MACGREGOR PUBLIC SCHOOL PHASE 4 - HVAC & ELECTRICAL UPGRADES - NORTH WING (WEST SIDE)

32 CENTRAL ST, WATERLOO, ON N2L 3A6

LOCATION MAP

SCOPE OF WORK

Remove ceilings in West portion, Corridor and washrooms of North Classroom Wing and replace with rated membrane at underside of roof assembly where not in installed already, provide rated bulkheads and reinstall preexisting drop ACT ceiling where already in place or provide new ceiling where not; new paint on walls in Classroom wing and Lower Level service spaces; Infill brick walls at existing louvres in classrooms ; Provide CMU wall in Boiler Room, provide new flooring and baseboards in offices.

DRAWING LIST - ARCHITECTURAL

A000	COVER SHEET AND SHEET LIST
A001	OBC MATRIX AND FIRE SEPARATION DRAWINGS
A002	ANNOTATION LEGEND, ABBREVIATIONS AND GENERAL NOTES
A003	ASSEMBLIES, SCHEDULE AND NOTES
A011	SITE PLAN, SITE DATA & DETAILS
A020	LOWER FLOOR - DEMOLITION PLAN
A021	UPPER FLOOR - DEMOLITION PLAN
A030	LOWER FLOOR REFLECTED CEILING DEMOLITION PLAN
A031	UPPER FLOOR REFLECTED CEILING DEMOLITION PLAN
A100	PROPOSED GROUND FLOOR PLAN
A101	PROPOSED UPPER FLOOR PLAN
A102	ROOF PLAN
A201	PROPOSED LOWER FLOOR REFLECTED CEILING PLAN
A401	BUILDING SECTION AND DETAILS

BUILDING INSPECTION — THE CITY OF Waterloo

NOTE: THIS DEPARTMENT MUST BE NOTIFIED OF, AND APPROVE ALL CHANGES FROM THESE PLANS. ALL CONSTRUCTION TO CONFORM TO THE ONTARIO BUILDING CODE. THE BUILDER ASSUMES FULL LIABILITY FOR ERRORS AND OMISSIONS. THESE DRAWINGS MUST BE KEPT ON SITE UNTIL FINAL INSPECTION HAS BEEN COMPLETED.

2024-06-18

LARGE BUILDINGS: TO BOOK AN INSPECTION CALL THE INSPECTION REQUEST LINE AT 519-747-8789.

REVIEW ALL PROPOSED FIRE STOPPING SYSTEMS WITH THE BUILDING INSPECTOR ON SITE PRIOR TO ANY INSTALLATIONS.

MATERIALS WITHIN A BUILDING REQUIRED TO BE OF NONCOMBUSTIBLE CONSTRUCTION SHALL COMPLY WITH OBC 3.1.5.

OWNER

Waterloo Region District School Board
Mel Lavoie
51 Ardelt Ave
Kitchener ON N2C 2R5
519.570.0003

ARCHITECT

LGA Architectural Partners
Edward Weinberg
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Toronto, Ontario M5T 2E8
416. 203.7600

STRUCTURAL CONSULTANT

Engineering Link
Craig Nicoletti & Pierre Desautels
375 University Avenue, Suite 901
Toronto, Ontario M5G 2J5
416.599.5465

MECHANICAL/ELECTRICAL CONSULTANT

MNE Engineering Incorporated
Cameron Carruthers (Mech) & Andrew Gubbels (Elec)
22 Kevco Place - BoxA
Kitchener, ON N2C 2G5
519.894.9408

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ONTARIO ASSOCIATION OF ARCHITECTS
DANIEL BARTMAN
LICENCE
9584

ISSUE DATE:

NO.	DATE	DESCRIPTION
03	2024-05-01	ISSUED FOR PERMIT SUBMISSION
02	2024-04-15	ISSUED FOR ADDENDUM 1
01	2024-04-05	ISSUED FOR TENDER

PROJECT:

MACGREGOR PUBLIC SCHOOL - PHASE 4

DRAWING TITLE:

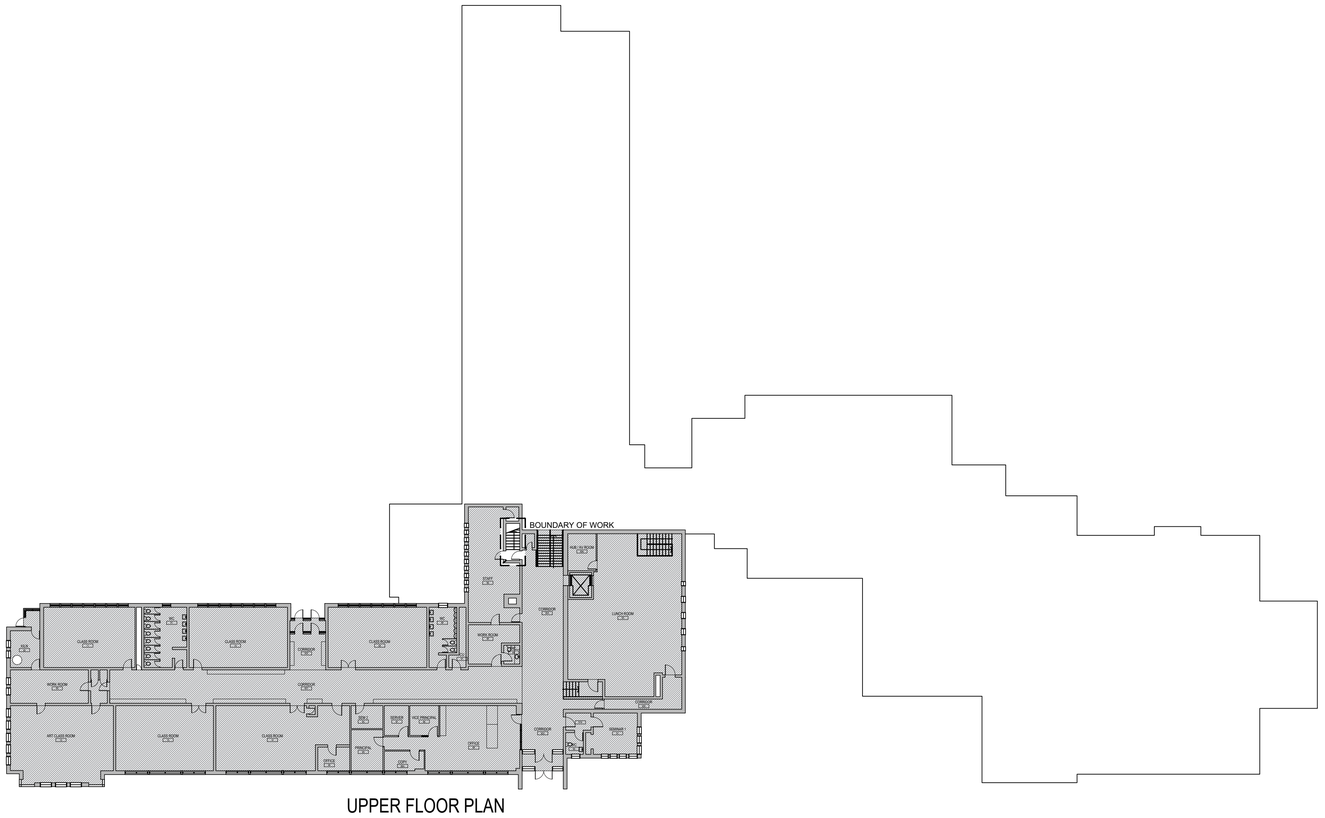
COVER SHEET

PROJECT NO: 21965
SCALE: INDICATED
DRAWN BY: DL
REVIEWED BY: EW

PROJECT NORTH:

DRAWING NO:

A000



UPPER FLOOR PLAN

LOWER FLOOR PLAN

FRR LEGEND

— — — — —	1 HOUR F.R.R.

OBC MATRIX PART 11

Name of project:
MacGregor Senior Public School

Location:
32 Central St,
Waterloo ON N2L

Firm Name and Address:
LGA Architectural Partners Inc.
310 Spadina Ave, Suite 100B
Toronto, ON M5T 2E8

Certification of Practice Number:
No. 5162

Ontario Building Code Data Matrix Part 11 – Renovation of Existing Building		Building Code Reference[1]
11.00 Building Code Version:	O. Reg. 332/12 Last Amendment O. Reg. 191/14	
11.01 Project Type:	☐ Addition ☒ Renovation ☐ Addition and renovation ☐ Change of use Description: Update HVAC, lighting & finishes in North wing; upgrades to A/V in classrooms & multipurpose rooms; updates to exterior lighting.	[A] 1.1.2.
11.02 Major Occupancy Classification:	Occupancy: Group A2 — Use: Elementary School	3.1.2.1.(1)
11.03 Superimposed Major Occupancies:	☒ No ☐ Yes Description:	3.2.2.7.
11.04 Building Area (m2)	Description: Lower Level — Existing 725.79 m² — New - — Total 725.79 m² Total 725.79 m² — - — 725.79 m²	[A] 1.4.1.2.
11.05 Building Height	1.5 Storeys above grade — 8.8m (Existing to Remain) (m) Above grade 1 Storeys below grade	[A] 1.4.1.2. & 3.2.1.1.
11.06 Number of Streets/ Firefighter access	1	3.2.2.10. & 3.2.5.
11.07 Building Size	☐ Small ☐ Medium ☒ Large ☐ > Large	T.11.2.1.1.B.-N.
11.08 Existing Building Classification:	Change in Major Occupancy: ☐ Yes ☒ Not Applicable (no change of major occupancy) Construction Index: N/A Hazard Index: N/A Importance Category : ☐ Low ☐ Normal ☐ High ☐ Post-disaster N/A	11.2.1.1. T 11.2.1.1A T 11.2.1.1B to N 4.2.1.(3), 5.2.2.1.(2)
11.09 Renovation type:	☒ Basic Renovation ☐ Extensive Renovation	11.3.3.1. 11.3.3.2.
11.10 Occupant Load	Floor Level/Area — Occupancy Type — Based On — Occupant Load (Persons) Lower Level — Assembly — Design — Existing to Remain Upper Level — Assembly — Design — Existing to Remain Existing to Remain	3.1.17.

Ontario Building Code Data Matrix (CONT'D)		Building Code Reference[1]
11.11 Plumbing Fixture Requirements	Ratio: M/F = 1/1 Except as otherwise noted Floor Level/Area — Occupant Load — OBC Reference — Fixtures Required — Fixtures Provided Lower Level — Existing to Remain — 3.7.4.9.(1) — — Existing to Remain	3.7.4.
11.12 Barrier-free Design:	X Yes No	11.3.3.2.(2)
11.13 Reduction in Performance Level:	Structural: ☒ No ☐ Yes By Increase in occupant load: ☒ No ☐ Yes By change of major occupancy: ☒ No ☐ Yes Plumbing: ☒ No ☐ Yes Sewage-systems: ☒ No ☐ Yes Extension of combustible construction: ☒ No ☐ Yes	11.4.2.1. 11.4.2.2. 11.4.2.3. 11.4.2.4. 11.4.2.5. 11.4.2.6.
11.14 Compensating Construction:	Structural: ☒ No ☐ Yes Increase in occupant load: ☒ No ☐ Yes Change of major occupancy: ☒ No ☐ Yes Plumbing: ☒ No ☐ Yes Sewage systems: ☒ No ☐ Yes Extension of combustible construction: ☒ No ☐ Yes	11.4.3.1. 11.4.3.2. 11.4.3.3. 11.4.3.4. 11.4.3.5. 11.4.3.6. 11.4.3.7.
11.15 Compliance Alternatives Proposed:	☐ No ☐ Yes	11.5.1.
11.16 Notes:		11.5.1.

[1] All references are to Division B of the OBC unless preceded by [A] for Division A and [C] for Division C.

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PROJECT:

MACGREGOR PUBLIC SCHOOL - PHASE 4

DRAWING TITLE:

FIRE SEPARATION AND OBC MATRIX

PROJECT NO: 21965
SCALE: INDICATED
DRAWN BY: DL
REVIEWED BY: EW

PROJECT NORTH:

DRAWING NO:

A001

GRAPHICS LEGEND

TAGS

101	DOOR TAG
SC	SCREEN NUMBER TAG (REFER TO SCREEN SCHEDULE)
W10	WINDOW UNIT TAG (REFER TO WINDOW SCHEDULE)
CW	CURTAIN WALL UNIT TAG (REFER TO WINDOW SCHEDULE)
?	MATERIAL FINISH TAG (REFER TO FINISH SCHEDULE)
20 R @ 100mm	STAIR TAG

DRAWING TAGS

1 / A101	DETAIL NUMBER DRAWING SHEET NUMBER
1 / A101	SECTION NUMBER DRAWING SHEET NUMBER
1 / A101	EXTERIOR ELEVATION NUMBER DRAWING SHEET NUMBER
1 / 4 A101 2 / 3	INTERIOR ELEVATION NUMBER DRAWING SHEET NUMBER
X	GRID BUBBLE
XXX.XX	SPOT ELEVATION (ABOVE FINISH FLOOR)
LIVING ROOM 101 190 sf	ROOM TAG WITH AREA
1	REVISION TAG
	CENTRELINE

ASSEMBLY TAGS

W1	WALL ASSEMBLY TAG
R1	ROOF ASSEMBLY TAG
F1	FLOOR ASSEMBLY TAG
CX XXXX	CEILING TAG
	(REFER TO ASSEMBLIES SCHEDULES)

GENERAL NOTES

1. THE CONTRACTOR WILL VERIFY ALL DIMENSIONS FOR THE WORK AND SHALL REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO COMMENCEMENT OF THE WORK.

2. DRAWINGS ARE NOT TO BE SCALED FOR CONSTRUCTION PURPOSES.

3. ALL DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF LGA ARCHITECTURAL PARTNERS. ALL COPYRIGHT CONDITIONS ARE RESERVED BY THE ARCHITECT WITH RESPECT TO THESE DOCUMENTS. THESE DOCUMENTS SHALL NOT BE DUPLICATED OR USED FOR OTHER THAN THE PURPOSE FOR WHICH THEY WERE ISSUED.

4. NO CHANGES OR SUBSTITUTIONS SHALL BE MADE TO THE WORK DESCRIBED IN THESE DRAWINGS OR SPECIFICATIONS WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF THE ARCHITECT. REFER TO THE SPECIFICATION FOR THE FULL LIST OF REQUIREMENTS AND PROCEDURES THAT MUST BE FOLLOWED TO MAKE ANY SUBSTITUTIONS. THE ARCHITECT RESERVES THE RIGHT TO REFUSE ANY REQUEST FOR SUBSTITUTION.

5. THE ARCHITECTURAL DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE LANDSCAPE, STRUCTURAL, ELECTRICAL, MECHANICAL, CIVIL, GEOTECHNICAL, ENVIRONMENTAL CONSULTANTS DOCUMENTS. ANY DISCREPANCIES ARE TO BE REPORTED TO THE ARCHITECT PRIOR TO ANY EXECUTION OF RELATED WORK.

6. THE CONTRACTORS SHALL ENSURE THAT MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH CONTRACT DOCUMENTS.

7. THE CONTRACTORS SHALL ENSURE THAT THE LOCATIONS OF ALL UNDERGROUND SERVICES ARE IDENTIFIED PRIOR TO THE COMMENCEMENT OF WORK AND EXCAVATIONS. THE CONTRACTOR IS FULLY RESPONSIBLE TO REPAIR ANY DAMAGE TO UNDERGROUND SERVICES THEY HAVE COMMITTED.

8. ALL STRUCTURAL COMPONENTS TO BE TAKEN OFF THE STRUCTURAL DOCUMENTS. NO STRUCTURAL DESIGN INFORMATION SHALL BE INFERRED FROM THE ARCHITECTURAL DRAWINGS.

9. ALL MECHANICAL COMPONENTS TO BE TAKEN OFF THE MECHANICAL DOCUMENTS. NO MECHANICAL DESIGN INFORMATION SHALL BE INFERRED FROM THE ARCHITECTURAL DRAWINGS.

10. ALL ELECTRICAL COMPONENTS TO BE TAKEN OFF THE ELECTRICAL DOCUMENTS. NO ELECTRICAL DESIGN INFORMATION SHALL BE INFERRED FROM THE ARCHITECTURAL DRAWINGS.

11 ALL CIVIL COMPONENTS TO BE TAKEN OFF THE CIVIL DOCUMENTS. NO CIVIL DESIGN INFORMATION SHALL BE INFERRED FROM THE ARCHITECTURAL DRAWINGS.

12. ALL LANDSCAPE COMPONENTS TO BE TAKEN OFF THE LANDSCAPE DOCUMENTS. NO LANDSCAPE DESIGN INFORMATION SHALL BE INFERRED FROM THE ARCHITECTURAL DRAWINGS.

ARCHITECTURAL ABBREVIATIONS LEGEND

ABBREVIATIONS MAY OR MAY NOT INCLUDE PERIOD PUNCTUATION.
ABBREVIATIONS APPLY TO ARCHITECTURAL DOCUMENTS ONLY.

@	AT
&	AND
AB	AIR BARRIER
ACH	ADULT CHANGE TABLE
ACM	ALUMINUM COMPOSITE PANEL\
ADO	AUTOMATIC DOOR OPENER
AFF	ABOVE FINISH FLOOR
AG	ABOVE GRADE
ALUM	ALUMINUM
ANOD	ANODIZED
AP	ACCESS PANEL
ARCH	ARCHITECTURAL
AVB	AIR & VAPOUR BARRIER
BB	BULLETIN BOARD
BCH	BABY CHANGE TABLE
BD	BOARD
BF	BARRIER FREE
BG/AS	BELOW GRADE/ABOVE SLAB
BLDG	BUILDING
BLK	BULKHEAD
BOTT	BOTTOM
BTF	BOTTLE FILLER
BTLS	BLUETOOTH LOCKSET
BTWN	BETWEEN
CAB	CABINET
CAT	CATEGORY
CB	CATCH BASIN
C/C	CENTRE TO CENTRE
CC	CONCEALED CLOSER
CF	CEILING FINISH
CG	CORNER GUARD
CH	COAT HOOK
CHW	CUSTOM HARDWARE
CJ	CONTROL JOINT
CL	CENTER LINE
CLG	CEILING
CLOS	CLOSER
CLR	CLEAR
CO	CLEAR OPENING
COL	COLUMN
CONC	CONCRETE
CONT	CONTINUOUS
CONST	CONSTRUCTION
COORD	COORDINATE
COR	CORROSION
CPT	CARPET TILE
CR	CARD READER
CST	CONCRETE STAIN
CW	COMPLETE WITH
D	DRYER
DB	DEADBOLT
DC	DOOR CONTACT
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIM	DIMENSION
DLO	DAYLIGHT OPENING (GLAZING)
DN	DOWN
DW	DISHWASHER
DWG	DRAWING
EB	EXIT BUTTON
EF	EXHAUST FAN
ELEC	ELECTRICAL
ELEV	ELEVATION
ELVR	ELEVATOR
EP	ELECTRICAL PANEL
EQ	EQUAL
EQUIP	EQUIPMENT
ES	ELECTRIC STRIKE
EXIST	EXISTING
EXP	EXPOSED
EXT	EXTERIOR
F	REFRIGERATOR
FAAP	FIRE ANNUNCIATOR & ALARM PANEL
FAN EX	FAN EXHAUST
FB	FLASHBOLT
FCL	FINISHED CEILING ELEVATION
FD	FLOOR DRAIN
FE	FIRE EXTINGUISHER
FF	FLOOR FINISH
FFL	FINISHED FLOOR LEVEL
FH	FIRE HYDRANT
FG	FIXED GLASS
FHC	FIRE HOSE CABINET
FIN	FINISHED
F/O	FACE OF
FR. GL	FROSTED GLASS
FRR	FIRE RESISTANCE RATING
FS	FIRE SHUTTER
G	GARBAGE BIN
G1S	GOOD ONE SIDE
G2S	GOOD TWO SIDES
GA	GAUGE
GALV	GALVANIZED
GB	GRAB BAR
GYP	GYPSUM
GWB	GYPSUM WALL BOARD
HB	HOSEBIB
HD	HAND DRYER
HM	HOLLOW METAL
H/O	HOLD OPEN
HOR	HORIZONTAL
HR	HOUR
HSS	HOLLOW STEEL SECTION
HT	HEIGHT
ID	INSIDE DIAMETER
INSUL	INSULATION
KLS	KEYLATCH SET
KP	KICKPLATE
LF	LIGHT FIXTURE
LK	LOCKERS
LLS	LEVER LATCH SET
M&E	MECHANICAL & ELECTRICAL
MAG	MAGLOCK
MAS	MASONRY
MATL	MATERIAL
MAX	MAXIMUM
MB	MOISTURE BARRIER
MDF	MEDIUM DENSITY FIBREBOARD
MECH	MECHANICAL
MFR	MANUFACTURER
MHO	MAGNETIC HOLD OPEN
MI	MIRROR
MIN	MINIMUM
MO	MASONRY OPENING
MTL	METAL
N/A	NOT APPLICABLE
NIC	NOT IN CONTRACT
NO.	NUMBER
NTS	NOT TO SCALE
OBC	ONTARIO BUILDING CODE
O.C.	ON CENTRE
OD	OUTSIDE DIAMETER
OH	OVERHEAD
OTA	OPEN TO ABOVE
OTB	OPEN TO BELOW
OPG	OPENING
OPP	OPPOSITE
OWSJ	OPEN WEB STEEL JOIST
BFPB	BARRIER FREE PUSH BUTTON
PH	PANIC HARDWARE
PL	PROPERTY LINE
PLAM	PLASTIC LAMINATE
PLS	PRIVACY LOCKET
PLY	PLYWOOD
PSF	PRESSED STEEL FRAME
PT	PAINT
PTD	PAINTED
PTWR	PAPER TOWEL & WASTE RECEPTACLE
R	RISER
RAD	RADIATOR
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
RE-INF	RE-INFORCED
REQ	REQUIRED
REV	REVERSE
RF	RESISLIENT FLOORING
RL	RECESSED LIGHTING
RM	ROOM
RO	ROUGH OPENING
ROW	RIGHT-OF-WAY
RP	REMOVABLE PANEL
RR	REMOVE & REPLACE
RTU	ROOF TOP UNIT
RWL	RAIN WATER LEADER
S	SEALER
SB	SANITARY BIN
SC	SEALED CONCRETE
SCH	SCHEDULE
SCR	SWIPE CARD READER
SCW	SOLID CORE WOOD
SD	SOAP DISPENSER
SF	SQUARE FEET
SG	SUPPLEMENTARY GUIDELINES OF OBC
SH	SILL HEIGHT
SIM	SIMILAR
SL	SLIDING DOORS
SM	SQUARE METER(S)
SMK	SMOKE SEAL
SND	SANITARY NAPKIN DISPOSAL
SOG	SLAB ON GRADE
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL
SSF	STAINLESS STEEL FRAME
SSG	STRUCTURAL SILICON GLAZING
SSM	SOLID SURFACE
ST	STEEL
STC	SOUND TRANSMISSION CLASS
STD	STANDARD
ST GR	STAIN GRADE
STRUCT	STRUCTURAL
SUPP	SUPPLEMENTARY
T	TREADS
TB	THERMALLY BROKEN
TBD	TO BE DETERMINED
TG	TEMPERED GLAZING
THK	THICK
TH	THRESHOLD
TL	TILE
TM	TILT MIRROR
T/O	TOP OF
TP	TOILET PAPER DISPENSER
TS	TRANSITION STRIP
TYP	TYPICAL
TWB	TOWEL BAR
TWF	THROUGH WALL FLASHING
ULC	UNDERWRITER'S LABORATORY OF CANADA
UNO	UNLESS NOTED OTHERWISE
U/S	UNDERSIDE
VERT	VERTICAL
VB	VAPOUR BARRIER
VC	VENEER CORE
VCT	VINYL COMPOSITE TILE
VIF	VERIFY IN FIELD
VP	VAPOUR PERMEABLE
VR	VAPOUR RETARDER
W	WASHER
W/	WITH
WB	WALL BASE
W/C	WASHROOM
WD	WOOD
WDV	WOOD VENEER
WG	WIRED GLASS
WM	WATERMAIN
WRB	WATER RESISTANT BARRIER
WS	WEATHERSTRIP
WSH	WINDOW SHADE
WTB	WHITE BOARD

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PROJECT:

MACGREGOR PUBLIC SCHOOL - PHASE 4

DRAWING TITLE:

GENERAL NOTES

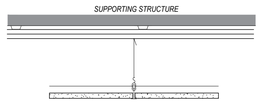
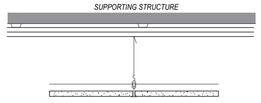
PROJECT NO: 21965
SCALE: INDICATED
DRAWN BY: DL
REVIEWED BY: EW

PROJECT NORTH:

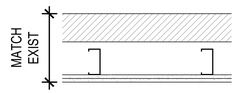
DRAWING NO:

A002

C - SUSPENDED CEILING ASSEMBLIES

TYPE	DIAGRAM	DESCRIPTION	ASSEMBLY-SPECIFIC NOTES	PERFORMANCE
C-1		**SUSPENDED LAY-IN ACOUSTICAL TILE CEILING WITH SUPPORT GRID SYSTEM** VAR EXISTING CEILING STRUCTURE 13mm STRAPPING AS REQ'D 32mm 2-LAYERS 'TYPE X' GWB VAR MAIN BEAM AND CROSS TEE ACOUSTICAL TILE GRID SYSTEM SUPPPORT FRAMING AS REQUIRED C/W WIRE TIE SUPPORTS 16mm LAY-IN ACOUSTICAL TILE (610mmx1220mm)	NOTE: ALL ACOUSTICAL TILE GRID SYSTEM SUPPORT FRAMING AND WIRE TIE HANGERS TO BE HOT-DIPPED GALVANIZED. NOTE: 1 HOUR ASSEMBLY AS PER 1941 NBC UNDER NBC SUBSECTION 4.3.5., "TYPE 3, MASONRY AND FRAME CONSTRUCTION" NOTE: REFER TO SB-2 TABLE 2.3.12. FIRE-RESISTANCE RATING 1 HR FOR CEILING MEMBRANE NOTE: REFER TO FINISH SCHEDULE	CATEGORY / REQUIRED / PROVIDED FRR: 1HR / 1HR STC RATING: - / -
C-2		**SUSPENDED LAY-IN ACOUSTICAL TILE CEILING WITH SUPPORT GRID SYSTEM (WET AREAS)** VAR EXISTING CEILING STRUCTURE 13mm STRAPPING AS REQ'D 32mm 2-LAYERS 'TYPE X' GWB VAR MAIN BEAM AND CROSS TEE ACOUSTICAL TILE GRID SYSTEM SUPPPORT FRAMING AS REQUIRED C/W WIRE TIE SUPPORTS 16mm MOISTURE RESISTANT LAY-IN ACOUSTICAL TILE (610mmx1220mm)	NOTE: ALL ACOUSTICAL TILE GRID SYSTEM SUPPORT FRAMING AND WIRE TIE HANGERS TO BE HOT-DIPPED GALVANIZED. NOTE: 1 HOUR ASSEMBLY AS PER 1941 NBC UNDER NBC SUBSECTION 4.3.5., "TYPE 3, MASONRY AND FRAME CONSTRUCTION" NOTE: REFER TO SB-2 TABLE 2.3.12. FIRE-RESISTANCE RATING 1 HR FOR CEILING MEMBRANE NOTE: REFER TO FINISH SCHEDULE	CATEGORY / REQUIRED / PROVIDED FRR: 1HR / 1HR STC RATING: - / -

P - INTERIOR PARTITION AND FURRING ASSEMBLIES

TYPE	DIAGRAM	DESCRIPTION	ASSEMBLY-SPECIFIC NOTES	PERFORMANCE
P1		**INTERIOR INFILL AT CORRIDOR OPENINGS** 100mm BRICK FACING TO MATCH EXISTING C/W MASONRY TIES BACK TO STUD WALLS VAR AIR SPACE 92mm METAL STUDS AT 400MM O.C. C/W 26mm 2-LAYERS 'TYPE X' GWB	NOTE: REFER TO STRUCTURAL DRAWINGS FOR INTERIOR OPENING LINTEL SUPPORT DETAILS NOTE: TYPICAL HORIZONTAL AND VERTICAL MORTAR JOINT SPACING TO MATCH ADJACENT NOTE: TOOTH NEW BRICK INTO EXISTING MASONRY ON EITHER SIDE	CATEGORY / REQUIRED / PROVIDED FRR: 1HR / 1HR STC RATING: - /
P2		**INTERIOR CONCRETE BLOCK WALL** 152mm BLOCK WALL	NOTE: REFER TO STRUCTURAL DRAWINGS FOR INTERIOR OPENING LINTEL SUPPORT DETAILS NOTE: TYPICAL HORIZONTAL AND VERTICAL MORTAR JOINT SPACING TO MATCH ADJACENT NOTE: TOOTH NEW BRICK INTO EXISTING MASONRY ON EITHER SIDE	CATEGORY / REQUIRED / PROVIDED FRR: - / - STC RATING: - /

ASSEMBLY GENERAL NOTES

1. REFER TO FIRE SEPARATION DRAWINGS FOR REQUIRED FIRE SEPARATION RATINGS. THE CONTRACTOR IS TO ENSURE THE CONTINUITY OF ALL FIRE SEPARATIONS AS REQUIRED.
2. THE CONTRACTOR IS TO PROVIDE ULC-LISTED FIRESTOP SYSTEMS AS REQUIRED FOR ALL BUILDING SERVICE PENETRATIONS THROUGH RATED ASSEMBLIES, REFER TO MECHANICAL AND ELECTRICAL DRAWINGS.
3. THE CONTRACTOR IS TO PROVIDE ULC-LISTED FIRESTOP SYSTEMS AS REQUIRED FOR ALL RATED PARTITION ASSEMBLY CONDITIONS.
4. IN AREAS WITH HIGH VAPOUR CONTENT (IE. JANITOR ROOMS AND WASHROOMS) PROVIDE MOULD-RESISTANT GYPSUM BOARD IN LIEU OF REGULAR GPYSUM BOARD WHERE PAINT FINISHES ARE INDICATED, REFER TO FINISH PLANS.
5. PROVIDE ULC-LISTED SEALANT AT ALL RATED PARTITIONS AS REQUIRED, REFER TO FIRE SEPARATION DRAWINGS.
6. ACCESS PANELS LOCATED WITHIN SUSPENDED GYPSUM BOARD CEILING ASSEMBLIES ARE TO BE PAINTED OUT TO MATCH THE SURROUNDING CEILING FINISH. PROVIDE ULC-LISTED ACCESS PANEL WHERE PANEL IS LOCATED IN A RATED CEILING, REFER TO FIRE SEPARATION DRAWINGS.
7. UNLESS NOTED OTHERWISE, ASSEMBLIES ABOVE DOORS, WINDOWS, EXTERIOR OPENINGS AND INTERIOR SCREENS IS TO BE THE SAME AS THE TYPE DENOTED ON EITHER SIDE.
8. ALL R AND RSI VALUES SHOWN ARE NOMINAL. REFER TO PROJECT MANUAL FOR FULL LISTING OF INSULATION TYPES AND WEATHER BARRIER TYPES.

NOTE: ALL INTERIOR WALLS AND CEILING FINISHED SHALL HAVE A MAXIMUM FLAME SPREAD RATING AS PER OBC 3.2.12. AND 3.1.13. WHEN ESTED IN ACCORDANCE WITH CAN/ULC-S102. SUBMIT FLAME SPREAD AND TESTING DOCUMENTATION TO BUILDING INSPECTOR UPON REQUEST.

FINISH SCHEDULE

ABBREVIATION	DESCRIPTION	MANUFACTURER	PRODUCT	TYPICAL LOCATION(S)	NOTES
CEILING FINISHES					
ACT-1 (C1)	ACOUSTIC CEILING TILE C/W METAL SUSPENSION SYSTEM	ARMSTRONG	REFER TO SPECIFICATIONS	CLASSROOMS, CORRIDORS	610X1220MM; ON CORRIDORS ONLY NEW CEILING TILES AS REQUIRED
ACT-2 (C2)	ACOUSTIC CEILING TILE C/W METAL SUSPENSION SYSTEM	ARMSTRONG	24"x48" LUMAWASH, MODEL #972	WASHROOMS	610X1220MM; MOISTURE-RESISTANT TILE; REPLACEMENT AS REQUIRED TO EXISTING TILES ASHROOM CEILING
GWB-1	PAINTED DRYWALL C/W METAL SUSPENSION SYSTEM		REFER TO SPECIFICATIONS	CORRIDOR CEILING RECESSES	MOULD-RESISTANT GWB; PAINT PT1
FLOOR FINISHES					
VS-1	VINYL SHEET FLOORING & RUBBER WALL BASE	TARKETT	REFER TO SPECIFICATIONS	CUSTODIAN WATER CLOSET FLOOR & WALL BASE	EXISTING FLOOR TO BE THOROUGHLY CLEANED, CRACKS PATCHED AND REPAIRED.
WALL FINISHES					
PT-1	PAINT	DULUX PAINTS	COLOUR: NEW CAMEO WHITE (LIGHT CREAMY WHITE) 16-510C-PITT-GLAZE WB1 SEMIGLOSS	CLASSROOMS, CORRIDORS, GWB (WALLS/CEILINGS), BRICK FACING	2 COATS LATEX WATER-BASED PAINT
TL-2	PORCELAIN TILE	STONE TILE	AGELESS WHITE - GLOSS FINSIH. SIZE 150X600	CUSTODIAN WATER CLOSET	

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ISSUE DATE:

NO.	DATE	DESCRIPTION
03	2024-05-01	ISSUED FOR PERMIT SUBMISSION
02	2024-04-15	ISSUED FOR ADDENDUM 1
01	2024-04-05	ISSUED FOR TENDER

PROJECT:

MACGREGOR PUBLIC SCHOOL - PHASE 4

DRAWING TITLE:

ASSEMBLIES

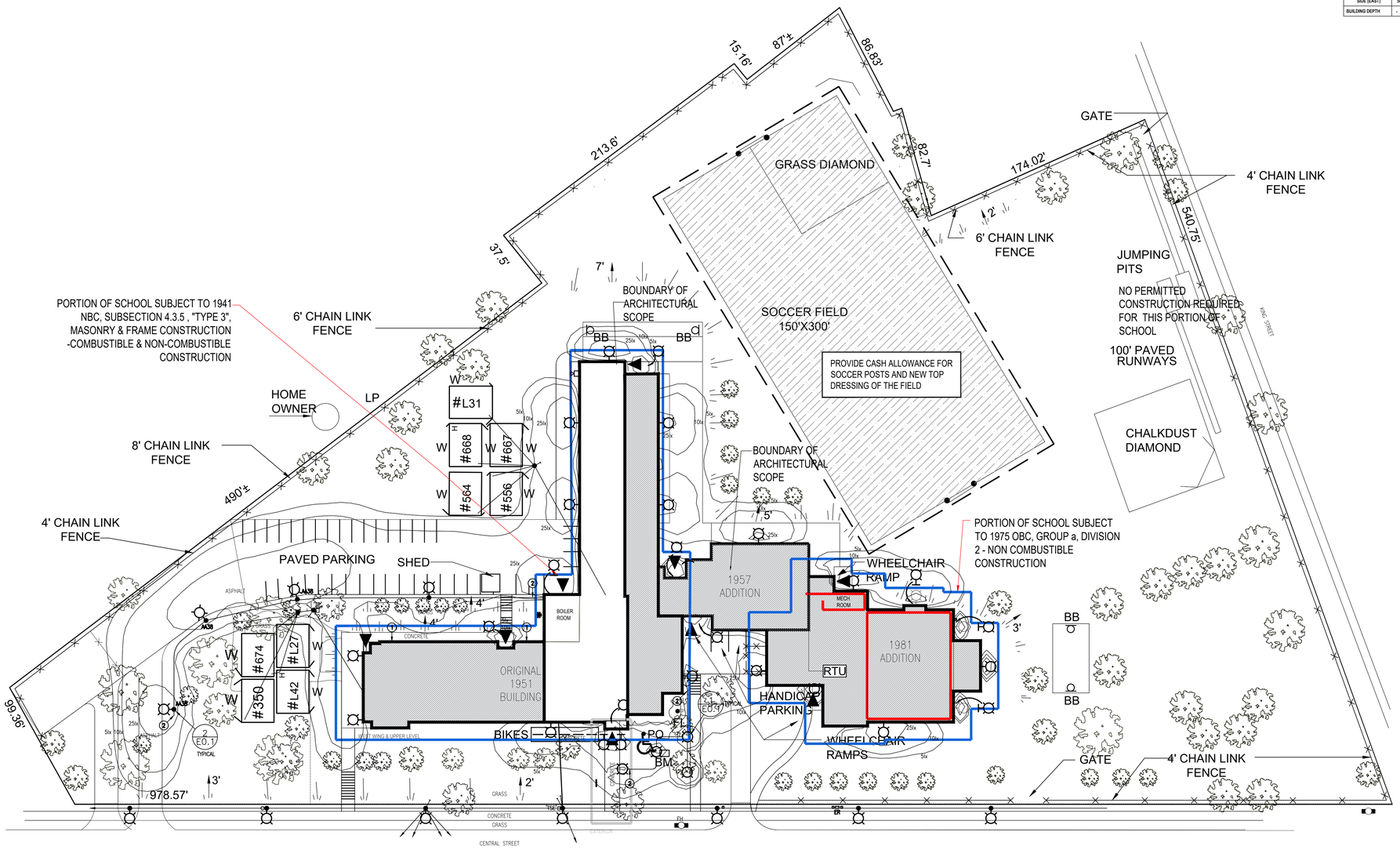
PROJECT NO: 21965
SCALE: INDICATED
DRAWN BY: DL
REVIEWED BY: EW

PROJECT NORTH:

