OFF.
6. CEILING SENSORS SHALL BE FLAT, UNOBTRUSIVE APPEARANCE AND PROVIDE 360° AND UP TO 2000 SQ.FT. OF COVERAGE. WALL MOUNTED SENSORS SHALL PROVIDE MINIMUM 110° FIELD OF VIEW AND 1200 SQ.FT. OF COVERAGE. SWITCH PLATE SENSORS SHALL PROVIDE 180° FIELD OF VIEW AND 900 SQ.FT. OF COVERAGE.
7. CEILING AND WALL MOUNTED SENSORS SHALL HAVE BUILT-IN LIGHT SENSOR THAT OPERATES FROM 10 TO 300 FOOT-CANDLES.
8. ULTRASONIC, INFRARED AND LIGHT SENSOR TECHNOLOGIES SHALL BE ADJUSTABLE.
9. SENSORS SHALL HAVE TIME DELAY THAT IS ADJUSTED AUTOMATICALLY (AUTO MODE) OR SHALL HAVE A FIXED TIME DELAY OF 5 TO 30 MINUTES SET BY DIP SWITCHES. DEFAULT SETTING IS AUTO MODE.
10. SENSORS SHALL HAVE WALK-THROUGH MODE, WHERE LIGHTING TURNS OFF 3 MINUTES AFTER AREA IS INITIALLY OCCUPIED IF NO MOTION IS DETECTED AFTER THE FIRST 30 SECONDS.
11. SENSORS SHALL HAVE MINIMUM EIGHT OCCUPANCY LOGIC OPTIONS THAT GIVE END USER ABILITY TO CUSTOMIZE CONTROL TO MEET APPLICATION NEEDS.
12. SENSORS SHALL HAVE NON-VOLATILE MEMORY SO THAT SETTINGS ARE NOT LOST DURING POWER OUTAGE.
13. SENSORS SHALL HAVE ISOLATED RELAY FOR USE WITH HVAC SYSTEMS.
14. EACH SENSING TECHNOLOGY SHALL HAVE LED INDICATOR.
15. ALL CEILING AND WALL MOUNTED SENSORS, MOUNTED IN SPACES OTHER THAN CORRIDORS, SHALL HAVE A 2-POLE BYPASS SWITCH MOUNTED IN CEILING SPACE ABOVE CONTROL SWITCH(ES) AND IDENTIFIED. REFER TO WIRING DIAGRAM.
16. SENSORS SHALL BE MANUFACTURED BY AN ISO 9002 CERTIFIED MANUFACTURING FACILITY AND HAVE A DEFECT RATE OF LESS THAN 1/3 OF 1%.
17. SENSORS SHALL HAVE 5 YEAR WARRANTY AND BE UL AND CUL LISTED.
18. COMMISSIONING:
    CONTRACTOR IS RESPONSIBLE FOR RETAINING THE SERVICES OF OCCUPANCY SENSOR MANUFACTURER TO SETUP AND CALIBRATE ALL NEW OCCUPANCY SENSORS. CONTRACTOR SHALL PARTICIPATE THROUGHOUT THE COMPLETE VERIFICATION PROCESS AND IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH VERIFICATION.
19. ALTERNATE MANUFACTURERS OTHER THAN THOSE LISTED IN THE LUMINAIRE SCHEDULE MUST BE SENT TO THE CONSULTANT FOR REVIEW AND APPROVAL THROUGH ADDENDUM PROCESS.

EMT vs. LIQUIDTIGHT vs. FLEXIBLE CABLE

EMT (ELECTRICAL METALLIC TUBING) MUST BE USED IN THE FOLLOWING INDOOR APPLICATIONS:

1. ALL EXPOSED AREAS (USE WIREMOLD ON EXPOSED WALLS IN FINISHED AREAS WHERE EXPOSED WIRING HAS BEEN APPROVED).
2. T-BAR CEILING SPACES.
3. VERTICAL DROPS TO DEVICES IN NEW WALLS (I.E. SWITCHES RECEPTACLES, DATA/VOICE.)

LIQUIDTIGHT MUST BE USED IN THE FOLLOWING INDOOR AND OUTDOOR APPLICATIONS:

1. LAST 5' (1.5m) FOR FINAL CONNECTION TO INDOOR MECHANICAL EQUIPMENT. LIQUID TIGHT CONDUIT IN CEILING SPACE MUST BE PLENUM RATED.
2. ALL OUTDOOR WIRING.