DRAWING NO:

A003

SITE DATA			
ADDRESS	32 CENTRAL ST, WATERLOO ON N2L3A6		
LOT & PLAN NO.			
ZONING	S - SCHOOL		
	EXISTING	PROPOSED	
OCCUPANCY			
LOT AREA	26,223.6 m²	26,223.6 m²	
BUILDING AREA	4151m²	4151 m²	
COVERAGE	0.16	0.16	
LANDSCAPE AREA	22,072.6 m²	22,072.6 m²	
PARKING SPOTS	36	36	
	EXISTING	NEW	PROPOSED
GFA			
LOWER FLOOR	3292.6m²	-	3292.6m²
UPPER FLOOR	1204.0m²	-	1204.0m²
TOTAL	4496m²	-	4496m²
DENSITY	0.17	-	0.17
	REQUIRED	EXISTING	PROPOSED
SETBACKS			
FRONT (SOUTH)	6m	17.05m	NO CHANGE
SIDE (WEST)	5m	80.0m	NO CHANGE
REAR (NORTH)	7.5m	42.2m	NO CHANGE
SIDE (EAST)	5m	19.3m	NO CHANGE
BUILDING DEPTH	-	94.2m	NO CHANGE



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PROJECT:

MACGREGOR PUBLIC SCHOOL - PHASE 4

DRAWING TITLE:

SITE PLAN

PROJECT NO: 21965
SCALE: INDICATED
DRAWN BY: DL
REVIEWED BY: EW

PROJECT NORTH:

DRAWING NO:

A011

DEMO DRAWING KEYNOTE LEGEND

	EXISTING GLAZING, WINDOW TO REMAIN
	EXISTING LOUVERS TO BE DEMOLISHED
	AREA NOT IN ARCHITECTURE SCOPE

NOTE:

1. REFER TO MECHANICAL DRAWINGS FOR DEMOLITION OF EXISTING CONCRETE SLAB AS REQUIRED. PATCH AND REPAIR AS DIRECTED ON STRUCTURAL DRAWINGS
2. PARTIAL DEMO OF WALLS TO ACCOMMODATE NEW ELECTRICAL AND DUCTWORK: REFER TO MECHANICAL AND STRUCTURAL DRAWINGS AND COORDINATE LOCATIONS ON SITE. PATCH AND MAKE GOOD; MATCH EXISTING FIRE RATING AND FINISH

DEMO DRAWING KEYNOTE LEGEND

01	REFER TO MECHANICAL AND ELECTRICAL DRAWINGS
02	REMOVE EXISTING LOUVERS AT HIGH LEVEL TYP. VERIFY LOCATIONS AND DIMENSIONS ON SITE.
03	REMOVE EXISTING FLOOR FINISH. PATCH AND REPAIR FOR NEW FLOOR INSTALATION
04	EXTENT OF SLAB TO BE REMOVED FOR CMU WALL FOUNDATION. REFER TO STRUCTURAL DRAWINGS

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01	2024-04-05	ISSUED FOR TENDER

PROJECT:

MACGREGOR PUBLIC SCHOOL - PHASE 4

DRAWING TITLE:

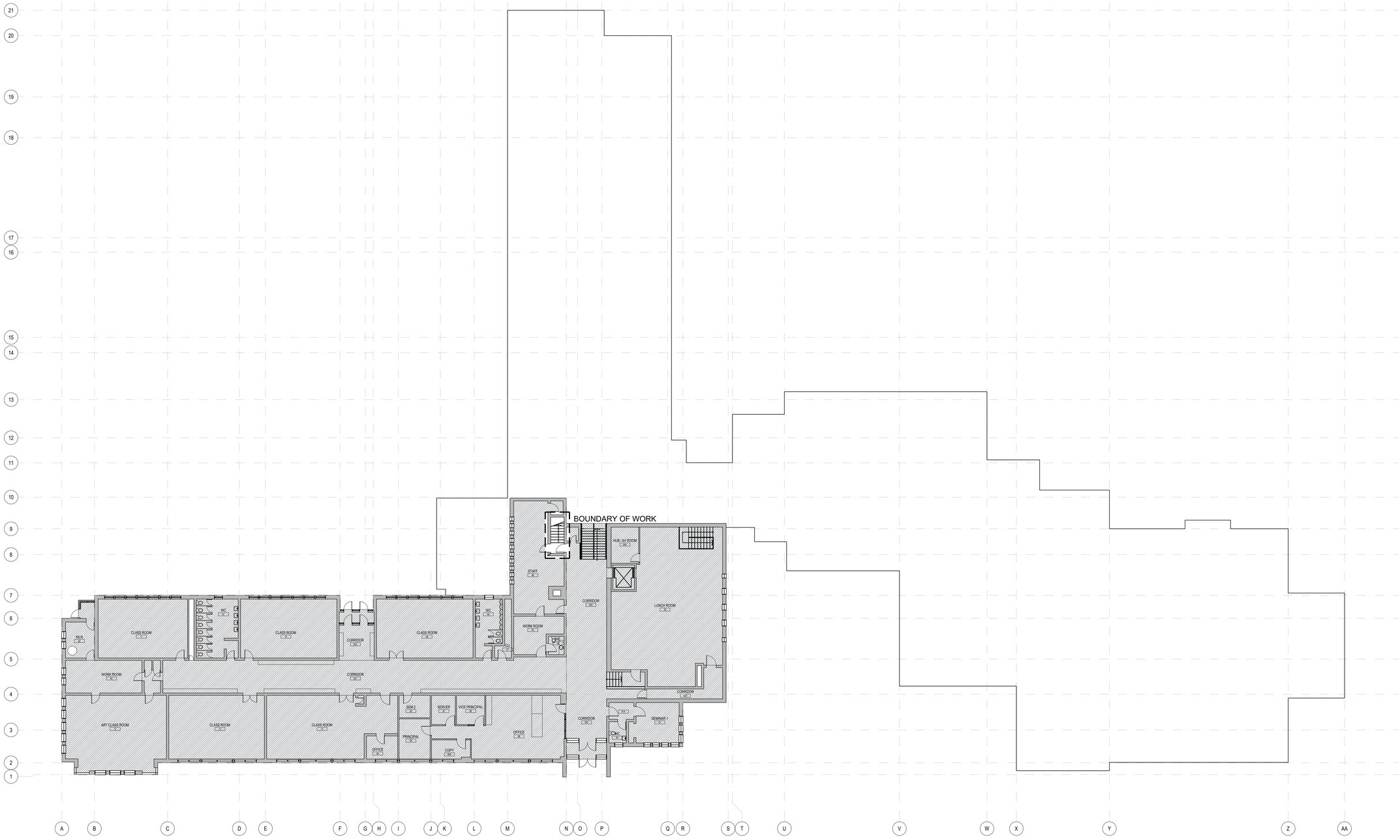
LOWER FLOOR DEMO PLAN

PROJECT NO: 21965
SCALE: INDICATED
DRAWN BY: DL
REVIEWED BY: EW

PROJECT NORTH:

DRAWING NO:

A020



DEMO DRAWING KEYNOTE LEGEND

	EXISTING GLAZING, WINDOW TO REMAIN
	EXISTING LOUVERS TO BE DEMOLISHED
	AREA NOT IN ARCHITECTURE SCOPE

NOTE:

1. REFER TO MECHANICAL DRAWINGS FOR DEMOLITION OF EXISTING CONCRETE SLAB AS REQUIRED. PATCH AND REPAIR AS DIRECTED ON STRUCTURAL DRAWINGS
2. PARTIAL DEMO OF WALLS TO ACCOMMODATE NEW ELECTRICAL AND DUCTWORK; REFER TO MECHANICAL AND STRUCTURAL DRAWINGS AND COORDINATE LOCATIONS ON SITE. PATCH AND MAKE GOOD; MATCH EXISTING FIRE RATING AND FINISH

DEMO DRAWING KEYNOTE LEGEND

01	REFER TO MECHANICAL AND ELECTRICAL DRAWINGS
02	REMOVE EXISTING LOUVERS AT HIGH LEVEL,TYP. VERIFY LOCATIONS AND DIMENSIONS ON SITE.
03	REMOVE EXISTING FLOOR FINISH. PATCH AND REPAIR FOR NEW FLOOR INSTALATION
04	EXTENT OF SLAB TO BE REMOVED FOR CMU WALL FOUNDATION. REFER TO STRUCTURAL DRAWINGS

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PROJECT:

MACGREGOR PUBLIC SCHOOL - PHASE 4

DRAWING TITLE:

UPPER FLOOR DEMO PLAN

PROJECT NO: 21965
SCALE: INDICATED
DRAWN BY: DL
REVIEWED BY: EW

PROJECT NORTH:

DRAWING NO:

A021

DEMO DRAWING KEYNOTE LEGEND

	AREA NOT IN ARCHITECTURE SCOPE
	HATCH AREA INDICATES EXTENT OF CEILING REMOVAL

DEMO DRAWING KEYNOTE LEGEND

1. REFER TO MECHANICAL DRAWINGS FOR DEMOLITION OF EXISTING DUCTWORK AND PIPING
2. REMOVE EXISTING CEILING FINISH & FIXTURES WHERE SHOWN; REFER TO MECH & ELEC.
3. GROUT SOLID JOIST POCKETS WHERE JOISTS ABOVE CEILING REMOVED; REFER TO STRUCTURAL.
4. MAKE GOOD WALL SURFACES WHERE REMOVALS TAKE PLACE.
5. UPPER WOOD JOIST ROOF STRUCTURE TO REMAIN UNLESS NOTED OTHERWISE; REFER TO STRUCTURAL DRAWINGS
6. TWO EXISTING UNHOOKED BOILERS IN MECHANICAL ROOM TO BE DISPOSED BY THE CONTRACTOR

DEMO DRAWING KEYNOTE LEGEND

(01) DEMOLISH EXISTING ACOUSTIC CEILING TILES AND EXISTING PLASTER CEILING ABOVE, INCLUDING ANY EXISTING WOOD JOIST FRAMING FOR DROP CEILING. SOME AREAS HAVE AN ADDITIONAL LAYER OF CEILING TILES THAT REQUIRE DEMOLITION; VERIFY ON SITE. VERIFICATION REQUIRED FOR ABATEMENT OF PLASTER IF NECESSARY.

(02) REMOVE EXISTING WINDOWS ABOVE FOR BOILER FLUE SEE 2/A301

(03) REMOVE EXISTING CEILING, TIEBARS AND LIGHT FIXTURES FOR M&E WORK AND STORE SAFELY. REINSTALL AFTER HVAC WORK IS COMPLETED

(04) REMOVE EXISTING WOOD WINDOW, FRAME AND PANEL

(05) EXISTING WALL CONTAINS ASBESTOS. GENERAL CONTRACTOR TO COORDINATE THROUGH WALL DUCT PENETRATIONS. REFER TO MTE REPORT

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PROJECT:

MACGREGOR PUBLIC SCHOOL - PHASE 4

DRAWING TITLE:

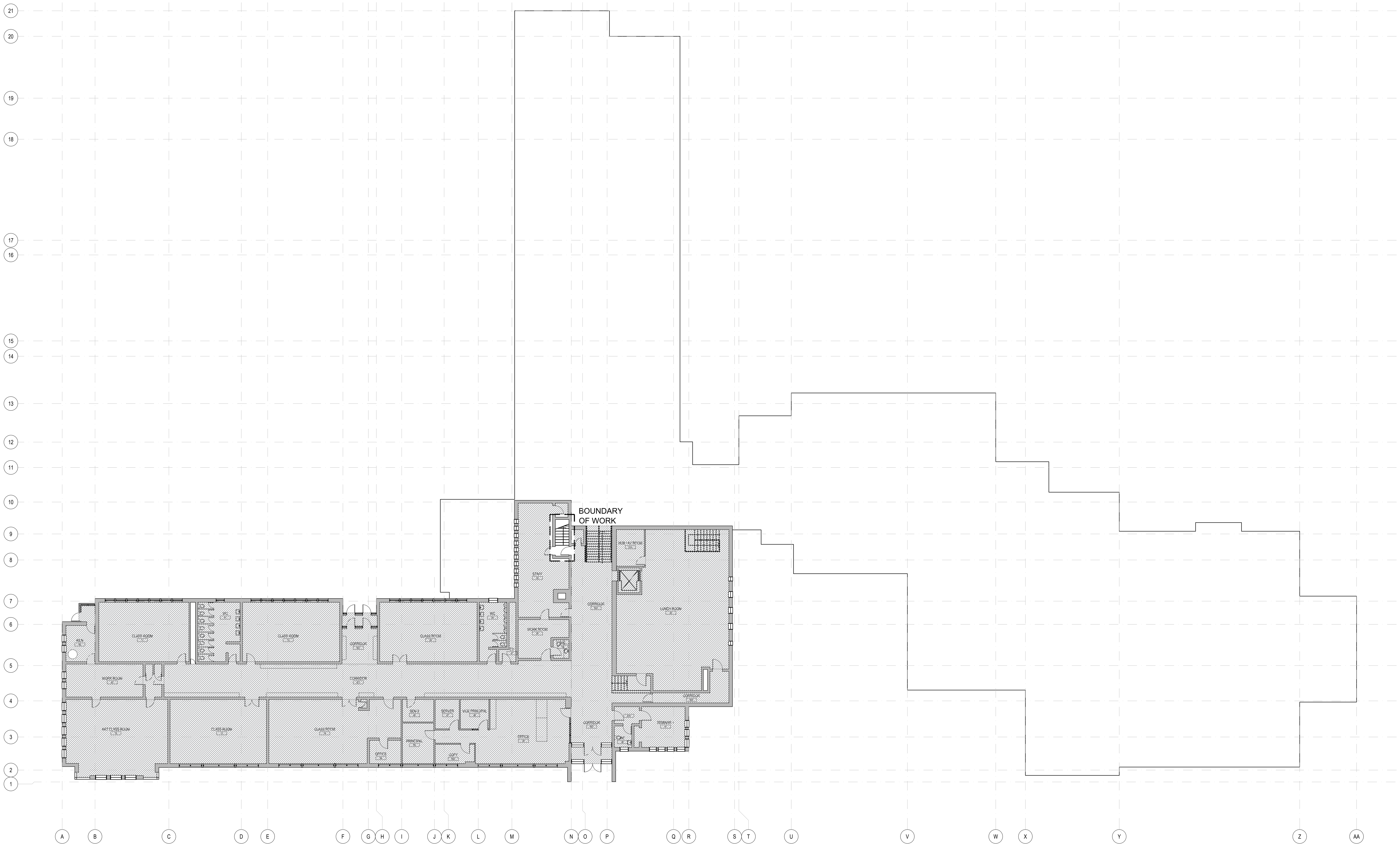
LOWER FLOOR DEMO REFLECTED CEILING PLAN

PROJECT NO: 21965
SCALE: INDICATED
DRAWN BY: DL
REVIEWED BY: EW

PROJECT NORTH:

DRAWING NO:

A030



DEMO DRAWING KEYNOTE LEGEND	
[hatch]	AREA NOT IN ARCHITECTURE SCOPE
[cross-hatch]	HATCH AREA INDICATES EXTENT OF CEILING REMOVAL

DEMO DRAWING KEYNOTE LEGEND

1. REFER TO MECHANICAL DRAWINGS FOR DEMOLITION OF EXISTING DUCTWORK AND PIPING
2. REMOVE EXISTING CEILING FINISH & FIXTURES WHERE SHOWN; REFER TO MECH & ELEC.
3. GROUT SOLID JOIST POCKETS WHERE JOISTS ABOVE CEILING REMOVED; REFER TO STRUCTURAL.
4. MAKE GOOD WALL SURFACES WHERE REMOVALS TAKE PLACE.
5. UPPER WOOD JOIST ROOF STRUCTURE TO REMAIN UNLESS NOTED OTHERWISE; REFER TO STRUCTURAL DRAWINGS
6. TWO EXISTING UNHOOKED BOILERS IN MECHANICAL ROOM TO BE DISPOSED BY THE CONTRACTOR.

DEMO DRAWING KEYNOTE LEGEND

(01) DEMOLISH EXISTING ACOUSTIC CEILING TILES AND EXISTING PLASTER CEILING ABOVE, INCLUDING ANY EXISTING WOOD JOIST FRAMING FOR DROP CEILING. SOME AREAS HAVE AN ADDITIONAL LAYER OF CEILING TILES THAT REQUIRE DEMOLITION; VERIFY ON SITE. VERIFICATION REQUIRED FOR ABATEMENT OF PLASTER IF NECESSARY.

(02) REMOVE EXISTING WINDOWS ABOVE FOR BOILER FLUE SEE 2/A301

(03) REMOVE EXISTING CEILING, TIEBARS AND LIGHT FIXTURES FOR M&E WORK AND STORE SAFELY . REINSTALL AFTER HVAC WORK IS COMPLETED

(04) REMOVE EXISTING WOOD WINDOW, FRAME AND PANEL

(05) EXISTING WALL CONTAINS ASBESTOS. GENERAL CONTRACTOR TO COORDINATE THROUGH WALL DUCT PENETRATIONS. REFER TO MTE REPORT

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PROJECT:

MACGREGOR PUBLIC SCHOOL - PHASE 4

DRAWING TITLE:

UPPER FLOOR DEMO REFLECTED CEILING PLAN

PROJECT NO: 21965
SCALE: INDICATED
DRAWN BY: DL
REVIEWED BY: EW
PROJECT NORTH:

DRAWING NO:

A031

DRAWING KEYNOTE LEGEND

	AREA NOT IN ARCHITECTURE SCOPE

NOTE:

1. PATCH, REPAIR AND PAINT AS REQUIRED DUE TO NEW ELECTRICAL OR MECHANICAL SCOPE
2. PROVIDE APPLICABLE FIRE STOPPING AS REQUIRED DUE TO NEW ELECTRICAL/ MECHANICAL/ STRUCTURAL SCOPE
3. COORDINATE LOCATION OF NEW DUCTWORK WITH MECH. REFER TO DETAIL S/A401 FOR FIRE-RATED BEAM ENCLOSURES AT OPENINGS; REFER TO STRUCTURAL FOR BEAM SIZING
4. PAINT EXISTING WALLS WHERE NOTED; WOOD DOORS & FRAMES TO BE LEFT UN-PAINTED.
5. PATCH AND REPAIR OF EXISTING SLAB ON GRADE IN BOILER ROOM. PROVIDE EPOXY PAINT ON SLAB COORDINATE WITH WORK AS SHOWN ON STRUCTURAL DRAWINGS
6. ALL NEW AND EXISTING EXPOSED CONDUIT TO BE PAINTED AS PART OF SCOPE OF WORK. ALLOW FOR ADDITIONAL CASH A ALLOWANCE
7. NEW CONDUITS IN ALL OTHER CLASSROOMS AT THE SCHOOL INSTALLED AS PART OF PREVIOUS PHASES TO BE ALSO PAINTED (THIS IS WORK OUTSIDE OF THE NOTED BOUNDARIES); PAINT COLOUR ALSO TO MATCH WALLS; **NOTE IN SOME LOCATIONS WALLS ARE BLUE**

PROPOSED DRAWING KEYNOTE LEGEND

(01) PATCH, REPAIR, PRIME AND PAINT ALL WALLS **PT-1**

(02) INFILL ALL EXISTING OPENINGS TO THE CORRIDOR AT HIGH LEVEL, TYP. REFER TO DETAIL 9/A401. VERIFY LOCATIONS AND DIMENSIONS ON SITE

(03) INSTALL NEW FLOOR FINISH IN OFFICES, REPLACE AND INSTALL VINYL BASEBOARDS INSIDE AND OUT OF OFFICES. COLOUR TO MATCH ADJACENT.

(04) NEW CMU "P2" BLOCK WALL AND FOOTING TO BE INSTALLED IN BOILER ROOM TO U.S. OF BEAM. REFER TO STRUCTURAL. PAINT ALL SURFACE MOUNTED DEVICES AND FIXTURES AS REQUIRED.

(05) NEW SINK, TOILET AND NEW PAINT IN CUSTODIAL WASHROOM. REFER TO MECHANICAL

(06) PROVIDE FOR NEW INFILLING OF SLAB AS REQUIRED. COORDINATE WITH MECHANICAL.

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PROJECT:

MACGREGOR PUBLIC SCHOOL - PHASE 4

DRAWING TITLE:

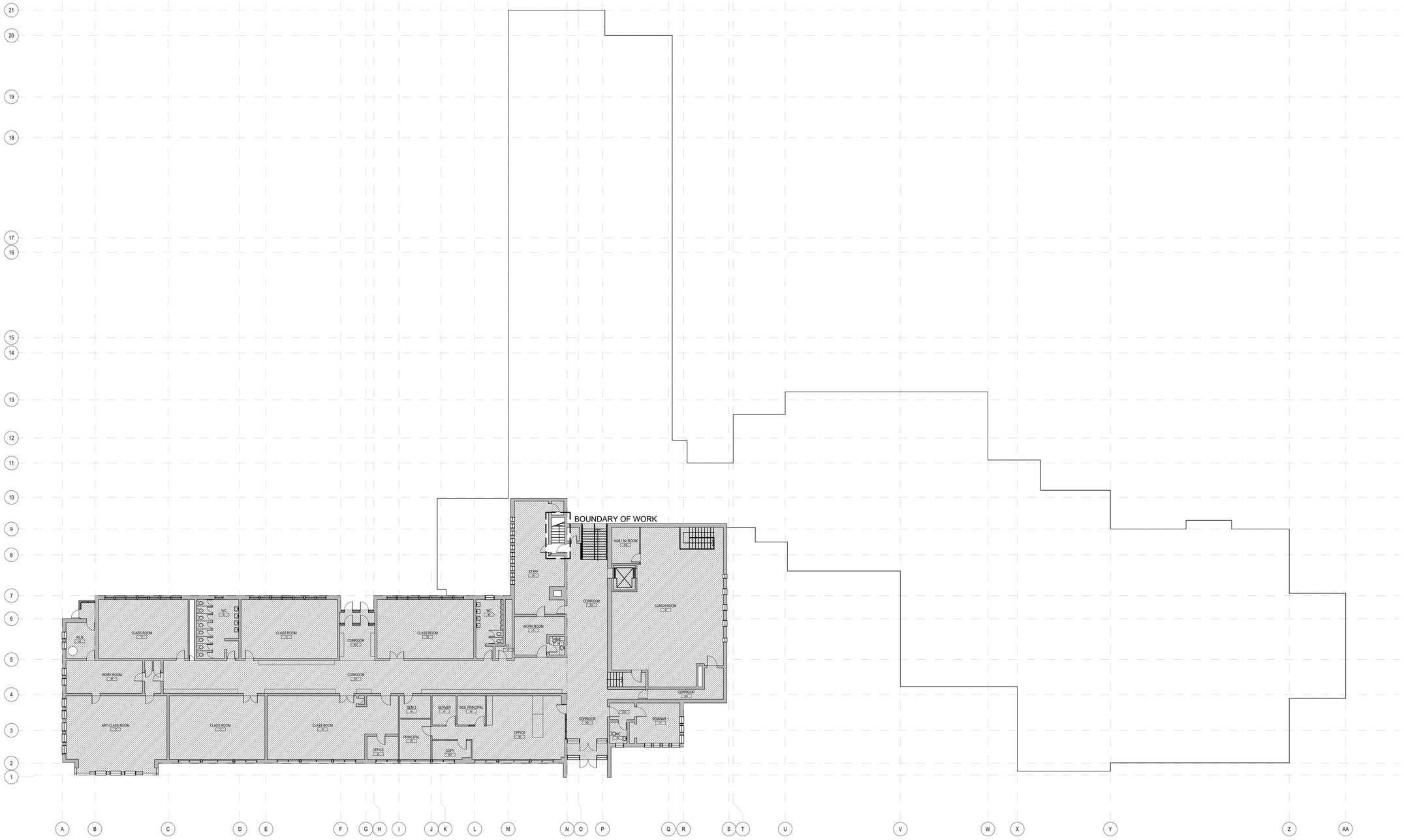
LOWER FLOOR PROPOSED FLOOR PLAN

PROJECT NO:	**21965**
SCALE:	**INDICATED**
DRAWN BY:	**DL**
REVIEWED BY:	**EW**

PROJECT NORTH:

DRAWING NO:

A100



DRAWING KEYNOTE LEGEND

AREA NOT IN ARCHITECTURE SCOPE

NOTE:

1. PATCH, REPAIR AND PAINT AS REQUIRED DUE TO NEW ELECTRICAL OR MECHANICAL SCOPE
2. PROVIDE APPLICABLE FIRE STOPPING AS REQUIRED DUE TO NEW ELECTRICAL/ MECHANICAL/ STRUCTURAL SCOPE
3. COORDINATE LOCATION OF NEW DUCTWORK WITH MECH. REFER TO DETAIL 9/A401 FOR FIRE-RATED BEAM ENCLOSURES AT OPENINGS; REFER TO STRUCTURAL FOR BEAM SIZING
4. PAINT EXISTING WALLS WHERE NOTED; WOOD DOORS & FRAMES TO BE LEFT UN-PAINTED.
5. PATCH AND REPAIR OF EXISTING SLAB ON GRADE IN BOILER ROOM. PROVIDE EPOXY PAINT ON SLAB COORDINATE WITH WORK AS SHOWN ON STRUCTURAL DRAWINGS
6. ALL NEW AND EXISTING EXPOSED CONDUIT TO BE PAINTED AS PART OF SCOPE OF WORK. ALLOW FOR ADDITIONAL CASH A ALLOWANCE
7. NEW CONDUITS IN ALL OTHER CLASSROOMS AT THE SCHOOL INSTALLED AS PART OF PREVIOUS PHASES TO BE ALSO PAINTED (THIS IS WORK OUTSIDE OF THE NOTED BOUNDARIES); PAINT COLOUR ALSO TO MATCH WALLS; **NOTE IN SOME LOCATIONS WALLS ARE BLUE**

PROPOSED DRAWING KEYNOTE LEGEND

01 PATCH, REPAIR, PRIME AND PAINT ALL WALLS **PT-1**

02 INFILL ALL EXISTING OPENINGS TO THE CORRIDOR AT HIGH LEVEL, TYP. REFER TO DETAIL 9/A401. VERIFY LOCATIONS AND DIMENSIONS ON SITE

03 INSTALL NEW FLOOR FINISH IN OFFICES. REPLACE AND INSTALL VINYL BASEBOARDS INSIDE AND OUT OF OFFICES. COLOUR TO MATCH ADJACENT.

04 NEW CMU "9'0" BLOCK WALL AND FOOTING TO BE INSTALLED IN BOILER ROOM TO U.S. OF BEAM. REFER TO STRUCTURAL. PAINT ALL SURFACE MOUNTED DEVICES AND FIXTURES AS REQUIRED.

05 NEW SINK, TOILET AND NEW PAINT IN CUSTODIAL WASHROOM. REFER TO MECHANICAL

06 PROVIDE FOR NEW INFILLING OF SLAB AS REQUIRED. COORDINATE WITH MECHANICAL.

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PROJECT:

MACGREGOR PUBLIC SCHOOL - PHASE 4

DRAWING TITLE:

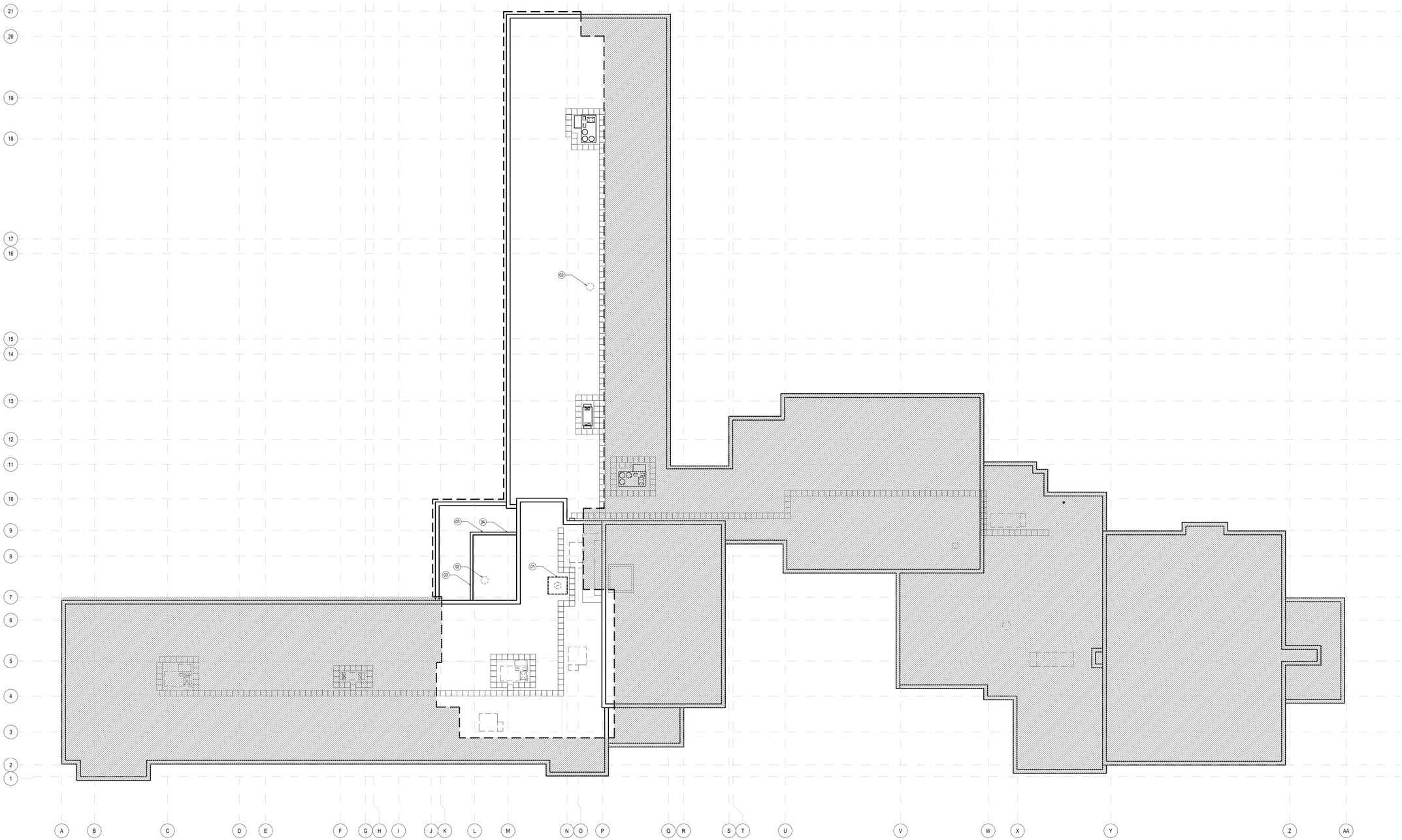
UPPER FLOOR PROPOSED FLOOR PLAN

PROJECT NO:	**21965**
SCALE:	**INDICATED**
DRAWN BY:	**DL**
REVIEWED BY:	**EW**

PROJECT NORTH:

DRAWING NO:

A101



DRAWING KEYNOTE LEGEND

AREA NOT IN ARCHITECTURE SCOPE

PROPOSED DRAWING KEYNOTE LEGEND

01 CAP EXISTING CHIMNEY. REMOVE PART OR WHOLE EXISTING CHIMNEY, REFER TO MECHANICAL (COST COVERED BY ALLOWANCE)

02 REMOVE EXHAUST FAN, PATCH AND REPAIR ROOF AFTER REMOVAL

03 LOCATION OF NEW MECHANICAL LOUVER, REFER TO MECHANICAL DRAWINGS

04 LOCATION OF NEW WINDOW, REFER TO 2/A301

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PROJECT:

MACGREGOR PUBLIC SCHOOL - PHASE 4

DRAWING TITLE:

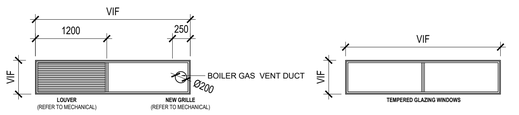
ROOF PLAN DEMOLITION AND NEW

PROJECT NO:	**21965**
SCALE:	**INDICATED**
DRAWN BY:	**DL**
REVIEWED BY:	**EW**

PROJECT NORTH:

DRAWING NO:

A102



NOTE:
REPLACE EXISTING WOOD FRAME WINDOW WITH ALUMINUM FRAME WINDOW. ALLOW FOR LOUVER AND FLUE GRILLE. REFER TO MECHANICAL. ACCOMMODATE NEW LOUVERS IN EXISTING OPENING

NOTE:
REPLACE EXISTING WOOD FRAME WINDOW WITH ALUMINUM FRAME WINDOW. ALLOW FOR 2 TEMPERED GLAZING WINDOWS. VERIFY DIMENSIONS IN SITE ACCOMMODATE NEW WINDOWS IN EXISTING OPENING

2 / A301 NEW WINDOWS & LOUVER
1 : 50

RCP FINISH LEGEND

ACT-1 SYSTEMS — 610MMX1220MM SUSPENDED ACOUSTIC CEILING TILE (LAY-IN ACT)

NOTES:

1. ARCHITECTURAL RCP IS INTENDED TO ILLUSTRATE LIGHTING LOCATIONS AND CEILING HEIGHT (TO BE VERIFIED IN FIELD) / FINISHES. REFER TO ELECTRICAL FOR SPECIFICATIONS, TO CONFIRM QUANTITIES AND OTHER RELATED ITEMS.
2. REFER TO MECHANICAL / ELCTRICAL FOR RELATED ITEMS.
3. WHERE POSSIBLE, ALIGN ITEMS IN CEILING. REVIEW AND COORDINATE W/ CONSULTANTS ON SITE PRIOR TO COMMENCING WORK.
4. ALL DIMENSIONS SHOWN ARE +/- CONTRACTOR TO VERIFY ALL DIMENSIONS ON SITE AND SHALL REPORT ANY DISCREPANCIES TO ARCHITECT.
5. DRAWINGS ARE NOT TO BE SCALED FOR CONSTRUCTION PURPOSES.
6. CONTRACTOR TO VERIFY AND MAINTAIN ALL EXISTING FIRE SEPARATIONS. ALL NEW ASSOCIATED ITEMS TO BE RATED AS REQ'D
7. FOR UTILITY AND CORRIDOR SPACES REFER TO MECHANICAL AND ELECTRICAL FOR RELOCATION OF LIGHT FIXTURES
8. REFER TO REPORT TO DETERMINE THE EXTENT OF REMEDIATION REQUIRED

PROPOSED RCP KEYNOTE LEGEND

(01) NO SUSPENDED CEILING IN UTILITY SPACE.

(02) EXISTING CEILING TILES AND LIGHT FIXTURES TO BE REINSTALLED AFTER COMPLETION OF HVAC WORK

(03) NEW LOCATION OF TV SCREENS

(04) REFER TO ELECTRICAL FOR LOCATION OF LIGHT FIXTURES

(05) PROVIDE NEW WINDOW AND GRILLE FOR BOILER FLUE ABOVE (UPPER PART OF WALL). NEW WINDOW TO MATCH EXISTING OPENING. REFER TO DRAWING 2/A301

(06) NEW EXHAUST DUCT. REFER TO MECHANICAL DRAWINGS

(07) CUSTODIAN WATER CLOSET TO BE PAINTED PNT-1.