FLEXIBLE CABLE IS ONLY ACCEPTABLE IN THE FOLLOWING INDOOR APPLICATIONS:

1. LAST 5' (1.5m) FOR FINAL CONNECTION TO LIGHTING AND SMALL EQUIPMENT/COMPONENTS IN CEILING SPACES. DAISY CHAIN OF LUMINAIRES IS NOT ALLOWED.
2. LAST 5'(1,5m) FOR FINAL CONNECTION TO MECHANICAL EQUIPMENT LOCATED IN CEILING SPACE OR ON ROOF.
3. FISHED DOWN IN EXISTING WALL(S). FLEXIBLE CABLE IN NOT PERMITTED IN NEW WALL(S).

LED LAMP & BALLAST SPECIFICATION

1. LED LAMPS.
   - 1.1. ALL LAMPS MUST BE OF GLASS CONSTRUCTION.
   - 1.2. LAMPS MUST HAVE MINIMUM 220° BEAM ANGLE.
   - 1.3. LUMEN OUTPUT MUST BE MINIMUM 2000 LUMENS.
   - 1.4. LAMPS MUST BE ABLE TO BE INSTALLED IN LUMINAIRE HOUSING WITHOUT ANY MODIFICATIONS REQUIRED TO BE MADE TO HOUSING.
   - 1.5. MAXIMUM LAMP WATTAGE TO BE 16W.
   - 1.6. COLOUR TEMPERATURE TO BE 4100K.
   - 1.7. LAMPS MUST BE RATED FOR 50,000 HOURS LIFE SPAN BASED ON L70.
   - 1.8. LAMPS MUST BE DLC LISTED FOR APPLICABLE ENERGY GRANTS.
   - 1.9. WARRANTY: MINIMUM 5 YEAR.
   - 1.10. APPROVED PRODUCT: SYLVANIA LED13T8/L48/DIM/841/SUB/G6
   - 1.11. ALTERNATES: NONE
2. BALLAST
   - 2.1. BALLAST MUST BE ON LED LAMP MANUFACTURER'S APPROVED BALLAST COMPATIBILITY LIST. NO ADDITIONAL COSTS WILL BE INCURRED FOR USING NON-APPROVED BALLAST/LAMP CONFIGURATIONS.
   - 2.2. BALLAST MUST BE INSTANT START OR PROGRAM-START.
   - 2.3. THD < 20% AND POWER FACTOR > 0.90.
   - 2.4. WARRANTY: MINIMUM 5 YEARS.
   - 2.5. APPROVED PRODUCT: SYLVANIA QHE2X32T8/UNV ISN
   - 2.6. ALTERNATES: NONE

COMMUNICATIONS SCOPE OF WORK/SPECS:

1. ELECTRICAL CONTRACTOR RESPONSIBLE FOR OBTAINING THE SERVICES OF A QUALIFIED COMMUNICATION CONTRACTOR TO CARRY OUT ALL WORK ASSOCIATED WITH TELEPHONE AND DATA SYSTEMS INCLUDING BUT NOT LIMITED TO DEVICES, WIRING, TESTING AND VERIFICATION.
2. ELECTRICAL CONTRACTOR RESPONSIBLE FOR PROVIDING ALL INFRASTRUCTURE FOR COMMUNICATION CABLING INCLUDING BUT NOT LIMITED TO BACK BOXES, CONDUIT UP WALL WITH PULL STRING AND INSULATING BUSHINGS, AND CONDUIT INFRASTRUCTURE IN CEILING SPACE INCLUDING JUNCTION BOXES, CONDUIT STUBS AS REQUIRED.
3. COMMUNICATION CONTRACTOR RESPONSIBLE FOR ALL DEMOLITION WORK. CONTRACTOR TO INVESTIGATE EXISTING SERVICES PRIOR TO DEMOLITION TO ENSURE DESIGN INTENT IS FEASIBLE. ADVISE CONSULTANT OF ANY ISSUES.
4. ALLOW FOR 1"C C/W COPPER BACK BONE CABLE FROM DAYCARE OFFICE TO EXISTING HUB ROOM FOR NEW DEDICATED SYSTEM FOR DAYCARE.
5. ALL COMMUNICATION CABLING SHALL BE RUN USING J-HOOKS. SPACING AS PER MANUFACTURERS RECOMMENDATIONS. SUPPORT ALL J-HOOKS FROM BUILDING STRUCTURE. J-HOOKS SHALL BE SUPPORTED INDEPENDENT OF ALL OTHER SERVICES.
6. EXISTING SYSTEM SHOULD BE BASED ON PANDUIT STRUCTURED CABLING SYSTEM. ALL NEW DEVICES AND CABLE SHALL BE PANDUIT. MAXIMUM HORIZONTAL CABLE RUN LENGTH TO NOT EXCEED 300'.
7. ALL CABLING MUST BE PANDUIT 24AWG CAT6 4 PAIR FT6 RATED. CATEGORY MARKING SHALL BE PRINTED EVERY FOOT. JACKET SHALL BE PRINTED WITH TRU-MARK 1000' TO 0' MARKING SYSTEM WITH BLUE OUTER SHEATH FOR DATA AND GREY OUTER SHEATH FOR VOICE.
8. FACEPLATES SHALL BE ABLE TO MOUNT ONE/TWO/THREE/FOUR OR SIX JACKS IN A SINGLE GANG AND SIX OR NINE JACKS IN A DOUBLE GANG.
9. JACKS SHALL BE 8-POSITIONED UN-KEYED WITH 94 V0 RATING. ALL DROPS MUST BE CLEARLY LABELED ON THE PATCH PANEL AND CABLE BOX. PROVIDE YELLOW FOR VOICE AND GREEN FOR DATA.
10. PROVIDE 4' AND 6' CAT6 PATCH CABLES AT WORK STATION END AS REQUIRED TO SUIT INSTALLATION. COORDINATE WITH DDSB.
11. THIRD PARTY FACILITY PARTNERS (CHILD CARES)
    - 11.1. ALL CABLING TO RUN BACK TO SAME DATA CLOSET BUT INSTALLED IN AN INDEPENDENT RACK FROM DDSB EQUIPMENT. PROVIDE WALL MOUNTED PANDUIT PATCH PANEL AND BIX PANEL AS REQUIRED TO FACILITATE DATA/VOICE OUTLETS REQUIRED FOR FACILITY.
    - 11.2. ALLOW FOR RELOCATING ANY EXISTING CABLING SERVING AREA FROM DDSB RACK TO NEW FACILITY RACK.