RCP DEVICES LEGEND

- CEILING SUPPLY AIR DIFFUSER (REFER TO MECHANICAL)
- CEILING EXHAUST / RETURN GRILLE (REFER TO MECHANICAL)
- CEILING EXHAUST / RETURN GRILLE (REFER TO MECHANICAL)
- SURFACE MOUNTED LINEAR LUMINAIRE (REFER TO ELECTRICAL)
- RECESSED MOUNTED LINEAR LUMINAIRE (REFER TO ELECTRICAL)

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PROJECT:

MACGREGOR PUBLIC SCHOOL - PHASE 4

DRAWING TITLE:

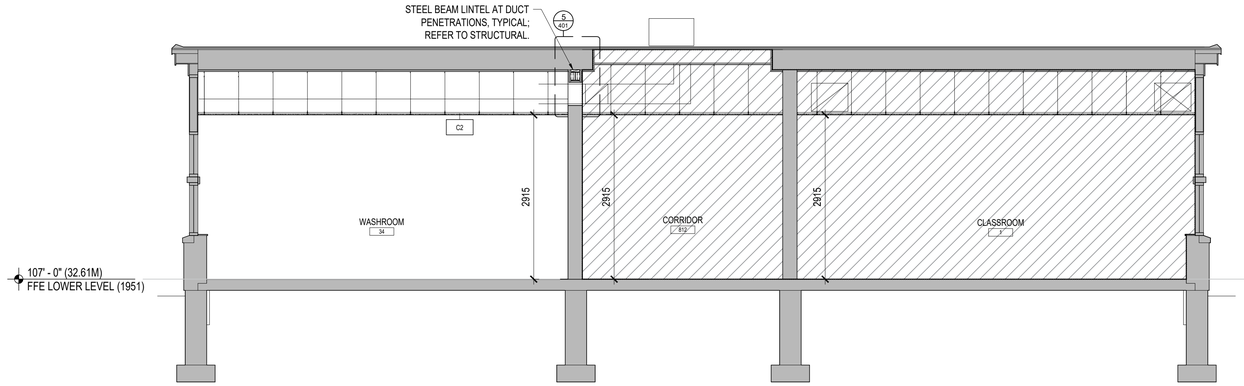
LOWER FLOOR REFLECTED CEILING PLAN

PROJECT NO:	**21965**
SCALE:	**INDICATED**
DRAWN BY:	**DL**
REVIEWED BY:	**EW**

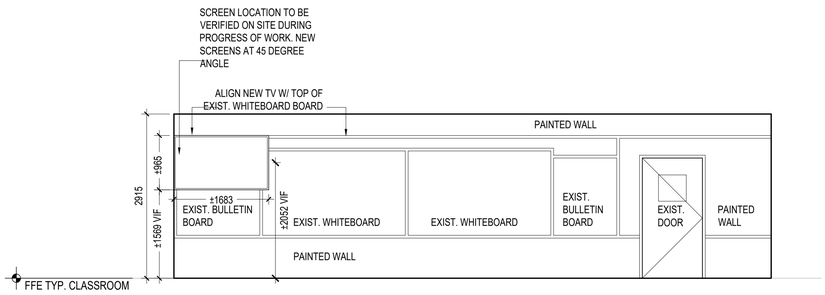
PROJECT NORTH:

DRAWING NO:

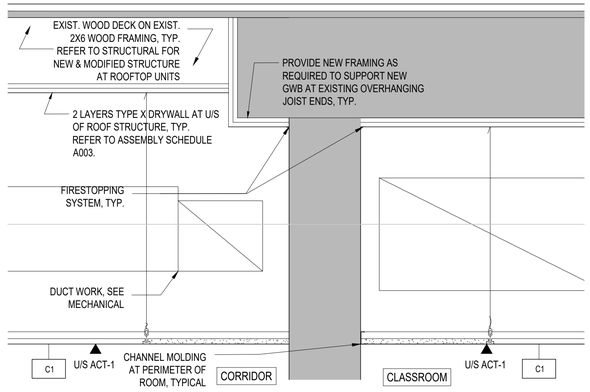
A301



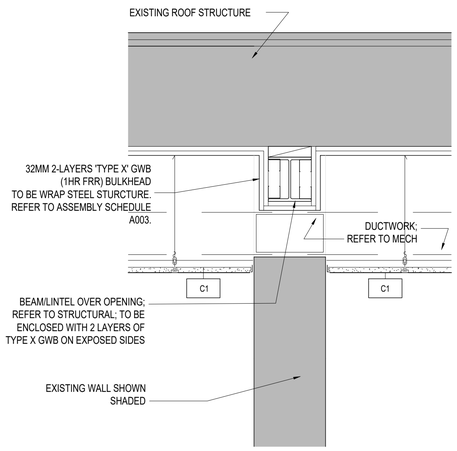
1 A401 SECTION THRU NORTH WING 1 : 50



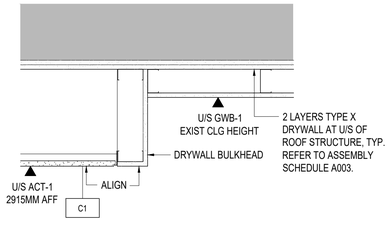
2 A401 TYPICAL CLASSROOM INTERIOR ELEVATION 1 : 50



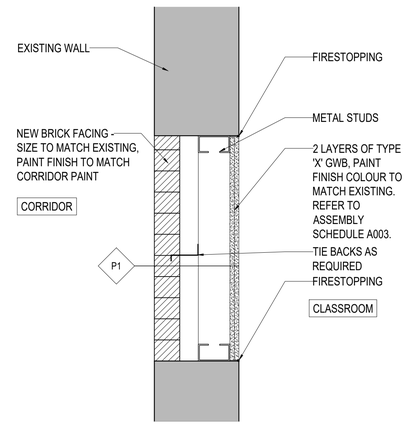
1 A401 SD- FIRE RATED BULKEAD AT CEILING JOIST 1 : 10



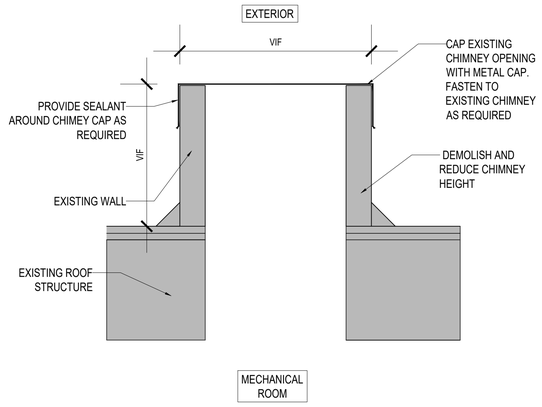
5 A401 SD- DUCT PENETRATION AT CORRIDOR 1 : 10



7 A401 SD- THROUGH CEILING TRANSITION 1 : 10



9 A401 SD- BRICK INFILL AT CORRIDOR 1 : 10



9 A401 SD- EXISTING CHIMNEY CAP 1 : 10

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NO.	DATE	DESCRIPTION
03	2024-05-01	ISSUED FOR PERMIT SUBMISSION
02	2024-04-15	ISSUED FOR ADDENDUM 1
01	2024-04-05	ISSUED FOR TENDER

PROJECT:

MACGREGOR PUBLIC SCHOOL - PHASE 4

DRAWING TITLE:

BUILDING SECTION & DETAILS

PROJECT NO:	**21965**
SCALE:	**INDICATED**
DRAWN BY:	**DL**
REVIEWED BY:	**EW**

PROJECT NORTH:

DRAWING NO:

A401

GENERAL NOTES

A. GENERAL INFORMATION

1. READ STRUCTURAL DOCUMENTS IN CONJUNCTION WITH CONTRACT DOCUMENTS, WHICH INCLUDE, BUT ARE NOT LIMITED TO, ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DOCUMENTS.

2. CONTRACTOR TO BE RESPONSIBLE FOR CHECKING SITE CONDITIONS AGAINST DOCUMENTS, BEFORE PROCEEDING WITH THE WORK, AND REPORT DISCREPANCIES TO THE CONSULTANT.

3. CONTRACTOR TO PROVIDE LABOUR, MATERIALS, AND EQUIPMENT TO COMPLETE ALL STRUCTURAL WORK INDICATED.

4. CARRY OUT CONSTRUCTION OPERATIONS, INCLUDING THE INSTALLATION OF TEMPORARY GUYING AND SHORING REQUIRED, ENSURING THAT THE EXISTING STRUCTURE OR MEMBERS ALREADY ERECTED ARE NOT LOADED IN EXCESS OF THEIR SAFE LOAD CARRYING CAPACITY.

5. STRUCTURAL DOCUMENTS DO NOT NECESSARILY SHOW ALL OPENINGS AND SLAB VARIATIONS REQUIRED. THE CONTRACTOR SHALL REFER TO ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR THE EXACT LOCATION, NUMBER, AND SIZE OF OPENINGS, TRENCHES, PITS, SUMPS, SLEEVES, AND DEPRESSIONS. PROVIDE STRUCTURAL FRAMING AT THESE LOCATIONS IN ACCORDANCE WITH THE APPLICABLE TYPICAL DETAIL.

B. REFERENCE STANDARDS/CODES AND ACTS

1. CONFORM WITH THE 2012 BUILDING CODE (ONTARIO REGULATION 332/12, AMENDED BY ONTARIO REGULATIONS 191/14, 563/17 AND 88/19), AND ANY APPLICABLE ACTS OF ANY AUTHORITY HAVING JURISDICTION, AND THE FOLLOWING:

REF	CODE	TITLE
a)	CAN/CSA-S16	LIMIT STATES DESIGN OF STEEL STRUCTURES.
b)	CAN/CSA G40.20/G40.21	STRUCTURAL QUALITY STEEL.
c)	O86	ENGINEERING DESIGN IN WOOD (LIMIT STATES DESIGN).
d)	CSA-A371	MASONRY CONSTRUCTION FOR BUILDINGS.
e)	S304.1	DESIGN OF MASONRY STRUCTURES

2. ALL STANDARDS AND PUBLICATIONS REFERENCED BY THE STANDARDS NOTED ABOVE ARE TO APPLY.

3. WHERE THERE ARE DIFFERENCES BETWEEN THE DOCUMENTS AND THE STANDARDS, CODES AND ACTS, THE MOST STRINGENT SHALL GOVERN.

C. SUBMITTALS

1. SUBMIT FOR REVIEW BY THE VARIOUS CONSULTANTS, DETAILED INFORMATION FOR ALL TEMPORARY AND PERMANENT STRUCTURAL WORK. THIS INCLUDES, BUT IS NOT LIMITED TO:

ITEM	SUBMISSION REQUIRED	SUBMISSION TO BE SEALED BY PROFESSIONAL ENGINEER	COMMENTS
TEMPORARY SHORING	YES	YES	
STRUCTURAL STEEL SHOP DRAWINGS	YES	YES	

1.1 CONTRACTOR SHALL ALLOW FOR A TURN AROUND TIME OF 5 WORKING DAYS FOR THE REVIEW OF THESE SUBMISSIONS.

2 OUR REVIEW OF THE SHOP DRAWINGS IS ONLY FOR GENERAL CONFORMITY WITH STRUCTURAL CONTRACT DOCUMENTS AND SPECIFICATIONS. COMMENTS MADE ON THE SHOP DRAWINGS DURING THIS REVIEW DO NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH THE REQUIREMENTS OF THE STRUCTURAL CONTRACT DOCUMENTS AND SPECIFICATIONS, NOR DO THEY AUTHORIZE ANY CHANGES TO THE CONTRACT. REVIEW OF A SPECIFIC ITEM SHALL NOT INCLUDE REVIEW OF AN ASSEMBLY OF WHICH THE ITEM IS A COMPONENT. THE CONTRACTOR'S RESPONSIBILITIES INCLUDE ALL QUANTITIES, DETAIL DIMENSIONS, FIELD MEASUREMENTS, FABRICATION PROCESS, MEANS, METHODS, SEQUENCES AND PROCEDURES OF CONSTRUCTION, COORDINATION OF WORK WITH ALL TRADES AND PERFORMING ALL WORK IN A SAFE AND SATISFACTORY MANNER. THE REVIEW OF SHOP DRAWINGS DOES NOT IMPLY ANY CHANGE IN ANY OTHER CONSULTANTS' OR PROFESSIONALS' RESPONSIBILITY RELATED TO DESIGN OF SPECIFIC ITEMS AS OUTLINED BY THE SPECIFICATIONS (SUCH AS STRUCTURAL STEEL CONNECTIONS, STEEL JOISTS, PRECAST ELEMENTS, ETC.). AFTER REVIEW, THE DRAWINGS WILL BE STAMPED AND RETURNED TO SHOW ONE OF THE FOLLOWING:

NOT REVIEWED — SHOWS WORK WHICH IS NOT WITHIN THE SCOPE OF STRUCTURAL CONSULTING SERVICES.

REVIEWED — NO DEVIATIONS FROM THE CONTRACT DOCUMENTS NOTED.

NOTED — WE HAVE MADE COMMENTS, TO BE REVIEWED/INCORPORATED. SUBMIT RECORD PRINT.

RESUBMIT — REVISE AND RESUBMIT FOR REVIEW.

D. MATERIALS

1. PROVIDE ONLY NEW STRUCTURAL MATERIALS IN ACCORDANCE WITH THE REFERENCE STANDARDS AND THE FOLLOWING, UNLESS OTHERWISE NOTED.

1.1 STRUCTURAL STEEL:

(a) STRUCTURAL WIDE FLANGE AND WELDED WIDE FLANGE SHAPES (W, WWF) TO CONFORM TO CAN/CSA-G40.20/G40.21 GRADE 350W.

(b) ANGLES AND CHANNELS (L, C) AND PLATES TO CONFORM TO CAN/CSA-G40.20/G40.21 GRADE 300W.

(c) HOLLOW STRUCTURAL SECTIONS (HSS) TO CONFORM TO ASTM A500 GRADE C.

1.2 PRIME PAINT: CONFORM TO CISC/CPMA STANDARD 2-75.

1.3 STRUCTURAL BOLTS, NUTS AND WASHERS: CONFORM TO ASTM A325M.

1.4 NON-SHRINK GROUT = COMPRESSIVE STRENGTH OF 35 MPa AT 24 HOURS.

1.5 BLOCK: CONFORM TO CAN3-A165 SERIES, MINIMUM COMPRESSIVE STRENGTH = 15.0 MPa (MIN.) BASED ON NET AREA.

1.6 MORTAR: CONFORM TO CSA A179 TYPE S FOR LOADBEARING WALLS UNLESS NOTED.

1.7 MASONRY GROUT: CONFORM TO CSA A179, 15 MPa MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS, 250 mm (10") SLUMP, MAXIMUM AGGREGATE SIZE 10 MM (3/8")

1.8 SAWN LUMBER: SPRUCE-PINE-FIR (S-P-F), NO. 2 GRADE OR BETTER UNLESS NOTED ON DRAWINGS. CONFORM TO CSA-0141.

1.9 PLYWOOD: CONFORM TO CSA O121 (DOUGLAS FIR PLYWOOD).

EXECUTION

1. STRUCTURAL STEEL

1.1. PAINT ALL STRUCTURAL STEEL TO REQUIREMENTS OF CISC/CPMA 2-75. TOUCH UP ALL FIELD WELDS.

1.2. ALL STRUCTURAL STEEL EXPOSED TO WEATHER SHALL BE GALVANIZED IN ACCORDANCE WITH CSA G164.

1.3. ALL WELDS SHALL CONFORM TO CSA STANDARD W59.

1.4. ALL WELDS EXPOSED TO VIEW SHALL BE GROUND SMOOTH.

1.5. ANY ORGANIZATION UNDERTAKING TO WELD UNDER THIS CONTRACT SHALL BE CERTIFIED BY THE CANADIAN WELDING BUREAU UNDER REQUIREMENTS OF DIVISION 1 OR DIVISION 2.1 OF W47.1.

1.6. UNLESS A REINFORCED MASONRY OR CONCRETE LINTEL IS SHOWN, IN MASONRY WALLS OR MASONRY PARTITIONS PROVIDE LOOSE STEEL LINTELS IN ACCORDANCE WITH REQUIREMENTS OF DOCUMENTS OVER ALL DOORWAYS, OTHER OPENINGS, AND RECESSES, INCLUDING THOSE FOR MECHANICAL OR ELECTRICAL SERVICES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THE LOCATION, SIZE AND NUMBER OF OPENINGS REQUIRED BY THE MECHANICAL AND ELECTRICAL CONSULTANT.

1.7. DO NOT SPLICE STRUCTURAL STEEL SECTIONS WITHOUT PRIOR APPROVAL OF THE CONSULTANT. ALL SPLICES SHALL DEVELOP THE FULL CAPACITY OF THE SECTION AND ARE TO BE TESTED BY NON DESTRUCTIVE METHODS, BY AN INDEPENDENT INSPECTION AND TESTING COMPANY, AT THE CONTRACTOR'S EXPENSE.

1.8. FOR TIMBER CONSTRUCTION TOP OF ALL STEEL BEAMS TO BE PRE-DRILLED TO ALLOW A 2" x 6" TIMBER NAILER TO BE INSTALLED. NAILER TO BE BOLTED WITH 1/2" DIA. BOLTS AT 4'-0" c/c, STAGGERED EACH SIDE.

1.9. COMPLETELY FILL VOIDS BENEATH STEEL BASES ON CONCRETE WITH AN APPROVED NON-SHRINK 36 MPa (5 ksi) GROUT

1.10. SEE ARCHITECTURAL DRAWINGS FOR FIREPROOFING REQUIREMENTS. CONFIRM COMPATIBILITY OF FIREPROOFING MATERIAL WITH STEEL PAINT.

2. MASONRY

2.1. PROVIDE A MINIMUM LENGTH OF 200 mm (8") OF 100% SOLID MASONRY UNITS FOR BEARING OF STEEL, CONCRETE OR REINFORCED MASONRY LINTELS.

2.2. SUPPLY AND PLACE REINFORCEMENT AND CONCRETE FOR REINFORCED MASONRY LINTELS IN ACCORDANCE WITH TYPICAL DETAILS SHOWN.

2.3. FOR THE PURPOSE OF DETERMINING THE REQUIRED REINFORCING FOR LOAD-BEARING AND NON-LOAD BEARING MASONRY WALLS THE SEISMIC HAZARD INDEX IEFASA(0.2) = 0.19. REFER TO TYPICAL DETAILS FOR REINFORCING REQUIREMENTS.

3. TIMBER FRAMING

3.1. ALL FRAMING, BRIDGING, NAILING, PROTECTION, HARDWARE AND OTHER FRAMING DETAILS ARE TO BE IN ACCORDANCE WITH PART 9 OF THE ONTARIO BUILDING CODE, LATEST EDITION.

3.2. EXTERIOR WALL SHEATHING TO BE 12 mm (1/2") EXTERIOR GRADE FIR PLYWOOD NAILED AT 150 mm (6") c/c ALONG EDGES AND 300 mm (12") c/c ON INTERMEDIATE FRAMING MEMBERS. SHEATHING PROVIDES LATERAL SUPPORT FOR FRAMING AND MUST BE NAILED TO EACH STUD.

3.3. FLOOR SHEATHING TO BE 16 mm (5/8") T & G FIR PLYWOOD SUB FLOOR GLUED AND NAILED SECURELY TO ALL JOISTS.

3.4. TIMBER PLANK DECKING IS TO BE LAID IN A [CONTROLLED RANDOM] [SIMPLE SPAN] [TWO SPAN CONTINUOUS] PATTERN.

3.5. ROOF SHEATHING TO BE 12 mm (1/2") EXTERIOR GRADE FIR PLYWOOD NAILED AT 150 mm (6") c/c ALONG EDGES AND 300 mm (12") c/c ON INTERMEDIATE FRAMING MEMBERS. PROVIDE 3 mm (1/8") GAP BETWEEN SHEATHING PIECES.

3.6. WIND LOADS SHALL BE IN ACCORDANCE WITH THE ONTARIO BUILDING CODE. PROVIDE FRAMING ANCHORS TO RESIST UPLIFT AT EACH END OF EACH ROOF JOIST. ANCHORS TO HAVE A WORKING CAPACITY OF 0.5 kN (100 lbs).

3.7. UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS, THE CONTRACTOR SHALL PROVIDE STANDARD SIMPSON STRONG TIE HARDWARE OR APPROVED EQUIVALENT FOR ALL JOIST HANGERS, BEAM HANGERS, BEAM SEATS, POST ANCHORS, ETC.

3.8. MEMBERS SHALL BE ALIGNED LEVEL AND PLUMB, WITHIN A TOLERANCE OF 1 IN 500.

3.9. MAKE ADEQUATE PROVISIONS FOR ERECTION STRESSES AND FOR SUFFICIENT TEMPORARY BRACING TO KEEP THE STRUCTURAL FRAME PLUMB AND IN TRUE ALIGNMENT UNTIL THE COMPLETION OF THE ENTIRE FRAMING INCLUDING INSTALLATION OF THE FLOOR AND WALL SHEATHING.

3.10. FRAME AROUND ALL OPENINGS WITH DOUBLE HEADERS AND TRIMMERS NAILED TOGETHER WITH TWO ROWS OF 89 mm (3-1/2") SPIRAL NAILS AT 200 mm c/c (8"c/c) STAGGERED UNLESS NOTED OTHERWISE. DO NOT SPLICE MEMBERS BETWEEN SUPPORTS.

3.11. FOR ALL BUILT UP BEAMS SUPPORTED ON TIMBER WALLS, SUPPORT BEAMS ON POSTS WITH AN EQUAL NUMBER OF LAMINATIONS UNLESS NOTED OTHERWISE.

3.12. ALL BUILT UP BEAMS TO BE NAILED TOGETHER WITH TWO ROWS OF 89 mm (3-1/2") SPIRAL NAILS AT 200 mm (8") c/c, STAGER ROWS TOP AND BOTTOM. DO NOT SPLICE MEMBERS BETWEEN SUPPORTS.

3.13. ALL BEAMS SUPPORTED ON TIMBER WALLS ARE TO BEAR ON BUILT UP POSTS OR BE CONNECTED TO OTHER BEAMS WITH METAL BEAM HANGERS. PRESSURE NAILING PLATES WILL NOT BE ACCEPTED.

3.14. ALL BUILT UP POSTS ARE TO BE CONSTRUCTED CONTINUOUSLY TO THE FOUNDATION WITH TRANSFER BLOCKING AT EACH FLOOR FRAMING. POSTS ARE TO CONTINUE TO FOUNDATIONS EVEN IF SUPPORTED ON LOADBEARING STUD WALLS, UNLESS NOTED OTHERWISE ON THE DRAWINGS.

3.15. BUILT UP POSTS OF 2 OR 3 PLY SHALL BE NAILED TOGETHER AT 150 mm (6") c/c STAGGERED UNLESS NOTED OTHERWISE.

3.16. PROVIDE DOUBLE FLOOR JOISTS AT ALL NON-LOADBEARING AND LOADBEARING PARTITION WALLS SPANNING PARALLEL TO THE FLOOR FRAMING UNLESS OTHERWISE NOTED.

3.17. PROVIDE SOLID BLOCKING, MATCHING JOIST MEMBER SIZE, UNDER ALL LOADBEARING WALLS OFFSET FROM THE SUPPORTS BELOW FOR FLOOR JOISTS SPANNING PERPENDICULAR TO THE WALL.

3.18. PROVIDE SOLID BLOCKING BETWEEN JOISTS OVER SUPPORT AT ALL CANTILEVERED CONDITIONS.

3.19. PROVIDE THE FOLLOWING HEADERS UNLESS NOTED OTHERWISE ON THE DRAWINGS:

WINDOW & DOOR OPENING < 2,100 mm (7'-0" : 2 - 38x235 (2"x10") NO.2

WINDOW & DOOR OPENING < 3,000 mm (10'-0") : 3 - 38x235 (2"x10") NO.2

3.20. PROVIDE 38x38 (2"x2") DIAGONAL CROSS BRIDGING AT MAXIMUM 2,100 mm (6'-11") c/c UNLESS NOTED OTHERWISE, FOR ALL SAWN JOIST LOCATIONS.

3.21. PROVIDE MINIMUM BEARING OF 38 mm (1 1/2") FOR ALL JOISTS.

3.22. PROVIDE MINIMUM BEARING OF 100 mm (4") FOR ALL BEAMS.

3.23. NO SAWN LUMBER SHALL BE NOTCHED OR DRILLED IN THE FIELD WITHOUT THE PERMISSION OF THE CONSULTANT.

3.24. WOOD IS NOT PERMITTED TO BEAR DIRECTLY ON MASONRY OR CONCRETE WITHOUT PROTECTION. PROVIDE EITHER PRESSURE TREATED WOOD OR A POLYETHELENE SHEET BETWEEN THE WOOD AND MASONRY/CONCRETE.

3.25. ALL NAILERS TO BE ANCHORED WITH 12 mm (1/2") DIAMETER ANCHOR BOLTS x 300 mm (12") LONG AT 1,200 mm (4'-0") ON CENTRES. STAGGER ANCHOR BOLTS.

4. POST-INSTALLED ANCHORS

4.1. ANCHOR CAPACITY USED IN DESIGN SHALL BE BASED ON THE TECHNICAL DATA PUBLISHED BY HILTI OR SUCH OTHER METHOD AS APPROVED BY THE STRUCTURAL ENGINEER OF RECORD. SUBSTITUTION REQUESTS FOR ALTERNATE PRODUCTS MUST BE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER OF RECORD PRIOR TO USE. CONTRACTOR SHALL PROVIDE CALCULATIONS DEMONSTRATING THAT THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING THE PERFORMANCE VALUES OF THE SPECIFIED PRODUCT. SUBSTITUTIONS WILL BE EVALUATED FOR COMPLIANCE WITH THE RELEVANT BUILDING CODE FOR SEISMIC USES, LOAD RESISTANCE, INSTALLATION CATEGORY, AND AVAILABILITY OF COMPREHENSIVE INSTALLATION INSTRUCTIONS. ADHESIVE ANCHOR EVALUATION WILL ALSO CONSIDER CREEP, IN-SERVICE TEMPERATURE AND INSTALLATION TEMPERATURE.

4.2. INSTALL ANCHORS PER THE MANUFACTURER INSTRUCTIONS, AS INCLUDED IN THE ANCHOR PACKAGING.

4.3. OVERHEAD ADHESIVE ANCHORS MUST BE INSTALLED USING THE HILTI PROFI SYSTEM.

4.4. THE CONTRACTOR SHALL ARRANGE AN ANCHOR MANUFACTURER'S REPRESENTATIVE TO PROVIDE ONSITE INSTALLATION TRAINING FOR ALL OF THEIR ANCHORING PRODUCTS SPECIFIED. THE STRUCTURAL ENGINEER OF RECORD MUST RECEIVE DOCUMENTED CONFIRMATION THAT ALL OF THE CONTRACTOR'S PERSONNEL WHO INSTALL ANCHORS ARE TRAINED PRIOR TO THE COMMENCEMENT OF INSTALLING ANCHORS.

4.5. ANCHOR CAPACITY IS DEPENDANT UPON SPACING BETWEEN ADJACENT ANCHORS AND PROXIMITY OF ANCHORS TO EDGE OF CONCRETE. INSTALL ANCHORS IN ACCORDANCE WITH SPACING AND EDGE CLEARANCES INDICATED ON THE DRAWINGS.

4.6. EXISTING REINFORCING BARS IN THE CONCRETE STRUCTURE MAY CONFLICT WITH SPECIFIC ANCHOR LOCATIONS. UNLESS NOTED ON THE DRAWINGS THAT THE BARS CAN BE CUT, THE CONTRACTOR SHALL REVIEW THE EXISTING STRUCTURAL DRAWINGS AND SHALL UNDERTAKE TO LOCATE THE POSITION OF THE REINFORCING BARS AT THE LOCATIONS OF THE CONCRETE ANCHORS, BY HILTI FERROSCAN, HILTI PS 1000, GPR, X-RAY, CHIPPING OR OTHER MEANS.

5. ALTERATIONS AND/OR CONNECTIONS TO EXISTING STRUCTURE

5.1. INSPECT THE EXISTING BUILDING AND BECOME THOROUGHLY FAMILIAR WITH THE EXISTING CONDITIONS.

5.2. PRIOR TO PROCEEDING WITH THE WORK, DETERMINE THE EXACT FOUNDING ELEVATIONS OF EXISTING FOOTINGS ADJACENT TO THE NEW WORK. REPORT THESE FINDINGS TO THE CONSULTANT.

5.3. PRIOR TO FABRICATION OF STRUCTURAL STEEL, OPEN UP ALL AREAS WHERE CONNECTIONS ARE TO BE MADE TO EXISTING WORK AND TAKE FIELD MEASUREMENTS. MODIFY METHODS FOR CONNECTING TO SUIT SITE CONDITIONS FOUND AND TO THE APPROVAL OF THE CONSULTANT. CARRY OUT LOCAL REPAIRS TO THE EXISTING WORK AS NECESSARY AND AS DIRECTED BY THE CONSULTANT.

5.4. SHORE EXISTING WORK AS REQUIRED UNTIL ALL NEW WORK HAS BEEN COMPLETED AND REVIEWED BY THE CONSULTANT.

5.5. PROVIDE SLOTTED HOLES AND FRICTION TYPE BOLTED CONNECTIONS TO CONNECT NEW STEEL TO EXISTING WORK.

5.6. SHORE FLOORS AS REQUIRED TO SUPPORT CRANES, HOISTS AND OTHER CONSTRUCTION EQUIPMENT.

5.7. DO NOT CUT CONCRETE REINFORCEMENT UNLESS REVIEWED AND APPROVED BY THE CONSULTANT.

5.8. WHERE REQUIRED TO AVOID CUTTING EXISTING REINFORCEMENT, MODIFY THE LAYOUT OF NEW THROUGH BOLTS, EXPANSION ANCHORS AND OTHER ANCHORING DEVICES.

5.9. MAKE GOOD THE EXISTING WORK.

5.10 CLOSE OFF ALL OPENINGS IN WALLS LEFT BY REMOVAL OF EX DUCTWORK (SEE MECH DEMOLITION DWGS), USING LIKE MATERIAL TO THE SURROUNDING WALLS.

5.11 CLOSE OFF ALL OPENINGS IN ROOF LEFT BY REMOVAL OF EX DUCTWORK (SEE MECH DEMOLITION DWGS), USING LIKE MATERIAL TO THE SURROUNDING ROOF STRUCTURAL SYSTEM.

F. QUALITY CONTROL

1. GENERAL

1.1 IMPLEMENT A SYSTEM OF QUALITY CONTROL TO ENSURE THAT THE MINIMUM STANDARDS SPECIFIED HEREIN ARE ATTAINED.

1.2 BRING TO THE ATTENTION OF THE CONSULTANT ANY DEFECTS IN THE WORK OR DEPARTURES FROM THE CONTRACT DOCUMENTS. WHICH MAY OCCUR DURING CONSTRUCTION. THE CONSULTANT WILL DECIDE UPON CORRECTIVE ACTION AND GIVE RECOMMENDATIONS IN WRITING.

1.3 THE CONSULTANT'S GENERAL REVIEW DURING CONSTRUCTION AND INSPECTION AND TESTING BY INDEPENDENT INSPECTION AND TESTING AGENCIES REPORTING TO THE CONSULTANT ARE BOTH UNDERTAKEN TO INFORM THE OWNER/CLIENT OF THE CONTRACTOR'S PERFORMANCE AND SHALL IN NO WAY AUGMENT THE CONTRACTOR'S QUALITY CONTROL OR RELIEVE THE CONTRACTOR OF CONTRACTUAL RESPONSIBILITY.

2. NOTIFICATION

2.1 PRIOR TO COMMENCING SIGNIFICANT SEGMENTS OF THE WORK, GIVE THE CONSULTANT AND INDEPENDENT INSPECTION AND TESTING COMPANIES APPROPRIATE NOTIFICATION (MINIMUM 24 HOURS) SO AS TO AFFORD THEM REASONABLE OPPORTUNITY TO REVIEW THE WORK. FAILURE TO MEET THIS REQUIREMENT MAY BE CAUSE FOR THE CONSULTANT TO CLASSIFY THE WORK AS DEFECTIVE.

3. INSPECTION AND TESTING

3.1 AN INDEPENDENT INSPECTION AND TESTING COMPANY SHALL MAKE INSPECTIONS OR PERFORM TESTS AS THE CONSULTANT DIRECTS. THE INDEPENDENT INSPECTION AND TESTING COMPANIES SHALL BE RESPONSIBLE ONLY TO THE CONSULTANT AND SHALL MAKE ONLY SUCH INSPECTIONS OR TESTS AS THE CONSULTANT MAY DIRECT.

3.2 THE FOLLOWING ITEMS REQUIRE TESTING AND/OR INSPECTION BY A CERTIFIED, INDEPENDENT INSPECTION AND TESTING COMPANY UNLESS OTHERWISE NOTED. THE TESTING FIRM SHALL SUBMIT COPIES OF ALL STRUCTURAL TESTING AND INSPECTION REPORTS TO THE CONSULTANT FOR REVIEW:

ITEM	REQUIRED	COMMENTS
STRUCTURAL STEEL ERECTION	YES	REVIEW MEMBER SIZE, PLUMBNESS, BOLTED CONNECTIONS, ETC.
STRUCTURAL STEEL WELDING	YES	VISUALLY INSPECT ALL FIELD WELDING

4. DEFECTIVE MATERIALS AND WORK

4.1 WHERE EVIDENCE EXISTS THAT DEFECTIVE WORK HAS OCCURRED OR THAT WORK HAS BEEN CARRIED OUT INCORPORATING DEFECTIVE MATERIALS, THE CONSULTANT MAY HAVE TESTS, INSPECTIONS OR SURVEYS PERFORMED, ANALYTICAL CALCULATIONS OF STRUCTURAL STRENGTH MADE, AND THE LIKE, IN ORDER TO HELP DETERMINE WHETHER THE WORK MUST BE CORRECTED OR REPLACED. TESTS, INSPECTIONS OR SURVEYS OR CALCULATIONS CARRIED OUT UNDER THESE CIRCUMSTANCES WILL BE MADE AT THE CONTRACTOR'S EXPENSE, REGARDLESS OF THEIR RESULTS, WHICH MAY BE SUCH THAT, IN THE CONSULTANT'S OPINION, THE WORK MAY BE ACCEPTABLE.

4.2 ALL TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE 2012 BUILDING CODE (ONTARIO REGULATION 332/12, EXCEPT WHERE THIS WOULD, IN THE CONSULTANT'S OPINION, CAUSE UNDUE DELAY OR GIVE RESULTS NOT REPRESENTATIVE OF THE REJECTED MATERIAL IN PLACE. IN THIS CASE, THE TESTS SHALL BE CONDUCTED IN ACCORDANCE WITH THE STANDARDS GIVEN BY THE CONSULTANT.

4.3 MATERIALS OR WORK, WHICH FAIL TO MEET SPECIFIED REQUIREMENTS, MAY BE REJECTED BY THE CONSULTANT WHENEVER FOUND AT ANY TIME PRIOR TO FINAL ACCEPTANCE OF THE WORK REGARDLESS OF PREVIOUS INSPECTION. IF REJECTED, DEFECTIVE MATERIALS OR WORK SHALL BE PROMPTLY REMOVED AND REPLACED OR REPAIRED TO THE SATISFACTION OF THE CONSULTANT, AT NO EXPENSE TO THE OWNER.