    - 11.3. PROVIDE ENOUGH LENGTH IN DATA CLOSET TO ALLOW RELOCATING OF CABLING FROM THIRD PARTY RACK INTO DDSB RACK IN FUTURE
12. ANY HORIZONTAL EXPOSED CABLE SHALL BE RUN IN WIREMOLD 500/700 SERIES UNLESS OTHERWISE SPECIFIED.
13. CONTRACTOR TO TEST ALL DATA AND PHONE DROPS AND SUBMIT REPORT TO CONSULTANT. REPORT SHALL BE INCLUDED IN MAINTENANCE MANUAL.
14. COMMUNICATION CONTRACTOR TO PROVIDE ONE YEAR WARRANTY ON ALL MATERIAL AND LABOUR.
15. APPROVED SUB-CONTRACTOR:
    ANY CERTIFIED PANDUIT COMMUNICATION CONTRACTOR

P.A. SYSTEMS

1. ELECTRICAL CONTRACTOR TO CARRY OUT ALL WORK ASSOCIATED WITH P.A. SYSTEM INCLUDING BUT NOT LIMITED TO DEVICES, BACK BOXES, CONDUIT, WIRING, TESTING AND VERIFICATION.
2. EXISTING SYSTEM ASSUMED TO BE SIMPLEX.
3. ANY NEW DEVICES TO MATCH EXISTING SYSTEM. PROVIDE SHOP DRAWINGS FOR REVIEW.
4. ALL P.A. WIRING TO RUN BACK TO MAIN CONTROL PANEL AS NOTED.
5. P.A. SPEAKERS FOR CHILD CARE SHALL BE PROGRAMMED TO RECEIVE ALL CALL EMERGENCY ANNOUNCEMENTS ONLY. P.A. PHONE SHALL HAVE THE ABILITY TO CALL MAIN OFFICE.
6. PROVIDE AS-BUILT MARKUPS OF ANY NEW DEVICES AND ANY NEW JUNCTION BOXES PROVIDED TO SUIT.
7. ALL WIRING TO BE CAT3 FT4 RATED AND INSTALLED IN CONDUIT. WHERE IT IS NOT POSSIBLE TO INSTALL IN CONDUIT, PROVIDE J-HOOKS AND RUN FT6 RATED CABLE. J-HOOK SPACING AS PER MANUFACTURE RECOMMENDATIONS. SUPPORT ALL J-HOOKS FROM BUILDING STRUCTURE. J-HOOKS SHALL BE SUPPORTED INDEPENDENT OF ALL OTHER SERVICES.
8. CONFIRM ALL NECESSARY WIRING REQUIREMENTS WITH MANUFACTURER AND DDSB.
9. INSTALL ALL P.A. SYSTEM DEVICES I.E. P.A. CALL SWITCHES, P.A. SPEAKERS AND WIRING TO DDSB STANDARDS.
10. ALLOW FOR REPROGRAMMING ENTIRE SYSTEM TO SUIT NEW ROOM NUMBERING AS PER ARCHITECTURAL DRAWINGS. CONFIRM ROOM NUMBERING IS FINALIZED WITH ARCHITECT AND CLIENT PRIOR TO REPROGRAMMING SYSTEM.
11. CONTRACTOR MUST PROVIDE INSPECTION, INITIAL TEST, REQUIRED ADJUSTMENTS, COMMISSIONING VERIFICATION AND CERTIFICATION OF ALL EXISTING CIRCUITS MODIFIED AND ALL NEW CIRCUITS.
12. SUBMIT REPORT TO CONSULTANT AND INCLUDE IN MANUAL.
13. COST OF SUB-CONTRACTOR TO BE CARRIED UNDER CASH ALLOWANCE
    APPROVED SUB-CONTRACTORS:
    TECH SYS 289-809-2987
    SUREFOOT ELECTRIC 905-579-2690

GENERAL NOTES:

1. THOROUGHLY REVIEW AND COORDINATE WITH SITE CONDITIONS AND COMPLETE DRAWING SET PRIOR TO PRICING AND INSTALLATION.
2. OBTAIN, ARRANGE AND PAY FOR ALL REQUIRED PERMITS AND INSPECTIONS.
3. OBTAIN AND REVIEW THE DESIGNATED SUBSTANCE REPORT FROM THE CLIENT AND COORDINATE ANY DESIGNATED SUBSTANCE ISSUES WITH THE CLIENT PRIOR TO ANY WORK BEING DONE.
4. THE ELECTRICAL CONTRACTOR AND SUB-TRADES SHALL ATTEND ALL SITE MEETINGS UNLESS OTHERWISE APPROVED.
5. PROVIDE ELECTRONIC SHOP DRAWINGS IN PDF FORMAT TO CONSULTANT FOR REVIEW. ALL SHOP DRAWINGS MUST BE REVIEWED, STAMPED AND SIGNED BY THE ELECTRICAL CONTRACTOR PRIOR TO SUBMITTING TO THE CONSULTANT. REVIEW SHALL INCLUDE, BUT NOT LIMITED TO, VERIFYING VOLTAGE, RATING, DIMENSIONS AND CLEARANCES. SUBMIT SHOP DRAWINGS ELECTRONICALLY TO INFO@DURHAMENERGY.COM.
6. INSTALL ALL WORK IN CONFORMANCE WITH MANUFACTURER'S REQUIREMENTS AND RECOMMENDATIONS.
7. MAINTAIN RECORD DRAWINGS ON AN ON-GOING BASIS. DRAWINGS SHALL BE AVAILABLE FOR PERIODIC REVIEW BY THE CONSULTANT DURING CONSTRUCTION.
8. ALL WORK SHALL COMPLY WITH APPLICABLE CODES.
9. REMOVE ALL REDUNDANT EQUIPMENT AND MATERIALS FROM SITE AND DISPOSE OF IN AN APPROVED MANNER. REDUNDANT EQUIPMENT AND MATERIALS SHALL NOT BE ABANDONED IN PLACE.
10. ALL CUTTING, CORING AND PATCHING SHALL BE BY THIS CONTRACTOR. COORDINATE PATCHING WITH GENERAL CONTRACTOR.
11. ALL CONDUIT SHALL BE CONCEALED AND ALL DEVICES RECESSED. ANY SURFACE MOUNTED CONDUIT MUST BE APPROVED BY OWNER OR CONSULTANT PRIOR TO INSTALLATION.
12. MAINTAIN REQUIRED ACCESS AND CLEARANCE TO ALL EQUIPMENT AND SYSTEMS AS REQUIRED BY CODE AND AS PER MANUFACTURER'S REQUIREMENTS.
13. PROVIDE ACCESS DOORS WHERE REQUIRED TO MAINTAIN ACCESS TO DEVICES, EQUIPMENT, JUNCTION BOXES ETC. COORDINATE AND TURN OVER TO GENERAL CONTRACTOR FOR INSTALLATION. CONTRACTOR TO INSTALL WHERE NOT COORDINATED PROPERLY WITH GENERAL CONTRACTOR.
14. TAG ALL EQUIPMENT (INCLUDING MECHANICAL EQUIPMENT), EQUIPMENT DISCONNECTS/STARTERS AND PANELS WITH LAMACOID NAMEPLATES. PANEL NAMEPLATE SHALL STATE PANEL DESIGNATION, VOLTAGE, AMPERAGE AND SOURCE OF FEEDER. EQUIPMENT SHALL STATE PANEL AND CIRCUIT NUMBER. PROVIDE TYPED PANEL SCHEDULES IN ALL PANELS. CONFIRM WITH CONSULTANT IF UNCLEAR.
15. LABEL ALL RECEPTACLES AND JUNCTION BOXES WITH PANEL AND CIRCUIT NUMBER. USE BLACK MARKER ON CONCEALED JUNCTION BOXES AND CLEAR ADHESIVE LABELS WITH BLACK WRITING ON RECEPTACLES. PAINT ALL JUNCTION BOXES RED FOR FIRE ALARM.
16. THE CONTRACTOR SHALL ARRANGE FOR FIELD REVIEWS BY THE CONSULTANT PRIOR TO CEILINGS AND WALLS BEING CLOSED IN. WHERE THIS HAS NOT BEEN ARRANGED IT IS THE CONTRACTOR'S RESPONSIBILITY TO REMOVE CEILING TILES OR ACCESS DOORS FOR REVIEW AT THE DIRECTION OF THE CONSULTANT.
17. PERFORM TESTING OF ALL SYSTEMS AS REQUIRED BY CODE AND THE CONSULTANT.
18. ASSIST WITH START-UP AND COMMISSIONING OF ALL SYSTEMS AS REQUIRED.
19. INSTRUCT AND TRAIN THE OWNER ON PROPER OPERATION OF THE SYSTEM.
20. UPON COMPLETION OF THE PROJECT THE CONSULTANT WILL DO A FINAL REVIEW. UPON RECEIVING THE FINAL INSPECTION REPORT, THE CONTRACTOR MUST CORRECT AND SIGN BACK THE INSPECTION REPORT INDICATED ALL DEFICIENCIES ARE COMPLETED. A RE-INSPECTION WILL ONLY BE DONE ONCE THE CONSULTANT RECEIVES THIS IN WRITING. WHERE THE CONSULTANT PERFORMS THE RE-INSPECTION AND THE WORK IS NOT COMPLETE, THE CONTRACTOR IS RESPONSIBLE FOR REIMBURSING THE CONSULTANT FOR THE FIELD REVIEW. THE FEE FOR ADDITIONAL REVIEWS WILL BE AT THE CONSULTANT'S HOURLY RATES PLUS MILEAGE AND APPLICABLE TAXES TO BE PAID DIRECTLY TO THE CONSULTANT PRIOR TO PERFORMING THE NEXT FIELD REVIEW.
21. PROVIDE ONE (1) YEAR WARRANTY ON ALL MATERIAL AND LABOUR FROM THE DATE OF SUBSTANTIAL COMPLETION.
22. PROGRESS DRAWS SHALL INCLUDE MINIMUM $1,000.00 FOR MANUALS AND AS-BUILT DRAWINGS. TOTAL AMOUNT SHALL REMAIN UNBILLED UNTIL MANUALS AND AS-BUILT DRAWINGS HAVE BEEN SUBMITTED AND APPROVED AND UNTIL ALL DES FIELD REVIEW REPORTS HAVE BEEN SIGNED AND RETURNED TO DES ALONG WITH PICTURES AS REQUESTED BY CONSULTANT.
23. PROVIDE ONE(1) ELECTRONIC COPY OF CLOSE-OUT DOCUMENTATION INCLUDING CONTRACTOR INFORMATION, WARRANTY LETTER, ESA CERTIFICATE, FIRE ALARM VERIFICATION REPORT, EMERGENCY LIGHTING TEST REPORT, SHOP DRAWINGS, O&Ms, ANY OTHER REQUIRED REPORTS AND AS-BUILT DRAWINGS INCLUDING ALL PANEL SCHEDULES. AS-BUILT DRAWINGS SHALL INCLUDE COMPLETE ELECTRICAL DRAWING SET WITH ANY CHANGES MARKED CLEARLY AND NEATLY IN COLOUR.