LIST OF STRUCTURAL DRAWINGS

SHEET NO.	SHEET TITLE
S101	GENERAL NOTES
S102	TYPICAL DETAILS
S103	TYPICAL DETAILS
S201	KEY PLAN AND PART ROOF FRAMING PLAN
S202	PART BASEMENT PLAN, PART ROOF PLAN

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Project No. 21-1055-04

LICENSED PROFESSIONAL ENGINEER
MAY 01, 2024
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PROVINCE OF ONTARIO

ISSUE DATE:

NO.	DATE	DESCRIPTION
2	2024.05.01	ISSUED FOR PERMIT
1	2024.04.02	ISSUED FOR TENDER

PROJECT:

MACGREGOR PUBLIC SCHOOL - PHASE 4

DRAWING TITLE:

GENERAL NOTES

PROJECT NO: 21965
SCALE: N/A
DRAWN BY: JRP / NAZ
REVIEWED BY: CN / PDS

PROJECT NORTH:

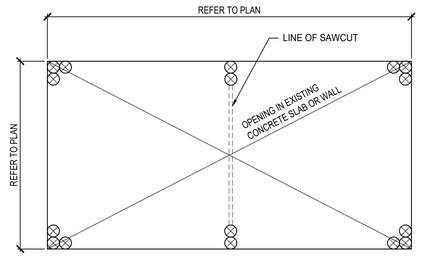
DRAWING NO:

S101

STRUCTURAL ABBREVIATIONS — TD-G01

A BOLT	ANCHOR BOLT	f'c	28 DAYS CONCRETE COMPRESSIVE STRENGTH	OF	OUTSIDE FACE
ADJ	ADJUSTABLE			OPEN	OPENING
AFF	ABOVE FINISHED FLOOR	FDN	FOUNDATION	OWSJ	OPEN WEB STEEL JOIST
AIFB	ASPHALT IMPREGNATED FIBREBOARD	FF	FAR FACE	Pf	AXIAL FORCE (FACTORED)
		FIN	FINISHED	PC	PRECAST
ALT	ALTERNATE	FL	FLOOR	PL	PLATE
ARCH	ARCHITECTURAL	ft	FOOT, FEET	PLF	POUNDS PER LINEAR FOOT
ASL	ADDITIONAL ACCUMULATED SNOW LOAD	FTG	FOOTING	PROJ	PROJECTION
		Fy	YIELD STRENGTH	PSF	POUNDS PER SQUARE FOOT
@	AT	GA	GAUGE	PT	PRESSURE TREATED
B, BOTT	BOTTOM	GALV	GALVANIZED	RD	ROOF DRAIN
B/B	BACK TO BACK	GEN	GENERAL	RF	REACTION (FACTORED)
BEW	BOTTOM EACH WAY	HEF	HORIZONTAL EACH FACE	RAD	RADIUS
BH	BOREHOLE	Hf	HORIZONTAL FORCE (FACTORED)	REINF	REINFORCED, REINFORCEMENT
BLL	BOTTOM LOWER LAYER	HH	HOOK EACH END	REF	REFERENCE
BLDG	BUILDING	HIF	HORIZONTAL INSIDE FACE	RE	RIGHT END
BM	BEAM	HOF	HORIZONTAL OUTSIDE FACE	REQ'D	REQUIRED
BPL	BEARING/BASE PLATE	H, HORZ	HORIZONTAL	REV	REVISION, REVISED
BRDG	BRIDGING	HSC	HORIZONTALLY SLOTTED CONNECTION	R/W	REINFORCED WITH
BUL	BOTTOM UPPER LAYER	HSS	HOLLOW STEEL SECTION	SAD	SEE ARCHITECTURAL DRAWINGS
c	CAMBER	IF	INSIDE FACE	SDF	STEP DOWN FOOTING
C	EPOXY COATED	IN	INCH(ES)	SECT	SECTION
c/c, o/c	CENTRE TO CENTRE	INT	INTERIOR	SIM	SIMILAR
CA	COLUMN ABOVE	JT	JOINT	SL	SLAB
CB	COLUMN BELOW	K	KIP, 1000 LBS	SOG	SLAB ON GRADE
CANT	CANTILEVER	K-ft	KIP FEET	SPDD	STANDARD PROCTOR DRY DENSITY
Cf	COMPRESSIVE FORCE (FACTORED)	kg	KILOGRAM(S)	ST	STRAIGHT
CJ	CONTROL JOINT	K/LF	KIPS PER LINEAR FOOT	STIFF	STIFFENER
℄	CENTRELINE	kN	KILONEWTON	STIR	STIRRUP
COL	COLUMN	kN-m	KILONEWTON METRE	STRUCT	STRUCTURAL
COMP	COMPOSITE	kN/m	KILONEWTON PER METRE	STD	STANDARD
CONC	CONCRETE	kPa	KILOPASCAL	SQ	SQUARE
CONT	CONTINUOUS	KSF	KIPS PER SQUARED FOOT	T	TOP
C/W	COMPLETE WITH	KSI	KIPS PER SQUARED INCH	Tf	TENSILE FORCE (FACTORED)
DEMO	DEMOLITION	L	SINGLE ANGLE	TEMP	TEMPORARY, TEMPERATURE
DET	DETAIL	LE	LEFT END	TEW	TOP EACH WAY
DIA, Ø	DIAMETER	LG	LONG	TJ	TIE JOIST
DIAG	DIAGONAL	LL	LIVE LOAD, LOWER LAYER	TLL	TOP LOWER LAYER
DIM	DIMENSION	LLH	LONG LEG HORIZONTAL	Tmf	TORSIONAL MOMENT (FACTORED)
DL	DEAD LOAD	LLV	LONG LEG VERTICAL	TOD	TOP OF DECK
DP	DEEP	m	METRE	TOS	TOP OF STEEL/SLAB
DWG(S)	DRAWING(S)	MC ▶	MOMENT CONNECTION (FULL MOMENT UNLESS NOTED)	TRANS	TRANSVERSE
DWL(S)	DOWEL(S)			TUL	TOP UPPER LAYER
DN	DOWN	MECH	MECHANICAL	TYP	TYPICAL
EA	EACH	Mf	MOMENT (FACTORED)	UL	UPPER LAYER
EE	EACH END	ML	MIDDLE LAYER	U/N	UNLESS NOTED OTHERWISE
EF	EACH FACE	mm	MILLIMETRE	U/S	UNDERSIDE
ELEC	ELECTRICAL	MPa	MEGAPASCAL	V, VERT	VERTICAL
EL	ELEVATION	Mxf	BENDING MOMENT ABOUT x-x AXIS (FACTORED)	Vf	VERTICAL SHEAR FORCE (FACTORED)
ELEV	ELEVATOR			VBF	VERTICAL BRACED FRAME
EMBED	EMBEDMENT	Myf	BENDING MOMENT ABOUT y-y AXIS (FACTORED)	VEF	VERTICAL EACH FACE
EQ	EQUAL			VIF	VERTICAL INSIDE FACE
ES	EACH SIDE	NF	NEAR FACE	VOF	VERTICAL OUTSIDE FACE
EX, EXIST	EXISTING	NIC	NOT IN CONTRACT	VSC	VERTICALLY SLOTTED CONNECTION
EJ, EXP JT	EXPANSION JOINT	N-S	NORTH-SOUTH	W	WIDE FLANGE BEAM
E-W	EAST WEST	NTS	NOT TO SCALE	WT	WEIGHT, STRUCTURAL TEE
EW	EACH WAY			WWF	WELDED WIRE FABRIC OR WELDED WIDE FLANGE
EXT	EXTERIOR			W.P.	WORKING POINT

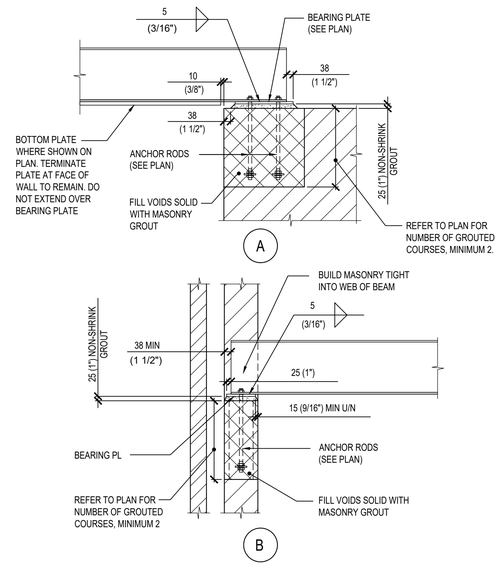
TYPICAL SAW CUTTING OF EXISTING SLAB OR WALL — TD-CV5



SAW CUTTING PROCEDURE:

1. CORE MIN THREE 100 mm (4") Ø HOLES AT ENDS OF SAWCUTS.
2. SAW CUT OPENING. DO NOT OVERCUT AT CORNERS OR ALONG EDGE.
3. IF REQUIRED CHIP CORNERS SQUARE.
4. SCAN OR X-RAY PROPOSED OPENING PRIOR TO CUTTING TO LOCATE REINFORCEMENT AND EMBEDDED CONDUIT.

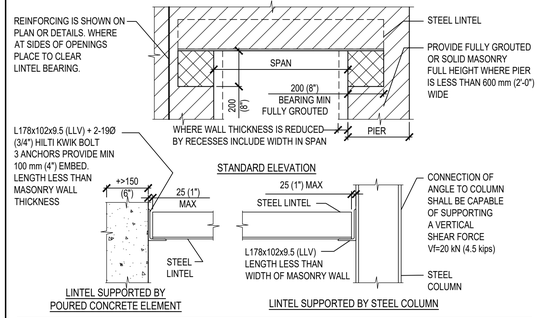
BEARING OF BEAM ON END OF MASONRY WALL — TD-M08



NOTES:

1. REFER TO GENERAL NOTES FOR EXTENT OF MASONRY GROUT.
2. REFER TO PLANS FOR SIZE OF BEARING PLATE AND SIZE/NUMBER OF ANCHOR BOLTS.

STEEL LINTELS FOR NON-LOAD BEARING MASONRY WALLS — TD-S01



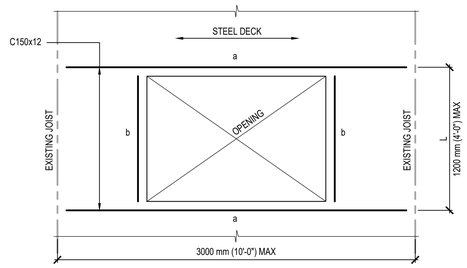
CLEAR SPAN	WALL THICKNESS				
	90 (3 1/2") VENEER	140 (5 1/2")	190 (7 1/2")	240 (9 1/2")	290 (11 1/2")
UP TO 1200 (4'-0")	L89x89x6.4	2-L64x64x6.4	2-L76x89x6.4 (LLH)	L76x102x6.4 + L76x127x6.4 (LLH)	3-L76x89x6.4 (LLH)
1200 (4'-0") TO 1800 (6'-0")	L127x89x6.4 (LLV)	2-L89x64x6.4 (LLV)	2-L89x89x6.4	L102x102x6.4 + L76x127x6.4 (LLH)	3-L89x89x6.4
1800 (6'-0") TO 2400 (8'-0")	L127x89x6.4 (LLV)	2-L89x64x7.9 (LLV)	2-L102x89x7.9 (LLV)	L102x102x9.5 + L89x127x7.9 (LLH)	3-L102x89x6.4 (LLV)
2400 (8'-0") TO 3000 (10'-0")	L127x89x9.5 (LLV)	2-L89x64x9.5 (LLV)	2-L152x89x7.9 (LLV)	L152x102x7.9 (LLV) + L127x127x7.9	3-L127x89x6.4 (LLV)
DETAIL	L	⅃L	⅃L	⅃L	⅃L⅃

NOTES:

1. CONNECT BACK TO BACK DOUBLE ANGLE LINTELS USING 16 mm (5/8") Ø BOLTS AT 450 mm (18") c/c MAX OR BY WELDING AT TOP AND BOTTOM USING 6 mm (1/4") WELDS x 50 mm (2") LONG AT 450 mm (18") c/c MAX. FIRST BOLT OR WELD TO BE A MAX OF 75 mm (3") FROM END OF LINTEL
2. FULLY PACK LINTEL ENDS WITH STEEL SHIMS TO ENSURE EVEN BEARING.
3. LINTELS AS COVERED UNDER THIS DETAIL ARE NOT NECESSARILY SHOWN ON THE STRUCTURAL DRAWINGS. REFER TO ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR OPENING LOCATIONS AND SIZES.

FRAMING AT OPENINGS IN STEEL ROOF DECK — TD-S02

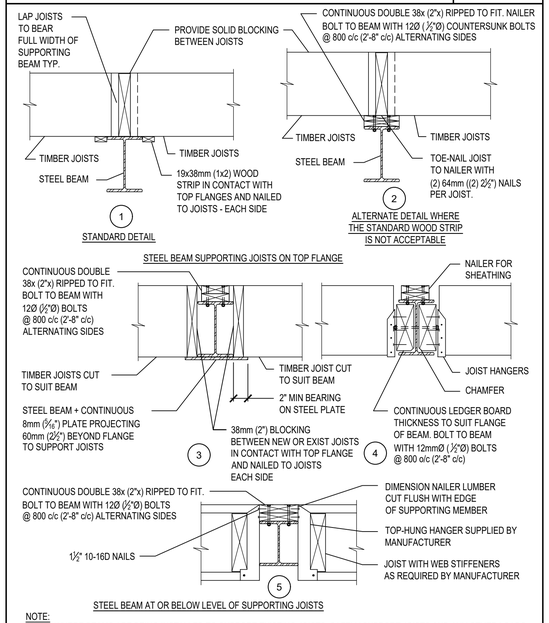
	SPAN L	a	b
EXISTING ROOF DECK	150 mm (6") < L ≤ 450 mm (18")	C150x12	L65x65x6
	450 mm (18") < L ≤ 1200 mm (4'-0")	C150x12	C100x8
NEW ROOF DECK	150 mm (6") < L ≤ 450 mm (18")	BY DECK SUPPLIER	BY DECK SUPPLIER
	450 mm (18") < L ≤ 1200 mm (4'-0")	C150x12	C100x8



NOTES:

1. REINFORCING IS NOT REQUIRED AT OPENING LESS THAN 150 mm (6") SQUARE OR IN DIAMETER.
2. TOP OF OPENING TRIMMING STEEL TO BE TIGHT TO U/S OF STEEL DECK.
3. STANDARD OPENING TRIMMING STEEL IS NOT NECESSARILY SHOWN ON STRUCTURAL DRAWINGS. REFER TO ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR OPENING SIZES AND LOCATIONS, AS WELL AS EXACT NUMBER OF OPENINGS.
4. IF OPENING DIMENSIONS "L" EXCEEDS 1200 mm (4'-0") SEE PLAN FOR TRIMMER FRAMING.

TIMBER NAILERS — TD-T03



NOTE:
1. WHERE BEAMS ARE BEING INSTALLED TO SUPPORT EXISTING JOISTS, SAFELY SUPPORT JOISTS AND ANY OTHER LOADS ABOVE, UNTIL THE NEW BEAM IS INSTALLED AND PROPERLY SUPPORTED.
2. SEE PLANS AND/OR SECTIONS FOR SIZES OF JOISTS AND BEAMS.

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LICENSED PROFESSIONAL ENGINEER — MAY 01, 2024 — C.R. NICOLETTI — 100116949 — PROVINCE OF ONTARIO

ISSUE DATE:

NO.	DATE	DESCRIPTION
2	2024.05.01	ISSUED FOR PERMIT
1	2024.04.02	ISSUED FOR TENDER

PROJECT:

MACGREGOR PUBLIC SCHOOL - PHASE 4

DRAWING TITLE:

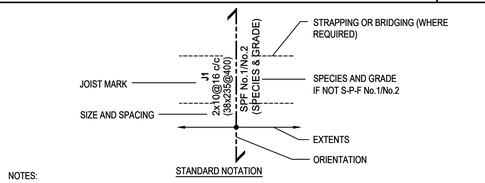
TYPICAL DETAILS

PROJECT NO:	**21965**
SCALE:	**N/A**
DRAWN BY:	**JRP / NAZ**
REVIEWED BY:	**CN / PDS**

DRAWING NO:

S102

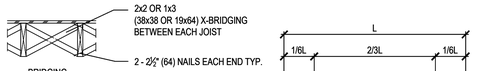
WOOD FRAMING FOR FLOORS — TD-T08



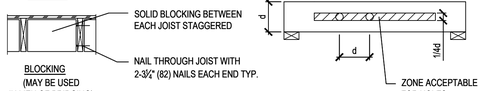
STANDARD NOTATION

NOTES:

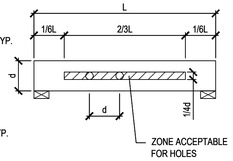
1. SEE PLANS FOR JOIST SIZE AND SPACING. SPACING NOT TO EXCEED 16" (400). UNLESS NOTED OTHERWISE ON THE DRAWINGS, PROVIDE BRIDGING AS PER THE DETAIL BELOW AND THE SPACING REQUIREMENTS OF NOTE 4.
2. ALL SAWN TIMBER TO BE SPF No.1/No.2 GRADE OR BETTER UNLESS OTHERWISE NOTED ON PLANS.
3. WHERE SPECIFIED ON THE DRAWINGS, PROVIDE STRAPPING AS PER THE DETAIL BELOW AND THE SPACING REQUIREMENTS OF NOTE 4.
4. LINES OF BRIDGING AND/OR STRAPPING ARE TO BE LOCATED NOT MORE THAN 8'-11" (2100) FROM A SUPPORT AND SPACED AT NOT GREATER THAN 8'-11" (2100) c/c.
5. UNLESS NOTED OTHERWISE, JOISTS ARE NOT TO BE NOTCHED.
6. WHERE HOLES ARE REQUIRED IN UNIFORMLY LOADED JOISTS FOR WIRING OR PLUMBING, THEIR DIAMETER SHALL NOT EXCEED ONE QUARTER OF THE JOIST DEPTH. CENTRE HOLES AT THE MID-DEPTH OF THE JOIST, WITHIN THE MIDDLE TWO-THIRDS OF THE SPAN. HOLES SHALL BE SPACED NO CLOSER THAN A CLEAR DISTANCE OF ONE FULL JOIST DEPTH FROM ONE ANOTHER.
7. HOLES NOT CONFORMING TO THE REQUIREMENTS OF NOTE 6 MUST BE APPROVED BY THE CONSULTANT PRIOR TO HOLES BEING DRILLED.



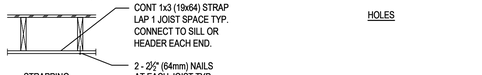
BRIDGING



BLOCKING
(MAY BE USED
IN LIEU OF BRIDGING)

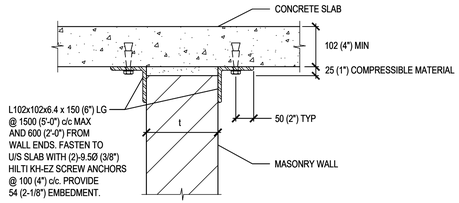


HOLES

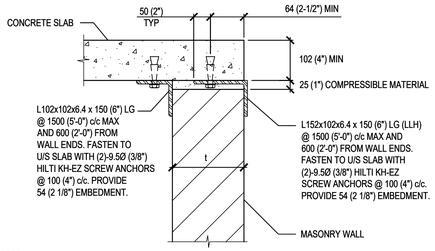


STRAPPING

LATERAL SUPPORT FOR TOP OF MASONRY WALL AT UNDERSIDE OF CONCRETE FRAMING — TD-M02



DETAIL 1



DETAIL 2

NOTES:

1. SPACING OF LATERAL SUPPORT TO BE 1500 (5'-0") c/c MAX AND 600 (2'-0") FROM WALL ENDS.
2. WHERE SEISMIC HAZARD INDEX IeFaSa(0.2) < 0.35 PROVIDE LATERAL SUPPORT AT TOP OF WALL AS INDICATED ABOVE. WHERE SPACING BETWEEN RETURN WALLS EXCEEDS 20 TIMES NOMINAL WALL THICKNESSES (t) FOR EXTERIOR WALLS AND 36t (36 TIMES t) FOR INTERIOR PARTITION WALLS, OR WHERE LENGTH OF RETURN WALL IS LESS THAN 10t (10 TIMES t).
3. WHERE SEISMIC HAZARD INDEX IS > 0.35 PROVIDE LATERAL SUPPORT AT TOP OF ALL WALLS AS INDICATED ABOVE.
4. REFER TO GENERAL NOTES FOR SEISMIC HAZARD INDEX VALUE.
5. SCAN OR X-RAY EXISTING SLAB PRIOR TO DRILLING TO LOCATE REINFORCING AND EMBEDDED CONDUIT

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Project No. 21-1055-04

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3	2024.05.01	ISSUED FOR PERMIT
2	2024.04.12	ISSUED FOR ADDENDUM SA-01
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NO.	DATE	DESCRIPTION

PROJECT:

MACGREGOR PUBLIC SCHOOL - PHASE 4

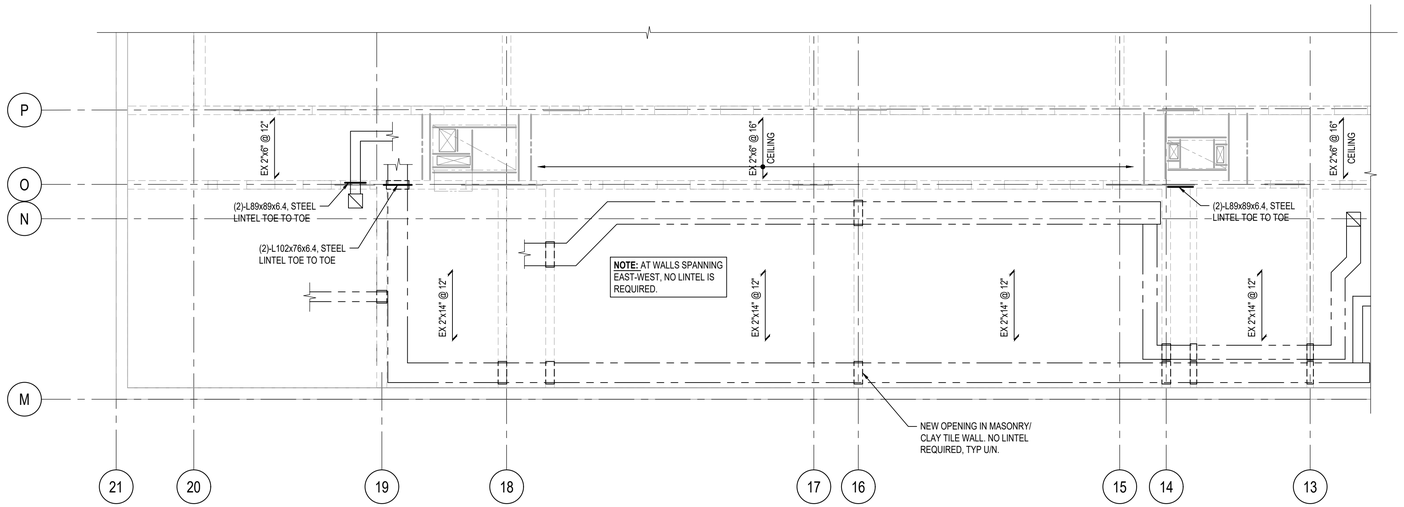
DRAWING TITLE:

TYPICAL DETAILS

PROJECT NO:	**21965**
SCALE:	**N/A**
DRAWN BY:	**JRP / NAZ**
REVIEWED BY:	**CN / PDS**

DRAWING NO:

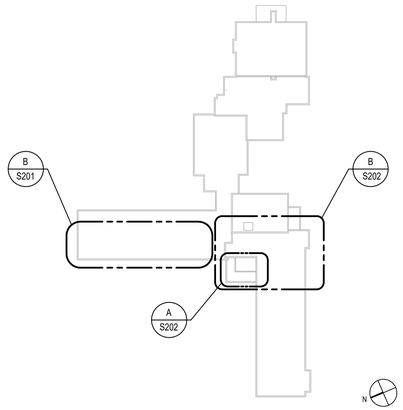
S103



B / S201 PART ROOF FRAMING PLAN
1 : 100

ROOF FRAMING PLAN NOTES:

1. TOP OF ROOF DECK TO BE 0.0 m BELOW ROOF HEIGHT POINT DATUM 0, EXCEPT AS CROSSED AND NOTED ON PLAN. AREAS CROSSED AND NOTED TO BE READ FROM ELEVATION 0.
2. ELEVATIONS OF EXISTING FRAMING ARE GIVEN BASED OFF OF EXISTING DOCUMENTS. SITE CONFIRM ALL ELEVATIONS PRIOR TO PROCEEDING WITH WORK.
3. STEEL BEAM CONNECTIONS ARE TO BE DESIGNED FOR THE FACTORED FORCES INDICATED ON PLAN. WHERE NO FORCE IS INDICATED ON PLAN. WHERE NO FORCE IS INDICATED, DESIGN STEEL CONNECTIONS FOR A FACTORED VERTICAL SHEAR FORCE OF 80 kN. PROVIDE MINIMUM 2 BOLTS AT ALL CONNECTIONS.
4. SEE ARCHITECTURAL DRAWINGS FOR SLOPES, FINAL ELEVATIONS, ETC.



A / S201 KEY PLAN
1 : 100

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MAY 01, 2024
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100116949
PROVINCE OF ONTARIO

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NO.	DATE	DESCRIPTION

PROJECT:

MACGREGOR PUBLIC SCHOOL - PHASE 4

DRAWING TITLE:

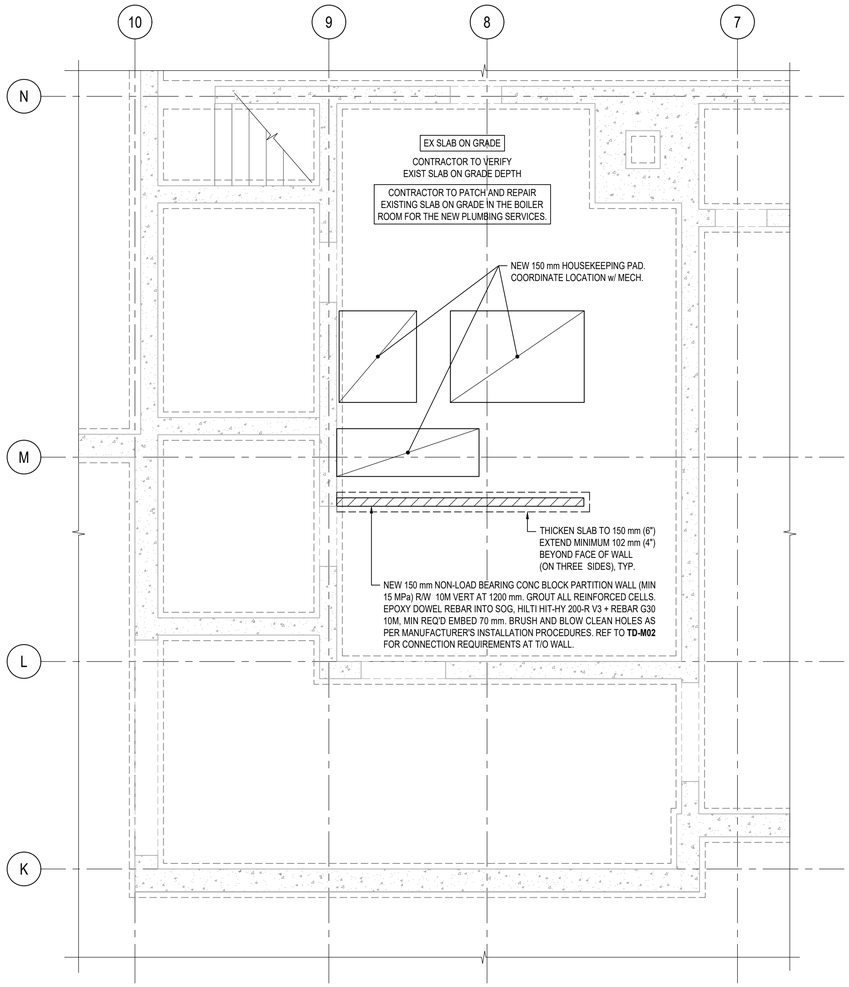
KEY PLAN AND PART ROOF FRAMING PLAN

PROJECT NO: 21965
SCALE: 1 : 100
DRAWN BY: JRP / NAZ
REVIEWED BY: CN / PDS

PROJECT NORTH:

DRAWING NO:

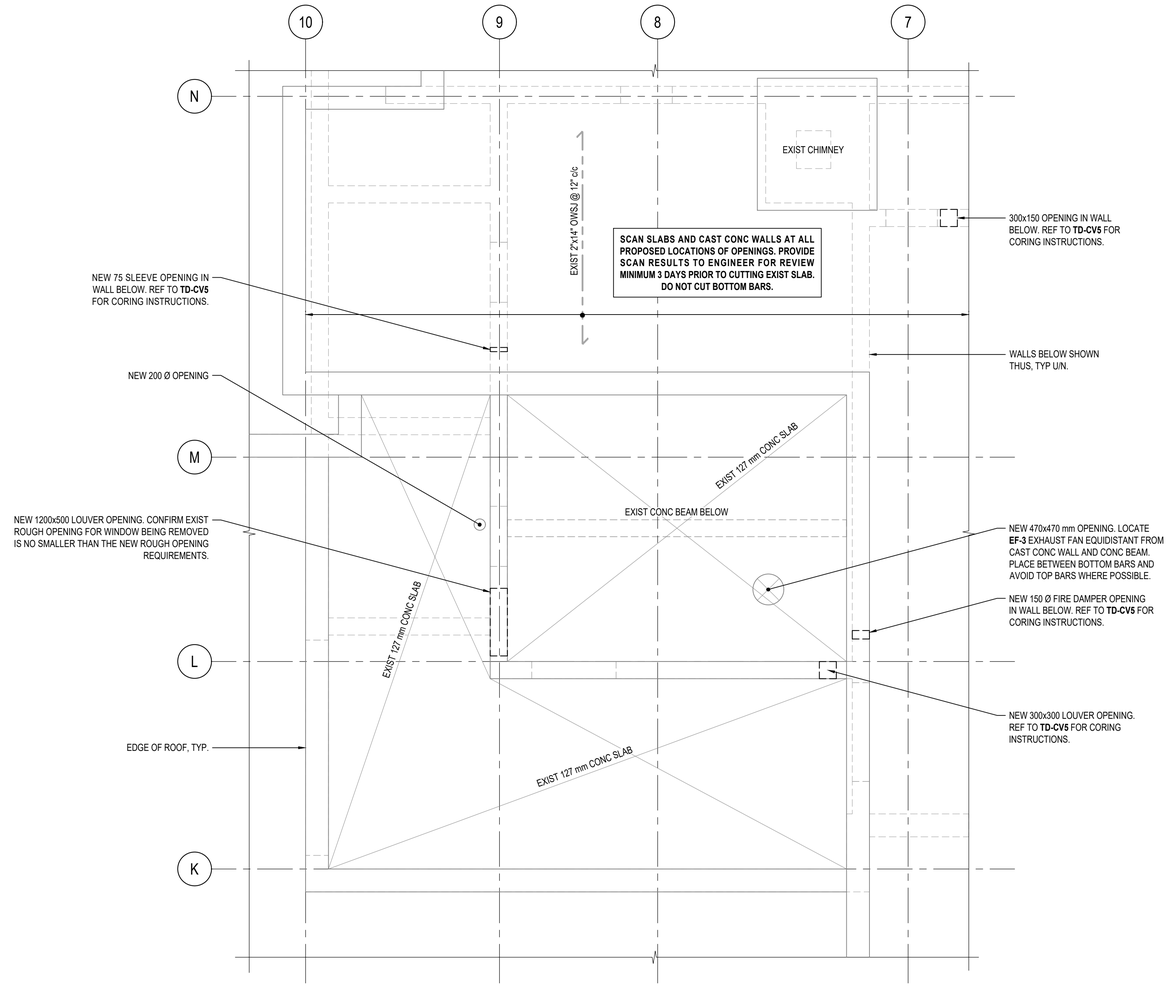
S201



A S202 PART BASEMENT PLAN
1 : 50

PART BASEMENT PLAN NOTES:

1. TOP OF SLAB ON GRADE IS 0'-0" (0.0 m) BELOW FINISHED BASEMENT FLOOR ELEVATION 0'-0" (0.0 m), EXCEPT AS CROSSED AND NOTED. AREAS CROSSED AND NOTED TO BE READ FROM GROUND FLOOR ELEVATION 0'-0" (0.0 m).
2. MAKE GOOD ALL EXTERIOR AND INTERIOR FINISHES AS PER ARCHITECT AND OWNER REQUIREMENTS.
3. REFER TO ARCH DRAWINGS FOR EXTENT OF DEMOLITION AND FINAL OPENING SIZES.
4. REFER TO ARCHITECTURAL AND MECHANICAL DRAWINGS FOR ELEVATION OF NEW LIGHTWEIGHT CONCRETE BLOCK WALL.
5. WE HAVE REVIEWED THE LOADS IMPOSED BY THE NEW LIGHTWEIGHT MASONRY PARTITION ON THE EXISTING SLAB ON GRADE AND IN OUR OPINION IT MAY BE INSTALLED AS DESCRIBED ON PLAN.
6. WHERE NEW MASONRY INTERSECTS EXISTING PROVIDE DUR-O-WAL DA 2200 JOINT STABILIZER ANCHORS AT 400 C/C VERTICALLY.
7. STRUCTURAL DOCUMENTS DO NOT NECESSARILY SHOW ALL NEW MECHANICAL/ELECTRICAL SERVICE PENETRATIONS THROUGH THE EXISTING CONCRETE BLOCK WALLS, REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR ALL SUCH LOCATIONS.



B S202 PART ROOF PLAN
1 : 50

PART ROOF NOTES:

1. MAKE GOOD ALL EXTERIOR AND INTERIOR FINISHES AS PER ARCHITECT AND OWNER REQUIREMENTS.
2. SEE ARCHITECTURAL DRAWINGS FOR SLOPES, MAINTAIN STRUCTURAL THICKNESS SHOWN ON DRAWING.
3. READ DRAWING IN CONJUNCTION WITH GENERAL NOTES, TYPICAL DETAILS.
4. STRUCTURAL DOCUMENTS DO NOT NECESSARILY SHOW ALL NEW MECHANICAL/ELECTRICAL SERVICE PENETRATIONS THROUGH THE EXISTING CONCRETE SLAB AND WALLS, REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR ALL SUCH LOCATIONS.

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MAY 01, 2024
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2	2024.04.12	ISSUED FOR ADDENDUM SA-01
1	2024.04.02	ISSUED FOR TENDER

PROJECT:
MACGREGOR PUBLIC SCHOOL - PHASE 4

DRAWING TITLE:
PART BASEMENT PLAN,
PART ROOF PLAN

PROJECT NO:	**21965**
SCALE:	**AS NOTED**
DRAWN BY:	**JRP / NAZ**
REVIEWED BY:	**CN / PDS**

PROJECT NORTH:

DRAWING NO:
S202

ABBREVIATIONS

SYMBOL	DESCRIPTION
AAV	AUTOMATIC AIR VENT
ACV	AUTOMATIC CONTROL VALVE
AFF	ABOVE FINISHED FLOOR
B	BOILER
BDD	BACKDRAFT DAMPER
BFP	BACKFLOW PREVENTER
CBV	CIRCUIT BALANCING VALVE
CO	CLEANOUT
CTE	CONNECT TO EXISTING
DCW	DOMESTIC COLD WATER
DSW	DOMESTIC SOFT WATER
DHW	DOMESTIC HOT WATER
DHWR	DOMESTIC HOT WATER RECIRCULATION
DV	DRAIN VALVE C/W HOSE END
EF	EXHAUST FAN
ERV	ENERGY RECOVERY VENTILATOR
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
EWT	ENTERING WATER TEMPERATURE
EX	EXISTING
FD	FLOOR DRAIN
FF	FORCE FLOW
FFD	FUNNEL FLOOR DRAIN
FS	FLOW SWITCH
FSD	COMBINATION FIRE & SMOKE DAMPER
GM	GAS METER
HB	HOSE BIBB
HVAC	HEATING, VENTILATION & AIR CONDITIONING
HWH	HEATING WATER
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
H/L	HIGH LEVEL
L	LAVATORY
LT	LAUNDRY TUB
LWCO	LOW WATER CUT-OFF
LWT	LEAVING WATER TEMPERATURE
L/L	LOW LEVEL
NC	NORMALLY CLOSED
NP	NON-POTABLE
NTS	NOT TO SCALE
P	PUMP
PG	PRESSURE GAUGE
PRV	PRESSURE REDUCING VALVE
PTG	PRESSURE TEMPERATURE GAUGE
REL	RELOCATE FROM THIS LOCATION
REL'D	RELOCATE TO THIS LOCATION
RV	RELIEF VALVE
SG	SUCTION GUIDE
SIG	SIGHT GLASS
TH	THERMOMETER
UH	UNIT HEATER
U/C	0.75" (19MM) UNDERCUT DOOR (BY OTHERS)
U/G	UNDERGROUND
U/S	UNDERSIDE
VFD	VARIABLE FREQUENCY DRIVE
WC	WATER CLOSET
WH	WATER HEATER
WM	WATER METER
WS	WATER SOFTENER

LEGEND

SYMBOL	DESCRIPTION
	EXISTING TO REMAIN
	EXISTING TO BE REMOVED/RELOCATED
N	REFERS TO NOTE ON THE SAME DRAWING/DETAIL
B-1	EQUIPMENT TAG
J	DUCT / PIPE CAP
	SANITARY DRAIN BELOW FLOOR/GRADE
	DOMESTIC COLD WATER PIPING
	DOMESTIC HOT WATER PIPING
	DOMESTIC HOT WATER RECIRCULATION PIPING
	DOMESTIC COLD SOFT WATER PIPING
HWH	HEATING WATER PIPING
HWS	HEATING WATER SUPPLY PIPING
HWR	HEATING WATER RETURN PIPING
C	CONDENSATE PIPING
G	LOW PRESSURE NATURAL GAS PIPING (7" (175MM) WC)
V	GAS VENT PIPING
	PIPING TURNING DOWN
	PIPING TURNING UP
	ISOLATION VALVE
CBV(5.0)	CIRCUIT BALANCING VALVE & FLOW RATE (L/S)
	CHECK VALVE
	PRESSURE REGULATING VALVE (PRV)
	TWO-WAY AUTOMATIC CONTROL VALVE
	STRAINER
	UNION
	CHANGE IN PIPE SIZE
	THREE-WAY AUTOMATIC CONTROL VALVE
	HOSE BIBB
	RUNNING TRAP WITH CLEANOUT
	THERMOMETER
	PRESSURE GAUGE
	PRESSURE-TEMPERATURE GAUGE
	AUTOMATIC AIR VENT
	BACKFLOW PREVENTER
	CONNECT TO EXISTING
	RELIEF VALVE (RV)
	PUMP
	FIXTURE ON FLOOR ABOVE
	SIGHT GLASS
WM	WATER METER
	RECTANGULAR SUPPLY DUCT UP / DN
	RECTANGULAR RETURN OR EXHAUST DUCT UP / DN
	FLEXIBLE DUCT
	RIGID ROUND DUCT (SINGLE LINE DESIGNATION)
	MANUAL BALANCING DAMPER
	FIRE DAMPER
FS	COMBINATION FIRE & SMOKE DAMPER
250	AIRFLOW (L/S)
500X300-A	GRILLE/DIFFUSER SIZE (MM) & TYPE
	ACOUSTIC LINING
	THERMAL INSULATION
	DUCT SIZE TRANSITION
	TRANSITION RECTANGULAR TO ROUND
S	SLOPE DUCT DOWN IN DIRECTION OF AIRFLOW
S	SLOPE DUCT UP IN DIRECTION OF AIRFLOW
	ROUND BRANCHES TURNING DOWN
	ROUND BRANCHES TURNING UP
M	MOTORIZED DAMPER
V	VVT AUTOMATIC CONTROL DAMPER
C	DUCT MOUNTED CARBON DIOXIDE SENSOR
A1	SPACE-MOUNTED VVT THERMOSTAT & ZONE CONTROLLED
EF-1	SPACE-MOUNTED THERMOSTAT & UNIT CONTROLLED
DP	DIFFERENTIAL PRESSURE SENSOR
	DIFFUSER QUADRANT BLANK-OFF
TD	TRANSFER DUCT
REMAIN	EXISTING TO REMAIN
REMOVE	EXISTING TO BE REMOVED
U/C	19MM UNDERCUT DOOR (BY OTHERS)
	120V POWER SOURCE
	PATTERN THROW DIFFUSER / GRILLE & THROW DIRECTION
	BACKDRAFT DAMPER (BDD)

PLUMBING FIXTURE & EQUIPMENT SCHEDULE

SYMBOL	DESCRIPTION	FIXTURE SUPPLIER & MODEL	TRIM SUPPLIER & MODEL	REMARKS
L	WALL-MOUNT LAVATORY MANUAL OPERATION	AMERICAN STANDARD LUCERNE 0355.012	DELTA 22C151 33T260 33T311	VITREOUS CHINA FIXTURE C/W EVERCLEAN, FRONT OVERFLOW, THREE TRIM HOLES. PROVIDE ZURN Z1253 CARRIER SYSTEM. MANUAL FAUCET C/W CHROME FINISH, 0.5 USGPM (1.9 LPM) VANDAL RESISTANT AERATOR, CERAMIC CARTRIDGE & SINGLE LEVER HANDLE. SUPPLY KIT (DAHL E13-2277) C/W CHROME PLATED ANGLE STOPS & STAINLESS STEEL BRAIDED HOSES. WASTE KIT C/W CHROME FINISH, OPEN-GRID STRAINER & TRAP.
WC	FLOOR-MOUNT WATER CLOSET MANUAL FLUSH TANK	AMERICAN STANDARD EVOLUTION 2 2427.012	N/A	VITREOUS CHINA FIXTURE C/W ELONGATED BOWL, 1.6 USGPF (6.0 LPF) & 12" (300MM) ROUGH-IN. PROVIDE CENTOCO MODEL 820STS-001 SEAT C/W OPEN-FRONT, BLACK SEAT, COVER, CHECK HINGES & STAINLESS STEEL MOUNTING BOLTS. PROVIDE SUPPLY KIT (DAHL E13-2276) C/W CHROME PLATED ANGLE STOP & STAINLESS STEEL BRAIDED HOSE.
EW	WALL-MOUNT EYE / FACE WASH	HAWS 7260BT-7270BT	N/A	EYE / FACE WASH C/W WALL BRACKET, PLASTIC BOWL, POP-OFF DUST COVERS, PLUG FLAG ACTIVATION, STAINLESS STEEL BALL & STEM VALVE, STRAINER, & 3.7 USGPM FLOW CONTROL. PROVIDE THERMOSTATIC MIXING VALVE (HAWS 9201EW) C/W ISOLATION CHECK VALVES FOR EACH INLET / OUTLET & 10 USGPM MAX FLOW. PROVIDE UNIVERSAL SIGN. PROVIDE CHROME WASTE KIT C/W TAILPIECE & TRAP.
LT	FREE STANDING LAUNDRY TUB	FIAT FL-1	DELTA 27C4233	MOLDED-STONE FIXTURE C/W 20"X17"X13" (500X425X325MM) DEEP COMPARTMENT, TWO TRIM HOLES, 4" (100MM) CENTERSET, FOUR 20" (500MM) STEEL LEGS (FINISHED IN WHITE BAKED ENAMEL C/W LEVELLERS). FAUCET C/W TWO LEVER HANDLES, 8" (200MM) TUBULAR SPOUT, 1.5 USGPM (5.7 LPM) VANDAL RESISTANT AERATOR. PROVIDE CHROME SUPPLY KIT (DAHL E13-2277) C/W ANGLE STOPS & STAINLESS STEEL BRAIDED HOSES. PROVIDE 1.5" (38MM) WASTE KIT C/W TAILPIECE & TRAP.

BOILER SCHEDULE

SYMBOL	DESCRIPTION	MANUFACTURER & MODEL	REMARKS
B-1	GAS FIRED CONDENSING HOT WATER HEATING BOILER – MAX INPUT=1500 CFH (11.8 L/S) – MAX OUTPUT=1440 MBH (422 KW) (AT AHRI CONDITIONS) – SUPPLY WATER TEMP=180°F (82.2°C) – RETURN WATER TEMP=160°F (71.1°C) – 10:1 TURNDOWN – MAX OPERATING PRESSURE=160 PSIG (1100 KPA)	LAARS NEOTHERM NT2H 1500 APPROVED EQUALS: – LOCHINVAR – VIESSMANN – WEIL-MCLAIN	120-1-60, MCA=6.8, MOCP=15. OPERATING WEIGHT=715 LBS (325 KG). PROVIDE THE FOLLOWING FEATURES / ACCESSORIES: – PRE-MIX BURNER. – STAINLESS STEEL HEAT EXCHANGER C/W WELDED CONSTRUCTION. – INTEGRAL CONDENSATE TRAP. – TEMPERATURE / PRESSURE GAUGE (FIELD INSTALLED). – DRAIN VALVE (FIELD INSTALLED). – 50 PSIG (345 KPA) RELIEF VALVE (FIELD INSTALLED). – AUTO RESET PROBE-TYPE LOW WATER CUT-OFF (FIELD INSTALLED & WIRED). – FLOW SWITCH (FIELD INSTALLED & WIRED). – FACTORY INSTALLED & WIRED MANUAL RESET HIGH LIMIT. – ALARM OUTPUT. – ACCEPTS EXTERNAL 4-20mA OR 0-10VDC MODULATION CONTROL. – SYSTEM WATER TEMPERATURE SENSOR (FIELD INSTALLED & WIRED). – MANUAL / BAS CONTROL SELECTOR SWITCH (FIELD INSTALLED TO WRDSB STANDARD).

PUMP SCHEDULE

SYMBOL	DESCRIPTION	MANUFACTURER & MODEL	REMARKS
P-1	BOILER PUMP – 70 USGPM (4.42 L/S) AT 25 FT (7.6 M) TOTAL HEAD. – 1750 RPM	TACO 1935	208-1-60, 1.0 HP (0.75 KW) ODP HIGH EFFICIENCY MOTOR. PUMP SHALL BE CAST IRON / BRONZE FITTED CONSTRUCTION C/W 5.5" (139MM) IMPELLER DIAMETER, 2" (50MM) FLANGE SIZE. PROVIDE FLUSH LINE C/W CUNO FILTER, SIGHT GLASS & ISOLATION VALVE.
P-2,3	HEATING WATER SYSTEM PUMP – 100 USGPM (6.31 L/S) AT 60 FT (18 M) TOTAL HEAD. – 1760 RPM	TACO KV2009D	575-3-60, 5.0 HP (3.7 KW) ODP HIGH EFFICIENCY MOTOR. PUMP SHALL BE CAST IRON / BRONZE FITTED CONSTRUCTION C/W 7.8" (198MM) IMPELLER DIAMETER, 2" (50MM) FLANGE SIZE. PROVIDE FLUSH LINE C/W CUNO FILTER, SIGHT GLASS & ISOLATION VALVE. PROVIDE VFD TO SUIT MOTOR HORSEPOWER C/W DC CHOKE, BYPASS & DISCONNECT SWITCH.
P-4	BASEMENT AHU CIRCULATION PUMP – 6.0 USGPM (0.379 L/S) AT 17 FT (5.5 M) TOTAL HEAD. – 3250 RPM	TACO 0011-F4	120-1-60, 0.125 HP (0.09 KW). PUMP SHALL BE CAST IRON CONSTRUCTION C/W 1.25" (32MM) FLANGED CONNECTIONS.

APPROVED EQUALS: XYLEM B&G, ARMSTRONG, GRUNDFOS

CONDENSATE NEUTRALIZER SCHEDULE

SYMBOL	DESCRIPTION	MANUFACTURER & MODEL	REMARKS
NT-1	CONDENSATE NEUTRALIZING TANK – MAX FLOW=20 USGPH (75 LPH) – STORAGE=3.5 USG (14 L)	AXIOM NT15 APPROVED EQUALS: – JJM BOILERWORKS	PROVIDE THE FOLLOWING FEATURES / ACCESSORIES: – TWO 1" (25MM) NPT INLET / OUTLET CONNECTIONS C/W UNIONS. – POLYPROPYLENE TANK & LID. – INTEGRAL BAFFLES. – INTEGRAL BYPASS TO PREVENT BACKFLOW. – INITIAL CHARGE OF MEDIA.

EXHAUST FAN SCHEDULE

SYMBOL	DESCRIPTION	MANUFACTURER & MODEL	REMARKS
EF-3	BOILER ROOM VENTILATION FAN, DOWNBLAST, ROOF-MOUNTED – 500 CFM (235 L/S) AT 0.38" WC (0.09 KPA) ESP.	PENNBARRY DX08B	120-1-60, 0.25 HP (0.19 KW). PROVIDE ADJUSTABLE MOTOR PULLEY, BIRDSCREEN, GRAVITY BACKDRAFT DAMPER, NEMA 3R DISCONNECT, THERMAL OVERLOAD PROTECTION & 24" (600MM) HIGH ROOF CURB.
EF-5	WASHROOM EXHAUST FAN, IN-LINE, SUSPENDED – 100 CFM (70 L/S) AT 0.38" WC (0.09 KPA) ESP.	PENNBARRY 28S (TDA)	120-1-60, 1.0 AMPS. PROVIDE BACKDRAFT DAMPER, TYPE "TDA" (IN-LINE) DISCHARGE C/W INSULATED ACCESS DOOR, UNIT MOUNTED 120V SPEED CONTROLLER, THERMAL OVERLOAD PROTECTION & PLUG-TYPE DISCONNECT.

APPROVED EQUALS: COOK, GREENHECK, CARNES

DIFFUSER AND GRILLE SCHEDULE

SYMBOL	DESCRIPTION	MANUFACTURER & MODEL	REMARKS
A	STEEL FIXED ADJUSTABLE, SQUARE CEILING DIFFUSER, 4-WAY THROW	KRUEGER 1450A-04-F23-24X24-00-44	PROVIDE LAY-IN T-BAR STEEL FRAME & 24"X24" (600X600MM) PANEL SIZE. PROVIDE QUADRANT BLANK-OFF PANELS WHERE INDICATED ON THE FLOOR PLANS.
B	ALUMINUM GRID CORE RETURN GRILLE	KRUEGER EGC5-F23-24X24-00-00-00-44	PROVIDE 0.5" (13MM) CORE, LAY-IN T-BAR ALUMINUM FRAME & 24"X24" (600X600MM) PANEL SIZE.
C	STEEL FIXED PATTERN SQUARE CEILING DIFFUSER, 2-WAY THROW	KRUEGER SH-02-F23-24X24-00-00-44	PROVIDE TYPE '02' THROW PATTERN, LAY-IN T-BAR STEEL FRAME & 24"X24" (600X600MM) PANEL SIZE.
D	STEEL FIXED BLADE RETURN GRILLE	KRUEGER SBO-H-F22-NONE-01-00-00-44	PROVIDE 0.75" (19MM) BLADE SPACING, 35° HORIZONTAL FRONT BLADES, SURFACE MOUNT STEEL FRAME & SCREW HOLE MOUNTING.

NOTES:
1/ UNLESS OTHERWISE NOTED, ALL GRILLES / DIFFUSERS SHALL BE C/W BRITISH WHITE FINISH.
2/ PROVIDE STAINLESS STEEL FASTENERS FOR ALL ALUMINUM GRILLES.

APPROVED EQUALS: E.H. PRICE, NAILOR, TITUS, CARNES, METALAIRE

PLUMBING BRANCH PIPING SCHEDULE

FIXTURE	SYMBOL	SANITARY	VENT	COLD WATER	HOT WATER
LAVATORY	L	32	32	13	13
WATER CLOSET	WC	75	38	13	–
EMERGENCY EYE / FACE WASH	EW	32	32	13	–
FLOOR DRAIN	FD	75 OR AS SHWN	38	C/W PRIME LINE	
LAUNDRY TUB	LT	38	32	13	13

RADIATION SCHEDULE (SIGMA)

NOTE: CAPACITIES ARE BASED ON 180°F (82.2°C) ENTERING WATER, 160°F (71.1°C) LEAVING WATER & ENTERING AIR TEMPERATURE OF 60°F (15.6°C).

HORIZONTAL UNIT HEATERS

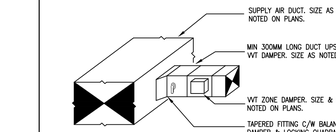
UH-1-MAX / 1.1-0.60 — 0.030 — TYPE – MOUNTING HEIGHT (MM) / MOTOR AMPS – CAPACITY (KW) — WATER FLOW (L/S)

UH-1: TYPE '062H', SPEED CONTROLLER, 120-1-60, 1/20 HP, 0.68A, 970 CFM (460 L/S), 1050 RPM. HANDING SHALL SUIT FLOOR PLANS.

VVT CONTROL DAMPER SCHEDULE

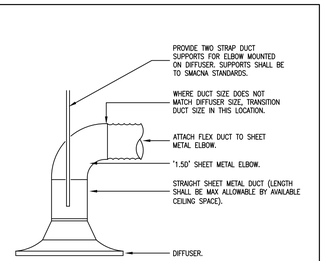
UNIT: HVAC-8

ZONE	ROOMS SERVED	SIZE (MM)	AIRFLOW (L/S)	
			DESIGN	BALANCING
7.1	CORRIDOR 812	300ø	165	145
7.2	CLASSROOM 5	400X350	565	500
7.3	CLASSROOM 6	400X350	540	475
7.4	CLASSROOM 7	400X350	540	475
7.5	CLASSROOM 8	400X350	535	470
7.8	BYPASS DAMPER	800X500	–	–

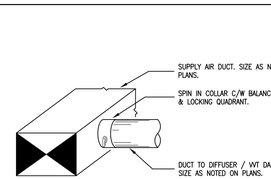


NOTES FOR THIS DETAIL:
– MARK DAMPER LOCATION UPON COMPLETION OF AIR BALANCING.

RECTANGULAR TAKE-OFF & VVT DAMPER INSTALLATION DETAIL
N.T.S.

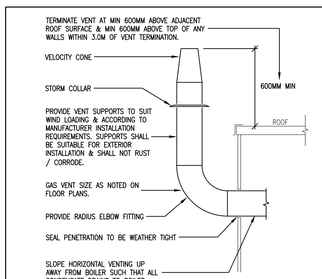


ROUND NECK DIFFUSER INSTALLATION DETAIL
N.T.S.

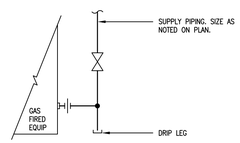


NOTES FOR THIS DETAIL:
– MARK DAMPER LOCATION UPON COMPLETION OF AIR BALANCING.

ROUND BRANCH TAKE-OFF INSTALLATION DETAIL
N.T.S.

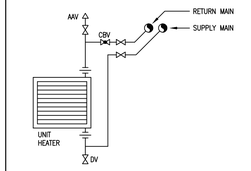


STAINLESS STEEL VENT TERMINATION DETAIL
N.T.S.



GAS CONNECTION DETAIL
N.T.S.

NOTES FOR THIS DETAIL:
– REFER TO FLOOR PLANS FOR PIPE SIZES.
– PIPING SHALL BE INSTALLED IN MANNER SUCH THAT HEATER CAN BE REMOVED WITH MINIMUM DISRUPTION TO PIPING.



UNIT HEATER PIPING SCHEMATIC
N.T.S.

DRAWING LIST:

M-1	MECHANICAL LEGEND, SCHEDULES & DETAILS
M-2	MECHANICAL KEY PLANS
M-3	NORTH WING MECHANICAL DEMOLITION PLAN
M-4	NORTH WING MECHANICAL RENOVATION PLAN
M-5	BOILER ROOM MECHANICAL DEMOLITION PLANS
M-6	BOILER ROOM MECHANICAL RENOVATION PLANS
M-7	MECHANICAL ROOF PLAN

NO.	DATE	REVISION	BY
06			
05			
04	05.01.24	ISSUE FOR PERMIT	C.J.C
03	04.01.24	ISSUE FOR TENDER #24-7558-RFT	C.J.C
02	03.27.24	ISSUE FOR WRDSB REVIEW	C.J.C
01	03.12.24	ISSUE FOR 50% DRAWINGS	C.J.C

ORIENTATION

JOB NO: 23097

MNE Engineering Inc.
22 Kevco Place – Box A
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www.mneengineering.ca

PROJECT:
MACGREGOR SENIOR PUBLIC SCHOOL VENTILATION & BOILER UPGRADE

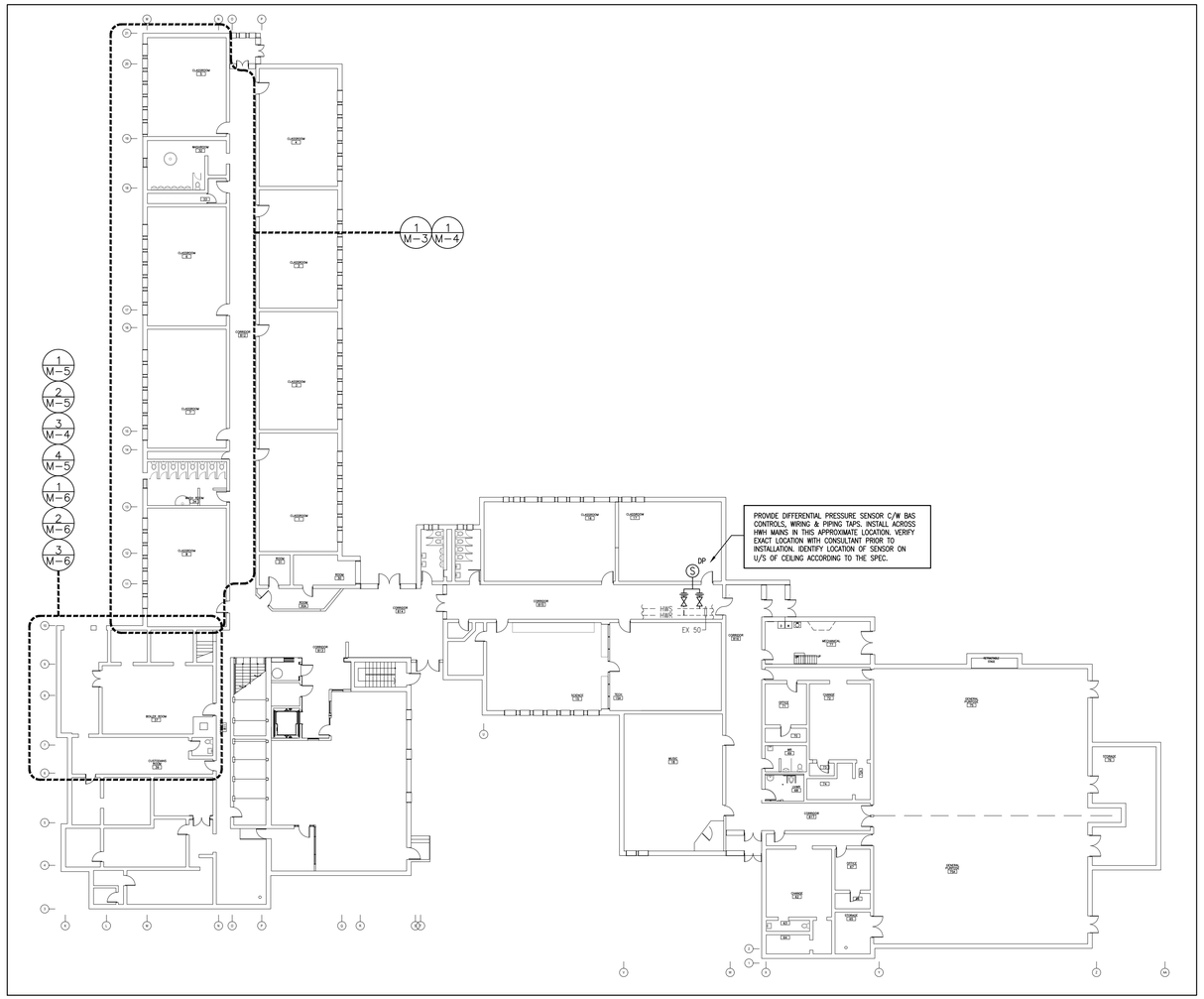
32 CENTRAL ST. WATERLOO, ON

CLIENT: LGA ARCHITECTURAL PARTNERS

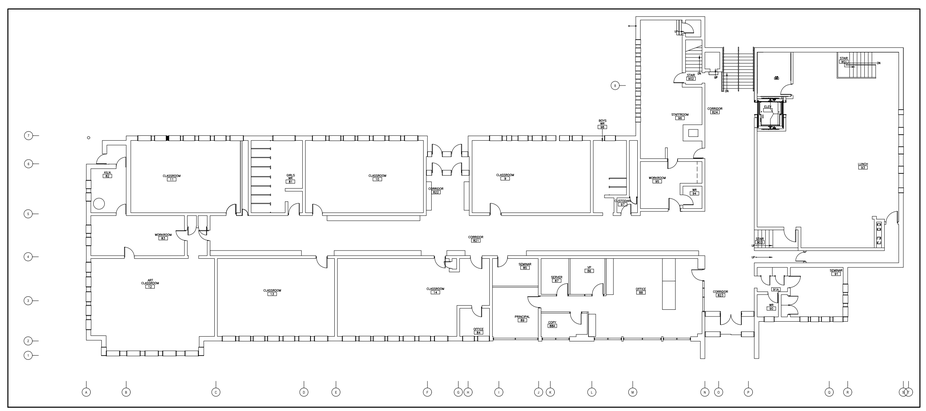
DRAWING:
MECHANICAL LEGEND, SCHEDULES & DETAILS

LICENSED PROFESSIONAL ENGINEER — 04.01.24 — A.R. BERG 100216423 — PROVINCE OF ONTARIO

SCALE: N.T.S.
DATE: MAR. 2024
DRAWN: C.J.C.
CHECKED: C.J.C.
DWG NO.: M-1
SHEET NO.: 1 OF 7



1 M-2 LOWER LEVEL MECHANICAL KEY PLAN
SCALE 1:250



2 M-2 UPPER LEVEL MECHANICAL KEY PLAN
SCALE 1:250

NO.	DATE	REVISION	BY
06			
05			
04	05.01.24	ISSUE FOR PERMIT	C.J.C
03	04.01.24	ISSUE FOR TENDER #24-7558-RFT	C.J.C
02	03.27.24	ISSUE FOR WRDSB REVIEW	C.J.C
01	03.12.24	ISSUE FOR 50% DRAWINGS	C.J.C

ORIENTATION
PROJECT NORTH

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PROJECT:
MACGREGOR SENIOR PUBLIC SCHOOL VENTILATION & BOILER UPGRADE

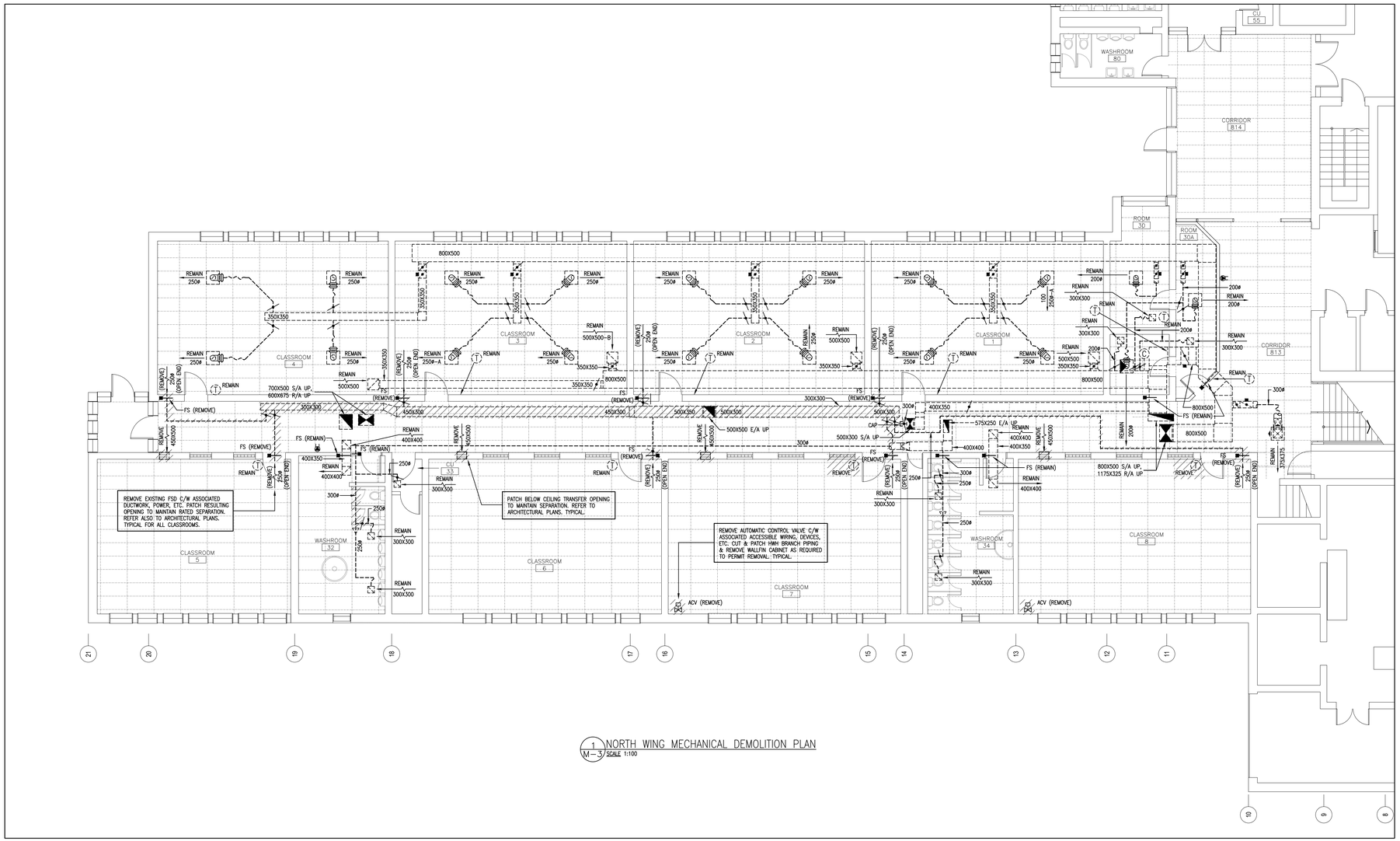
32 CENTRAL ST. WATERLOO, ON

CLIENT: LGA ARCHITECTURAL PARTNERS

DRAWING:
MECHANICAL KEY PLAN

LICENSED PROFESSIONAL ENGINEER
04.01.24
A. R. BERG
100216423
PROVINCE OF ONTARIO

SCALE: AS NOTED
DATE: MAR. 2024
DRAWN: C.J.C.
CHECKED: C.J.C.
DWG NO.: M-2
SHEET NO.: 2 OF 7



1 / M-3 NORTH WING MECHANICAL DEMOLITION PLAN
SCALE 1:100

NO.	DATE	REVISION	BY
06			
05			
04	05.01.24	ISSUE FOR PERMIT	C.J.C
03	04.01.24	ISSUE FOR TENDER #24-7558-RFT	C.J.C
02	03.27.24	ISSUE FOR WRDSB REVIEW	C.J.C
01	03.12.24	ISSUE FOR 50% DRAWINGS	C.J.C

ORIENTATION

PROJECT NORTH

JOB NO: 23097

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PROJECT:
MACGREGOR SENIOR PUBLIC SCHOOL VENTILATION & BOILER UPGRADE

32 CENTRAL ST. WATERLOO, ON

CLIENT: LGA ARCHITECTURAL PARTNERS

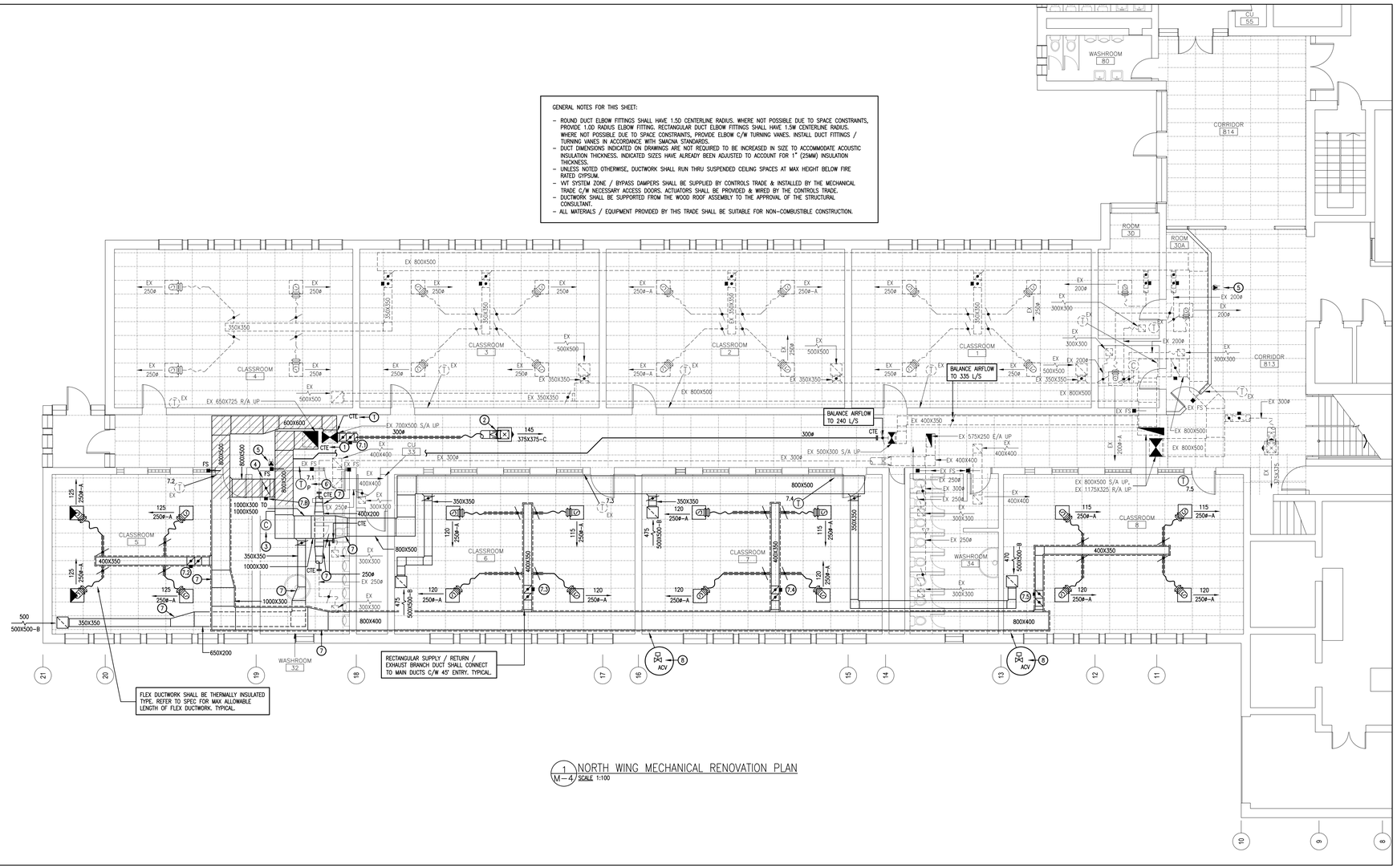
DRAWING:
NORTH WING MECHANICAL DEMOLITION PLAN

LICENSED PROFESSIONAL ENGINEER
04.01.24
A.R. BERG
100216423
PROVINCE OF ONTARIO

SCALE: AS NOTED
DATE: MAR. 2024
DRAWN: C.J.C.
CHECKED: C.J.C.
DWG NO.: M-3
SHEET NO.: 3 OF 7

GENERAL NOTES FOR THIS SHEET:

- ROUND DUCT ELBOW FITTINGS SHALL HAVE 1.5D CENTERLINE RADIUS. WHERE NOT POSSIBLE DUE TO SPACE CONSTRAINTS, PROVIDE 1.0D RADIUS ELBOW FITTING. RECTANGULAR DUCT ELBOW FITTINGS SHALL HAVE 1.5W CENTERLINE RADIUS. WHERE NOT POSSIBLE DUE TO SPACE CONSTRAINTS, PROVIDE ELBOW C/W TURNING VANES. INSTALL DUCT FITTINGS / TURNING VANES IN ACCORDANCE WITH SMACNA STANDARDS.
- DUCT DIMENSIONS INDICATED ON DRAWINGS ARE NOT REQUIRED TO BE INCREASED IN SIZE TO ACCOMMODATE ACOUSTIC INSULATION THICKNESS. INDICATED SIZES HAVE ALREADY BEEN ADJUSTED TO ACCOUNT FOR 1" (25MM) INSULATION THICKNESS.
- UNLESS NOTED OTHERWISE, DUCTWORK SHALL RUN THRU SUSPENDED CEILING SPACES AT MAX HEIGHT BELOW FIRE RATED GYPSUM.
- VVT SYSTEM ZONE / BYPASS DAMPERS SHALL BE SUPPLIED BY CONTROLS TRADE & INSTALLED BY THE MECHANICAL TRADE C/W NECESSARY ACCESS DOORS. ACTUATORS SHALL BE PROVIDED & WIRED BY THE CONTROLS TRADE.
- DUCTWORK SHALL BE SUPPORTED FROM THE WOOD ROOF ASSEMBLY TO THE APPROVAL OF THE STRUCTURAL CONSULTANT.
- ALL MATERIALS / EQUIPMENT PROVIDED BY THIS TRADE SHALL BE SUITABLE FOR NON-COMBUSTIBLE CONSTRUCTION.



1 / M-4 NORTH WING MECHANICAL RENOVATION PLAN
SCALE 1:100

NOTES FOR THIS SHEET:

1. CONNECT DUCT MAIN TO EXISTING RISER TO ROOFTOP HVAC UNIT IN THIS APPROXIMATE LOCATION. PROVIDE TRANSITION FITTING AS REQUIRED.
2. PROVIDE SQUARE TO ROUND TRANSITION FOR ROUND BRANCH DUCT CONNECTING TO SQUARE NECK DIFFUSER.
3. PROVIDE CARBON DIOXIDE SENSOR & LOCATE IN RETURN DUCT UPSTREAM OF BYPASS DUCT CONNECTION & ERV-2 SUPPLY DUCT CONNECTION.
4. PROVIDE ACOUSTICALLY INSULATED VVT SYSTEM BYPASS DUCT C/W BYPASS DAMPER. ADJUST PRESSURE SETPOINT SUCH THAT MAX NOISE AT OUTLETS IS ACCEPTABLE TO OWNER / CONSULTANT. BYPASS DAMPER SHALL BE THERMALLY INSULATED.
5. PROVIDE WIRING FROM EXISTING 120V POWER SOURCE IN THIS APPROXIMATE LOCATION TO VVT SYSTEM / CARBON DIOXIDE SENSOR. PROVIDE WIRING, TRANSFORMER, DEVICES, ETC. AS REQUIRED.
6. THIS SENSOR & ASSOCIATED VVT ZONE DAMPER SHALL BE PROGRAMMED TO PROVIDE SPACE HEATING ONLY (SPACE COOLING SHALL NOT BE PROVIDED). REFER TO SPEC FOR ADDITIONAL INFORMATION. SENSOR SHALL ALSO PROVIDE INPUT FOR CONTROL OF EXISTING FORCE FLOW HEATER AT NORTH END OF CORRIDOR 812.
7. PROVIDE DUCT TRANSITION / OFFSET TO PERMIT DUCT CROSSING WITHIN CEILING SPACE. REFER ALSO TO ARCHITECTURAL CEILING PLANS / SECTIONS.
8. PROVIDE BAS CONTROLLED ACV IN PLACE OF REMOVED CONTROL VALVE. PROVIDE REQUIRED CONTROL WIRING, DEVICES, ETC. MODIFY HWH PIPING AS REQUIRED TO SUIT BAS ACV.