ACCESS CONTROL SYSTEMS

1. ELECTRICAL CONTRACTOR TO CARRY OUT ALL WORK ASSOCIATED WITH ACCESS SYSTEMS INCLUDING BUT NOT LIMITED TO DEVICES, BACKBOXES, CONDUIT, WIRING, TESTING AND VERIFICATION.
2. PROVIDE AS-BUILT MARKUPS OF ANY NEW DEVICES AND ANY NEW JUNCTION BOXES PROVIDED TO SUIT.
3. INSTALL ALL SYSTEM DEVICES AND WIRING TO DDSB STANDARDS.
4. PROVIDE VIKING 1275 ENTRY PHONE WITH INTERNAL CAMERA AND PROX READER INCLUDING:
   1. MASTER STATION C/W VIDEO MONITOR.
   2. 24" WALL MOUNTED MONITORS C/W FULL MOTION COMMERCIAL MOUNT (EXACT LOCATIONS TO BE COORDINATED ON SITE),
   3. CONTROL PANEL MOUNTED SINGLE LINE CORDLESS PHONE.
   4. MANUAL DOOR RELEASE BUTTON LOCATED ON CONTROL PANEL.
   5. POWER SUPPLY, DISTRIBUTION ADAPTER.
   6. DVR SHALL BE HIKVISION DS-7204 HQI-K1-2TB
5. PROVIDE ALL ASSOCIATED CONDUIT AND WIRES BETWEEN MASTER STATION, DOOR STATION, DOOR STRIKE, MONITOR AND PHONE. PROVIDE ALL NECESSARY PROGRAMMING AND COMPONENTS AS PER MANUFACTURER RECOMMENDATION FOR COMPLETE AND FUNCTIONAL SYSTEM.
6. ACCESS CONTROL FOR CHILDCARE TO BE DMP DEVICE AND ADDED TO THE EXISTING DMP SECURITY SYSTEM. EXISTING SYSTEM IS A DMP XR-500. DAYCARE AND ALL DEVICES ASSOCIATED SHALL BE PROGRAMMED AS SEPARATE ZONE. ALL PROGRAMMING TO BE COORDINATED WITH DDSB MONITORING.
7. VIKING INTERCOM IS NOT TO BE CONNECTED TO ANY OUTSIDE PHONE LINE TO OPERATE.
8. CONTRACTOR MUST PROVIDE INSPECTION, INITIAL TEST, REQUIRED ADJUSTMENTS, COMMISSIONING VERIFICATION AND CERTIFICATION OF ALL EXISTING SYSTEMS MODIFIED AND ALL NEW SYSTEMS.
9. SUBMIT REPORT TO CONSULTANT AND INCLUDE IN MANUAL.
10. COST OF SUB-CONTRACTOR TO BE CARRIED UNDER CASH ALLOWANCE
    APPROVED SUB-CONTRACTORS:
    TECH SYS 289-809-2987
    TC SECURITIES 905-432-5008

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No.	Date	Revision
-	-	-

Date	Issue
21-01-08	ISSUED FOR PERMIT & TENDER
20-12-18	ISSUED FOR COORDINATION

THE CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL FIELD DIMENSIONS AND SHALL NOTIFY THE ARCHITECT OF ANY SITE CONDITIONS OR FIELD DIMENSIONS WHICH MAY BE AT VARIANCE WITH THE DRAWINGS.

THIS DRAWING IS NOT TO BE SCALED.

LICENSED PROFESSIONAL ENGINEER
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106-209 DUNDAS STREET EAST, WHITBY ONTARIO
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DES JOB No.: 20-419 DWG SIZE: D

Project

GLENGROVE PUBLIC SCHOOL CHILDCARE RENOVATION

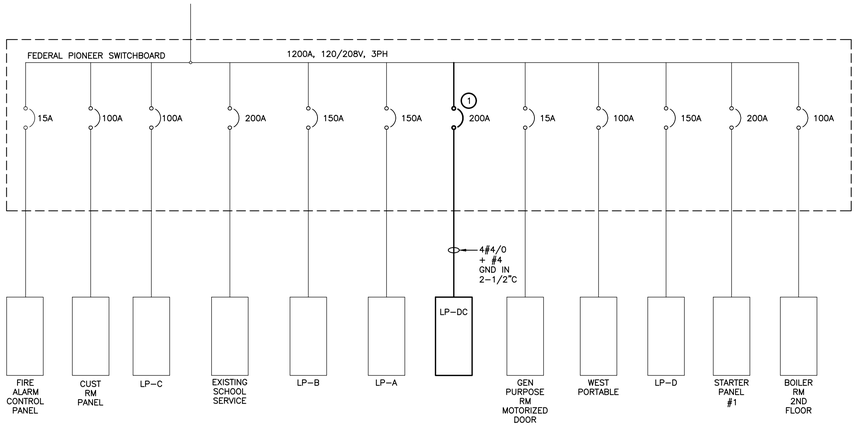
DURHAM DISTRICT SCHOOL BOARD
TENDER NO. T20-62

Pickering Ontario

Sheet Title

NOTES

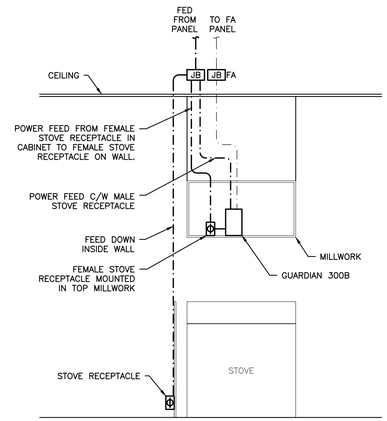
Drawn: DCP	Sheet No.
Checked: LC/DCP	E802
Scale: NTS	
Project No.: 18042	6 of 7



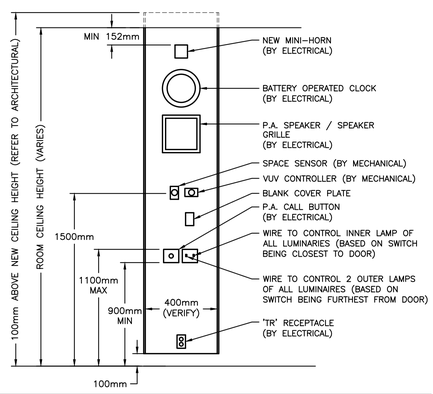
NOTES:

1. PROVIDE NEW 200A BREAKER (EQUAL TO HORIZON FKD32200) IN EXISTING SWITCHBOARD. PROVIDE ALL NECESSARY MOUNTING HARDWARE FOR INSTALLATION OF NEW BREAKER.

REVISED SINGLE LINE DIAGRAM
NTS



FIRE SUPPRESSION INSTALLATION
NTS



NOTE:

DETAIL IS FOR GENERAL LAYOUT OF ALL DEVICES SHOWN. REFER TO FLOOR PLAN DRAWINGS FOR ACTUAL DEVICES REQUIRED FOR EACH CONTROL PANEL.

CONTROL PANEL DETAIL (SUPPLIED BY GENERAL)
NTS

REVISED PANEL A

FEDERAL PIONEER TYPE NBLP-42-4L

225A, 42 CIRCUIT, 3ϕ, 4W, 120/208 VOLT FLUSH MOUNTED BOLT-ON CIRCUIT BREAKER PANEL BOARD WITH MAIN LUGS ONLY

DESCRIPTION	BKR	CCT	S/N	CCT	BKR	DESCRIPTION
HALL N & S STAIRWAYS	15A	1		2	15A	OFFICE
HALL	15A	3		4	15A	GUIDANCE RM. AND OFFICE
FOYER	15A	5		6	15A	FEMALE CHANGE ROOM
HEALTH ROOM	15A	7		8	15A	MALE CHANGE ROOM
S.W. CLASS ROOM	15A	9		10	15A	STORAGE
S.W. CLASS ROOM	15A	11		12	15A	N.E. CLASS ROOM
W. CLASS ROOM	15A	13		14	15A	N.E. CLASS ROOM
W. CLASS ROOM	15A	15		16	15A	N.E. CLASS ROOM
W. CLASS ROOM	15A	17		18	15A	EXIT LIGHTS
N.W. CLASS ROOM	15A	19		20	15A	INSIDE BELLS
N.W. CLASS ROOM	15A	21		22	15A	**REC ART RM 112**
N.W. CLASS ROOM	15A	23		24	15A	**REC ART RM 112/CORRIDOR**
REC SCIENCE RM 110/RM 108 & 113	15A	25		26	15A	**REC ART RM 112**
REC SCIENCE ROOM 110/RM 108	15A	27		28	15A	PLUGS TUB ROOM
S.W. PLUGS/NORTH COMP LAB PANDUIT	15A	29		30	15A	OFFICE PLUGS PRINCIPAL
OFFICE PLUGS/PROGRAM & PA SYSTEM	15A	31		32	20A	STAFF HAND DRYER
MUD RM. PLUG & HALL EMERG LIGHTS	15A	33		34	50A 2P	SPARE
PLUGS – V.P. OFFICE	15A	35		36		
BELL T. PLUG	15A	37		38	15A	RM 108 COMPUTER PLUGS
HAND DRYER BOYS W/R	20A	39		40	15A	RM 108 COMPUTER PLUGS
HAND DRYER GIRLS W/R	20A	41		42	20A	RM 108 COMPUTER PLUGS

EXISTING PANEL A

FEDERAL PIONEER TYPE NBLP-42-4L

225A, 42 CIRCUIT, 3ϕ, 4W, 120/208 VOLT FLUSH MOUNTED BOLT-ON CIRCUIT BREAKER PANEL BOARD WITH MAIN LUGS ONLY

DESCRIPTION	BKR	CCT	S/N	CCT	BKR	DESCRIPTION
HALL N & S STAIRWAYS	15A	1		2	15A	OFFICE
HALL	15A	3		4	15A	GUIDANCE RM. AND OFFICE
FOYER	15A	5		6	15A	FEMALE CHANGE ROOM
HEALTH ROOM	15A	7		8	15A	MALE CHANGE ROOM
S.W. CLASS ROOM	15A	9		10	15A	STORAGE
S.W. CLASS ROOM	15A	11		12	15A	N.E. CLASS ROOM
W. CLASS ROOM	15A	13		14	15A	N.E. CLASS ROOM
W. CLASS ROOM	15A	15		16	15A	N.E. CLASS ROOM
W. CLASS ROOM	15A	17		18	15A	EXIT LIGHTS
N.W. CLASS ROOM	15A	19		20	15A	INSIDE BELLS
N.W. CLASS ROOM	15A	21		22	15A	N. PLUGS
N.W. CLASS ROOM	15A	23		24	15A	N. PLUGS
W. PLUGS	15A	25		26	15A	N. PLUGS
W. PLUGS	15A	27		28	15A	PLUGS TUB ROOM
S.W. PLUGS/NORTH COMP LAB PANDUIT	15A	29		30	15A	OFFICE PLUGS PRINCIPAL
OFFICE PLUGS/PROGRAM & PA SYSTEM	15A	31		32	20A	STAFF HAND DRYER
MUD RM. PLUG & HALL EMERG LIGHTS	15A	33		34	50A 2P	SPARE
PLUGS – V.P. OFFICE	15A	35		36		
BELL T. PLUG	15A	37		38	15A	RM 108 COMPUTER PLUGS
HAND DRYER BOYS W/R	20A	39		40	15A	RM 108 COMPUTER PLUGS
HAND DRYER GIRLS W/R	20A	41		42	20A	RM 108 COMPUTER PLUGS

NEW PANEL 'LP-DC'

SIEMENS TYPE P1

225A, 42 CIRCUIT, 3ϕ, 4W, 120/208 VOLT SURFACE MOUNTED BOLT-ON CIRCUIT BREAKER PANEL BOARD WITH MAIN LUGS ONLY & COPPER BUS, 10 KAIC

* DENOTES BREAKER LOCK ON DEVICE

DESCRIPTION	BKR	CCT	S/N	CCT	BKR	DESCRIPTION
REC KITCHEN FREEZER	15A	1		2	15A	REC KITCHEN FRIDGE
GFI REC KITCHEN COUNTER	20A	3		4	20A	GFI REC KITCHEN COUNTER
KITCHEN STOVE	50A 2P	5		6	20A	GFI REC KITCHEN COUNTER
		7		8	15A	TRAP SEAL PRIMERS
REC FAMILY GROUPING CENTRE 107	15A	9		10	20A	GFI REC ROOM 107
GFI REC ROOM 107	20A	11		12	50A 2P	REC DRYER LAUNDRY RM
REC WASHER LAUNDRY RM	15A	13		14		
REC LAUNDRY RM	20A	15		16	15A	DAYCARE ACCESS SYSTEM
REC OFFICE	15A	17		18	15A	REC FRIDGE ROOM 107
DAYCARE ACCESS SYSTEM	15A	19		20	20A	REC MICROWAVE ROOM 107
EF-5 (WASHROOMS)	15A	21		22	15A	EF-7 (KITCHEN STOVE)
EF-6 (KITCHEN)	15A	23		24	15A*	DAYCARE BATTERY UNIT
REC WR 107	15A	25		26	40A 3P	VUV-1 (INFANT 106)
DISHWASHER KITCHEN	50A 2P	27		28		
		29		30		
		31		32	20A	REC KITCHEN MICROWAVE
REC LAUNDRY RM/KITCHEN	20A	33		34	15A	SPARE
SPARE	15A	35		36	15A	SPARE
		37		38		
		39		40		
		41		42		

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DES JOB No.: 20-419 DWG SIZE: D

Project

GLENGROVE PUBLIC SCHOOL CHILDCARE RENOVATION

DURHAM DISTRICT SCHOOL BOARD
TENDER NO. T20-62

Pickering Ontario

Sheet Title

SCHEDULES & DETAILS

Drawn	DCP
Checked	LC/DCP
Scale	NTS
Project No.	18042
Sheet No.	E803