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02	03.27.24	ISSUE FOR WRDSB REVIEW	C.J.C
01	03.12.24	ISSUE FOR 50% DRAWINGS	C.J.C

ORIENTATION

PROJECT NORTH

JOB NO: 23097

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PROJECT:
MACGREGOR SENIOR PUBLIC SCHOOL VENTILATION & BOILER UPGRADE

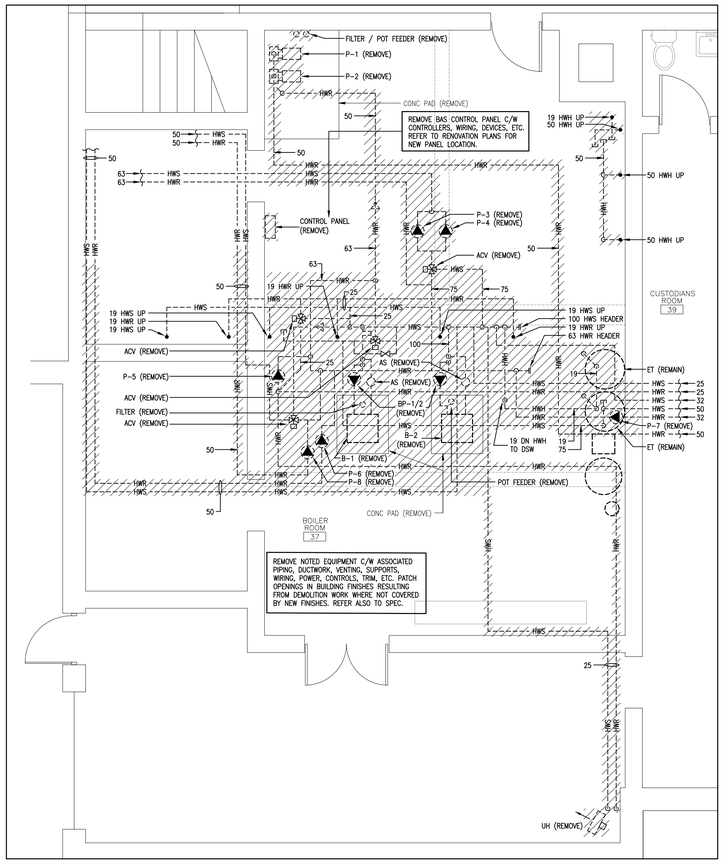
32 CENTRAL ST. WATERLOO, ON

CLIENT: LGA ARCHITECTURAL PARTNERS

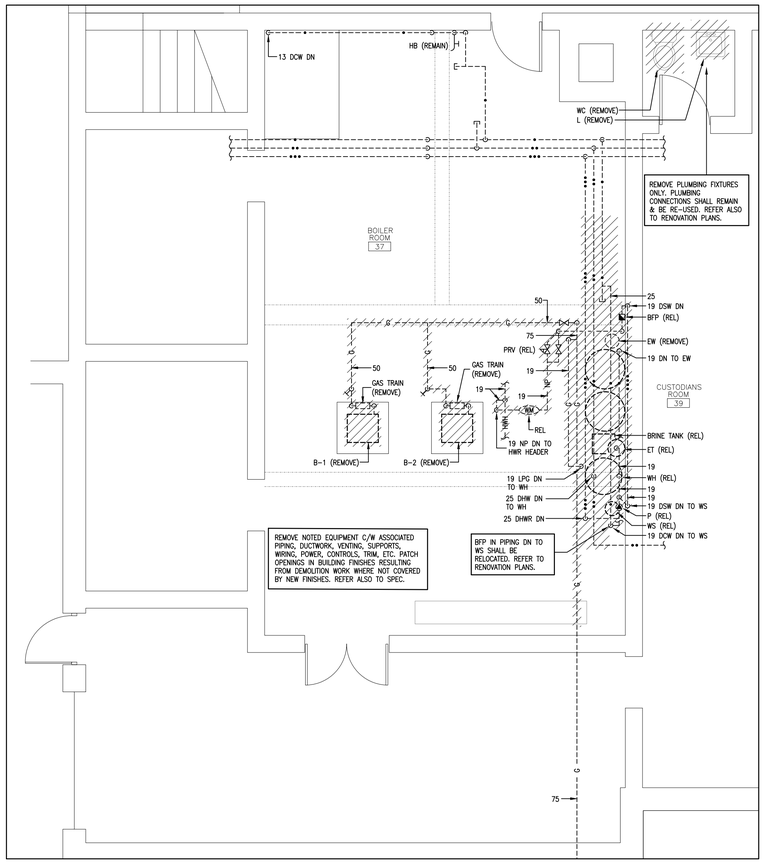
DRAWING:
NORTH WING MECHANICAL RENOVATION PLAN

LICENSED PROFESSIONAL ENGINEER
04.01.24
A.R. BERG
100216423
PROVINCE OF ONTARIO

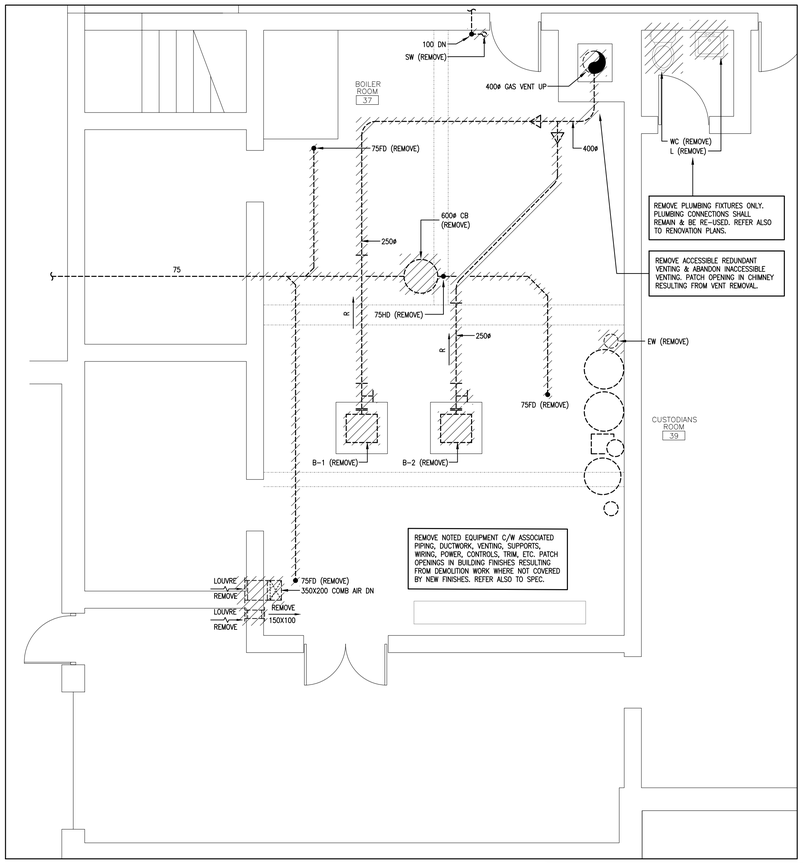
SCALE: AS NOTED
DATE: MAR. 2024
DRAWN: C.J.C.
CHECKED: C.J.C.
DWG NO.: M-4
SHEET NO.: 4 OF 7



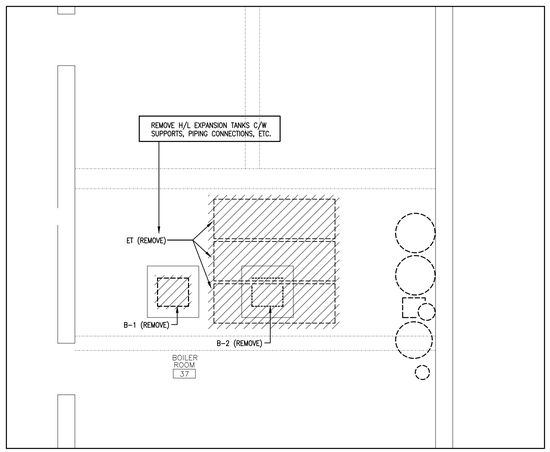
1 M-5 HEATING WATER PIPING DEMOLITION PLAN
SCALE 1:50



2 M-5 DOMESTIC WATER & GAS PIPING DEMOLITION PLAN
SCALE 1:50



3 M-5 DRAINAGE & HVAC DEMOLITION PLAN
SCALE 1:50



3 M-5 HIGH LEVEL DEMOLITION PLAN
SCALE 1:50

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ORIENTATION
PROJECT NORTH

JOB NO: 23097

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PROJECT:
MACGREGOR SENIOR PUBLIC SCHOOL VENTILATION & BOILER UPGRADE

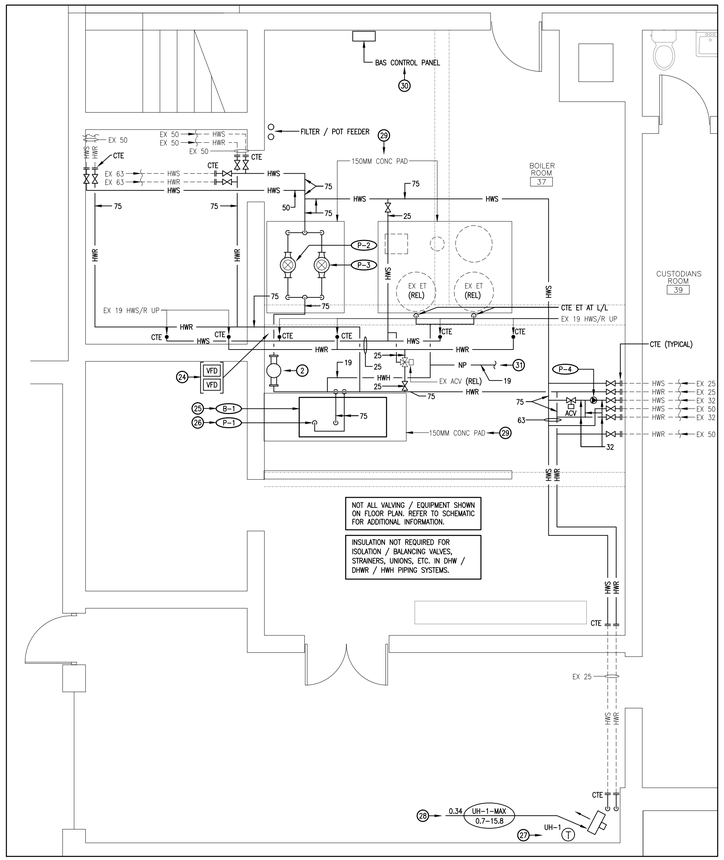
32 CENTRAL ST. WATERLOO, ON

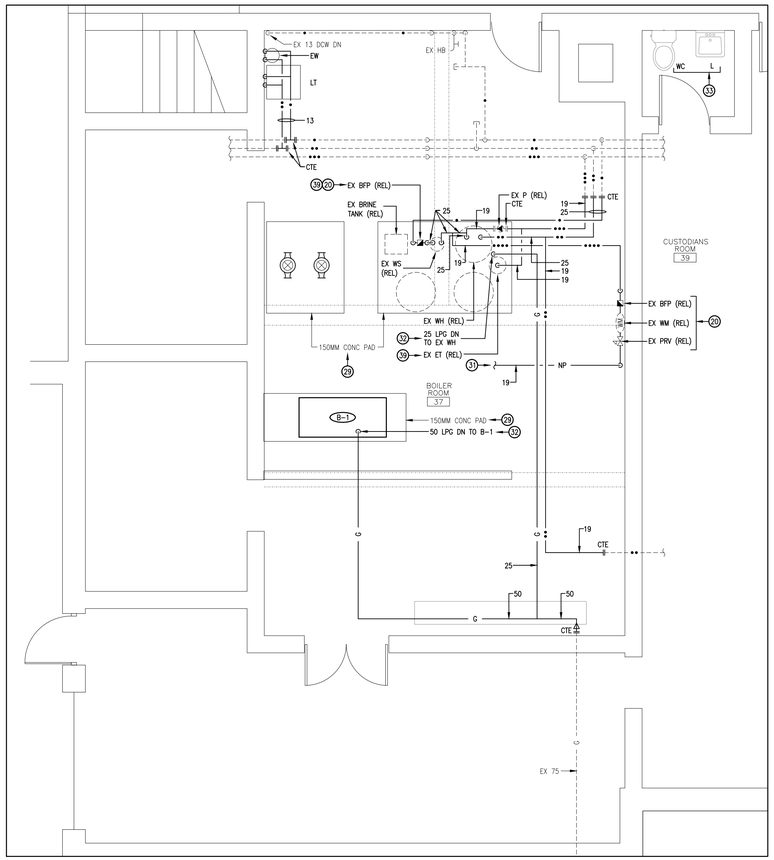
CLIENT: LGA ARCHITECTURAL PARTNERS

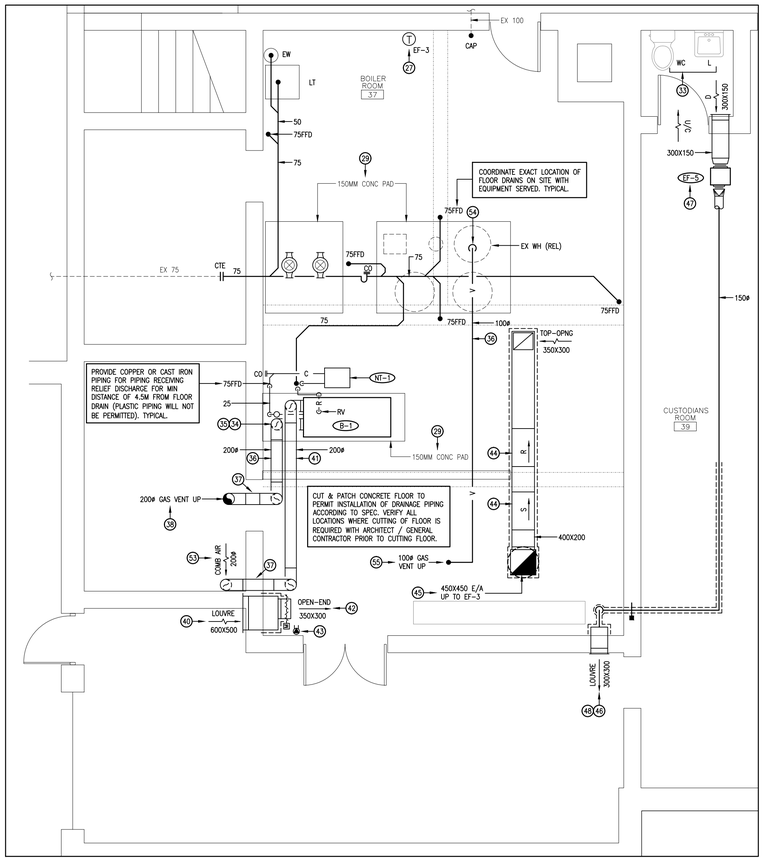
DRAWING:
BOILER ROOM MECHANICAL DEMOLITION PLANS

LICENSED PROFESSIONAL ENGINEER
04.01.24
A.R. BERG
100216423
PROVINCE OF ONTARIO

SCALE: AS NOTED
DATE: MAR. 2024
DRAWN: C.J.C.
CHECKED: C.J.C.
DWG NO.: M-5
SHEET NO.: 5 OF 7



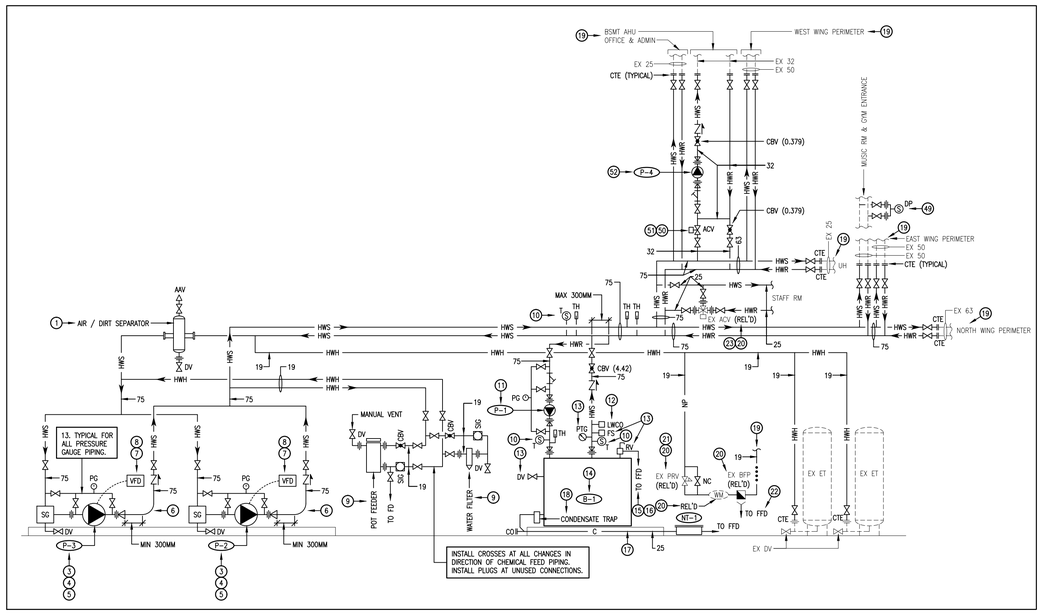




1 M-6 HEATING WATER PIPING RENOVATION PLAN
SCALE 1:50

2 M-6 DOMESTIC WATER & GAS PIPING RENOVATION PLAN
SCALE 1:50

3 M-6 DRAINAGE & HVAC RENOVATION PLAN
SCALE 1:50



4 M-6 HEATING WATER SYSTEM PIPING SCHEMATIC
N.T.S.

NOTES FOR THIS SHEET:

1. AIR / DIRT SEPARATOR SHALL BE TACO MODEL 4903AD-125 OR APPROVED EQUAL C/W FLANGED CONNECTIONS.
2. INSTALL AIR / DIRT SEPARATOR OUT OF SERVICE PATH.
3. MOUNT PUMP ON CONCRETE HOUSEKEEPING PAD USING KINETICS MODEL NPS RIBBED ELASTOMER-IN-SHEAR ISOLATION PADS OR APPROVED EQUAL AT SUPPORT POINTS.
4. PUMP SHALL BE CONTROLLED / MONITORED BY THE BAS. PROVIDE REQUIRED CONTROL WIRING.
5. MAIN / STANDBY PUMPS SHALL BE ROTATED WEEKLY.
6. PROVIDE LONG RADIUS ELBOW IN DISCHARGE PIPING.
7. VFD SHALL BE SUPPLIED BY PUMP MANUFACTURER & FIELD INSTALLED WHERE INDICATED ON FLOOR PLANS.
8. COMMISSION VFD ACCORDING TO MANUFACTURER REQUIREMENTS. ENSURE START-UP SEQUENCE LOCKS OUT DRIVE OPERATION AT RESONANT FREQUENCIES.
9. INSTALL FEEDER / FILTER WHERE INDICATED ON FLOOR PLANS & WITH TOP AT APPROXIMATELY 750MM AFF. ENSURE FILTER HAS SUFFICIENT CLEARANCE FOR CARTRIDGE REPLACEMENT.
10. PROVIDE PIPE-MOUNTED BAS TEMPERATURE SENSOR.
11. INTERLOCK PUMP WITH ASSOCIATED BOILER USING BOILER CONTROLLER INTEGRAL RELAY.
12. INSTALL AUTO RESET LWCO IN PIPING & WIRE TO BOILER ACCORDING TO MANUFACTURER REQUIREMENTS.
13. INSTALL PRESSURE / TEMPERATURE GAUGE, DRAIN VALVE, FLOW SWITCH & RELIEF VALVE SUPPLIED WITH BOILER IN PIPING ACCORDING TO MANUFACTURER REQUIREMENTS. PROVIDE INTERLOCK BETWEEN FLOW SWITCH & BOILER.
14. BOILER SHALL BE CONTROLLED / MONITORED BY BAS FOR ENABLE / DISABLE CONTROL C/W MODULATION OF FIRING RATE. PROVIDE REQUIRED CONTROLS.
15. RELIEF PIPING SHALL BE STEEL OR COPPER. PLASTIC PIPING WILL NOT BE PERMITTED.
16. EXTEND RELIEF PIPING TO FLOOR DRAIN AS INDICATED ON FLOOR PLANS. DISCHARGE TO FLOOR DRAIN ACCORDING TO CODE REQUIREMENTS & WITHIN 300MM OF FLOOR DRAIN. DO NOT DISCHARGE DIRECTLY TO FLOOR DRAIN.
17. CONDENSATE PIPING SHALL BE RIGID SCHEDULE 40 CPVC PLASTIC. SLOPE PIPING AT MIN RATE OF 2%.
18. BOILER SUPPLIED CONDENSATE TRAP. FIELD INSTALL WHERE REQUIRED.
19. REFER TO FLOOR PLANS ON THIS SHEET FOR CONTINUATION.
20. INSTALL EXISTING (RELOCATED) CONTROL VALVE / BFP / PRV / WM (AS APPLICABLE) IN PIPING WHERE INDICATED ON SCHEMATIC & ON FLOOR PLANS.
21. SET PRV DISCHARGE PRESSURE TO 15 PSIG (103 KPA).
22. EXTEND BFP DRAIN TO ADJACENT 75FFD. REFER TO FLOOR PLANS FOR LOCATION.
23. AUTOMATIC CONTROL VALVE SHALL BE MODULATED TO MAINTAIN TEMPERATURE SETPOINT IN STAFF ROOM. PROVIDE REQUIRED CONTROLS.
24. MOUNT PUMP VFD ON WALL IN THIS APPROXIMATE LOCATION. MAINTAIN MIN 1.0M CLEAR IN FRONT OF VFD.
25. MAINTAIN MANUFACTURER & CODE REQUIRED CLEARANCES AROUND BOILER.
26. PUMP LOCATED IN PIPING RISER TO BOILER. REFER TO SCHEMATIC ON THIS SHEET FOR ADDITIONAL INFORMATION.
27. PROVIDE BAS TEMPERATURE SENSOR C/W REQUIRED WIRING, CONDUIT, ETC. FOR CONTROL OF UH / EF (AS APPLICABLE).
28. PROVIDE PIPING CONNECTIONS TO UH ACCORDING TO DETAIL.
29. PROVIDE CONCRETE HOUSEKEEPING PAD. APPROXIMATE EXTENTS SHOWN ON PLAN. ADJUST AS REQUIRED TO SUIT INSTALLED EQUIPMENT.
30. PROVIDE MAIN BAS CONTROL PANEL IN THIS APPROXIMATE LOCATION C/W DISTECH HEAD END. PROVIDE NECESSARY CONTROLLERS, PROGRAMMING, WIRING, POWER CONNECTION, DATA DROPS, ETC. REFER ALSO TO SPEC & ELECTRICAL DRAWINGS.
31. REFER TO DOMESTIC WATER / HEATING WATER PIPING PLAN (AS APPLICABLE) FOR CONTINUATION.
32. CONNECT GAS PIPING TO EQUIPMENT ACCORDING TO MANUFACTURER & GAS CODE REQUIREMENTS. REFER ALSO TO DETAIL.
33. PROVIDE PLUMBING FIXTURES. CONNECT TO EXISTING DOMESTIC WATER / DRAIN / VENT PIPING.
34. PROVIDE BOOT T-FITTING AT BOILER VENT CONNECTION C/W CONDENSATE DRAIN (NOT SHOWN). CONDENSATE SHALL DRAIN CONNECT TO BOILER CONDENSATE PIPING UPSTREAM OF NEUTRALIZER.
35. PROVIDE COMBUSTION ANALYZER PORT IN ACCESSIBLE LOCATION IN VENTING.
36. PROVIDE CATEGORY IV VENTING SYSTEM ACCORDING TO MANUFACTURER & CODE REQUIREMENTS.
37. REMOVE WINDOW IN THIS APPROXIMATE LOCATION (REFER TO ARCHITECTURAL DRAWINGS). VENT / COMBUSTION AIR PIPE SHALL PENETRATE IN OPENING RESULTING FROM WINDOW REMOVAL. BLANK OFF REMAINDER OF RESULTING OPENING & SEAL PENETRATION TO BE WEATHER TIGHT.
38. REFER TO ROOF PLAN & VENT TERMINATION DETAIL FOR CONTINUATION OF VENTING & FOR ADDITIONAL INFORMATION.
39. PROVIDE UNISTRUT SUPPORTS & HANGARS AS REQUIRED TO INSTALL PIPE-MOUNTED EQUIPMENT OVER CENTRAL PAD.
40. REMOVE WINDOW IN THIS APPROXIMATE LOCATION & PROVIDE LOUVRE IN RESULTING OPENING. EXTEND THERMALLY INSULATED SHEET METAL PLENUM FROM LOUVRE INTO MECHANICAL ROOM. PLENUM DIMENSIONS SHALL BE AS NOTED & AS REQUIRED TO SUIT SPECIFIED DUCT CONNECTIONS.
41. PROVIDE CPVC COMBUSTION AIR PIPE ACCORDING TO MANUFACTURER REQUIREMENTS.
42. PROVIDE THERMALLY INSULATED MOTORIZED DAMPER C/W 24V DAMPER ACTUATOR. ACTUATOR SHALL BE BAS CONTROLLED. REFER TO SPEC FOR ADDITIONAL INFORMATION.
43. PROVIDE 120V POWER SOURCE C/W WIRING & TRANSFORMER & WIRE TO DAMPER ACTUATOR. REFER ALSO TO ELECTRICAL DRAWINGS.
44. ROUTE DUCTWORK AT MAX HEIGHT & PROVIDE OFFSETS AS REQUIRED TO CLEAR CONCRETE BEAM.
45. PROVIDE OPENING IN ROOF STRUCTURE FOR EXHAUST DUCTWORK C/W REQUIRED REINFORCEMENT. REFER TO STRUCTURAL DRAWINGS.
46. PROVIDE OPENING FOR LOUVRE PENETRATION IN SIDEWALL BETWEEN ROOF LEVELS. REINFORCE WALL AS REQUIRED. REFER TO STRUCTURAL DRAWINGS.
47. SUSPEND C/W KINETICS NPS SERIES VIBRATION ISOLATION PADS AT SUPPORT POINTS. ADJUST FAN LOCATION AS REQUIRED TO CLEAR ADJACENT SERVICES.
48. PROVIDE PLENUM OVER BACK OF LOUVRE C/W MIN DEPTH OF 300MM & THERMAL INSULATION OVER ENTIRE PLENUM.
49. REMOTE DIFFERENTIAL PRESSURE SENSOR. REFER ALSO TO KEY PLAN.
50. INTEGRATE AUTOMATIC CONTROL VALVE INTO EXISTING BASEMENT AHU CONTROL SEQUENCES TO MAINTAIN AHU SUPPLY AIR SETPOINT. PROVIDE REQUIRED CONTROLS.
51. CONTROL VALVE SHALL FAIL OPEN (100% HWS FLOW THRU AHU COIL).
52. INTEGRATE PUMP INTO EXISTING BASEMENT AHU CONTROL SEQUENCES TO MAINTAIN AHU SUPPLY AIR SETPOINT. PUMP SHALL RUN CONTINUOUSLY WHEN OUTDOOR AIR TEMPERATURE <15°C. PROVIDE REQUIRED CONTROLS.
53. COMBUSTION AIR INTAKE TERMINATION SHALL CONSIST OF 90° DOWNTURNED ELBOW. INSTALL FITTING AT MAX HEIGHT ABOVE LOW ROOF.
54. CONNECT CATEGORY IV GAS VENT TO EXISTING EQUIPMENT. REFER TO SPEC FOR ADDITIONAL INFORMATION REGARDING VENTING.
55. TERMINATE GAS VENT THRU ROOF. CUT & PATCH ROOF AS REQUIRED. REFER TO ROOF PLAN FOR ADDITIONAL INFORMATION.

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ORIENTATION
PROJECT NORTH

JOB NO: 23097

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PROJECT:
MACGREGOR SENIOR PUBLIC SCHOOL VENTILATION & BOILER UPGRADE

32 CENTRAL ST. WATERLOO, ON

CLIENT: LGA ARCHITECTURAL PARTNERS

DRAWING:
BOILER ROOM MECHANICAL RENOVATION PLANS

LICENSED PROFESSIONAL ENGINEER
04.01.24
A.R. BERG
100216423
PROVINCE OF ONTARIO

SCALE: AS NOTED
DATE: MAR. 2024
DRAWN: C.J.C.
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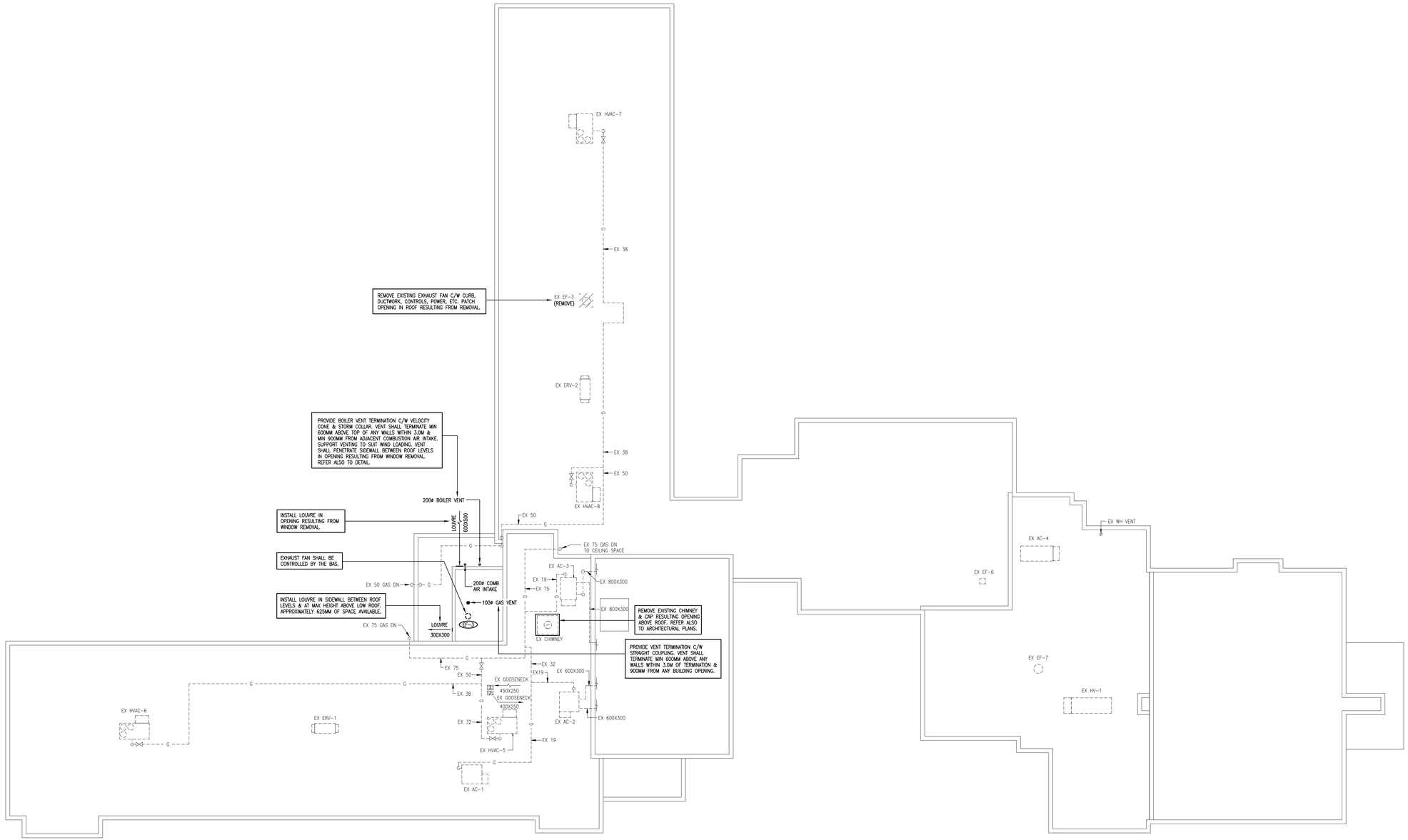
DWG NO.: M-6
SHEET NO.: 6 OF 7



1 M-7 ROOF MECHANICAL RENOVATION PLAN
SCALE 1:200

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05			
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DRAWING:
MECHANICAL ROOF PLAN

LICENSED PROFESSIONAL ENGINEER
04.01.24
A.R. BERG
100216423
PROVINCE OF ONTARIO

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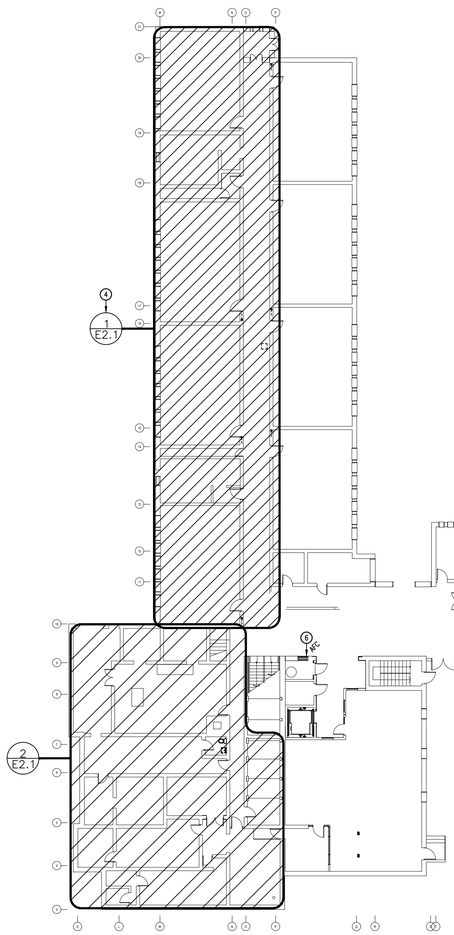
ELECTRICAL LEGEND

USE	SYMBOL	DESCRIPTION
		LIGHTING
✓		LINEAR LUMINAIRE 'x'
✓		SURFACE LINEAR LUMINAIRE 'x'
✓		SUSPENDED LINEAR LUMINAIRE 'x'
		CEILING MOUNTED LUMINAIRE 'x'
		WALL MOUNTED LUMINAIRE 'x'
		POLE MOUNTED LUMINAIRE 'x'
		SPOT OR FLOOD LUMINAIRE 'x'
		WALL SCONCE LUMINAIRE 'x'
		NIGHT LUMINAIRE
✓		EMERGENCY LUMINAIRE – WALL
✓		EMERGENCY LUMINAIRE – CEILING
✓	EBN	EMERGENCY BATTERY PACK 'x'
✓	EXx	EXIT SIGN 'x'
		SWITCHING & CONTROLS
✓	$	SWITCH
✓		MULTIPLE GANG SWITCHES
✓	$3	3-WAY SWITCH
	$4	4-WAY SWITCH
	$x	SWITCH 'x'
✓	$O	OCCUPANCY SENSOR WALL SWITCH
✓	$V	VACANCY SENSOR WALL SWITCH
✓	Ox	OCCUPANCY/VACANCY SENSOR 'x'
	OxE	OCCUPANCY/VACANCY SENSOR 'x' EMERGENCY
	DS	DAYLIGHT SENSOR
	PC	PHOTO CELL
	Dx	DIMMER SWITCH 'x'
✓		VARIABLE SPEED CONTROLLER
	TS	TIME SWITCH
	TC	TIME CLOCK
	P	PUSH BUTTON SWITCH
✓	T	THERMOSTAT (RA=REVERSE ACTING)
	F	FIRESTAT
	PO	POWER DOOR OPERATOR BUTTON
	L	POWER DOOR INDICATOR/LOCK
		CALL STATION
✓	E	EMERGENCY PUSH BUTTON
		COMMUNICATIONS
✓		VOICE OUTLET
✓		DATA OUTLET
		DATA & VOICE OUTLET
✓		AUDIO/VIDEO INLET/OUTLET
✓		OUTLET ABOVE MILLWORK
		FLOOR/TABLE MOUNTED OUTLET
✓		CEILING/DECK MOUNTED OUTLET
		RACEWAY COMMUNICATIONS OUTLET
	M	MICROPHONE/MIXER
✓	PA	PUBLIC ADDRESS CEILING SPEAKER
✓	AL	ASSISTIVE LISTENING CEILING SPEAKER
✓	LL	ASSISTIVE LISTENING RECEIVER/AMPLIFIER
		ASSISTIVE LISTENING DOME SENSOR
✓	EX	WALL SPEAKER 'x'
		DOOR/PROGRAM BELL
		AUDIO/VISUAL BEACON
	V	VOLUME CONTROL
✓		VIDEO DISPLAY SCREEN 'x'
		SECURITY
	CA	SURVEILLANCE CAMERA 'x'
	CR	CARD PROXIMITY READER
	FR	FOB PROXIMITY READER
	EDD	ELECTRIC EGRESS DEVICE
	EL	ELECTROMAGNETIC LOCK
	DC	DOOR CONTACT
	DS	DOOR STRIKE
✓		MOTION SENSOR
	K	ELECTRONIC KEYPAD
		SIREN
	IM	INTEGRATION MODULE BOX
		NURSE CALL DOME LIGHT

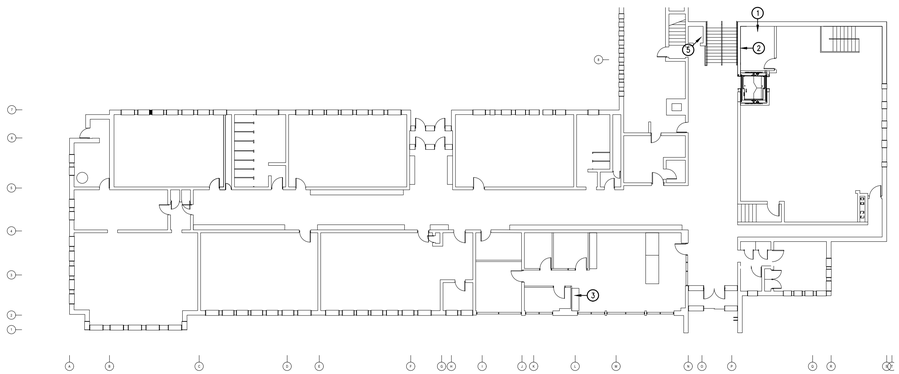
USE	SYMBOL	DESCRIPTION
		RECEPTACLES
✓		DUPLEX RECEPTACLE
✓		RECEPTACLE ABOVE MILLWORK
		RECEPTACLE IN KICK SPACE
		SPLIT RECEPTACLE
✓		GFCI RECEPTACLE
		UPS-BACKED RECEPTACLE
✓		RECEPTACLE, 20A, T-SLOT
✓		TAMPER RESISTANT RECEPTACLE
		2-POLE OR 3-POLE RECEPTACLE
		FLOOR/TABLE MOUNTED OUTLET
		CEILING/DECK MOUNTED OUTLET
✓		RACEWAY POWER OUTLET
		CORD REEL
		EQUIPMENT & DISTRIBUTION
✓		MOTOR
✓		NON-FUSED DISCONNECT SWITCH
		FUSED DISCONNECT SWITCH
✓		MANUAL STARTER
✓		COMBINATION STARTER
		MAGNETIC STARTER
✓		RELAY/CONTACTOR
✓	X	EQUIPMENT IDENTIFIER
✓		DISTRIBUTION PANEL
		ELECTRIC BASEBOARD HEATER
		ELECTRIC FAN FORCED HEATER
		ELECTRIC HEATER IDENTIFIER
✓		CONDUIT/FEEDER ABOVE GRADE
		CONDUIT/FEEDER BELOW GRADE
✓		PROTECTIVE GUARD
	JB	JUNCTION BOX
	S	SERVICE POLE
✓		CLOCK
✓		DIRECT CONNECTION
	R	BAS RELAY
✓		HANGER
✓	VFD	VARIABLE FREQUENCY DRIVE
		FIRE ALARM & DETECTION
✓		ADDRESSABLE SMOKE DETECTOR
✓		ADDRESSABLE FIXED HEAT DETECTOR
✓		ADDRESSABLE R.O.R HEAT DETECTOR
		DETECTOR WITH RELAY BASE
✓		DETECTOR WITH DUCT HOUSING
✓	CO CO	DETECTOR WITH CARBON MONOXIDE SENSING
		CONVENTIONAL SMOKE DETECTOR
		CONVENTIONAL FIXED HEAT DETECTOR (H=HIGH TEMP)
		CONVENTIONAL R.O.R HEAT DETECTOR (H=HIGH TEMP)
✓		ADDRESSABLE PULL STATION
		CONVENTIONAL PULL STATION
✓		INPUT MODULE
✓		RELAY MODULE
✓		ADDRESSABLE ZONE ISOLATOR
		ELECTRONICALLY SUPERVISED VALVE
	PS	LOW PRESSURE SWITCH
	FS	FLOW SWITCH
		BELL
		BELL/STROBE
✓		HORN
✓		HORN/STROBE
		SPEAKER
		SPEAKER/STROBE
		STROBE
		SPECIAL FUNCTION SIGNAL
		SIGNALLING DEVICE – CEILING
	R	END OF LINE RESISTOR
	FFT	FIRE FIGHTER EMERGENCY TELEPHONE
		DOOR HOLDER
	DC	DOOR CLOSER
	S	SMOKE ALARM
	C	SMOKE/CARBON MONOXIDE ALARM
	SR	SMOKE/CARBON MONOXIDE ALARM RELAY
✓		SMOKE DAMPER

		INCIDENTALS			
✓	ER	EXISTING, TO REMAIN UNCHANGED		AFG	ABOVE FINISHED GRADE
✓	REL	EXISTING, TO BE RELOCATED	✓	AFF	ABOVE FINISHED FLOOR
✓	RELD	RELOCATED	✓	AFC	ABOVE FINISHED CEILING
✓	MOD	EXISTING, TO BE MODIFIED		BFG	BELOW FINISHED GRADE
✓	DEL	EXISTING, TO BE DELETED		BFF	BELOW FINISHED FLOOR
	W	WET LOCATION (*CATEGORY 1)	✓	BFC	BELOW FINISHED CEILING
	C	CORROSIVE LOCATION (*CATEGORY 2)		WP	WEATHER PROOF

* CATEGORY DEFINITIONS ARE AS PER SECTION 22 OF THE ONTARIO ELECTRICAL SAFETY CODE.



1 LOWER LEVEL ELECTRICAL KEY PLAN
E1.1 SCALE 1:250



2 UPPER LEVEL ELECTRICAL KEY PLAN
E1.1 SCALE 1:250

KEY PLAN NOTES

1. MAINTAIN EXISTING COMMUNICATIONS EQUIPMENT.
   * MODIFICATION OF VOICE CABLING & FIELD DEVICES BY OTHERS UNDER ALLOWANCE.
   * MODIFICATION OF DATA CABLING & FIELD DEVICES BY OTHERS UNDER ALLOWANCE.
2. MAINTAIN EXISTING CHUBB INTRUSION ALARM & ACCESS CONTROL EQUIPMENT.
   * MODIFY CABLING & FIELD DEVICES PER FLOOR PLANS.
3. MAINTAIN EXISTING PUBLIC ADDRESS EQUIPMENT.
   * MODIFICATION OF CABLING & FIELD DEVICES BY OTHERS UNDER ALLOWANCE.
4. DELETE ALL BRANCH WIRING IN THIS WORK AREA. PROVIDE NEW TO REFEED EXISTING DEVICES TO REMAIN. REFE TO POWER DISTRIBUTION PANEL SCHEDULES.
5. DELETE STARTER SERVING NORTH WING ROOF FAN.
6. PROVIDE FIRE ALARM RELAY, ADJACENT TO EXISTING, FOR CONTROL OF HVAC-7. REFER TO B/E4.2.

ALLOWANCE WORKS

REFER TO DIVISION 01 SPECIFICATION FOR DETAILS OF DIVISION 26, 27 & 28 WORKS TO BE QUANTIFIED UNDER ALLOWANCE.

NO.	DATE	REVISION	BY
06			
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ORIENTATION
PROJECT NORTH

JOB NO: 23097

MNE ENGINEERING
MNE Engineering Inc.
22 Kevco Place – Box A
Kitchener, Ontario N2C 2G5
(519) 894-9408
www.mneengineering.ca

PROJECT:
MACGREGOR SENIOR PUBLIC SCHOOL VENTILATION & BOILER UPGRADE

32 CENTRAL ST. WATERLOO, ON

CLIENT:
LGA ARCHITECTURAL PARTNERS

DRAWING:
ELECTRICAL KEY PLANS & LEGEND

LICENSED PROFESSIONAL ENGINEER
04.02.24
A. W. GUBBELS
PROVINCE OF ONTARIO

SCALE: AS NOTED
DATE: JAN 2024
DRAWN: K.M.M.
CHECKED: A.W.G.
DWG NO.: E1.1
SHEET NO.: 1 OF 6

EXISTING DRAWING NOTES

1. MODIFY POWER DISTRIBUTION. REFER TO SINGLE LINE DIAGRAM.

2. MODIFY EDWARDS EST3 FIRE ALARM CONTROL PANEL AS FOLLOWS:
   * REWORK EXISTING FIELD DEVICES AS OUTLINED.
   * PROVIDE NEW FIELD DEVICES & WIRING PER REVISED PLANS.
   * MAINTAIN EXISTING INITIATING & SIGNALING ZONE ARRANGEMENTS.
   * MAINTAIN ADJACENT BOOSTER POWER SUPPLY & MONITORING EQUIPMENT.
   * PROVIDE SYSTEM VERIFICATIONS & INTEGRATED SYSTEM TESTS.

3. REWORK CEILING-MOUNTED LUMINAIRES & DEVICES TO PERMIT CEILING, STRUCTURAL & MECHANICAL MODIFICATIONS BY OTHERS.

4. DELETE CONDUIT/RACEWAY.

5. DISCONNECT BOILER TO SUIT DIVISION 22 REMOVAL.
   * DELETE OVERHEAD FEEDER (CONDUIT & CONDUCTORS).
   * DELETE ALL DOWNSTREAM BRANCH WIRING, CONDUIT, FITTINGS, ARMOURED CABLE, ETC. (NOT ALL INDICATED).

6. DELETE FIRE ALARM RELAY SERVING EXHAUST FAN.
   * DELETE CONNECTION TO ASSOCIATED SMOKE DAMPERS. DAMPER REMOVAL BY OTHERS.
   * DELETE ASSOCIATED DUCT-TYPE SMOKE DETECTORS AS INDICATED.
   * MAINTAIN BRANCH WIRING TO SMOKE DAMPERS SERVING OTHER AIR HANDLERS.

7. SCHEDULE WITH DIVISION 23 TO ENERGIZE EXISTING EQUIPMENT.

8. REWORK SMOKE DAMPER RELAYS.
   * REMOVE EXISTING.
   * EXTEND 120VAC WIRING TO NEW PER REVISED PLAN.

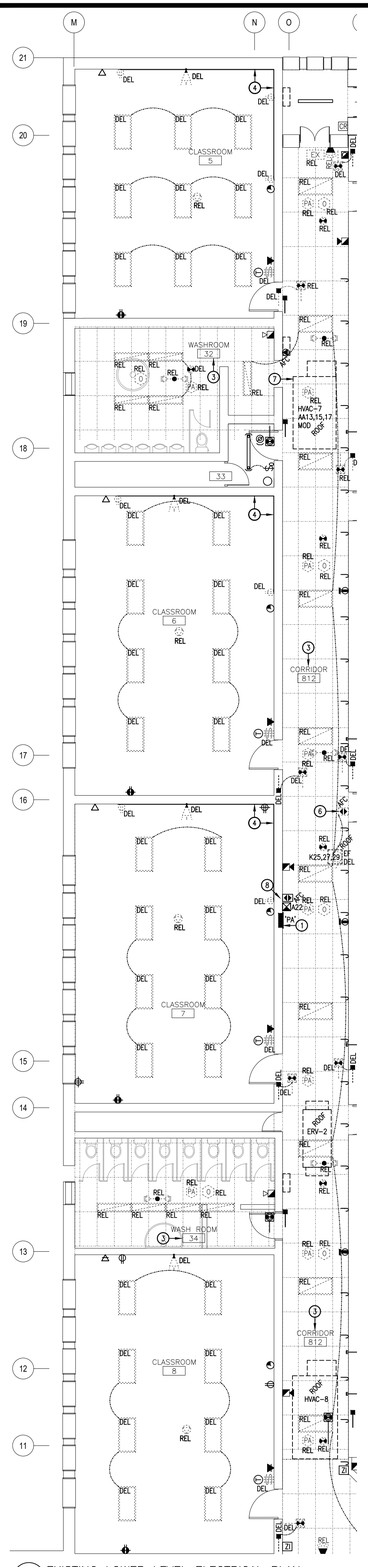
DESIGNATIONS
* ON THIS DRAWING, DEVICES & LUMINAIRES WITHOUT DESIGNATION ARE EXISTING TO REMAIN. ITEMS ARE INDICATED ONLY FOR COORDINATION.
* COORDINATE WITH DIVISION 09 TO PROPERLY PROTECT EXISTING DEVICES & LUMINAIRES FOR WALL PAINTING.

ASBESTOS ABATEMENT

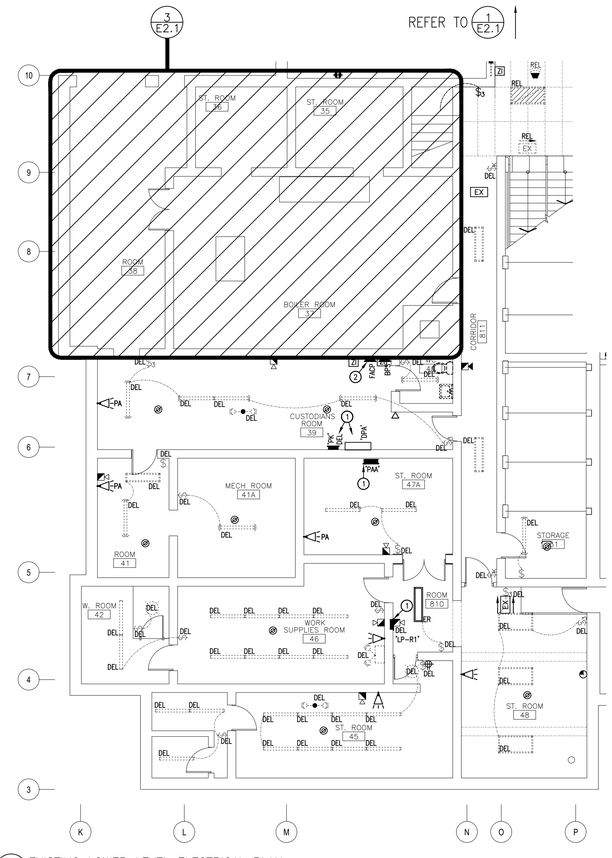
INCLUDE THE COST OF A WRDSB-APPROVED SUBCONTRACTOR FOR THE ABATEMENT OF ALL ASBESTOS CONTAINING MATERIAL (ACM) WITHIN A 600mm RADIUS OF ANY WORK BEING PERFORMED UNDER THIS CONTRACT. REFER TO THE DESIGNATED SUBSTANCES REPORT.

EXISTING EQUIPMENT

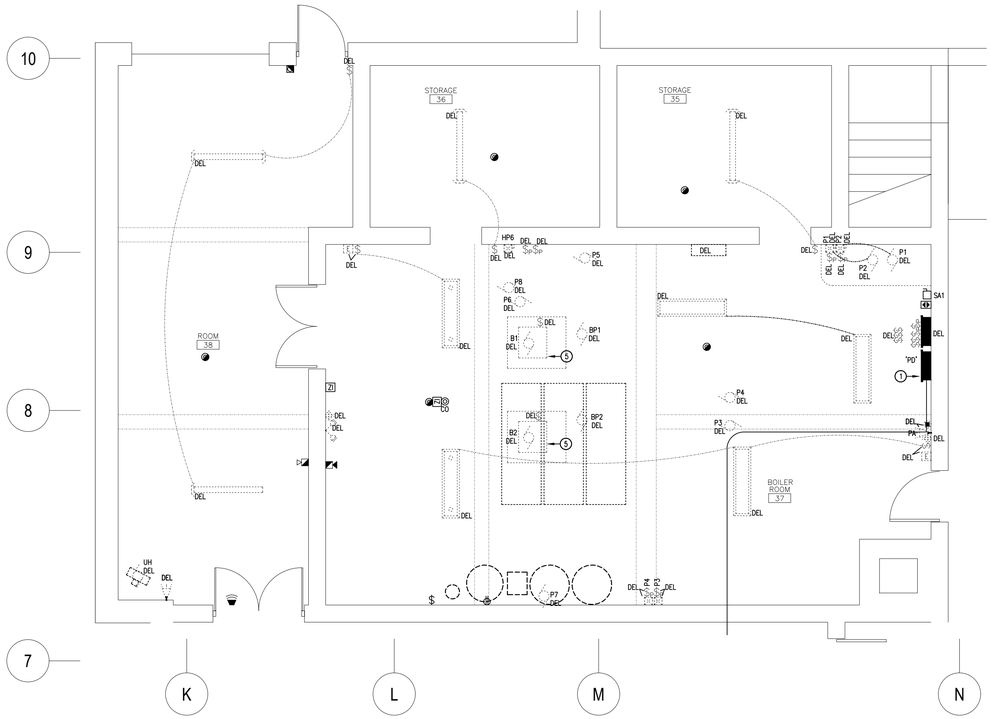
EXISTING MECHANICAL EQUIPMENT SHALL BE DELETED BY DIVISION 22 OR 23. UNLESS OTHERWISE NOTED, DIVISION 26 SHALL DISCONNECT & REMOVE ALL 120V LINE VOLTAGE WIRING & CONTROL CABLING BACK TO POINTS OF DISTRIBUTION.



1 EXISTING LOWER LEVEL ELECTRICAL PLAN
E2.1 SCALE 1:100



2 EXISTING LOWER LEVEL ELECTRICAL PLAN
E2.1 SCALE 1:100



3 EXISTING BOILER ROOM ELECTRICAL PLAN
E2.1 SCALE 1:50

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PROJECT NORTH

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PROJECT:
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32 CENTRAL ST. WATERLOO, ON

CLIENT: LGA ARCHITECTURAL PARTNERS

DRAWING:
EXISTING ELECTRICAL PLANS

LICENSED PROFESSIONAL ENGINEER
04.02.24
A. W. GUBBELS
PROVINCE OF ONTARIO

SCALE: AS NOTED
DATE: JAN 2024
DRAWN: K.M.M.
CHECKED: A.W.G.
DWG NO.: E2.1
SHEET NO.: 2 OF 6

REVISED DRAWING NOTES

1. PROVIDE NEW POWER DISTRIBUTION. REFER TO SINGLE LINE DIAGRAM.
2. PROVIDE CLASSROOM AUDIO EQUIPMENT, WIRING DEVICES & ASSOCIATED CABLING.
   * REFER TO DETAIL & ARCHITECTURAL ELEVATION.
   * INSTALL VIDEO EQUIPMENT SUPPLIED BY ALLOWANCE.
3. PROVIDE VERTICAL UNISTRUT FROM FLOOR TO CEILING STRUCTURE FOR INSTALLATION OF EQUIPMENT BRANCH WIRING.
4. PROVIDE VERTICAL UNISTRUT FROM TOP OF NEW BLOCK WALL TO CEILING STRUCTURE FOR INSTALLATION OF EQUIPMENT BRANCH WIRING.
5. PROVIDE NEW SAMPLING TUBES.

DESIGNATIONS

ON THIS DRAWING, PROVIDE DEVICES & LUMINAIRES UNLESS TAGGED AS EXISTING TO REMAIN OR RELOCATED.

RETURN AIR PLENUM

THE ACCESSIBLE CEILING SPACES MAY BE USED AS A RETURN AIR PLENUM. THE ELECTRICAL SUBCONTRACTOR SHALL ENSURE THAT ALL NEW WIRING & CABLING WITHIN PLENUM SPACES IS TOTALLY ENCLOSED IN NON-COMBUSTIBLE RACEWAYS OR IS CMP (COMMUNICATIONS MEDIA PLENUM) RATED.

LIGHTING CONTROLS

WHERE INDICATED, LUMINAIRES SHALL BE CONTROLLED BY OCCUPANCY/VACANCY SENSORS.

* PROVIDE POWER PACKS (NOT INDICATED) ABOVE ACCESSIBLE CEILINGS & LOW VOLTAGE CABLING.
* PARALLEL SENSORS FOR CONTROL OF AREAS AS TAGGED.
* ADJUST SENSORS PER MANUFACTURERS INSTRUCTIONS TO PROVIDE ADEQUATE DETECTION.
* SWITCHES ARE FOR MANUALLY BYPASSING THE SENSOR(S) TO TURN OFF THE LIGHTING AS CIRCUITED.
* REFER TO SCHEDULE & SCHEMATIC.

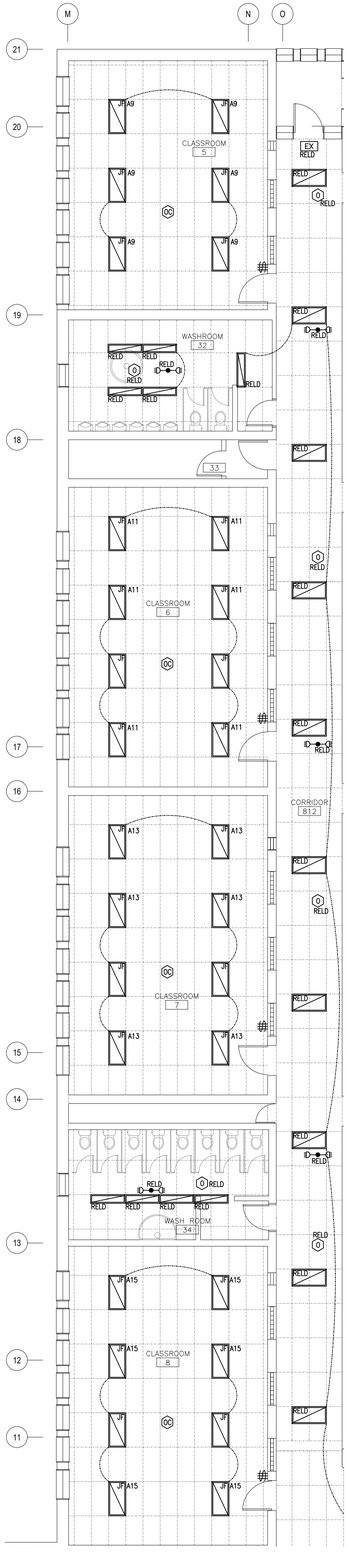
COMMUNICATIONS & SECURITY PATHWAYS

PROVIDE RECESSED OUTLET BOXES & CONDUITS FOR ALL INDICATED DEVICES TO THE NEAREST ACCESSIBLE CEILING, CABLE TRAY OR HANGER.

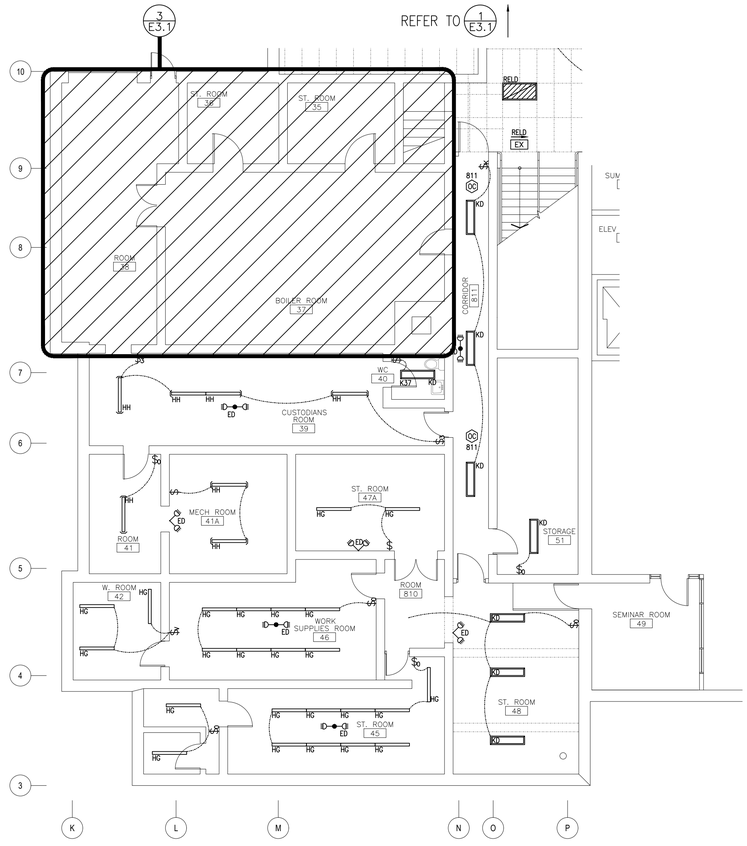
* 1x21 CONDUIT FROM EACH BOX (BY DEFAULT).
* 1x27 CONDUIT FROM EACH BOX WITH MORE THAN TWO DATA DROPS & FROM EACH AUDIO/VIDEO BOX.
* PULL TAPES & PLASTIC BUSHINGS FOR ALL CONDUITS & SLEEVES.
* MINIMIZE PATHWAY LENGTHS FOR HDMI CABLING.

PROVIDE SLEEVES AFC WITH THE DIAMETER OUTLINED.

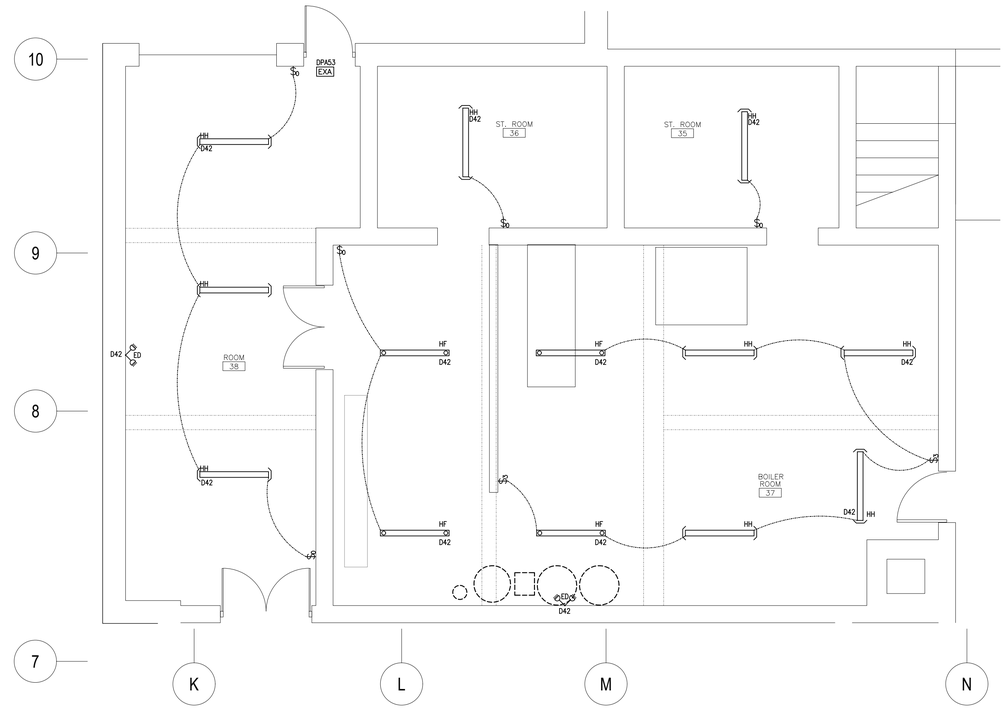
* EMT SLEEVES (BY DEFAULT).
* RE-PENETRABLE (RP) SLEEVES WHERE OUTLINED.



1 E3.1 REVISED LOWER LEVEL LIGHTING PLAN
SCALE 1:100



2 E3.1 REVISED LOWER LEVEL LIGHTING PLAN
SCALE 1:100



3 E3.1 REVISED BOILER ROOM LIGHTING PLAN
SCALE 1:50

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32 CENTRAL ST. WATERLOO, ON

CLIENT:
LGA ARCHITECTURAL PARTNERS

DRAWING:
REVISED LIGHTING PLANS

LICENSED PROFESSIONAL ENGINEER
04.02.24
A. W. GUBBELS
PROVINCE OF ONTARIO

SCALE: AS NOTED
DATE: JAN 2024
DRAWN: K.M.M.
CHECKED: A.W.G.
DWG NO.: E3.1
SHEET NO.: 3 OF 6

REVISED DRAWING NOTES

1. PROVIDE NEW POWER DISTRIBUTION. REFER TO SINGLE LINE DIAGRAM.
2. PROVIDE CLASSROOM AUDIO EQUIPMENT, WIRING DEVICES & ASSOCIATED CABLING.
   * REFER TO DETAIL & ARCHITECTURAL ELEVATION.
   * INSTALL VIDEO EQUIPMENT SUPPLIED BY ALLOWANCE.
3. PROVIDE VERTICAL UNISTRUT FROM FLOOR TO CEILING STRUCTURE FOR INSTALLATION OF EQUIPMENT BRANCH WIRING.
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5. PROVIDE NEW SAMPLING TUBES.

DESIGNATIONS
ON THIS DRAWING, PROVIDE DEVICES & LUMINAIRES UNLESS TAGGED AS EXISTING TO REMAIN OR RELOCATED.

RETURN AIR PLENUM
THE ACCESSIBLE CEILING SPACES MAY BE USED AS A RETURN AIR PLENUM. THE ELECTRICAL SUBCONTRACTOR SHALL ENSURE THAT ALL NEW WIRING & CABLING WITHIN PLENUM SPACES IS TOTALLY ENCLOSED IN NON-COMBUSTIBLE RACEWAYS OR IS CMP (COMMUNICATIONS MEDIA PLENUM) RATED.

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WHERE INDICATED, LUMINAIRES SHALL BE CONTROLLED BY OCCUPANCY/VACANCY SENSORS.
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* PULL TAPES & PLASTIC BUSHINGS FOR ALL CONDUITS & SLEEVES.
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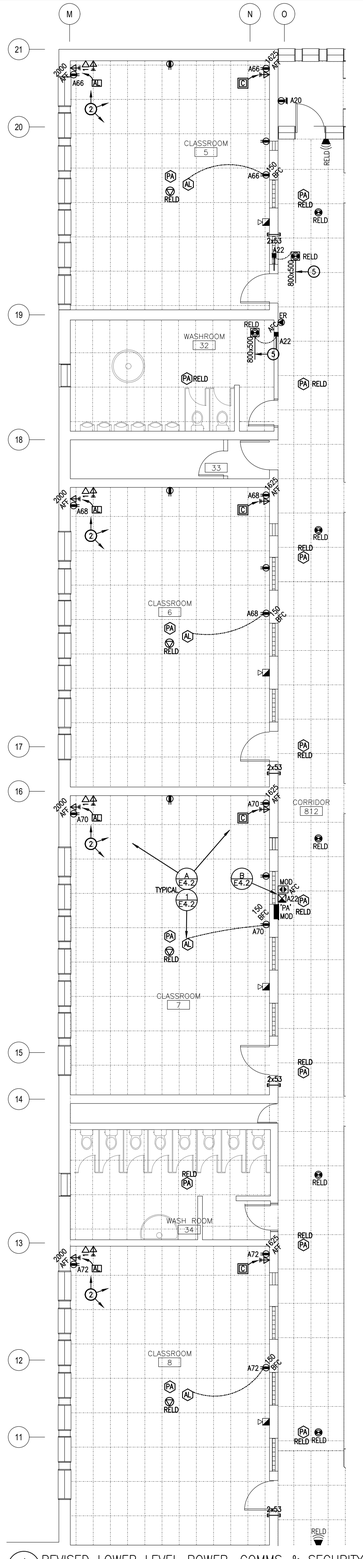
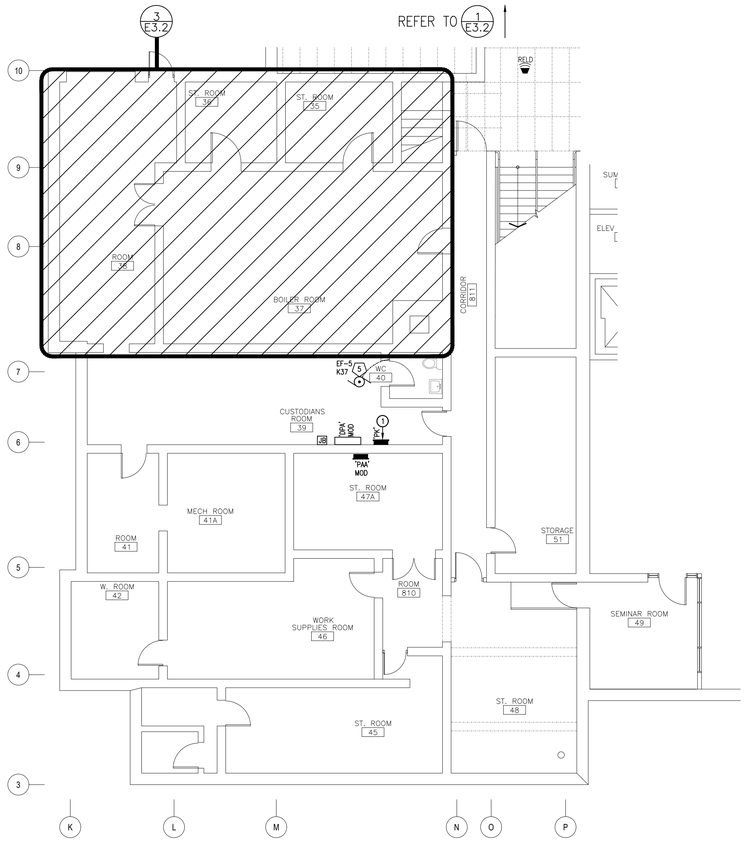
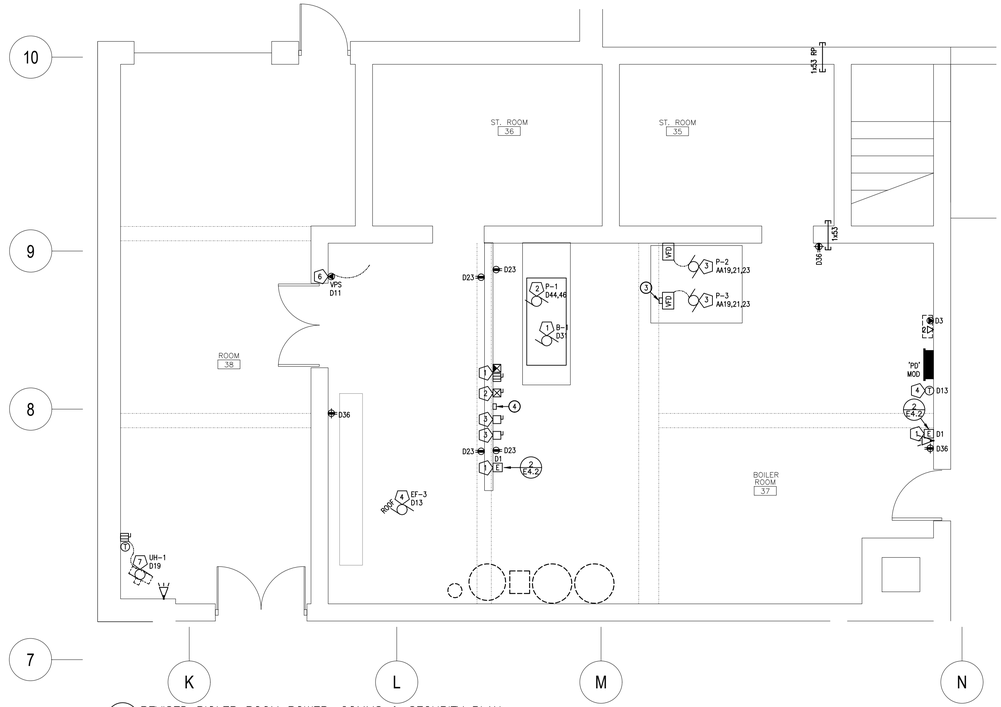


1 E3.2 REVISED LOWER LEVEL POWER, COMMS & SECURITY PLAN
SCALE 1:100



2 E3.2 REVISED LOWER LEVEL POWER, COMMS & SECURITY PLAN
SCALE 1:100



3 E3.2 REVISED BIOLER ROOM POWER, COMMS & SECURITY PLAN
SCALE 1:50

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JOB NO: 23097

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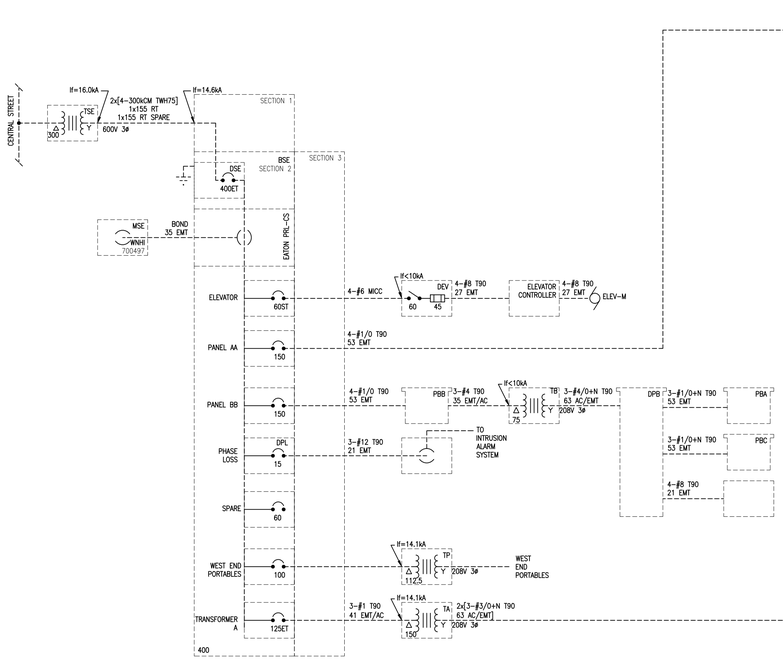
32 CENTRAL ST. WATERLOO, ON

CLIENT: LGA ARCHITECTURAL PARTNERS

DRAWING:
REVISED POWER, COMMS & SECURITY PLANS

LICENSED PROFESSIONAL ENGINEER
04.02.24
A. W. GUBBELS
PROVINCE OF ONTARIO

SCALE: AS NOTED
DATE: JAN 2024
DRAWN: K.M.M.
CHECKED: A.W.G.
DWG NO.: E3.2
SHEET NO.: 4 OF 6



1 E4.1 SINGLE LINE DIAGRAM
N.T.S.

SINGLE LINE NOTES

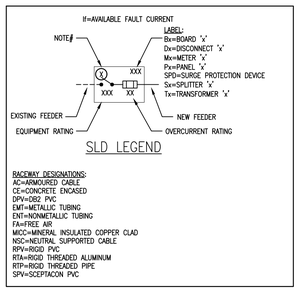
1. DELETE FEEDERS (CONDUIT & CONDUCTORS).
2. DELETE DISTRIBUTION EQUIPMENT.
3. MODIFY EXISTING EQUIPMENT PER PANEL SCHEDULE.
4. PROVIDE NEW FEEDERS.
5. PROVIDE NEW DISTRIBUTION EQUIPMENT.

DESIGNATIONS
EQUIPMENT & FEEDERS WITHOUT DESIGNATION ARE EXISTING TO REMAIN.

WIRING METHODS
UNLESS OTHERWISE NOTED, ALL WIRING TO BE CSA APPROVED SOFT COPPER, TYPE T90/TWN75 IN CONDUIT, UNLESS OTHERWISE REQUIRED BY THE ELECTRICAL CODE FOR SPECIFIC AREAS OR ENVIRONMENTAL CONDITIONS.

INFORMATION UPDATE
PROVIDE A LAMINATED, HARDCOPY OF THE COMPLETE BUILDING SINGLE LINE DIAGRAM. POST ON 'BSE'. ELECTRONIC BASE PLANS WILL BE SUPPLIED BY THE CONSULTANT.

OVERSIZED NEUTRALS
WHERE INDICATED, NEUTRAL CONDUCTORS SHALL BE A MINIMUM OF TWO GAUGES LARGER THAN THE RESPECTIVE PHASE CONDUCTOR, i.e., 3-#3/0 PHASE CONDUCTORS SHALL BE PROVIDED WITH 1-#250 NEUTRAL.



SLD LEGEND

RACEWAY DESIGNATIONS:
AC=ARMOURED CABLE
CE=CONCRETE ENCASED
DPV=DB2 PVC
EMT=METALLIC TUBING
ENT=NONMETALLIC TUBING
FA=FREE AIR
MICC=MINERAL INSULATED COPPER CLAD
NSC=NEUTRAL SUPPORTED CABLE
RPV=RIGID PVC
RTA=RIGID THREADED ALUMINUM
RTP=RIGID THREADED PIPE
SPV=SCEPTACON PVC

If=14.2kA

③ EXISTING PANEL 'AA' SCHEDULE (*1)

NO.	NOTES	A	P	LOAD DESCRIPTION	ø	LOAD DESCRIPTION	P	A	NOTES	NO.
1		35			A					2
3	*2	35	3	ROOFTOP HVAC UNIT 6 ROOMS 12,13,14	B	ROOFTOP HVAC UNIT 5 ROOMS 9,10,11	3	35	*2	4
5		35			C			35		6
7		15			A			15		8
9	*2	15	3	ROOFTOP ERV UNIT WEST WING	B	ROOFTOP ERV UNIT NORTH WING	3	15	*2	10
11		15			C			15		12
13		35			A			35		14
15	*3	35	3	ROOFTOP HVAC UNIT 7 ROOMS 5,6,7,8	B	ROOFTOP HVAC UNIT 8 ROOMS 1,2,3,4,30,31	3	35	*2	16
17		35			C			35		18
19		15			A					20
21	*5	15	3	HEATING DUTY/STANDBY PUMPS P-2,3 ROOM 37	B					22
23		15			C					24
25					A					26
27					B					28
29					C					30
31					A					32
33					B					34
35					C		1	20		36
37					A	LTG. EXTERIOR PARKING	1	20	*2	38
39					B	LTG. EXTERIOR BOLLARDS	1	15	*2	40
41					C		1	15		42

* NOTES:
1. TRACE ALL BRANCH WIRING ON SITE TO CONFIRM CONNECTED LOADS.
2. EXISTING LOAD TO REMAIN.
3. MODIFIED LOAD. REFER TO FLOOR PLANS.
4. DELETED LOAD. BREAKER SHALL REMAIN. REMOVE BRANCH WIRING.
5. NEW LOAD. PROVIDE HARDWARE, BREAKER & BRANCH WIRING.

LOCATION	MAINS	VOLTAGE	ø/WIRE	TYPE	MOUNTING	MAIN BREAKER
ELECTRICAL 47A	250A	347/600	3/4	EATON PRL3	SURFACE	N/A

If<10kA

③ EXISTING BOARD 'DPA' SCHEDULE (*1)

NO.	NOTES	A	P	LOAD DESCRIPTION	ø	LOAD DESCRIPTION	P	A	NOTES	NO.
1	*2	100	2	SPARE	A			100		2
3		100			B	PORTABLES	3	100	*2	4
5					C			100		6
7	*2	70	2	LOAD CENTRE K KILN ROOM 82	A			100		8
9		70			B	PANEL LPH ROOM 15A	3	100	*2	10
11					C			100		12
13		200			A			200		14
15	*2	200	3	SPARE	B	SPLITTER 39 ROOM 39	3	200	*2	16
17		200			C			200		18
19		100			A			200		20
21	*2	100	3	PORTABLES	B	SPLITTER A ROOM 39	3	200	*2	22
23		100			C			200		24
25	*2	50	2	UNINTERRUPTIBLE POWER SUPPLY 93A	A			150		26
27		50			B	PANEL C CORRIDOR 821	3	150	*2	28
29					C			150		30
31		200			A			200		32
33	*2	200	3	PANEL D ROOM 37	B	PANEL B ROOM 93	3	200	*2	34
35		200			C			200		36
37		100			A			100		38
39	*2	100	3	PANEL A CORRIDOR 812	B	PANEL Z ROOM 87	3	100	*2	40
41		100			C			100		42
43		30			A			15		44
45	*2	30	3	SURGE SUPPRESSION DEVICE ROOM 39	B	SPARE	3	15	*2	46
47		30			C			15		48
49	*2	200	2	SPARE	A			100		50
51		200			B	PANEL LPK ROOM 39	3	100	*3	52
53	*3	15	1	EXIT SIGNS	C			100		54
55	*2	15	1	FIRE ALARM CONTROL PANEL	A					56
57					B			300		58
59				SPARE	C		3	300	*2	60
61					A			300		62
63					B					64
65					C					66
67					A					68

* NOTES:
1. TRACE ALL BRANCH WIRING ON SITE TO CONFIRM CONNECTED LOADS.
2. EXISTING LOAD TO REMAIN.
3. MODIFIED LOAD. REFER TO FLOOR PLANS.
4. DELETED LOAD. BREAKER SHALL REMAIN. REMOVE BRANCH WIRING.
5. NEW LOAD. REUSE EXISTING BREAKER. PROVIDE NEW BRANCH WIRING.
6. NEW LOAD. PROVIDE NEW BREAKER & BRANCH WIRING.
7. NEW LOAD. PROVIDE HARDWARE, BREAKER & BRANCH WIRING.

LOCATION	MAINS	VOLTAGE	ø/WIRE	TYPE	MOUNTING (*2)	MAIN BREAKER
CUSTODIAN 39	400A	120/208	3/4	EATON PRL4B	FLOOR	N/A

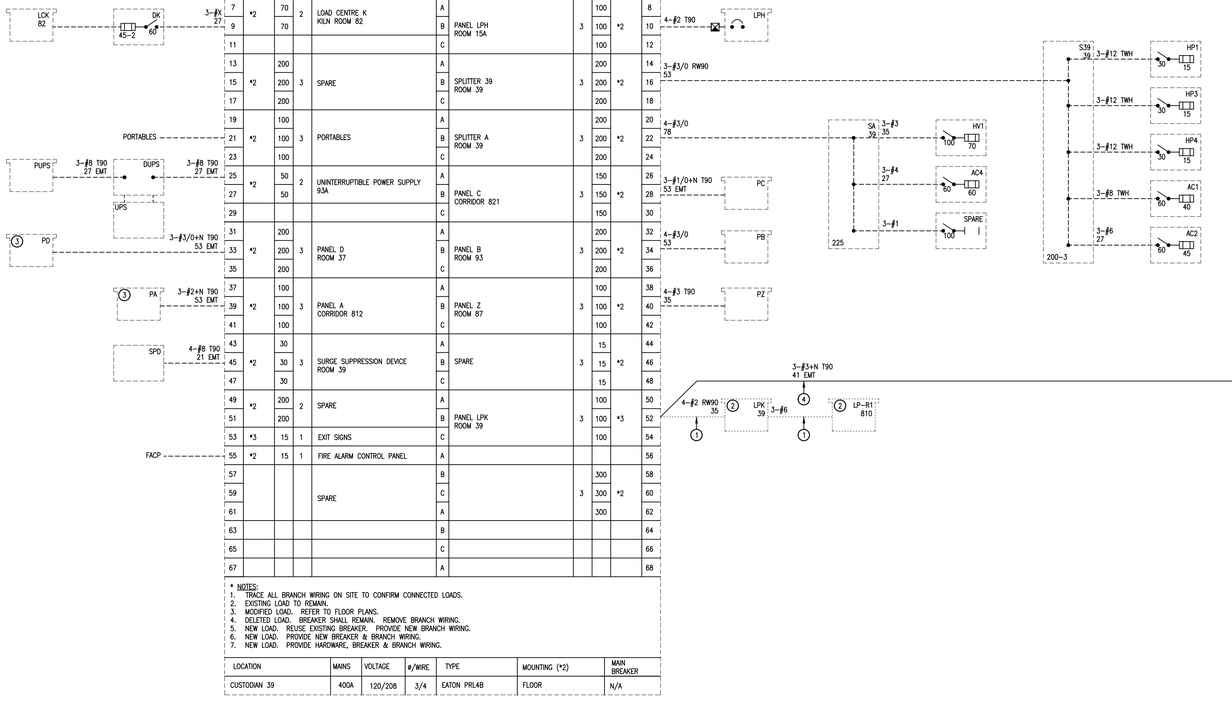
⑤ NEW PANEL 'K' SCHEDULE

NO.	NOTES	A	P	LOAD DESCRIPTION	ø	LOAD DESCRIPTION	P	A	NOTES	NO.
1					A		2	15	*1	2
3					B			15		4
5	*1	15	1		C		1	15	*1	6
7					A		1	15	*1	8
9					B		1	15	*1	10
11	*1	15	2		C		1	15	*1	12
13		15			A		1	15	*1	14
15	*1	15	1		B		1	15	*1	16
17	*1	15	1		C		1	20	*1	18
19	*1	15	1		A					20
21	*1	15	1		B					22
23	*1	15	1		C					24
25					A					26
27					B					28
29					C					30
31	*2	15	1		A		1	15	*2	32
33	*2	15	1		B		1	15	*2	34
35	*2	15	1		C		1	15	*2	36
37	*4	15	1	ROOM 40 EXHAUST EF-5	A					38
39					B					40
41					C					42
43					A					44
45					B					46
47					C					48
49					A					50
51					B					52
53	*4	20	1		C					54
55	*4	20	1		A					56
57	*4	15	1		B					58
59	*4	15	1		C					60

* NOTES:
1. EXISTING LOAD FROM DELETED 'LPK'. PROVIDE BREAKER & RECONNECT BRANCH WIRE
2. EXISTING LOAD FROM DELETED 'LP-R1'. PROVIDE BREAKER & EXTEND BRANCH WIRE.
3. DELETED FPE TUB ~1016x356x127. DELETED ▯ QO TUB~400x400. PATCH AS REQUIRED.
4. NEW LOAD. PROVIDE BREAKER. PROVIDE BRANCH WIRE WHERE APPLICABLE.
5. MODIFIED LOAD. REFER TO FLOOR PLANS.

OPTIONS:
TOP FEEDS
DRIP SHIELD
200% NEUTRAL

LOCATION	MAINS	VOLTAGE	ø/WIRE	TYPE	MOUNTING (*3)	MAIN BREAKER
ROOM 39	225A	120/208V	3/4	EATON PRL1	SURFACE	N/A



NO.	DATE	REVISION	BY
06			
05			
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03	04.02.24	ISSUE FOR TENDER#24-7558-RFT	A.W.G.
02	03.18.24	ISSUE FOR REVIEW	A.W.G.
01	12.11.23	ISSUE FOR SCHEMATIC DESIGN	A.W.G.

ORIENTATION

JOB NO: 23097

STRIVING FOR EXCELLENCE Waterloo Region District School Board

MNE ENGINEERING

MNE Engineering Inc.
22 Kevco Place – Box A
Kitchener, Ontario N2C 2G5
(519) 894-9408
www.mneengineering.ca

PROJECT:
MACGREGOR SENIOR PUBLIC SCHOOL VENTILATION & BOILER UPGRADE

32 CENTRAL ST. WATERLOO, ON

CLIENT:
LGA ARCHITECTURAL PARTNERS

DRAWING:
SINGLE LINE DIAGRAM & POWER SCHEDULES

LICENSED PROFESSIONAL ENGINEER
04.02.24
A. W. GUBBELS
PROVINCE OF ONTARIO

SCALE: AS NOTED
DATE: JAN 2024
DRAWN: K.M.M.
CHECKED: A.W.G.

DWG NO.: E4.1
SHEET NO.: 5 OF 6

WIRING FOR EQUIPMENT SCHEDULE (*1)

EQUIPMENT				CHARACTERISTICS						STARTERS					ACCESSORIES			ISOLATING DEVICE				REMOTE CONTROL																	WIRING				NOTES
MECHANICAL LABEL	ELECTRICAL IDENTIFIER NO.	DESCRIPTION	SUPPLIED BY: E – DIVISION 26, M – DIVISIONS 22,23,25, S – DIVISION 21, G – DIVISION 01, O – OWNER	VOLTAGE (V)	WATTAGE (kW)	HORSE POWER (hp)	MINIMUM CIRCUIT AMPACITY (A)	MOCP (A)	PHASE	MANUAL	MAGNETIC	COMBINATION	CONTACTOR	VARIABLE FREQUENCY DRIVE	HAND-OFF-AUTO (HOA) SWITCH	START-STOP PUSHBUTTON	PILOT LIGHT	LOCAL DISCONNECT	LOCAL FUSED DISCONNECT	SWITCHABLE AT BREAKER	RECEPTACLE	VARIABLE SPEED CONTROLLER	THERMOSTAT/SENSOR	120V REVERSE ACTING THERMOSTAT	PUSH BUTTON ELECTRONIC TIMER	BAS RELAY	MOTOR RELAY	TIME CLOCK	EMERGENCY STOP PUSHBUTTON	KEY SWITCH	PRESSURE SWITCH	LIMIT SWITCH	CONTROL PANEL	OCCUPANCY SENSOR	FLOW SWITCH	STOP-START PUSHBUTTON	BAS CONNECTION	INTERLOCK WITH	CONTROL VOLTAGE (V)	CONTROL CABLING BY	POWER WIRING BY	SMOKE DAMPER(S)	
B-1	1	BOILER	M	120			6.8	15	1	E							E										E		E				M		M		M	2	24	M	E		*3
P-1	2	BOILER PUMP	M	208		1.0		20	1			E			E		E																				M		24	M	E		
P-2,3	3	HEATING PUMPS	M	600		5.0		15	3					M				E																			M		24	M	E		
EF-3	4	BOILER ROOM ROOF FAN	M	120		0.25		15	1									M					M																120	E	E		*2
EF-5	5	WASHROOM EXHAUST FAN	M	120	0.1			15	1									M				M												E					120	E	E		*2
VPS	6	VENTILATION POWER SUPPLY	M	120	0.3			15	1											E																					E		
UH-1	7	UNIT HEATER	M	120	0.1			15	1	E							E						M																120	E	E		

*NOTES

1 COORDINATE EXACT ELECTRICAL REQUIREMENTS FOR ALL EQUIPMENT WITH SHOP DRAWINGS AND ACTUAL NAMEPLATE DATA. REVISE ELECTRICAL REQUIREMENTS TO SUIT.
2 CONTAINS INTEGRAL OVERLOADS.
3 REFER TO SCHEMATIC.

LIGHTING FIXTURE SCHEDULE (*1)

TYPE	MANUFACTURER	MODEL	LAMPS QUANTITY-TYPE	MOUNTING P – POLE, R – RECESSED, S – SURFACE, SD – SUSPENDED, W – WALL, B – BOLLARD	VOLTAGE	NOTES
ED	STANPRO	SWL EM WH AT	14W LED	S/W	120	CONNECT TO ROOM LIGHTING CIRCUIT, UPSTREAM OF CONTROLS
EXA	STANPRO	RMV 1 CM WH IB	2W LED	W	120	
HF	LITHONIA	CSS L48 AL03 SWW3 80CRI HC36M12	36W LED	SD	120	*2 CHAIN HANG TO SUIT PIPING & DUCTWORK
HG	LITHONIA	CSS L48 AL03 SWW3 80CRI	36W LED	S	120	*2
HH	LITHONIA	CSS L48 AL03 SWW3 80CRI WGCSS	36W LED	S	120	*2
JF	LITHONIA	CPX 2X4 4000LMHE 80CRI 40K SWL MIN10 ZT	32W LED	R	120	
KD	LITHONIA	BLWP4 40LHE ADSM GZ10 LP840	33W LED	S	120	

*NOTES:

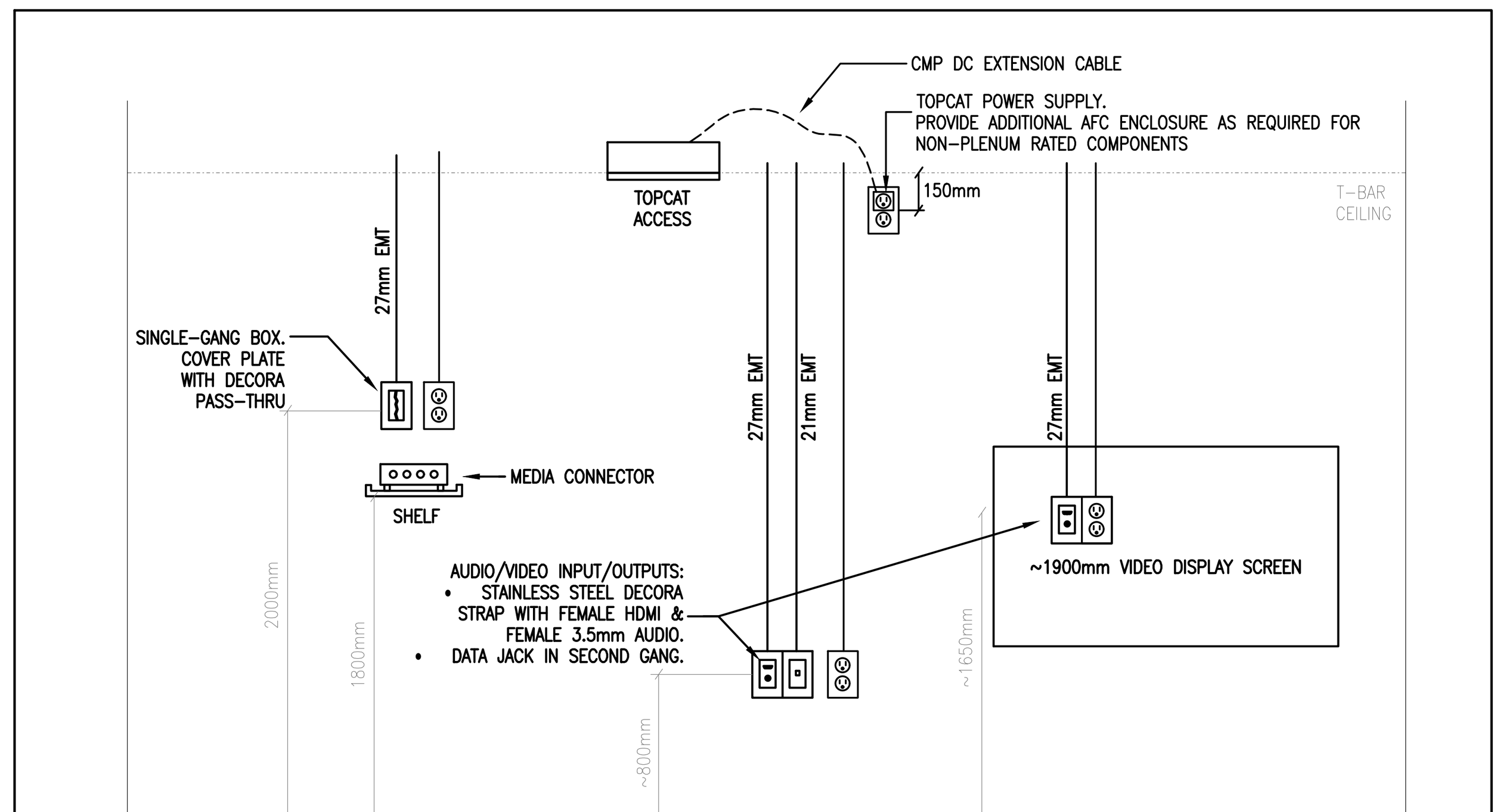
1 REFER TO SPECIFICATIONS FOR DRIVER/BALLAST/LAMPS REQUIREMENTS. LAMPS INCLUDED WITH FIXTURES UNLESS OTHERWISE OUTLINED
2 FIELD MODIFY LUMEN PACKAGE & COLOUR TEMPERATURE.

LIGHTING CONTROL SCHEDULE (*1)

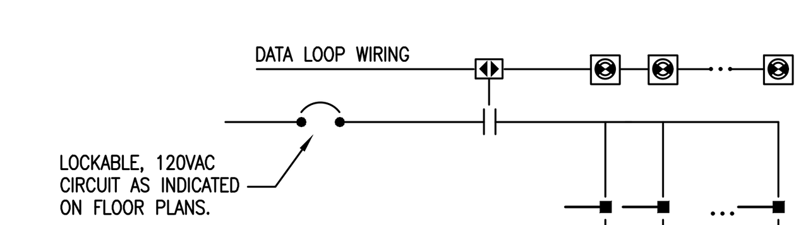
USE	TYPE	MANUFACTURER	MODEL	ENVIRONMENT	MOUNTING	VOLTAGE	PIR	MICRO-PHONICS	DAY LIGHTING	COMMENTS
✓	OC	ACUITY	CM PDT 10	SWITCHING	CEILING	24	✓	✓		EXTENDED RANGE
✓	$o	ACUITY	WSXA PDT	SWITCHING	WALL	120	✓	✓		PROGRAM FOR AUTO ON, AUTO OFF
✓	$v	ACUITY	WSXA PDT	SWITCHING	WALL	120	✓	✓		PROGRAM FOR MANUAL ON, AUTO OFF
✓	$F	ACUITY	WSXA PDT 2P FAN	SWITCHING	WALL	120	✓	✓		SECOND POLE FOR EXHAUST FAN

*NOTES

1 ALL ITEMS SHALL BE PROVIDED WITH SUITABLE POWER/RELAY DIMMING PACKS TO PROVIDE THE CONTROL INDICATED ON THE DRAWINGS. PACKS NOT INDICATED ON THE DRAWINGS.

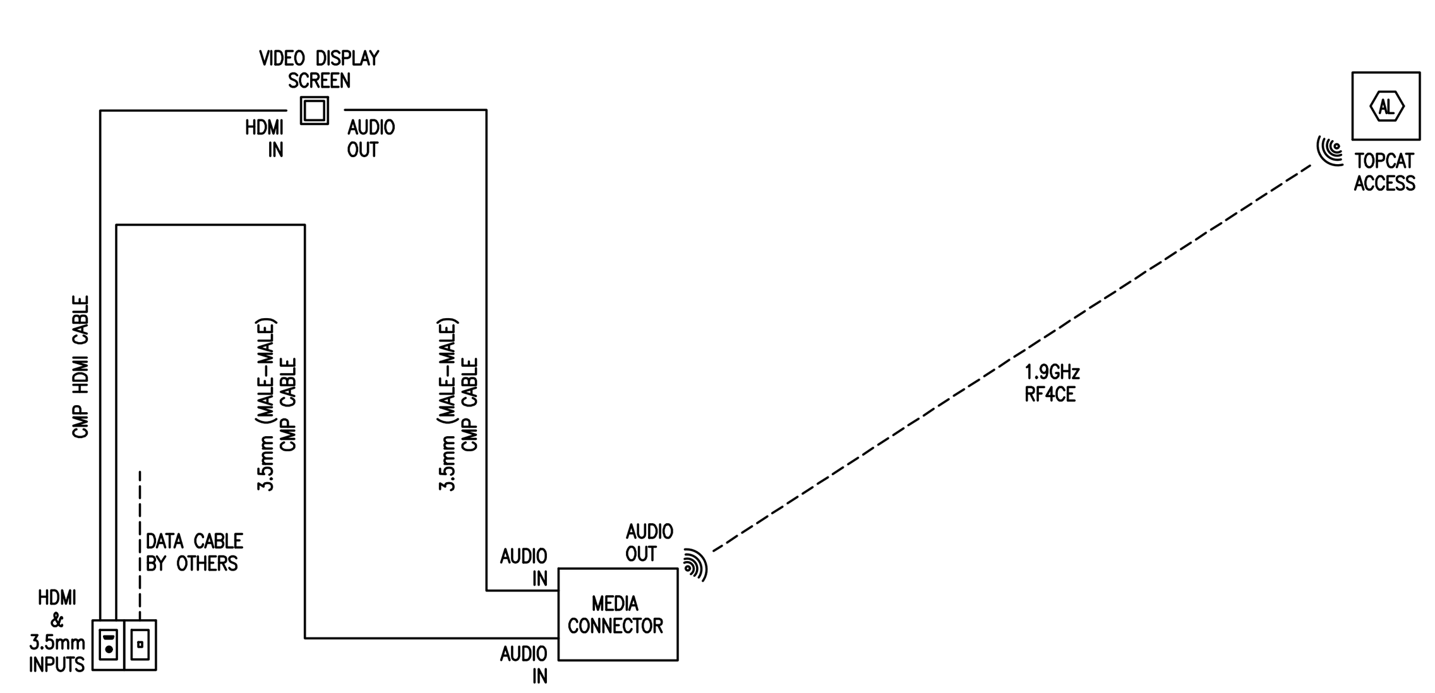


A/E4.2 AUDIO/VIDEO ROUGH-IN DETAIL
N.T.S.

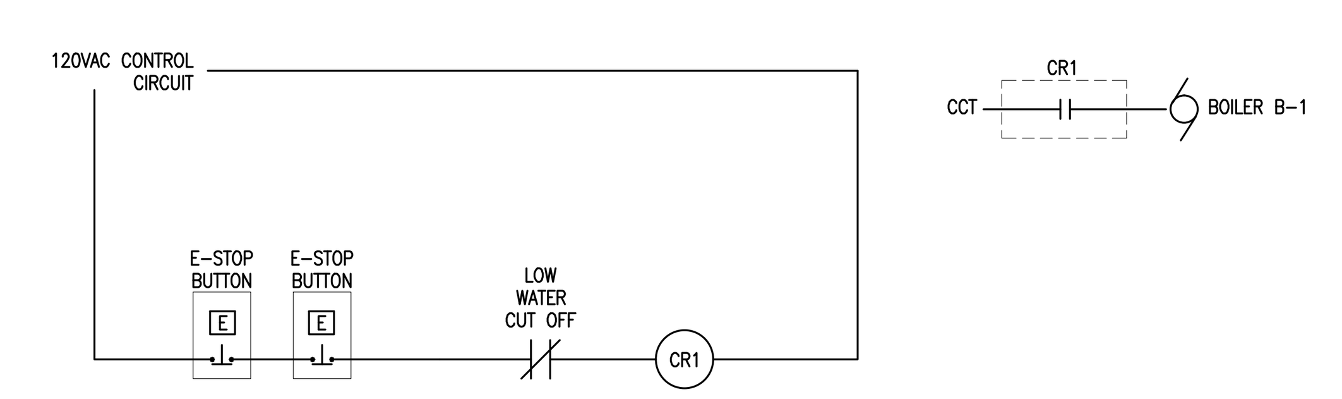


NOTES:
- 120V SMOKE DAMPERS PROVIDED BY DIVISION 23, POWER OPEN, SPRING CLOSED.
- PROVIDE SMOKE DETECTORS WITHIN 5'–0" (1.5m) ON BOTH SIDES OF THE RATED SEPARATION, OR PROVIDE A DUCT-TYPE SMOKE DETECTOR DOWNSTREAM OF THE DAMPER IN ACCORDANCE WITH OBC 3.1.8.9A. REFER TO FLOOR PLANS.
- REUSE FIRE RELAY MODULE & POWER RELAY. EXTEND POWER WIRING TO SMOKE DAMPERS. PROGRAM FIRE RELAY MODULE TO CLOSE THE SMOKE DAMPER UPON SIGNAL FROM THE ASSOCIATED SMOKE DETECTOR(S).
- PROVIDE FIRE ALARM RELAY SO THAT THE ASSOCIATED AIR HANDING UNIT (HVAC-7) IS SHUT DOWN UPON ACTIVATION OF ANY OF THE ASSOCIATED SMOKE DETECTORS.
- PROVIDE ACCESS DOORS AS REQUIRED FOR INSPECTION AND RESET.
- ASSOCIATED SMOKE DETECTORS SHALL BE MAPPED TO THE FLOOR INITIATING ZONE.

B/E4.2 SMOKE DAMPER WIRING SCHEMATIC
N.T.S.



1/E4.2 AUDIO/VIDEO CABLING SCHEMATIC
N.T.S.



2/E4.2 BOILER CONTROL SCHEMATIC

SCHEMATIC NOTES:
- PROVIDE LATCHING-TYPE, EMERGENCY STOP PUSHBUTTONS.
- EACH EMERGENCY STOP PUSHBUTTON SHALL DE-ENERGIZE THE CONTROL PANEL FOR ALL BOILERS. DO NOT CONNECT TO DE-ENERGIZE THE BURNER(S).
- BOILER SHALL AUTOMATICALLY ENERGIZE ONCE THE EMERGENCY STOP HAS BEEN RELEASED, AND UPON RESTORATION FROM A POWER OUTAGE.
- PROVIDE NAMEPLATE STATING 'BOILER EMERGENCY STOP'.
- REFER TO THE BOILER MANUFACTURER'S WIRING DIAGRAMS AND ADJUST AS REQUIRED.
- WIRE LOW WATER CUTOFF TO DE-ENERGIZE THE BOILER.

EXISTING PANEL 'D' SCHEDULE (*1)

NO.	NOTES	A	P	LOAD DESCRIPTION	ø	LOAD DESCRIPTION	P	A	NOTES	NO.
1	*5	15	1	BOILER E-STOP	A		1	20	*2	2
3	*3	15	1		B		1	20	*2	4
5	*4	15	3		C		1	15	*2	6
7		15			A		1	15	*2	8
9		15			B		1	15	*2	10
11	*5	15	1	VENTILATION POWER SUPPLY	C		1	15	*2	12
13	*5	15	1	ROOM 37 EXHAUST EF-3	A		1	15	*2	14
15	*2	15	1		B		1	15	*2	16
17	*4	15	1		C		1	15	*2	18
19	*4,5	15	1	ROOM 38 HEATER UH-1	A		1	15	*2	20
21	*2	15	1		B		1	15	*4	22
23	*4,5	15	1	RECEPT. 37 EAST	C		1	15	*2	24
25	*4	15	1		A		1	15	*2	26
27	*4	15	1		B		1	15	*2	28
29	*4	15	1		C		1	15	*2	30
31	*4,5	15	1	BOILER B-1	A		1	15	*2	32
33	*2	20	2		B		1	15	*2	34
35		20			C	RECEPT. 37	1	15	*4,5	36
37	*2	15	1		A		1	15	*2	38
39	*2	15	1		B		1	15	*2	40
41	*2	15	1		C	LTG. ROOM 37	1	15	*3	42
43	*2	15	1		A	BOILER PUMP P-1	2	20	*6	44
45	*2	15	1		B			20		46
47	*2	15	1		C					48
49	*2	15	1		A					50
51	*2	15	1		B					52
53	*2	20	1		C					54
55	*2	15	1		A		1	20	*6	56
57	*2	15	1		B		1	15	*2	58
59	*2	15	1		C		1	15	*2	60
61	*2	15	1		A					62
63	*2	15	1		B					64
65	*2	15	1		C					66
67	*2	15	1		A					68
69	*2	20	1		B					70
71	*2	15	1		C					72
73	*2	15	1		A					74
75	*2	15	1		B					76
77	*2	15	1		C					78
79	*2	15	1		A					80
81	*2	15	1		B					82
83					C					84

* NOTES:
1. TRACE ALL BRANCH WIRING ON SITE TO CONFIRM CONNECTED LOADS.
2. EXISTING LOAD TO REMAIN.
3. MODIFIED LOAD. REFER TO FLOOR PLANS.
4. DELETED LOAD. BREAKER SHALL REMAIN. REMOVE BRANCH WIRING.
5. NEW LOAD. REUSE EXISTING BREAKER. PROVIDE NEW BRANCH WIRING.
6. NEW LOAD. PROVIDE NEW BREAKER & BRANCH WIRING.

LOCATION	MAINS	VOLTAGE	ø/WIRE	TYPE	MOUNTING	MAIN BREAKER
BOILER 37	225A	120/208	3/4	EATON PRL1	SURFACE	N/A

EXISTING PANEL 'A' SCHEDULE (*1)

NO.	NOTES	A	P	LOAD DESCRIPTION	ø	LOAD DESCRIPTION	P	A	NOTES	NO.
1	*2	20	1	LTG. ROOM 4	A	RECEPT. ROOM 4	1	15	*2	2
3	*2	20	1	LTG. ROOM 3	B	RECEPT. ROOM 3	1	15	*2	4
5	*2	20	1	LTG. ROOM 2	C	RECEPT. ROOM 2	1	15	*2	6
7	*2	20	1	LTG. ROOM 1	A	RECEPT. ROOM 1	1	15	*2	8
9	*3	15	1	LTG. ROOM 5	B		1	20	*4	10
11	*3	15	1	LTG. ROOM 6	C		1	20	*4	12
13	*3	15	1	LTG. ROOM 7	A		1	20	*4	14
15	*3	15	1	LTG. ROOM 8	B		1	20	*4	16
17	*3	20	1	LTG. ROOM 32	C	LTG. CORRIDORS 812, 813, 814	1	20	*3	18
19	*3	20	1	LTG. ROOM 34	A	RECEPT. CORRIDOR 812	1	20	*3	20
21	*2	20	1	LTG. ROOMS 30, 31	B	SMOKE DAMPERS	1	15	*3	22
23	*2	15	1	ROOM 7 FAN	C	RECEPT. ROOM 7	1	15	*3	24
25	*2	15	1	RECEPT. ROOM 1	A	RECEPT. ROOM 1	1	15	*2	26
27	*2	15	1	RECEPT. ROOM 1	B	RECEPT. ROOM 1	1	15	*2	28
29	*2	15	1	RECEPT. ROOM 1	C	RECEPT. ROOM 1 A/V	1	15	*2	30
31					A	RECEPT. ROOM 2 A/V	1	15	*2	32
33					B	RECEPT. ROOM 3 A/V	1	15	*2	34
35					C	RECEPT. ROOM 4 A/V	1	15	*2	36
37					A					38
39	*2	20	1	RECEPT. ROOF	B					40
41	*2	15	1	HTG. CORRIDOR 812	C					42
43	*3	15	1	VENTILATION CONTROLS	A					44
45					B					46
47					C					48
49					A					50
51					B					52
53					C					54
55					A					56
57					B		1	20	*2	58
59					C		1	20	*2	60
61					A		1	20	*2	62
63					B		1	20	*2	64
65					C	RECEPT. ROOM 5 A/V	1	15	*5	66
67					A	RECEPT. ROOM 6 A/V	1	15	*5	68
69					B	RECEPT. ROOM 7 A/V	1	15	*5	70
71					C	RECEPT. ROOM 8 A/V	1	15	*2	72

* NOTES:
1. TRACE ALL BRANCH WIRING ON SITE TO CONFIRM CONNECTED LOADS.
2. EXISTING LOAD TO REMAIN.
3. MODIFIED LOAD. REFER TO FLOOR PLANS.
4. DELETED LOAD. BREAKER SHALL REMAIN. REMOVE BRANCH WIRING.
5. NEW LOAD. REUSE EXISTING BREAKER. PROVIDE NEW BRANCH WIRING.
6. NEW LOAD. PROVIDE NEW BREAKER & BRANCH WIRING.

LOCATION	MAINS	VOLTAGE	ø/WIRE	TYPE	MOUNTING	MAIN BREAKER
CORRIDOR 812	225A	120/208	3/4	EATON PRL1	FLUSH	N/A

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ORIENTATION

JOB NO: 23097

STRIVE FOR EXCELLENCE – Waterloo Region District School Board

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22 Kevco Place – Box A
Kitchener, Ontario N2C 2G5
(519) 894-9408
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PROJECT:
MACGREGOR SENIOR PUBLIC SCHOOL VENTILATION & BOILER UPGRADE

32 CENTRAL ST. WATERLOO, ON

CLIENT: LGA ARCHITECTURAL PARTNERS

DRAWING:
SCHEDULES, DETAIL & SCHEMATICS

LICENSED PROFESSIONAL ENGINEER – 04.02.24 – A. W. GUBBELS – PROVINCE OF ONTARIO

SCALE: AS NOTED
DATE: JAN 2024
DRAWN: K.M.M.
CHECKED: A.W.G.
DWG NO.: E4.2
SHEET NO.: 6 OF 6

City of Waterloo
IPPW - Building Standards
100 Regina St. S., 2nd Floor
PO Box 337, Stn. Waterloo
Waterloo, ON N2J 4A8

2018 Energy Efficiency Certification Form

Project Address: 32 Central Street, Waterloo **Application Number:**

Each individual responsible for the subject building shall affix their seal and signature in the applicable box thereby certifying that pursuant to Article 12.2.1.1. of Division B, of the Ontario Building Code, the energy efficiency of each building has been designed and will be constructed to:

- ☐ Exceed by not less than 17.5% the energy efficiency levels attained by conforming to the **ASHRAE 90.1-2010**
- ☐ Exceed by not less than 13% the energy efficiency levels attained by conforming to **2011 NECB and SB-10, Division 2, Chapter 3**
- ☒ Achieve the energy efficiency levels attained by conforming to the **ASHRAE 90.1-2013 and SB-10, Division 3, Chapter 2**
- ☐ Achieve the energy efficiency levels attained by conforming to **2015 NECB and SB-10, Division 3, Chapter 3**

OR

- ☐ Achieve the energy efficiency levels attained by conforming to **Section 7 of ASHRAE 189.1-2014** (excluding Sections 7.2.b, 7.4.7.3., 7.4.8. and 7.5)

In the case of a shell building, the design values for the most stringent situation that is likely to occur has been assumed.

This building is exempt from compliance because it is:

- ☐ A residential building within the scope of Part 9,
- ☐ A building with the scope of Part 9 that does not contain a residential occupancy or electric space heating that conforms to SB-10, Division 5
- ☐ A farm building
- ☐ A heritage building,
- ☐ A building space which uses less than 12W/m² under peak conditions,
- ☐ A warehouse/storage building where the design indoor air temperature does not exceed 10ºC,
- ☐ An unheated storage garage or storage room,
- ☐ A temporary structure,
- ☐ A building intended primarily for manufacturing processing, commercial processing or industrial processing

Building Envelope

Signature Date (YY/MM/DD)

Name and Title

Address

City Province Postal Code

Professional Seal:

Mechanical Systems

Signature 24/05/02
Date (YY/MM/DD)

Andrew Berg, P.Eng., MNE Engineering Inc.
Name and Title

22 Kevco Place, Box A
Address

Kitchener ON N2C 2G5
City Province Postal Code

Professional Seal:

LICENSED PROFESSIONAL ENGINEER
05.02.24
A. R. BERG
100216423
PROVINCE OF ONTARIO

Electrical Systems

Signature 24/05/02
Date (YY/MM/DD)

Andrew Gubbels, P.Eng., MNE Engineering Inc.
Name and Title

22 Kevco Place, Box A
Address

Kitchener ON N2C 2G5
City Province Postal Code

Professional Seal:

LICENSED PROFESSIONAL ENGINEER
05.02.24
A. W. GUBBELS
PROVINCE OF ONTARIO

Other:

Signature Date (YY/MM/DD)

Name and Title

Address

City Province Postal Code

Professional Seal: