Drawing List - Architectural

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Drawing List - Civil

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Drawing List - Landscape

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Drawing List - Structural

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Drawing List - Mechanical

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M1.1	Mechanical Schedule
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M3.0	Proposed Plumbing Plan
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M5.0	Proposed Vehicle Tail Pipe Exhaust Layout
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Drawing List - Electrical

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BARRIE FIRE STATION 6

845 MAPLEVIEW DRIVE EAST, Barrie, Ontario

ISSUED FOR TENDER - February 23, 2024

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GENERAL ABBREVIATION LIST:

(NOTE: NOT ALL ABBREVIATIONS ARE USED ON THIS PROJECT)	
ACT	ACOUSTIC CEILING TILE
ACP	ALUMINUM COMPOSITE PANEL
ACS	ADULT CHANGE STATION
AFF	ABOVE FINISHED FLOOR
ALUM	ALUMINUM
ARCH	ARCHITECTURAL
AVB	AIR VAPOUR BARRIER
BF	BARRIER FREE
BFPB	BARRIER FREE PUSH-BUTTON
BLK	BLOCK
BKG	BLOCKING
BL	BILLNOISE
BOL	BOLLARD
BRK/BLK	BRICK/BLOCK
CBD	CEMENT BOARD
CD	CONCRETE BOARD
CH	COAT HOOK
CK	CAULK
CLG	CEILING
COL.	COLUMN
CONC	CONCRETE
CONST	CONSTRUCTION
CONT.	CONTINUOUS
CR	CARD READER
CRS	COURSE
CT	CERAMIC TILE
C/W	COMPLETE WITH
C.W.	CURTAIN WALL
CWD	COMPOSITE WOOD PANELS
DCS	DIAPER CHANGE STATION
DIA	DIAMETER
DIM	DIMENSIONS
DIVS.	DIVISIONS
DN	DOWN
DWGS	DRAWINGS
DS	DOOR STOP
ECR	ELECTRONIC CARD READER
ECS	EMERGENCY CALL STATION
EHO	ELECTRONIC HOLD OPEN
ELECT	ELECTRICAL
EPX	EPOXY FLOORING
EQ	EQUAL
ES	EXPOSED STRUCTURE
EXT	EXTERIOR
EW	EYE WASH
FD	FLOOR DRAIN
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FIN.	FINISH
FLR	FLOOR
FRR	FIRE RESISTANCE RATING
FT	FOOT/FEET
FS	FOLDING SEAT
GALV.	GALVANIZED
GB	GRAB BAR
GWB	GYPSUM WALL BOARD
HD	HAND DRYER
HB	HOSE BIBB
HDWD	HARDWOOD
HM	HOLLOW METAL
HORIZ.	HORIZONTAL
HP	HIGH POINT
HPL	HIGH PRESSURE LAMINATE
HR	HAND RAIL
HRD	HAIR DRYER
HS	HAND SANITIZER DISPENSER
HSS	HOLLOW STEEL SECTION
HT	HEIGHT
HW	HEADWALL
HWC	HYGIENIC WALL CLADDING
HWS	HAND WASH SINK
IC	INTUMESCENT COATING
IFB	IMPREGNATED FIBREBOARD
INSUL.	INSULATION
JT	JOINT
JS	JANITOR SHELF
LF	LIGHT FIXTURE
LP	LOW POINT
M	MIRROR
MAX.	MAXIMUM
MECH	MECHANICAL
MIN.	MINIMUM
MM	MILLIMETERS
MPS	MOP SINK
MTD	MOUNTED
MTL	METAL
NC	NURSE CALL
N.I.C.	NOT IN CONTRACT
N.T.S.	NOT TO SCALE
O.C.	ON CENTRE
O.H.	OVERHEAD
OWSJ	OPEN WEB STEEL JOIST
PBL	PUSH BUTTON LOCK
PB	PUSH BUTTON
PCS	PIECES
PLAM	PLASTIC LAMINATE
PLYWD	PLYWOOD (VENEER CORE)
PREFIN	PREFINISHED
PREMANUF	PREMANUFACTURED
PRC	PRIVACY CURTAIN & ROD
PS	PULL STATION
PT	PAINT
PTD	PAPER TOWEL DISPENSER
PTDWR	PAPER TOWEL DISPENSER & WASTE
RECEPTACLE	
RPT	PRESERVATIVE PRESSURE TREATED
R	RADIUS
RA	RETURN AIR
RA-X	ROOF ANCHOR
RBS	ROOM BOOKING SYSTEM
RC	SHOWER ROD & CURTAIN
RCB	RUBBER COVE BASE
RD	ROOF DRAIN
RE	RELOCATED
REC'D	RECEIVED
RH	ROBE HOOK
RSD	RELIEF SCUPPER DRAIN
RS	ROLLER SHADES
S	LIQUID SOAP DISPENSER
SD	SOAP DISPENSER
SH	SHOWER HEAD
SHC	SHARPS CONTAINER
SC	SHOWER CONTROLS
SHC	SHOWER HEAD & CONTROL
SVC	SHOWER VALVE CONTROL BOX
SND	SANITARY NAPKIN DISPOSAL UNIT
SPECD	SPECIFIED
SPS	SOLID POLYMER SURFACE
S.S.	STAINLESS STEEL
STL	STEEL
STN.	STONE
STRUCT.	STRUCTURAL
SUSP.	SUSPENDED
TB	TACK BOARD
TEL	TELEPHONE
T.O.S.	TOP OF STRUCTURE
TP	TOILET TISSUE HOLDER
TWB	TOWEL BAR
TYP	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE
UR	URINAL
U/S	UNDERSIDE
AVB	VAPOUR BARRIER
VERT.	VERTICAL
VEST	VESTIBULE
VPAB	VAPOUR PERMEABLE AIR BARRIER
W/	WITH
WB	WHITE BOARD
WB2	"WALL TALKER" WHITE BOARD
WC	WATER CLOSET
WD	WOOD
WR	WASHROOM
WPP	Wall Protection Cladding

EXTERIOR WALL TYPES:

SYMBOL	WALL TYPE	
EW1		**EXTERIOR WALL TYPE EW1:** 90mm BRICK VENEER 50mm CONTINUOUS AIR SPACE MAX. 125mm SPRAY APPLIED INSULATION -- CONT. SELF-ADHERED AIR/VAPOUR BARRIER MEMBRANE 190mm CONCRETE MASONRY UNIT (CMU) (240mm WHERE INDICATED ON DRAWINGS)
EW2		**EXTERIOR WALL TYPE EW2: WASTE COLLECTION POINT** 90mm BRICK VENEER 50mm CONTINUOUS AIR SPACE MAX. -- CONT. SELF-ADHERED AIR/VAPOUR BARRIER MEMBRANE 190mm CONCRETE MASONRY UNIT (CMU) NOTE: REFUSE/RECYCLING ENCLOSURE TO BE PRICED SEPARATELY AS PART OF PROVISIONAL PRICE
EW3		**EXTERIOR WALL TYPE EW3:** 38mm HORIZONTAL PREFINISHED METAL SIDING THERMALLY BROKEN VERTICAL GALVANIZED Z-GIRTS 20mm CONTINUOUS AIR SPACE MAX. 125mm SPRAY APPLIED INSULATION -- CONT. SELF-ADHERED AIR/VAPOUR BARRIER MEMBRANE 190mm CONCRETE MASONRY UNIT (CMU) (240mm WHERE INDICATED ON DRAWINGS)
EW4		**EXTERIOR WALL TYPE EW4:** 38mm ALUMINUM METAL PANEL 25mm CONTINUOUS AIR SPACE MAX. 125mm SPRAY APPLIED INSULATION -- CONT. SELF-ADHERED AIR/VAPOUR BARRIER MEMBRANE 16mm GLASS MAT SHEATHING 152mm METAL STUD @ 406mm O.C. MAX
EW5		**EXTERIOR WALL TYPE EW5:** 38mm ALUMINUM METAL PANEL 25mm CONTINUOUS AIR SPACE MAX. 125mm SPRAY APPLIED INSULATION -- CONT. SELF-ADHERED AIR/VAPOUR BARRIER MEMBRANE 190mm CONCRETE MASONRY UNIT (CMU)
EW6		**EXTERIOR WALL TYPE EW6: WASTE COLLECTION POINT** 38mm ALUMINUM METAL PANEL 25mm CONTINUOUS AIR SPACE MAX. 125mm SPRAY APPLIED INSULATION -- CONT. SELF-ADHERED AIR/VAPOUR BARRIER MEMBRANE 190mm CONCRETE MASONRY UNIT (CMU) NOTE: REFUSE/RECYCLING ENCLOSURE TO BE PRICED SEPARATELY AS PART OF PROVISIONAL PRICE

EXTERIOR WALL TYPE NOTES:
- UNLESS INDICATED OTHERWISE, EXTEND ALL PARTITIONS FULL HEIGHT TO UIS OF STRUCTURE.
- WALL TAGS WITH "P" DESIGNATION DENOTES THE WALL TYPE IS SIMILAR AND IS USED IN PARAPET FRAMING

ROOF TYPES:

SYMBOL	WALL TYPE	
RF1		**ROOF TYPE RF1:** 38mm STANDING SEAM METAL ROOF (CW EXPANSION CLIP SYSTEM) DRAINAGE MAT AS PER MANU. CONT. SELF-ADHERED W.P. MEMBRANE (BREATHABLE) 16mm GLASS MAT SHEATHING THERMALLY BROKEN GALVANIZED Z-GIRTS 150mm ZEE STEEL STUD @ 406mm O.C. MAX (POLYISOCYANURATE RIGID INSUL. (R-36 MIN.) CONTINUOUS AIR/VAPOUR BARRIER 13mm ROOF SHEATHING BOARD 76mm METAL DECKING ON STEEL STRUCTURE AS PER STRUC. DWGs - ENSURE CLIPS SYSTEM FOR METAL ROOF IS DIRECTLY FASTENED TO THE Z-GIRTS THROUGH THE GLASS MAT SHEATHING - BUTYL TAPE SHALL BE APPLIED TO ALL SEAMS & CLIPS AS SPEC.
RF2		**ROOF TYPE RF2: WASTE COLLECTION POINT** 38mm STANDING SEAM METAL ROOF (CW EXPANSION CLIP SYSTEM) DRAINAGE MAT AS PER MANU. 8mm PROTECTION BOARD (AT LOCATIONS WITH TAPERED INSULATION) TAPERED ROOF INSULATION (AT SOME LOCATIONS SEE ROOF PLAN FOR EXTENT) 13mm ROOF SHEATHING BOARD 38 mm METAL DECKING ON STEEL STRUCTURE AS PER STRUC. DWGs - ENSURE CLIPS SYSTEM FOR METAL ROOF IS DIRECTLY FASTENED TO THE Z-GIRTS THROUGH THE GLASS MAT SHEATHING - BUTYL TAPE SHALL BE APPLIED TO ALL SEAMS & CLIPS AS SPEC. NOTE: REFUSE/RECYCLING ENCLOSURE TO BE PRICED SEPARATELY AS PART OF PROVISIONAL PRICE

ROOF TYPE NOTES:
- ALL R-VALUES INDICATED ON ASSEMBLY SHEET ARE FOR THE CITY OF BARRIE REFERENCE ONLY, REFER TO THE SPECIFICATION FOR SPECIFIC PRODUCTS AND REQUIREMENTS.

INTERIOR WALL TYPES:

SYMBOL	WALL TYPE	
P1		**INTERIOR WALL TYPE P1:** 90mm CONCRETE MASONRY UNIT (CMU)
P2		**INTERIOR WALL TYPE P2:** 140mm CONCRETE MASONRY UNIT (CMU)
P3		**INTERIOR WALL TYPE P3:** 190mm CONCRETE MASONRY UNIT (CMU)
P4		**INTERIOR WALL TYPE P4:** 240mm CONCRETE MASONRY UNIT (CMU)
P5		**INTERIOR WALL TYPE P5:** 290mm CONCRETE MASONRY UNIT (CMU)
P6		**INTERIOR WALL TYPE P6:** 16mm ABUSE-RESISTANT GYPSUM WALL BOARD 92mm METAL STUDS @ 406mm O.C. MAX. SOUND BATT INSULATION (FRICTION FIT WITHIN STUD SPACE)
P7		**INTERIOR WALL TYPE P7:** 1 HOUR FIRE RESISTANCE RATING 16mm TYPE 'X' GYPSUM WALL BOARD 92mm METAL STUDS @ 406mm O.C. MAX. FILL STUDS WITH MINERAL WOOL INSULATION 16mm TYPE 'X' GYPSUM WALL BOARD

PARTITION TYPE NOTES:
- METAL STUD SUPPLIER TO PROVIDE FOR ANY & ALL DEFLECTION IN THE DESIGN OF ALL METAL STUD PARTITIONS OR WALLS THROUGH-OUT THE ENTIRE PROJECT.
- UNLESS INDICATED OTHERWISE, EXTEND ALL PARTITIONS FULL HEIGHT TO U/S OF STRUCTURE.
- ALL R-VALUES INDICATED ON ASSEMBLY SHEET ARE FOR THE CITY OF BARRIE REFERENCE ONLY, REFER TO THE SPECIFICATION FOR SPECIFIC PRODUCTS AND REQUIREMENTS.
- REFER TO FLOOR PLAN FOR SIZE

GENERAL NOTES:

- ALL DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS NOTED OTHERWISE.
- THE CONTRACTOR SHALL NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BETWEEN THE ARCHITECTURAL DRAWINGS AND STRUCTURAL DRAWINGS AND SPECIFICATIONS PRIOR TO THE COMMENCEMENT OF WORK.
- THE SPECIFICATIONS, INSTALLATION, AND PERFORMANCE OF AIR BARRIER SYSTEMS AND VAPOUR BARRIERS MUST MEET OR EXCEED DIVISION B PART 5 OF THE LATEST VERSION OF THE ONTARIO BUILDING CODE.

STEEL STUD FRAMING & PARTITIONING:
- CONTRACTOR TO ENSURE THAT STEEL STUD THICKNESS, SIZE, AND SPACING IS ADEQUATE FOR THE HEIGHTS OF PARTITIONS INDICATED. ADD BRACING AS REQUIRED.
- PROVIDE FOR DEFLECTION ALLOWANCE [SLIP JOINT] AT TOP OF ALL WALLS ABUTTING ROOF STRUCTURE/DECK.

GYPSUM BOARD WALL & PARTITIONS:
- ALL GYPSUM BOARD & STEEL STUD WALLS AND PARTITIONS ARE TO EXTEND TO THE UNDERSIDE OF ROOF DECK OR DECK OR DECK NOTED OTHERWISE. COORDINATE PARTITION TYPES WITH TOP OF WALL DETAILING.
- WHERE CONCRETE MASONRY UNIT PARTITION IS A STRUCTURAL BEARING WALL REFER TO THE STRUCTURAL DRAWINGS FOR DESIGN.

CONCRETE MASONRY UNIT (CMU):
- WHERE CONCRETE MASONRY UNIT WALLS ABUT REINFORCED CONCRETE WALLS AND PIERS, RACK BACK MORTAR JOINT WHERE THE TWO MATERIALS MEET PROVIDE CONTINUOUS SEALANT.

FIRE RATED WALL & PARTITION ASSEMBLIES:
- F.R. REFERS TO WALLS, PARTITIONS, FLOORS, AND CEILINGS THAT HAVE A FIRE RESISTANCE RATING.
- AT RECESSED PANEL INSTALLATIONS [E.G. ELECTRICAL PANELS] WITHIN RATED WALLS PROVIDE CONTINUITY OF THE REQUIRED RATING BEHIND THE PANEL. REFER TO THE LATEST VERSION OF THE ONTARIO BUILDING CODE, DIVISION B, SECTION 3.1.9.1. FOR REQUIREMENTS FOR COMBUSTIBILITY OF SERVICE PENETRATIONS AND SECTION 3.1.10.2. FOR RATING OF FIREWALLS.

DUCT PENETRATIONS THROUGH BLOCK WALLS & FLOOR ASSEMBLIES:
- WHERE DUCTS, PIPES AND CONDUITS PENETRATE EXPOSED CONCRETE UNIT MASONRY WALLS, CUT BLOCKS TO BUTE REQUIRED OPENINGS TO MINIMIZE PATCHING.

BLOCKING FOR MILLWORK & SPECIALTIES:
- PROVIDE BLOCKING TO PARTITIONS AND WALLS FOR MILLWORK AND CASEWORK.
- PROVIDE BLOCKING TO PARTITIONS AND WALLS FOR HANDRAILS, GRAB BARS, BULLETIN BOARDS, WHITEBOARDS, MIRRORS, OTHER WALL MOUNTED MESSAGE BOARDS AND WASHROOM ACCESSORIES AS INDICATED ON DRAWINGS.

MASONRY VENEER:
- ENSURE THAT A CONTINUOUS AVB MEMBRANE IS MAINTAINED WHEREVER BRICK TIES PENETRATE EXTERIOR SHEATHING OR CONCRETE MASONRY UNIT.
- VERIFY WITH STRUCTURAL ENGINEER IF SHEAR CONNECTORS ARE REQUIRED FOR BRICK/BLOCK TIES.

ROOF ASSEMBLIES:
- UPSTANDS ON ROOF FOR MECHANICAL UNITS, PARAPETS, SKYLIGHTS TO COME COMPLETE WITH CANT STRIPS.
- CONTINUOUS VAPOUR RETARDER MEMBRANE COMPONENT OF ROOF ASSEMBLIES TO BE WRAPPED UP ON ALL PARAPETS, CURBS, EXTERIOR WALL ASSEMBLIES BY A MINIMUM OF 200mm OR AS DETAILED ON DRAWINGS. TIE INTO VAPOUR BARRIER AND AIR VAPOUR BARRIER MEMBRANES ON ALL VERTICAL SURFACES. PROVIDE 'PEEL & STICK' TYPE TRANSITION MEMBRANES IN ORDER TO ENSURE CONTINUITY OF AIR VAPOUR BARRIER AND AIR BARRIER MEMBRANES.

DRAWING SYMBOL LEGEND:

1 / A101	REFERENCE BUBBLE - DETAIL NUMBER (TOP) - SHEET NUMBER (BOTTOM)
1 / A101 / 4 / 2 / 3	ELEVATION BUBBLE - SHEET NUMBER (MIDDLE) - VIEW NUMBERS (ALL FOUR SIDES)
1 / A101	SECTION BUBBLE - DETAIL NUMBER (TOP) - SHEET NUMBER (BOTTOM)
Room name / 101	ROOM TAG - ROOM NAME (ABOVE SYMBOL) - ROOM NUMBER (WITHIN SYMBOL)
101	DOOR TAG (ASSOCIATED TO ROOM NUMBER) - DOOR NAME (WITHIN SYMBOL)
CW101	CURTAIN WALL TAG - CURTAIN WALL NUMBER (WITHIN SYMBOL)
S101	INTERIOR SCREEN TAG (ASSOCIATED TO ROOM NUMBER) - SCREEN NUMBER (WITHIN SYMBOL)
	WINDOW TAG - WINDOW NUMBER (WITHIN SYMBOL)
MAT / HEIGHT	CEILING TAG - CEILING MATERIAL (TOP) - CEILING HEIGHT A.F.F. (BOTTOM)
1	WALL TAG (REFER TO WALL TYPE SCHEDULE) - WALL TYPE (WITHIN SYMBOL)
Length / Length/min	PATH OF TRAVEL TAG - DISTANCE/LENGTH (TOP) - TIME BASED ON 4.8km/h (BOTTOM)

No.	Revision	Date
10	Issued for Tender	2024_02_23
9	Issued for 100% Contract Documents	2023_11_24
8	Issued for 95% Contract Documents	2023_11_10
7	Issud For Building Permit	2023_11_07
6	Issued For Site Plan Re-Submission	2023_11_07
5	Issued for 75% Contract Documents	2023_10_13
4	Issued for Progress	2023_09_25
3	Design Development Approval	2023_08_25
2	Issued for Site Plan Application	2023-08-01
1	Issued for 100% Design Development	2023-06-27

Orientation

Seal

ONTARIO ASSOCIATION OF ARCHITECTS
GERRY P. PILON
LICENCE
5042

All dimensions to be checked and verified on the job by the Contractor. Any discrepancies are to be reported to the Consultant prior to action. Only the latest approved drawings to be used for construction in conformance with all applicable codes, by-laws and regulations. All drawings remain the property of the Consultant.

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Project Information
Barrie Fire Station 6

845 Mapleview Drive East, Barrie Ontario

For
Barrie Fire and Emergency Services

Drawing Title
Abbreviations, Wall & Roof Types And General Notes

Date	Project No	Drawing No
2024_02_23	22030	A001
Drawn by: JM/BB		
Scale: As indicated		

BIM 360://22030 - Barrie Fire Station 6/22030 - Barrie Fire 6_R20.rvt
2024-02-27 10:15:04 AM

1 A101 Site Plan
1 : 200

AERIAL VIEW N.T.S.

SITE PLAN GENERAL NOTES:

1. THE CONTRACT CONSISTS OF ALL WORK WITHIN THE 'EXTENT OF CONTRACT' LINE INDICATED ON THE SITE PLAN PLUS ANY WORK SPECIFICALLY NOTED OUTSIDE OF THAT LINE. ALL WORK DONE OUTSIDE OF THESE LIMITS MUST BE EXECUTED IN STRICT ACCORDANCE WITH THE STANDARDS OF THE MUNICIPALITY AND ALL OTHER AUTHORITIES HAVING JURISDICTION. MAKE GOOD AT NO ADDITIONAL COST TO THE OWNER OR MUNICIPALITY ANY DAMAGE CAUSED BY THIS CONSTRUCTION TO MATERIALS OR FINISHES BEYOND THE EXTENT OF CONTRACT LINE.
2. CONTRACTOR IS TO RESTRICT ALL WORK, EQUIPMENT, AND MATERIALS STORAGE TO AREAS WITHIN 'EXTENT OF CONTRACT' LINE EXCEPT WHERE NOTED OTHERWISE. PRIMARY SITE ACCESS POINT & CONSTRUCTION PARKING TO BE CONFIRMED WITH BUILDER. NO PARKING IN MUNICIPALITY RIGHT-OF-WAY.
3. LOCATE EXCAVATED MATERIALS & TOPSOIL PILES AS DIRECTED. AT COMPLETION OF PROJECT ANY EXCESS MATERIAL IS TO BE REMOVED AND AREA MADE GOOD TO ARCHITECT'S SATISFACTION.
4. FOR TRENCHING & BACKFILLING OF ALL SERVICE LINES AND DIVISION OF RESPONSIBILITY, REFER TO APPROPRIATE SECTIONS IN SPECIFICATIONS.
5. SUPPLY AND PLACE TOPSOIL TO THICKNESS SPECIFIED OVER ALL SODDED AND PLANTER AREAS INDICATED ON DRAWINGS. PROVIDE ADDITIONAL TOPSOIL AS REQUIRED OVER AND ABOVE TOPSOIL TAKEN FROM SITE. PROVIDE SODDING TO AREAS INDICATED AND TERMINATE AT 'EXTENT OF CONTRACT' LINE. EXTEND SODDING BEYOND PROPERTY LINES TO ROADWAYS WHERE INDICATED.
6. NOTE THAT EXACT LOCATIONS OF ALL NEW MECHANICAL & ELECTRICAL ITEMS ARE APPROXIMATE UNLESS DIMENSION GIVEN. ADJUST LOCATION AS REQUIRED AND AS APPROVED BY CONSULTANT TO SUIT SITE CONDITIONS.
7. NOTE THAT ALL MECHANICAL AND ELECTRICAL UNDERGROUND SERVICE LINES INDICATED ON DRAWINGS ARE APPROXIMATE ONLY AND ARE INDICATED AS ACCURATELY AS POSSIBLE FROM INFORMATION SUPPLIED. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING EXACT TYPES, LOCATIONS AND DEPTHS OF ALL UNDERGROUND SERVICES IN AREA OF NEW CONSTRUCTION INCLUDING GAS LINES, TELEPHONE, CABLE TV, ETC. AND VERIFY THEIR LOCATION WITH THE APPROPRIATE AUTHORITIES BEFORE EXCAVATING.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ADEQUATE RECORDS OF CONSTRUCTION TO FACILITATE AS-CONSTRUCTED DRAWINGS.
9. REFER TO CIVIL DRAWINGS FOR SITE SERVICING AND GRADING, EROSION AND SEDIMENT CONTROL, STORM WATER MANAGEMENT AND DRAINAGE, AND ANY OTHER RELATED WORKS.
10. REFER TO LANDSCAPE DRAWINGS FOR PLANTING, SODDING, TREE AND SHRUB LAYOUT / SCHEDULE (INCLUDING PRESERVATION AND REMOVALS), PAVER LAYOUTS, SITE AMENITIES, AND ANY OTHER RELATED WORKS.
11. REFER TO M&E DRAWINGS FOR SITE LIGHTING / POWER, CISTERNS, AND ANY OTHER RELATED WORKS.
12. CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF ALL DRAWINGS FROM ALL DISCIPLINES. ALL DIMENSIONS ARE TO BE CHECKED AND VERIFIED ON THE JOB. ANY DISCREPANCIES ARE TO BE REPORTED TO THE CONSULTANT. ALL DRAWINGS REMAIN THE PROPERTY OF THE CONSULTANT. ONLY LATEST APPROVED DRAWINGS ARE TO BE USED FOR CONSTRUCTION.

SITE PLAN LEGEND:

- LS — POLE MOUNTED LIGHT STANDARD AS PER ELEC. DWGs
- PROPERTY LINE / EXTENT OF CONTRACT
- PART LOT / EASEMENT LINE
- FIRE ACCESS ROUTE
- BIKE RACK AS PER LANDSCAPE DWGs
- PICNIC TABLE AS PER LANDSCAPE DWGs
- MH — MANHOLE AS PER CIVIL DWGs
- CB — CATCH BASIN AS PER CIVIL DWGs
- CB/MH — CATCH BASIN / MANHOLE AS PER CIVIL DWGs
- FH&V — FIRE HYDRANT AS PER CIVIL DWGs
- BOL — METAL BOLLARD
- POST MOUNTED SIGN
- BH — BOREHOLE LOCATION
- IB / SIB PER SURVEY
- BCC — BARRIER FREE CUT CURB
- ASPHALT PAVEMENT
- CONCRETE PAVING / SIDEWALK
- HEAVY-DUTY ASPHALT
- GRASS / SOD

GENERAL SIGNAGE NOTES

FIRE ROUTE SIGNAGE - INDICATE APPROPRIATE LOCAL BY-LAW NUMBER.

FINISHED SIGNS AND SYMBOLS SHALL BE APPLIED TO 1.63mm UTILITY GRADE ALUMINUM WITH BRIGHT WHITE MILL BAKED FINISH ON BOTH SIDES. ALL INKS SHALL BE GLOSSY.

ALL LETTERING AND COLOURS TO MEET M.T.O. STANDARDS.

ALL SIGNAGE TO ONTARIO TRAFFIC MANUAL / MUNICIPAL STANDARDS AND DETAILS. MUST BE VERIFIED & APPROVED PRIOR TO INSTALLATION.

REFER TO SITE PLAN FOR NUMBERS & LOCATIONS OF SIGNS REQUIRED.

2 A101 Exterior Site Signage
1 : 10

ITEM	ONTARIO BUILDING CODE DATA MATRIX PARTS 3 & 9		OBC REFERENCE
1	PROJECT DESCRIPTION	■ NEW ☐ ADDITION ☐ ALTERATION ☐ CHANGE OF USE	■ PART 3
2	MAJOR OCCUPANCY(S)	D & F3	3.2.2.55
3	BUILDING AREA (m²)	856	1.1.3.2.
4	GROSS AREA (m²)	856	1.1.3.2.
5	NUMBER OF STOREYS	1	3.2.1.1. & 1.1.3.2.
6	HEIGHT OF BUILDING (m)	13m	
7	NUMBER OF STREETS/ACCESS ROUTES	3 STREETS AS INDICATED ON DRAWINGS	3.2.2.10. & 3.2.5.5.
8	BUILDING CLASSIFICATION	GROUP D, UP TO 2 STOREYS	3.2.2.55
9	SPRINKLER SYSTEM PROPOSED	☐ ENTIRE BUILDING ☐ IN LIEU OF ROOF RATING ☐ ADDITION ■ NOT REQUIRED	3.2.2.55
10	STANDPIPE REQUIRED	☐ YES ■ NO	3.2.9.
11	FIRE ALARM REQUIRED	■ YES ☐ NO	3.2.4.
12	WATER SERVICE/SUPPLY IS ADEQUATE	■ YES ☐ NO	3.2.5.7.
13	HIGH BUILDING	☐ YES ■ NO	3.2.6.
14	PERMITTED CONSTRUCTION ACTUAL CONSTRUCTION	☐ COMBUSTIBLE ☐ NON- COMBUSTIBLE ■ BOTH ☐ COMBUSTIBLE ■ NON- COMBUSTIBLE ☐ BOTH	3.2.2.55
15	MEZZANINE(S) AREA (m²)		3.2.1.1.
16	OCCUPANT LOAD BASED ON	☐ m² / PERSON ■ DESIGN OF BUILDING	3.1.17.
17	BARRIER FREE DESIGN	■ YES ☐ NO (EXPLAIN)	3.8.
18	HAZARDOUS SUBSTANCES	☐ YES ■ NO	M.2.1.2(1) & 3.3.1.19(1)
19	REQUIRED FIRE RESISTANCE RATING (FRR)	FLOOR ASSEMBLIES 45 MIN IF COMBUSTIBLE LOAD BEARING WALLS & COLUMNS - ROOF RATING -	3.2.2.55
20	SPATIAL SEPARATION		3.2.3.

PROJECT STATISTICS		REQUIRED	PROVIDED
ZONING		I INSTITUTIONAL ZONE	I INSTITUTIONAL ZONE
TOTAL LOT AREA			7 305.64 m² (0.73 ha)
TOTAL BUILDING AREA			856.98 m² (0.086 ha)
TOTAL BUILDING AREA - Waste Building NOTE: REFUSE/RECYCLING ENCLOSURE TO BE PRICED SEPARATELY AS PART OF PROVISIONAL PRICE			26.06m m² (0.003 ha)
TOTAL ASPHALT AREA (new)			1 251.14 m² (0.12 ha)
TOTAL CONCRETE AREA - Driveway (new)			291.28 m² (0.029 ha)
TOTAL CONCRETE AREA - Side Walks (new)			221.19 m² (0.022 ha)
TOTAL OPEN SPACE AREA			m² (0.64 ha)
LOT COVERAGE	Zoning By-law No. #85-2003, Sect. 19.1.6	50 % max.	%
TOTAL GROSS FLOOR AREA			856.98 m²
BUILDING TO PROPERTY SETBACKS			
FRONT (SOUTH)	Zoning By-law No. #85-2003, Sect. 19.1.7	7.5 m min.	13.444 m
REAR (NORTH)	Zoning By-law No. #85-2003, Sect. 19.1.8	7.5 m min.	47.853 m
SIDE (EAST)	Zoning By-law No. #85-2003, Sect. 19.1.9	7.5 m min.	7.579 m
SIDE (WEST)	Zoning By-law No. #85-2003, Sect. 19.1.9	7.5 m min.	17.348 m
MAXIMUM BUILDING HEIGHT			14.051 m
TOTAL PARKING			
NEW PARKING SPACES		14	14 (10 Staff and 4 Visitor)
NEW BARRIER FREE PARKING SPACES Preconsultation indicated a requirement of 1 Type A		1 Type A	1 Type A
Barrier Free Entrances	O.B.C. 3.8.1.1 (Total Entrances = 5)		1

No.	Revision	Date
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8	Issued for 95% Contract Documents	2023_11_10
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4	Issued for Progress	2023_09_25
3	Design Development Approval	2023_08_25
2	Issued for Site Plan Application	2023-08-01
1	Issued for 100% Design Development	2023-06-27

Orientation

PROJECT NORTH

Seal

ONTARIO ASSOCIATION OF ARCHITECTS
GERRY P. PILON
LICENCE
5042

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Project Information
Barrie Fire Station 6

845 Mapleview Drive East, Barrie Ontario

For
Barrie Fire and Emergency Services

Drawing Title
Site Plan

Date	Project No	Drawing No
2024_02_23	22030	A101
Drawn by JM/BB		
Scale As indicated		

BIM 360://22030 - Barrie Fire Station 6/22030 - Barrie Fire 6_R20.rvt
2024-02-27 10:15:11 AM

1 A102 **B.F. Curb Cut Detail**
Scale as Noted

2 A102 **B.F. Pavement Logo**
1 : 20

3 A102 **Concrete Sidewalk Edge**
1 : 10

4 A102 **Barrier Curb At Sidewalk**
1 : 10

5 A102 **Barrier Curb At Sodding**
1 : 10

6 A102 **Rolled Curb At Sodding**
1 : 10

7 A102 **Rolled Curb At Sidewalk**
1 : 10

8 A102 **Signage Detail**
1 : 20

9 A102 **Steel Bollard Detail**
1 : 10

10 A102 **Light Standard Base Detail**
1 : 10

16 A102 **1 : 25**

11 A102 **Front & Rear Pylon Signage Elevation**
1 : 25

12 A102 **Enlarged Pylon Signage**
1 : 20

13 A102 **Enlarged Patio Privacey Screen Plan**
1 : 25

14 A102 **Enlarged Privacey Screen Plan**
1 : 25

15 A102 **Privacy Screen Elevation**
1 : 25

No.	Revision	Date
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Project Information
Barrie Fire Station 6

845 Mapleview Drive East, Barrie Ontario

For
Barrie Fire and Emergency Services

Drawing Title
Site Details

Date	Project No	Drawing No
2024_02_23	22030	A102
Drawn by JM/BB		
Scale As indicated		

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1 A200

Level 1 Fire Separation Plan

1 : 75

ELEVATION:

2 A200

Fire Extinguisher Cabinet Detail

1 : 20

FIRE PROTECTION LEGEND-GENERAL:

COLUMN WITH 1 HR. GWB ENCLOSURE:

2 LAYERS 13mm FR GWB (TYPE X GYPSUM WALLBOARD)
41mm METAL STUD FRAMING
PROTECTION FOUR SIDES ASSEMBLED TO PROVIDE F.R.R. OF 1 HR.
REFER TO OBC SUP. STANDARD SB-2, 2.6.5, ATTACHMENT OF GYPSUM WALLBOARD

COLUMN WITH 1 HR. INTUMESCENT COATING:

STEEL COLUMN WITH 1 HR. INTUMESCENT COATING IN ACCORDANCE WITH U.L.C.U.L DESIGN X650 REFER TO SPECIFICATIONS AND DRAWINGS

NOTE: INTUMESCENT COATING (IC). SHALL BE APPLIED TO COLUMNS FROM FINISHED GROUND FLOOR LEVEL FULL HEIGHT OF COLUMN TYPICAL UNLESS NOTED OTHERWISE ON THE DRAWINGS.

BEAM WITH 1 HR. GWB ENCLOSURE:

2 LAYERS 13mm FR GWB (TYPE X GYPSUM WALLBOARD) PROTECTION THREE SIDES ASSEMBLED TO PROVIDE F.R.R. OF 1 HR. ASSEMBLY TO BE CARRIED OUT IN ACCORDANCE WITH REQUIREMENTS OF U.L.C. DESIGN 0501, 0502, 0503 AND 0504. NOTE: THIS APPLIES TO ALL BEAM SIZES.

BEAM WITH 1 HR. SPRAY FIREPROOFING:

SPRAY FIREPROOFING TO PROVIDE A 1 HR. F.R.R. IN ACCORDANCE WITH ANSI/UL 263. DESIGN No. J957
REFER TO SPECIFICATIONS AND DRAWINGS.

NOTES:

1. FIRE PROTECTION ASSEMBLIES ARE TO BE CARRIED OUT IN STRICT ACCORDANCE WITH THE REQUIREMENTS OF U.L.C. OF CANADA. OBC SUPPLEMENTARY STANDARD SB-2, FIRE PERFORMANCE RATINGS AND SUPPLEMENTARY STANDARD SB-3, FIRE AND SOUND RESISTANCE OF BUILDING ASSEMBLIES. CONFORM TO THE REQUIREMENTS OF OBC 2006 AND AMENDMENTS.
2. ALL COLUMN FIRE PROTECTION TO BE CONTINUOUS & TO EXTEND FULL HEIGHT FROM FLOOR TIGHT TO U/S OF CONCRETE DECK OR STEEL FLOOR/ROOF DECK ABOVE. SEAL TO DECK WITH APPROVED FIRESTOPPING.
3. LOADBEARING WALLS, COLUMNS, ARCHES, BEAMS (SUPPORTING STRUCTURE) SHALL HAVE A FIRE RESISTANCE RATING NOT LESS THAN THAT REQUIRED FOR THE SUPPORTED ASSEMBLY ESTABLISHED IN SUBSECTION 3.2.2. IN THE O.B.C. THE SUPPORTING ASSEMBLIES ARE RATED ON DRAWINGS HAVE BEEN DETERMINED BASED ON THE ABOVE REQUIREMENTS. FIRE RESISTANCE RATINGS OF FIRE SEPARATIONS SHOWN ON THE DRAWINGS ARE NOT NECESSARILY THE SAME VALUE AS THE F.R.R. OF THE SUPPORTING MATERIALS.
4. ALL LOADBEARING STEEL COLUMNS ON FLOORS SUPPORTING A ROOF ARE TO BE PROTECTED FULL HEIGHT TO MATCH MINIMUM HORIZONTAL F.R.R. OF WALLS WHERE COLUMNS ARE LOCATED WITHIN WALLS CONSIDERED TO BE FIRE SEPARATIONS. ALL FREESTANDING COLUMNS SUPPORTING AN UNRATED ROOF ASSEMBLY ARE NOT REQUIRED TO BE FIRE RATED. FIREPROOFING IS NOT REQUIRED FOR STEEL ROOF STRUCTURE AS PERMITTED BY OBC CLAUSE 3.2.2.17., SPRINKLERS IN LIEU OF ROOF RATING.
5. ENCLOSE VERTICAL SERVICE SPACES AT THE TOP & BOTTOM WITH CONSTRUCTION HAVING A FIRE RESISTANCE RATING NOT LESS THAN THAT REQUIRED FOR THE VERTICAL SERVICE SPACE WALLS WITH SHAFT WALL ASSEMBLY (P8). REFER TO O.B.C 3.6.3.
6. WHERE A BUILD-UP OF MATERIALS IS USED TO PROVIDE A REQUIRED FIRE RESISTANCE RATING IN LIEU OF A U.L.C. DESIGN, SUCH BUILD-UPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH OBC SUPPLEMENTARY STANDARD SB-2, FIRE PERFORMANCE RATINGS.
7. NOTE: G.C. IS RESPONSIBLE FOR THE COORDINATION OF ALL BEAMS, COLUMNS & PENETRATIONS REQUIRED TO BE RATED, WHETHER DETAILED OR NOT, IN WALLS NO DESIGNATED BY FIRE SEPARATION DRAWINGS OR OTHERWISE NOTED.
8. NOTE: REFER ALSO TO FIRE SEPARATION DETAILS SHOWN ON DRAWING A201.

FIRE SEPARATION LEGEND

— — — — —	1 1/2 HR (FIRE SEPARATION)
- - - - - - - -	1 HR (FIRE SEPARATION)
X.Xm	TRAVEL DISTANCE (m)

A N.T.S.

TYPICAL DETAIL:
MASONRY WALL PARALLEL TO DECK

B N.T.S.

TYPICAL DETAIL:
MASONRY WALL PARALLEL TO OWSJ OR BEAM

C N.T.S.

TYPICAL DETAIL:
GWB PARTITION PARALLEL TO DECK

D N.T.S.

TYPICAL DETAIL:
GWB PARTITION PARALLEL TO OWSJ OR BEAM

E N.T.S.

TYPICAL DETAIL:
MASONRY WALL PERPENDICULAR TO DECK

F N.T.S.

TYPICAL DETAIL:
MASONRY WALL PERPENDICULAR TO STRUCTURE

G N.T.S.

TYPICAL DETAIL:
GWB PARTITION PERPENDICULAR TO DECK

H N.T.S.

TYPICAL DETAIL:
GWB PARTITION PERPENDICULAR TO STRUCTURE

I N.T.S.

TYPICAL DETAIL:
GWB PARTITION PARALLEL TO STRUCTURE

J N.T.S.

TYPICAL DETAIL:
GWB PARTITION PARALLEL (OFFSET) TO STRUCTURE

GENERAL NOTES:

1. - THESE DETAILS SHALL APPLY TO ALL WALLS THAT FORM ANY PART OF A RATED AND NON-RATED FIRE SEPARATION, AND ALL WALLS THAT REQUIRE ACOUSTIC PERFORMANCE. THESE DETAILS SHALL ALSO APPLY TO ALL OTHER WALLS THAT DO NOT FORM A REQUIRED FIRE SEPARATION OR ACOUSTIC PARTITION. IN THE INSTANCE WHERE WALLS NOT REQUIRED TO HAVE FIRE RATINGS OR ACOUSTIC PERFORMANCES ARE EXPOSED TO VIEW (IE. NO CEILINGS) PROVIDE ACOUSTIC SEALANT IN LIEU OF FIRE STOPPING. IN THE INSTANCE WHERE WALLS NOT REQUIRED TO HAVE FIRE RATINGS OR ACOUSTIC PERFORMANCES ARE CONCEALED (IE. ABOVE SUSPENDED CEILINGS) ACOUSTIC SEALANT CAN BE OMITTED.

2. - THESE ABOVE DETAILS SHALL ALSO APPLY TO CONDITIONS WHERE THE FLOOR STRUCTURE IS CONSTRICTED OF PRECAST AND/OR CAST-IN-PLACE CONCRETE. THE ABOVE DETAILS AND CONDITIONS ARE SIMILARLY APPLICABLE TO SEVERAL CONSTRUCTION TYPES, AND WALLS SHALL BE CONSTRUCTED TO MAINTAIN THE SAME LEVEL OF FIRE PROTECTION OR ACOUSTIC PERFORMANCE VALUE AS DETAILED AND REQUIRED BY THE OBC.

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3	Issued for Progress	2023_09_25
2	Design Development Approval	2023_08_25
1	Issued for 100% Design Development	2023-06-27

Orientation

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Project Information

Barrie Fire Station 6

845 Mapleview Drive East, Barrie Ontario

For

Barrie Fire and Emergency Services

Drawing Title

Fire Separation Plan & Details

Date	Project No	Drawing No
2024_02_23	22030	A200
Drawn by: Author		
Scale: As indicated		

BIM 360://22030 - Barrie Fire Station 6/22030 - Barrie Fire 6_R20.rvt
2024-02-27 10:15:16 AM

FLOOR PLAN GENERAL NOTES:

1. DIMENSIONS SHOWN ARE TAKEN TO FACE OF CMU, POURED CONCRETE OR METAL STUD UNLESS NOTED OTHERWISE.
2. ALL GWB OR CMU PARTITIONS TO EXTEND TIGHT TO U/S OF FLOOR OR ROOF DECKS UNLESS NOTED OTHERWISE.
3. REFER TO FIRE SEPARATION PLAN FOR LOCATIONS OF ALL RATED WALLS.
4. ALL INTERIOR ALUMINUM SCREENS SHALL HAVE GWB AND METAL STUD ASSEMBLIES FROM TOP OF SCREEN/DOOR FRAME TO UNDERSIDE OF ROOF DECKS UNLESS NOTED OTHERWISE. WHERE SCREENS OR DOORS BLOCK PARTS OF THE WALL ABOVE, THE WALL ABOVE SUCH SCREENS OR DOORS OCCUR WITHIN WALLS CONSTRUCTED AS FIRE SEPARATIONS, THE WALL ABOVE SUCH SCREENS OR DOORS SHALL BE CONSTRUCTED TO PROVIDE THE REQUIRED FIRE RESISTANCE RATING INDICATED.
5. WHERE FIRE RATED PARTITIONS ABUT NON-RATED PARTITIONS THE FIRE RATED PARTITIONS SHALL EXTEND BEYOND AND TIGHT AGAINST THE ABUTTING WALLS TO MAINTAIN A CONTINUOUS FIRE SEPARATION.
6. SEAL PERIMETER OF WALLS AND AROUND PENETRATIONS THROUGH WALLS WITH ACOUSTIC SEALANT WHERE SOUND ATTENUATION BATTS ARE CALLED FOR ON THE WALL TYPE SCHEDULE.
7. SEAL PERIMETER OF FIRE RATED WALLS AND AROUND PENETRATIONS THROUGH FIRE RATED WALLS WITH APPROVED FIRESTOPPING MATERIALS.
8. REFER TO STRUCTURAL DRAWINGS FOR LATERAL SUPPORT AT THE TOP OF CMU WALLS.
9. ON ALL EXPOSED CORNERS OF EXPOSED MASONRY WALLS PROVIDE BULLNOSE BLOCK UNLESS NOTED OTHERWISE.
10. REFER TO ELECTRICAL DRAWINGS FOR LOCATIONS OF PANELS, DOOR CONTROLS, SECURITY DEVICES, ETC... NOT SHOWN ON ARCHITECTURAL DRAWINGS.

1 A201 Level 1 Floor Plan
1 : 75

NOTE:
FOURFOLD DOORS TO BE PRICED SEPARATELY AS PART OF PROVISIONAL ITEM

No.	Revision	Date
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1	Issued for 100% Design Development	2023-06-27

Orientation

PROJECT NORTH

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Project Information
Barrie Fire Station 6

845 Mapleview Drive East, Barrie Ontario

For
Barrie Fire and Emergency Services

Drawing Title
Level 1 Floor Plan

Date	Project No	Drawing No
2024_02_23	22030	A201
Drawn by JM/BB		
Scale As indicated		

BIM 360://22030 - Barrie Fire Station 6/22030 - Barrie Fire 6_R20.rvt
2024-02-27 10:15:17 AM

1 A203 Roof Plan
1 : 75

2 A203 Crow's Nest Access (Platform)
1 : 50

3 A203 High Roof Crow's Nest
1 : 50

4 A203 Low Roof Crow's Nest
1 : 50

GENERAL ROOF NOTES:

1. ALL MECHANICAL ITEMS ON ROOF SUCH AS VENTS, EXHAUSTS, ROOF HOPPERS ETC. ARE TO BE CAREFULLY COORDINATED WITH THE MECHANICAL DRAWINGS & SPECIFICATIONS. PROVIDE FOR ANY ADDITIONAL MECHANICAL OR ELECTRICAL ITEMS NOT SPECIFICALLY INDICATED ON THIS ROOF PLAN.
2. REFER TO SPECIFICATIONS FOR ROOF ANCHORS AND RELATED REQUIREMENTS. FULLY COORDINATE ROOF ANCHOR LOCATIONS WITH STRUCTURAL DRAWINGS & ROOF ANCHOR SHOP DRAWINGS TO ENSURE PROPER PLACEMENT OF ALL ROOF ANCHORS. LAYOUT SHOWN IS PRELIMINARY ONLY. FINAL LAYOUT TO BE CONFIRMED WITH ROOF ANCHOR SUPPLIER.
3. ALL ROOF FLASHINGS ARE TO BE PREFINISHED AT ALL LOCATIONS THROUGH-OUT EXCEPT AS NOTED ON THE WALL SECTIONS & DETAILS.
4. ALL ROOF AREAS NOT INCLUDED IN GREEN ROOF TO BE FINISHED WITH TWO PLY MODIFIED BITUMEN ROOFING (WHITE) AS SPECIFIED.

→	INDICATES DIRECTION OF SLOPE FOR ALL SLOPED ROOF INSULATION (INCLUDING CRICKETS). UTILIZE THE MAXIMUM DISTANCE TO ROOF HOPPER & MAXIMUM PERCENTAGE SLOPE TO OBTAIN THE SLOPED ROOF INSULATION THICKNESS AT THE PARAPETS FOR THAT ROOF AREA.
+ ±100	INDICATES APPROXIMATE THICKNESS OF SLOPED ROOF INSULATION AT POINT INDICATED. ASSUME THICKNESS OF ±0 AT OPPOSITE SIDE OF ROOF. SLOPED ROOF INSULATION ROOF PLAN IS DIAGRAMMATIC ONLY & IS SUPPLIED ONLY TO ASSIST THE SLOPED INSULATION SUPPLIER IN "THEIR" DESIGN. NOTE: SLOPED ROOF INSULATION SUPPLIER TO PROVIDE MIN. TYP. 25mm THICK ROOF INSULATION ON TOP OF ALL ROOFS (BH) IN THEIR DESIGN. LAYOUT SHOWN ON THIS ROOF PLAN IS DIAGRAMMATIC ONLY & IS SUPPLIED ONLY TO ASSIST THE SLOPED INSULATION SUPPLIER IN "THEIR" DESIGN.
ROOF SLOPE	INDICATES DIRECTION OF SLOPE IN ROOF STRUCTURE. FULLY COORDINATE WITH STRUCTURAL DRAWINGS
X.XX	TOP OF STRUCTURE ELEVATION (PRECAST OR STEEL) TAKEN ABOVE LEVEL 1 ELEVATION OF 0.00 UNLESS NOTED OTHERWISE
RHD	ROOF DRAIN WITH OVERFLOW AS PER MECH. DWGs, TOP OF PIPE TO BE MAX. 150mm ABOVE ROOF LOW POINT
RH	TYPICAL ROOF HOPPER AS PER MECH. DWGs C/W SUMP
RA	APPROXIMATE ROOF ANCHOR LOCATION.

NOTE:
REFER TO ELECTRICAL DWGs
PROVISIONAL FOR THE SOLAR
MODULES MOUNTED TO ROOF

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PROJECT NORTH

Seal

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Project Information
Barrie Fire Station 6

845 Mapleview Drive East, Barrie Ontario

For
Barrie Fire and Emergency Services

Drawing Title
Roof Plan

Date	Project No	Drawing No
2024_02_23	22030	A203
Drawn by JM/BB		
Scale As indicated		

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2024-02-27 10:15:22 AM

7 A204 Apparatus Bay
1 : 50

8 A204 Kitchen and Day Room
1 : 50

1 A204 Captains Pod
1 : 50

6 A204 Apparatus Bay Support Spaces
1 : 50

3 A204 Turnout
1 : 50

4 A204 Typ. Bed Frame Plan
1 : 25

NOTE:

1. FOURFOLD DOORS TO BE PRICED SEPARATELY AS PART OF PROVISIONAL ITEM
2. ALL T.V TO BE PROVIDED AND INSTALLED BY OWNER. DINING TABLE, DINING CHAIRS, AND RECLINERS TO BE PROVIDED BY THE OWNER.
3. APPLIANCES AND LAUNDRY MACHINES SHALL BE PROVIDED BY THE OWNER AND G.C TO INSTALL.
4. TOILET PAPER, PAPER TOWEL, HAND SOAP OR SHAMPOO DISPENSERS ARE SHOWN FOR BLOCKING (BY G.C) & MOUNTING HEIGHT REQUIREMENTS. THESE ITEM SHALL BE PROVIDED BY THE OWNER AND G.C TO INSTALL.

No.	Revision	Date
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Project Information
Barrie Fire Station 6

845 Mapleview Drive East, Barrie Ontario

For
Barrie Fire and Emergency Services

Drawing Title
Enlarged Plan

Date	Project No	Drawing No
2024_02_23	22030	A204
Drawn by JM/BB		
Scale As indicated		

BIM 360://22030 - Barrie Fire Station 6/22030 - Barrie Fire 6_R20.rvt
2024-02-27 10:15:27 AM

1 A205 Training Room
1 : 50

2 A205 Pod Rooms
1 : 50

3 A205 Enlarged Washrooms
1 : 25

4 A205 Enlarged Pod Wrms
1 : 25

5 A205 BF Grab Bar Detail
1 : 20

6 A205 Typ. Mounting Heights
1 : 20

7 A205 Floor to Wall Transition - CT
1 : 5

IN THE EVENT OF AN EMERGENCY PUSH EMERGENCY BUTTON AND AUDIBLE AND VISUAL SIGNAL WILL ACTIVATE

WALL SIGN GENERAL NOTES:

1. ALL TEXT SHALL BE TIRESIAS SIGN FONT, CENTERED VERTICALLY AND HORIZONTALLY ON SIGN
2. ALL TEXT SHALL BE 'RED' IN COLOUR AND 25mm HIGH.
3. SIGN BODY SHALL BE WHITE RIGID PVC OR ACRYLIC AND ADHERED TO WALL WITH DOUBLE SIDED TAPE AND SILICONE ADHESIVE.
4. SIGN SHALL BE DESIGNED AND MOUNTED IN ACCORDANCE WITH O.B.C. 3.8.3.12.(2)b

8 A205 Emergency Signage
N.T.S.

11 A205 Desk Unit
1 : 20

10 A205 BF Shower Curb / Linear Drain
1 : 5

NOTES:
1. ENSURE THAT SEAT IN 'UP' POSITION WILL NOT CONFLICT WITH GRAB BARS
2. 38mm DIA STAINLESS STEEL GRAB BAR MOUNTED WITH 50mm CLEARANCE & IN CONFORMANCE WITH O.B.C. 3.8.3.13. VERIFY ALL HEIGHTS W/ CONSULTANT PRIOR TO MOUNTING.
3. REFER TO FLOOR PLANS FOR ALL SIMILAR CONDITIONS

9 A205 BF Shower Equipment
1 : 20

NOTE:
ALL T.V TO BE PROVIDED AND INSTALLED BY OWNER. DINING TABLE, DINING CHAIRS, AND RECLINERS TO BE PROVIDED BY THE OWNER.

NOTE:
APPLIANCES AND LAUNDRY MACHINES SHALL BE PROVIDED BY THE OWNER AND G.C TO INSTALL.

NOTE:
TOILET PAPER, PAPER TOWEL, HAND SOAP OR SHAMPOO DISPENSERS ARE SHOWN FOR BLOCKING (BY G.C) & MOUNTING HEIGHT REQUIREMENTS. THESE ITEM SHALL BE PROVIDED BY THE OWNER AND G.C TO INSTALL.

No.	Revision	Date
5	Issued for Tender	2024_02_23
4	Issued for 100% Contract Documents	2023_11_24
3	Issued for 95% Contract Documents	2023_11_10
2	Issuri For Building Permit	2023_11_07
1	Issued For Site Plan Re-Submission	2023_11_07

Orientation

Seal

ONTARIO ASSOCIATION OF ARCHITECTS
GERRY P. PILON
LICENCE
5042

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Project Information
Barrie Fire Station 6

845 Mapleview Drive East, Barrie Ontario

For
Barrie Fire and Emergency Services

Drawing Title
Enlarged Plans

Date	Project No	Drawing No
2024_02_23	22030	A205
Drawn by: Author		
Scale: As indicated		

BIM 360://22030 - Barrie Fire Station 6/22030 - Barrie Fire 6_R20.rvt
2024-02-27 10:15:31 AM

1 A210 1 : 10

2 A210 1 : 10

3 A210 1 : 10

4 A210 1 : 10

5 A210 1 : 10

6 A210 1 : 10

7 A210 1 : 10

8 A210 1 : 10

9 A210 1 : 10

10 A210 1 : 10

12 A210 Flexible AVB at CW Jamb

1 : 10

13 A210 Flexible AVB at Door Jamb

1 : 10

11 A210 1 : 10

14 A210 1 : 10

15 A210 1 : 10

16 A210 1 : 10

17 A210 1 : 10

No.	Revision	Date
7	Issued for Tender	2024_02_23
6	Issued for 100% Contract Documents	2023_11_24
5	Issued for 95% Contract Documents	2023_11_10
4	Issued For Building Permit	2023_11_07
3	Issued For Site Plan Re-Submission	2023_11_07
2	Issued for 75% Contract Documents	2023_10_13
1	Issued for Progress	2023_09_25

Orientation

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Project Information
Barrie Fire Station 6

845 Mapleview Drive East, Barrie Ontario

For
Barrie Fire and Emergency Services

Drawing Title
Plan Details

Date	Project No	Drawing No
2024_02_23	22030	A210
Drawn by: Author		
Scale: 1 : 10		

BIM 360://22030 - Barrie Fire Station 6/22030 - Barrie Fire 6_R20.rvt
2024-02-27 10:15:32 AM

1 A301 North Elevation
1 : 125

2 A301 South Elevation
1 : 125

3 A301 West Elevation
1 : 125

4 A301 East Elevation
1 : 125

EXTERIOR ELEVATIONS KEY PLAN. N.T.S.

EXTERIOR ELEVATION GENERAL NOTES:

1. FOUNDATION WALL AND FOOTINGS ARE PER THE STRUCTURAL DRAWINGS. REFER TO STRUCTURAL DRAWINGS FOR THE REQUIRED DEPTHS, SIZES, REINFORCING, ETC.
2. LOCATIONS OF ALL MECHANICAL AND ELECTRICAL ITEMS MUST BE CO-ORDINATED WITH THE MECHANICAL AND ELECTRICAL DRAWINGS (ie. HOSEBIBB, GRILLES, LIGHTS, ETC.) ON SITE WITH ALL TRADES INVOLVED IN THE WORK.

NOTE:

FOURFOLD DOORS TO BE PRICED SEPARATELY AS PART OF PROVISIONAL ITEM

7 A301 Signage - North Wall
1 : 25

5 A301 1 : 25

8 A301 1 : 5

No.	Revision	Date
10	Issued for Tender	2024_02_23
9	Issued for 100% Contract Documents	2023_11_24
8	Issued for 95% Contract Documents	2023_11_10
7	Issued For Building Permit	2023_11_07
6	Issued For Site Plan Re-Submission	2023_11_07
5	Issued for 75% Contract Documents	2023_10_13
4	Issued for Progress	2023_09_25
3	Design Development Approval	2023_08_25
2	Issued for Site Plan Application	2023-08-01
1	Issued for 100% Design Development	2023-06-27

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Project Information
Barrie Fire Station 6

845 Mapleview Drive East, Barrie Ontario

For
Barrie Fire and Emergency Services

Drawing Title
Elevation

Date	Project No	Drawing No
2024_02_23	22030	A301
Drawn by JM/BB		
Scale As indicated		

BIM 360://22030 - Barrie Fire Station 6/22030 - Barrie Fire 6_R20.rvt
2024-02-27 10:15:40 AM

4 A303

CW1 - ALUM

1 : 50

7 A303

CW2 - ALUM

1 : 50

5 A303

CW3 - ALUM

1 : 50

3 A303

CW4 - ALUM

1 : 50

6 A303

CW6 - ALUM

1 : 50

2 A303

CW7 - ALUM

1 : 50

DOORS & FRAMES GENERAL NOTES:

1. FOR DOOR & FRAME TYPES REFER TO SCHEDULES.
2. FOR TYPICAL CONSTRUCTION DETAILS FOR DOORS REFER TO DRAWINGS.
3. ALL HM FRAMES SET IN MASONRY TO BE FILLED SOLID WITH MORTAR UNLESS NOTED OTHERWISE.
4. ALL EXTERIOR DOORS & FRAMES TO BE FILLED WITH INSULATION AS SPECIFIED.
5. FOR GLASS TYPES REFER TO GLAZING SCHEDULE.
6. DOOR & GLASS PROFILES & SIZES ARE SHOWN DIAGRAMMATIC ONLY. ACTUAL SIZES TO COMPLY WITH THE MAXIMUM LIMITS AS PERMITTED UNDER THE O.B.C. FOR INDIVIDUAL DOOR REQUIREMENTS.
7. FOR METAL STUD SIZES AND GYPSUM BOARD THICKNESSES, REFER TO WALL TYPES LEGEND AND DETAIL DRAWINGS.
8. FOR DOORS AND SCREENS WITH FULL HEIGHT GLAZING (NO HORIZONTAL MULLIONS) PROVIDE A 50mm WIDE OPAQUE FILM FOR THE WIDTH OF THE GLAZING MOUNTED HORIZONTALLY AT 1350mm - 1500mm ABOVE FLOOR LEVEL PER O.B.C. 3.8.3.3.(15).

GENERAL NOTES:

1. FULLY SITE MEASURE & SITE VERIFY ALL OPENING DIMENSIONS BEFORE FABRICATION OF ANY UNITS. GC TO COORDINATE FRAME SIZES SHOWN WITH TOLERANCES AND CLEARANCES FOR ROUGH OPENINGS AS SPECIFIED BY THE MANUFACTURER.
2. SECURELY FASTEN THE HEADS OF ALL SCREENS TO THE STRUCTURE PROVIDED.
3. REFER TO FLOOR PLANS & ELEVATIONS FOR ALL LOCATIONS & QUANTITIES.
4. AT ALL IMR & IME LOCATIONS PROVIDE FOR DEFLECTION IN CONNECTION DETAIL.
5. REFER TO SPECIFICATION SECTION 08 44 00 - ALUMINUM WORK, FOR MULLION, EXTRUSION, DOOR, PANEL AND SHEET FINISHES.
6. REFER TO 'SCREEN WALL - SIMILAR TYPE SCHEDULE' FOR SIZES OF SIMILAR SCREEN WALL ASSEMBLIES THAT ARE NOT SPECIFICALLY DEPICTED IN ELEVATION VIEW.
7. REFER TO 'SCREEN WALL - FIRE SEP SCHEDULE' & 'A201 - FIRE SEPARATION KEY PLANS, LEGENDS & DETAILS' FOR REQUIRED FIRE SEPARATION RATINGS FOR THE GLAZED WALL ASSEMBLIES LOCATED WITHIN A FIRE SEPARATION
8. GLAZED WALL ASSEMBLIES LOCATED IN FIRE SEPARATIONS ARE TO BE PROVIDED WITH SPRINKLER PROTECTION (BY OTHERS) FOR THE FULL DURATION OF THE REQUIRED F.R.R.

ABBREVIATIONS:

AB	- ALUMINUM BASE
AC	- ALUMINUM CAP
AP	- ALUMINUM PANEL
AR	- ALUMINUM RAIL
AS	- ALUMINUM SILL
ACP	- ALUMINUM CORNER PANEL
ASP	- ALUMINUM SPANDREL PANEL
DO	- DOOR OPERATOR
DA	- DOOR ADAPTOR
HMB	- HOLLOW METAL BASE
HMP	- HOLLOW METAL PANEL
IME	- INTERNAL MULLION EXTENSION
IMR	- INTERNAL MULLION REINFORCING
OV	- OPENING VENT C/W INSECT SCREEN
RCM	- REMOVABLE CENTER MULLION
RO	- ROUGH OPENING
SSG	- STRUCTURAL SILICONE GLAZING
T	- TRANSITION THRESHOLD/SILL/SHOULD
VS	- VISUAL IMPEDIMENT STRIP

REFER TO SPECIFICATION SECTION 08 80 00 - GLAZING FOR GL TYPES.

GLAZING TYPE LEGEND:

GL-1 (TYPICAL INSULATED EXTERIOR)
6mm CLEAR TEMPERED EXTERIOR LITE,
LOW-E COATING ON SURFACE #2,
4mm CLEAR TEMPERED,
ARGON FILLED AIR SPACE,
6mm CLEAR TEMPERED INTERIOR LIGHT,
25mm OVERALL THICKNESS.

GL-2 (TYPICAL AT ENTRANCE DOORS)
6mm CLEAR TEMPERED EXTERIOR LITE,
LOW-E COATING ON SURFACE #2,
ARGON FILLED AIR SPACE,
7mm CLEAR LAMINATED SAFETY GLASS INTERIOR LITE,
35mm OVERALL THICKNESS.

Door & Frame Schedules

Door Schedule						Frame Schedule				Frame Schedule	
NUMBER	TYPE	SIZE (WxHxT)	MATERIAL	FINISH	GLAZING	FRR	PROFILE	FINISH	MATERIAL	FRR	HDWE	REMARKS
001A	A	950 x 2150 x 57	AL	FF	GL-2	-	1	FF	AL	-		LOCKSET, EPR, EDS, EDC, T, W
001B	C	950 x 2150 x 45	HM	PT	-		3	PT	HM			Passage
003	B	950 x 2150 x 45	HM	PT	-		3	PT	HM			
005	A	950 x 2150 x 57	AL	FF	GL-2	-	1	FF	AL	-		LOCKSET, EPR, EDS, EDC, T, W
006	B	950 x 2150 x 45	HM	PT	-		3	PT	HM			Passage
008	A	950 x 2150 x 57	AL	FF	GL-2	-	1	FF	AL	-		LOCKSET, EPR, EDS, EDC, T, W
009	B	950 x 2150 x 45	HM	PT	-		3	PT	HM			Passage
010	B	950 x 2150 x 45	HM	PT	-	45	3	PT	HM	45		LOCKSET, OHC
011	B	950 x 2150 x 45	HM	PT	-		3	PT	HM			PRIVACY, Rubber Door Sweeps
012	B	950 x 2150 x 45	HM	PT	-	45	3	PT	HM	45		LOCKSET, OHC
013	B	950 x 2150 x 45	HM	PT	-		3	PT	HM			PRIVACY, Rubber Door Sweeps
014	B	950 x 2150 x 45	HM	PT	-	45	3	PT	HM	45		LOCKSET, OHC
014B	B	950 x 2150 x 45	HM	PT	-		3	PT	HM			LOCKSET, EDC, T, W
015	B	950 x 2150 x 45	HM	PT	-		3	PT	HM			PRIVACY, Rubber Door Sweeps
016	B	950 x 2150 x 45	HM	PT	-	45	3	PT	HM	45		LOCKSET, OHC
017	B	950 x 2150 x 45	HM	PT	-		3	PT	HM			PRIVACY, Rubber Door Sweeps
018	B	950 x 2150 x 45	HM	PT	-	45	3	PT	HM	45		LOCKSET, OHC
019	B	950 x 2150 x 45	HM	PT	-		3	PT	HM			PRIVACY, Rubber Door Sweeps
021	B	950 x 2150 x 45	HM	PT	-		3	PT	HM			PASSAGE
022	B	950 x 2150 x 45	HM	PT	-	45	3	PT	HM	45		LOCKSET, OHC, EPR, EDS, EDC
023	B	950 x 2150 x 45	HM	PT	-	45	3	PT	HM	45		LOCKSET, OHC, EPR, EDS, EDC
024	B	950 x 2150 x 45	HM	PT	-	45	3	PT	HM	45		LOCKSET, OHC, EPR, EDS, EDC
025	B	950 x 2150 x 45	HM	PT	-	45	3	PT	HM	45		LOCKSET, OHC, EPR, EDS, EDC
026	B	950 x 2150 x 45	HM	PT	-	45	3	PT	HM	45		LOCKSET, OHC, EPR, EDS, EDC
027A	B	950 x 2150 x 45	HM	PT	-	60	3	PT	HM	60		PASSAGE, ED, OHC
027B	B	950 x 2150 x 45	HM	PT	-	60	3	PT	HM	60		PASSAGE, ED, OHC
027C	B	950 x 2150 x 45	HM	PT	-		2	PT	HM			LOCKSET, EPR, EDS, EDC, T, W
027D	B	950 x 2150 x 45	HM	PT	-		2	PT	HM			LOCKSET, EPR, EDS, EDC, T, W
028	B	2000 x 2150 x 45	HM	PT	-		3	PT	HM			PASSAGE
030	B	2000 x 2150 x 45	HM	PT	-		3	PT	HM			PASSAGE
031	B	950 x 2150 x 45	HM	PT	-		3	PT	HM			PASSAGE
032	B	2000 x 2150 x 45	HM	PT	-		3	PT	HM			PASSAGE
OH-1		4270 x 4270 x 35				-				-		HIGH SPEED OVERHEAD DOOR AS SPECIFIED
OH-2		4270 x 4270 x 35				-				-		HIGH SPEED OVERHEAD DOOR AS SPECIFIED
OH-3		4270 x 4270 x 35				-				-		FOURFOLD FIRE STATION DOOR AS SPECIFIED
OH-4		4270 x 4270 x 35				-				-		FOURFOLD FIRE STATION DOOR AS SPECIFIED

DOOR PANEL TYPES:

A ALUMINUM THERMALLY BROKEN

B HOLLOW METAL

C HOLLOW METAL

FRAME PROFILES:

1 ALUMINUM FRAME, THERMALLY BROKEN

2 HOLLOW METAL FRAME, THERMALLY BROKEN

3 HOLLOW METAL FRAME, CMU - BUTT RATED OR NON-RATED

No.	Revision	Date
8	Issued for Tender	2024_02_23
7	Issued for 100% Contract Documents	2023_11_24
6	Issued for 95% Contract Documents	2023_11_10
5	Issurd For Building Permit	2023_11_07
4	Issued For Site Plan Re-Submission	2023_11_07
3	Issued for 75% Contract Documents	2023_10_13
2	Issued for Progress	2023_09_25
1	Issued for 100% Design Development	2023-08-27

Orientation

Seal

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GERRY P. PILON
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Project Information

Barrie Fire Station 6

845 Mapleview Drive East, Barrie Ontario

For

Barrie Fire and Emergency Services

Drawing Title

Curtain Wall Elevations / Door & Frame Schedules

Date	Project No	Drawing No
2024_02_23	22030	A303
Drawn by: Author		
Scale: As indicated		

BIM 360://22030 - Barrie Fire Station 6/22030 - Barrie Fire 6_R20.rvt
2024-02-27 10:15:41 AM

1 A401 Building Section 1
1 : 100

2 A401 Building Section 2
1 : 100

3 A401 Building Section 3
1 : 100

4 A401 Building Section 4
1 : 100

No.	Revision	Date
9	Issued for Tender	2024_02_23
8	Issued for 100% Contract Documents	2023_11_24
7	Issued for 95% Contract Documents	2023_11_10
6	Issurd For Buiulding Permit	2023_11_07
5	Issued For Site Plan Re-Submission	2023_11_07
4	Issued for 75% Contract Documents	2023_10_13
3	Issued for Progress	2023_09_25
2	Design Development Approval	2023_08_25
1	Issued for 100% Design Development	2023-06-27

Orientation

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Project Information

Barrie Fire Station 6

845 Mapleview Drive East, Barrie Ontario

For

Barrie Fire and Emergency Services

Drawing Title

Sections

Date	Project No	Drawing No
2024_02_23	22030	A401
Drawn by: Author		
Scale: 1 : 100		

BIM 360://22030 - Barrie Fire Station 6/22030 - Barrie Fire 6_R20.rvt
2024-02-27 10:15:46 AM

No.	Revision	Date
9	Issued for Tender	2024_02_23
8	Issued for 100% Contract Documents	2023_11_24
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6	Issued For Building Permit	2023_11_07
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1	Issued for 100% Design Development	2023-06-27

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Project Information

Barrie Fire Station 6

845 Mapleview Drive East, Barrie Ontario

For

Barrie Fire and Emergency Services

Drawing Title

Wall Sections

Date	Project No	Drawing No
2024_02_23	22030	A403
Drawn by: Author		
Scale: As indicated		

BIM 360://22030 - Barrie Fire Station 6/22030 - Barrie Fire 6_R20.rvt
2024-02-27 10:15:50 AM

4 A404 1 : 10

5 A404 1 : 10

8 A404 1 : 10

6 A404 1 : 10

1 A404 1 : 25

2 A404 1 : 25

3 A404 1 : 25

7 A404 1 : 25

No.	Revision	Date
8	Issued for Tender	2024_02_23
7	Issued for 100% Contract Documents	2023_11_24
6	Issued for 95% Contract Documents	2023_11_10
5	Issuz For Building Permit	2023_11_07
4	Issued For Site Plan Re-Submission	2023_11_07
3	Issued for 75% Contract Documents	2023_10_13
2	Issued for Progress	2023_09_25
1	Design Development Approval	2023_08_25

Orientation

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Project Information

Barrie Fire Station 6

845 Mapleview Drive East, Barrie Ontario

For

Barrie Fire and Emergency Services

Drawing Title

Wall Sections

Date	2024_02_23	Project No	Drawing No
Drawn by	Author	22030	A404
Scale	As indicated		

BIM 360://22030 - Barrie Fire Station 6/22030 - Barrie Fire 6_R20.rvt
2024-02-27 10:15:52 AM

No.	Revision	Date
6	Issued for Tender	2024_02_23
5	Issued for 100% Contract Documents	2023_11_24
4	Issued for 95% Contract Documents	2023_11_10
3	Issud For Buiulding Permit	2023_11_07
2	Issued For Site Plan Re-Submission	2023_11_07
1	Issued for 75% Contract Documents	2023_10_13

Orientation

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Project Information
Barrie Fire Station 6

845 Mapleview Drive East, Barrie Ontario

For
Barrie Fire and Emergency Services

Drawing Title
Wall Sections

Date	Project No	Drawing No
2024_02_23	22030	A405
Drawn by: Author		
Scale: As indicated		

BIM 360://22030 - Barrie Fire Station 6/22030 - Barrie Fire 6_R20.rvt
2024-02-27 10:15:55 AM

3
A406
1 : 25

1
A406
1 : 25

2
A406
1 : 10

7
A406
1 : 10

6
A406
1 : 10

8
A406
1 : 10

5
A406
1 : 10

No.	Revision	Date
6	Issued for Tender	2024_02_23
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salterpilon.com t: 705.737.3530

Project Information
Barrie Fire Station 6

845 Mapleview Drive East, Barrie Ontario

For
Barrie Fire and Emergency Services

Drawing Title
Wall Sections

Date	Project No	Drawing No
2024_02_23	22030	A406
Drawn by: Author		
Scale: As indicated		

BIM 360://22030 - Barrie Fire Station 6/22030 - Barrie Fire 6_R20.rvt
2024-02-27 10:15:58 AM

1
A600

Level 1 Floor Finishes Plan

1 : 75

Room Finish Schedule

ROOM NO.	ROOM NAME	FLOOR MATERIAL	FLOOR FINISH	BASE MATERIAL	WALLS NORTH WALL MATERIAL	NORTH WALL FINISH	EAST WALL MATERIAL	EAST WALL FINISH	SOUTH WALL MATERIAL	SOUTH WALL FINISH	WEST WALL MATERIAL	WEST WALL FINISH	CEILINGS MATERIAL	CEILINGS FINISH	REMARKS
001	VEST	CT-1	Tile Floor	CT-1	BLK	PT-1	BLK	PT-1	BLK	PT-1	BLK	PT-1	ACT-1		
002	Corridor	LINO-1	Linoleum	LINO-1	BLK	PT-1	BLK	PT-1	BLK	PT-1	BLK	PT-1	ACT-1		Flooring CW integrated LINO-1 cove base
003	Univ. Wrm	CT-1	Tile Floor	CT-1	BLK	PT-1	BLK	PT-1	BLK	CT-5	BLK	PT-1	GW		
004	Kitchen	LINO-1	Linoleum	LINO-1	BLK	CT-7 / PT-1	BLK	CT-7 / PT-1	BLK	PT-2	BLK	PT-1	ACT-1		Flooring CW integrated LINO-1 cove base
005	Dining	LINO-1	Linoleum	LINO-1	BLK	CT-7 / PT-1	BLK	PT-1	BLK	PT-2	BLK	PT-1	ACT-1		Flooring CW integrated LINO-1 cove base
006	Day Room	LINO-1	Linoleum	LINO-1	BLK	PT-2	BLK	PT-1	BLK	PT-1	BLK	PT-1	ACT-1		Flooring CW integrated LINO-1 cove base
007	Turnout	LINO-1	Linoleum	LINO-1	BLK	PT-1	BLK	PT-1	BLK	PT-1	BLK	CT-7 / PT-1	ACT-1		Flooring CW integrated LINO-1 cove base
008	Corridor	LINO-1	Linoleum	LINO-1	BLK	PT-1	BLK	PT-1	BLK	PT-2	BLK	PT-1	ACT-1		Flooring CW integrated LINO-1 cove base
009	Training	RSF-1	Resilient Sports Flooring	RB-1	BLK	PT-1 / MG-1	BLK	PT-1	BLK	PT-3	BLK	PT-1	ACT-1		
010	Captain	LINO-1	Linoleum	LINO-1	BLK	PT-1	BLK	PT-1	BLK	PT-3	BLK	PT-1	ACT-1		Flooring CW integrated LINO-1 cove base
011	Wrm	CT1/CT2	Tile Floor	CT-4/CT-6	BLK	CT-5/ CT-3	BLK	CT-3	BLK	CT-3	BLK	CT-3	GWBc/CT-3		TILE CEILING IN SHOWER AREAS
012	Crew	LINO-1	Linoleum	LINO-1	BLK	PT-1	BLK	PT-1	BLK	PT-3	BLK	PT-1	ACT		Flooring CW integrated LINO-1 cove base
013	Wrm	CT1/CT2	Tile Floor	CT-4 / CT-6	BLK	CT-3	BLK	CT-5/ CT-3	BLK	CT-3	BLK	CT-3	GWBc/CT-3		TILE CEILING IN SHOWER AREAS
014	Crew	LINO-1	Linoleum	LINO-1	BLK	PT	BLK	PT	BLK	PT	BLK	PT	ACT		Flooring CW integrated LINO-1 cove base
015	Wrm	CT1/CT2	Tile Floor	CT-4/CT-6	BLK	CT-3	BLK	CT-3	BLK	CT-3	BLK	CT-5	GWBc/CT-3		TILE CEILING IN SHOWER AREAS
016	Crew	LINO-1	Linoleum	LINO-1	BLK	PT-1	BLK	PT-1	BLK	PT-3	BLK	PT-1	ACT-1		Flooring CW integrated LINO-1 cove base
017	Wrm	CT-1/CT-2	Tile Floor	CT-4 / CT-6	BLK	CT-3	BLK	CT-5/ CT-3	BLK	CT-3	BLK	CT-3	GWBc/CT-3		TILE CEILING IN SHOWER AREAS
018	Crew	LINO-1	Linoleum	LINO-1	BLK	PT-1	BLK	PT-1	BLK	PT-3	BLK	PT-1	ACT-1		Flooring CW integrated LINO-1 cove base
019	Wrm	CT1/CT2	Tile Floor	CT-4 / CT-6	BLK	CT-3	BLK	CT-3	BLK	CT-3	BLK	CT-5/ CT-5	GWBc/CT-3		TILE CEILING IN SHOWER AREAS
020	Corridor	LINO-1	Linoleum	LINO-1	BLK	PT	BLK	PT	BLK	PT	BLK	PT	ACT		Flooring CW integrated LINO-1 cove base
021	Laundry	CT-1	Tile Floor	CT-1	BLK	PT-1	BLK	PT-1	BLK	PT-1	BLK	CT-7 / PT-1	ACT-1		
022	Janitor	CT-1	Tile Floor	CT-1	BLK	PT-1	BLK	PT-1	BLK	PT-1	BLK	PT-1	ACT-1		
023	Storage	CONC-P	Polished Concrete	RB-1	BLK	PT-1	BLK	PT-1	BLK	PT-1	BLK	PT-1	ACT-1		
024	IT, AV & FSA Service Space	SDT-1	Static Dissipative Tile	RB-1	BLK	PT-1	BLK	PT-1	BLK	PT-1	BLK	PT-1	ACT-1		
025	Electrical	CONC-P	Polished Concrete	RB-1	BLK	PT-1	BLK	PT-1	BLK	PT-1	BLK	PT-1	ACT-1		
026	Mechanical	CONC-P	Polished Concrete	RB-1	BLK	PT-1	BLK	PT-1	BLK	PT-1	BLK	PT-1	ACT-1		
027	Apparatus Bay	CONC-S	Sealed Concrete		BLK	PT-1	BLK	PT-1	BLK	PT-1	BLK	PT-1	ACT		
028	Tool and Material Stor.	CONC-S	Sealed Concrete	RB-1	BLK	PT-1	BLK	PT-1	BLK	PT-1	BLK	PT-1	ACT		
029	Room	CONC-S	Sealed Concrete												
030	Compressor	CONC-S	Sealed Concrete	RB-1	BLK	PT-1	BLK	PT-1	BLK	PT-1	BLK	PT-1	ACT		
031	Extractor	CONC-S	Sealed Concrete	RB-1	BLK	PT	BLK	PT-1	BLK	PT-1	BLK	PT-1	ACT		
032	Bunker Gear	CONC-S	Sealed Concrete	RB-1	BLK	PT-1	BLK	PT-1	BLK	PT-1	BLK	PT-1	ACT		
037	WASTE COLLECTION POINT ENCLOSURE														

FLOORING LEGEND:

- LINO-1
- CT-1
- CT-2
- SDT-1
- CONC-P
- RSF-1
- CONC-S

FLOORING NOTES:

1. FLOORING FINISHES ARE SHOWN FOR GRAPHICAL PURPOSES ONLY. FLOORING TO BE CENTERED WITHIN THE SPACE (HORIZONTAL AND VERTICAL DIRECTION) UNLESS NOTED OTHERWISE.
2. FLOOR DRAINS HAVE NOT BEEN SHOWN ON THE FLOOR FINISH PLANS. REFER TO OVERALL AND ENLARGED PLANS FOR LOCATIONS.
3. FLOORING TRANSITIONS TO BE CENTERED ON ADJACENT DOOR FRAMES OR WALL OPENINGS UNLESS SHOWN OTHERWISE.
4. **NOTE: IF FLOORING HATCH IS NOT SHOWING ON PRINTED SHEETS PLEASE REFER TO FLOOR FINISH TAG AND ROOM FINISH SCHEDULE FOR FINISH.**

No.	Revision	Date
9	Issued for Tender	2024_02_23
8	Issued for 100% Contract Documents	2023_11_24
7	Issued for 95% Contract Documents	2023_11_10
6	Issued For Building Permit	2023_11_07
5	Issued For Site Plan Re-Submission	2023_11_07
4	Issued for 75% Contract Documents	2023_10_13
3	Issued for Progress	2023_09_25
2	Design Development Approval	2023_08_25
1	Issued for 100% Design Development	2023-06-27

Orientation

Seal

ONTARIO ASSOCIATION OF ARCHITECTS
GERRY P. PILON
LICENCE
5042

All dimensions to be checked and verified on the job by the Contractor. Any discrepancies are to be reported to the Consultant prior to action. Only the latest approved drawings to be used for construction in conformance with all applicable codes, by-laws and regulations. All drawings remain the property of the Consultant.

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Project Information

Barrie Fire Station 6

845 Mapleview Drive East, Barrie Ontario

For

Barrie Fire and Emergency Services

Drawing Title

Finishes Plan and Schedule

Date	Project No	Drawing No
2024_02_23	22030	A600
Drawn by: Author		
Scale: As indicated		

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2024-02-27 10:16:02 AM

1 A601 **Universal WR - East**
1 : 50

2 A601 **Universal WR - South**
1 : 50

3 A601 **Captains WR - North**
1 : 50

4 A601 **Captains WR - East**
1 : 50

5 A601 **Captains WR - South**
1 : 50

6 A601 **Captains WR - West**
1 : 50

7 A601 **Crew WR - East**
1 : 50

8 A601 **Crew WR - North**
1 : 50

9 A601 **Crew Wr - South**
1 : 50

10 A601 **Crew WR - West**
1 : 50

11 A601 **Laundry Room - West**
1 : 50

12 A601 **Janitor Room**
1 : 50

13 A601 **Captains Room - East**
1 : 50

14 A601 **Captains Room - South**
1 : 50

15 A601 **Captains Room - West**
1 : 50

16 A601 **Pod Room - Lockers**
1 : 50

17 A601 **Pod Rooms - Beds**
1 : 50

18 A601 **Training Room - North**
1 : 50

19 A601 **Turnout Room - North**
1 : 50

20 A601 **Turnout Room - West**
1 : 50

21 A601 **Corridor 002 - East**
1 : 50

22 A601 **Day Room - North**
1 : 50

23 A601 **Kitchen - East**
1 : 50

24 A601 **Kitchen - North**
1 : 50

25 A601 **Kitchen - South**
1 : 50

26 A601 **Kitchen - West**
1 : 50

27 A601 **Kitchen Island**
1 : 50

28 A601 **Kitchen Island**
1 : 50

29 A601 **Kitchen Island**
1 : 50

30 A601 **Kitchen Island**
1 : 50

NOTE:
ALL T.V TO BE PROVIDED AND INSTALLED BY OWNER. DINING TABLE, DINING CHAIRS, AND RECLINERS TO BE PROVIDED BY THE OWNER.

NOTE:
APPLIANCES AND LAUNDRY MACHINES SHALL BE PROVIDED BY THE OWNER AND G.C TO INSTALL.

NOTE:
TOILET PAPER, PAPER TOWEL, HAND SOAP OR SHAMPOO DISPENSERS ARE SHOWN FOR BLOCKING (BY G.C) & MOUNTING HEIGHT REQUIREMENTS. THESE ITEM SHALL BE PROVIDED BY THE OWNER AND G.C TO INSTALL.

No.	Revision	Date
9	Issued for Tender	2024_02_23
8	Issued for 100% Contract Documents	2023_11_24
7	Issued for 95% Contract Documents	2023_11_10
6	Issuri For Building Permit	2023_11_07
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Orientation

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Project Information
Barrie Fire Station 6

845 Mapleview Drive East, Barrie Ontario

For
Barrie Fire and Emergency Services

Drawing Title
Interior Elevations

Date	Project No	Drawing No
2024_02_23	22030	A601
Drawn by: Author		
Scale: 1 : 50		

BIM 360://22030 - Barrie Fire Station 6/22030 - Barrie Fire 6_R20.rvt
2024-02-27 10:16:06 AM

3 A602 Pod Lockers - Linen Storage
1 : 20

4 A602 Pod Lockers - Clothes Storage
1 : 20

5 A602 Coat Storage
1 : 20

6 A602 Counter Unit (SPS)
1 : 20

7 A602 Mail Cubbies
1 : 20

8 A602 Counter Unit (SPS)
1 : 20

9 A602 Pantry Unit
1 : 20

10 A602 Counter Unit (SPS)
1 : 20

11 A602 NFPA Hood Detail
1 : 20

12 A602 Section 18
1 : 20

13 A602 Section 19
1 : 20

14 A602 Counter Unit (SPS)
1 : 20

NOTE: PROVIDE CONT. WELDED CONNECTIONS. ALL EXPOSED WELDS TO BE GROUND SMOOTH.

NOTE: MATTRESS TO BE PROVIDED AND INSTALLED BY OWNER.

NOTES:
1. ALL COMPACT LAMINATE PANELS SHALL BE 12mm THICK MINIMUM, UNLESS NOTED OTHERWISE.
2. ALL CORNERS SHALL BE MITERED. BOTH PANELS SHALL HAVE A REVEAL ON THE INSIDE CORNER TO ACCOMMODATE STRUCTURAL ADHESIVE (BY SUPPLIER) AND A 3mm - 4mm METAL SPLINE THAT RUNS THE ENTIRE LENGTH OF THE MITERED CORNER.
3. THREADED INSERTS FOR MACHINE SCREWS SHALL BE PROVIDED TO ASSEMBLE PANELS ON SITE.
4. ALL FASTENERS SHALL BE COUNTERSUNK C/W A PLUG MADE FLUSH WITH PANEL.
5. ALL JOINERY SHALL BE TESTED FOR STRUCTURAL STRENGTH PRIOR TO ACCEPTANCE BY ARCHITECT.

18 A602 Typical Bed Frame
1 : 20

NOTE: PROVIDE CONT. WELDED CONNECTIONS. ALL EXPOSED WELDS TO BE GROUND SMOOTH.

NOTE: MATTRESS TO BE PROVIDED AND INSTALLED BY OWNER

NOTES:
1. ALL COMPACT LAMINATE PANELS SHALL BE 12mm THICK MINIMUM, UNLESS NOTED OTHERWISE.
2. ALL CORNERS SHALL BE MITERED. BOTH PANELS SHALL HAVE A REVEAL ON THE INSIDE CORNER TO ACCOMMODATE STRUCTURAL ADHESIVE (BY SUPPLIER) AND A 3mm - 4mm METAL SPLINE THAT RUNS THE ENTIRE LENGTH OF THE MITERED CORNER.
3. THREADED INSERTS FOR MACHINE SCREWS SHALL BE PROVIDED TO ASSEMBLE PANELS ON SITE.
4. ALL FASTENERS SHALL BE COUNTERSUNK C/W A PLUG MADE FLUSH WITH PANEL.
5. ALL JOINERY SHALL BE TESTED FOR STRUCTURAL STRENGTH PRIOR TO ACCEPTANCE BY ARCHITECT.

19 A602 Typical Bed Frame
1 : 20

20 A602 TV Unit
1 : 20

15 A602 Countertop Details (SPS)
1 : 5

16 A602 Counter Unit (SPS)
1 : 20

17 A602 Counter Unit (SPS)
1 : 20

1 A602 Typical Bedside Table
1 : 10

2 A602 Typical Bedside Table
1 : 10

21 A602 Typical Bedside Table
1 : 10

MILLWORK GENERAL NOTES:

1. CONTRACTOR TO SITE MEASURE ALL MILLWORK DIMENSIONS BEFORE FABRICATION.
2. SHOP DRAWINGS FOR ALL MILLWORK TO BE PROVIDED TO CONSULTANT FOR APPROVAL PRIOR TO FABRICATION.
3. COORDINATE WIDTHS OF OPENINGS IN MILLWORK WITH APPLIANCE WIDTHS PRIOR TO FABRICATION.
4. COORDINATE ALL OUTLETS IN MILLWORK WITH MECHANICAL AND ELECTRICAL DRAWINGS.
5. PROVIDE IN WALL BLOCKING AS REQ. FOR ALL MILLWORK.

NOTE:
TOILET PAPER, PAPER TOWEL, HAND SOAP OR SHAMPOO DISPENSERS ARE SHOWN FOR BLOCKING (BY G.C) & MOUNTING HEIGHT REQUIREMENTS. THESE ITEM SHALL BE PROVIDED BY THE OWNER AND G.C TO INSTALL.

No.	Revision	Date
6	Issued for Tender	2024_02_23
5	Issued for 100% Contract Documents	2023_11_24
4	Issued for 95% Contract Documents	2023_11_10
3	Issued For Building Permit	2023_11_07
2	Issued For Site Plan Re-Submission	2023_11_07
1	Issued for 75% Contract Documents	2023_10_13

Orientation

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Project Information
Barrie Fire Station 6

845 Mapleview Drive East, Barrie Ontario

For
Barrie Fire and Emergency Services

Drawing Title
Interior Elevations and Millwork Details

Date	Project No	Drawing No
2024_02_23	22030	A602
Drawn by: Author		
Scale: As indicated		

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REFLECTED CEILING PLAN NOTES:

1. CO-ORDINATE FULLY WITH MECHANICAL & ELECTRICAL DRAWINGS & SPECIFICATIONS TO ENSURE PROPER PLACEMENT OF ALL LIGHTS, GRILLES, EXHAUST FANS, DIFFUSERS ETC. RELATING TO THE REFLECTED CEILING PLAN LAYOUT.
2. ENCLOSE ALL EXPOSED STEEL STRUCTURE SUPPORTING FLOOR LOADS WITH (2)-LAYERS OF 16mm FIRE-RATED GYPSUM WALL BOARD ON METAL FRAMING ASSEMBLY TO PROVIDE A (1)-HOUR FIRE RESISTANCE RATING. ALL DETAILS MUST COMPLY.
3. REFER TO ELECTRICAL DRAWINGS FOR LOCATIONS OF FIXTURES FLUSH WITH GYPSUM WALL BOARD CEILING AND REQUIRE CAREFUL FINISHING.

REFLECTED CEILING PLAN LEGEND:

- SUPPLY AIR DIFFUSER AS PER MECH. DWGs
- RETURN AIR DIFFUSER AS PER MECH. DWGs
- EXHAUST GRILLE AS PER MECH. DWGs
- SURFACE MOUNTED LUMINAIRE AS PER ELEC. DWGs
- RECESSED LUMINAIRE AS PER ELEC. DWGs
- RECESSED LIGHT FIXTURE AS PER ELEC. DWGs
- WALL MOUNTED LIGHT FIXTURE AS PER ELEC. DWGs
- 610 x 1220 LAY-IN CEILING TILE
- RECESSED CEILING MOUNTED ELECTRIC HEATER AS PER MECH. DWGs

1 / A702 Upper Apparatus Bay Reflected Ceiling Plan

1 : 75

No.	Revision	Date
9	Issued for Tender	2024_02_23
8	Issued for 100% Contract Documents	2023_11_24
7	Issued for 95% Contract Documents	2023_11_10
6	Issurd For Buiulding Permit	2023_11_07
5	Issued For Site Plan Re-Submission	2023_11_07
4	Issued for 75% Contract Documents	2023_10_13
3	Issued for Progress	2023_09_25
2	Design Development Approval	2023_08_25
1	Issued for 100% Design Development	2023-06-27

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Project Information

Barrie Fire Station 6

845 Mapleview Drive East, Barrie Ontario

For

Barrie Fire and Emergency Services

Drawing Title

Upper Apparatus Bay Reflected Ceiling Plan

Date	Project No	Drawing No
2024_02_23	22030	A702
Drawn by: Author		
Scale: As indicated		

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2024-02-27 10:16:10 AM

PROVISIONAL ITEM - FOURFOLD DOORS

1 / P1 — 1 : 25

2 / P1 — 1 : 10

3 / P1 — 1 : 10

4 / P1 — 1 : 10

Provisional Door & Frame Schedules													
Door Schedule								Frame Schedule				Frame Schedule	
NUMBER	TYPE	SIZE (WxHxT)	MATERIAL	FINISH	GLAZING	FRR	PROFILE	FINISH	MATERIAL	FRR	HDWE.	REMARKS
037A	B	950 x 2150 x 45	HM	PT	-	-	1	PT	HM	-		
037B		2610 x 2250 x 80										
FD-1		4270 x 4270 x				-				-		FOURFOLD FIRE STATION DOOR AS SPECIFIED
FD-2		4270 x 4270 x				-				-		FOURFOLD FIRE STATION DOOR AS SPECIFIED

PROVISIONAL ITEM - WASTE COLLECTION POINT ENCLOSURE

5 / P1 — 1 : 50

1 : 25

13 / P1 — 1 : 15

14 / P1 — 1 : 15

7 / P1 — Refuse/Recycling Enclosure East Elevation

1 : 50

8 / P1 — Refuse/Recycling Enclosure East South Elevation

1 : 50

9 / P1 — Refuse/Recycling Enclosure West Elevation

1 : 50

10 / P1 — Refuse/Recycling Enclosure North Elevation

1 : 50

11 / P1 — 1 : 10

12 / P1 — 1 : 12

No.	Revision	Date
5	Issued for Tender	2024_02_23
4	Issued for 100% Contract Documents	2023_11_24
3	Issued for 95% Contract Documents	2023_11_10
2	Issued For Building Permit	2023_11_07
1	Issued For Site Plan Re-Submission	2023_11_07

Orientation

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Project Information

Barrie Fire Station 6

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For

Barrie Fire and Emergency Services

Drawing Title

Provisional Items

Date	Project No	Drawing No
2024_02_23	22030	P1
Drawn by: Author		
Scale: As indicated		

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2024-02-27 10:16:14 AM

FIRE STATION 6
845 MAPLEVIEW DRIVE EAST
CITY OF BARRIE

Drawing List

ND-1 NOTES AND DETAILS
ND-2 NOTES AND DETAILS
SG-1 SITE GRADING
SS-1 SITE SERVICING
STM-1 PRE-DEVELOPMENT CATCHMENT PLAN
STM-2 POST-DEVELOPMENT CATCHMENT PLAN
EPR-1 EROSION PROTECTION AND REMOVALS PLAN

DISCLAIMER: For the purposes of this procurement process, all communications in relation to this ITT or this project must be made through the Bidding System using the "Submit a Question" link associated with this bid opportunity ("ITT Contact"), unless specifically instructed within the ITT document.

Bidders and their representatives are not permitted to contact any employees, officers, agents, elected or appointed officials or other representatives of the City, other than the ITT Contact. Failure to adhere to this rule may result in the disqualification of the bidder and the rejection of the bidder's bid.

CITY OF BARRIE
70 COLLIER STREET
BARRIE, ON
L4M 4T5

SALTER PILON
ARCHITECTURE INC.
151 FERRIS LANE
SUITE 400
BARRIE, ON
L4M 6C1

PEARSON
ENGINEERING
PEARSONENG.COM PH. 705.719.4785

22116 – BARRIE FIRE STATION 6 – 7 – FEBRUARY 2024

GENERAL NOTES

1. DRAWINGS

A. ALL DRAWINGS SHALL BE PRODUCED IN ACCORDANCE WITH CURRENT CITY OF BARRIE STANDARDS & SYMBOLS FOR PLAN & PROFILE DRAWINGS, GENERAL SERVICE PLANS AND LOT GRADING PLANS.

2. MEASUREMENTS

A. ALL DIMENSIONS ARE IN METRES, EXCEPT PIPE DIAMETERS, WHICH ARE IN MILLIMETRES, UNLESS SPECIFIED OTHERWISE.

3. GENERAL

A. ALL WORK SHALL BE IN ACCORDANCE WITH CURRENT CITY OF BARRIE STANDARD DRAWINGS (BSD) AND ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD).

B. ORDER OF PRECEDENCE OF STANDARD DRAWINGS IS FIRSTLY CITY OF BARRIE STANDARD DRAWINGS (BSD) AND SECONDLY ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD).

C. LOCATION OF EXISTING SERVICES ARE NOT GUARANTEED. THE CONTRACTOR IS REQUIRED TO NOTIFY THE VARIOUS UTILITY COMPANIES 48 HOURS PRIOR TO THE COMMENCEMENT OF ANY WORK.

D. A RIGHT-OF-WAY ACTIVITY PERMIT IS REQUIRED FROM THE ENGINEERING DEPARTMENT (OPERATIONS CENTER, 165 FERNDALE DR. NORTH) PRIOR TO THE COMMENCEMENT OF WORK WITHIN ANY CITY RIGHT-OF-WAY.

E. A SITE ALTERATION PERMIT IS REQUIRED FROM THE ENGINEERING DEPARTMENT PRIOR TO THE COMMENCEMENT OF ANY EARTH WORKS ON THE SITE.

F. NATIVE MATERIAL, SUITABLE FOR BACKFILL, SHALL BE COMPACTED TO 95% STANDARD PROCTOR MAXIMUM DRY DENSITY.

G. GRANULAR MATERIAL , USED FOR BACKFILL , SHALL BE PLACED IN LAYERS 150mm IN DEPTH MAXIMUM AND COMPACTED TO 100% STANDARD PROCTOR MAXIMUM DRY DENSITY.

H. ALL DISTURBED AREAS ARE TO BE REINSTATED TO THEIR ORIGINAL CONDITION OR BETTER, AS DETERMINED BY THE CITY ENGINEERING DEPARTMENT.

I. ALL SILT CONTROL AND EROSION PROTECTION DEVICES ARE TO BE IN PLACE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL CONSTRUCTION IS COMPLETE AND THE GRASS HAS ESTABLISHED GROWTH, SUBJECT TO APPROVAL BY THE CITY ENGINEERING DEPARTMENT.

SANITARY SEWERS

A. SEWERS SHALL BE CONSTRUCTED WITH BEDDINGS AS PER OPSD-802.010, (GRAN. 'A' EMBEDMENT MATERIAL) FOR FLEXIBLE PIPES AND OPSD-802.030 OR 802.031 CLASS B (GRAN. 'A' BEDDING MATERIAL) FOR RIGID PIPE UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF ENGINEERING.

B. MAXIMUM DEFLECTION FROM COMBINED LIVE AND DEAD LOADING SHALL NOT EXCEED ANY C.S.A., O.P.S. OR MANUFACTURERS RECOMMENDED SPECIFICATIONS.

C. PVC, CONCRETE AND PROFILE WALL PVC SEWERS SHALL HAVE RUBBER GASKET TYPE JOINTS AND SHALL BE CERTIFIED TO CONFORM TO ALL APPLICABLE CURRENT C.S.A. SPECIFICATIONS.

D. CONCRETE SANITARY SEWERS SHALL HAVE A MINIMUM STRENGTH OF 50 N/M/MM CONFORMING TO CSA STANDARD A257.2-1982, CLASS 50-D (PREVIOUSLY C.S.A. STANDARD A257.2-1974, CLASS II).

E. MAINTENANCE HOLE TOPS (FRAMES) ARE TO BE SET TO BASE COURSE ASPHALT GRADE AND THEN ADJUSTED TO FINAL GRADE WHEN THE TOP LIFT OF ASPHALT IS PLACE. ALL ADJUSTMENT WILL BE ACCORDANCE WITH BSD-N2.

F. ALL CONNECTIONS TO NEW SANITARY MAINS SHALL BE PRE-MANUFACTURED, FABRICATED TEES. CONNECTIONS TO EXISTING SANITARY SEWER SHALL BE MADE WITH APPROVED FACTORY MADE TEES OR INSERTA-TEES IN STRICT ACCORDANCE TO MANUFACTURES GUIDELINES.

G. PIPE TO BE MINIMUM 100 mm DIA. PVC SDR28, RUBBER GASKET TYPE JOINTS AND SHALL CONFORM TO C.S.A. (B-182.2.3.4) (COLOURED) FOR A RESIDENTIAL HOUSE AND 150mm MINIMUM DIA. PVC SDR28 FOR INDUSTRIAL/COMMERCIAL DEVELOPMENT.

WATERMAIN

A. CONTRACTOR SHALL INFORM THE CITY OF BARRIE ENGINEERING DEPARTMENT A MINIMUM OF 48 HOURS IN ADVANCE OF THEIR INTENTIONS TO WORK.

B. OPERATION OF FIRE HYDRANTS AND VALVES ON POTABLE WATER BY OTHER THAN ENGINEERING DEPARTMENT IS PROHIBITED BY BY-LAW 1-88 AS AMENDED BY BY-LAW 99-290. THE CITY WILL SWAB, PRESSURE TEST, CHLORINATE AND FLUSH ALL NEW WATERMAINS.

C. MINIMUM COVER OVER WATERMAIN TO BE 1.7m. THE MINIMUM HORIZONTAL SEPARATION BETWEEN WATERMAIN AND SEWERS TO BE 2.5M. WHERE WATERMAIN CONFLICTS WITH SEWER PIPES, DEFLECT WATERMAIN HORIZONTALLY OR VERTICALLY WHILE PROVIDING A MINIMUM OF 0.5M CLEARANCE BETWEEN WATERMAIN AND SEWERS. MAINTAIN MINIMUM DEPTH OF COVER AT ALL TIMES.

D. WATERMAIN SHALL BE CONSTRUCTED WITH BEDDINGS AS PER OPSD 802.010 (GRANULAR 'A' EMBEDMENT MATERIAL) FOR FLEXIBLE PIPES AND OPSD 802.030 OR 802.031 CLASS 'B' (GRANULAR 'A' BEDDING MATERIAL, GRANULAR 'A' OR SELECT NATIVE COVER MATERIAL) FOR RIGID PIPE UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF ENGINEERING, OR * ALTERNATIVE * ALTERNATIVE EMBEDMENT MATERIAL – SAND MEETING GRADATION REQUIREMENTS OF OPS 1004.05.05 COMPACTED TO 95% PROCTOR DENSITY. GEOTECHNICAL CERTIFICATION OF MATERIAL AND COMPACTION TESTING MUST BE PROVIDED EVERY 150 METRES. THE COMPACTION TESTING MUST INCLUDE THE ENTIRE EMBEDMENT ENVELOPE (HAUNCHES, BEDDING AND TOP OF PIPE).

E. COPPER WATER MAINS AND SERVICES 25mm TO 50mm IN DIAMETER SHALL BE EMBEDDED IN SAND 100mm ABOVE AND BELOW TO CONFORM TO OPSS 1004.05.07.

F. CONCRETE THRUST BLOCKS ARE TO BE INSTALLED AT ALL TEES, BENDS, HYDRANTS, END OF MAINS AND CONNECTIONS 100mm AND LARGER AS PER OPSD 1103.010 AND 1103.020. RESTRAINING DEVICES MAY BE REQUIRED IN ADDITION TO STANDARD CONCRETE THRUST BLOCKING WHERE SOIL CONDITIONS WARRANT.

G. NEW WATERMAINS TO BE PVC DR18 CL150, OR DUCTILE IRON CL52

H. TRACING WIRE (#12 TWU STRANDED COPPER) TO BE INSTALLED ON THE TOTAL LENGTH OF ALL NON-METALLIC WATERMAIN AND BROUGHT UP AT EACH HYDRANT AND CONNECTED TO FLANGE BOLT.

I. ALL WATER SERVICES SHALL BE MINIMUM 25MM TYPE 'K' COPPER UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF ENGINEERING. WATER SERVICE SADDLES SHALL BE USED WHEN TAPPING INTO PVC WATERMAIN.

J. RISER PIPES ARE TO BE INSTALLED AS PER BSD-45 (REV. #1), AND REMOVED AS DIRECTED. SWABBING SCHEDULE TO BE SUPPLIED BY A CITY OF BARRIE FIELD REPRESENTATIVE.

K. SERVICE TAPPINGS SHALL BE PLACED AT A MINIMUM SEPARATION OF 1.0M AND A MINIMUM OF 0.6M FROM JOINTS. (ENDS OF PIPE)

L. ALL NEW CURB STOPS AND BOXES TO BE LOCATED OUT OF DRIVEWAYS AND SIDEWALKS.

STORM SEWER

A. PLACE ALL CATCH BASIN LATERALS AT 2% GRADE UNLESS OTHERWISE NOTED. PIPE SIZE MINIMUM 250mm DIA. SINGLE, 300mm DIA. DOUBLE.

B. STORM SEWERS SHALL BE CONSTRUCTED WITH BEDDING AS PER OPSD-802.010 (GRAN. 'A' EMBEDMENT MATERIAL) FOR FLEXIBLE PIPES AND OPSD-802.030 OR 802.031 CLASS B (GRAN. 'A' BEDDING MATERIAL) FOR RIGID PIPE UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF ENGINEERING.

C. MAINTENANCE HOLE TOPS (FRAMES) AND CATCH BASIN (FRAMES) ARE TO BE SET TO BASE COURSE ASPHALT GRADE AND THEN ADJUSTED TO FINAL GRADE WHEN THE TOP LIFT OF ASPHALT IS PLACED. ALL ADJUSTMENT WILL BE ACCORDANCE WITH BSD-N2.

D. ALL CONNECTIONS TO THE STORM MAIN SHALL BE MADE WITH A STORM MANHOLE OR APPROVED FACTORY TEE CONNECTION AS PER OPSD-708.01 OR 708.03.

E. PIPE MATERIAL TO BE REINFORCED CONCRETE WITH A MINIMUM STRENGTH OF 50 N/m/mm CERTIFIED TO C.S.A. STANDARD A247.2-1982, CLASS 50-D (PREVIOUSLY C.S.A. STANDARD A257.2-1974, CLASS II) OR PVC CERTIFIED TO C.S.A. STANDARDS 182.2 AND 182.4.

F. STORM SEWER TO BE MINIMUM 300mm DIAMETER WITH JOINTS CONFORMING TO C.S.A. STANDARD A257.3.

G. ALL PIPE BEDDING MUST CONFORM TO OPSD, MAXIMUM COVER TABLE. NO FLEXIBLE PIPE SEWERS WILL BE INSTALLED WITH A DEPTH OF COVER GREATER THAN 6 METRES UNLESS SPECIFICALLY APPROVED BY THE DIRECTOR OF ENGINEERING.

H. ALL PIPE HANDLING INSTALLATIONS MUST BE IN STRICT COMPLIANCE WITH MANUFACTURES INSTALLATION GUIDES AND THE O.C.P.A. OR UNIBELL GUIDELINES.

PAVEMENT DESIGN

A. THE PAVEMENT STRUCTURE SHALL CONSIST OF THE FOLLOWING (REFER TO GEOTECHNICAL INVESTIGATION PREPARED BY GEI CONSULTANTS DATED NOVEMBER 8, 2022.):

HEAVY DUTY

- 40 mm HL3
- 80 mm HL8
- 150 mm GRANULAR A BASE
- 500 mm GRANULAR B

LIGHT DUTY PARKING

- 40 mm HL3
- 50 mm HL8
- 150 mm GRANULAR A BASE
- 350 mm GRANULAR B

NOTES:
1 Outlet hole size 525mm diameter maximum, location as required.
2 200mm diameter knockout to accommodate subdrain. Knockout shall be 60mm deep.
A Centre reinforcing in base slab and walls ±20mm.
B Granular backfill shall be placed to a minimum thickness of 300mm all around the catch basin.
C Frame, grate, and adjustment units shall be installed according to OPSD 704.010.
D Pipe support shall be according to OPSD 708.020.
E All dimensions are nominal.
F All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 3
PRECAST CONCRETE CATCH BASIN 600x600mm		OPSD 705.010

NOTES:
A This OPSD shall be read in conjunction with OPSD 610.010 and 610.020.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2018	Rev 3
CAST IRON, SQUARE FRAME WITH SQUARE FLAT GRATE FOR CATCH BASINS, HERRING BONE OPENINGS		OPSD 400.020

1. THIS STANDARD IS TO BE USED IN ACCORDANCE WITH THE SITE ALTERATION BY-LAW FOR THE DESIGN AND MAINTENANCE OF EROSION CONTROL MEASURES AND IS TO BE ADMINISTERED ACCORDINGLY
2. SILT / SEDIMENT CONTROL FENCE SHOULD BE ALIGNED WITH CONTOURS FOR SHEET OVERLAND FLOW
3. SILTATION CONTROL FENCE IS TO BE LOCATED IN AREAS OF LOW SEDIMENT YIELD ON SLOPES THAT CONFIRM TO M.T.O. DRAINAGE MANUAL VOLUME 2 "CHART F4-3C TOPOGRAPHIC FACTOR LS BASED ON SLOPE LENGTH AND GRADIENT"
4. SILTATION CONTROL FENCE SHALL BE INSTALLED WITH FILTER MEDIA FABRIC TOED INTO THE SOIL 300mm BE EITHER STATIC SLICING OR TRENCHING METHODS WITH COMPACTION OF TRENCH MATERIAL MEETING 95% S.P.D.
5. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN
6. SILT / SEDIMENT CONTROL FENCE MAY BE UTILIZED FOR TREE PRESERVATION AND IS TO BE USED IN CONJUNCTION WITH P1231, P1232 AND P1235

Barrie	FENCE SILTATION CONTROL	REV No. 3	DATE: APR 2023 SCALE: N.T.S.
			P1233

NOTES:
1 The sump is measured from the lowest invert.
A Granular backfill shall be placed to a minimum thickness of 300mm all around the maintenance hole.
B Precast concrete components shall be according to OPSD 701.030, 701.031, or 701.032.
C Structure exceeding 5.0m in depth shall include safety platform according to OPSD 404.020.
D Pipe support according to OPSD 708.020.
E For benching and pipe opening details, see OPSD 701.021.
F For adjustment unit and frame installation, see OPSD 704.010.
G All dimensions are nominal.
H All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 5
PRECAST CONCRETE MAINTENANCE HOLE 1200mm DIAMETER		OPSD 701.010

NOTE:
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2013	Rev 3
CAST IRON, SQUARE FRAME WITH CIRCULAR WATERTIGHT COVER FOR MAINTENANCE HOLES		OPSD 401.030

NOTES:
1. ADJUSTMENT UNITS SHALL NOT EXTEND BEYOND THE OUTSIDE EDGE OF THE STRUCTURE.
2. MAINTENANCE HOLE TOPS (FRAMES) ARE TO BE SET IN BASE ASPHALT GRADE AND THEN ADJUSTED TO FINAL GRADE WHEN TOP LIFT OF ASPHALT IS PLACED.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN
4. IF A STEP IS REQUIRED IN AN ADJUSTMENT UNIT, THEN THE ADJUSTMENT UNIT SHALL BE OF THE TYPE MANUFACTURED WITH A STEP IN PLACE.

Barrie	Maintenance Hole and Catch Basin Grade Adjustment	REV No. 5	DATE: APR 2023 SCALE: N.T.S
			S606

NO.	REVISION NOTE	DATE	BY
7	ISSUED FOR TENDER	02/23/24	JP
6	ISSUED FOR 100% CD SUBMISSION	11/24/23	JP
5	ISSUED FOR 95% CD SUBMISSION	11/10/23	JP
4	ISSUED FOR BUILDING PERMIT	11/02/23	JP
3	ISSUED FOR 75% SUBMISSION	10/13/23	JP

BENCHMARK

TOP NUT OF HYDRANT LOCATED TO THE EAST OF THE SUBJECT SITE.
ELEV. 256.73

TOP NUT OF HYDRANT LOCATED TO THE SOUTH OF THE SUBJECT SITE
ELEV. 255.48

LICENCED PROFESSIONAL ENGINEER
M.W. DEJEAN
Feb 23, 2024
PROVINCE OF ONTARIO

FIRE STATION 6
845 MAPLEVIEW DRIVE EAST
CITY OF BARRIE

NOTES AND DETAILS

PEARSON ENGINEERING
PEARSONENG.COM PH. 705.719.4785

DESIGNED BY JP	HORIZ SCALE HORIZ	PROJECT #	22116
DRAWN BY JP	VERT SCALE VERT	DRAWING #	ND-1
CHECKED BY MWD	DATE APRIL 2023	REVISION #	7

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MAXIMUM SIZE HOLE IN THE WALL IN PRECAST RISER SECTIONS					
Maintenance Hole Diameter	No. 1–4	No. 5 and 6	No. 8	No.7	
				Inlet Hole	Outlet Hole
1200	700	860	780	700	860
1500	860	1220	960	860	1170
1800	1220	1485	1220	1220	1485
2400	1485	2020	1760	1485	2020
3000	1930	2450	2300	1930	2450
3600	2470	3085	2730	2470	3085

NOTES:
1 Slopes shall be maintained from the outlet hole opening for top of benching.
A Concrete for benching shall be 30MPa.
B When benching is hand–finished, it shall be given wood float finish, channel shall be given steel trowel finish.
C Benching slope and height shall be as specified.
D When specified, maintenance holes that are 1200mm in diameter with a uniform channel for 200 or 250mm pipe may be prebenched at the manufacturer with standardized benching slope and channel orientation.
E All dimensions are nominal.
F All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2014 | Rev 4

MAINTENANCE HOLE BENCHING AND PIPE OPENING ALTERNATIVES

OPSD 701.021

NOTES:
1. THIS STANDARD IS TO BE IN ACCORDANCE WITH SCHEDULE "B" OF THE SITE ALTERATION BY–LAW, "CODE FOR THE DESIGN AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROL MEASURES" AND IS TO BE ADMINISTERED ACCORDINGLY.
2. Purpose of Construction Mat is to minimize transportation of sediment onto roadways.
3. Construction mat is to be installed as the first step in the site alteration process.
4. Construction mats are required where paved roads are within 300m of the site.

Barrie

Construction Entrance

REV No. 2 | DATE: APR 2023 | SCALE: N.T.S

D710

Notes:
1. To be interpreted in conjunction with the current Water Transmission and Distribution Policies and Design Guidelines and the Approved Manufacturers Products for Linear Water Systems list.
2. Water service unions will not be permitted unless approved by the Director.
3. Cross-linked polyethylene (PEX) water services will not be permitted in soils contaminated with hydrocarbons, chemicals or other possible hazards.
4. Any retrofit of a property utilizing City of Barrie water services as grounding potential must be outfitted with ground rods/plates as per current electrical safety code, standards and requirements and shall be inspected by the E.S.A. as part of the PEX standard.
5. #12 AWG high-strength copper clad steel (HS-CCS) tracer wire to be installed with continuity from watermain to curb stop. Tape tracer wire to water service at 3000mm minimum intervals.

Barrie

Water Service
Cross-linked Polyethylene 25mm to 50mm

REV No. 4 | DATE: APR 2023 | SCALE: N.T.S

W504

CB SHIELD

CBMH Shield-1200mm -Generic Drawing

Meter size	"Y"	"X"
38mm(1.5")	330mm	2.5x Pipe dia.
50mm(2")	432mm	
75mm(3")	432mm (17")	
100mm(4")	508mm (20")	
150mm(6")	610mm (24")	

NOTES:
1. The diameter of the by-pass line shall match the diameter of the internal plumbing.
2. All materials to be supplied by the contractor except water meters. All meters larger than 50mm are to be supplied and installed by the contractor.
3. Butterfly valves or globe valves shall not be used.
4. All piping between water service entering the building and backflow device must be labeled 'No connection permitted'.
5. Backflow device must be installed within a maximum of 3 meters downstream of the water meter.
6. Meter wire, installed in conduit, to be run from meter location to outside of building at the direction of the Barrie Water Operations representative. Meter wire (22 gauge, 2 conductor, metgray, UV rated) supplied by the City of Barrie.
7. All dimension are in millimeters unless otherwise shown.
8. Contractor to provide flat secure (vertical) surface for the smart point to be mounted on.

Barrie

Water Meter Installation with By-Pass Assembly

REV No. 4 | DATE: APR 2023 | SCALE: N.T.S

W533

NOTES:
1 When sidewalk is continuously adjacent, the dropped curb at entrances shall be reduced to 75mm.
2 For slipforming procedure a 5% batter is acceptable.
A Treatment at entrances shall be according to OPSD 351.010.
B Outlet treatment shall be according to the OPSD 610 Series.
C The transition from one curb type to another shall be a minimum length of 3.0m, except in conjunction with guide rail where it shall be according to the OPSD 900 Series.
D All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2012 | Rev 2

CONCRETE BARRIER CURB

OPSD 600.110

Notes:
1. To be interpreted in conjunction with the current Drinking Water Infrastructure Standards and the Approved Manufacturers' Products for Linear Water Systems list. Tracer wire to be installed as per the City's Tracer Wire Infrastructure Standards.
2. Hydrant test station conduit shall be a minimum of 25mm installed to a depth of 600mm below grade.
3. All connections must be waterproofed.
4. Splicing of tracer wire is not allowed unless specified or approved.
5. Heat shrink is to be completed by a heat gun and not using an open flame.
6. SnakePits are to be placed inside of a SSL road leveler with lid.

Notes:
1. Tracer wire is not permitted to terminate inside of a chamber.
2. Tracer wire is not permitted to run on top of a chamber.
3. Tracer wire may run through a chamber at depth of the watermain until directly under a locate post then be brought up into the locate post (Detail 1 below). Alternatively, tracer wire may run around the outside of the chamber at the depth of the watermain until directly under a locate post then be brought up into the locate post (Detail 2 below).

Barrie

Water Infrastructure Tracer Wire

REV No. 5 | DATE: APR 2023 | SCALE: N.T.S

W515

Meter size	"Y"	"X"
38mm(1.5")	330mm	2.5x Pipe dia.
50mm(2")	432mm	
75mm(3")	432mm (17")	
100mm(4")	508mm (20")	
150mm(6")	610mm (24")	

NOTES:
1. The diameter of the by-pass line shall match the diameter of the internal plumbing.
2. All materials to be supplied by the contractor except water meters. All meters larger than 50mm are to be supplied and installed by the contractor.
3. Butterfly valves or globe valves shall not be used.
4. All piping between water service entering the building and backflow device must be labeled 'No connection permitted'.
5. Backflow device must be installed within a maximum of 3 meters downstream of the water meter.
6. Meter wire, installed in conduit, to be run from meter location to outside of building at the direction of the Barrie Water Operations representative. Meter wire (22 gauge, 2 conductor, metgray, UV rated) supplied by the City of Barrie.
7. All dimension are in millimeters unless otherwise shown.
8. Contractor to provide flat secure (vertical) surface for the smart point to be mounted on.

Barrie

Water Meter Installation with By-Pass Assembly

REV No. 4 | DATE: APR 2023 | SCALE: N.T.S

W533

NO.	REVISION NOTE	DATE	BY
7	ISSUED FOR TENDER	02/23/24	JP
6	ISSUED FOR 100% CD SUBMISSION	11/24/23	JP
5	ISSUED FOR 95% CD SUBMISSION	11/10/23	JP
4	ISSUED FOR BUILDING PERMIT	11/02/23	JP
3	ISSUED FOR 75% SUBMISSION	10/13/23	JP

BENCHMARK

TOP NUT OF HYDRANT LOCATED TO THE EAST OF THE SUBJECT SITE. ELEV. 256.73

TOP NUT OF HYDRANT LOCATED TO THE SOUTH OF THE SUBJECT SITE ELEV. 255.48

LICENCED PROFESSIONAL ENGINEER
M.W. DEJEAN
Feb 23, 2024
PROVINCE OF ONTARIO

FIRE STATION 6
845 MAPLEVIEW DRIVE EAST
CITY OF BARRIE

NOTES AND DETAILS

PEARSON ENGINEERING
PEARSONENG.COM PH. 705.719.4785

DESIGNED BY	JP	HORIZ SCALE	HORIZ	PROJECT #	22116
DRAWN BY	JP	VERT SCALE	VERT	DRAWING #	ND–2
CHECKED BY	MWD	DATE	APRIL 2023	REVISION #	7

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KEYMAP
N.T.S

LEGEND

CB	CATCH BASIN
DCB	DOUBLE CATCH BASIN
CBMH	CATCH BASIN
HYD.	FIRE HYDRANT
	PROP. LIGHT STANDARD
254.63 / 254.09	PROPOSED ELEVATION / EXISTING ELEVATION
1.5%	PROPOSED DIRECTION AND GRADE
	BACK OF CURB
	EDGE OF PAVEMENT
	DEPRESSED CURB
) (	HIGH POINT
	PROP. BOARD FENCE

CONTROL MONUMENTS

HORIZONAL

MNRF MONUMENT 03120080008. LOCATED ON THE NOTH SIDE OF MAPLEVIEW DRIVE EAST, APPROX. 0.8km's EAST OF YONGE STREET AND APPROX. 10.0m NORTH OF MAPLEVIEW DRIVE EAST CENTERLINE.

MNRF MONUMENT 03120080009. LOCATED ON WEST SIDE OF PRINCE WILLIAM WAY APPROX. 1.4m's EAST OF YONGE STREET, 0.5km's NORTH OF MAPLEVIEW DRIVE EAST AND APPROX. 13.5m WEST OF THE CENTERLINE OF PRINCE WILLIAM WAY.

VERTICAL

MNRF MONUMENT 0011931U460S. LOCATED AT ST. PAULS ANGLICAN CHURCH, AT WEST SIDE OF TORONTO-NORTH BAY HIGHWAY, 2.7KM NORTH OF VILLAGE, TABLET IN NORTH FACE OF CONCRETE FOUNDATION OF BUTTRESS AT NORTHEAST CORNER OF TOWER, 150M BELOW BRICKWORK. ELEV. 263.114

MNRF MONUMENT 00119713846. LOCATED IN CONCRETE PIER ON NORTH SIDE OF INNISFUL CONCESSION NO. XII, IMMEDIATELY EAST OF C.N. RAIL CROSSING, 0.40M EAST OF MORE EASTERLY TRACK, 7.9M NORTH OF CENTRE LINE OF ROAD, 3.0M WEST OF HYDRO POLE, TABLET IN TOP, ELEV. 267.127

NO.	REVISION NOTE	DATE	BY
7	ISSUED FOR TENDER	02/23/24	JP
6	ISSUED FOR 100% CD SUBMISSION	11/24/23	JP
5	ISSUED FOR 95% CD SUBMISSION	11/10/23	JP
4	ISSUED FOR BUILDING PERMIT	11/02/23	JP
3	ISSUED FOR 75% SUBMISSION	10/13/23	JP

BENCHMARK
SITE BENCHMARK:

TOP NUT OF HYDRANT LOCATED SOUTH OF SUBJECT SITE ON TOBIAS LANE.
ELEV. 255.48

TOP NUT OF HYDRANT LOCATED TO THE EAST OF THE SUBJECT SITE ON PRINCE WILLIAM WAY.
ELEV. 256.73

LICENSED PROFESSIONAL ENGINEER
M.W. DEJEAN
Feb 23, 2024
PROVINCE OF ONTARIO

FIRE STATION 6
845 MAPLEVIEW DRIVE EAST
CITY OF BARRIE

SITE GRADING PLAN

PEARSON ENGINEERING
PEARSONENG.COM PH. 705.719.4785

DESIGNED BY	JP	HORIZ SCALE	1:250	PROJECT #	22116
DRAWN BY	JP	VERT SCALE	VERT	DRAWING #	SG-1
CHECKED BY	MWD	DATE	APRIL 2023	REVISION #	7

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KEYMAP
N.T.S

ONSITE CBs AND CBMHs TO INCLUDE CB SHIELDS REFER TO TYPICAL DETAIL ON ND–2

LEGEND

- CB — CATCH BASIN
- DCB — DOUBLE CATCH BASIN
- CBMH — CATCH BASIN
- MH — STORM MANHOLE
- MH — SANITARY MANHOLE
- SERVICE CAP
- HYD. — FIRE HYDRANT
- VB — WATER VALVE
- CS — CURB STOP W/ SERVICE
- BACK OF CURB
- EDGE OF PAVEMENT
- DEPRESSED CURB
- PROP. BOARD FENCE
- PIPE INSULATION
- RWL — RAIN WATER LEADER LOCATION AND DIRECTION

PIPE CROSSINGS			
LOCATION	INVERT	OBVERT	SEPERATION
1	STM INV 252.96	SAN OBV 252.45	0.50m
2	STM INV. 252.98	W/M OBV 252.48	0.50m

DETAIL
PERFORATED SUBDRAIN
NTS

NOTE:
PER MINISTRY OF THE ENVIRONMENT GUIDELINES CALCULATION FOR WIDTH OF INSULATION AS FOLLOWS:
W=2(x – D) + d, WHERE; W=WIDTH OF INSULATION,
x=FROST PENETRATION,
D=DEPTH OF COVER,
d=PIPE DIAMETER.

PIPE INSULATION DETAIL
(N.T.S.)

CONTROL MONUMENTS
HORIZTONAL:
MNRF MONUMENT 03120080008. LOCATED ON THE NOTH SIDE OF MAPLEVIEW DRIVE EAST, APPROX. 0.8km's EAST OF YONGE STREET AND APPROX. 10.0m NORTH OF MAPLEVIEW DRIVE EAST CENTERLINE.

MNRF MONUMENT 03120080009. LOCATED ON WEST SIDE OF PRINCE WILLIAM WAY APPROX. 1.4km's EAST OF YONGE STREET, 0.5km's NORTH OF MAPLEVIEW DRIVE EAST AND APPROX. 13.5m WEST OF THE CENTERLINE OF PRINCE WILLIAM WAY.

VERTICAL
MNRF MONUMENT 001193IU460S. LOCATED AT ST. PAULS ANGLICAN CHURCH, AT WEST SIDE OF TORONTO–NORTH BAY HIGHWAY, 2.76KM NORTH OF VILLAGE, TABLET IN NORTH FACE OF CONCRETE FOUNDATION OF BUTTRESS AT NORTHEAST CORNER OF TOWER, 15CM BELOW BRICKWORK. ELEV. 263.114

MNRF MONUMENT 00119713846. LOCATED IN CONCRETE PIER ON NORTH SIDE OF INNISFUL CONCESSION NO. XII, IMMEDIATELY EAST OF C.N. RAIL CROSSING, 0.40M EAST OF MORE EASTERLY TRACK, 7.9M NORTH OF CENTRE LINE OF ROAD, 3.0M WEST OF HYDRO POLE, TABLET IN TOP. ELEV. 267.127

NO.	REVISION NOTE	DATE	BY
7	ISSUED FOR TENDER	02/23/24	JP
6	ISSUED FOR 100% CD SUBMISSION	11/24/23	JP
5	ISSUED FOR 95% CD SUBMISSION	11/10/23	JP
4	ISSUED FOR BUILDING PERMIT	11/02/23	JP
3	ISSUED FOR 75% SUBMISSION	10/13/23	JP

BENCHMARK
SITE BENCHMARK:

TOP NUT OF HYDRANT LOCATED SOUTH OF SUBJECT SITE ON TOBIAS LANE.
ELEV. 255.48

TOP NUT OF HYDRANT LOCATED TO THE EAST OF THE SUBJECT SITE ON PRINCE WILLIAM WAY.
ELEV. 256.73

LICENCED PROFESSIONAL ENGINEER
M.W. DEJEAN
Feb 23, 2024
PROVINCE OF ONTARIO

FIRE STATION 6
845 MAPLEVIEW DRIVE EAST
CITY OF BARRIE

SITE SERVICING PLAN

PEARSON ENGINEERING
PEARSONENG.COM PH. 705.719.4785

DESIGNED BY	JP	HORIZ SCALE	1:250	PROJECT #	22116
DRAWN BY	JP	VERT SCALE		DRAWING #	SS–1
CHECKED BY	MWD	DATE	APRIL 2023	REVISION #	7

P:\Autodesk Vault\Working Folders\22116 – Sater Fire Station 6, Barrie\LAYOUT SHEETS\22116 – LAYOUT SHEETS.dwg Layout:SS–1 Plotted Feb 22, 2024 @ 2:34pm by jpearce @ PEARSON ENGINEERING LTD.

KEYMAP
N.T.S

LEGEND

- CB — CATCH BASIN
- DCB — DOUBLE CATCH BASIN
- 1 — STORM MANHOLE
- EX. CB — EX. CATCH BASIN
- EX. DCB — EX. DOUBLE CATCH BASIN
- EX. MH — EX. STORM MANHOLE
- SERVICE CAP
- HYD. — FIRE HYDRANT
- VB — WATER VALVE
- AREA # — 1 | 0.74 — ALLOWABLE RUNOFF COEFFICIENT; 0.32 ha — DRAINAGE AREA IN HECTARES
- OVERLAND FLOW DIRECTION
- STORM CATCHMENT BOUNDARY

ALLOWABLE RUNOFF COEFFICENT TAKEN FROM DETAILED STORMWATER MANAGEMENT REPORT COMPLETED BY THE JONES CONSULTING GROUP LTD. DATED AUGUST 2020.

SCALE BAR 1:250
−5 0 2.5 5 10 20

CONTROL MONUMENTS
HORIZTONAL
MNRF MONUMENT 0312008008. LOCATED ON THE NOTH SIDE OF MAPLEVIEW DRIVE EAST, APPROX. 0.8km's EAST OF YONGE STREET AND APPROX. 10.0m NORTH OF MAPLEVIEW DRIVE EAST CENTERLINE.

MNRF MONUMENT 03120080009. LOCATED ON WEST SIDE OF PRINCE WILLIAM WAY APPROX. 1.4km's EAST OF YONGE STREET, 0.5km's NORTH OF MAPLEVIEW DRIVE EAST AND APPROX. 13.5m WEST OF THE CENTERLINE OF PRINCE WILLIAM WAY.

VERTCAL
MNRF MONUMENT 001193U4605. LOCATED AT ST. PAULS ANGLICAN CHURCH, AT WEST SIDE OF TORONTO-NORTH BAY HIGHWAY, 2.7KM NORTH OF VILLAGE, TABLET IN NORTH FACE OF CONCRETE FOUNDATON OF BUTTRESS AT NORTHEAST CORNER OF TOWER, 15CM BELOW BRICKWORK. ELEV. 263.114

MNRF MONUMENT 0019713846. LOCATED IN CONCRETE PIER ON NORTH SIDE OF INNISFUL CONCESSION NO. XII, IMMEDIATELY EAST OF C.N. RAIL CROSSING, 0.40M EAST OF MORE EASTERLY TRACK, 7.9M NORTH OF CENTRE LINE OF ROAD, 3.0M WEST OF HYDRO POLE. TABLET IN TOP, ELEV. 267.127

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LICENCED PROFESSIONAL ENGINEER
M.W. DEJEAN
Feb 23, 2024
PROVINCE OF ONTARIO

FIRE STATION 6
845 MAPLEVIEW DRIVE EAST
CITY OF BARRIE

PRE-DEVELOPMENT STORM CATCHMENT PLAN

PEARSON ENGINEERING
PEARSONENG.COM PH. 705.719.4785

DESIGNED BY JP	HORIZ SCALE 1:250	PROJECT #	22116
DRAWN BY JP	VERT SCALE	DRAWING #	STM−1
CHECKED BY MWD	DATE APRIL 2023	REVISION #	7

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KEYMAP
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LEGEND

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- STORM MANHOLE
- EX. CB — EX. CATCH BASIN
- EX. DCB — EX. DOUBLE CATCH BASIN
- EX. MH — EX. STORM MANHOLE
- SERVICE CAP
- HYD. — FIRE HYDRANT
- VB — WATER VALVE
- CS — CURB STOP W/ SERVICE
- BACK OF CURB
- EDGE OF PAVEMENT
- CURB CUT LOCATION
- PROP. BOARD FENCE
- AREA # — RUNOFF COEFFICIENT — DRAINAGE AREA IN HECTARES
- OVERLAND FLOW DIRECTION
- STORM CATCHMENT BOUNDARY

Q = 0.0028*C*I*A (m^3/s)
C = Runoff Coefficient
I = Rainfall Intensity = A/(Time+B)^C
A = Area (ha)

Fire Station 6, Barrie
Storm Sewer Pipe Design Sheet
5-Year Storm Event

DATE: 10-Nov-23
FILE: 22116
CONTRACT/PROJECT: 845 Mapleview Dr E

Areas	MANHOLE FROM	MANHOLE TO	LENGTH (m)	INCREMENT C	INCREMENT A	INCREMENT CA	TOTAL CA	FLOW TIME (min) TO	FLOW TIME (min) IN	I (mm/h)	TOTAL Q (cms)	S (%)	D (mm)	Q FULL (cms)	V FULL (m/s)
Area 7	CB4	T Connection	3.9	0.20	0.06	0.01	0.01	10.00	0.04	113.21	0.00	2.00	250	0.08	1.71
Area 8	CB3	Y Connection	24.1	0.21	0.12	0.02	0.02	10.00	0.47	113.21	0.01	0.50	250	0.04	0.86
Area 2	CB2	CBMH2	18.2	0.20	0.06	0.01	0.01	10.00	0.40	113.21	0.00	0.40	250	0.04	0.77
Area 3	CBMH2	CBMH3	25.9	0.95	0.03	0.03	0.04	10.40	0.50	110.72	0.01	0.40	300	0.06	0.87
Area 4	CBMH3	CBMH4	35.0	0.22	0.09	0.02	0.06	10.40	0.67	110.72	0.02	0.40	300	0.06	0.87
Area 6	Roof	CBMH4	6.3	0.95	0.10	0.10	0.16	10.89	0.12	107.75	0.05	0.40	300	0.06	0.87
-	CBMH4	MH1	23.7	0.00	0.00	0.00	0.16	11.07	0.46	106.75	0.05	0.40	300	0.06	0.87
Area 1	CB1	MH1	42.7	0.20	0.19	0.04	0.07	10.00	0.82	113.21	0.02	0.40	300	0.06	0.87
-	MH1	EX. MAIN	10.5	0.00	0.00	0.00	0.23	11.53	0.08	104.23	0.07	1.43	450	0.34	2.14

SCALE BAR 1:250
–5 0 2.5 5 10 20

CONTROL MONUMENTS
HORIZTONAL
MNRF MONUMENT 03120080008. LOCATED ON THE NOTH SIDE OF MAPLEVIEW DRIVE EAST, APPROX. 0.8km's EAST OF YONGE STREET AND APPROX. 10.0m NORTH OF MAPLEVIEW DRIVE EAST CENTERLINE.

MNRF MONUMENT 03120080009. LOCATED ON WEST SIDE OF PRINCE WILLIAM WAY APPROX. 1.4m's EAST OF YONGE STREET, 0.5km's NORTH OF MAPLEVIEW DRIVE EAST AND APPROX. 13.5m WEST OF THE CENTERLINE OF PRINCE WILLIAM WAY.

VERTICAL
MNRF MONUMENT 00119311460OS. LOCATED AT ST. PAULS ANGLICAN CHURCH, AT WEST SIDE OF TORONTO–NORTH BAY HIGHWAY, 2.7KM NORTH OF VILLAGE, TABLET IN NORTH FACE OF CONCRETE FOUNDATION OF BUTTRESS AT NORTHEAST CORNER OF TOWER, 150M BELOW BRICKWORK. ELEV. 263.114

MNRF MONUMENT 00116713846. LOCATED IN CONCRETE PIER ON NORTH SIDE OF INNISFUL CONCESSION NO. XII, IMMEDIATELY EAST OF C.N. RAIL CROSSING, 0.40M EAST OF MORE EASTERLY TRACK, 7.9M NORTH OF CENTRE LINE OF ROAD, 3.0M WEST OF HYDRO POLE, TABLET IN TOP. ELEV. 267.127

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BENCHMARK
SITE BENCHMARK:

TOP NUT OF HYDRANT LOCATED SOUTH OF SUBJECT SITE ON TOBIAS LANE.
ELEV. 255.48

TOP NUT OF HYDRANT LOCATED TO THE EAST OF THE SUBJECT SITE ON PRINCE WILLIAM WAY.
ELEV. 256.73

LICENCED PROFESSIONAL ENGINEER
M.W. DEJEAN
Feb 23, 2024
PROVINCE OF ONTARIO

FIRE STATION 6
845 MAPLEVIEW DRIVE EAST
CITY OF BARRIE

POST–DEVELOPMENT STORM CATCHMENT PLAN

PEARSON ENGINEERING
PEARSONENG.COM PH. 705.719.4785

DESIGNED BY JP	HORIZ SCALE 1:250	PROJECT #	22116
DRAWN BY JP	VERT SCALE	DRAWING #	STM–2
CHECKED BY MWD	DATE APRIL 2023	REVISION #	7

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KEYMAP
N.T.S

LEGEND

- EX. CB — EX. CATCH BASIN
- EX. DCB — EX. DOUBLE CATCH BASIN
- EX. MH — EX. STORM MANHOLE
- HYD. — FIRE HYDRANT
- SILT FENCE
- PROPERTY LINE

SITE DATA TABLE	
AREA OF ALTERATION	0.73 ha
AREA OF PROPERTY	0.73 ha
PREDOMINANT SOIL TYPE	BONDHEAD SANDY LOAM

SEQUENCE OF CONSTRUCTION

1. ENGINEER TO BE NOTIFIED PRIOR TO INITIATION OF ANY ON SITE WORKS.
2. SILT FENCE AND CONSTRUCTION ACCESS MATS TO BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY WORKS ONSITE.
3. VEGETATION REMOVAL MAY COMMENCE AFTER ALL SILT FENCE IS INSTALLED AND APPROVED BY THE ENGINEER.
4. COMMENCE WITH EARTH EXCAVATION AND SITE SERVICING (TO BE REMOVED FROM SITE – NO STOCKPILE).
5. EROSION CONTROL MEASURES TO BE MAINTAINED AS DIRECTED BY THE ENGINEER DURING THE CONSTRUCTION PERIOD. ADDITIONAL CONTROL MEASURES MAY BE REQUIRED AT THE DISCRETION OF THE ENGINEER.
6. ALL DISTURBED GROUND LEFT INACTIVE FOR MORE THAN 30 DAYS SHALL BE STABILIZED WITH SEED, SOD, MULCH OR OTHER ADEQUATE COVERING, AS INSTRUCTED BY THE ENGINEER.

NOTES FOR SEDIMENT & EROSION CONTROL

1. DISTURBED AREAS THAT HAVE FAILED TO HAVE STABLE GROUND COVER ESTABLISHED BY OCTOBER 30TH SHALL BE PROTECTED WITH A SILTATION CONTROL FENCE OR STRAW MULCH ETC. AND MAINTAINED BY THE CONTRACTOR UNTIL VEGETATION BECOMES ESTABLISHED IN THE SUBSEQUENT GROWING SEASON.
2. ANY DEWATERING WASTE SHALL BE DISCHARGED TO A VEGETATED AREA AT LEAST 30m FROM ANY WATERCOURSE AND FILTERED. FILTERING METHODS MUST BE APPROVED BY THE SITE ADMINISTRATOR. DISCHARGE TO MUNICIPAL SERVICES MUST BE APPROVED BY THE CITY OF BARRIE PRIOR TO STARTING WORK AND ADHERE TO CITY OF BARRIE STANDARDS
3. SILT FENCE SHALL BE PUT IN PLACE PRIOR TO AND MAINTAINED DURING ALL GRADING. SILT FENCE TO BE INSPECTED PRIOR TO COMMENCEMENT OF EARTH GRADING ACTIVITIES. SILT FENCE TO BE INSPECTED AND REPAIRED OR REPLACED IF DAMAGED AS DIRECTED BY THE SITE ADMINISTRATOR. SILT CONTROLS TO BE INSPECTED ON A REGULAR BASIS AND AFTER EVERY RAIN EVENT. INSTALLATION SHALL BE TO THE MANUFACTURER'S SUGGESTED SPECIFICATIONS.
4. THE CONTRACTOR SHALL BE PREPARED FOR UNEXPECTED CONDITIONS AND ACCORDINGLY HAVE STOCKPILED MATERIALS ON SITE FOR NECESSARY REPAIRS AS A RESULT OF FAILED OR INADEQUATE CONTROL MEASURES. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSPECTED AT LEAST ONCE A WEEK, AND AFTER EVERY RAINFALL EVENT.
5. CONTRACTOR SHALL OBTAIN A CURRENT COPY AND BECOME FAMILIAR WITH OPSS 577, CONSTRUCTION SPECIFICATION FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES AS WELL AS ALL APPLICABLE MUNICIPAL STANDARDS.
6. THE CONTRACTOR MAY CONSIDER ALTERNATIVE SEDIMENT AND EROSION CONTROL MEASURES. SUCH MEASURES SHOULD BE PRESENTED IN WRITING FOR APPROVAL OF THE SITE ADMINISTRATOR AND MUST BE APPROVED IN WRITING BY THE MUNICIPALITY AND CONSERVATION AUTHORITY.
7. THE TOPS OF ALL FILTER FABRIC MUST BE A MINIMUM OF 1.0 METRES ABOVE THE GROUND LEVEL AND ATTACHED TO THE FENCE WITH A CONTINUOUS STEEL WIRE. ALTERNATIVELY, THE FILTER FABRIC MUST BE FOLDED OVER THE TOP OF THE FENCE AND ATTACHED TO THE FENCE WITH WIRE LOOPED THROUGH THE FABRIC ON BOTH SIDES OF THE FENCE. FILTER FABRIC IS TO BE TERRAFIX 270R OR EQUIVALENT.
8. ALL DISTURBED GROUND LEFT INACTIVE SHALL BE STABILIZED BY SEEDING, SODDING, MULCHING, OR COVERING OR OTHER EQUIVALENT CONTROL MEASURES. THIS PERIOD OF INACTIVITY SHALL BE AT THE DISCRETION OF THE CITY OF BARRIE MANAGER OF ENGINEERING BUT SHALL NOT EXCEED THIRTY DAYS.
9. CONTRACTOR SHALL INSTALL AND MAINTAIN CATCHBASIN SEDIMENT BARRIERS THROUGHOUT THE SITE DURING ALL CONSTRUCTION ACTIVITIES IN ORDER TO TRAP SEDIMENT. REFER TO DETAIL

DOUBLE WRAPPED CATCHBASIN LID DETAIL

NOTES:
1. TO BE USED UNDER APPROPRIATE DRAINAGE CIRCUMSTANCES, BETWEEN APRIL AND DECEMBER
2. WOVEN GEOTEXTILE TO HAVE A MINIMUM EQUIVALENT OPENING SIZE OF 0.15mm AND A MAXIMUM EQUIVALENT OPENING SIZE OF 0.25mm OR A NON WOVEN GEOTEXTILE TO BE CONSIDERED BASED ON SOIL PARAMETERS AND SITE CONDITIONS.
3. GEOTEXTILE TO BE REPLACED PERIODICALLY WHEN ACCUMULATED SEDIMENTS WITH DRAINAGE, OR AS DIRECTED BY THE TRANSPORTATION AND WORKS DEPARTMENT

I HAVE REVIEWED THE PLANS FOR THE CONSTRUCTION/DEVELOPMENT OF PROPOSED FIRE STATION AT 845 MAPLEVIEW DRIVE EAST IN THE CITY OF BARRIE AND HAVE PREPARED THIS PLAN TO INDICATE THE COMPATIBILITY OF THE PROPOSAL TO EXISTING ADJACENT PROPERTIES AND MUNICIPAL SERVICES. IT IS MY BELIEF THAT ADHERENCE TO THE PROPOSED GRADE AS SHOWN WILL PRODUCE ADEQUATE SURFACE DRAINAGE AND PROPER FACILITY OF MUNICIPAL SERVICES WITHOUT ANT DETRIMENTAL EFFECT TO THE EXISTING DRAINAGE PATTERNS OR ADJACENT PROPERTIES.

SCALE BAR 1:250

–5 0 2.5 5 10 20

CONTROL MONUMENTS

HORIZTONAL

MNRF MONUMENT 0312008008. LOCATED ON THE NOTH SIDE OF MAPLEVIEW DRIVE EAST, APPROX. 0.8km's EAST OF YONGE STREET AND APPROX. 10.0m NORTH OF MAPLEVIEW DRIVE EAST CENTERLINE.

MNRF MONUMENT 0312008O009. LOCATED ON WEST SIDE OF PRINCE WILLIAM WAY APPROX. 1.4km's EAST OF YONGE STREET, 0.5km's NORTH OF MAPLEVIEW DRIVE EAST AND APPROX. 13.5m WEST OF THE CENTERLINE OF PRINCE WILLIAM WAY.

VERTICAL

MNRF MONUMENT 001193U4605S. LOCATED AT ST. PAULS ANGLICAN CHURCH, AT WEST SIDE OF TORONTO–NORTH BAY HIGHWAY, 2.7KM NORTH OF VILLAGE, TABLET IN NORTH FACE OF CONCRETE FOUNDATION OF BUTTRESS AT NORTHEAST CORNER OF TOWER, 15CM BELOW BRICKWORK. ELEV. 263.114

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LICENCED PROFESSIONAL ENGINEER
M.W. DEJEAN
Feb 23, 2024
PROVINCE OF ONTARIO

FIRE STATION 6
845 MAPLEVIEW DRIVE EAST
CITY OF BARRIE

EROSION PROTECTION AND REMOVALS PLAN

PEARSON ENGINEERING
PEARSONENG.COM PH. 705.719.4785

DESIGNED BY	JP	HORIZ SCALE	1:250	PROJECT #	22116
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LEGEND

	FIXTURE TYPE "A1"
$	15A, 125V SINGLE POLE SWITCH, $, (TWO POLE), $3 (3-WAY), $4 (4-WAY), $K (KEY OPERATED), $DIM (DIMMER), $P (C/W PILOT LIGHT), $LV (LOW VOLTAGE), $T (TIMER), $OS (OCCUPANCY SENSOR SWITCH), $(GANGED SWITCHES)
$LV1	DIGITAL ONE BUTTON LIGHT SWITCH, WATT STOPPER LMSW-101
$LV2	DIGITAL TWO BUTTONS LIGHT SWITCH, WATT STOPPER LMSW-102
$LV3	DIGITAL THREE BUTTONS LIGHT SWITCH, WATT STOPPER LMSW-103
$LV4	DIGITAL FOUR BUTTONS LIGHT SWITCH, WATT STOPPER LMSW-104
$LVD	DIGITAL DIMMING WALL SWITCH LIGHT, WATT STOPPER LMDM-101.
	ELECTRIC HEATING EQUIPMENT
	ELECTRICAL PANEL
	NON-FUSED DISCONNECT SWITCH
	WEATHERPROOF DISCONNECT SWITCH
TV	TELEVISION OUTLET C/W 27MM CONDUIT.
T	TELEPHONE OUTLET C/W 27MM CONDUIT.
TIC	INTERCOM UNIT OUTLET C/W 21MM CONDUIT.
	TELEPHONE OUTLET MOUNTED AT 1500MM A.F.F C/W 27MM CONDUIT.
T	TELEPHONE/DATA OUTLET C/W 27MM CONDUIT.
D	DATA OUTLET C/W 27MM CONDUIT.
S	LOCAL SOUND SYSTEM SPEAKER C/W 16MM CONDUIT TO LOCAL SOUND SYSTEM.
M	MICROPHONE OUTLET C/W 16MM CONDUIT.
	DOOR OPERATOR
	PUSH BUTTON (OVERHEAD DOOR)
	DOOR BELL BUZZER
	DOOR BELL PUSH BUTTON
	SMOKE DETECTOR - AREA TYPE
	HEAT DETECTOR - FIX TEMPERATURE 57°C
S	FIRE ALARM BELL (150mm DIAMETER UNLESS OTHERWISE NOTED)
F	FIRE ALARM HORN/STORBE
	FIRE ALARM PULLSTATION
FACP	FIRE ALARM CONTROL PANEL
FAAP	FIRE ALARM ANNUNCIATOR PANEL
ESV	ELECTRICALLY SUPERVISED VALVE
FS	FLOW SWITCH
	ELECTRIC HEATING EQUIPMENT
	SURFACE OR RECESS MOUNTED LIGHTING FIXTURE. LETTER DENOTES TYPE
	LIGHTING FIXTURE ON NIGHT LIGHT CIRCUIT
	SURFACE OR RECESS MOUNTED LIGHTING FIXTURE. LETTER DENOTES TYPE
	DIRECT HARDWIRE CONNECTION
	JUNCTION BOX
	WALL MOUNTED LIGHTING FIXTURE. LETTER DENOTES TYPE
	OCCUPANCY SENSOR
	EMERGENCY LIGHTING FIXTURE
EX	EXIT SIGN
	BATTERY
	EMERGENCY LIGHTING FIXTURE AND BATTERY
	EMERGENCY LIGHTING FIXTURE, BATTERY AND EXIT SIGN
K	SECURITY MOTION SENSOR
AC	ABOVE COUNTER
AFF	ABOVE FINISHED FLOOR
AN	FIRE ALARM ANNUNCIATOR
BH	BASEBOARD HEATER
CB	CIORCUIT BREAKER
ER	EXISTING TO BE RELOCATED
EX	EXISTING TO REMAIN
FH	FORCED-AIR HEATER
GFI	EQUIPMENT SO NOTED TO BE SUPPLIED WITN GROUND FAULT CIRCUIT INTERRUPT
JB	JUNCTION BOX
R	RELAY WITH AUXILIARY CONTACTS
UH	UNIT HEATER
W	WALL MOUNT - VERIFY HEIGHT
WP	EQUIPMENT SO NOTED TO BE SUPPLIED WITH THE MANUFACTURER'S WEATHER-PROOF OPTION(S)
MD	MOTORIZED DAMPER
	CEILING MOUNTED SPEAKER
	MOTOR CONNECTION (SINGLE OR THREE PHASE)
SC	CEILING FAN SPEED CONTROLLER
	WALL MOUNTED SPEAKER
V	VOLUME CONTROL
FC	FIXED AXIS WIDE ANGLE CAMERA

	OUTLET FOR SECURITY DOOR STRIKE
	OUTLET FOR SECURITY DOOR CONTACT
	FLOOR MOUNTED DATA/TEL OUTLET
	OUTLET FOR SECURITY CARD READER
	OUTLET FOR SECURITY ARM/DISARM KEY PAD
	OUTLET FOR SECURITY GLASS BREAK SENSOR
	OUTLET FOR SECURITY MOTION SENSOR
H	OUTLET FOR SECURITY SIREN/ALARM HORN
	OUTLET FOR CLOSED CIRCUIT TV SECURITY CAMERA
	OUTLET FOR A/V MICROPHONE.
	EMERGENCY PUSH BUTTON FOR GAS SOLENOID VALVE
	120V SELF POWERED SMOKE ALARM C\W BATTERY BACK UP. MORE THAN ONE SMOKE ALARM SHALL BE INTERWIRED. EDWARDS # EDS517TB.
C	120V, CO DETECTOR CEILING MOUNT.
	MICROPHONE OUTLET C/W 16MM CONDUIT
OS1	CEILING MOUNT DUAL TECH OCCUPANCY SENSOR, WATT STOPPER LMDC-100.
OS2	CEILING MOUNT PIR OCCUPANCY SENSOR, WATT STOPPER LMPC-100.
OS3	CEILING MOUNT ULTRA SONIC OCCUPANCY SENSOR, WATT STOPPER LMUC-100.
OS4	WALL CORNER MOUNT DUAL TECH OCCUPANCY SENSOR, WATT STOPPER LMDX-100.
OS5	WALL MOUNT DUAL TECH OCCUPANCY SENSOR, WATT STOPPER LMDX-102.
OS6	WALL MOUNT PIR OCCUPANCY SENSOR, WATT STOPPER PW-100
RC1	DIGITAL ROOM CONTROLLER WITH SINGLE RELAY, WATT STOPPER LMRC-101
RC2	DIGITAL ROOM CONTROLLER WITH TWO RELAYS, WATT STOPPER LMRC-102
LMR1	DIGITAL UNIVERSAL DIMMING ROOM CONTROLLER WITH ONE RELAYS, WATT STOPPER LMRC-221
LMR	DIGITAL UNIVERSAL DIMMING ROOM CONTROLLER WITH TWO RELAYS, WATT STOPPER LMRC-222
GSV	GAS SOLENOID VALVE
HD	HAND DRYER
	15A, 120V DUPLEX RECEPTACLE.
	15A, 120V HALF SWITCHED DUPLEX RECEPTACLE.
	15A, 120V DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER.
T	20A, 120V T-SLOT DUPLEX RECEPTACLE.
	15A, 120V ISOLATED GROUND DUPLEX RECEPTACLE WITH SEPARATE NEUTRAL & GROUND WIRE CIRCUIT.
	15A, 120V ISOLATED GROUND DUPLEX RECEPTACLE WITH SEPARATE NEUTRAL & GROUND WIRE PER CIRCUIT MOUNTED ABOVE COUNTER.
	15A, 120V DUPLEX GROUND FAULT INTERRUPTER RECEPTACLE.
	15A, 120V DUPLEX GROUND FAULT INTERRUPTER RECEPTACLE MOUNTED ABOVE COUNTER OR AT HEIGHT.
R	15A/20A CEILING MOUNT T-SLOT GFI CORD REEL RECEPTACLE
	15A, 120V SINGLE RECEPTACLE.
	50A, 250V 3 WIRE RANGE RECEPTACLE.
1	30A, 208V, 2P SINGLE RECEPTACLE.
2	20A, 120V SINGLE RECEPTACLE.
3	20A, 208V, 3ø SINGLE RECEPTACLE.
4	15A, 208V, 1ø SINGLE RECEPTACLE.
5	15A, 208V, 3ø SINGLE RECEPTACLE.
6	40A, 208V, 3ø SINGLE RECEPTACLE.
	TELEVISION OUTLET C/W 21MM CONDUIT.
	GENERATOR REMOTE CONTROL PANEL
PL	OUTLET FOR PUSH TO LOCK
REX	OUTLET FOR REQUEST FOR EXIT
PUL	OUTLET FOR PUSH TO UNLOCK
SL	STROBE LIGHT FOR EMERGENCY RESPONSE SYSTEM
PU	PATIENT UNIT FOR EMERGENCY RESPONSE SYSTEM
OL	OCCUPIED LIGHT FOR EMERGENCY RESPONSE SYSTEM
ERS	EMERGENCY RESPONSE SYSTEM
DB	DOOR BELL
B	BUZZER
	STARTER COMBINATION WITH DISCONNECT SWITCH

LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	MAKE/MODEL OR APPROVED EQUIVALENT	VOLT	LAMP			MOUNT	REMARKS
				WATT	TYPE	COL.		
F1	COLUMBIA LJT24 2X4 DIMMABLE LED, 4792 LUMEN	COLUMBIA MODEL LJT24-40MLG-FSA12-EDU OR APPROVED EQUIVALENT BY PEERLESS, METALUMEN, GE OR PHILLIPS. OR OTHER APPROVED EQUAL	120-277	38	LED	4000	CEILING RECESSED	
T1	GASKETED SURFACE MOUNTED FIXTURE, 4' , 4533 LUMEN AND IP65 RATED.	COLUMBIA LXEM4-40ML-RFA-ED347 OR EQUIVALENT BY PEERLESS, METALUMEN OR PHILLIPS OR OTHER APPROVED EQUAL	120-277	42	LED	4000	CEILING SUSPENDED	
F6	4' UNDERCABINET GM LIGHTING LTAB DIMMABLE HIGH OUTPUT LED LINEAR LIGHTBAR	GM 2X LTAB-N-24 WTH LTCWP-12 CONNECTOR AND LTH-16POWER SUPPLY WITH LTW-24-WP CONNECTOR EQUIVALENT BY COLUMBIA AND PHILLIPS OR OTHER APPROVED EQUAL	120	10.4	LED	4000	UNDER CABINET	
HB	DECORATIVE LED HIGHBAY, 19614 LUMENS	COLUMBIA SAV-MM-40-8-WA22-CDL-U-XX OR EQUIVALENT BY PEERLESS, COLUMBIA OR GE OR OTHER APPROVED EQUAL	120-277	177	LED	4000	CEILING SUSPENDED	
CB	6`LED DOWN LIGHT, WHITE TRIM, 2000 LUMEN	PRESCOLITE LFR-6RD-M-20L-35K8-WD-DM1 / LFR-6RD-T-S OR APPROVED BY PEERLESS, METALUMEN OR GE OR OTHER APPROVED EQUAL	120-277	14.6	LED	4000	CEILING RECESSED	
MA	LED FULL CUT OFF WALL PACK, DIE CAST ALUMINIUM HOUSING AND DOOR	EXO LNC2-48L35-5K7-3-UNV EQUIVALENT BY COOPER, CANLYTE OR GE OR OTHER APPROVED EQUAL	120-277	35	LED	4000	WALL MOUNTED	
MC	6" LED POT LIGHT, WET LOCATIONS, 1500 LUMEN	PRESCOLITE LFR-6RD-M-15L-40K9-WD-DM1 / LFR-6RD-T-S EQUIVALENT BY PEERLESS, METALUMEN OR PHILLIPS OR OTHER APPROVED EQUAL	120	11.4	LED	4000	CEILING RECESSED	
PA	LIGHTING STANDARD C/W 3.85M HIGH STEEL TAPPERED POLE ON 750MM ABOVE GRADE CONCRETE BASE, POLE & LUMINAIRES (BLACK) FINISH AS PER ARCHITECT SELECTION.	BEACON MODEL # URB-MAR-26-8OL90-4K7-UNV-3 WITH NEIGHBOR SHIELD OR APPROVED EQUIVALENT BY COOPER, CANLYTE & HUBBELL OR OTHER APPROVED EQUAL	120-277	110	LED	4000	POLE MOUNTED	
J	4`VANITY LED FIXTURE, 3700 LUMEN	VISIONEERING LCAD48-LED840K037LUNV EQUALS: PEERLESS-ELECTRIC, LITHONIA AND GE OR OTHER APPROVED EQUAL	120-277	43	LED	4000	SURFACE MOUNTED	

GENERAL NOTES

1. DO NOT SCALE DRAWINGS FOR INSTALLATION PURPOSES. ALL MEASUREMENTS ARE TO BE OBTAINED FROM ARCHITECTURAL PLANS, ELEVATIONS, AND FROM FIELD MEASUREMENTS.
2. DIVISION 16 SHALL REFER TO ARCHITECTURAL & MECHANICAL DRAWINGS FOR ALL SCOPE OF WORK OF DIVISION 16 WHICH ARE RELATED TO OTHER TRADES.
3. ELECTRICAL AND MECHANICAL TRADES SHALL WORK IN CONJUNCTION WITH ONE ANOTHER, SO AS TO AVOID INTERFERENCES AND TO MAINTAIN MINIMUM CLEARANCES BETWEEN DUCTWORK, PIPING, CONDUIT AND LIGHTING FIXTURE.
4. REVIEW ARCHITECTURAL DRAWINGS FOR FIRE RATED WALLS, AND CEILINGS AND PROVIDE NECESSARY FIRE STOPPING AS REQUIRED.
5. WORK IN CONJUNCTION WITH REFLECTED CEILING PLANS WHEN LOCATING LIGHT FIXTURES.
6. WORK IN CONJUNCTION WITH MECHANICAL DIFFUSER LAYOUT WHEN LOCATING SMOKE DETECTORS.
7. POWER AND CONTROL WIRING SHALL RISE TO ROOF TOP EQUIPMENT WITHIN CURB OF UNIT, WHEN OTHERWISE APPROVED BY THE CONSULTANT.
8. SPARE.
9. PROVIDE AND INCLUDE FOR ALL NECESSARY ACCESSORIES AND FITTINGS FOR A FULL AND COMPLETE INSTALLATION OF LIGHTING FIXTURES, INCLUDING CEILING TRIMS AND FRAMES TO SUIT CEILING. REFER TO ARCHITECTURAL CEILING SCHEDULE FOR CEILING TYPES.
10. LIGHTING BALLASTS AND DIMMERS SHALL BE COMPATIBLE WITH THE LIGHTING SOURCE AND LIGHTING FIXTURES BEING CONTROLLED AND INSTALLED.
11. PROVIDE EACH ITEM MENTIONED OR INDICATED OF QUALITY AND SUBJECT TO QUALIFICATIONS NOTED; PERFORM ACCORDING TO CONDITIONS STATED EACH OPERATIONS STATED. EACH OPERATION PRESCRIBED ; AND PROVIDE THEREFORE ALL LABOR, MATERIAL, EQUIPMENT, INCIDENTALS AND SERVICES REQUIRED TO COMPLETE THE INSTALLATION.
12. SCHEDULE AND COORDINATE ALL WORK WITH OTHER TRADES.
13. CONTRACTOR SHALL BALANCE CIRCUIT LOADS AS CLOSELY AS POSSIBLE.
14. CONTRACTOR SHALL PERFORM VOLTAGE DROP CALCULATIONS FOR ALL BRANCH CIRCUITS OF LIGHTING, POWER AND FEEDERS AND SHALL MAINTAIN VOLTAGE DROP WITHIN PERMISSIBLE LIMITS AS PER OESC REQUIREMENTS AND PROVIDE PROPER WIRE SIZES ACCORDINGLY PRIOR TO COMMENCING ROUGH-IN INSTALLATION. THE VOLTAGE DROP CALCULATIONS SHALL BE BASED ON MAXIMUM CIRCUIT AMPACITY.
15. ALL CONDUITS BACKBOXES AND ROUGH-IN FOR LOW VOLTAGE SYSTEMS SHALL BE PROVIDED BY ELECTRICAL CONTRACTOR.
16. DIVISION 16 TO PROVIDE CONDUIT & WIRING FOR ALL ELECTRICAL & MECHANICAL EQUIPMENT FOR A COMPLETE OPERATIONAL SYSTEM.
17. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL OF THE COORDINATION WORKS REGARDING HYDRO NEW INCOMING SERVICE. ELECTRICAL CONTRACTOR SHALL COMPLY WITH HYDRO REQUIREMENT AND SHALL PROVIDE ALL NECESSARY MATERIAL & LABOR REQUIRED ACCORDINGLY.
18. ELECTRICAL CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL THE ROUGH INS REQUIRED FOR DIVMSION 15 SCOPE OF WORK (UNLESS NOTED OTHERWISE) INCLUDING CONDUITS, BACK BOXES, JUNCTION BOXES, PULL WIRES, ETC. ELECTRICAL CONTRACTOR SHALL REFER TO DIVISION 15 DRAWINGS AND SPECS FOR MORE INFORMATION AND SHALL INCLUDE ALL COSTS ASSOCIATED RELATED TO THE ROUGH INS IN HIS TENDER PRICE.
19. REFER TO DOOR HARDWARE SCHEDULE FOR ROUGH IN REQUIREMENT AND PROVIDE ALL NECESSARY FOR FULL OPERATIONAL SYSTEM TO COMPLY ACCORDINGLY.
20. ELECTRICAL CONTRACTOR SHALL PROVIDE SUPPORTING SYSTEM TO SUPPORT ALL LIGHT FIXTURES ONLY FROM THE JOIST OR STEEL BEAMS (NOT FROM THE ROOF DECK).
21. ALL ELECTRICAL EQUIPMENT THAT IS SUSPENDED SHALL BE SUPPORTED BY A SYSTEM THAT IS CERTIFIED BY THE MANUFACTURER TO CARRY THE LOADS OF THE EQUIPMENT. IF NO SYSTEM IS RECOMMENDED BY THE MANUFACTURER, THE CONTRACTOR SHALL PROVIDE A DESIGN STAMPED BY A P.ENG. THESE ITEMS SHALL INCLUDE BUT NOT LIMITED TO LIGHTING, TRANSFORMER, HEATERS, AND ALL SIMILAR ELECTRICAL EQUIPMENT. INSTALL IN ACCORDANCE WITH MANUFACTURER'S OR P.ENG DESIGN.
22. PROVIDE 3/4" EMT CONDUIT FROM EACH VOICE/DATA OUTLET TO THE PLYWOOD BACKBOARD LOCATED IN THE MECH/ELEC ROOM.
23. PROVIDE 3/4" EMT CONDUIT FROM PUBLIC ADDRESS SPEAKER TO THE PLYWOOD BACKBOARD LOCATED IN THE MECH/ELEC ROOM.
24. PROVIDE STAINLESS STEEL COVER PLATES FOR ALL WIRING DEVICES, LIKE SWITCHES, POWER RECEPTACLES AND COVER PLATES.
25. COORDINATION & ARC FLASH STUDY SHOP DRAWINGS SHALL BE PROVIDED FOR THE CONSULTANT'S REVIEW PRIOR TO MANUFACTURING OF ELECTRICAL PANELS INCLUDING MAIN SWITCHBOARD & DISTRIBUTION PANELS.
26. THROUGHOUT DIVISION 16 ARE LIST OF "ALTERNATE EQUIPMENT" OR APPROVED EQUIVALENT MANUFACTURERS ACCEPTABLE TO CONSULTANT IF THEIR PRODUCT MEETS CHARACTERISTICS OF SPECIFIED DESCRIBED EQUIPMENT/PRODUCTS. IT IS RESPONSIBILITY OF THIS DIVISION TO ENSURE "ALTERNATE EQUIPMENT" OR APPROVED EQUIVALENT COMPLIES WITH THE SPECIFIED DESCRIBED EQUIPMENT/PRODUCTS. ALL ADDITIONAL WORK REQUIRED FOR AND ASSOCIATED WITH ALTERNATE EQUIPMENT SHALL BE PROVIDED WITHOUT CHANGE IN CONTRACT AMOUNT.
27. COORDINATE ON SITE WITH THE GENERATOR MANUFACTURER AND OTHER TRADES BEFORE COMMENCEMENT OF THE GENERATOR INSTALLATION WORK AND THEN PROCEED ACCORDINGLY.
28. PROVIDE ADDITIONAL ALARM SIGNALS (C/W ALL MATERIAL AND LABOR FOR FULLY OPERATIONAL SYSTEM) AT THE GENERATOR CONTROL PANEL AND THE REMOTE ANNUNCIATOR PANEL TO INCLUDE THE FOLLOWING ALARM SIGNALS:
   - ATS ON BYPASS MODE.
   - ATS ON EMERGENCY POWER.
   - GENERATOR GAS SHUT OFF VALVE.

ELECTRICAL DRAWING LIST

E1.0	ELECTRICAL LEAD SHEET
E2.0	PROPOSED SITE PLAN
E3.0	PROPOSED POWER & COMMUNICATION FLOOR PLAN
E3.1	PROPOSED POWER ROOF PLAN
E4.0	PROPOSED LIGHTING FLOOR PLAN
E5.0	PROPOSED FIRE ALARM SYSTEM FLOOR PLAN
E5.1	PROPOSED PORTABLE FIRE EXTINGUISHERS
E6.0	SINGLE LINE DIAGRAM & PANEL SCHEDULES
E6.1	SINGLE LINE DIAGRAM & PANEL SCHEDULES WITH PHOTOVOLTAIC PANELS
E6.2	MECHANICAL EQUIPMENT WIRING SCHEDULE
E7.0	ELECTRICAL DETAILS -1
E7.1	ELECTRICAL DETAILS -2
E9.0	PROPOSED SECURITY SYSTEM FLOOR PLAN
E10.0	PROPOSED PA SYSTEM FLOOR PLAN

DISCLAIMER: For the purposes of this procurement process, all communications in relation to this ITT or this project must be made through the Bidding System using the "Submit a Question" link associated with this bid opportunity ("ITT Contact"), unless specifically instructed within the ITT document.

Bidders and their representatives are not permitted to contact any employees, officers, agents, elected or appointed officials or other representatives of the City, other than the ITT Contact. Failure to adhere to this rule may result in the disqualification of the bidder and the rejection of the bidder's bid.

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9	95% SUBMISSION	2023-11-10
10	100% SUBMISSION	2023-11-24
11	100% SUBMISSION	2024-02-12
12	ISSUED FOR TENDER	2024-02-23
13	ISSUED FOR TENDER	2024-02-26

PROJECT :
BARRIE FIRE STATION 6
845 MAPLEVIEW DRIVE EAST, BARRIE, ONTARIO

PROFESSIONAL SEAL :
LICENSED PROFESSIONAL ENGINEER
M.K. AHMED
100069234
2024.02.26
PROVINCE OF ONTARIO

DWG TITLE :
ELECTRICAL LEAD SHEET

RCEI
REGAL CONSULTING ENGINEERS INC.
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DATE :	JUN 14, 2023
SCALE :	N.T.S
DRAWN BY:	AS
CHECKED BY :	MA
DWG STATUS :	TENDER
PROJECT No. :	2023-401
DRAWING No. :	E1.0
REVISION	

NOTES : RE TELEPHONE/FIBER INCOMING SERVICE

1. PROVIDE 3–103mm PVC DUCTS DIRECT BURIED C/W PULL ROPE FROM TELEPHONE/FIBER PLYWOOD BACKBOARD IN IT ROOM TO PROPERTY LINE AS INDICATED.
2. PROVIDE 2440mm X 1220mm X 19mm FIRE RETARDANT BACKBOARD FOR TELEPHONE SERVICE IN IT ROOM AND #6 GROUND WIRE IN EMT CONDUIT TO MAIN BUILDING GROUND IN ELECTRICAL ROOM.
3. DUCTS IN AREAS SUBJECT TO VEHICULAR LOAD SHALL BE ENCASED IN CONRETE, OTHERWISE DUCTS SHALL BE DIRECT BURIED. DIRECT BURIAL DUCTS SHALL BE RIGID PVC.
4. COORDINATE TERMINATION POINTS AND ALL WORKS WITH TELEPHONE/INTERNET PROVIDER PRIOR TO DUCT INSTALLATION.
5. THE COST FOR TELEPHONE AND INTERNET CONNECTION CHARGES ARE CARRIED UNDER CASH ALLOWANCE, ALL WORKS DESCRIBED IN ITEMS 1 AND 2 ABOVE SHALL BE CARRIED OUT BY DIVISION 16 IN CONTRACT AND INCLUDED IN TENDER BID.

NOTES:
.1 ALL DIMENSION UNIT SHALL BE IN mm UNLESS OTHERWISE NOTED.

1 / E2.0 LIGHT POLE BASE DETAIL
SCALE: N.T.S.

NOTES:
.1 PROVIDE DUCTBANK TO OESC STANDARDS AND APPROVAL.
.2 PROVIDE BELL FITTINGS AT EACH END. PROVIDE DUCT SPACERS AT 1.0M INTERVALS.
.3 REFER TO SPECIFICATIONS FOR DETAILED DESCRIPTION.
.4 ALL DIMENSIONS ARE TYPICAL IN MM.

3 / E2.0 SECONDARY DUCTBANK DETAIL
SCALE: N.T.S.

NOTES:
.1 PROVIDE DUCTBANK TO OESC STANDARDS AND APPROVAL.
.2 PROVIDE BELL FITTINGS AT EACH END. PROVIDE DUCT SPACERS AT 1.0M INTERVALS.
.3 REFER TO SPECIFICATIONS FOR DETAILED DESCRIPTION.
.4 ALL DIMENSIONS ARE TYPICAL IN MM.

2 / E2.0 SECONDARY DUCTBANK DETAIL
SCALE: N.T.S.

NOTES : RE ELECTRICAL INCOMING SERVICE

1. INNPOWER HYDRO WILL SUPPLY AND INSTALL THE FOLLOWING:
   1. 120/208 VOLT, 3 PHASE, 4 WIRE PAD MOUNT TRANSFORMER WITH KVA RATING TO SUIT LOAD REQUIREMENT.
   2. PRIMARY HIGH VOLTAGE CABLES.
   3. POWER CONNECTION AT HYDRO POLE, PRIMARY AND SECONDARY SIDE OF TRANSFORMER.
   4. CT'S AND HYDRO METER'S
2. ELECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL THE FOLLOWING:
   1. 4–103MM PRIMARY DUCTS ENCASED IN CONCRETE ENVELOP FROM PROPERTY LINE ON MAPLEVIEW DR. EAST TO NEW PAD MOUNT TRANSFORMER.
   2. GROUNDING AT TRANSFORMER PAD FOUNDATION AS PER INNPOWER HYDRO REQUIREMENT.
   3. TRANSFORMER CONCRETE PAD FOUNDATION AS PER INNPOWER HYDRO REQUIREMENT.
   4. BOLLARDS PROTECTION OF PAD MOUNT TRANSFORMER AS PER INNPOWER HYDRO REQUIREMENT.
   5. 4–103MM SECONDARY DUCTS ENCASED IN CONCRETE ENVELOP FROM TRANSFORMER PAD FOUNDATION TO MAIN SWITCHBOARD IN ELECTRICAL ROOM.
   6. 2 RUNS OF 4#350 MCM CU T90 FEEDER+GROUND CABLES FROM PAD MOUNT TRANSFORMER TO MAIN DISCONNECT SWITCH IN ELECTRICAL ROOM. LEAVE 6100MM (20') SLACK OF SECONDARY CABLES COMPLETE WITH LUGS AT TOP OF TRANSFORMER PAD FOUNDATION.
   7. SECONDARY CABLES CONNECTION AT MAIN DISCONNECT SWITCH.
   8. 1200W X 1200H X 300D METER CABINET IN ELECTRICAL ROOM AS PER INNPOWER HYDRO REQUIREMENTS.
   9. PROVIDE 16MM EMPTY CONDUIT COMPLETE WITH PULL ROPE TO TELEPHONE PLYWOOD BACKBOARD FOR DEDICATED TELEPHONE LINE IN METER CABINET FOR FUTURE USE.
   10. COORDINATE ALL WORK WITH LOCAL UTILITIES.
   11. ELECTRICAL CONTRACTOR TO FOLLOW INNPOWER 3 PHASE METERING STANDARDS ATTACHED WITH THE TENDER DOCUMENTS.
   12. ELECTRICAL CONTRACTOR TO FOLLOW INNPOWER ICI SUBMISSION GUIDELINES ATTACHED WITH THE TENDER DOCUMENTS.
3. THE COST FOR INNPOWER HYDRO, SCOPE OF WORK AS DESCRIBED IN ITEM 1 IS CARRIED UNDER CASH ALLOWANCE, REFER TO SECTION 01210 OF DIVISION 1 SPECIFICATION. ALL WORKS DESCRIBED IN ITEMS 2 ABOVE SHALL BE CARRIED OUT BY DIVISION 16 IN CONTRACT AND INCLUDED IN TENDER BID.

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11	100% SUBMISSION	2024-02-12
12	ISSUED FOR TENDER	2024-02-23
13	ISSUED FOR TENDER	2024-02-26

PROJECT:
BARRIE FIRE STATION 6
845 MAPLEVIEW DRIVE EAST, BARRIE, ONTARIO

PROFESSIONAL SEAL :

DWG TITLE :
PROPOSED ELECTRICAL SITE PLAN

REGAL CONSULTING ENGINEERS INC.
CONSULTING MECHANICAL & ELECTRICAL ENGINEERS
208 Wyecroft Road, Suite 200, Oakville, Ontario L6K 3S3
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DATE :	JUN 14, 2023
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CHECKED BY :	MA
DWG STATUS :	TENDER
PROJECT No. :	2023-401
DRAWING No. :	E2.0
REVISION	

NOTES:

1. SWITCH TO CONTROL THE POWER TO THE EXTERIOR RECEPTACLES.

2. PROVIDE 18"X18"X4" WALL MOUNTED ELECTRICAL BLACK BOX C/W COVER PLATE TO BE INSTALLED ON THE WALL AND BEHIND THE PA SYSTEM RACK. TERMINATE ALL THE ROUGH IN CONDUITS FOR PA SYSTEM SPEAKERS AND MICROPHONES INTO THIS RECESSED BACK BOX.

3. PROVIDE TWO CONDUITS 50MM SIZE FROM IT ROOM TO ROOF. THE CONDUITS SHALL BE GROUNDED.

4. REMOTE UP/DOWN/OFF PUSH BUTTON FOR MOTORIZED FOLDING DOOR SYSTEMS.

5. CORD REEL RECEPTACLES SHALL BE CEILING MOUNTED, 20A, 120V. SUPPLY AND INSTALL 12–40' CABTIRE WHIPS C/W 5–20R WATERLIGHT CONNECTORS, KELLUM GRIPS AND L5–20P CORD ENDS TO CONNECT TO CORD REEL RECEPTACLES. WIRING THROUGH DEAD FRONT GFCI SHOW ON DRAWING.
HUBBELL #HBL45123 SERIES
ALTERNATE : APPLETON OR APPROVED EQUIVALENT

6. RACK SIZE IN IT ROOM IS 24U RACK CABINET, SIDE ACCESS, NOT HINGED ACCESS.

7. RECEPTACLES WITH USB IN THE CREW ROOM TO BE MOUNTED AT 700MM FROM F.F.

8. COORDINATE WITH OTHER TRADE REGARDING CEILING FANS AND PROVIDE 3/4" CONDUIT AND WIRING FROM EACH SPEED CONTROLLER SWITCH TO EACH RESPECTIVE CEILING FAN FOR FULLY OPERATIONAL SYSTEM.

9. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL POWER AND DATA IN A TV CABLE ORGANISER BOX BEHIND TV. (TYPICAL FOR ALL TV'S)

10. 2440MMX1830MMX18MM FIRE RATED PLYWOOD BACKBOARD FOR SPLITTER, PANEL, ATS, ETC. PROVIDE ROUGH IN CONDUITS FOR SPLITTER TO BE TERMINATED AT THIS PLYWOOD BACK BOARD. ALL FIRE RATED PLYWOOD TO BE 100% FSC CERTIFIED WOOD.

11. RESERVED.

12. ALL WALLS IN I.T. ROOM TO HAVE FIRE RATED PLYWOOD BACKBOARD FOR LOW VOLTAGE SYSTEMS. PROVIDE ALL ROUGH IN CONDUITS FOR LOW VOLTAGE OUTLETS (I.E. VOICE, DATA, ETC) TO BE TERMINATED AT THIS PLYWOOD BACK BOARD. ALL FIRE RATED PLYWOOD TO BE 100% FSC CERTIFIED.

13. PROVIDE DOOR BUZZER SYSTEM FOR FULLY OPERATIONAL SYSTEM AS PER MANUFACTURER RECOMMENDATION INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

    PROVIDE ALL CONDUIT, OUTLETS, CABLES, COVER PLATES, DOOR BUZZER, PUSH–BUTTON AND ASSOCIATE COMPONENTS AS REQUIRED AND/OR AS SHOWN ON THE DRAWINGS FOR OPERATIONAL SYSTEM.

    DOOR BUZZER SHALL BE EDWARD#762, 24VOLT AC, COMPACT STRAP MOUNTED SUITABLE FOR FLUSH MOUNTING IN STANDARD GANG BOX.

    PUSH–BUTTON SHALL BE EDWARD#654, 24VOLT, COMPACT, STRAP MOUNTED SUITABLE FOR FLUSH MOUNTING IN STANDARD GANG BOX.

    TRANSFORMER SHALL BE EDWARDS#590 SERIES, 24VOLT, 20VA OUTPUT RATING COMPLETE WITH NO.593 PLATE TO PERMIT A COMPLETELY ENCLOSED MOUNTING OF 590 SERIES TRANSFORMER IN A STANDARD TWO GANG OUTLET BOX.

    ALL WIRING SHALL BE RUN IN CONDUIT, CONDUIT SHALL BE 16MM(1/2") UNLESS OTHERWISE NOTED.

14. CONTROL PANELS FOR MOTORIZED FOLDING DOOR SYSTEMS. PROVIDE CONDUITS, POWER, & CONTROL WIRING, DISCONNECT SWITCHES, OUTLET AND POWER CONNECTIONS FOR MOTORS CONTROL PANES AND REMOTE UP/DOWN/OFF PUSH BUTTONS FOR MOTORIZED FOLDING DOOR SYSTEMS. COORDINATE WITH OTHER TRADES AND SYSTEMS SUPPLIES AND PROVIDE ALL NECESSARY MATERIALS AND LABOR REQUIRED FOR FULLY OPERATIONAL SYSTEM. ALL RECEPTIVE HARDWARE FOR FOLDING DOOR SYSTEMS WILL BE PROVIDED BY THE GENERAL CONTRACTOR.COORDINATE WITH THE OWNER FOR FOLDING DOORS SEQUENCE OF OPERATION.

15. CONTRACTOR TO PROVIDE AND INSTALL LEVITON PILOT LIGHT SWITCH FOR EXHAUST FAN.

16. RESERVED.

17. PROVIDE 3/4" CONDUIT FOR 2 JACK DATA/VOICE OUTLETS AND 1" FOR MORE THAN 2 JACK DATA/VOICE OUTLETS .

18. PROVIDE THE FOLLOWING EMPTY CONDUITS:

    A)2" CONDUIT FROM THE PLYWOOD BACK BOARD IN IT ROOM TO ROOF FOR FAUX TOWER. COORDINATE ON SITE FOR EXACT STUB UP LOCATION PRIOR TO ROUGH IN AND PROCEED ACCORDINGLY.

    B)2" CONDUIT FROM THE PLYWOOD BACK BOARD IN IT ROOM TO ROOF FOR IT SYSTEM. COORDINATE ON SITE FOR EXACT STUB UP LOCATION PRIOR TO ROUGH IN AND PROCEED ACCORDINGLY.

19. REFER TO ARCHITECTURAL DETAILS FOR MOUNTING HEIGHT OF THE RECEPTACLES IN DAY ROOM AND KITCHEN.

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12	ISSUED FOR TENDER	2024-02-23
13	ISSUED FOR TENDER	2024-02-26

PROJECT :

BARRIE FIRE STATION 6

845 MAPLEVIEW DRIVE EAST, BARRIE, ONTARIO

PROFESSIONAL SEAL :

LICENSED PROFESSIONAL ENGINEER
M.K. AHMED
100069234
2024.02.26
PROVINCE OF ONTARIO

DWG TITLE :

PROPOSED ELECTRICAL POWER & COMMUNICATION FLOOR PLAN

RCEI

REGAL CONSULTING ENGINEERS INC.
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DATE :	JUN 14, 2023
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PROJECT No. :	2023-401
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REVISION	

NOTES:

1. PV PANELS AND ALL ASSOCIATED ELECTRICAL DEVICES INCLUDING INSTALLATION WILL BE PART OF PROVISIONAL SCOPE. PV COORDINATION WITH INNPOWER SHALL BE THE RESPONSIBILITY OF THE GC, ANY ASSOCIATED FEES WILL BE PAID BY THE OWNER.

(*) PROVISIONAL

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13	ISSUED FOR TENDER	2024-02-26

PROJECT :

BARRIE FIRE STATION 6

845 MAPLEVIEW DRIVE EAST, BARRIE, ONTARIO

PROFESSIONAL SEAL :

LICENSED PROFESSIONAL ENGINEER
M.K. AHMED
100069234
2024.02.26
PROVINCE OF ONTARIO

DWG TITLE :

PROPOSED ELECTRICAL POWER ROOF PLAN

RCEI

REGAL CONSULTING ENGINEERS INC.
CONSULTING MECHANICAL & ELECTRICAL ENGINEERS
208 Wyecroft Road, Suite 200, Oakville, Ontario L6K 3S3
PHONE: (905)844-3913
www.regal-eng.com

DATE :	JUN 14, 2023
SCALE :	1:75
DRAWN BY:	AS
CHECKED BY :	MA
DWG STATUS :	TENDER
PROJECT No. :	2023-401
DRAWING No. :	E3.1
REVISION	

NOTES:

1. THE CAPACITY OF THE BATTERY UNITS SHALL BE RATING AS FOLLOWS.
   BU-1 720W
   BU-2 720W
2. PROVIDE A MINIMUM OF 2#8+GRD WIRING SIZE IN 1.25" CONDUIT FOR EXTERIOR LIGHT CIRCUITS.
3. ALL EXTERIOR LIGHTS TO BE CONTROLLED THROUGH PHOTOCELL.

4. ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL AN END SWITCH DOOR CONTACT TO ENERGIZE THE RED/GREEN CONTROL LIGHT. WHEN DOOR IS OPENED AND END SWITCH CONTACT IS CLOSED GREEN LIGHT SHALL BE ENERGIZED. WHEN THE DOOR IS CLOSED THEN THE END SWITCH DOOR CONTACT IS OPEN THEN RED LIGHT SHALL BE ENERGIZED. RED/GREEN TRUCK CONTROL LIGHTS SHALL BE INSTALLED AT CHEST HEIGHT. 5'-0" FROM FINISHED FLOOR LEVEL.

BATTERY UNIT SCHEDULE

LOCATION	UNIT UNMBER	EXIT SIGNS	DOUBLE HEADS	SINGLE HEADS	CONNECTED LOAD (WATT)	CAPACITY (WATT)			
						30 MIN	1H00	1H30	2H00
029 TOOL ROOM	BU-1	4	11	0	148	720	420	300	240
014 ELECTRICAL ROOM	BU-2	5	9	16	224	720	420	300	240
REFER TO ELECTRICAL SPECIFICATION									

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ISSUE OR REVISION

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1	ISSUED FOR REVIEW	2023-06-22
2	ISSUED FOR REVIEW	2023-06-27
3	ISSUED FOR REVIEW	2023-07-06
4	ISSUED FOR 100% DESIGN DEVELOPMENT	2023-08-08
5	ISSUED FOR DD SIGN-OFF	2023-08-23
6	PROGRESS SET	2023-09-22
7	75% SUBMISSION	2023-10-13
8	ISSUED FOR BUILDING PERMIT	2023-11-01
9	95% SUBMISSION	2023-11-10
10	100% SUBMISSION	2023-11-24
11	100% SUBMISSION	2024-02-12
12	ISSUED FOR TENDER	2024-02-23
13	ISSUED FOR TENDER	2024-02-26

PROJECT :

BARRIE FIRE STATION 6

845 MAPLEVIEW DRIVE EAST, BARRIE, ONTARIO

PROFESSIONAL SEAL :

LICENSED PROFESSIONAL ENGINEER
M.K. AHMED
100069234
2024.02.26
PROVINCE OF ONTARIO

DWG TITLE :

PROPOSED LIGHTING FLOOR PLAN

RCEI
REGAL CONSULTING ENGINEERS INC.
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208 Wyecroft Road, Suite 200, Oakville, Ontario L6K 3S3
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PROJECT No. :	2023-401
DRAWING No. :	E4.0
REVISION	

NOTES:

1. REFER TO FLOOR PLANS FOR QUANTITY OF ALL DEVICES FOR EACH ZONE.
2. WIRING AND CONDUIT SIZE TO BE AS PER MANUFACTURER'S RECOMMENDATION.

FIRE ALARM SYSTEM SCHEMATICS

NOTES:

1. PROVIDE FIRE ALARM GRAPHICS TO BE INSTALLED ADJACENT TO THE LED ANNUNCIATOR IN THE MAIN ENTRANCE.
2. FOR NUMBER AND LOCATION OF DEVICES REFER TO FLOOR PLANS.
3. PROVIDE WRING IN CONDUIT FOR COMPLETE OPERATIONAL SYSTEM.
4. ALL PULL STATIONS SHALL BE C/W PLASTIC COVERS WITH LOCAL HORN.
5. PROVIDE ISOLATORS FOR EVERY ONE TO TWO HOUR RATED FIRE COMPARTMENT.
6. ALL LOOP WIRING FOR INITIATING CIRCUITS SHOULD RUN ON SEPARATE ROUTE INCLUDING RISER.
7. SOUND ALL AUDIBLE SIGNALS IN CASE OF GENERAL ALARM.
8. PROVIDE AUXILIARY CONTACT FOR THE DOORS MAG RELEASE.

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11	100% SUBMISSION	2024-02-12
12	ISSUED FOR TENDER	2024-02-23
13	ISSUED FOR TENDER	2024-02-26

PROJECT :

BARRIE FIRE STATION 6

845 MAPLEVIEW DRIVE EAST, BARRIE, ONTARIO

PROFESSIONAL SEAL :

LICENSED PROFESSIONAL ENGINEER
M.K. AHMED
100069234
2024.02.26
PROVINCE OF ONTARIO

DWG TITLE :

PROPOSED FIRE ALARM PLAN

RCEI

REGAL CONSULTING ENGINEERS INC.
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208 Wyecroft Road, Suite 200, Oakville, Ontario L6K 3S3
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DRAWING No. :	E5.0
REVISION	

- Main Entrance
- Fire Alarm Annunc.
- Mn. Elect. Panel
- Fire Alarm Control Panel
- Fire Extinguishers
- Fire Extinguisher Cabinet

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11	100% SUBMISSION	2024-02-12
12	ISSUED FOR TENDER	2024-02-23
13	ISSUED FOR TENDER	2024-02-26

PROJECT :

BARRIE FIRE STATION 6

845 MAPLEVIEW DRIVE EAST, BARRIE, ONTARIO

PROFESSIONAL SEAL :

LICENSED PROFESSIONAL ENGINEER
M.K. AHMED
100069234
2024.02.26
PROVINCE OF ONTARIO

DWG TITLE :

PROPOSED PORTABLE FIRE EXTINGUISHERS PLAN

RCEI

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DRAWING No. :	E5.1
REVISION	

ELECTRICAL PANEL:
120/208V-3Ø-60HZ, 225
AMP,MAIN BREAKER 200A

NEW PANELBOARD A SCHEDULE

DESCRIPTION	BRKR SIZE (A)	WATTS PER PHASE A	B	C	CR NO	BUS ABC	CR NO	WATTS PER PHASE A	B	C	BRKR SIZE (A)	DESCRIPTION
INTERIOR LIGHTING	15				01		02				15	INTERIOR LIGHTING
INTERIOR LIGHTING	15				03		04				15	INTERIOR LIGHTING
INTERIOR LIGHTING	15				05		06				15	INTERIOR LIGHTING
SPARE	15				07		08				15	TIMER
NIGHT LIGHTING	15				09		10				20	INTERIOR LIGHTING
EXTERIOR LIGHTING	15				11		12				20	PYLON SIGN
EXTERIOR LIGHTING	15				13		14				15	INTERIOR LIGHTING
RECEPTACLES	15				15		16				15	EXTERIOR LIGHTING
RECEPTACLES	20				17		18				30	DRYER
RECEPTACLES	20				19		20				2P	
RECEPTACLES	20				21		22				20	WASHER
COFFE MAKER (*)	20				23		24				20	RECEPTACLES (*)
SPARE	20				25		26				20	RECEPTACLES
CO DETECTOR	20				27		28				20	RECEPTACLES
RECEPTACLES	20				29		30				20	RECEPTACLES
RECEPTACLES	20				31		32				20	FRIDGE
RECEPTACLES	20				33		34				20	MICROWAVE (*)
WATER COOLER	15				35		36				20	DISHWASHER
RANGE	50				37		38				15	RECEPTACLES (*)
	2P				39		40				20	RECEPTACLES
RECEPTACLES	20				41		42				15	RECEPTACLES
EXTERNAL RECEPTACLE (*)	20				43		44				15	DOOR OPERATOR
T-SLOT CORD REEL RECEPTACLE	20				45		46				15	DOOR OPERATOR
T-SLOT CORD REEL RECEPTACLE	20				47		48				15	DOOR OPERATOR
T-SLOT CORD REEL RECEPTACLE	20				49		50				15	BUZZER
T-SLOT CORD REEL RECEPTACLE	20				51		52				15	DOOR OPERATOR
EMERGENCY RESPONSE SYSTEM	15				53		54				15	SECURITY PANEL
EMERGENCY RESPONSE SYSTEM	15				55		56				20	FIRE ALARM PANEL
RANGE HOOD	20				57		58				20	RECEPTACLES
BIKE	20				59		60				20	RECEPTACLES
TREADMILL	20				61		62				20	RECEPTACLES
ELLIPTICAL	20				63		64				15	EF-11
PRINTER	15				65		66					
PRINTER	15				67		68					
CP-3	15				69		70				20	SPARE
	2P				71		72				15	AIRMATION INDUSTRIAL AIR CLEANER-1
CP-2A	15				73		74				2P	
	2P				75		76				15	AIRMATION INDUSTRIAL AIR CLEANER-2
AIRMATION INDUSTRIAL AIR CLEANER-3	15				77		78				2P	
	2P				79		80				15	TSCMM CONTROL PANEL
CO/NOX	15				81		82				25	ERV-1
SPARE	20				83		84				2P	

(*) GROUND FAULT INTERRUPTER CIRCUIT BREAKER
(**) C/W LOCK-OFF DEVICES

ELECTRICAL PANEL:
120/208V-3Ø-60HZ, 225
AMP,MAIN BREAKER 200A

NEW PANELBOARD B SCHEDULE

DESCRIPTION	BRKR SIZE (A)	WATTS PER PHASE A	B	C	CR NO	BUS ABC	CR NO	WATTS PER PHASE A	B	C	BRKR SIZE (A)	DESCRIPTION
EDH-1 @ FCU-1	20				01		02				20	CU-1
					03		04				2P	
					05		06				15	CP-1
FCU-2, FCU-4, FCU-5	15				07		08				15	FCU-6, FCU-7, FCU-8
	2P				09		10				15	
FCU-1, FCU-3	15				11		12				15	FCU-9, FCU-11
	2P				13		14				15	
FCU-12	15				15		16				15	EF-1, EF-2
	2P				17		18				15	EF-3, EF-4
FOLDING DOOR MOTOR	20				19		20				15	EF-5, EF-6
					21		22				20	EF-7, EF-8, EF-9
					23		24				15	EDH-2 @ FCU-2
FOLDING DOOR MOTOR	20				25		26					
					27		28					
					29		30				15	EDH-2 @ FCU-9
FOLDING DOOR MOTOR	20				31		32					
					33		34					
					35		36				20	WASTE COLLECTION OVERHEAD DOOR & LIGHTING
FOLDING DOOR MOTOR	20				37		38				15	EF-12, EF-13
					39		40				15	EF-14,EF-15
					41		42				15	SPARE
EDH-2 @ FCU-12	15				43		44				20	SU-1
					45		46				2P	
					47		48				15	EDH-3 @ FCU-5
EDH-3 @ FCU-3	15				49		50					
					51		52					
					53		54				15	EDH-3 @ FCU-6
EDH-3 @ FCU-4	15				55		56					
					57		58					
					59		60				15	EDH-3 @ FCU-11
EDH-3 @ FCU-7	15				61		62					
					63		64					
					65		66				15	UH-1,UH-1A,UH-2,UH-2A, UH-7
					67		68				15	UH-3, UH-4, UH-5, UH-6
EDH-3 @ FCU-8	15				69		70				20	ELECTRIC HUMIDIFIER
					71		72				15	CP-4
BAY CEILING FAN	20				73		74				15	P-1&P-2
CP-2B	15				75		76				2P	
	2P				77		78				50	AWMP-1
DOOR O/C SIGNAL LIGHTING	15				79		80				2P	
DOOR O/C SIGNAL LIGHTING	15				81		82				15	CABINET HEATER
FLOW METER	15				83		84				2P	

(*) GROUND FAULT INTERRUPTER CIRCUIT BREAKER
(**) C/W LOCK-OFF DEVICES

ELECTRICAL PANEL:
120/208V-3Ø-60HZ, 60
AMP,MAIN BREAKER 30A

NEW PANELBOARD C SCHEDULE

DESCRIPTION	BRKR SIZE (A)	WATTS PER PHASE A	B	C	CR NO	BUS ABC	CR NO	WATTS PER PHASE A	B	C	BRKR SIZE (A)	DESCRIPTION
IT RACK	20				01		02				20	RADIO SYSTEM
IT EQUIPMENT	20				03		04				20	PA SYSTEM
RECEPTACLES	20				05		06				20	RECEPTACLES
RECEPTACLES	20				07		08				20	RECEPTACLES
RECEPTACLES	20				09		10				20	RECEPTACLES
RECEPTACLES	20				11		12				20	RECEPTACLES
RECEPTACLES	20				13		14				20	RECEPTACLES
RECEPTACLES	20				15		16				20	RECEPTACLES
RECEPTACLES	20				17		18				20	RECEPTACLES
RECEPTACLES	20				19		20				2P	RECEPTACLES
RECEPTACLES	20				21		22				20	RECEPTACLES
RECEPTACLES	20				23		24				20	RECEPTACLES
RECEPTACLES	20				25		26				20	RECEPTACLES
RECEPTACLES	20				27		28				20	RECEPTACLES
RECEPTACLES	20				29		30				20	RECEPTACLES
RECEPTACLES	20				31		32				20	RECEPTACLES

(*) GROUND FAULT INTERRUPTER CIRCUIT BREAKER
(**) C/W LOCK-OFF DEVICES

NOTES:

1. REFER TO MECH. EQUIPMENT WIRING SCHEDULE FOR BREAKER/FEEDER /CONDUIT SIZES.
2. CONTRACTOR SHALL LEAVE AT LEAST 12 METERS OF THE SECONDARY CABLES AT STAKED POLE LOCATION AND SHALL SUPPLY TWO (2) RGSD PVC CONDUITS TO RUN UP THE POLE COMPLETE WITH WEATERHEAD & CLIPS FOR INNPOWER TO INSTALL ON POLE. PROVIDE ENOUGH BRICK SAND AT THE POLE TO BACKFILL AT TIME OF CONNECTION. COORDINATE WITH HYDRO FOR EXACT SCOPE OF WORK AND HYDRO INSTALLATION REQUIRMENTS/STANDARDS AND PROVIDE ALL NECESSARY MATERIAL AND LABOR TO COMPLY ACCORDINGLY.
3. PROVIDE SUITABLE CONDUIT SIZE FOR CIRCUITING WIRES WITH A MAXIMUM OF 40% CONDUIT FILL.
4. PROVIDE LOW VOLTAGE RELAY PANEL FOR EXTERIOR LIGHTING C/W STEP DOWN TRANSFORMER. RELAY PANELS SHALL BE LOCATED ADJACENT TO RELEVANT LIGHTING PANEL. VERIFY LOCATIONS OF PHOTOCELLS ON SITE.
5. PROVIDE ALL NECESSARY CONDUIT, WIRING, BACKBOXES ETC. FOR LIGHTING CONTROL FOR FULLY OPERATIONAL SYSTEM.
6. ALL FEEDER CABLES SHALL BE COPPER XLPE R90 FOR DRY LOCATIONS. COPPER XLPE RW90 UNDER WATER LOCATIONS AND COPPER XLPE RW100 FOR UNDERGROUND INSTALLATIONS. UNLESS NOTED OTHERWISE.
7. ALL BREAKERS OF 400A AND ABOVE SHALL HAVE ELECTRONIC TRIP UNITS.
8. CONTRACTOR SHALL PERFORM VOLTAGE DROP CALCULATIONS FOR ALL BRACH CIRCUITS AND SHALL MAINTAIN VOLTAGE DROP WITHIN PERMISSIBLE LIMITS AS PER OESC REQUIREMENTS AND PROVIDE PROPER WIRE SIZES ACCORDINGLY PRIOR TO COMMENCING OF ROUGH-IN INSTALLATION. THE VOLTAGE DROP CALCULATIONS SHALL BE BASED ON MAXIMUM CIRCUIT AMPACITY.
9. PROVIDE LOCK-ON BREAKERS FOR CIRCUITS FEEDING EXIT LIGHTINGS, EMERGENCY BATTERY UNITS, FIRE ALARM PANEL, SERVER ROOMS, PA SYSTEM, MECHANICAL CONTROLS.
10. REFER TO FLOOR PLANS FOR TYPE OF DISCONNECT SWITCHES I.I. WEATHER PROOF, NON-FUSED, FUSED ETC .
11. ALL POWER EQUIPMENT SHALL BE OF SPRINKLER PROOF DESIGN.
12. VERIFY INTERRUPTION CAPACITY OF ALL EQUIPMENT WITH CO-ORDINATION STUDY PRIOR TO MANUFACTURING OF ELECTRICAL DISTRIBUTION EQUIPMENT.
13. ALL WIRING, FEEDERS & CABLES SHALL BE COPPER.
14. BREAKER SIZE TO SUIT APPLICATION AS PER SWITCHBOARD MANUFACTURER RECOMMENDATIONS.
15. PROVIED CONCRETE PAD FOR ATS & GENERATOR.

ELECTRICAL SINGLE LINE DIAGRAM

DIAGRAM OF ON-LINE UPS SYSTEM

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13	ISSUED FOR TENDER	2024-02-26

PROJECT :
BARRIE FIRE STATION 6
845 MAPLEVIEW DRIVE EAST, BARRIE, ONTARIO

PROFESSIONAL SEAL :
LICENSED PROFESSIONAL ENGINEER
M.K. AHMED
100069234
2024.02.26
PROVINCE OF ONTARIO

DWG TITLE :
SINGLE LINE DIAGRAM & PANEL SCHEDULES

REGAL CONSULTING ENGINEERS INC.
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DRAWING No. :	E6.0
REVISION	

ELECTRICAL PANEL:
120/208V-3Ø-60HZ 3Ø3
AMP MAIN BREAKER 200A

NEW PANELBOARD A SCHEDULE

DESCRIPTION	BRKR SIZE (A)	WATTS PER PHASE A	B	C	CIR NO	BUS ABC	CIR NO	WATTS PER PHASE A	B	C	BRKR SIZE (A)	DESCRIPTION
INTERIOR LIGHTING	15				01		02				15	INTERIOR LIGHTING
INTERIOR LIGHTING	15				03		04				15	INTERIOR LIGHTING
INTERIOR LIGHTING	15				05		06				15	INTERIOR LIGHTING
SPARE	15				07		08				15	TIMER
NIGHT LIGHTING	15				09		10				20	INTERIOR LIGHTING
EXTERIOR LIGHTING	15				11		12				20	PYLON SIGN
EXTERIOR LIGHTING	15				13		14				15	INTERIOR LIGHTING
RECEPTACLES	15				15		16				15	EXTERIOR LIGHTING
RECEPTACLES	20				17		18				30	DRYER
RECEPTACLES	20				19		20				2P	
RECEPTACLES	20				21		22				20	WASHER
COFFE MAKER (*)	20				23		24				20	RECEPTACLES (*)
SPARE	20				25		26				20	RECEPTACLES
CO DETECTOR	20				27		28				20	RECEPTACLES
RECEPTACLES	20				29		30				20	RECEPTACLES
RECEPTACLES	20				31		32				20	FRIDGE
RECEPTACLES	20				33		34				20	MICROWAVE (*)
WATER COOLER	15				35		36				20	DISHWASHER
RANGE	50				37		38				15	RECEPTACLES (*)
	2P				39		40				20	RECEPTACLES
RECEPTACLES	20				41		42				15	RECEPTACLES
EXTERNAL RECEPTACLE (*)	20				43		44				15	DOOR OPERATOR
T-SLOT CORD REEL RECEPTACLE	20				45		46				15	DOOR OPERATOR
T-SLOT CORD REEL RECEPTACLE	20				47		48				15	DOOR OPERATOR
T-SLOT CORD REEL RECEPTACLE	20				49		50				15	BUZZER
T-SLOT CORD REEL RECEPTACLE	20				51		52				15	DOOR OPERATOR
EMERGENCY RESPONSE SYSTEM	15				53		54				15	SECURITY PANEL
EMERGENCY RESPONSE SYSTEM	15				55		56				20	FIRE ALARM PANEL
RANGE HOOD	20				57		58				20	RECEPTACLES
BIKE	20				59		60				20	RECEPTACLES
TREADMILL	20				61		62				20	RECEPTACLES
ELLIPTICAL	20				63		64					
PRINTER	15				65		66				15	EF-11
PRINTER	15				67		68					
CP-3	15				69		70				20	SPARE
	2P				71		72				15	AIRMATION INDUSTRIAL AIR CLEANER-1
CP-2A	15				73		74				2P	
	2P				75		76				15	AIRMATION INDUSTRIAL AIR CLEANER-2
AIRMATION INDUSTRIAL AIR CLEANER-3	15				77		78				2P	
	2P				79		80				15	TSCMM CONTROL PANEL
CO/NOX	15				81		82				25	ERV-1
SPARE	20				83		84				2P	

(*) GROUND FAULT INTERRUPTER CIRCUIT BREAKER
(**) C/W LOCK-OFF DEVICES

ELECTRICAL PANEL:
120/208V-3Ø-60HZ 3Ø3
AMP MAIN BREAKER 200A

NEW PANELBOARD B SCHEDULE

DESCRIPTION	BRKR SIZE (A)	WATTS PER PHASE A	B	C	CIR NO	BUS ABC	CIR NO	WATTS PER PHASE A	B	C	BRKR SIZE (A)	DESCRIPTION
EDH-1 @ FCU-1	20				01		02				20	CU-1
					03		04				2P	
					05		06				15	CP-1
FCU-2, FCU-4, FCU-5	15				07		08				15	FCU-6, FCU-7, FCU-8
	2P				09		10				15	
FCU-1, FCU-3	15				11		12				15	FCU-9, FCU-11
	2P				13		14				15	
FCU-12	15				15		16				15	EF-1, EF-2
	2P				17		18				15	EF-3, EF-4
FOLDING DOOR MOTOR	20				19		20				15	EF-5, EF-6
					21		22				20	EF-7, EF-8, EF-9
					23		24					
FOLDING DOOR MOTOR	20				25		26				15	EDH-2 @ FCU-2
					27		28					
					29		30					
FOLDING DOOR MOTOR	20				31		32				15	EDH-2 @ FCU-9
					33		34					
					35		36				20	WASTE COLLECTION OVERHEAD DOOR & LIGHTING
FOLDING DOOR MOTOR	20				37		38				15	EF-12, EF-13
					39		40				15	EF-14,EF-15
					41		42				15	SPARE
EDH-2 @ FCU-12	15				43		44				20	SU-1
					45		46				2P	
					47		48				15	EDH-3 @ FCU-5
EDH-3 @ FCU-3	15				49		50					
					51		52					
					53		54					
EDH-3 @ FCU-4	15				55		56				15	EDH-3 @ FCU-6
					57		58					
					59		60					
EDH-3 @ FCU-7	15				61		62				15	EDH-3 @ FCU-11
					63		64					
					65		66				15	UH-1,UH-1A,UH-2,UH-2A, UH-7
					67		68				15	UH-3, UH-4, UH-5, UH-6
EDH-3 @ FCU-8	15				69		70				20	ELECTRIC HUMIDIFIER
					71		72				15	CP-4
BAY CEILING FAN	20				73		74				15	P-1&P-2
CP-2B	15				75		76				2P	
	2P				77		78				50	AWHP-1
DOOR O/C SIGNAL LIGHTING	15				79		80				2P	
DOOR O/C SIGNAL LIGHTING	15				81		82				15	CABINET HEATER
FLOW METER	15				83		84				2P	

(*) GROUND FAULT INTERRUPTER CIRCUIT BREAKER
(**) C/W LOCK-OFF DEVICES

ELECTRICAL PANEL:
120/208V-3Ø-60HZ 60 3Ø
AMP MAIN BREAKER 30A

NEW PANELBOARD C SCHEDULE

DESCRIPTION	BRKR SIZE (A)	WATTS PER PHASE A	B	C	CIR NO	BUS ABC	CIR NO	WATTS PER PHASE A	B	C	BRKR SIZE (A)	DESCRIPTION
IT RACK	20				01		02				20	RADIO SYSTEM
IT EQUIPMENT	20				03		04				20	PA SYSTEM
RECEPTACLES	20				05		06				20	RECEPTACLES
RECEPTACLES	20				07		08				20	RECEPTACLES
RECEPTACLES	20				09		10				20	RECEPTACLES
RECEPTACLES	20				11		12				20	RECEPTACLES
RECEPTACLES	20				13		14				20	RECEPTACLES
RECEPTACLES	20				15		16				20	RECEPTACLES
RECEPTACLES	20				17		18				20	RECEPTACLES
RECEPTACLES	20				19		20				2P	RECEPTACLES
RECEPTACLES	20				21		22				20	RECEPTACLES
RECEPTACLES	20				23		24				20	RECEPTACLES
RECEPTACLES	20				25		26				20	RECEPTACLES
RECEPTACLES	20				27		28				20	RECEPTACLES
RECEPTACLES	20				29		30				20	RECEPTACLES
RECEPTACLES	20				31		32				20	RECEPTACLES

(*) GROUND FAULT INTERRUPTER CIRCUIT BREAKER
(**) C/W LOCK-OFF DEVICES

ELECTRICAL PANEL: WP
120/208V-3Ø-60HZ
60AMP MAIN BREAKER
300A

NEW PANELBOARD PP-S1 SCHEDULE

DESCRIPTION	BRKR SIZE (A)	WATTS PER PHASE A	B	C	CIR NO	BUS ABC	CIR NO	WATTS PER PHASE A	B	C	BRKR SIZE (A)	DESCRIPTION
INVERTER#1	50				01		02				50	INVERTER#6
					03		04					
					05		06					
INVERTER#2	50				07		08				50	INVERTER#7
					09		10					
					11		12					
INVERTER#3	50				13		14				50	INVERTER#8
					15		16					
					17		18					
INVERTER#4	50				19		20				50	INVERTER#9
					21		22					
					23		24					
INVERTER#5	50				25		26				50	INVERTER#10
					27		28					
					29		30					
SPARE	15				31		32				20	SPARE

(*) GROUND FAULT INTERRUPTER CIRCUIT BREAKER
(**) C/W LOCK-OFF DEVICES

NOTES:

1. REFER TO MECH. EQUIPMENT WIRING SCHEDULE FOR BREAKER/FEEDER /CONDUIT SIZES.
2. CONTRACTOR SHALL LEAVE AT LEAST 12 METERS OF THE SECONDARY CABLES AT STAKED POLE LOCATION AND SHALL SUPPLY TWO (2) RIGID PVC CONDUITS TO RUN UP THE POLE FROM 1.5 METERS BELOW GRADE TO THE SECONDARY CABLES. THE TOP OF THE PVC CONDUIT ENDS@ BRICK SAND AT THE POLE TO BACKFILL AT TIME OF CONNECTION. COORDINATE WITH HYDRO FOR EXACT SCOPE OF WORK AND HYDRO INSTALLATION REQUIREMENTS/STANDARDS AND PROVIDE ALL NECESSARY MATERIAL AND LABOR TO COMPLY ACCORDINGLY.
3. PROVIDE SUITABLE CONDUIT SIZE FOR CIRCUITING WIRES WITH A MAXIMUM OF 40% CONDUIT FILL.
4. PROVIDE LOW VOLTAGE RELAY PANEL FOR EXTERIOR LIGHTING C/W STEP DOWN TRANSFORMER. RELAY PANELS SHALL BE LOCATED ADJACENT TO RELEVANT LIGHTING PANEL LOCATIONS AND PHOTOCELLS ON SITE.
5. PROVIDE ALL NECESSARY CONDUIT, WIRING, BACKBOXES ETC. FOR LIGHTING CONTROL FOR FULLY OPERATIONAL SYSTEM.
6. ALL FEEDER CABLES SHALL BE COPPER XLPE R90 FOR DRY LOCATIONS, COPPER XLPE R90 FOR DAMSHEET LOCATIONS AND COPPER XLPE RW-90 FOR UNDERGROUND INSTALLATIONS, UNLESS NOTED OTHERWISE.
7. ALL BREAKERS OF 400A AND ABOVE SHALL HAVE ELECTRONIC TRIP UNITS.
8. CONTRACTOR SHALL PERFORM VOLTAGE DROP CALCULATIONS FOR ALL BRACH CIRCUITS AND SHALL MAINTAIN VOLTAGE DROP WITHIN PERMISSIBLE LIMITS AS PER DESC REQUIREMENTS AND PROVIDE PROPER WIRE SIZES ACCORDINGLY PRIOR TO COMMENCING OF ROUGH-IN INSTALLATION. THE VOLTAGE DROP CALCULATIONS SHALL BE BASED ON MAXIMUM CIRCUIT AMPACITY.
9. PROVIDE LOCK-ON BREAKERS FOR CIRCUITS FEEDING EXIT LIGHTINGS, EMERGENCY BATTERY UNITS, FIRE ALARM PANEL, SERVER ROOMS, PA SYSTEM, MECHANICAL CONTROLS.
10. REFER TO FLOOR PLANS FOR TYPE OF DISCONNECT SWITCHES I.I. WEATHER PROOF, NON-FUSED, FUSED ETC.
11. ALL POWER EQUIPMENT SHALL BE OF SPRINKLER PROOF DESIGN.
12. VERIFY INTERRUPTION CAPACITY OF ALL EQUIPMENT WITH CO-ORDINATION STUDY PRIOR TO MANUFACTURING OF ELECTRICAL DISTRIBUTION EQUIPMENT.
13. ALL WIRING, FEEDERS & CABLES SHALL BE COPPER.
14. BREAKER SIZE TO SUIT APPLICATION AS PER SWITCHBOARD MANUFACTURER RECOMMENDATIONS.
15. PROVIDE CONCRETE PAD FOR ATS & GENERATOR.

ELECTRICAL SINGLE LINE DIAGRAM WITH PHOTOVOLTAIC PANELS

DIAGRAM OF ON-LINE UPS SYSTEM

The Contractor shall verify all dimensions prior to commencement of the work.
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4	ISSUED FOR 100% DESIGN DEVELOPMENT	2023-08-08
5	ISSUED FOR DD SIGN-OFF	2023-08-23
6	PROGRESS SET	2023-09-22
7	75% SUBMISSION	2023-10-13
8	ISSUED FOR BUILDING PERMIT	2023-11-01
9	95% SUBMISSION	2023-11-10
10	100% SUBMISSION	2023-11-24
11	100% SUBMISSION	2024-02-12
12	ISSUED FOR TENDER	2024-02-23
13	ISSUED FOR TENDER	2024-02-26

PROJECT :
BARRIE FIRE STATION 6
845 MAPLEVIEW DRIVE EAST, BARRIE, ONTARIO

PROFESSIONAL SEAL :
LICENSED PROFESSIONAL ENGINEER
M.K. AHMED
100069234
2024.02.26
PROVINCE OF ONTARIO

DWG TITLE :
SINGLE LINE DIAGRAM & PANEL SCHEDULES WITH PHOTOVOLTAIC PANELS

REGAL CONSULTING ENGINEERS INC.
CONSULTING MECHANICAL & ELECTRICAL ENGINEERS
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DATE :	JUN 14, 2023
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PROJECT No. :	2023-401
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MECHANICAL EQUIPMENT WIRING SCHEDULE

EQUIPMENT & LABEL	STARTER LOCATION	UNIT POWER	UNIT PHASE	UNIT VOLTAGE	STARTER TYPE	BREAKER SIZE	FEEDER SIZE	PANEL & CCT. NOS.	REMARKS
DOMESTIC HOT WATER TANK DHWT-1	MECH	KW 18	3	208	MANUAL	90A,3P	3#3+GRD.-35mmC	1	PROVIDE LOCKABLE DISCONNECT SWITCH AT THE ENTRANCE OF THE ROOM
DOMESTIC HOT WATER TANK DHWT-2	MECH	KW 18	3	208	MANUAL	90A,3P	3#3+GRD.-35mmC	1	PROVIDE LOCKABLE DISCONNECT SWITCH AT THE ENTRANCE OF THE ROOM
RE-CIRC. PUMP FOR DWH (CP-1)	MECH	HP 1/25	1	120	MANUAL	15A,1P	2#12+GRD.-16mmC	1	
RE-CIRC. PUMP FOR DWH (CP-2A)	MECH	HP 0.333	1	208	MANUAL	15A,2P	2#12+GRD.-16mmC	1	
RE-CIRC. PUMP FOR DWH (CP-2B)	MECH	HP 0.333	1	208	MANUAL	15A,2P	2#12+GRD.-16mmC	1	
RE-CIRC. PUMP FOR DWH (CP-3)	MECH	HP 0.124	1	208	MANUAL	15A,2P	2#12+GRD.-16mmC	1	
RE-CIRC. PUMP FOR DWH (CP-4)	MECH	HP 0.167	1	120	MANUAL	15A,1P	2#12+GRD.-16mmC	1	
HYDRONIC HEATING. PUMP (P-1)	MECH	HP 0.75	1	208	MANUAL	15A,2P	2#12+GRD.-16mmC	1	
HYDRONIC HEATING. PUMP (P-2)	MECH	HP 0.75	1	208	MANUAL	15A,2P	2#12+GRD.-16mmC	1	
EXH. FAN EF-1	BUNKER GEAR 031	HP 1/6	1	120	MANUAL	15A,1P	2#12+GRD.-16mmC	1	
EXH. FAN EF-2	WASHROOMS 025	86 WATTS	1	120	MANUAL	15A,1P	2#12+GRD.-16mmC	1	
EXH. FAN EF-3	UNIVERSAL WASHROOM 007	86 WATTS	1	120	MANUAL	15A,1P	2#12+GRD.-16mmC	1	
EXH. FAN EF-4	WASHROOMS 023	86 WATTS	1	120	MANUAL	15A,1P	2#12+GRD.-16mmC	1	
EXH. FAN EF-5	WASHROOMS 021	86 WATTS	1	120	MANUAL	15A,1P	2#12+GRD.-16mmC	1	
EXH. FAN EF-6	WASHROOMS 019	86 WATTS	1	120	MANUAL	15A,1P	2#12+GRD.-16mmC	1	
EXH. FAN EF-7	WASHROOMS 017	86 WATTS	1	120	MANUAL	15A,1P	2#12+GRD.-16mmC	1	
EXH. FAN EF-8	JANITOR 011	86 WATTS	1	120	MANUAL	15A,1P	2#12+GRD.-16mmC	1	
EXH. FAN EF-9	LAUNDARY 009	86 WATTS	1	120	MANUAL	15A,1P	2#12+GRD.-16mmC	1	
DELETED								1	
EXH. FAN EF-11	APPARATUS BAY VENTILATION	HP 1.5	3	208	MAGNETIC	15A,3P	3#12+GRD.-16mmC	1	
EXH. FAN EF-12	MATERIAL STORE 027	86 WATTS	1	120	MANUAL	15A,1P	2#12+GRD.-16mmC	1	
EXH. FAN EF-13		86 WATTS	1	120	MANUAL	15A,1P	2#12+GRD.-16mmC	1	
EXH. FAN EF-14	COMPRESSOR 028	86 WATTS	1	120	MANUAL	15A,1P	2#12+GRD.-16mmC	1	
EXH. FAN EF-15	EXTRACTOR 030	86 WATTS	1	120	MANUAL	15A,1P	2#12+GRD.-16mmC	1	
VRF-CU-1	ELEC	MCA 15.1	3	208	MANUAL	35A,3P	3#6+GRD.-27mmC	1	
AWHP-1	ELEC	MCA 30	1	208	MANUAL	50A,2P	2#6+GRD.-27mmC	1	
ERV-1	ELEC	MCA23.33	1	120	MANUAL	25A,1P	2#10+GRD.-21mmC	1	
SU-1	ELEC	MCA 0.5	1	208	MANUAL	15A,2P	3#12+GRD.-16MMC	1	
CU-1	ELEC	MCA 16.5	1	208	MANUAL	20A,2P	3#12+GRD.-16MMC	1	
B-1	MECH	KW 17	3	208	MANUAL	60A,3P	3#6+GRD.-27mmC	1	PROVIDE BOILER KILL SWITCH AT THE ENTRANCE OF THE MECH ROOM
B-2	MECH	KW 17	3	208	MANUAL	60A,3P	3#6+GRD.-27mmC	1	PROVIDE BOILER KILL SWITCH AT THE ENTRANCE OF THE MECH ROOM

NOTES

1. PROVIDE POWER CONNECTION TO ALL EQUIPMENTS LISTED IN THE SCHEDULE. REFER TO ELECTRICAL AND MECHANICAL LAYOUTS FOR EXACT LOCATION OF EQUIPMENTS.
2. PROVIDE SEPARATE BREAKER FOR INDIVIDUAL MECHANICAL EQUIPMENT. SIZE AS INDICATED IN THE SCHEDULE.
3. PROVIDE LOCAL DISCONNECT SWITCH FOR ALL MECHANICAL EQUIPMENTS AS REQUIRED BY OESC.
4. DIVISION 16 TO PROVIDE POWER WIRING TO & FROM STARTERS (SUPPLIED BY DIV. 15 & INSTALLED BY DIVISION 16) TO MECHANICAL EQUIPMENTS.
5. DIVISION 16 SHALL REFER TO MECHANICAL DRAWINGS FOR LOCATIONS OF MECHANICAL EQUIPMENT AND SHALL COORDINATE FOR MECHANICAL MECHANICAL EQUIPMENT LOCATIONS, STARTERS LOCATIONS AND BREAKERS SIZES & WIRES WITH THE MECHANICAL CONTRACTOR & CONSULTANT PRIOR TO ROUGH-IN.
6. LOCATIONS OF BOILERS AND HOT WATER HEATERS DISCONNECT SWITCHES SHALL BE NEXT TO THE ENTRANCE DOOR OF THE RESPECTIVE ROOM.
7. REFER TO MECHANICAL DOCUMENTS/DRAWINGS FOR DIVISION 16 SCOPE OF WORK.
8. LOCATION OF ON/OFF SWITCH'S, THERMOSTATS AND SPEED CONTROLLER SWITCH'S SHALL BE VERIFIED/COORDINATED ON SITE WITH OTHER TRADES AND CLIENT'S REPRESENTATIVE PRIOR TO ROUGH-IN.
9. PROVIDE POWER CONNECTION TO ALL REVERSE ACTING THERMOSTATS AND SPEED CONTROLLER SWITCHES AND FEED FROM RESPECTIVE CIRCUITS FEEDING RESPECTIVE MECHANICAL EQUIPMENT WHICH SHALL BE CONTROLLED VIA THE REVERSE ACTING THERMOSTATS AND SPEED CONTROLLERS. LOCATIONS OF DEVICES SHALL BE WITHIN THE SAME AREA SERVED BY THE RESPECTIVE MECHANICAL EQUIPMENT. COORDINATE ON SITE FOR DEVICE LOCATIONS WITH ARCHITECT AND CONSULTANT PRIOR TO ROUGH IN.
10. REFER TO PANEL SCHEDULES AND FLOOR PLAN FOR CIRCUITING.

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9	95% SUBMISSION	2023-11-10
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11	100% SUBMISSION	2024-02-12
12	ISSUED FOR TENDER	2024-02-23
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PROJECT :
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845 MAPLEVIEW DRIVE EAST, BARRIE, ONTARIO

PROFESSIONAL SEAL :

LICENSED PROFESSIONAL ENGINEER
M.K. AHMED
100069234
2024.02.26
PROVINCE OF ONTARIO

DWG TITLE :
MECHANICAL WIRING SCHEDULE

RCEI
REGAL CONSULTING ENGINEERS INC.
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1 E7.0 TYPICAL GROUND BAR DETAIL

SCALE: N.T.S.

LEGEND

BY DIVISION 16

BY DIVISION 15

NOTES:

1. STARTOR SHALL BE SUPPLIED BY DIV. 15 AND INSTALLED BY DIV. 16.
2. MOTOR AND CONTROLS SHALL BE PROVIDED BY DIV. 15.
3. ALL POWER WIRING (INCLUDING ALL LINE VOLTAGE WIRING , I.E. 120V, 208V, ETC) TO AND FROM EQUIPMENT STARTERS, LINE VOLTAGE THERMOSTATS AND MOTORIZED DAMPERS SHALL BE PROVIDED BY DIVISION 16. COORDINATE WITH MECHANICAL CONTRACTOR AND PROCEED ACCORDINGLY

2 E7.0 TYPICAL DIAGRAM FOR LOCAL LOOSE STARTER CONTROL DEVICES

SCALE: N.T.S.

NOTES:

1. THIS SCHEMATIC IS NOT INTENDED FOR EXACT FIELD INSTALLATION OR WIRING. SCHEMATIC SHOWS DESIGN INTENT OF SYSTEM. WIRING WILL VARY BETWEEN MANUFACTURERS.
2. MANUFACTURER TO PROVIDE SHOP DRAWINGS SHOWING ALL WIRING REQUIRED PRIOR TO ORDERING OF EQUIPMENT

3 E7.0 MOTORIZED DOOR DETAIL

SCALE: N.T.S.

NOTES:

1. DOOR BUZZER SYSTEM SHALL BE PROVIDED BY ELECTRICAL CONTRACTOR.
2. PROVIDE ALL CONDUITS, OUTLETS, CABLES, COVER PLATES, DOOR BUZZER, PUSH-BUTTON AND ASSOCIATED COMPONENTS AS REQUIRED AND/OR AS SHOWN ON THE DRAWINGS FOR OPERATIONAL SYSTEM.
3. CATALOGUE NUMBERS ARE REFERRED BELOW TO INDICATE SCOPE OF WORK AND QUALITY STANDARD.
4. DOOR BUZZER, EDWARDS #1064,120VAC.OR APPROVED EQUIVALENT. HEAVY DUTY DESIGN, STRAP MOUNTED, IN FLUSH STANDARD SINGLE GANG BOX. C/W STAINLESS STEEL COVER. MOUNTED AT 200MM BELOW CEILING.
5. PUSH-BUTTON, WEATHER-PROOF, EDWARDS #850,120VAC.OR APPROVED EQUIVALENT. C/W STAINLESS STEEL COVER, EDWARDS #149.OR APPROVED EQUIVALENT.MOUNTED IN FLUSH STANDARD SINGLE GANG BOX.
6. INSTALL DOOR BUZZER SYSTEM AS PER MANUFACTURER RECOMMENDATION AND INSTRUCTION.

5 E7.0 DOOR BUZZER SYSTEM (TYPICAL)

SCALE: N.T.S.

NOTES: RE: SECURITY ACCESS

1. SECURITY DOOR ACCESS SYSTEM CONTRACTOR WILL PROVIDE THE FOLLOWINGS:
   1. DOOR CARD ACCESS EQUIPMENT INCLUDING POWER SUPPLY, CONTROL PANEL, CABLES, PROXIMITY CARD READER, EXIT PUSH BUTTON, GLASS BREAK SENSOR, MOTION SENSOR, SIREN HORN, DOOR CONTACT AND ARM/DISARM KEYPAD.
   2. WIRING AND FINAL CONNECTION FROM DEVICES TO CONTROL PANEL.
   3. WIRING AND FINAL CONNECTION FROM POWER SUPPLY TO CONTROL PANEL.
   4. ALL WIRING INTERFACE BETWEEN BARRIER FREE DOOR OPERATOR, AUTOMATIC SLIDING DOOR AND DOOR ACCESS CONTROL SYSTEM.
   5. WIRING AND CONNECTION FOR DOOR STRIKES ,12/24VOLT DC/AC. POWER SUPPLY FOR STRIKE WILL BE PART OF DOOR ACCESS CONTROLLER.
   6. INSTALL TIME DELAY MODULE FOR BARRIER FREE OPERATOR INCLUDING WIRING INTRFACE
2. GENERAL CONTRACTOR WILL PROVIDE THE FOLLOWINGS
   1. 12/24VOLT DC/AC DOOR ELECTRIC STRIKES.
   2. BARRIER FREE DOOR ELECTRIC OPERATOR AND PUSH BUTTONS.
   3. SUPPLY TIME DELAY MODULE FOR BARRIER FREE OPERATOR.
3. ELECTRICAL CONTRACTOR SHALL PROVIDE THE FOLLOWINGS:
   1. COMPLETE RACEWAY SYSTEM COMPLETE WITH CONDUIT, PULL BOXES, OUTLETS AND ALL NECESSARY MATERIALS AS REQUIRED AND/OR SHOWN ON THE DRAWINGS READY FOR DOOR ACCESS SYSTEM CONTRACTOR EQUIPMENT AND CABLE INSTALLATION.
   2. WIRING AND 120 VOLT CONNECTION FOR BARRIER FREE DOOR OPERATOR, WIRING AND FINAL CONNECTION TO PUSH BUTTON.
   3. ALL CONDUITS SHALL BE 21mm UNLESS OTHERWISE NOTED.
   4. ALL WALL AND FLOOR PENETRATIONS SHALL BE FILLED WITH FIRE STOPPING MATERIAL AS PER CODE AND FINISHED TO MATCH EXISTING SURFACE.
   5. THE PLYWOOD BACKBOARDS SHALL BE SUPPLIED AND INSTALLED BY DIVISION 16.
   6. PROVIDE #6 COPPER GROUND WIRE TO EACH PLYWOOD BACKBOARD AND CONNECT TO MAIN BUILDING GROUND IN MAIN ELECTRICAL ROOM.
   7. COORDINATE WITH SECURITY DOOR ACCESS SYSTEM SUPPLIER FOR EXACT SIZE OF CONDUIT, BACK BOXES, EXACT LOCATION AND MOUNTING HEIGHT. PRIOR TO INSTALLATION.
   8. CONDUIT LAYOUT IS SHOWN FOR SCHEMATIC ONLY. CONTRACTOR SHALL OBTAIN SHOP DRAWINGS FROM SECURITY CONSULTANT/CONTRACTOR PRIOR TO INSTALLATION AND/OR ROUGH-IN. FOR EXACT LOCATION AND QUANTITIES OF OUTLETS, REQUIREMENT FOR EACH DOOR REFER TO FLOOR PLANS.
   9. ELECTRICAL CONTRACTOR SHALL INCLUDE IN TENDER BID AND ASSUME RESPONSIBILITY TO PROVIDE THE COMPLETE DOOR ACCESS CONTROL SYSTEM AND ALL NECESSARY COORDINATION WITH DOOR ACCESS SYSTEM CONTRACTOR. EXTRA CLAIM FOR COORDINATION IS NOT ALLOWED.
   10. PROVIDE 3 IP ADDESSES FOR THE SECURITY ACCESS CONTROL PANEL, AS WELL AS DEDICATED 120V AC BREAKER.

4 E7.0 SECURITY DOOR CARD ACCESS SYSTEM DIAGRAM

SCALE: N.T.S.

IT ROOM ELECTRICAL PLAN

IT ROOM A–A' ELEVATIONS

IT ROOM B–B' ELEVATIONS

8 E7.0 IT ROOM ELEVATIONS

6 E7.0 OVERHEAD DOOR ACCESS CONTROL DETAIL

SCALE: N.T.S.

C – ELECTRIC STRIKE

G – EMERGENCY ASSISTANCE BUTTON

H – WAVE TO OPEN BUTTON WITH "OCCUPIED" LIGHT

I – WAVE TO OPEN BUTTON

J – ASSISTANCE REQUIRED AUDIBLE & VISUAL SIGNAL

L – PUSH TO LOCK BUTTON WITH "LOCKED LIGHT"

DOOR OPERATOR NOTES:

1. ALL CONDUITS ARE 16MM UNLESS OTHERWISE NOTED.
2. LOCAL DOOR CONTACT FOR DOOR OPERATOR INTERLOCK OPERATION. (THIS DOOR CONTACT IS NOT REQUIRED TO BE CONNECTED TO THE SECURITY SYSTEM.)
3. ALL LOW VOLTAGE WIRING FOR DOOR HARDWARE COMPONENTS TO BE 4#18 AWG, SUPPLIED AND INSTALLED BY ELECTRICAL CONTRACTOR. CO-ORDINATE ALL WORK ON SITE.
4. MOUNTING HEIGHT OF ACTUATION, LOCKING, ASSISTANCE REQUIRED/EMERGENCY DEVICES TO BE 990MM TO 1066MM ABOVE FINISHED FLOOR.
5. WAVE TO OPEN FROM ENTREMATIC PART#WS-670

7 E7.0 BARRIER FREE WASHROOM DOOR OPERATOR SCHEMATICS

SCALE: N.T.S.

EMERGENCY RESPONSE SYSTEM FOR WASHROOMS

1. CONTRACTOR TO PROVIDE AND INSTALL EMERGENCY RESPONSE SYSTEM FOR THE WASHROOMS.
2. BASIS OF DESIGN IS MIRCOM, OR APPROVED EQUIVALENT PRODUCT BY OTERH MANUFACTURERES ACCEPTABLE BASED ON SHOP DRAWING REVIEW.

MICARE SYSTEM CONSIST OF THE FOLLOWING:

CO-ORDINATOR BUNDLE	NC-2100K 1 EACH
SOFTWARE	NC-2100SW 1 EACH
4 LED MULTIDOME LIGHT	NC-4LED 4 EACH
PATIENT UNIT	NC-2000 4 EACH
SERVER	1 EACH
ROUTER	1 EACH
3 GANG ELECTRICAL BOX	3-FWSW-UPC 4 EACH
ELECTRICAL BOX	TXW-PS24BB 1 EACH
24V POWER SUPPLY	RB-MD-990 1 EACH
CABLE 1 FOOT	200'
EOL-103	END OF LINE RESISTOR (10K)

3. ELECTRICAL CONTRACTOR SHALL INSTALL THE SYSTEM AS PER MANUFACTURER'S INSTRUCTIONS.
4. ONCE SYSTEM IS INSTALLED AND TESTED, PROVIDE REQUIRED TRAINING TO THE MAINTENANCE STAFF.

LEGEND

	DOOR OPERATOR
PL	OUTLET FOR PUSH TO LOCK
PUL	OUTLET FOR PUSH TO UNLOCK
SL	STROBE LIGHT FOR EMERGENCY RESPONSE SYSTEM
PU	PATIENT UNIT FOR EMERGENCY RESPONSE SYSTEM
OL	OCCUPIED LIGHT FOR EMERGENCY RESPONSE SYSTEM
ERS	EMERGENCY RESPONSE SYSTEM
HO	DOOR HOLD OPEN DEVICE
	AUDIBLE & VISUAL DEVICE

TYPICAL FLOOR PLAN FOR EACH WASHROOM

NOTE:

1. SERVER TO BE LOCATED IN CHANGE ROOM, ELECTRICAL CONTRACTOR TO PROVIDE POWER REQUIRED (B-xx & B-XX) FOR THE EMERGENCY RESPONSE SYSTEM.

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6	PROGRESS SET	2023-09-22
7	75% SUBMISSION	2023-10-13
8	ISSUED FOR BUILDING PERMIT	2023-11-01
9	95% SUBMISSION	2023-11-10
10	100% SUBMISSION	2023-11-24
11	100% SUBMISSION	2024-02-12
12	ISSUED FOR TENDER	2024-02-23
13	ISSUED FOR TENDER	2024-02-26

PROJECT:

BARRIE FIRE STATION 6

845 MAPLEVIEW DRIVE EAST, BARRIE, ONTARIO

PROFESSIONAL SEAL :

DWG TITLE :

ELECTRICAL DETAILS-1

REGAL CONSULTING ENGINEERS INC.
CONSULTING MECHANICAL & ELECTRICAL ENGINEERS
208 Wyecroft Road, Suite 200, Oakville, Ontario L6K 3S3
PHONE: (905)844-3913
www.regal-eng.com

DATE :	JUN 14, 2023
SCALE :	NTS
DRAWN BY:	AS
CHECKED BY :	MA
DWG STATUS :	TENDER
PROJECT No. :	2023-401
DRAWING No. :	E7.0
REVISION	

DETAIL NOTES:

A. DETAIL IS APPLICABLE FOR DEVICES SHOWN ON PLANS. ALL THE DEVICES INDICATED IN THE DETAIL MAY NOT OCCUR ON THE PLANS.

B. CONDUIT SHALL BE PROVIDED IN ALL CASES UNLESS DENOTED AS BX OR AS ALLOWED IN THE SPECIFICATIONS.

C. ALL CONDUITS FOR LOW VOLTAGE CABLING AND WIRING SHALL HAVE BUSHINGS INSTALLED TO PREVENT CHAFFING OF WIRE(S).

D. ALL CONDUITS ARE TO GO DIRECTLY FROM THE OUTLET BOX UP THE WALL INTO THE CEILING SPACE. NO HORIZONTAL RUNS OF CONDUIT, OR GROUPING OF CONDUITS WITH OTHER SERVICES IN CLOSE PROXIMITY.

E. CONDUITS ARE TO HAVE PULL ROPES INSTALLED AND LEFT BEHIND TO ALLOW THE PULLING OF ADDITIONAL SERVICES IN THE FUTURE.

F. ALL BREACHES IN WALLS ARE TO BE FIRESTOPPED TO MAINTAIN THE FIRE SEPARATIONS.

G. PROVIDE SUPPORTS FOR ALL CEILING MOUNTED ELEMENTS (IE CHAIN HANGERS FOR FIXTURES ETC.) DEVICES SHALL NOT BE SUPPORTED BY A CEILING TILE.

1 / E7.1 TYPICAL MOUNTING HEIGHTS/INSTALLATION DETAIL

SCALE:

The Contractor shall verify all dimensions prior to commencement of the work.
All print and specifications are the property of the Architect and must be returned upon completion of the work.

ISSUE OR REVISION

No.	Description	Date
1	ISSUED FOR REVIEW	2023-06-22
2	ISSUED FOR REVIEW	2023-06-27
3	ISSUED FOR REVIEW	2023-07-06
4	ISSUED FOR 100% DESIGN DEVELOPMENT	2023-08-08
5	ISSUED FOR DD SIGN-OFF	2023-08-23
6	PROGRESS SET	2023-09-22
7	75% SUBMISSION	2023-10-13
8	ISSUED FOR BUILDING PERMIT	2023-11-01
9	95% SUBMISSION	2023-11-10
10	100% SUBMISSION	2023-11-24
11	100% SUBMISSION	2024-02-12
12	ISSUED FOR TENDER	2024-02-23
13	ISSUED FOR TENDER	2024-02-26

PROJECT : BARRIE FIRE STATION 6

845 MAPLEVIEW DRIVE EAST, BARRIE, ONTARIO

PROFESSIONAL SEAL :

LICENSED PROFESSIONAL ENGINEER
M.K. AHMED
100069234
2024.02.26
PROVINCE OF ONTARIO

DWG TITLE : ELECTRICAL DETAILS-2

REGAL CONSULTING ENGINEERS INC.
CONSULTING MECHANICAL & ELECTRICAL ENGINEERS
208 Wyecroft Road, Suite 200, Oakville, Ontario L6K 3S3
PHONE: (905)844-3913
www.regal-eng.com

DATE :	JUN 14, 2023
SCALE :	NTS
DRAWN BY:	AS
CHECKED BY :	MA
DWG STATUS :	TENDER
PROJECT No. :	2023-401
DRAWING No. :	E7.1
REVISION	

NOTES:

1. REFER TO DOOR POWER DETAIL#4 E7.0.
2. ALL DOOR OPERATORS TO INCLUDE SEQUENCING CONTROL CX12 BOARD PROVIDED BY DOOR HARDWARE SUPPLIER. SECURITY CONTRACTOR TO PROVIDE INTEGRATION OF DOOR OPERATORS.
3. UPON FIRE ALL EXTERIOR DOORS MAG SHALL BE RELEASED.

The Contractor shall verify all dimensions prior to commencement of the work.
All print and specifications are the property of the Architect and must be returned upon completion of the work.

ISSUE OR REVISION

No.	Description	Date
1	ISSUED FOR REVIEW	2023-06-22
2	ISSUED FOR REVIEW	2023-06-27
3	ISSUED FOR REVIEW	2023-07-06
4	ISSUED FOR 100% DESIGN DEVELOPMENT	2023-08-08
5	ISSUED FOR DD SIGN-OFF	2023-08-23
6	PROGRESS SET	2023-09-22
7	75% SUBMISSION	2023-10-13
8	ISSUED FOR BUILDING PERMIT	2023-11-01
9	95% SUBMISSION	2023-11-10
10	100% SUBMISSION	2023-11-24
11	100% SUBMISSION	2024-02-12
12	ISSUED FOR TENDER	2024-02-23
13	ISSUED FOR TENDER	2024-02-26

PROJECT :

BARRIE FIRE STATION 6

845 MAPLEVIEW DRIVE EAST, BARRIE, ONTARIO

PROFESSIONAL SEAL :

LICENSED PROFESSIONAL ENGINEER
M.K. AHMED
100069234
2024.02.26
PROVINCE OF ONTARIO

DWG TITLE :

PROPOSED SECURITY FLOOR PLAN

RCEI

REGAL CONSULTING ENGINEERS INC.
CONSULTING MECHANICAL & ELECTRICAL ENGINEERS
208 Wyecroft Road, Suite 200, Oakville, Ontario L6K 3S3
PHONE: (905)844-3913
www.regal-eng.com

DATE :	JUN 14, 2023
SCALE :	1:60
DRAWN BY:	AS
CHECKED BY :	MA
DWG STATUS :	TENDER
PROJECT No. :	2023-401
DRAWING No. :	E9.0
REVISION	

PUBLIC ADDRESS SYSTEM	
◎	CEILING MOUNTED SPEAKER
🔈	WALL MOUNTED SPEAKER
M	MICROPHONE
◀	INTERCOM
V	VOLUME CONTROL
WP	WEATHERPROOF

The Contractor shall verify all dimensions prior to commencement of the work.
All print and specifications are the property of the Architect and must be returned upon completion of the work.

ISSUE OR REVISION

No.	Description	Date
1	ISSUED FOR REVIEW	2023-06-22
2	ISSUED FOR REVIEW	2023-06-27
3	ISSUED FOR REVIEW	2023-07-06
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9	95% SUBMISSION	2023-11-10
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11	100% SUBMISSION	2024-02-12
12	ISSUED FOR TENDER	2024-02-23
13	ISSUED FOR TENDER	2024-02-26

PROJECT :
BARRIE FIRE STATION 6
845 MAPLEVIEW DRIVE EAST, BARRIE, ONTARIO

PROFESSIONAL SEAL :
LICENSED PROFESSIONAL ENGINEER
M.K. AHMED
100069234
2024.02.26
PROVINCE OF ONTARIO

DWG TITLE :
PROPOSED PA SYSTEM FLOOR PLAN

RCEI
REGAL CONSULTING ENGINEERS INC.
CONSULTING MECHANICAL & ELECTRICAL ENGINEERS
208 Wyecroft Road, Suite 200, Oakville, Ontario L6K 3S3
PHONE: (905)844-3913
www.regal-eng.com

DATE :	JUN 14, 2023
SCALE :	1:60
DRAWN BY:	AS
CHECKED BY :	MA
DWG STATUS :	TENDER
PROJECT No. :	2023-401
DRAWING No. :	E10.0
REVISION	

LEGAL DESCRIPTION: PLAN 51M-1224 BLK 206

0m 5m 10m 15m 20m

ALL TREES AND SHRUBS ARE PROVISIONALLY PRICED ITEMS.

PLANT MATERIAL LIST

KEY	QUANT.	BOTANICAL NAME	COMMON NAME	SIZE	COND.
AC	4	Amelanchier canadensis (tree form)	Serviceberry (tree form)	60mm cal.	W.B.
AS	10	Acer saccharum Autumn Fest	Autumn Fest Sugar Maple	60mm cal.	W.B.
GD	7	Gymnocladus dioicus	Kentucky Coffee Tree	60mm cal.	W.B.
PG	6	Picea glauca	White Pine	250cm HT.	W.B.
Dk	24	Diervilla lonicera 'Kodiak Orange'	Kodiak Orange Bush Honeysuckle	60cm, 3 gal.	Pot
Jc	14	Juniperus chinensis 'Fairview'	Fairview Juniper	60cm, 3 gal.	Pot
Js	98	Juniperus sabina	Savin Juniper	60cm, 3 gal.	Pot
Po	23	Physocarpus opulifolius 'Dart's Gold'	Dart's Gold Ninebark	60cm, 3 gal.	Pot
ca	44	Calamagrostis acutiflora 'Lightning Strike'	Lightning Strike Feather Reed Grass	1 gal.	Pot
dc	28	Deschampsia cespitosa Gold Veil	Gold Veil Tufted Hair Grass	1 gal.	Pot
he	40	Hemerocallis 'Stella d'Oro'	Stella d'Oro Daylily	1 gal.	Pot
ms	24	Miscanthus sinensis 'Little Kitten'	Dwarf Maiden Grass	1 gal.	Pot

LEGEND

PERENNIAL/GRASS

CONIFEROUS/DECIDUOUS SHRUB

CONIFEROUS/DECIDUOUS TREE

DISCLAIMER: For the purposes of this procurement process, all communications in relation to this ITT or this project must be made through the Bidding System using the "Submit a Question" link associated with this bid opportunity ("ITT Contact"), unless specifically instructed within the ITT document.

Bidders and their representatives are not permitted to contact any employees, officers, agents, elected or appointed officials or other representatives of the City, other than the ITT Contact. Failure to adhere to this rule may result in the disqualification of the bidder and the rejection of the bidder's bid.

KEY MAP N.T.S.

GENERAL NOTES

1. ALL WORKMANSHIP WILL BE TO THE STANDARDS OF LANDSCAPE ONTARIO.

2. ALL PLANT MATERIAL TO BE NO.1 GRADE NURSERY GROWN IN ACCORDANCE WITH THE CANADIAN STANDARDS FOR NURSERY STOCK, 9TH EDITION, 2017, BY THE CANADIAN NURSERY TRADES ASSOCIATION.

3. BACKFILL WILL CONSIST OF SOIL NATIVE TO THE SITE OR GENERAL SOIL TYPE/CLASS NATIVE TO THE SITE. TOPSOIL TO BE TESTED FOR NUTRIENT VALUE, AND AMENDED FOR OPTIMAL GROWTH AS PER THE RECOMMENDATIONS OF THE SOIL TEST.

4. CONTRACTOR SHALL MAINTAIN ALL LANDSCAPE AREAS UNTIL OWNER'S ACCEPTANCE OF PROJECT.

5. CONTRACTOR TO LOCATE ALL UNDERGROUND UTILITIES.

6. PLANTING MAY BE ADJUSTED TO SUIT LOCATIONS OF SITE UTILITY STRUCTURES/SERVICES.

7. ALL MATERIALS MUST BE APPROVED BY LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.

8. SPREAD MULCH TO A MINIMUM OF 100mm COMPACTED DEPTH ON ALL TREE PITS AND PLANTING BEDS.

9. CHECK AND VERIFY ALL DIMENSIONS AND QUANTITIES PRIOR TO COMMENCEMENT OF WORK. ANY DISCREPANCIES ARE TO BE REPORTED IN WRITING TO THE LANDSCAPE ARCHITECT. QUANTITIES NOTED WITHIN THE PLAN SUPERCEDE THOSE IN THE PLANT LIST. ANY SUBSTITUTIONS SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT.

10. SOD AS MARKED WITH NURSERY SOD ON A MINIMUM OF 100mm OF CLEAN TOPSOIL. FINE GRADE AND SOD ALL BOULEVARD AREAS TO MUNICIPAL SPECIFICATIONS AND REPAIR DAMAGE TO ADJACENT PROPERTIES, AS REQUIRED.

11. FINAL INSPECTION AND ACCEPTANCE OF PLANTING WORK SHALL COINCIDE WITH THE FINAL INSPECTION AND ACCEPTANCE OF ALL WORK INCLUDED IN THE CONTRACT.

12. ALL SEEDED SLOPES 3:1 AND GREATER TO RECEIVE EROSION CONTROL MATTING. PIN SOD ON ALL SLOPES OF 3:1 OR GREATER.

13. SUBMIT A WRITTEN GUARANTEE TO THE EFFECT THAT ALL PLANTS ACCEPTED DURING THE PERIOD OF JANUARY 1st TO JULY 15th SHALL BE GUARANTEED UNTIL JULY 15th THE FOLLOWING YEAR. PLANTS ACCEPTED DURING THE PERIOD OF JULY 15th TO DECEMBER 31st SHALL BE GUARANTEED FOR ONE YEAR FROM THE DATE OF ACCEPTANCE. THE GUARANTEE PERIODS LISTED ABOVE SHALL APPLY TO ALL "NURSERY GROWN" PLANTS.

14. AT THE TIME OF FINAL INSPECTION ALL PLANTS SHALL BE IN A HEALTHY, VIGOUROUS GROWING CONDITION, PLANTED IN FULL ACCORDANCE WITH DRAWINGS AND CONDITIONS.

15. SITE PLAN INFORMATION AS PER SALTER PILON.

16. ENGINEERING AS PER PEARSON, AND IS PROVIDED FOR INFORMATION ONLY.

17. SITE LIGHTING BY OTHERS

ONTARIO ASSOCIATION OF LANDSCAPE ARCHITECTS
AARON W. HILL
OALA
MEMBER

REVISIONS

no.	date	description	by
1.	Jun.22.23	Issued for 100% DD	AWH
2.	Aug.18.23	Issued for Approval	DPV
3.	Aug.23.23	Issued for DD Sign-Off	DPV
4.	Nov.02.23	Issued as per Comments	DPV
5.	Nov.10.23	Issued for 95% CD	AWH
6.	Nov.24.23	Issued for 100% CD	DPV
7.	Feb.23.24	Issued for Tender	EH

Salter Pilon Architecure

New Fire Station
845 Mapleview Drive East
Barrie

Landscape Plan

Hill Design Studio Inc
226-686-0700 www.hilldesign.ca
303-1601 River Road East, Kitchener ON

PROJECT NO.: 2023-19 (D11-017-2023)	DRAWN BY: DPV
SCALE: 1:200	DESIGNED BY: DPV
SHEET: L1	APPROVED BY: AWH
	PLOT DATE: Feb. 23, 2024

DO NOT PRUNE LEADERS, TREES WITH DAMAGED OR MISSING LEADERS WILL NOT BE ACCEPTED

TREE CROWN NOTES:

- REMOVE AT TIME OF PLANTING ANY DEAD, BROKEN OR DAMAGED LIMBS INCLUDING INTERFERING BRANCHES, DOUBLE LEADERS AND NARROW BRANCH UNIONS
- REMOVE ALL LABELS AND TAGS AT TIME OF PLANTING
- TREES ARE TO BE PLANTED PLUM AND HAVE BOTH FULL FORM AND HEALTHY CANOPY STRUCTURE. ANY TREES WHICH DO NOT MEET THIS CRITERIA AND/OR HAVE WEAK BRANCHING STRUCTURE, DO NOT HAVE STRAIGHT TRUNKS OR HAVE UNBALANCED CROWNS WILL NOT BE ACCEPTED

TREES ARE TO BE STAKED WITH (2) TWO SOFTWOOD STAKES (50x50x2400mm) EXTENDING 300mm INTO FIRM GROUND AT AN ANGLE AND SECURED VERTICAL PRIOR DO BACKFILLING THE TREE PIT. SECURE USING #12 GAUGE GALVANIZED WIRE ENGAGED IN 13mm DIAMETER REINFORCED RUBBER HOSE (EN)SURE NO WIRE ENDS DO NOT PROTRUDE) OR APPROVED EQUIVALENT. STAKING HARDWARE TO BE REMOVED AFTER ONE GROWING SEASON

BURLAP WRAP TREE FROM TOP OF ROOT BALL TO FIRST BRANCH UNION AND SECURE WITH BIODEGRADABLE TESI. REMOVE AFTER ONE GROWING SEASON

KEEP MULCH 50-100mm AWAY FROM TRUNK

FORM A 100mm HIGH EARTH SAUCER BEYOND THE EDGE OF THE ROOT BALL AND COVER WITH 100mm OF SHREDDED CEDAR MULCH

LOOSEN OR SCARIFY THE INSIDE SURFACE OF THE PLANTING HOLE PRIOR TO INSTALLATION OF THE TREE

IMPORTED FRIABLE SCREENED LOAM TOPSOIL COMPACTED TO ELIMINATE AIR POCKETS

PLACE ROOT BALL ON UNEXCAVATED OR TAMPED SOIL

1. ALL CALIPER TREE PLANTING SHALL HAVE A MINIMUM 600mm DIAMETER ROOT BALL.
2. CUT AND REMOVE ALL WIRE, ROPE AND BURLAP FROM THE TOP 150mm OF THE ROOT BALL AT THE TIME OF PLANTING.
3. FOR POORLY DRAINED OR COMPACTED SOILS THE ROOT BALL SHALL BE PLACED SO THAT THE ROOT COLLAR IS A MAXIMUM OF 100mm ABOVE THE FINISHED GRADE. FOR ALL OTHER INSTALLATIONS THE ROOT COLLAR SHALL BE AT OR 50mm ABOVE FINISHED GRADE.
4. ALL TREES WITHIN 3.0m OF A SIDEWALK OR DRIVEWAY MUST ALSO HAVE A COORDINATED INSTALLATION OF AN APPROVED ROOT BARRIER INSTALLED IN ADDITION TO THE TREE FOR ALL STREETSCAPE APPLICATIONS.
5. ALL TWINE AND BURLAP MUST BE BIODEGRADABLE (UNTREATED).
6. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.

Barrie	DECIDUOUS TREE PLANTING	REV No. 5	DATE: APR 2023
			SCALE: N.T.S.
		P1310	

1 DECIDUOUS TREE PLANTING DETAIL
NTS

DO NOT PRUNE LEADERS, TREES WITH DAMAGED OR MISSING LEADERS WILL NOT BE ACCEPTED

TREE CROWN NOTES:

- REMOVE AT TIME OF PLANTING ANY DEAD, BROKEN OR DAMAGED LIMBS INCLUDING INTERFERING BRANCHES, DOUBLE LEADERS AND NARROW BRANCH UNIONS
- REMOVE ALL LABELS AND TAGS AT TIME OF PLANTING
- BINDING AND TIES MUST BE REMOVED IMMEDIATELY FOLLOWING THE INSTALLATION OF THE TREE
- TREE HEIGHT IS MEASURED FROM THE FIRST WHORL AND NOT THE TOP OF LEADER
- TREES ARE TO BE PLANTED PLUM AND HAVE BOTH FULL FORM AND HEALTHY CANOPY STRUCTURE. ANY TREES WHICH DO NOT MEET THIS CRITERIA AND/OR HAVE WEAK BRANCHING STRUCTURE, DO NOT HAVE STRAIGHT TRUNKS OR HAVE UNBALANCED CROWNS WILL NOT BE ACCEPTED

TREES ARE TO BE STAKED WITH (2) TWO SOFTWOOD STAKES (50x50x2400mm) EXTENDING 300mm INTO FIRM GROUND AT AN ANGLE AND SECURED VERTICAL PRIOR TO BACKFILLING THE TREE PIT. SECURE USING #12 GAUGE GALVANIZED WIRE ENGAGED IN 13mm DIAMETER REINFORCED RUBBER HOSE (ENSURING WIRE ENDS DO NOT PROTRUDE) OR APPROVED EQUIVALENT. STAKING HARDWARE TO BE REMOVED AFTER ONE GROWING SEASON

KEEP MULCH 50-100mm AWAY FROM TRUNK

FORM A 100mm HIGH EARTH SAUCER BEYOND THE EDGE OF THE ROOT BALL AND COVER WITH 100mm OF SHREDDED CEDAR MULCH

LOOSEN OR SCARIFY THE INSIDE SURFACE OF THE PLANTING HOLE PRIOR TO INSTALLATION OF THE TREE

IMPORTED FRIABLE SCREENED LOAM TOPSOIL COMPACTED TO ELIMINATE AIR POCKETS

PLACE ROOT BALL ON UNEXCAVATED OR TAMPED SOIL

1. ALL CONIFEROUS TREE PLANTING SHALL HAVE A MINIMUM 600mm DIAMETER ROOT BALL.
2. CUT AND REMOVE ALL WIRE, ROPE AND BURLAP FROM THE TOP 150mm OF THE ROOT BALL AT THE TIME OF PLANTING.
3. FOR POORLY DRAINED OR COMPACTED SOILS THE ROOT BALL SHALL BE PLACED SO THAT THE ROOT COLLAR IS A MAXIMUM OF 100mm ABOVE THE FINISHED GRADE. FOR ALL OTHER INSTALLATIONS THE ROOT COLLAR SHALL BE AT OR 50mm ABOVE FINISHED GRADE.
4. ALL TWINE AND BURLAP MUST BE BIODEGRADABLE (UNTREATED).
5. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.

Barrie	CONIFEROUS TREE PLANTING	REV No. 5	DATE: APR 2023
			SCALE: N.T.S.
		P1312	

2 CONIFEROUS TREE PLANTING DETAIL
NTS

PRUNE DEAD OR BROKEN BRANCHES ONLY IMMEDIATELY AFTER PLANTING. PRUNING IS TO BE COMPLETED IN A MANNER WHICH PRESERVES THE NATURAL CHARACTER AND FORM OF THE PLANT

REMOVE ALL NURSERY TAGS AND FLAGGING TAPE IMMEDIATELY UPON INSTALLATION

50-100mm DEPTH OF SHREDDED CEDAR MULCH TO BE PLACED OVER A MINIMUM 100P FILTER CLOTH OR EQUIVALENT FOR ALL CONTINUOUS PLANTING BEDS

REMOVE NURSERY POTS OR WRAP PRIOR TO PLACEMENT, IF ROOT BOUND BLOC ROOT MASS VERTICALLY AND GENTLY SEPARATE EXTERIOR ROOTS. FOR FIBER POTS, REMOVE BOTTOM OF POT AND BLOC POT VERTICALLY THREE TIMES PRIOR TO PLACEMENT

PLANTING SOIL MIX AS SPECIFIED. STRAIGHT TOP SOIL WILL NOT BE ACCEPTED FOR USE IN PLANTING BEDS

SCARIFY SURFACE OF SUBSOIL PRIOR TO PLANTING OR INSTALLATION OF PLANTING SOIL MIX

1. PLANTING METHOD ILLUSTRATED APPLIES TO CONTAINER / POTTED MATERIAL ONLY.
2. PLANTING DETAIL DOES NOT SPECIFICALLY RELATE TO ANY PARTICULAR SPECIES AND SHALL BE APPLIED TO BOTH DECIDUOUS AND CONIFEROUS POTTED MATERIAL.
3. SET SHRUBS 50mm HIGHER THAN GRADE TO ALLOW FOR SETTLEMENT.
4. ALL SHRUB PLANTING IS TO OCCUR IN CONTINUOUS MULCHED PLANTING BEDS WITH WEED CONTROL FILTER FABRIC.
5. DO NOT COVER THE BASE OF SHRUB WITH MULCH.
6. ALL SOIL SHALL BE ADEQUATELY COMPACTED TO PREVENT AIR POCKETS AND SETTLEMENT.
6. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.

Barrie	CONTAINER GROWN SHRUB PLANTING	REV No. 5	DATE: APR 2023
			SCALE: N.T.S.
		P1314	

3 SHRUB PLANTING DETAIL
NTS

1. THE CONTRACTOR SHALL REVIEW ALL INFORMATION IN THE DRAWINGS, DETAILS AND SPECIFICATIONS FOR THIS PROJECT, AND REPORT ANY DISCREPANCY OR SUBSTITUTION TO THE CONTRACT ADMINISTRATOR IN WRITING PRIOR TO COMMENCEMENT OF WORK.
2. ALL PLANTING MATERIAL AND OPERATIONS TO MEET OR EXCEED THE HORTICULTURAL STANDARDS OF THE CANADIAN NURSERY LANDSCAPE ASSOCIATION AND LANDSCAPE ONTARIO. ALL PLANT MATERIAL TO BE No.1 GRADE NURSERY STOCK. THE CITY OF BARRIE RETAINS THE RIGHT TO REFUSE ANY UNSATISFACTORY STOCK.
3. SOD TO BE CANADA No.1 NURSERY SOD, MEETING THE NURSERY SOD GROWERS ASSOCIATION OF ONTARIO STANDARDS. ALL AREAS TO RECEIVE A MINIMUM 300mm DEPTH OF TOPSOIL AND SOD UNLESS OTHERWISE INDICATED. SEE DRAWINGS AND SPECIFICATIONS FOR AREAS TO BE MULCHED OR HYDRO-SEEDED.
4. CONIFEROUS TREES SHALL HAVE A STRAIGHT CENTRAL LEADER AND DENSELY BRANCHED TO WITHIN 300mm OF THE TOP OF ROOT BALL. HEIGHT OF CONIFEROUS TREES IS DEFINED AS THE DISTANCE BETWEEN THE TOP OF ROOT BALL AND THE FIRST WHORL (NOT LEADER HEIGHT). REFER TO P1312 AND P1313.
5. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES AND IS RESPONSIBLE FOR ANY DAMAGE TO SERVICES, EXISTING VEGETATION, OR ANY OTHER FEATURES TO BE RETAINED.
6. THE CONTRACTOR SHALL STAKE OUT ALL PLANTING LOCATIONS FOR APPROVAL BY THE CONTRACT ADMINISTRATOR, AND/OR CITY STAFF PRIOR TO PLANTING.
7. FOR ALL LANDSCAPE PLANS, ALL DIMENSIONS ARE TO BE SHOWN IN MILLIMETRES UNLESS OTHERWISE INDICATED.
8. ALL MASS PLANTINGS OF CONIFERS AND SHRUBS SHALL BE IN CONTINUOUS BEDS AND MULCHED WITH SHREDDED CEDAR OR APPROVED EQUIVALENT.
9. SCHEDULE AND PERFORM OPERATIONS FOR OPTIMUM PLANTING CONDITIONS, AND TAKE WHATEVER MEASURES NECESSARY TO ENSURE HEALTHY, VIGOROUS GROWTH.
10. ALL PLANT MATERIAL AND WORKMANSHIP WILL BE INSPECTED AND SLUNDER WARRANTY FOR A MINIMUM OF TWO YEARS FROM THE DATE OF WRITTEN ACCEPTANCE. ALL PLANT MATERIAL MUST BE IN A HEALTHY, VIGOROUS GROWING CONDITION SATISFACTORY TO THE CONTRACT ADMINISTRATOR AT THE END OF THE WARRANTY PERIOD, OR TO BE REPLACED AT THE CONTRACTOR'S EXPENSE.
11. WATER AT TIME OF PLANTING AND WHENEVER DEEMED NECESSARY TO MAINTAIN THE TREES IN A HEALTHY CONDITION.
12. INSTALLATION OF THE PLANT MATERIAL PRIOR TO INSPECTION BY THE CITY OF BARRIE WILL BE THE CONTRACTOR'S RESPONSIBILITY. THE CITY OF BARRIE RESERVES THE RIGHT TO REJECT ANY PLANTS, WHETHER INSTALLED OR NOT, WHICH DO NOT CONFORM TO THE SPECIFICATIONS AND/OR SITE DRAWINGS. REMOVE ALL REJECTED PLANTS FROM THE SITE IMMEDIATELY. DO NOT REMOVE ANY LABELS FROM PLANTS UNTIL THE PLANTS HAVE BEEN INSPECTED AND APPROVED BY THE LANDSCAPE ARCHITECT.
13. ALL PLANT MATERIALS WHICH CANNOT BE PLANTED IMMEDIATELY UPON ARRIVAL ON SITE SHALL BE PROPERLY HEELED IN OR WELL PROTECTED WITH SOIL OR SIMILAR MATERIALS TO PREVENT DRYING OUT, AND SHALL BE KEPT MOIST UNTIL COMMENCEMENT OF PLANTING.
14. ALL NEW WORK TO BLEND HEATLY AND SMOOTHLY WITH EXISTING CONDITIONS.
15. NO GRADING OR SODDING SHALL BE DONE WITHIN THE LIMIT OF PRESERVATION AREAS.
16. IN THE EVENT OF A DISCREPANCY BETWEEN A PLANT LIST AND DRAWING, THE DRAWING WILL BE ASSUMED TO BE CORRECT.

Barrie	NOTES PARK PLANTING	REV No. 2	DATE: APR 2023
			SCALE: N.T.S.
		P1320	

4 PLANTING NOTES DETAIL
NTS

1. FENCE LOCATIONS AND DIMENSIONS MUST BE IN ACCORDANCE WITH APPROVED ENGINEERING AND/OR LANDSCAPE PLANS.
2. RUNS FOR FENCING OF MORE THAN 100m ARE TO HAVE A 89mm DIA INTERMEDIATE STRAINING POST AND (2) TWO 42.9mm DIA. BRACE RAILS SIMILAR TO THOSE USED FOR TERMINAL POSTS.
3. TIE WIRES - #9 GAUGE HARD ALUMINUM (REFERENCE 9663-H18-ASTM-B517 FASTENERS).
4. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED.
5. ALL HARDWARE TO BE HOT DIP GALVANIZED.
6. NO GATES ARE PERMITTED FROM PROPERTY.
7. ONLY USE SCHEDULE 40 GALVANIZED PIPE.
8. FENCING TO BE INSTALLED SOLELY ON MUNICIPAL PROPERTY WITH AN INSET OF 150 TO FENCE CENTRE LINE.
9. THE TOP OF WIRE MESH SHALL BE KNUCKLED OVER SUCH THAT NO SHARP PROJECTIONS ARE VISIBLE OVER THE TOP RAIL.

Barrie	FENCE 1.52m CHAIN LINK	REV No. 2	DATE: APR 2023
			SCALE: N.T.S.
		P1210	

5 CHAIN LINK FENCE DETAIL
NTS

6 RIVER PEBBLE DETAIL
NTS

KEY MAP N.T.S.

REVISIONS

no.	date	description	by
1.	Jun.22.23	Issued for 100% DD	AWH
2.	Aug.18.23	Issued for Approval	DPV
3.	Aug.23.23	Issued for DD Sign-Off	DPV
4.	Nov.02.23	Issued as per Comments	DPV
5.	Nov.10.23	Issued for 95% CD	AWH
6.	Nov.24.23	Issued for 100% CD	DPV
7.	Feb.23.24	Issued for Tender	EH

Salter Pilon Architecure

New Fire Station
845 Mapleview Drive East
Barrie

Details

Hill Design Studio INC
226-686-0700 www.hilldesign.ca

PROJECT NO.: 2023-19	DRAWN BY: AWH
SCALE: AS NOTED	DESIGNED BY: AWH
SHEET: L2	APPROVED BY: AWH
	PLOT DATE: Feb. 23, 2024

LEGEND – PLUMBING

ALL SYMBOLS MAY NOT APPEAR ON DRAWINGS.

REFER	DESCRIPTION
E	EXISTING PIPING
	DOMESTIC COLD WATER PIPING
	DOMESTIC HOT WATER PIPING
	DOMESTIC HOT WATER RECIRC. PIPING
V	VENT PIPING
	SANITARY PIPING ABOVE FLOOR
	SANITARY PIPING BELOW GRADE OR FLOOR
S	STORM PIPING ABOVE FLOOR
S	STORM PIPING BELOW GRADE OR FLOOR
NP	NON-PORTABLE WATER PIPING
T	TEMPERED WATER PIPING
GAS	GAS PIPING
	PIPING TO BE REMOVED
	HEAT TRACED PIPING
E	CONNECTION OF NEW AND EXISTING PIPING
	CAPPED PIPE
FD	FLOOR DRAIN
FFD	FUNNEL FLOOR DRAIN
HD	HUB DRAIN
RD	ROOF DRAIN
RD	ROOF DRAIN ABOVE
CD	CANOPY DRAIN
CO	CLEANOUT IN FLOOR
CO	CLEANOUT IN LINE OR STACK
M	WATER METER
M	GAS METER
NFWH	NON-FREEZE WALL HYDRANT c/w VACUUM BREAKER
HB	HOSE BIBB c/w VACUUM BREAKER
	ISOLATION VALVE
	CIRCUIT BALANCING VALVE
	CHECK VALVE
	CHECK VALVE c/w BALL DRIP VALVE
	STRAINER
	GAS VALVE
RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
PVB	VACUUM BREAKER – PRESSURE TYPE
PRV	PRESSURE REDUCING VALVE (WATER)
	3-WAY VALVE
	TEMPERATURE & PRESSURE RELIEF VALVE
	SOLENOID VALVE
	UNION
PG	PRESSURE GAUGE
T	THERMOMETER
CB	CATCH BASIN
ESV	ELECTRICALLY SUPERVISED VALVE
D/T	DRAIN/TEST VALVE
FS	FLOW SWITCH
	PUMP
	PIPE DOWN
	PIPE UP
	PIPE UP & DOWN
	PIPE TEE
E	DENOTES EXISTING
E	EXISTING PIPING
F	STANDPIPE PIPING
SP	SPRINKLER PIPING
ESV	ELECTRICALLY SUPERVISED VALVE
D/T	DRAIN/TEST VALVE
FS	FLOW SWITCH
	FIRE DEPARTMENT PUMPER CONNECTION
FEX	FIRE EXTINGUISHER – SURFACE MOUNTED
FEC	FIRE EXTINGUISHER – CABINET
SFEC	SECURE FIRE EXTINGUISHER CABINET
	SPRINKLER HEAD – PENDENT
	SPRINKLER HEAD – UPRIGHT
	SPRINKLER HEAD – PENDENT c/w WIRE GUARD
	SPRINKLER HEAD – UPRIGHT c/w WIRE GUARD
	SPRINKLER HEAD – SIDEWALL

LEGEND – HVAC

ALL SYMBOLS MAY NOT APPEAR ON DRAWINGS.

REFER	DESCRIPTION
E(NAME)	EXISTING PIPING TO REMAIN
RS	REFRIGERANT SUCTION
RL	REFRIGERANT LIQUID
	PIPING RISER UP
	PIPING DROP
	PIPING RISER UP & DOWN
	TEE
	ELBOW – 90°
	ELBOW – 45°
	WYE
	REDUCER
	UNION
	FLANGE
	PUMP
	VERTICAL INLINE PUMP
	STRAINER
	SAFETY (S) OR RELIEF (R) VALVE
DC	DRAIN COCK
	SOLENOID ELECTRIC VALVE
VB	VACUUM BREAKER
	BACKFLOW PREVENTOR
	POSITIVE PRESSURE (SUPPLY) DUCT UP
	POSITIVE PRESSURE (SUPPLY) DUCT UP
	NEGATIVE PRESSURE (RETURN) DUCT UP
	POSITIVE PRESSURE (SUPPLY) DUCT DOWN
	POSITIVE PRESSURE (SUPPLY) DUCT DOWN
	NEGATIVE PRESSURE (RETURN) DUCT DOWN
	EXISTING DUCTWORK TO BE REMOVED
	EXISTING DUCTWORK TO REMAIN
	NEW DUCTWORK
	SUPPLY AIR DIFFUSER (SQUARE)
	SUPPLY AIR DIFFUSER (ROUND)
	SIDEWALL GRILLE
	RETURN/EXHAUST GRILLE
	FULL RADIUS DUCT CONNECTION
	TAP-IN DUCT CONNECTION
	ROUND DUCT CONNECTION
	TURNING VANES
FD	FIRE DAMPER
EXFD	EXISTING FIRE DAMPER
MD	MOTORIZED DAMPER
EXMD	EXISTING MOTORIZED DAMPER
BD	BALANCING DAMPER
OBBD	OPPOSED BLADE BALANCING DAMPER
OED	OPEN ENDED DUCT
	THERMOSTAT
RAT	REVERSE ACTING THERMOSTAT
	THERMOSTAT c/w TAMPERPROOF COVER
CAP	CAP
	TEMPERATURE SENSOR
	TEMPERATURE SENSOR (AT FLOOR SLAB)
	PIPE TEMPERATURE SENSOR
	PIPE PRESSURE SENSOR

GENERAL NOTES

REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR COORDINATION OF GRILLES, DIFFUSERS AND OTHER ELEMENTS.

IN ALL INSTANCES THE NEED FOR ACCESS DOORS IN GWB CEILINGS SHOULD BE AVOIDED IF POSSIBLE. WHERE INSTALLATION OF COMPONENTS WHICH REQUIRE ACCESS CANNOT BE AVOIDED,SUBMIT (DIMENSIONED) LAYOUT ON ARCHITECTURAL REFLECTED CEILING PLANS TO CONSULTANTS FOR APPROVAL PRIOR TO INSTALLATION OF COMPONENT.

EXISTING ITEMS TO BE REMOVED REMAIN THE PROPERTY OF THE OWNER AND SHALL BE DELIVERED TO A LOCATION ON SITE DESIGNATED BY THE OWNER. IF THE OWNER DECLARES NO INTEREST IN THE REMOVED ITEMS, ASSUME OWNERSHIP AND REMOVE THE ITEMS FROM THE SITE.

REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATION FOR PHASING AND STAGING.

FIRE SUPPRESSION NOTES

1. ALL WORK SHALL BEE PRFORMED IN ACCORDANCE WITH THE NATIONAL BUILDING CODE, NFPA STANDARDS AND THE ONTARIO BUILDING CODE.

MECHANICAL DRAWING LIST

M1.0 MECHANICAL LEAD SHEET & SCHEDULES
M1.1 MECHANICAL SCHEDULE
M2.0 PROPOSED DRAINAGE FLOOR PLAN
M3.0 PROPOSED PLUMBING PLAN
M4.0 PROPOSED HVAC FLOOR PLAN
M4.1 PROPOSED VRF PIPINGS FLOOR PLAN
M5.0 PROPOSED AIR FILTRATION SYSTEM LAYOUT
M6.0 PIPING SCHEMATICS
M7.0 MECHANICAL DETAILS – 1
M7.1 MECHANICAL DETAILS – 2

PLUMBING NOTES

1. CONTRACTOR IS TO VERIFY CONNECTION POINTS TO EXISTING SERVICES ON SITE.
2. CONTRACTOR IS TO CLEAR EXISTING DUCTWORK WHEN INSTALLING NEW PIPING. CLEARANCES TO BE VERIFIED ON SITE.
3. PROVIDE A CLEANOUT AT THE BOTTOM OF EVERY SOIL AND WASTE STACK THAT CONNECTS TO A HORIZONTAL DRAINAGE PIPE.
4. PROVIDE A CLEANOUT FROM EACH PLUMBING FIXTURE WHERE REQUIRED BY ONTARIO BUILDING CODE, PART 7 – PLUMBING.
5. CHECK AND VERIFY LOCATION OF ALL PIPES, DUCTS AND EQUIPMENT WITH ALL OTHER TRADES TO PREVENT INTERFERENCE. REMOVAL OR RELOCATION OF ANY SUCH WORK INTERFERING WITH WORK OF OTHER TRADES IS THE RESPONSIBILITY OF THE MECHANICAL TRADE CONCERNED UNLESS OTHERWISE APPROVED IN WRITING.
6. ALL PLUMBING FIXTURES INCLUDING FLOOR DRAINS (HUB, FUNNEL FLOOR DRAINS) TO BE TRAPPED AND VENTED AS REQUIRED BY ONTARIO BUILDING CODE, PART 7 – PLUMBING.
7. FOR MOUNTING HEIGHT OF ALL PLUMBING FIXTURES REFER TO ARCHITECTURAL DRAWINGS.
8. PROVIDE ACCESS DOOR FOR ALL VALVES LOCATED ABOVE DRY WALL CEILING.
9. PROVIDE ACCESS DOOR FOR ALL CLEANOUTS LOCATED ABOVE DRY WALL CEILING.
10. IN ALL INSTANCES THE NEED FOR ACCESS DOOR IN GWB CEILINGS SHOULD BE AVOIDED IF POSSIBLE. WHERE INSTALLATION OF COMPONENTS WHICH REQUIRE ACCESS CANNOT BE AVOIDED, SUBMIT (DIMENSIONED) LAYOUT ON ARCHITECTURAL REFLECTED CEILING PLANS TO CONSULTANTS FOR APPROVAL PRIOR TO INSTALLATION OF COMPONENT.
11. ALL DISTURBED SERVICES AFTER PIPE REMOVAL OR REROUTING TO BE FILLED-IN WITH APPROPRIATE MATERIAL TO MAINTAIN FIRE SEPARATION AND PATCHED TO MATCH EXISTING OR NEW FINISHES.
12. CONTRACTOR IS TO REMOVE ALL OBSOLETE PIPING WHEREVER POSSIBLE.
13. CONTRACTOR IS TO ENSURE THAT ALL EXISTING PIPING SERVING EXISTING AREAS REMAIN IN SERVICE UNTIL THESE AREAS ARE RECONNECTED TO NEW SERVICES. ONLY THEN OBSOLETE PIPING IS TO BE REMOVED AS SHOWN.
14. BEFORE CUTTING ANY HOLES THROUGH THE EXISTING SLAB REFER TO EXISTING STRUCTURAL DRAWINGS FOR GENERAL REQUIREMENTS.
15. AFTER PIPE REMOVAL ALL EXISTING OPENINGS IN FIRE SEPARATION ARE TO BE FILLED-IN TO MAINTAIN INTEGRITY OF THAT FIRE SEPARATION.
16. RECONNECT VENTS FROM EXISTING EQUIPMENT AND PLUMBING FIXTURES WHICH ARE TO REMAIN TO NEW VENTS AS REQUIRED.
17. PROVIDE SIGN IDENTIFYING LOCATION OF ALL VALVES INSTALLED IN CEILING SPACE.
18. ALL WATER, SANITARY, SEWER AND VENT COPPER PIPING WITH SOLDER JOINTS SHALL BE LEAD FREE. DO NOT INSTALL WATER LINES IN OUTSIDE WALL WHERE THEY MAY FREEZE, UNLESS BOTH THE WALL AND THE PIPES ARE PROPERLY INSULATED.
19. INSTALL SHUT-OFF VALVES AT EACH PLUMBING FIXTURE.
20. REFER TO ARCHITECTURAL FOR OWNER SUPPLIED EQUIPMENT. CONFIRM ALL MECHANICAL REQUIREMENTS AND PROVIDE TO SUIT.

DIFFUSER SCHEDULE

SYMBOL	SIZE MM x MM (IN. x IN.)	APPLICATION	NECK SIZE INSø	AIRFLOW RANGE CFM	NC RANGE	MANUFACTURER AND MODEL (BASIS OF DESIGN: E.H. PRICE)
S-1 / CFM	600x600 (24x24)	4 WAY CEILING DIFFUSER	6"	–135	<30	SCD
S-2 / CFM	600x600 (24x24)	4 WAY CEILING DIFFUSER	8"	136–250	<30	SCD
S-3 / CFM	600x600 (24x24)	4 WAY CEILING DIFFUSER	10"	251–350	<30	SCD
S-4 / CFM	600x600 (24x24)	4 WAY CEILING DIFFUSER	12"	351–471	<30	SCD
S-5 / CFM	300x200 (12x8)	DUCT MOUNTED GRILLE	–	–345	<30	520D
S-6 / CFM	200x100 (8x4)	DUCT MOUNTED GRILLE	–	0–90	<30	520D

NOTE(S): 1. ACCEPTABLE ALTERNATES SUBJECT TO SHOP DRAWING REVIEW: TITUS, METALAIRE, KRUEGER OR APPROVED EQUAL.

RETURN/ EXHAUST GRILLE SCHEDULE

SYMBOL	SIZE MM x MM (IN. x IN.)	APPLICATION	NECK SIZE MMø (INSø)	AIRFLOW RANGE CFM	NC RANGE	MANUFACTURER AND MODEL (BASIS OF DESIGN: E.H. PRICE)
R-1 / CFM E-1 / CFM	300x300 (12x12)	CEILING GRILLE	–	<450	<30	80D
R-2 / CFM E-2 / CFM	600x300 (24x12)	CEILING GRILLE	–	<800	<30	80D
R-3 / CFM E-3 / CFM	600x600 (24x24)	CEILING GRILLE	–	<2000	<30	80D
R-4 / CFM	500x500 (20x20)	CEILING GRILLE	–	<1500	<30	80D
R-5 / CFM	750x350 (30x14)	WALL GRILLE	–	<835	<30	530D
R-6 / CFM	750x250 (30x10)	DUCT GRILLE	–	<540	<30	530D

NOTE(S): 1. ACCEPTABLE ALTERNATES SUBJECT TO SHOP DRAWING REVIEW: TITUS, METALAIRE, KRUEGER OR APPROVED EQUAL.
2. ALL RETURN GRILLES SHALL C/W MERV 13 FILTERS.

DISCLAIMER: For the purposes of this procurement process, all communications in relation to this ITT or this project must be made through the Bidding System using the "Submit a Question" link associated with this bid opportunity ("ITT Contact"), unless specifically instructed within the ITT document.

Bidders and their representatives are not permitted to contact any employees, officers, agents, elected or appointed officials or other representatives of the City, other than the ITT Contact. Failure to adhere to this rule may result in the disqualification of the bidder and the rejection of the bidder's bid.

SPLIT AC SCHEDULE

TAG NUMBER	AREA SERVED	MODEL NUMBER	MANUFACTURER	VOLTAGE V/PHASE/HZ	MCA	MOCP	AIR FLOW CFM	COOLING CAPACITY MBH	SENSIBLE CAPACITY MBH	NOTES
SU-1/CU-1	IT, AV & FSA SERVICE SPACE	FAQ18TAVJU/ RZR18TAVJUA	DAIKIN	208/1/60	0.5/16.5	15/ 20	583	18	13	1.5-TON WALL MOUNTED SPLIT AC SYSTEM, R-410A

NOTE(S): 1. ALTERNATES ARE ACCEPTABLE SUBJECT TO SHOP DRAWING REVIEW.

VRF CONDENSER UNIT SCHEDULE

REFER	MAKE/MODEL	COMPRESSOR	HEAT EXCHANGER	COOLING		HEATING	ELECTRICAL			WEIGHT (LBS)	DIMENSIONS WXHXD(MM)	MANUFACTURER, MODEL AND ACCESSORIES
				TOTAL MBH	REFRIGERANT	TOTAL MBH	VOLTAGE	M.C.A.	M.O.C.P.			
VRF-CU-1	DAIKIN REYQ96AATJA	INVERTER DRIVEN SCROLL HERMETIC	CORROSION RESISTANT, SALT RESISTANT, FIN TYPE	77.0	R410a	72.50	208/3/60	34.1	35.0	709.9	48.8"X 65.4"X 30.1"	DAIKIN VRV IV HEAT PUMP REYQ96AATJA,C/W MULTI FUNCTIONAL DISPLAY

NOTES:
BASIS OF DESIGN IS DAIKIN. ACCEPTABLE ALTERNATES ARE MITSUBISHI, CARRIER OR APPROVED EQUAL.
OUTDOOR RATING CONDITIONS: COOLING 95°F DB/75°F WB, HEATING –4°F DB.

ENERGY RECOVERY VENTILATOR SCHEDULE

REFER	MAKE / MODEL	VENTILATION SUPPLY CFM	VENTILATION EXHAUST CFM	ESP	SUPPLY CONDITIONS SUMMER				SUPPLY CONDITIONS WINTER				ELECTRICAL			DIMENSIONS WXHXL(in.)	WEIGHT (LBS)	REMARKS
					DB(F)	WB(F)	RH(%)	ENTHALPY (BTU/ LB)	DB(F)	WB(F)	RH(%)	ENTHALPY (BTU/ LB)	VOLTAGE	MCA (A)	MOCP (A)			
ERV-1	GREENHECK / ERV-10-20L-VG	650	650	0.5	77.7	65.4		30.5	56.4	46.6		18.6	208/1/60	21.9	25.0	33.7" X 28.2" X 46.1"	308	INDOOR CEILING SUSPENDED WITH MOTORISED DAMPERS AT OUTDOOR AIR INTAKE AND EXHAUST AIR DISCHARGE OUTLET. 2kW ELECTRIC PRE-HEATER FOR FROST CONTROL. FAN SPEED CONTROLLER, CO2 SENSOR, 2 DIRTY FILTER SENSORS AND 24V CONTROL PANEL.TOTAL EFFECTIVENESS: SUMMER –76.5%, WINTER – 78%.

NOTES:
BASIS OF DESIGN IS GREENHECK. ACCEPTABLE ALTERNATES ARE OXYGEN8, TEMPEFF, LOREN COOK OR APPROVED EQUAL.

AIR-TO-WATER HEAT PUMP SCHEDULE

REFER	MAKE/MODEL	COMPRESSOR	HEAT EXCHANGER	REFRIGERANT	FLUID	FLUID FLOW GPM	FLUID TEMPERATURE °F		HEATING	ELECTRICAL			WEIGHT (LBS)	DIMENSIONS WXHXL(in.)	MANUFACTURER, MODEL AND ACCESSORIES
							IN	OUT	TOTAL MBH	VOLTAGE	M.C.A.	M.O.C.P.			
AWHP-1	AERMEC / ANK050H	SCROLL HERMETIC	PLATE TYPE	R410a	30% PROP. GLYCOL	7.7	100	110	36.462	208/1/60	30	50	379.19	17.72" X 50.43" X 39.37"	AERMEC MODEL ANK050H AIR-TO-WATER HEAT PUMP WITH SCROLL COMPRESSOR, COPPER TUBES AND ALUMINUM FINS, PLATE TYPE HEAT EXCHANGER, COP=2.66.

NOTES:
THE CAPACITY IS BASED ON AMBIENT TEMPERATURE AT 20°F.
BASIS OF DESIGN IS AERMEC. ACCEPTABLE ALTERNATES ARE MITSUBISHI, DAIKIN, CARRIER, YORK OR APPROVED EQUAL.

The Contractor shall verify all dimensions prior to commencement of the work.
All print and specifications are the property of the Architect and must be returned upon completion of the work.

ISSUE OR REVISION

No.	Description	Date
1	ISSUED FOR REVIEW	2023-06-22
2	ISSUED FOR REVIEW	2023-06-27
3	ISSUED FOR REVIEW	2023-07-06
4	ISSUED FOR 100% DESIGN DEVELOPMENT	2023-08-08
5	ISSUED FOR DD SIGN-OFF	2023-08-23
6	PROGRESS SET	2023-09-22
7	75% SUBMISSION	2023-10-13
8	ISSUED FOR BUILDING PERMIT	2023-11-01
9	95% SUBMISSION	2023-11-10
10	100% SUBMISSION	2023-11-24
11	100% SUBMISSION	2024-02-12
12	ISSUED FOR TENDER	2024-02-23
13	ISSUED FOR TENDER	2024-02-26

PROJECT :
BARRIE FIRE STATION 6
845 MAPLEVIEW DRIVE EAST, BARRIE, ONTARIO

PROFESSIONAL SEAL :
LICENSED PROFESSIONAL ENGINEER
M.K. AHMED
100069234
2024.02.26
PROVINCE OF ONTARIO

DWG TITLE :
LEAD SHEET, LEGENDS AND SCHEDULE

REGAL CONSULTING ENGINEERS INC.
CONSULTING MECHANICAL & ELECTRICAL ENGINEERS
208 Wyecroft Road, Suite 200, Oakville, Ontario L6K 3S3
PHONE: (905)844-3913
www.regal-eng.com

DATE :	JUN 14, 2023
SCALE :	NTS
DRAWN BY:	AL
CHECKED BY :	MA
DWG STATUS :	TENDER
PROJECT No. :	2023-401
DRAWING No. :	M1.0
REVISION	

VRV FAN COIL UNIT SCHEDULE

REFER	AIRFLOW CFM	COOLING TOTAL BTU/HR	COOLING SENSIBLE BTU/HR	COOLING REFRIGERANT	HEATING TOTAL BTU/HR	ENTERING AIR TEMPERATURES COOLING DB (F)	ENTERING AIR TEMPERATURES COOLING WB (F)	ENTERING AIR TEMPERATURES HEATING DB (F)	ELECTRICAL VOLTAGE	ELECTRICAL M.C.A.	ELECTRICAL M.O.C.P.	EXTERNAL DIMENSIONS WXHXD INCH	WEIGHT LBS	MANUFACTURER, MODEL AND ACCESSORIES
FCU-2, FCU-3, FCU-4, FCU-5, FCU-6, FCU-7, FCU-8, FCU-11, FCU-12.	281	5,800	4,700	R410a	6,500	80.0	67.0	68	208V/1/60Hz	0.8	15A	21.7"X9.7"X31.5"	55	DAIKIN FXSQ05TBVJU CONCEALED DUCTED TYPE, C/W 5 SPEED FAN DC MOTOR, INTEGRAL CONDENSATE PUMP, ESP 0.2", DRAIN CONNECTION SIZE 1-1/4", AIR CABINET FILTER FFRS30, C/W ELECTRIC HEATER
FCU-9	281	7,200	5,500	R410a	8,500	80.0	67.0	68	208V/1/60Hz	0.8	15A	21.7"X9.7"X31.5"	55	DAIKIN FXSQ07TBVJU CONCEALED DUCTED TYPE, C/W 5 SPEED FAN DC MOTOR, INTEGRAL CONDENSATE PUMP, ESP 0.2", DRAIN CONNECTION SIZE 1-1/4", AIR CABINET FILTER FFRS30, C/W ELECTRIC HEATER
FCU-10	DELETED													
FCU-1	600	18,000	13,600	R410a	20,000	80.0	67.0	68	208V/1/60Hz	1.6	15A	39.4"X9.6"X31.5"	77	DAIKIN FXSQ18TBVJU CONCEALED DUCTED TYPE, C/W 5 SPEED FAN DC MOTOR, INTEGRAL CONDENSATE PUMP, ESP 0.2", DRAIN CONNECTION SIZE 1-1/4", AIR CABINET FILTER FFRS12, C/W ELECTRIC HEATER

NOTES:
1. BASIS OF DESIGN IS DAIKIN. ACCEPTABLE ALTERNATES ARE MITSUBISHI, CARRIER OR APPROVED EQUAL.
2. PLEASE NOTE THAT DESIGN IS BASED ON THE CLEARANCE REQUIRED: 285MM FROM CEILING, 450 MM FROM SIDE, 20MM FROM TOP FOR ALL THE UNITS.

EXHAUST FAN SCHEDULE

REFER	AREA SERVED	AIR FLOW CFM	E.S.P. IN.W.C.	ELECTRICAL MOTOR SIZE HP	ELECTRICAL VOLTAGE	DRIVE	FAN SPEED RPM	UNIT WEIGHT LBS	SONES	CONTROL	MANUFACTURER, MODEL AND ACCESSORIES
EF-1	BUNKER GEAR 031	600	0.5	1/6	120V/1ø/60Hz	DIRECT	1539	65	7.1	SWITCH	COOK GEMINI SQN-D CENTRIFUGAL SQUARE INLINE, ALL ALUMINUM WHEEL -GALVANIZED STEEL HOUSING, THREE REMOVABLE ACCESS DOORS, C/W GRAVITY BD-12 DAMPER, RC-75 ISOLATORS
EF-2	WASHROOM 025	100	0.5	INPUT 86 WATTS	120V/1ø/60Hz	DIRECT	900	–	2.7	SWITCH	COOK GEMINI GC-144; COMPLETE WITH WHITE PLASTIC GRILL, INTEGRAL BACKDRAFT DAMPER AND ISOLATOR KIT.
EF-3	UNIVERSAL WASHROOM 007	100	0.5	INPUT 86 WATTS	120V/1ø/60Hz	DIRECT	900	–	2.7	SWITCH	COOK GEMINI GC-144; COMPLETE WITH WHITE PLASTIC GRILL, INTEGRAL BACKDRAFT DAMPER AND ISOLATOR KIT.
EF-4	WASHROOM 023	100	0.5	INPUT 86 WATTS	120V/1ø/60Hz	DIRECT	900	–	2.7	SWITCH	COOK GEMINI GC-144; COMPLETE WITH WHITE PLASTIC GRILL, INTEGRAL BACKDRAFT DAMPER AND ISOLATOR KIT.
EF-5	WASHROOM 021	100	0.5	INPUT 86 WATTS	120V/1ø/60Hz	DIRECT	900	–	2.7	SWITCH	COOK GEMINI GC-144; COMPLETE WITH WHITE PLASTIC GRILL, INTEGRAL BACKDRAFT DAMPER AND ISOLATOR KIT.
EF-6	WASHROOM 019	100	0.5	INPUT 86 WATTS	120V/1ø/60Hz	DIRECT	900	–	2.7	SWITCH	COOK GEMINI GC-144; COMPLETE WITH WHITE PLASTIC GRILL, INTEGRAL BACKDRAFT DAMPER AND ISOLATOR KIT.
EF-7	WASHROOM 017	100	0.5	INPUT 86 WATTS	120V/1ø/60Hz	DIRECT	900	–	2.7	SWITCH	COOK GEMINI GC-144; COMPLETE WITH WHITE PLASTIC GRILL, INTEGRAL BACKDRAFT DAMPER AND ISOLATOR KIT.
EF-8	JANITOR 011	100	0.5	INPUT 86 WATTS	120V/1ø/60Hz	DIRECT	900	–	2.7	SWITCH	COOK GEMINI GC-144; COMPLETE WITH WHITE PLASTIC GRILL, INTEGRAL BACKDRAFT DAMPER AND ISOLATOR KIT.
EF-9	LAUNDRY 009	100	0.5	INPUT 86 WATTS	120V/1ø/60Hz	DIRECT	900	–	2.7	SWITCH	COOK GEMINI GC-144; COMPLETE WITH WHITE PLASTIC GRILL, INTEGRAL BACKDRAFT DAMPER AND ISOLATOR KIT.
EF-10	DELETED										
EF-11	APPARATUS BAY VENTILATION	3700	0.25	1.5	208V/3ø/60Hz	DIRECT	715	76	8.7	CO/NOx SENSOR	COOK 210 ACWD, WALL MOUNTED TYPE, COMPLETE WITH BACKDRAFT DAMPER AND ISOLATOR KIT.
EF-12	MATERIAL STORE 027	118	0.139	1/8	115V/1ø/60Hz	DIRECT	860	–	6.7	THERMOSTAT	GREENHECK AER-20, COMPLETE WITH WALL COLLAR, BACKDRAFT DAMPER AND BIRDSCREEN
EF-13		118	0.139	1/8	115V/1ø/60Hz	DIRECT	860	–	6.7	THERMOSTAT	GREENHECK AER-20, COMPLETE WITH WALL COLLAR, BACKDRAFT DAMPER AND BIRDSCREEN
EF-14	COMPRESSOR 028	118	0.139	1/8	115V/1ø/60Hz	DIRECT	860	–	6.7	THERMOSTAT	GREENHECK AER-20, COMPLETE WITH WALL COLLAR, BACKDRAFT DAMPER AND BIRDSCREEN
EF-15	EXTRACTOR 030	118	0.139	1/8	115V/1ø/60Hz	DIRECT	860	–	6.7	THERMOSTAT	GREENHECK AER-20, COMPLETE WITH WALL COLLAR, BACKDRAFT DAMPER AND BIRDSCREEN

NOTES:
1. ALL FANS SHALL INCLUDE VIBRATION ISLOATION AND STARTERS.
2. REFER TO THE CONTROL SCHEMATICS AND SEQUENCES OF OPERATION.
3. ACCEPTABLE ALTERNATES ARE COOK, CARNES, GREENHECK, REVERSOMATIC, BROAN OR APPROVED EQUAL.

RADIANT FLOOR HEATING CAPACITY OUTPUT SCHEDULE

ZONE/TAG	MANUFACTURER / SUPPLIER	TOTAL OUTPUT BTU/HR	TOTAL OUTPUT WATTS	FLUID FLOW GPM	FLUID FLOW L/S	FLUID PRESSURE DROP FT.	FLUID PRESSURE DROP kPa	EWT. °F	EWT. °C	LWT. °F	LWT. °C	PIPE SPACING INCHES	PIPE SPACING MM	AREA FT²	AREA M²	OUTPUT PER AREA BTU/HR /FT²	OUTPUT PER AREA W/M²	SURFACE TEMPERATURE °F	SURFACE TEMPERATURE °C	REMARKS
MANIFOLD A – APPARATUS BAY	KLIMATROL ENVIRONMENTAL SYSTEMS	70119	20550	11.7	0.7	25.0	74.65	110	43.3	95	35	12	305	2385	221.6	29.4	92.7	75	23.9	BASIS OF DESIGN: KLIMATROL ENVIRONMENTAL SYSTEMS

Klimatrol Enviromental Systems Ltd.(905-454-1742) is the basis of design. Alternates are acceptable subject to shop drawing review.
Supply Klimatrol Hydronic System consisting of – ANURAV CABINETS c/w ⅝"Raupex PEXa, BACnet Controllers, manifolds,zone valves,actuators and transformer, pipe ties and bend guides.
Supplier must have local representative for their products and shall have minimum 10 years experience in successfully completely projects of similar size.
Secure Raupex piping to dedicated circuits with wire mesh grid. The general contractor shall provide the wire mesh and insulation.
Minimum 1-½" concrete covering over ⅝" Raupex pipe at 6' cc.
Provide sleeve where Raupex pipes cross expansion joints and wherever pipes pass out of the slab.
Install manifolds in serviceable location. Ensure cabinet is level and square. Purge all air from the system when filling.
Only Everloc couplers shall be used if pipe splice is required. OR APPROVED EQUAL.
Klimatrol shall provide system loop design shop drawings for review and construction. Installation contractor shall not deviate from the approved drawings.
Apply 68lb air pressure test to manifolds and pipes.
Contact MANUFACTURER to witness installation and provide inspection report for each area prior to concrete emplacement.
Fluid in the loop shall be 30% propylene glycol.

DOMESTIC HOT WATER TANK

SYMBOL/AREA	INPUT KW	STORAGE CAPACITY US GALLON	RECOVERY RATE @ 100°F RISE GPH	ELECTRICAL VOLTAGE	WATER CONNECTION	REMARKS
DHWT-1 / DHWT-2	18	119	74	208/3/60	1-1/4"	E32-120R-3 BRADFORD WHITE ELECTRIFLEX -MD, ELECTRIC, C/W PROTECTIVE ANODE ROD

NOTE(S): 1. ALTERNATES ARE ACCEPTABLE SUBJECT TO SHOP DRAWING REVIEW.

PLUMBING FIXTURE CONNECTION SCHEDULE

TAG	FIXTURN NAME	SANITARY MM	SANITARY INS	VENT MM	VENT INS	DCWS MM	DCWS INS	DHWS MM	DHWS INS	TEMPERED MM	TEMPERED INS	REMARKS
W1	GENERAL USE FLUSH VALVE WATER CLOSET	100	4	38	1.50	32	1.25	–	–	–	–	
W2	BARRIER FREE FLUSH VALVE WATER CLOSET	100	4	38	1.50	32	1.25	–	–	–	–	
L1	GENERAL USE COUNTERTOP LAVATORY	100	4	32	1.50	19	0.75	19	0.75	13	0.5	
L2	BARRIER FREE WALL HUNG LAVATORY	100	4	32	1.50	19	0.75	19	0.75	13	0.5	
SH1	SHOWER	100	4	38	1.50	19	0.75	19	0.75	19	0.75	
SH1	B/F SHOWER	100	4	38	1.50	19	0.75	19	0.75	19	0.75	
S1	2- COMPARTMENT STAINLESS STEEL SINK	100	4	32	1.50	13	0.50	13	0.50	–	–	
MS1	MOP SINK	100	4	38	1.50	19	0.75	19	0.75	–	–	
MS2	MOP SINK	100	4	38	1.50	19	0.75	19	0.75	–	–	
HB	HOSE BIB	–	–	–	–	13	0.50	–	–	–	–	
WF	WATER FOUNTAIN	100	4	38	1.50	13	0.50	–	–	–	–	
FD	FLOOR DRAIN	100	4	38	1.50	10	0.38	–	–	–	–	
FFD	FUNNEL FLOOR DRAIN	100	4	38	1.50	10	0.38	–	–	–	–	
TSP	TRAP SEAL PRIMER	–	–	–	–	10/13	0.38/0.50	–	–	–	–	ONE – 10MM/0.38" PER FD, FFD, HD, PD
–	WASHING MACHINE	100	4	38	1.50	19	0.75	19	0.75	–	–	SUPPLIED BY OWNER, INSTALLED BY MECHANICAL CONTRACTOR.
DW	DISHWASHER	100	4	38	1.50	13	0.50	13	0.50			

PUMP SCHEDULE

REF:	SYSTEM	MODEL	SIZE	PERFORMANCE FLUID	PERFORMANCE GPM	PERFORMANCE FT. HEAD	ELECTRICAL DATA MOTOR HP	ELECTRICAL DATA VOLTAGE	REMARKS
CP-1	DOMESTIC HOT WATER RECIRCULATING PUMP	ASTRO 20SSU	3/4"X3/4"	WATER	4	3	1/25	120/1/60	ASTRO 20SSU(ARMSTRONG) C/W TIMER AND AQUASTAT.
P-1/P-2	HYDRONIC HEATING	1911ecm	1-1/2"	30% propylene glycol	29.21	20	0.75	208/1/60	TACHO MODEL 1911ecm, DUCTILE IRON CASING, PPS IMPELLAR, SS SHAFT, CONSTANT PRESSURE TYPE.
CP-2A / CP-2B	CIRCULATION PUMP FOR BOILER, B-1/B-2	2400-10		30% propylene glycol	11.65	15	0.167	208/1/60	TACHO MODEL 2400-10, IRON CASING, NON-FERROUS IMPELLAR, SS SHAFT.
CP-3	CIRCULATION PUMP FOR AWHP-1	IL111		30% propylene glycol	7.7	10	0.124	208/1/60	TACHO MODEL IL111, NON-FERROUS IMPELLAR, SS SHAFT.
CP-4	CIRCULATION PUMP FOR IN-FLOOR HYDRONIC RADIANT SYSTEM	2400-20		30% propylene glycol	11.71	25.0	0.167	120/1/60	TACHO MODEL 2400-20, STAINLESS STEEL CASING, NON-FERROUS IMPELLAR, SS SHAFT.

NOTE(S): 1. ALTERNATES ARE ACCEPTABLE SUBJECT TO SHOP DRAWING REVIEW.

ELECTRIC BOILER SCHEDULE

SYMBOL	INPUT KW	FLUID	FLUID FLOW GPM	FLUID TEMPERATURE, °F IN	FLUID TEMPERATURE, °F OUT	ELECTRICAL VOLTAGE	ELECTRICAL AMPS	REMARKS
B-1 / B-2	17	30% PROPYLENE GLYCOL	11.65	160	180	208/3/60	47.1	THERMO2000 ELECTRIC BOILERS MODEL BTH ULTRA 17 WITH CONTROLLER, SAFETY CONTROLS, ELECTRIC SUPPLY AND PUMP CONTACTS AND 30PSI PRESSURE RELEIF VALVE.

NOTE(S): 1. ALTERNATES ARE ACCEPTABLE SUBJECT TO SHOP DRAWING REVIEW.

BACKUP DUCT HEATER SCHEDULE

TAG	SERVICE / LOCATION	DIMENSIONS (IN) (W X H X D)	ELECTRICAL KW	ELECTRICAL VOLT/ PH	ELECTRICAL AMPS	MANUFACTURER MODEL AND ACCESSSORIES
EDH-1	FCU-1		5	208 / 3	13.90	THERMOLEC- ELECTRIC DUCT HEATER C/W AUTOMATIC RESET & MANUAL DISC CUT-OUTS
EDH – 2	FCU-2, FCU-9, FCU-12		2	208 / 3	5.56	THERMOLEC- ELECTRIC DUCT HEATER C/W AUTOMATIC RESET & MANUAL DISC CUT-OUTS
EDH – 3	FCU-3, FCU-4, FCU-5, FCU-6, FCU-7, FCU-8, FCU-11		1	208 / 3	2.78	THERMOLEC- ELECTRIC DUCT HEATER C/W AUTOMATIC RESET & MANUAL DISC CUT-OUTS

NOTE(S): 1. ALTERNATES ARE ACCEPTABLE SUBJECT TO SHOP DRAWING REVIEW.

UNIT HEATER SCHEDULE

REFER	MAKE/MODEL	AIRFLOW, CFM	FLUID	FLUID FLOW GPM	FLUID PRESSURE DROP FT.	FLUID TEMPERATURE °F IN	FLUID TEMPERATURE °F OUT	HEATING CAPACITY MBH	FAN MOTOR HP	ELECTRICAL VOLTAGE	ELECTRICAL M.C.A.	ELECTRICAL M.O.C.P.	WEIGHT (LBS)	DIMENSIONS WXHXD(MM)	REMARKS
UH-1, UH-1A, UH-2, UH-2A	ENGINEERED AIR / H1	550	30% PROPYLENE GLYCOL	3.0	1.1	180	160	29.4	1/20	120/1/60			88	21.0" X 19.5" X 18.5"	
UH-3, UH-4, UH-5, UH-6, UH-7	ENGINEERED AIR / H1	550	30% PROPYLENE GLYCOL	1.90	0.5	180	160	27.0	1/20	120/1/60			88	21.0" X 19.5" X 18.5"	

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2	ISSUED FOR REVIEW	2023-06-27
3	ISSUED FOR REVIEW	2023-07-06
4	ISSUED FOR 100% DESIGN DEVELOPMENT	2023-08-08
5	ISSUED FOR DD SIGN-OFF	2023-08-23
6	PROGRESS SET	2023-09-22
7	75% SUBMISSION	2023-10-13
8	ISSUED FOR BUILDING PERMIT	2023-11-01
9	95% SUBMISSION	2023-11-10
10	100% SUBMISSION	2023-11-24
11	100% SUBMISSION	2024-02-12
12	ISSUED FOR TENDER	2024-02-23
13	ISSUED FOR TENDER	2024-02-26

PROJECT :
BARRIE FIRE STATION 6
845 MAPLEVIEW DRIVE EAST, BARRIE, ONTARIO

PROFESSIONAL SEAL :
LICENSED PROFESSIONAL ENGINEER
M.K. AHMED
100069234
2024.02.26
PROVINCE OF ONTARIO

DWG TITLE :
MECHANICAL SCHEDULE

RCEI
REGAL CONSULTING ENGINEERS INC.
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DATE : JUN 14, 2023
SCALE : NTS
DRAWN BY: AL
CHECKED BY : MA
DWG STATUS : TENDER
PROJECT No. : 2023-401
DRAWING No. : M1.1
REVISION

DRAWING NOTES

1	PROVIDE AND INSTALL SANITARY DRAIN PIPES BELOW GROUND AS SHOWN AND CONNECT WITH ALL FIXTURES TO PROVIDE DRAIN. COMPLY WITH REQUIREMENTS OF OBC AND ANY LOCAL AUTHORITY HAVING JURISDICTION.
2	CONTRACTOR TO PROVIDE AND INSTALL VENT SYSTEM AS PER PLUMBING CODE AND TO THE REQUIREMENTS OF ANY LOCAL AUTHORITY HAVING JURISDICTION.
3	ALL CLEANOUTS AND FLOOR DRAINS TO BE INSTALLED AT THE HEIGHT OF THE FINISHED FLOOR.(USE ADJUSTABLE HEIGHT DRAINS TO ACCOMMODATE DIFFERENT FINISHED FLOOR HEIGHTS)
4	CONTRACTOR TO PROVIDE AND INSTALL TRAP SEAL PRIMMER SYSTEM AS PER PLUMBING CODE. TRAP SEAL PRIMER PIPING TO BE CONNECTED TO NEAREST WATER SOURCE.
5	PROVIDE CONDENSATE DRAIN PIPES FOR ALL THE FAN COIL UNITS IN THE CEILING SPACE AS SHOWN. THE CONDENSATE LINE SHALL BE TERMINATED AT THE HUB DRAIN IN THE MECHANICAL ROOM. CONTRACTOR SHALL INSTALL THE CONDENSATE LINES TO DRAIN BY GRAVITY.
6	RUN THE CONDENSATE DRAIN PIPE DOWN TO THE FLOOR LEVEL ALONG THE WALL AND TERMINATE IN THE HUB DRAIN.
7	PROVIDE AND INSTALL VENT RISER TO THE ROOF AND TERMINATE ABOVE THE ROOF LEVEL WITH RAIN COWL AND BIRDSCREEN.
8	PROVIDE AND INSTALL OIL INTERCEPTOR COMPLETELY RECESSED IN THE FLOOR, WITH HEAVY DUTY COVER INSTALLED FLUSH WITH THE FINISHED FLOOR AND SUPPLIED WITH SECONDARY STORAGE. CAPACITY AT 35GPM, INLET AND OUTLET SIZES–102MM(4"). COMPLY WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS AND THE REQUIREMENTS OF OBC AND ANY LOCAL AUTHORITY HAVING JURISDICTION.
9	PROVIDE AND INSTALL 50ø VENT PIPES FROM THE OIL INTERCEPTOR TO THE ROOF ABOVE. TERMINATE THE VENTS ABOVE THE ROOF WITH A MINIMUM OF 300MM ELEVATION DIFFERENCE BETWEEN THE TWO VENTS.
10	DO NOT INSULATE THE PORTION OF THE CONDENSATE DRAIN PIPE AT THE FLOOR LEVEL.
11	PROVIDE AND INSTALL CONDENSATE DRAIN PIPE FROM THE FAN COIL UNIT AND TERMINATE ABOVE A FUNNEL DRAIN AT THE FLOOR LEVEL IN THE EXTRACTOR ROOM.
12	TERMINATE THE DRAIN PIPE STUB INSIDE THE WALL BOX AT 5FT FROM THE FLOOR LEVEL. SEE NOTE 7 ON DRAWING M3.0.
13	ROOF GUTTER IN THE CEILING SPACE ABOVE. SEE ARCHITECTURAL DRAWINGS FOR DETAILS.
14	PROVIDE AND INSTALL 4"ø RAIN WATER PIPE(VERTICAL) TO THE 4"ø DRAIN OPENING IN THE GUTTER.
15	RUN THE RAIN WATER PIPE AT HIGH LEVEL IN THE CEILING SPACE. COORDINATE WITH OTHER SERVICES IN THE CEILING SPACE.
16	RAIN WATER PIPE DROPS TO UNDERGROUND THROUGH THE PARTITION WALL.
17	SUPPLY AND INSTALL 24" x 24" x 36" DEEP CATCH BASIN, MODEL FTC223 NORTH STAR INDUSTRIES OR APPROVED EQUAL, IN THE MIDDLE OF THE TRENCH DRAIN AND IN LINE WITH THE ORIENTATION OF THE TRENCH DRAIN.
18	SUPPLY AND INSTALL SLOTTED DUCTILE IRON GRATING, MODEL MEADRAIN TOP 2000 NORTH STAR INDUSTRIES OR APPROVED EQUAL, TO COVER THE FORMED TRENCH DRAIN. COMPLY WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
19	PROVIDE 50ø SANITARY DRAIN STUB THROUGH THE WALL CAVITY AND TERMINATE AT 150MM ABOVE FINISHED FLOOR LEVEL FOR CONNECTION TO DISHWASHER DRAIN. PROVIDE P TRAP ON THE SANITARY DRAIN.

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5	ISSUED FOR DD SIGN-OFF	2023-08-23
6	PROGRESS SET	2023-09-22
7	75% SUBMISSION	2023-10-13
8	ISSUED FOR BUILDING PERMIT	2023-11-01
9	95% SUBMISSION	2023-11-10
10	100% SUBMISSION	2023-11-24
11	100% SUBMISSION	2024-02-12
12	ISSUED FOR TENDER	2024-02-23
13	ISSUED FOR TENDER	2024-02-26

PROJECT :
BARRIE FIRE STATION 6
845 MAPLEVIEW DRIVE EAST, BARRIE, ONTARIO

PROFESSIONAL SEAL :
LICENSED PROFESSIONAL ENGINEER
M.K. AHMED
100069234
2024.02.26
PROVINCE OF ONTARIO

DWG TITLE :
PROPOSED DRAINAGE FLOOR PLAN

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DATE :	JUN 14, 2023
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DRAWN BY:	AL
CHECKED BY :	MA
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PROJECT No. :	2023-401
DRAWING No. :	M2.0
REVISION	

DRAWING NOTES

1	CONNECT THE DOMESTIC COLD WATER MAIN TO THE INCOMING WATER MAIN TERMINATED OUTSIDE THE EXTERNAL WALL. SEE SITE SERVICES PLAN SS-1 FOR CONTINUATION.
2	DOMESTIC COLD WATER PIPE RISES FROM UNDERGROUND TO ABOVE FLOOR LEVEL.
3	PROVIDE AND INSTALL BACKFLOW PREVENTER ASSEMBLY AND WATER METER IN COMPLIANCE WITH THE REQUIREMENTS OF OBC, LOCAL AUTHORITY HAVING JURISDICTION AND THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. SEE DETAILS OF INSTALLATION ON DWG M7.1
4	PROVIDE AND INSTALL DOMESTIC HOT WATER HEATER ON THE FLOOR AT THE LOCATION SHOWN. PIPE THE PRESSURE RELIEF VALVE TO THE NEAREST HUB DRAIN. CONNECT THE RETURN AND SUPPLY PIPES TO THE WATER HEATER.
5	PROVIDE AND INSTALL DOMESTIC HOT WATER RE-CIRCULATING PUMP, CP-1, AT HIGH LEVEL IN THE MECHANICAL ROOM. PROVIDE INLET AND OUTLET PIPE CONNECTIONS.
6	PROVIDE AND INSTALL DOMESTIC COLD WATER, HOT WATER AND RE-CIRCULATING PIPES IN THE CEILING SPACE AS SHOWN. COORDINATE WITH OTHER SERVICES IN THE CEILING SPACE. INSULATE THE PIPES AS SPECIFIED. PROVIDE IDENTIFICATION LABEL ON EACH OF THE SERVICES AS SPECIFIED.
7	PROVIDE AND INSTALL WASHER SHUT OFF VALVES WATTS MODEL 2M2 DWB DUO CLOZURE OR APPROVED EQUAL WITH WALL BOX AND DECORATIVE FACE PLATE AT 5' ABOVE THE FLOOR LEVEL. CONFIRM LOCATION AT SITE BEFORE PROCEEDING WITH THE WORK.
8	PIPE RISES TO HIGH LEVEL.
9	INSTALL THE PIPES AT HIGH LEVEL ABOVE THE OVERHEAD DOORS TO AVOID INTERFERENCE WITH THE TRUCKS BELOW.
10	PIPE DROPS TO LOWER LEVEL ABOVE THE CEILING OF THE ADJACENT ROOMS.
11	RUN ½"ø COLD WATER PIPE ALONG THE WALL UP TO HIGH LEVEL OF THE TRAINING ROOM AND CONNECT TO A NON-FREEZE HOSE BIB ON THE EXTERIOR WALL ABOVE THE ROOF OVER THE CREW ROOMS. NON-FREEZE HOSE BIB SHALL BE ACCESSIBLE FROM THE LOW ROOF ABOVE CREW ROOMS TO CLEAN THE SOLAR PV PANELS.
12	PROVIDE BACKFLOW PREVENTER ASSEMBLY ON THE DOMESTIC COLD WATER PIPE AND HOT WATER PIPE UPSTREAM OF JANITOR FAUCET.
13	SUPPLY AND INSTALL IN-LINE ELECTROMAGNETIC FLOW METER, ONICON MODEL FT-3100 OR APPROVED EQUAL, WITH OUTPUT ANALOG SIGNAL TO BAS.

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PROJECT :

BARRIE FIRE STATION 6

845 MAPLEVIEW DRIVE EAST, BARRIE, ONTARIO

PROFESSIONAL SEAL :

LICENSED PROFESSIONAL ENGINEER
M.K. AHMED
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2024.02.26
PROVINCE OF ONTARIO

DWG TITLE :

PROPOSED PLUMBING FLOOR PLAN

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DRAWING NOTES

1	SUPPLY AND INSTALL AIR–TO–WATER HEAT PUMP, AWHP–1, ON RAISED SUPPORTS ON CONCRETE BASE ON GRADE. COMPLY WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS, OBC AND REQUIREMENTS OF ANY LOCAL AUTHORITY HAVING JURISDICTION.
2	SUPPLY AND INSTALL CONDENSING UNIT FOR SPLIT AC, CU–1, MOUNTED ON RAISED SUPPORTS ON CONCRETE BASE ON GRADE. COMPLY WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS, OBC AND REQUIREMENTS OF ANY LOCAL AUTHORITY HAVING JURISDICTION.
3	SUPPLY AND INSTALL CONDENSING UNIT FOR VRF SYSTEM MOUNTED ON RAISED SUPPORTS ON CONCRETE BASE ON GRADE. COMPLY WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS, OBC AND REQUIREMENTS OF ANY LOCAL AUTHORITY HAVING JURISDICTION.
4	SUPPLY AND INSTALL ENERGY RECOVERY VENTILATION SYSTEM, ERV–1, SUSPENDED FROM THE UNDERSIDE OF THE ROOF STRUCTURE AT HIGH LEVEL IN THE MECHANICAL ROOM. COMPLY WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS, OBC AND REQUIREMENTS OF ANY LOCAL AUTHORITY HAVING JURISDICTION.
5	DROP THE HEATING PIPES FROM HIGH LEVEL IN THE MECHANICAL SERVICE SHAFT TO BELOW GROUND AND RUN THE PIPES BELOW GROUND TO CONNECT TO THE AIR–TO–WATER HEAT PUMP, AWHP–1, OUTSIDE OF THE BUILDING.
6	SUPPLY AND INSTALL ELECTRIC BOILERS, B–1& B–2, 15kW OUTPUT CAPACITY, IN THE MECHANICAL ROOM AT THE LOCATION SHOWN. COMPLY WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS, OBC AND REQUIREMENTS OF ANY LOCAL AUTHORITY HAVING JURISDICTION. PROVIDE AND INSTALL DISCHARGE PIPE FROM THE RELIEF VALVE OF THE BOILER TO THE NEAREST HUB DRAIN.
7	SUPPLY AND INSTALL IN–LINE PIPE MOUNTED CIRCULATOR PUMPS, P–1 & P–2, AT LOW LEVEL CLOSE TO THE FLOOR. COMPLY WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS, OBC AND REQUIREMENTS OF ANY LOCAL AUTHORITY HAVING JURISDICTION.
8	PROVIDE AND INSTALL MANIFOLD CABINET FOR IN–FLOOR RADIANT HEATING SYSTEM ON THE WALL COMPLETE WITH HEADERS, VALVES, DISTRIBUTION OUTLETS, CIRCULATION PUMP, CONTROLLER AND ALL OTHER ACCESSORIES REQUIRED TO MAKE A COMPLETE INSTALLATION. THE MANIFOLD CABINET AND THE RADIANT IN–FLOOR HEATING SYSTEM SHALL BE AS PROVIDED BY KLIMATROL ENVIRONMENTAL SYSTEM OR APPROVED EQUAL.
9	PROVIDE AND INSTALL REHAU PEX PIPES, 5/8"ø, FOR IN–FLOOR RADIANT HEATING SYSTEM EMBEDDED IN THE CONCRETE FLOOR. SEE DETAILS ON DWG M6.1.
10	RUN THE HEATING PIPES AT HIGH LEVEL ABOVE THE OVERHEAD DOORS ACROSS THE APPARATUS BAY TO AVOID INTEFERENCE WITH THE FIRE TRUCKS BELOW.
11	PROVIDE AND INSTALL CEILING SUSPENDED INDOOR SPLIT AC, SU–1, 1.5TON, AT THE LOCATION SHOWN COMPLETE WITH DUCTWORK, REFRIGERANT PIPING TO THE OUTDOOR UNIT, CU–1.
12	PROVIDE AND INSTALL EXHAUST AIR DUCT, 250 X 200, FROM THE ERV TO THE ROOF. TERMINATE THE DUCT ABOVE THE ROOF LEVEL WITH RAIN COWL AND BIRDSCREEN. PROVIDE MOTORISED DAMPER AT THE EXHAUST AIR OUTLET OF THE ERV.
13	PROVIDE AND INSTALL 1050 X 300 MOTORISED AIR INTAKE LOUVER ON THE EXTERNAL WALL AT 10FT. HEIGHT FROM THE FLOOR OF THE MECHANICAL ROOM. THE LOUVER SHALL BE OF EXTRUDED CONSTRUCTION AND WITH BIRDSCREEN. ELECTRICALLY INTERLOCK THE LOUVRE WITH THE ERV–1 SUPPLY FAN SO THAT THE LOUVRE IS CLOSED WHEN THE FAN IS OFF AND THE LOUVRE IS OPEN WHEN THE FAN IS ON.
14	PROVIDE AND INSTALL 1050 X 300 MOTORISED AIR INTAKE LOUVRE ON THE EXTERNAL WALL AT 10FT. HEIGHT FROM THE FLOOR LEVEL. ELECTRICALLY INTERLOCK WITH THE EXHAUST FAN EF–1 TO OPEN WHEN THE FAN IS ON AND TO CLOSE WHEN THE FAN IS OFF.
15	PROVIDE AND INSTALL GSS DUCTWORK IN THE CEILING SPACE. COORDINATE WITH OTHER SERVICES IN THE CEILING SPACE. PROVIDE BALANCING DAMPERS AND FIRE DAMPERS WHERE SHOWN ON THE DRAWINGS AND AS REQUIRED. CONNECT THE DUCTWORK TO THE EQUIPMENT AND AIR DIFFUSERS WITH FLEXIBLE DUCT CONNECTION.
16	PROVIDE AND INSTALL EXHAUST FAN, EF–11, ON THE EXTERNAL WALL ABOVE THE ROOF OF THE BUNKER GEAR ROOM. EF–11 TO START / STOP AS CONTROLLED BY CO/NOx SENSOR.
17	PROVIDE AND INSTALL MOTORISED AIR INTAKE LOUVRE, 1500 X 900, ON THE WALL AT 10FT ABOVE THE FLOOR LEVEL. WIRE THE CO/NOx SENSOR TO OPEN THE LOUVRE WHEN THE EXHAUST FAN EF–11 STARTS AND CLOSE WHEN EF–11 IS STOPPED. SEE DETAIL OF CO/NOx SENSOR INSTALLATION ON DWG.M7.0.
18	150ø DUCT RISES TO HIGH LEVEL ABOVE THE OVERHEAD DOORS OF THE APPARATUS BAY (APPROXIMATELY 4500MM ABOVE FLOOR LEVEL). COORDINATE THE LEVEL OF DUCT IN THE APPARATUS BAY WITH OTHER SERVICES AT HIGH LEVEL.
19	150ø DUCT DROPS TO THE LEVEL BELOW THE ROOF OF THE BUNKER ROOM.
20	PROVIDE AND INSTALL PROPELLER FAN ON THE WALL WITH WEATHER HOOD, GRAVITY BACK DRAFT DAMPER, DISCONNECT SWITCH, BIRD SCREEN AND WALL COLLAR. PROVIDE AND WIRE THERMOSTAT TO TURN ON THE FAN WHEN THE ROOM TEMPERATURE EXCEEDS THE SET POINT DURING THE SUMMER MONTHS.
21	RUN THE EXHAUST AIR DUCT TO THE ROOF AND TERMINATE WITH ROOF VENT CAP COMPLETE WITH BIRD SCREEN AND BACKDRAFT DAMPER. COORDINATE THE LOCATION TO AVOID INTERFERENCE WITH SOLAR PANELS.

IN-FLOOR HYDRONIC RADIANT HEATING - SCHEDULE OF MANIFOLDS

Tag	Manifold Type	# of Circuits	Tubing Size, mm(in.)	Supply Temp. °C (°F)	Total Flow l/s (USgpm)	Head loss,kPa (ft. of water)	Total load, kW (Btu/hr)	Area, m^2 (ft2)
Manifold 1	PRO-BALANCE 1" with stainless steel manifold with gauges	8	15.9 (5/8)	43.3 (110)	0.74 (11.7)	60 (20.1)	32.5	268.6 (2891)

IN-FLOOR HYDRONIC RADIANT HEATING - CIRCUIT INFORMATION

Manifold	Number	Length, m (ft.)	Tube Size, mm (in.)	Spacing, mm (in.)	Flow l/s (USgpm)	Head loss, kPa (ft of water)	Total load, kW (Btu/hr)
Manifold 1	A-1	120.7 (396)	15.9 (5/8)	152 - 305 (6 -12)	0.094 (1.49)	44.8 (15)	4.13 (14104)
Manifold 2	A-2	121.6 (399)	"	"	"	45.4 (15.2)	4.15 (14165)
Manifold 3	A-3	118.9 (390)	"	"	0.093 (1.47)	43.3 (14.5)	4.08 (13942)
Manifold 4	A-4	120.1 (394)	"	305 (12)	0.094 (1.49)	44.8 (15)	4.14 (14136)
Manifold 5	A-5	121.3 (398)	"	"	0.095 (1.50)	45.7 (15.3)	4.16 (14217)
Manifold 6	A-6	119.8 (393)	"	"	0.093 (1.48)	43.9 (14.7)	4.11 (14037)
Manifold 7	A-7	119.5 (392)	"	"	"	43.9 (14.7)	4.10 (14015)
Manifold 8	A-8	106.1 (348)	"	"	0.083 (1.31)	31.7 (10.6)	3.64 (12418)

The Contractor shall verify all dimensions prior to commencement of the work.
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1	ISSUED FOR REVIEW	2023-06-22
2	ISSUED FOR REVIEW	2023-06-27
3	ISSUED FOR REVIEW	2023-07-06
4	ISSUED FOR 100% DESIGN DEVELOPMENT	2023-08-08
5	ISSUED FOR DD SIGN-OFF	2023-08-23
6	PROGRESS SET	2023-09-22
7	75% SUBMISSION	2023-10-13
8	ISSUED FOR BUILDING PERMIT	2023-11-01
9	95% SUBMISSION	2023-11-10
10	100% SUBMISSION	2023-11-24
11	100% SUBMISSION	2024-02-12
12	ISSUED FOR TENDER	2024-02-23
13	ISSUED FOR TENDER	2024-02-26

PROJECT :
BARRIE FIRE STATION 6
845 MAPLEVIEW DRIVE EAST, BARRIE, ONTARIO

PROFESSIONAL SEAL :
LICENSED PROFESSIONAL ENGINEER
M.K. AHMED
100069234
2024.02.26
PROVINCE OF ONTARIO

DWG TITLE :
PROPOSED HVAC FLOOR PLAN

REGAL CONSULTING ENGINEERS INC.
CONSULTING MECHANICAL & ELECTRICAL ENGINEERS
208 Wyecroft Road, Suite 200, Oakville, Ontario L6K 3S3
PHONE: (905)844–3913
www.regal–eng.com

DATE :	JUN 14, 2023
SCALE :	1:60
DRAWN BY:	AL
CHECKED BY :	MA
DWG STATUS :	TENDER
PROJECT No. :	2023-401
DRAWING No. :	M4.0
REVISION	

DRAWING NOTES

1	SUPPLY AND INSTALL THE BRANCH SELECTOR BOX IN THE CEILING SPACE. COMPLY WITH THE MANUFACTURER'S INSTALLATION GUIDELINES. COORDINATE WITH OTHER SERVICES IN THE CEILING SPACE.
2	SUPPLY AND INSTALL THE REFRIGERANT PIPES FROM THE BRANCH SELECTOR BOX TO THE FAN COIL UNITS AND TO THE VRF CONDENSER UNIT OUTSIDE THE BUILDING. INSULATE THE REFRIGERANT PIPES AS SPECIFIED.
3	REFRIGERANT PIPES DROP ALONG THE WALL TO BELOW GROUND. SUPPLY AND INSTALL REFRIGERANT PIPES UNDERGROUND TO CONNECT WITH THE VRF CONDENSER ON THE CONCRETE BASE ON GRADE.
4	REFRIGERANT PIPES RISE TO HIGH LEVEL.
5	REFRIGERANT PIPES DROP FROM HIGH LEVEL TO BELOW THE ROOF OF THE BUNKER ROOM TO CONNECT TO THE FAN COIL UNIT IN THE CEILING SPACE.
6	RUN THE REFRIGERANT PIPES AT HIGH LEVEL TO AVOID INTERFERENCE WITH THE OVERHEAD DOORS AND TRUCKS BELOW.
7	PIPE SIZES AND LENGTHS ARE ESTIMATES BASED ON THE PROJECT DOCUMENTS. INSTALLATION CONTRACTOR SHALL BE RESPONSIBLE FOR MEASURING AND PROVIDING THE REQUIRED AMOUNT OF REFRIGERANT PIPE BASED ON SITE CONDITIONS, AND VERIFYING SIZES WITH THE MANUFACTURER PRIOR TO INSTALLATION. THE CONTRACTOR SHALL ALSO CONFIRM FINAL INSTALLED PIPING LENGTHS WITH MANUFACTURER TO RECEIVE CORRECT FIELD REFRIGERANT CHARGE CALCULATIONS BEFORE CHARGING THE SYSTEM.
8	ALL PIPING WORK SHALL COMPLY WITH TSSA REQUIREMENTS. INSTALLATION CONTRACTOR TO PROVIDE TSSA REFRIGERANT PIPING CERTIFICATE B31.5 PRIOR TO COMMISSIONING BY VRV MANUFACTURER. ALL SYSTEMS SHALL DISPLAY APPROPRIATE ODP TAGS PRIOR TO COMMISSIONING BY THE VRV MANUFACTURER.

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12	ISSUED FOR TENDER	2024-02-23
13	ISSUED FOR TENDER	2024-02-26

PROJECT :

BARRIE FIRE STATION 6

845 MAPLEVIEW DRIVE EAST, BARRIE, ONTARIO

PROFESSIONAL SEAL :

LICENSED PROFESSIONAL ENGINEER
M.K. AHMED
100069234
2024.02.26
PROVINCE OF ONTARIO

DWG TITLE :

PROPOSED VRF PIPING LAYOUT

RCEI
REGAL CONSULTING ENGINEERS INC.
CONSULTING MECHANICAL & ELECTRICAL ENGINEERS
208 Wyecroft Road, Suite 200, Oakville, Ontario L6K 3S3
PHONE: (905)844-3913
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CHECKED BY :	MA
DWG STATUS :	TENDER
PROJECT No. :	2023-401
DRAWING No. :	M4.1
REVISION	

DRAWING NOTES

1	SUPPLY AND INSTALL AIRMATION INDUSTRIAL AIR CLEANER MODEL AMBGIM OR APPROVED EQUAL (WITH HIGH EFFICIENCY ECM MOTOR) AT 13 FT. ABOVE THE FLOOR LEVEL AND SUSPENDED FROM THE ROOF STRUCTURE AT THE LOCATION SHOWN. FOLLOW THE ORIENTATION OF THE AIRFLOW AS SHOWN. ENSURE THE UNIT WILL NOT COME IN THE WAY OF OVERHEAD DOORS WHEN OPENED. PROVIDE ALL SENSORS, CONTROL PANELS, ACCESSORIES AND CONTROL WIRING AS REQUIRED TO MAKE A COMPLETE INSTALLATION.
2	SUPPLY AND INSTALL THE TIMER SPEED CONTROL AND MAINTENANCE MONITOR(TSCMM) ON THE WALL AT 1200MM ABOVE THE FLOOR LEVEL. PROVIDE CONTROL WIRING BETWEEN THE TSCMM, THE FILTRATION UNITS, TSCMM CONTROL PANEL AND SENSORS.
3	DELETED.
4	SUPPLY AND INSTALL THE OPTICAL EYE SENSORS, MODEL Q45VR3 SERIES FROM BANNER OR APPROVED EQUAL, AT 7'-2" ABOVE THE FLOOR LEVEL AT THE LOCATIONS SHOWN. PROVIDE CONTROL WIRING FROM THE SENSORS TO THE TSCMM CONTROL PANEL.
5	SUPPLY AND INSTALL HONEYWELL PARTICULATE MATTER SENSOR, MODEL HPMA115S0 OR APPROVED EQUAL, AT 1200MM ABOVE THE FLOOR LEVEL AT THE LOCATION SHOWN. PROVIDE CONTROL WIRING BETWEEN THE SENSOR AND THE TSCMM CONTROL PANEL.
6	PROVIDE DOOR FLAG(STAINLESS STEEL) AT 7' FROM THE FLOOR LEVEL TO ACTIVATE THE OPTICAL EYE SENSOR WHEN THE OVERHEAD DOOR IS OPENED.

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11	100% SUBMISSION	2024-02-12
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13	ISSUED FOR TENDER	2024-02-26

PROJECT :

BARRIE FIRE STATION 6

845 MAPLEVIEW DRIVE EAST, BARRIE, ONTARIO

PROFESSIONAL SEAL :

LICENSED PROFESSIONAL ENGINEER
M.K. AHMED
100069234
2024.02.26
PROVINCE OF ONTARIO

DWG TITLE :

PROPOSED AIR FILTRATION SYSTEM LAYOUT

RCEI

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CONSULTING MECHANICAL & ELECTRICAL ENGINEERS
208 Wyecroft Road, Suite 200, Oakville, Ontario L6K 3S3
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DATE :	JUN 14, 2023
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CHECKED BY :	MA
DWG STATUS :	TENDER
PROJECT No. :	2023-401
DRAWING No. :	M5.0
REVISION	

DRAWING NOTES	
1	PIPE SIZES AND LENGTHS ARE ESTIMATES BASED ON THE PROJECT DOCUMENTS. INSTALLATION CONTRACTOR SHALL BE RESPONSIBLE FOR MEASURING AND PROVIDING THE REQUIRED AMOUNT OF REFRIGERANT PIPE BASED ON SITE CONDITIONS, AND VERIFYING SIZES WITH THE MANUFACTURER PRIOR TO INSTALLATION. THE CONTRACTOR SHALL ALSO CONFIRM FINAL INSTALLED PIPING LENGTHS WITH MANUFACTURER TO RECEIVE CORRECT FIELD REFRIGERANT CHARGE CALCULATIONS BEFORE CHARGING THE SYSTEM.

VRF SYSTEM PIPING SCHEMATIC DIAGRAM

BOILER AND AIR–TO–WATER HEAT PUMP PIPING SCHEMATIC DIAGRAM

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13	ISSUED FOR TENDER	2024-02-26

PROJECT :
BARRIE FIRE STATION 6
845 MAPLEVIEW DRIVE EAST, BARRIE, ONTARIO

PROFESSIONAL SEAL :

DWG TITLE :
PIPING SCHEMATICS

REGAL CONSULTING ENGINEERS INC.
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PHONE: (905)844-3913
www.regal-eng.com

DATE :	JUN 14, 2023
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CHECKED BY :	MA
DWG STATUS :	TENDER
PROJECT No. :	2023-401
DRAWING No. :	M6.0
REVISION	

'L' = 1–1/2 D2 FOR 8" (200mm) TO 24" (600mm)

'L' = 1–1/4 D2 FOR D2 OVER 24" (600mm)

TITLE:
DETAIL OF
SPLITTER DAMPER

TITLE:
DETAIL OF ROUND
DUCT TAKE–OFF

TITLE:
DETAIL OF RETURN
AIR GRILLE AND BOOT

`L'=1-1/2 D FOR 8" (200mm) TO 24" (600mm)

`L'=1-1/4 D FOR OVER 24" (600mm)

TITLE:
DETAIL OF SUPPLY
TAP–IN CONNECTION

'L' = 1–1/2 D2 FOR 8" (200mm) TO 24" (600mm)

'L' = 1–1/4 D2 FOR D2 OVER 24" (600mm)

RATIO $\frac{D2}{D1} = \frac{\text{VOLUME IN SECONDARY BRANCH}}{\text{VOLUME IN MAIN DUCT AFTER TAKE–OFF}}$

TITLE:
DETAILS OF FULL RADIUS ELBOW BRANCH TAKE–OFF

SECTIONAL VIEW

TITLE:
DETAILS OF DIFFUSER CONNECTION WITH SPIN IN COLLAR

NOTES:

1. FIRE DAMPERS TO BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.
2. INSPECT WALL OPENINGS PRIOR TO DAMPER INSTALLATION TO VERIFY SIZE OF OPENING AND PROPER PREPARATION. REFER TO MANUFACTURER'S INSTALLATION INSTRUCTIONS
3. INSTALL DAMPER IN PLANE OF FIRE SEPARATION. FOR PREPARATION OF OPENINGS IN STUD FRAMED PARTITIONS OR WALLS.
4. INSTALL DAMPER SQUARE AND PLUMB.
5. DO NOT CAST DAMPER IN PLACE.
6. DO NOT CAULK OR SEAL DAMPER TO WALL. ENSURE THAT EXPANSION CLEARANCES ARE KEPT.
7. DO NOT FASTEN RETAINING ANGLES OR DAMPER DIRECTLY TO WALL.
8. CYCLE DAMPER AFTER INSTALLATION TO ENSURE FREE MOVEMENT.

TITLE:
DETAIL OF TYPE B FIRE
DAMPER INSTALLATION–
VERTICAL

TITLE:
MOP SINK AND SERVICE FAUCET

TITLE:
DETAIL OF RETURN
TAP–IN CONNECTION

PLAN VIEW

TITLE:
DETAILS OF DIFFUSER CONNECTION WITH SPIN IN COLLAR

CO/NOX CONTROL CONSOLE

HONEYWELL CO/NOX CONTROL TRANSMITTER OR APPROVED EQUAL WITH SENSORS
E3SAH - TRANSMITTER
E3SCO - CARBON MONOXIDE SENSOR
E3SRMNO2 - NITROGEN DIOXIDE SENSOR
MECHANICAL CONTRACTOR TO ALLOW FOR VERIFICATION AND COMMISSIONING OF THE DETECTION SYSTEM, DAMPERS AND EXHAUST FAN.

TITLE:
CO + NOX SENSOR/ VENTILATION SYSTEM SCHEMATIC

TITLE:
DETAIL OF GOOSENECK

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12	ISSUED FOR TENDER	2024-02-23
13	ISSUED FOR TENDER	2024-02-26

PROJECT :
BARRIE FIRE STATION 6
845 MAPLEVIEW DRIVE EAST, BARRIE, ONTARIO

PROFESSIONAL SEAL :

DWG TITLE :
MECHANICAL DETAILS–1

REGAL CONSULTING ENGINEERS INC.
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DWG STATUS :	TENDER
PROJECT No. :	2023-401
DRAWING No. :	M7.0
REVISION	

TITLE:
DETAILS OF CLEANOUT TO GRADE

TITLE:
DETAILS OF UNDER LAVATORY THERMOSTATIC MIXING VALVE

TITLE:
DETAIL OF FAN COIL RETURN AIR FILTER

TITLE:
DETAIL OF BACKFLOW PREVENTER AND WATER METER

TITLE:
SCHEMATIC OF ELECTRIC WATER HEATER

[Required installation space (mm)]
Figures indicate the minimum required installation space.

Fig. 1

Fig. 2

• * Dimension H1 indicates the product height.

TITLE:
FAN COIL CLEARANCES– DETAIL

TITLE:
UNIT HEATER PIPING DETAIL

RADIANT FLOOR HEATING SYSTEM MECHANICAL SCHEMATIC
NOT TO SCALE

RADIANT FLOOR HEAT MANIFOLD
TYPICAL MANIFOLD BREAK-DOWN DEPTH=3.5 inches.
NOT TO SCALE

SLEEVING DETAIL
NOT TO SCALE

FLOOR HEAT SLAB SENSOR
NOT TO SCALE

SLEEVING AND NAIL GUARD APPLICATION
NOT TO SCALE

TITLE:
DETAIL OF IN-FLOOR RADIANT HYDRONIC HEATING

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13	ISSUED FOR TENDER	2024-02-26

PROJECT :
BARRIE FIRE STATION 6
845 MAPLEVIEW DRIVE EAST, BARRIE, ONTARIO

PROFESSIONAL SEAL :

DWG TITLE :
MECHANICAL DETAILS–2

REGAL CONSULTING ENGINEERS INC.
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PROJECT No. :	2023-401
DRAWING No. :	M7.1
REVISION	

CITY OF BARRIE FIRE STATION 6

TOR. 134748.01

ISSUED FOR TENDER

845 Mapleview Drive East, Barrie Ontario

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2. These drawings are "design drawings" only. They may not be suitable for use as shop drawings. Use of these drawings as base drawings for "shop drawings" is not permitted unless written permission containing certain conditions and limitations is obtained from RJC. The work "as constructed" may vary from what is shown on these drawings.

3. Use of these drawings is limited to that identified in the Issued/Revision column. Do not construct from these drawings unless marked "Issued for Construction" by RJC in the Issued/Revision column, and then only for the parts noted. The drawings shall not be used for "pricing" / "costing" or "tender" unless so indicated in the Issued/Revisions column. "Pricing" or "Costing" drawings are not complete and any prices based on such drawings must allow for this.

LIST OF STRUCTURAL DRAWINGS

S000	COVER PAGE
S100	GENERAL NOTES AND TYPICAL DETAILS
S101	GENERAL NOTES AND TYPICAL DETAILS
S102	GENERAL NOTES AND TYPICAL DETAILS
S103	GENERAL NOTES AND TYPICAL DETAILS
S104	GENERAL NOTES AND TYPICAL DETAILS
S105	GENERAL NOTES AND TYPICAL DETAILS
S106	GENERAL NOTES AND TYPICAL DETAILS
S107	GENERAL NOTES AND TYPICAL DETAILS
S108	GENERAL NOTES AND TYPICAL DETAILS
S109	GENERAL NOTES AND TYPICAL DETAILS
S201	LEVEL 1 FOUNDATION PLAN
S202	LEVEL 2 FLOOR/ROOF PLAN
S203	ROOF PLAN
S400	FRAMING ELEVATIONS
S401	FRAMING ELEVATIONS
S402	FRAMING ELEVATIONS
S403	FRAMING ELEVATIONS
S500	SECTIONS AND DETAILS
S501	SECTIONS AND DETAILS
S502	SECTIONS AND DETAILS
SP1	PROVISIONAL ITEMS

DISCLAIMER: For the purposes of this procurement process, all communications in relation to this ITT or this project must be made through the Bidding System using the "Submit a Question" link associated with this bid opportunity ("ITT Contact"), unless specifically instructed within the ITT document.

Bidders and their representatives are not permitted to contact any employees, officers, agents, elected or appointed officials or other representatives of the City, other than the ITT Contact. Failure to adhere to this rule may result in the disqualification of the bidder and the rejection of the bidder's bid.

No.	Revision	Date
7	ISSUED FOR TENDER	2024-02-23
6	ISSUED FOR 100% CONSTRUCTION DOCUMENTS	2023-11-24
5	ISSUED FOR 95% CONSTRUCTION DOCUMENTS	2023-11-10
4	ISSUED FOR BUILDING PERMIT	2023-11-01
3	ISSUED FOR 75% CONSTRUCTION DOCUMENTS	2023-10-13
2	ISSUED FOR PROGRESS	2023-09-22
1	ISSUED FOR DD SIGN-OFF	2023-08-23

Orientation

Seal

All dimensions to be checked and verified on the job by the Contractor. Any discrepancies are to be reported to the Consultant prior to action. Only the latest approved drawings to be used for construction in conformance with all applicable codes, by-laws and regulations. All drawings remain the property of the Consultant.

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Engineers

Read Jones Christoffersen Ltd.

100 University Avenue,
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Toronto, ON M5J 2X4 Canada
tel 416-977-5335 rjc.ca

Project Information

CITY OF BARRIE FIRE STATION 6

845 Mapleview Drive East, Barrie Ontario

For

Barrie Fire and Emergency Services

Drawing Title

COVER PAGE

Date	Project No	Drawing No
2024-02-23	TOR. 134748.01	S000
Drawn by: KS		
Scale		

C:\Users\ksmall\Documents\Revit Local Files\TOR.134748.0001 - City of Barrie Fire Station 6_R20_kfsmall.rvt
2024-02-26 4:02:51 PM

SUB-GRADE NOTES

1. REFER TO GEOTECHNICAL REPORT FOR OTHER SPECIFIC DESIGN REQUIREMENTS FOR FOUNDATIONS, SOIL SLOPES, FROST PROTECTION, MINIMUM COVER, ETC.
2. FOR GROUND ELEVATIONS AND DRAINAGE SLOPES, SEE ARCHITECTURAL & CIVIL DRAWINGS.
3. REMOVE ALL ORGANIC MATERIAL FROM THE BUILDING AREA AS OUTLINED IN THE GEOTECHNICAL REPORT.
4. REMOVE ALL LOOSE OR SATURATED MATERIAL AND GROUNDWATER FROM THE BASE OF FOOTING EXCAVATION BY APPROVED METHODS PRIOR TO PLACING FOUNDATIONS.
5. BEARING SURFACES MUST BE APPROVED BY THE GEOTECHNICAL ENGINEER IMMEDIATELY BEFORE CASTING OF CONCRETE FOR FOUNDATIONS OR SLAB ON GRADE. RJC IS NOT RESPONSIBLE FOR CONFIRMING BEARING CAPACITIES OF SOILS.
6. PROTECT EXCAVATIONS FOR FOOTINGS FROM RAIN, SNOW, FREEZING TEMPERATURES, STANDING WATER, LOSS OF MOISTURE AND DEGRADATION BY APPROVED METHODS.
7. SHOULD WATER OR FROST, ENTER A FOOTING EXCAVATION AFTER SUB-GRADE APPROVAL, THE SUB-GRADE SHALL BE RE-INSPECTED BY THE GEOTECHNICAL ENGINEER AFTER REMOVAL OF THE WATER OR FROST.

CONCRETE - GENERAL

1. UNLESS NOTED OTHERWISE, ALL CONCRETE IS TO BE CAST-IN-PLACE.
2. CONCRETE PLACEMENT BY THE WET-MIX SHOTCRETE METHOD IS PERMITTED FOR ELEMENTS LISTED IN THE "STRUCTURAL SHOTCRETE" NOTE ON DRAWING
3. THE USE OF SHOTCRETE REQUIRES APPROVAL BY THE STRUCTURAL ENGINEER. ANY COSTS ASSOCIATED WITH REDESIGN, CHANGES TO THE CONTRACT DOCUMENTS AND ANY ADDITIONAL TESTING AND CONTRACT ADMINISTRATION COSTS TO ACCOMMODATE SHOTCRETE [IN OTHER ELEMENTS] IS TO BE PAID FOR BY THE CONTRACTOR.
4. PORTLAND CEMENT SHALL BE TYPE GU UNLESS NOTED OTHERWISE.
5. REQUESTS BY THE CONTRACTOR TO USE TYPE GUL CEMENT FOR ANY STRUCTURAL ELEMENTS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW AND APPROVAL. THE SUBMISSION SHALL INCLUDE A SIGNED AND SEALED LETTER PREPARED BY A MATERIALS SPECIALTY ENGINEER OR THE SUPPLIER'S ENGINEER TO ATTEST THAT THE CONCRETE PRODUCED WITH TYPE GUL CEMENT ACHIEVES SIMILAR OR HIGHER LEVEL OF PERFORMANCE THAN THE CONCRETE PRODUCED WITH TYPE GU CEMENT NOTED IN THE DRAWINGS AND SPECIFICATIONS, INCLUDING STRENGTH, EXPOSURE CLASS, ETC. AND THAT THE PROPOSED MIX IS SUITABLE FOR THE INTENDED LOCATION AND PLACEMENT METHOD. FOR CONCRETE WITH TYPE GUL CEMENT TO BE PLACED IN CONTACT WITH NATIVE SOIL OR FILL, SUBSURFACE SOIL INVESTIGATION SHALL BE COMPLETED TO DETERMINE SOLUABLE SULPHATE LEVELS. WHERE THE SOLUABLE SULPHATE LEVELS ARE NOT REPORTED IN THE PROJECT SOILS REPORT REFERENCED IN THE STRUCTURALS DRAWING, ADDITIONAL TESTING SHALL BE CONDUCTED UNDER THE DIRECTION OF A MATERIALS SPECIALTY ENGINEER AND A COPY OF THE SEALED TESTING REPORT SHALL BE PROVIDED TO THE STRUCTURAL ENGINEER. ALL TESTING AND OTHER SERVICES BY THE MATERIALS SPECIALTY ENGINEER RELATED TO USE OF TYPE GUL CEMENT SHALL BE PAID FOR BY THE CONTRACTOR.
6. CEMENT TYPE FOR EXPOSURE CLASSES S-1, S-2, AND S-3 SHALL BE AS OUTLINED IN CSA A23.1.
7. CONCRETE SHALL HAVE A UNIT WEIGHT OF 23±1 kN/m³ (145±5 PCF) UNLESS NOTED OTHERWISE.
8. THE CONCRETE PROPERTIES USED IN DESIGN ARE BASED ON A NOMINAL COARSE AGGREGATE SIZE OF 20 mm (3/4") ACCORDING TO TABLE 11 OF CSA A23.1, UNLESS NOTED OTHERWISE. ALL LOCATIONS PROPOSED BY THE CONTRACTOR FOR USE OF CONCRETE MIX DESIGNS WITH A NOMINAL COARSE AGGREGATE SIZE DIFFERENT THAN 20 mm (3/4") SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW AND APPROVAL. ANY INCREASE IN REQUIRED CONCRETE STRENGTH OR INCREASE IN QUANTITY OF REINFORCEMENT DUE TO PROPOSED USE OF CONCRETE MIX WITH DIFFERENT NOMINAL COARSE AGGREGATE SIZE TO BE PAID FOR BY THE CONTRACTOR.
9. RECYCLED AGGREGATE IS NOT TO BE USED WITHOUT WRITTEN APPROVAL BY THE ENGINEER.
10. SLUMP AND AGGREGATE SIZE TO BE DETERMINED BY THE GENERAL CONTRACTOR AND SUPPLIER TO MEET PLACEMENT, AND FINISHING REQUIREMENTS WITHOUT SEGREGATION WHILE MEETING ALL OWNER SPECIFICATIONS.
11. MAXIMUM WATER/CEMENT RATIO AND AIR CONTENT TO MEET THE REQUIREMENTS FOR THE EXPOSURE CLASS AS OUTLINED IN CSA A23.1. REQUIRED AIR CONTENT FOR EXPOSURE CLASSES F-1, F-2, C-1, C-2, AND C-XL SHALL BE BASED ON CONCRETE EXPOSED TO FREEZE-THAW CYCLES UNLESS NOTED OTHERWISE.
12. CHLORIDE ION PENETRABILITY FOR EXPOSURE CLASS C-1 AND C-XL SHALL MEET THE REQUIREMENTS OF CSA A23.1.

CONCRETE - STRENGTH AND EXPOSURE

GENERAL (AREAS NOT INCLUDING PARKING)

ELEMENT	COMPRESSIVE STRENGTH (MPa) 28 DAY U.N.O.	EXPOSURE CLASS	COMMENTS
FOOTINGS	30 MPa (56 DAY)	N	.
SLAB ON GRADE (INTERIOR)	25 MPa	N	.
SLAB ON GRADE (EXTERIOR)	32 MPa	C-2	.
RETAINING WALLS / FOUNDATION WALLS	25 MPa	F-2	.
MECHANICAL HOUSEKEEPING PADS	20 MPa	N	.

NOTES:

1. WHERE EXPOSURE CLASS LISTED AS N/F-1/F-2:
   A. USE N EXPOSURE FOR INTERIOR CONCRETE LOCATED WITHIN AN INSULATED BUILDING ENVELOPE (E.G. DRY AND NOT SUBJECTED TO FREEZING AND THAWING).
   B. USE F-1 EXPOSURE FOR HORIZONTAL AND SLOPED CONCRETE MEMBERS EXTERIOR TO THE BUILDING INSULATION AND NOT PROTECTED BY A MEMBRANE AND DRIP EDGE (E.G. WET AND SUBJECT TO FREEZING AND THAWING).
   C. USE F-2 EXPOSURE FOR HORIZONTAL AND SLOPED CONCRETE MEMBERS EXTERIOR TO THE BUILDING INSULATION AND PROTECTED BY A MEMBRANE AND DRIP EDGE (E.G. DRY AND SUBJECT TO FREEZING AND THAWING).
   D. USE F-2 FOR VERTICAL CONCRETE MEMBERS EXTERIOR TO THE BUILDING INSULATION.
2. CONCRETE STRENGTH AND EXPOSURE CLASS OF STAIRS AND RAMPS SHALL MEET THE MOST STRINGENT CRITERIA OF THE ADJOINING SLABS AND BEAMS UNLESS NOTED OTHERWISE.

NON-STRUCTURAL ELEMENTS

1. "NON-STRUCTURAL" OR "SECONDARY STRUCTURAL" ELEMENTS ARE NOT PART OF THE STRUCTURAL DESIGN SHOWN ON THESE DRAWINGS. SUCH ELEMENTS ARE DESIGNED, DETAILED AND REVIEWED IN THE FIELD BY OTHERS. THEY APPEAR ON DRAWINGS OTHER THAN THESE DRAWINGS OF READ JONES CHRISTOFFERSEN LTD. WHERE STRUCTURAL ENGINEERING RESPONSIBILITY IS REQUIRED FOR THESE ELEMENTS, THIS SHALL BE PROVIDED BY SPECIALTY STRUCTURAL ENGINEERS, WHO SHALL PREPARE ALL SUBMITTALS UNDER THEIR SEAL AND SIGNATURE AND ALSO PROVIDE ANY LETTERS REQUIRED BY BUILDING PERMIT AUTHORITIES.
2. EXAMPLES OF NON-STRUCTURAL ELEMENTS INCLUDE, BUT ARE NOT LIMITED TO:
   A. ARCHITECTURAL COMPONENTS SUCH AS GUARDRAILS, HANDRAILS, FLAG POSTS, CANOPIES, CEILINGS, MILLWORK, ETC.
   B. LANDSCAPE ELEMENTS SUCH AS BENCHES, LIGHT POSTS, PLANTERS, ETC.
   C. CLADDING, GLAZING, WINDOW MULLIONS, INTERIOR STUD WALLS AND EXTERIOR STUD WALLS.
   D. ARCHITECTURAL PRECAST, PRECAST CLADDING.
   E. SKYLIGHTS.
   F. MECHANICAL AND ELECTRICAL EQUIPMENT, COMPONENTS, AND THEIR ATTACHMENT DETAILS.
   G. WINDOW WASHING EQUIPMENT AND ITS ATTACHMENTS.
   H. FALL PROTECTION AND FALL ARREST SYSTEMS AND THEIR ATTACHMENTS.
   I. ESCALATORS, ELEVATORS, AND CONVEYING SYSTEMS.
   J. GLASS BLOCK AND ITS ATTACHMENTS.
   K. BRICK OR BLOCK VENEERS AND THEIR ATTACHMENTS.
   L. DESIGN AND FIELD REVIEW OF SEISMIC RESTRAINT FOR SECONDARY STRUCTURAL ELEMENTS AND OPERATIONAL AND FUNCTIONAL COMPONENTS INCLUDING MECHANICAL AND ELECTRICAL EQUIPMENT.
   M. NON-STRUCTURAL CONCRETE TOPPINGS.
   N. DESIGN AND FIELD REVIEW OF NON-LOAD BEARING MASONRY
3. DESIGNS PRODUCED BY THE SPECIALTY ENGINEER SHALL CONSIDER STRENGTH, STABILITY, SERVICEABILITY AND INTEGRITY REQUIREMENTS UNDER GRAVITY AND SEISMIC LOADING IN ACCORDANCE WITH THE CURRENT EDITION OF APPLICABLE DESIGN CODES AND ALL OTHER DESIGN REQUIREMENTS INDICATED IN THE DRAWINGS AND SPECIFICATIONS.
4. CONTRACTOR SHALL COORDINATE THE DESIGN OF ALL NON-STRUCTURAL ELEMENTS DESIGNED BY ONE OR MORE SPECIALTY ENGINEERS AND CONNECTING TO ELEMENTS DESIGNED BY OTHER SPECIALTY ENGINEERS TO ENSURE THE STRENGTH, STABILITY, SERVICEABILITY AND INTEGRITY OF THE FINAL CONSTRUCTION.
5. SHOP DRAWINGS FOR NON-STRUCTURAL ELEMENTS WHICH MAY AFFECT THE PRIMARY STRUCTURAL SYSTEM SHALL BE SUBMITTED TO READ JONES CHRISTOFFERSEN LTD. INDICATE CLEARLY THE METHOD OF ATTACHMENT AND MAGNITUDE OF ALL FORCES (SPECIFIED AND FACTORED) THAT THE STRUCTURE MUST WITHSTAND. THESE DRAWINGS WILL BE REVIEWED ONLY FOR THE EFFECT OF THE ELEMENT ON THE PRIMARY STRUCTURAL SYSTEM.

TEMPORARY WORKS

1. THE CONTRACTOR SHALL DESIGN, PROVIDE, ERECT, MAINTAIN, REMOVE AND ASSUME FULL AND SOLE RESPONSIBILITY FOR ALL TEMPORARY WORKS REQUIRED FOR THE SAFE AND COMPLETE EXECUTION OF THE WORKS.
2. IN THE EXECUTION OF THE TEMPORARY WORKS AND FOR THE DURATION OF THE CONTRACT, THE CONTRACTOR SHALL MAKE ADEQUATE PROVISION FOR ALL LIKELY CONSTRUCTION LOADING AND PROVIDE SUFFICIENT BRACING AND PROPS TO KEEP THE WORKS IN PLUMB AND ALIGNMENT AND FREE FROM EXCESSIVE DEFLECTION.
3. ACCESS OF HEAVY CONSTRUCTION EQUIPMENT AND ACCUMULATION OF CONSTRUCTION MATERIALS ON THE FLOORS ARE NOT PERMITTED, UNLESS SUCH HAVE BEEN CATERED FOR IN THE CONTRACTOR'S TEMPORARY WORK DESIGN TO THE SATISFACTION OF THE ARCHITECT & ENGINEER.
4. COSTS OF ALL TEMPORARY WORKS ARE DEEMED TO HAVE BEEN INCLUDED IN THE CONTRACT PRICE.
5. SUBMIT SHOP DRAWINGS FOR ALL TEMPORARY WORKS FOR REVIEW BEFORE FABRICATION COMMENCES. SHOP DRAWINGS SHALL BE SEALED BY A PROFESSIONAL ENGINEER REGISTERED AND LICENSED TO PRACTICE BY THE PROFESSIONAL ENGINEERING ASSOCIATION HAVING JURISDICTION IN THE AREA WHERE THE STRUCTURE IS TO BE BUILT.
6. ANY CONSTRUCTION SEQUENCES SHOWN ON THE DRAWINGS SHALL BE PART OF TEMPORARY WORKS AND ARE FOR THE CONTRACTOR'S CONSIDERATION ONLY. THE CONTRACTOR IS AT LIBERTY TO USE ANY OTHER SEQUENCE AS THE CONTRACTOR DEEMS APPROPRIATE, BUT AT NO TIME SHALL THE SAFETY AND INTEGRITY OF THE WORKS AND THE STRUCTURE BE COMPROMISED. IF THE CONTRACTOR ADOPTS THE SUGGESTED SEQUENCE, SUCH SEQUENCE SHALL BE DEEMED AS THE CONTRACTOR'S OWN SELECTION OF METHOD, AND THE CONTRACTOR SHALL ASSUME FULL AND SOLE RESPONSIBILITY FOR IT, AS STATED IN (1) ABOVE. THE CONTRACTOR SHALL INFORM THE ARCHITECT IF THE CONTRACTOR WISHES TO DEVIATE FROM ANY SUGGESTED SEQUENCE.
7. SEE ALSO CONCRETE FORMWORK STRIPPING AND SHORING NOTES.

FOUNDATIONS

1. FOOTINGS HAVE BEEN DESIGNED FOR THE FOLLOWING BEARING RESISTANCE IN ACCORDANCE WITH THE GEOTECHNICAL REPORT.

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   PREPARED BY: GEI CONSULTANTS
   DATED: NOVEMBER 8,2022

   A. STRIP FOOTINGS: ULS: 150kPa SLS: 100kPa
   B. SPREAD FOOTINGS: ULS: 150kPa SLS: 100kPa
2. REFER TO GEOTECHNICAL REPORT [AND SUB-GRADE NOTES] FOR OTHER SPECIFIC DESIGN REQUIREMENTS.
3. BEARING SURFACES MUST BE APPROVED BY THE GEOTECHNICAL ENGINEER IMMEDIATELY BEFORE FOOTING OR SLAB ON GRADE CONCRETE IS PLACED. RJC IS NOT RESPONSIBLE FOR CONFIRMING BEARING CAPACITIES OF SOILS.
4. BEARING SURFACES MUST BE PROTECTED FROM FREEZING BEFORE AND AFTER CONCRETE IS PLACED.
5. PROVIDE 50 mm GROUND SEAL/SKIM COAT OR MUD SLAB UNDER FOOTINGS AS REQUIRED BY SOIL CONDITIONS.
6. FOOTING ELEVATIONS, IF SHOWN, ARE FOR BIDDING PURPOSES ONLY, ARE NOT FINAL, AND MAY VARY ACCORDING TO SITE CONDITIONS OR AS REQUIRED BY SERVICES. ALL FOOTINGS MUST BE TAKEN TO A BEARING LAYER APPROVED BY THE GEOTECHNICAL ENGINEER.
7. FOOTINGS MAY HAVE TO BE LOWERED TO ACCOMMODATE MECHANICAL OR ELECTRICAL SERVICES. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR ELEVATIONS OF SAME. FOOTINGS ARE NOT TO BE UNDERMINED BY EXCAVATIONS FOR SERVICES, PITS, ETC. PER DETAIL CF001.
8. VARY FOOTING ELEVATIONS WHERE REQUIRED IN ACCORDANCE WITH STEPPED FOOTING DETAIL CF010/ CF011.
9. UNLESS OTHERWISE SHOWN, CENTER FOOTINGS UNDER COLUMNS AND WALLS.
10. DOWELS SHALL BE PLACED BEFORE CONCRETE IS PLACED. TEMPLATES SHALL BE USED TO ENSURE CORRECT PLACEMENT OF DOWELS.
11. CONCRETE PLACED UNDER WATER SHALL CONFORM TO CSA A23.1. REQUIREMENTS FOR THIS PLACEMENT CONDITION.
12. FOOTINGS CAST DIRECTLY INTO EXCAVATIONS (WITHOUT SIDE FORMS) SHALL NOT BE LARGER THAN SHOWN BELOW:

13. SUB-BASE DESIGN OF SOIL UNDER THE SLAB ON GRADE SHALL BE IN ACCORDANCE WITH THE SOIL REPORT.
14. WHERE NEW FOOTINGS ARE ADJACENT OR ABUT EXISTING FOUNDATIONS, CAREFULLY HAND EXCAVATE AND DETERMINE THE BOTTOM OF THE EXISTING STRUCTURE.

    IN NO CASE SHALL THE NEW FOOTING BE LOWER THAN THE EXISTING WITHOUT PROTECTION AGAINST UNDERMINING.

    ANY DISCREPANCIES BETWEEN THE EXISTING FOUNDATIONS AND DESIGN DRAWINGS SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

DESIGN LOADS - TRUCK LOADS

1. TRUCK LOADS:

   AREAS ACCESSIBLE TO FIRE TRUCKS INDICATED ON THE PLANS. THESE AREAS HAVE BEEN DESIGNED FOR THE LOADING SHOWN BELOW, OR LL=12.0 kPa UNIFORM LOAD U.N.O.:

   NOTE: USE 1.3 FACTOR FOR IMPACT LOAD EFFECT. Ps=SERVICE LOAD, Ac=CONTACT AREA, AL=AXLE LOAD

FIRE TRUCK SERVICE WHEEL LOADS

GARBAGE TRUCK SERVICE WHEEL LOADS

CSA S6 CHBDC CL-625 TRUCK SERVICE WHEEL LOADS

DELEGATED DESIGN OF PRIMARY STRUCTURE COMPONENTS

1. THE CONTRACTOR SHALL ENGAGE A SPECIALTY ENGINEER FOR THE DESIGN OF REQUIRED STRUCTURAL ELEMENTS AND REQUIRED STRUCTURAL CONNECTIONS NOT INDICATED IN THE DRAWINGS.
2. STRUCTURAL COMPONENTS REQUIRING DESIGN COMPLETED BY THE CONTRACTOR'S SPECIALTY ENGINEER INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
   A. STRUCTURAL STEEL CONNECTIONS
   B. STEEL DECK
   C. OPEN WEB STEEL JOISTS AND JOIST GIRDERS
   D. COLD FORMED LIGHTWEIGHT STEEL FRAMING
   E. MISCELLANEOUS STEEL
   F. MORTAR, GROUT AND CONCRETE MIX DESIGNS
   G. PRECAST SLABS, BEAMS, GIRDERS, CONTACT ZONES, INCLUDING CONNECTIONS
   H. POST-TENSIONED SYSTEMS (SEE P/T GENERAL NOTES)
   I. PRE-FABRICATED WOOD I-JOISTS
   J. GLUE-LAMINATED AND STRUCTURAL COMPOSITE LUMBER MEMBERS INCLUDING WOOD-TO-WOOD CONNECTIONS
3. DESIGNS PRODUCED BY THE SPECIALTY ENGINEER SHALL CONSIDER STRENGTH, STABILITY, SERVICEABILITY AND INTEGRITY REQUIREMENTS UNDER GRAVITY AND SEISMIC LOADING AND THE DURABILITY FOR PREVAILING ENVIRONMENTAL AND EXPOSURE CONDITIONS. ALL DESIGNS SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF APPLICABLE DESIGN CODES AND ALL OTHER DESIGN REQUIREMENTS INDICATED IN THE DRAWINGS AND SPECIFICATIONS. DESIGNS SHALL INCLUDE SUITABLE LETTERS OF ASSURANCE.
4. DESIGN OF COMPONENTS AND CONNECTIONS THAT RELY ON SUPPORT BY THE PRIMARY STRUCTURE DESIGNED BY RJC OR COMPONENTS DESIGNED BY OTHER SPECIALTY ENGINEERS MUST CLEARLY INDICATE THE MEANS AND METHOD OF ATTACHMENT AND THE MAGNITUDE OF ALL FORCES (SPECIFIED AND FACTORED) THAT THE PRIMARY STRUCTURE MUST WITHSTAND. REVIEW BY THE STRUCTURAL ENGINEER OF RECORD MAY REQUIRE REVISION TO THE METHOD OF CONNECTION WITH REDESIGN BY THE SPECIALTY ENGINEER.
5. SPECIALTY ENGINEERS ENGAGED BY THE CONTRACTOR SHALL BE REGISTERED AS PROFESSIONAL ENGINEERS IN THE PROVINCE OF ONTARIO AND ALL SUBMITTALS OR SHOP DRAWINGS PREPARED BY OR UNDER THE SUPERVISION OF THIS ENGINEER SHALL BE SIGNED. UNSEALED PROGRESS DOCUMENTS WILL BE REJECTED BY RJC WITHOUT REVIEW UNLESS PRIOR AGREEMENT IS OBTAINED.
6. WHERE STRUCTURAL COMPONENTS OR CONNECTIONS DESIGNED BY THE SPECIALTY ENGINEER ARE TO BE FABRICATED IN A DIFFERENT JURISDICTION, THE SPECIALTY ENGINEER SHALL SUBMIT A SEALED LETTER CONFIRMING PROOF OF PROFESSIONAL REGISTRATION IN THE JURISDICTION OF FABRICATION.
7. THE SPECIALTY ENGINEER RESPONSIBLE FOR THE DESIGN IS ALSO RESPONSIBLE FOR REVIEW OF FABRICATION, INSTALLATION AND APPLICABLE TESTING REPORTS.
8. REFER TO THE DRAWINGS AND SPECIFICATIONS FOR OTHER REQUIREMENTS.

CALCULATED STRUCTURAL MOVEMENTS

THIS STRUCTURE WILL UNDERGO NORMAL TYPES OF MOVEMENT AND DEFLECTION, AND THE FOLLOWING ARE ESTIMATES FOR THIS STRUCTURE. NON-STRUCTURAL COMPONENTS MUST BE DETAILED TO ACCOMMODATE THIS. DESIGN, DETAILING, AND FIELD REVIEW OF THESE NON-STRUCTURAL ELEMENTS IS BY OTHERS, AND NOT READ JONES CHRISTOFFERSEN LTD.

1. DIFFERENTIAL VERTICAL MOVEMENTS BETWEEN ADJACENT COLUMNS AND BETWEEN ADJACENT COLUMNS AND WALLS = APPROXIMATELY 25 mm IN ACCORDANCE WITH GEOTECHNICAL REPORT
2. VERTICAL DEFLECTION OF COLUMNS AND WALLS DUE TO SHRINKAGE AND CREEP = APPROXIMATELY 3.5 mm PER 3600 mm OF HEIGHT.
3. VERTICAL FLOOR/ ROOF DEFLECTIONS HAVE BEEN DESIGNED TO MEET THE FOLLOWING CRITERIA, BUT NOT TO EXCEED MAXIMUM DEFLECTION OF 25mm.

TYPE OF MEMBER	DEFLECTION TO BE CONSIDERED	CALCULATED DEFLECTION LIMITATIONS
STRUCTURAL STEEL MEMBERS		
SIMPLE SPAN MEMBERS OF FLOORS AND ROOFS SUPPORTING CONSTRUCTION AND FINISHES NOT SUSCEPTIBLE TO CRACKING	LIVE LOAD	L/300
SIMPLE SPAN MEMBERS OF FLOORS AND ROOFS SUPPORTING CONSTRUCTION AND FINISHES SUSCEPTIBLE TO CRACKING	LIVE LOAD	L/360

8. NONSTRUCTURAL ELEMENTS SUCH AS CLADDING, MECHANICAL AND ELECTRICAL SERVICES AND SUPPORTS AND THE LIKE, MUST BE DESIGNED AND DETAILED TO ACCOMMODATE THE ANTICIPATED MOVEMENTS NOTED ABOVE.

ALL STRUCTURES ARE ALSO SUBJECT TO CONSTRUCTION TOLERANCES. THIS SHOULD BE ALLOWED FOR IN DETAILING NON-STRUCTURAL COMPONENTS IN ADDITION TO THE ABOVE MOVEMENTS.

ABBREVIATIONS

ACCOM. --- ACCOMMODATE
AESS ------ ARCHITECTURALY EXPOSED STRUCTURAL STEEL
Af ---------- FACTORED AXIAL FORCE
ALT. ------- ALTERNATE
ALUM. ----- ALUMINUM
A.R. -------- ANCHOR ROD
ARCH. ----- ARCHITECTURAL
B.C.E. ------ BOTTOM CHORD EXTENSION
B.E.W. ----- BOTTOM EACH WAY
B.L.L. ------ BOTTOM LOWER LAYER
B.L.W. ----- BOTTOM LONG WAY
BM. --------- BEAM
BOT. -------- BOTTOM
B.P.T. ------ BUCKLING PREVENTION TIE
B.S.W. ----- BOTTOM SHORT WAY
B.U.L. ------ BOTTOM UPPER LAYER
B.W. -------- BOTH WAYS
C.A. -------- COLUMN ABOVE
CANT. ------ CANTILEVER
C.B. -------- COLUMN BELOW
CBM -------- COUPLING BEAM
Cf ---------- FACTORED AXIAL COMPRESSION FORCE
C.I.P. ------ CAST IN PLACE
C.J. -------- CONTROL JOINT
CL -------- CENTER LINE
CLR. ------- CLEAR
COL. ------- COLUMN
CONC. ----- CONCRETE
CONT. ----- CONTINUOUS
C.P. -------- COMPLETE PENETRATION
CTRS. ------ CENTERS
C/W -------- COMPLETE WITH
DBM -------- DIVIDER BEAM
DET. -------- DETAIL
D.L. -------- DEAD LOAD
D.O. -------- DO OVER - (DITTO)
DP. --------- DEEP (E.G. DEPTH OF BEAM)
D.T.S. ------ DEPTH TO SUIT
DWG. ------ DRAWING
DWLS. ----- DOWELS
EA. -------- EACH
E.E. -------- EACH END
E.F. -------- EACH FACE
EL. -------- ELEVATION
ELEV. ------ ELEVATOR
ELEC. ------ ELECTRICAL
EQ. -------- EQUAL
E.S. -------- EACH SIDE
E.W. -------- EACH WAY
EXIST. ----- EXISTING
EXP. JT. --- EXPANSION JOINT
EXT. -------- EXTERIOR
F.D. -------- FLOOR DRAIN
F.F. -------- FAR FACE
F.S. -------- FAR SIDE
FTG. -------- FOOTING
GA. -------- GAUGE
GALV. ----- GALVANIZED
G.L. -------- GRID LINE
GR. BM ---- GRADE BEAM
G.W.B. ----- GYPSUM WALL BOARD
H., HORIZ.- HORIZONTAL
H.1.E. ------ HOOK ONE END
H.2.E. ------ HOOK TWO ENDS
H&V ------- HORIZONTAL AND VERTICAL
H.D.G. ----- HOT-DIP GALVANIZED
Hf ---------- FACTORED HORIZONTAL FORCE
H.P. -------- HIGH POINT
H.S.C. ------ HORIZONTALLY SLOTTED CONNECTION
HT. -------- HEIGHT
I.F. -------- INSIDE FACE
INT. -------- INTERIOR
JT. -------- JOINT
LG. -------- LONG
L.L. -------- LIVE LOAD
L.L.B.B. ---- LONG LEGS BACK TO BACK
L.L.H. ------ LONG LEG HORIZONTAL
L.L.V. ------ LONG LEG VERTICAL
L.P. -------- LOW POINT
L.S.H. ------ LONG SIDE HORIZONTAL
L.S.V. ------ LONG SIDE VERTICAL
L.T.S. ------ LENGTH TO SUIT
L.V. -------- LENGTH VARIES
L.W. -------- LONG WAY
MANUF. --- MANUFACTURED
MAX. ------ MAXIMUM
MECH. ----- MECHANICAL
Mf ---------- FACTORED MOMENT
Mfx --------- STRONG AXIS BENDING MOMENT
Mfy --------- WEAK AXIS BENDING MOMENT
MIN. -------- MINIMUM
Mtf ---------- FACTORED TORSION
N.F. -------- NEAR FACE
N.I.C. ------ NOT IN CONTRACT
N.S. -------- NEAR SIDE
N.T.S. ------ NOT TO SCALE
O.C. -------- ON CENTER
O/C -------- ON CENTER
O.F. -------- OUTSIDE FACE
OPP. -------- OPPOSITE
O.W.S.J. --- OPEN WEB STEEL JOIST
Pf ---------- FACTORED POINT LOAD
P.P. -------- PARTIAL PENETRATION
P/T -------- POST-TENSIONING
R.D. -------- ROOF DRAIN
REQ'D ------ REQUIRED
R.O. -------- ROUGH OPENING
RTN. -------- RETURN
R/W -------- REINFORCED WITH
R.W.L. ------ RAIN WATER LEADER
S.A.M. ------ SELF-ADHERED MEMBRANE
S.D.F. ------ STEP DOWN FOOTING
S.D.L. ------ SUPERIMPOSED DEAD LOAD
SIM. -------- SIMILAR
S.L. -------- SNOW LOAD
S.L.B.B. ---- SHORT LEGS BACK TO BACK
SLS -------- SERVICEABILITY LIMIT STATE
S.O.G. ------ SLAB ON GRADE
SPEC. ------ SPECIFICATIONS
SR ---------- HEADED STUD ASSEMBLY
S.S. -------- STAINLESS STEEL
S.S.T. ------ SIMPSON STRONG-TIE
ST. -------- STAGGER
STAG. ------ STAGGER
STIR. ------ STIRRUP
STL. -------- STEEL
S.W. -------- SHORT WAY
SYM. ------ SYMMETRICAL
T&B -------- TOP AND BOTTOM
T&C -------- TENSION AND COMPRESSION
T&G -------- TONGUE AND GROOVE
T.D.C. ------ TRAFFIC DECK COATING
T.E.W. ------ TOP EACH WAY
Tf ---------- FACTORED AXIAL TENSION FORCE
THK. -------- THICK
THRU ------ THROUGH
T.J. -------- TOP JOIST
T.L.L. ------ TOP LOWER LAYER
T.O. -------- TOP OF
T.O.C. ------ TOP OF CONCRETE
T.O.F. ------ TOP OF FOUNDATION
T.O.S. ------ TOP OF SLAB
T.O.S.S. --- TOP OF STRUCTURAL STEEL
T.O.W. ------ TOP OF WALL
TR. -------- TRANSFER
T.U.L. ------ TOP UPPER LAYER
TYP. -------- TYPICAL
ULS -------- ULTIMATE LIMIT STATE
U.N.O. ------ UNLESS NOTED OTHERWISE
U/S -------- UNDERSIDE
V., VERT. - VERTICAL
Vf ---------- FACTORED SHEAR FORCE
V.S.C. ------ VERTICALLY SLOTTED CONNECTION
W/ ---------- WITH
W.A. -------- WALL ABOVE
W.B. -------- WALL BELOW
W.P. -------- WORK POINT
WT. -------- WEIGHT
VXB -------- VERTICAL BRACING, VERTICAL CROSS BRACING

DESIGN LOADS - SEISMIC AND WIND

1. SEISMIC AND WIND DESIGN:

   THE LATERAL SYSTEM FOR THIS PROJECT CONSISTS OF MODERATELY DUCTILE MASONRY SHEAR WALLS AND IS DESIGNED FOR THE FOLLOWING EARTHQUAKE FACTORS:

1a. EARTHQUAKE DESIGN PARAMETERS

Sa (0.2) = 0.108
Sa (0.5) = 0.077
Sa (1.0) = 0.047
Sa (2.0) = 0.025
Sa (0.2)/Sa(e = 0.201

SITE CLASSIFICATION: SITE CLASS D
Ie = 1.5 Fa = 1.24
Rd = 2.0 Fv = 1.55
Ro = 1.5 Ta = 0.334

1b. WIND DESIGN PARAMETERS:

Ce, Cg, and Cp ARE BASED ON OBC CL. 4.1.7.
q50 = 0.36kPa, Iw = 1.25 ULS, 0.75 SLS
OR

WIND UPLIFT LOADS ON STEEL OR WOOD ROOFS SHALL BE 1 kPa NET UNLESS NOTED OTHERWISE ON PLAN.

1c. FACTORED BASE FORCES.

MAXIMUM BASE SHEARS AND OVERTURNING MOMENT FOR THE STRUCTURE THROUGH STATIC ANALYSIS ARE:

		SHEAR	MOMENT
WIND	- NORTH/SOUTH -	213 kN	1600 kNm
	- EAST/WEST -	128 kN	960 kNm
SEISMIC	- NORTH/SOUTH -	388 kN	2900 kNm
	- EAST/WEST -	388 kN	2900 kNm

SHOP DRAWINGS

1. AS PART OF OUR CONSTRUCTION PHASE SERVICES, RJC WILL REVIEW SHOP DRAWINGS PERTAINING TO WORK SHOWN ON RJC'S DRAWINGS BY MEANS OF APPROPRIATE RATIONAL SAMPLING PROCEDURES AND COMMENT ON THE ACCURACY WITH WHICH THE CONTRACTOR PREPARED THE DRAWINGS.
2. REVIEW OF SHOP DRAWINGS IS FOR THE SOLE PURPOSE OF ASCERTAINING CONFORMANCE WITH THE GENERAL DESIGN CONCEPT AND IS NOT AN APPROVAL OF THE DETAILED DESIGN INHERENT IN THE SHOP DRAWINGS, RESPONSIBILITY FOR WHICH SHALL REMAIN WITH THE CONTRACTOR SUBMITTING THEM. SUCH REVIEW SHALL NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY FOR ERRORS AND OMISSIONS IN THE SHOP DRAWINGS AND FOR MEETING ALL REQUIREMENTS OF THE C

CASE 2 TENSION EMBEDMENT AND SPLICE CONDITIONS

TENSION EMBEDMENT AND SPLICE LENGTHS CONFORMING TO CSA A23.3 TABLE 12.1 ($0.6\ k_1k_2k_3k_4k_5f_yd_b\ /\ \sqrt{f'_c}$) ARE TO BE AS PER THE FOLLOWING TABLE FOR MEMBERS NOT SATISFYING CASE 1 CONDITIONS AS SET OUT ABOVE. FOR EXAMPLE:

A. ONE WAY SLAB TOP BARS (SEE TOP BAR NOTE).
B. SLAB BAND BOTTOM BARS.
C. BARS (EXCLUDING THE SPLICE) SPACED CLOSER TOGETHER THAN 2 BAR DIAMETERS IN SAME LAYER AND BETWEEN LAYERS.
D. STIRRUPS IN BEAMS AND GIRDERS.
E. SEE ALSO NOTES ON TOP BARS AND EPOXY COATED REINFORCEMENT.

CONCRETE STRENGTH	FUNCTION	REBAR DESIGNATION (GRADE 400 LENGTHS)					
		10M	15M	20M	25M	30M	35M
20 MPa	EMBEDMENT	430	645	860	1345	1610	1880
	(SPLICE)	(560)	(840)	(1120)	(1745)	(2095)	(2445)
25 MPa	EMBEDMENT	385	580	770	1200	1440	1680
	(SPLICE)	(500)	(750)	(1000)	(1560)	(1875)	(2185)
30 MPa	EMBEDMENT	355	530	705	1100	1315	1535
	(SPLICE)	(460)	(685)	(915)	(1425)	(1710)	(1995)
35 MPa	EMBEDMENT	325	490	650	1015	1220	1420
	(SPLICE)	(425)	(635)	(845)	(1320)	(1585)	(1850)
40 MPa	EMBEDMENT	305	460	610	950	1140	1330
	(SPLICE)	(395)	(595)	(790)	(1235)	(1480)	(1730)
45 MPa	EMBEDMENT	300	430	575	895	1075	1255
	(SPLICE)	(390)	(560)	(745)	(1165)	(1400)	(1630)
50 MPa	EMBEDMENT	300	410	545	850	1020	1190
	(SPLICE)	(390)	(530)	(710)	(1105)	(1325)	(1545)
55 MPa	EMBEDMENT	300	390	520	810	975	1135
	(SPLICE)	(390)	(505)	(675)	(1055)	(1265)	(1475)
60 MPa	EMBEDMENT	300	375	500	775	930	1085
	(SPLICE)	(390)	(485)	(645)	(1010)	(1210)	(1410)
65 MPa & GREATER	EMBEDMENT	300	360	480	750	900	1050
	(SPLICE)	(390)	(470)	(625)	(975)	(1170)	(1365)

NOTES:

1. "TOP BAR" VALUES ARE 1.3 TIMES THE ABOVE LENGTHS. "TOP BAR" APPLIES TO HORIZONTAL REINFORCEMENT CAST WITH 300 mm OR MORE OF CONCRETE BELOW THE BAR.
2. INCREASE THESE TABLE LENGTHS BY 1.5 TIMES FOR EPOXY COATED REINFORCEMENT. INCREASE THESE TABLE LENGTHS BY 1.7 TIMES FOR EPOXY COATED TOP REINFORCEMENT.
3. TABLE SHOWS LENGTHS FOR GRADE 400 REINFORCEMENT. MULTIPLY VALUES BY 1.25 FOR GRADE 500 REINFORCEMENT.
4. INCREASE THESE TABLE LENGTHS BY 1.15 TIMES WHEN SPACING BETWEEN LAYERS OF REBAR IS $1.0d_b$.
5. WHERE A TENSION SPLICE IS SPECIFIED BETWEEN TWO BARS OF DIFFERENT DIAMETERS, THE MINIMUM SPLICE LENGTH SHALL BE THE GREATER OF THE SPLICE LENGTH FOR THE SMALLER DIAMETER BAR AND THE EMBEDMENT LENGTH OF THE LARGER DIAMETER BAR.

EMBEDMENT / DEVELOPMENT LENGTHS AND SPLICE LENGTHS

1. BASED ON CSA A23.3
2. WHERE EMBEDMENT OR SPLICES ARE DIMENSIONED ON THE DRAWINGS, SUCH DIMENSION SHALL APPLY.
3. WHERE THE DRAWINGS INDICATE A COMPRESSION EMBEDMENT, IT IS A COMPRESSION EMBEDMENT LENGTH AND IT SHALL BE AS NOTED BELOW.
4. WHERE THE DRAWINGS INDICATE A TENSION EMBEDMENT, IT IS A TENSION EMBEDMENT LENGTH AND SHALL BE AS NOTED BELOW.
5. WHERE NO EMBEDMENT OR EMBEDMENT TYPE IS CALLED FOR ON THESE DRAWINGS, IT SHALL BE A TENSION EMBEDMENT, EXCEPT FOR COLUMNS WHICH SHALL BE A COMPRESSION EMBEDMENT.
6. WHERE NO SPLICE OR SPLICE TYPE IS CALLED FOR ON THESE DRAWINGS, IT SHALL BE A TENSION SPLICE, EXCEPT FOR COLUMNS WHICH SHALL BE A COMPRESSION SPLICE.
7. IN TABLES BELOW, EMBEDMENT LENGTHS ARE SHOWN WITHOUT BRACKETS, AND SPLICE LENGTHS ARE SHOWN IN BRACKETS.
8. ALL TENSION SPLICE LENGTHS ARE CLASS "B" ($1.3\ td$).
9. WHERE MORE THAN ONE FACTOR APPLIES FOR INCREASING THE LENGTHS IN THESE TABLES, MULTIPLY ALL FACTORS TOGETHER.

COMPRESSION EMBEDMENT AND SPLICE LENGTHS

10. COMPRESSION EMBEDMENT REFERS TO THE LENGTH REQUIRED TO PROVIDE THE "COMPRESSION DEVELOPMENT LENGTH" AS DEFINED IN CSA A23.3 CLAUSE 12.3.2.
11. SPLICE LENGTH REFERS TO THE MINIMUM LAP LENGTH REQUIRED FOR A COMPRESSION SPLICE AS DEFINED IN CSA A23.3 CLAUSE 12.16.1.

CONCRETE STRENGTH	FUNCTION	REBAR DESIGNATION (GRADE 400 LENGTHS)					
		10M	15M	20M	25M	30M	35M
20 MPa	EMBEDMENT	215	325	430	540	645	755
	(SPLICE)	(300)	(440)	(585)	(730)	(880)	(1025)
25 MPa	EMBEDMENT	200	290	385	480	580	675
	(SPLICE)	(300)	(440)	(585)	(730)	(880)	(1025)
30 MPa & GREATER	EMBEDMENT	200	265	355	440	530	620
	(SPLICE)	(300)	(440)	(585)	(730)	(880)	(1025)

NOTES:

1. TABLE SHOWS LENGTHS FOR GRADE 400 REINFORCEMENT. MULTIPLY VALUES BY 1.46 FOR GRADE 500 REINFORCEMENT.
2. WHERE A COMPRESSION SPLICE IS SPECIFIED BETWEEN TWO BARS OF DIFFERENT DIAMETERS, THE MINIMUM SPLICE LENGTH SHALL BE THE GREATER OF THE SPLICE LENGTH FOR THE SMALLER DIAMETER BAR AND THE EMBEDMENT LENGTH OF THE LARGER DIAMETER BAR.

TENSION EMBEDMENT AND SPLICE LENGTHS

1. TENSION EMBEDMENT REFERS TO THE LENGTH REQUIRED TO PROVIDE A "TENSION DEVELOPMENT LENGTH" AS DEFINED IN CSA A23.3 CLAUSE 12.2.
2. SPLICE LENGTH REFERS TO THE MINIMUM LAP LENGTH REQUIRED FOR A CLASS 'B' TENSION SPLICE ($1.3td$) AS PER CSA A23.3 CLAUSE 12.15.

CASE 1 TENSION EMBEDMENT AND SPLICE CONDITIONS

TENSION EMBEDMENT AND SPLICE LENGTHS CONFORMING TO CSA A23.3 TABLE 12.1 ($0.45\ k_1k_2k_3k_4k_5f_yd_b\ \sqrt{f'_c}$) ARE TO BE AS PER THE FOLLOWING TABLE FOR:

A. COLUMN VERTS REQUIRING TENSION SPLICES.
B. BEAM AND GIRDER TOP AND BOTTOM BARS.
C. SLAB BAND TOP BARS.
D. TWO WAY SLAB TOP AND BOTTOM BARS.
E. ONE WAY SLAB BOTTOM BARS.
F. FOUNDATION RAFT SLABS, TOP AND BOTTOM BARS.
G. WALL HORIZONTAL AND VERTICAL DISTRIBUTED REINFORCING.
H. SEE ALSO NOTES ON TOP BARS AND EPOXY COATED REINFORCEMENT.
I. MEMBERS WHICH DO NOT SATISFY THE ABOVE CONDITIONS SHALL HAVE TENSION EMBEDMENTS AND SPLICES AS PER CASE 2 TABLE BELOW.

CONCRETE STRENGTH	FUNCTION	REBAR DESIGNATION (GRADE 400 LENGTHS)					
		10M	15M	20M	25M	30M	35M
20 MPa	EMBEDMENT	325	485	645	1010	1210	1410
	(SPLICE)	(420)	(630)	(840)	(1310)	(1570)	(1835)
25 MPa	EMBEDMENT	300	435	580	900	1080	1260
	(SPLICE)	(390)	(565)	(750)	(1170)	(1405)	(1640)
30 MPa	EMBEDMENT	300	395	530	825	990	1155
	(SPLICE)	(390)	(515)	(685)	(1070)	(1285)	(1500)
35 MPa	EMBEDMENT	300	370	490	765	915	1065
	(SPLICE)	(390)	(475)	(635)	(990)	(1190)	(1385)
40 MPa	EMBEDMENT	300	345	460	715	855	1000
	(SPLICE)	(390)	(445)	(595)	(925)	(1110)	(1295)
45 MPa	EMBEDMENT	300	325	430	675	805	940
	(SPLICE)	(390)	(420)	(560)	(875)	(1050)	(1225)
50 MPa	EMBEDMENT	300	310	410	640	765	895
	(SPLICE)	(390)	(400)	(530)	(830)	(995)	(1160)
55 MPa	EMBEDMENT	300	300	390	610	730	850
	(SPLICE)	(390)	(390)	(505)	(790)	(950)	(1105)
60 MPa	EMBEDMENT	300	300	375	585	700	815
	(SPLICE)	(390)	(390)	(485)	(760)	(910)	(1060)
65 MPa & GREATER	EMBEDMENT	300	300	360	565	675	790
	(SPLICE)	(390)	(390)	(470)	(735)	(880)	(1025)

NOTES:

1. "TOP BAR" VALUES ARE 1.3 TIMES THE ABOVE LENGTHS. "TOP BAR" APPLIES TO HORIZONTAL REINFORCEMENT CAST WITH 300 mm OR MORE OF CONCRETE BELOW THE BAR.
2. "TOP BAR" FACTOR DOES NOT APPLY TO HORIZONTAL WALL REINFORCEMENT IN WALLS THAT ARE NOT VIBRATED.
3. INCREASE THESE TABLE LENGTHS BY 1.5 TIMES FOR EPOXY COATED REINFORCEMENT. INCREASE THESE TABLE LENGTHS BY 1.7 TIMES FOR EPOXY COATED TOP REINFORCEMENT.
4. TABLE SHOWS LENGTHS FOR GRADE 400 REINFORCEMENT. MULTIPLY VALUES BY 1.25 FOR GRADE 500 REINFORCEMENT.
5. WHERE A TENSION SPLICE IS SPECIFIED BETWEEN TWO BARS OF DIFFERENT DIAMETERS, THE MINIMUM SPLICE LENGTH SHALL BE THE GREATER OF THE SPLICE LENGTH FOR THE SMALLER DIAMETER BAR AND THE EMBEDMENT LENGTH OF THE LARGER DIAMETER BAR.

CONCRETE COVER

1. UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS, PROVIDE 2 HOUR FIRE RATING FOR ALL REINFORCED CONCRETE.
2. **UNLESS OTHERWISE NOTED CONCRETE COVER TO REINFORCEMENT SHALL BE THE LARGEST OF A THROUGH H:**
   A. FOR FIRE RATINGS:

GENERAL (AREAS NOT INCLUDING PARKING)

ELEMENT		FIRE RATINGS		
		0-2 HOURS	3 HOURS	4 HOURS
COLUMNS AND FORMED PILES (TO TIES)		40 mm	40 mm	55 mm
WALLS - NON-RETAINING AND EXPOSED TO FIRE ON 2 SIDES AND INDENTIFIED ON PLAN		40 mm MIN., 50 mm MIN. TO VERTS.		
WALLS - NON-RETAINING AND EXPOSED TO FIRE ON 1 SIDE		GREATER OF 20 mm AND $1.0d_b$ TO ZONE TIES / OUTER CURTAIN LAYER		
BEAMS, GIRDERS & TRANSFER SLABS	TO STIRRUPS	40 mm		
	NO STIRRUPS	50 mm		
SLABS AND SLAB BANDS, STIRRUPS IN SLAB BANDS		GREATER OF 25 mm AND $1.0d_b$	35 mm	40 mm
STRUCTURAL SLAB ON GRADE	TOP COVER	GREATER OF 25 mm AND $1.0d_b$	N/A	N/A
	BOT. COVER	30 mm	N/A	N/A
RETAINING / FOUNDATION WALLS (F-2 EXPOSURE)	INSIDE FACE	GREATER OF 40mm AND 1.5db	N/A	N/A
	GROUND OR EARTH SIDE	GREATER OF 40mm AND 1.5db	N/A	N/A

   B. UNLESS NOTED OTHERWISE IN NOTES C THROUGH H MINIMUM CONCRETE COVER ---------- $1.0d_b$
   C. CONCRETE CAST AGAINST EARTH OR GROUND ----- 75 mm
   D. CONCRETE WITH NO MEMBRANE (NON-PARKING) AND EXPOSED TO CHLORIDES - EXPOSURE CLASS C-XL, C1, AND C3. --- 60 mm OR $2.0d_b$ (WHICHEVER IS GREATER)
   E. FORMED FINISHED CONCRETE EXPOSED TO WEATHER - EXPOSURE CLASS F1, F2, S1, S2, OR EARTH --------- 40 mm OR $1.5d_b$ (WHICHEVER IS GREATER)
   F. CONCRETE IN PARKING AREAS WITH MEMBRANE, TOP AND VERTICAL BARS -- 40 mm OR $1.5d_b$ (WHICHEVER IS GREATER)
   G. CONCRETE IN PARKING AREAS WITH MEMBRANE AND SEVERE EXPOSURE (RAMPS, TRUCK ACCESS, ETC.) AS NOTED ON PLAN, TOP BARS -- 45 mm OR $1.5d_b$ (WHICHEVER IS GREATER)
   H. CONCRETE IN PARKING AREAS, BOTTOM BARS ---------- 30 mm OR $1.5d_b$ (WHICHEVER IS GREATER)

NOTES:

SEE ARCHITECTURAL DRAWINGS AND STRUCTURAL DRAWINGS FOR AREAS WHICH MAY REQUIRE 3 OR 4 HOUR RATINGS.

SEE STRUCTURAL DRAWINGS FOR AREAS CLASSIFIED AS (D) or (E) ABOVE FOR WEATHER EXPOSURE.

DESIGNATION OF REINFORCING BARS

1. BARS SHOWN THUS ——— ——— ——— IN BOTTOM OF BEAMS OR SLABS OR IN FAR FACE OF WALL
2. BARS SHOWN THUS ——————— IN TOP OF BEAMS OR SLABS OR IN NEAR FACE OF WALL
3. STRAIGHT BARS:

   6-10M4200 MEANS 6-10M BARS 4200 mm LONG.

   15M3800 + 15M3200 ALT. @ 200 MEANS 1-15M 3800 mm LONG BAR THEN 1-15M 3200 mm LONG BAR SPACED 200 mm O/C AWAY.

   20M4000 @ 300 STAG. 600 MEANS 600 mm OFFSET FOR EACH 20M4000 BAR SPACED AT 300 mm O/C. IF STAGGER NOT SPECIFIED SEE GENERAL NOTES AND TYPICAL DETAILS FOR DIMENSION TYPICAL SLAB REINFORCING LAYOUT NOTE FOR DIMENSION. 600

4. BENT BARS:

   6-C15M4000 @ 300 MEANS 6-15M BARS 4000 mm LONG (LENGTH INCLUDES HOOK LENGTH) HOOKED ONE END WITH 90° STANDARD HOOK AND SPACED AT 300 mm O/C.

   8-A15M3000 @ 300 MEANS 8-15M BARS 3000 mm LONG (LENGTH INCLUDES HOOK LENGTH) HOOKED ONE END WITH 180° STANDARD HOOK AND SPACED AT 300 mm O/C.

   15M @ 300 H.2.E. MEANS 15M BARS HOOKED BOTH ENDS WITH 90° STANDARD HOOK AND SPACED AT 300 mm O/C.

5. REINFORCING BAR HARDWARE:

   REINFORCING BAR TERMINATOR (WITH 5 x Ab GROSS HEAD) OR HEADED BAR (WITH 10 x Ab GROSS HEAD). PROVIDE BAR TERMINATOR U.N.O.

   REINFORCING BAR MECHANICAL SPLICE (TYPE 2 U.N.O.)

   REINFORCING BAR MECHANICAL SPLICE AT CONSTRUCTION JOINT OR FOR FUTURE EXTENSION. (TYPE 2 U.N.O.)

   REBAR HALF COUPLER WELDED TO STRUCTURAL STEEL SECTION OR EMBED PLATE (TYPE 2 U.N.O.)

CONCRETE CONSTRUCTION TOLERANCES

(TOLERANCES AS PER CSA A23.1, EXCEPT AS NOTED BELOW)

CLOSER TOLERANCES SHALL BE MAINTAINED WHERE ARCHITECTURAL DETAILS OR OTHERS REQUIRE.

WHERE ANY DEVIATION OCCURS, AND IT IS ACCEPTABLE TO THE ENGINEER AND ARCHITECT, THE CONTRACTOR IS RESPONSIBLE FOR ADJUSTMENT OF OTHER BUILDING ELEMENTS TO ACCOMMODATE SUCH DEVIATION. COSTS FOR REMEDIAL WORK FOR DEVIATIONS NOT ACCEPTED SHALL BE BORNE BY THE CONTRACTOR.

1. VARIATION FROM THE PLUMB.
   A. IN THE LINES AND SURFACES OF COLUMNS, PIERS, WALLS AND IN ARRISES: 0.25% OF HEIGHT (1 IN 400), MAXIMUM 40 mm OVER THE ENTIRE HEIGHT OF THE STRUCTURE.

      ONLY ONE CURVATURE ALLOWED PER 3000 mm.

      THE TOLERANCE GIVEN IS THE MAXIMUM VARIATION FROM A PLUMB LINE.

      ALL MEASUREMENTS SHALL BE TO THE SAME SIDE OF THE PLUMB LINE.

   B. UNLESS SPECIFIED ELSEWHERE IN THE CONSTRUCTION DOCUMENTS - THE TOLERANCES FOR EXPOSED CORNER COLUMNS, CONTROL JOINT GROOVES, AND OTHER CONSPICUOUS LINES SHALL BE: (SEE ALSO ELEVATOR SHOP DRAWINGS, ETC.)

      0.125% OF HEIGHT (1 IN 800), MAXIMUM 20 mm.

      ONLY ONE CURVATURE ALLOWED PER 6000 mm.

      MAXIMUM VARIATION IN WINDOW BAYS 0.2% OF OPENING.

2. UNLESS SPECIFIED ELSEWHERE, FLOOR FINISHES SHALL BE CLASS A "CONVENTIONAL SLAB ON GRADE AND ELEVATED FLOORS" WITH AN OVERALL F-NUMBER OF F_F=20 & F_L=15.

   CLOSER TOLERANCES MAY BE REQUIRED TO GIVE THE QUALITY OF FINISH FLOOR SURFACES CALLED FOR ELSEWHERE IN THE CONTRACT DOCUMENTS.

3. VARIATIONS OF STRUCTURAL CONCRETE ELEMENTS RELATED TO EACH OTHER AND RELATIVE TO A REFERENCED GRID SYSTEM FOR PLAN DIMENSIONS TO MEET CSA A23.1.
4. VARIATION IN CROSS-SECTIONAL DIMENSIONS OF COLUMNS AND BEAMS AND IN THE THICKNESS OF SLABS AND WALLS: AS IN CSA A23.1.

   ONLY ONE CURVATURE ALLOWED PER 3000 mm.

5. FOOTINGS:
   A. VARIATION IN DIMENSIONS IN PLAN:

      MINUS ---------- 10 mm

      PLUS ---------- 50 mm

   B. MISPLACEMENT OR ECCENTRICITY:

      TWO (2) PERCENT OF THE FOOTING WIDTH IN THE DIRECTION OF MISPLACEMENT BUT NOT MORE THAN ---------- 50 mm

   C. REDUCTION IN THICKNESS:

      MINUS ---------- 5% OF SPECIFIED THICKNESS

6. THE ABOVE REQUIREMENTS DO NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY OF MEETING MORE RIGID REQUIREMENTS SPECIFIED ELSEWHERE IN THE CONSTRUCTION DOCUMENTS OR AS REQUIRED BY EQUIPMENT SHOP DRAWINGS OR SPECIFICATIONS SUCH AS THOSE FOR ELEVATORS, ETC.

CONCRETE FORMWORK STRIPPING AND SHORING

1. THE DESIGN AND FIELD REVIEW OF FORMWORK, SHORING AND RESHORING IS THE RESPONSIBILITY OF THE CONTRACTOR. RESHORING DRAWINGS SHALL BE SUBMITTED TO RJC FOR THE EFFECT ON THE BASE BUILDING STRUCTURE ONLY.
2. NO COLUMN OR WALL FORMS SHALL BE REMOVED BEFORE CONCRETE HAS REACHED 10 MPa FOR ARCHITECTURAL CONCRETE OR 8 MPa FOR OTHER COLUMNS OR WALLS.
3. STRENGTH OF CONCRETE FOR STRIPPING TO BE DETERMINED USING CYLINDERS STORED ON SITE IN A PROTECTED ENCLOSURE THAT MAINTAINS A SIMILAR TEMPERATURE AND HUMIDITY AS THE STRUCTURAL ELEMENTS REPRESENTED. ALTERNATE METHODS, IF ACCEPTABLE TO RJC, MAY BE USED.
4. NO CONCRETE MAY BE REMOVED WITH PERCUSSIVE METHODS SUCH AS CHIPPING OR JACK-HAMMERING WITHOUT PRIOR APPROVAL BY RJC.

CONCRETE REINFORCEMENT

1. REINFORCEMENT SHALL CONFORM TO THE FOLLOWING STANDARDS:

   A. 10M AND LARGER (U.N.O.) - CSA G30.18 GRADE 400R
   B. WELDED WIRE REINFORCEMENT - ASTM A1064M
   C. ALL REINFORCING THAT WILL BE WELDED OR IS PART OF THE SEISMIC RESISTING ELEMENTS: REINFORCING FOR SHEAR WALLS, HEADERS AND ZONES (INCLUDING ZONE TIES AND HEADER TIES/STIRRUPS) AND MOMENT FRAME COLUMNS AND BEAMS (INCLUDING COLUMN TIES AND BEAM STIRRUPS). - CSA G30.18 GRADE 400W

   (NOTE: CSA G30.18 W GRADES MAY BE SUBSTITUTED FOR CSA G30.18 R GRADES)

2. DO NOT SUBSTITUTE DEFORMED WIRE FOR REINFORCING BARS WITHOUT PRIOR APPROVAL OF THE RJC.
3. SUPPORT REINFORCING WITH CHAIRS, ACCESSORIES, OR REINFORCING BARS AS REQUIRED. BARS USED AS SUPPORT BARS SHALL BE CONSIDERED AS ACCESSORIES.
4. PROVIDE SUFFICIENT SUPPORTS TO MAINTAIN CONCRETE COVER AS SPECIFIED. ALL SUPPORTS AND BARS MUST BE TIED TOGETHER TO MAINTAIN REINFORCING STEEL SECURELY IN PLACE DURING CONCRETE PLACEMENT.
5. TESTING OF REINFORCING STEEL SHALL CONFORM TO THE SPECIFICATIONS.

DEVELOPMENT OF STANDARD HOOKS IN TENSION

BASED ON CSA A23.3.

DEVELOPMENT LENGTH

CONCRETE STRENGTH	REBAR DESIGNATION (GRADE 400 LENGTHS)					
	10M	15M	20M	25M	30M	35M
20 MPa	225	340	450	560	675	785
25 MPa	200	300	400	500	600	700
30 MPa	185	275	370	460	550	640
35 MPa	170	255	340	425	510	595
40 MPa	160	240	320	400	475	555
45 MPa	150	225	300	375	450	525
50 MPa	150	215	285	355	425	495
55 MPa	150	205	270	340	405	475
60 MPa	150	195	260	325	390	455
65 MPa & GREATER	150	190	250	315	375	440

NOTES:

1. TABLE SHOWS DEVELOPMENT LENGTHS FOR GRADE 400 REINFORCEMENT. INCREASE TABLE LENGTHS BY 1.25 FOR GRADE 500 REINFORCEMENT.
2. INCREASE TABLE LENGTHS BY 1.2 FOR EPOXY COATED REINFORCEMENT.

CONCRETE - SUPPLY, TESTING AND SUBMITTALS

1. CONCRETE IS SPECIFIED AS PER THE "PERFORMANCE" ALTERNATE AS OUTLINED IN CSA A23.1.
2. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR WORKING WITH THE CONCRETE SUPPLIER TO ENSURE THAT THE PLASTIC AND HARDENED MIX PROPERTIES MEET SITE REQUIREMENTS FOR PLACING, FINISHING, AND THE OWNERS' SPECIFIED PERFORMANCE REQUIREMENTS. THE GENERAL CONTRACTOR SHALL MEET THE DOCUMENTATION AND QUALITY CONTROL REQUIREMENTS OUTLINED UNDER THE "PERFORMANCE" ALTERNATE OF CSA A23.1.
3. THE SUPPLIER SHALL MEET ALL CERTIFICATION AND DOCUMENTATION REQUIREMENTS AS OUTLINED UNDER THE "PERFORMANCE" ALTERNATE OF CSA A23.1.
4. DOCUMENTATION DEMONSTRATING THAT THE PROPOSED MIX DESIGN WILL ACHIEVE THE REQUIRED STRENGTH, DURABILITY, AND PERFORMANCE REQUIREMENTS INDICATED UNDER SUPPLIER RESPONSIBILITY - ITEM (g) OF TABLE 5, CSA A23.1 (2014) SHALL BE IN ACCORDANCE WITH CSA A23.2-24C (2019) AND ITS REFERENCED STANDARDS OR AN APPROVED EQUIVALENT. THE SUBMITTED DOCUMENTATION SHALL BE ACCOMPANIED BY A MIX DESIGN REVIEW LETTER SIGNED AND SEALED BY A PROFESSIONAL ENGINEER.
5. AT THE REQUEST OF THE OWNER, THE SUPPLIER WILL FURNISH TEST DATA RESULTS (LESS THAN 3 MONTHS OLD) FOR EACH PROPOSED MIX DESIGN DEMONSTRATING THAT THEY MEET THE STRENGTH, DURABILITY, AND SHRINKAGE REQUIREMENTS SPECIFIED.
6. FOR 56 DAY [OR 90 DAY] STRENGTH SPECIFICATIONS, THE SUPPLIER WILL FURNISH THE OWNER WITH ACCELERATED STRENGTH TEST DATA FOR EACH PROPOSED MIX DESIGN, OR OTHER DOCUMENTATION ACCEPTABLE TO THE OWNER, SUCH THAT THE ANTICIPATED 56 DAY [OR 90 DAY] STRENGTH OF THE MIX AS PLACED ON SITE CAN BE EVALUATED WITHIN 14 DAYS OF PLACEMENT.
7. THE CONCRETE SUPPLIER SHALL BE CERTIFIED BY THE [READY MIXED CONCRETE ASSOCIATION OF ONTARIO][ALBERTA READY MIXED CONCRETE ASSOCIATION].

CONCRETE - FINISHING AND ADMIXTURES

1. CURING OF CONCRETE TO MEET THE REQUIREMENTS FOR THE EXPOSURE CLASS AS OUTLINED IN CSA A23.1. CURING COMPOUNDS ARE NOT PERMITTED FOR SUSPENDED PARKING SLABS OR EXPOSURE CLASS C-XL CONCRETE. PARKING SLABS AND REINFORCED SLAB ON GRADES IN PARKING AREAS ARE TO BE CURED FOR MINIMUM 7 DAYS.
2. CORROSION INHIBITORS ARE TO BE USED IN CONCRETE IN AREAS NOTED ON THE STRUCTURAL DRAWINGS, AS WELL AS IN STAIRS AND STAIR LANDINGS WITHIN PARKADES. USE 10 L/m³ OF "DCI S" BY GRACE CONSTRUCTION PRODUCTS OR "MASTERLIFE CI 30" BY BASF CONSTRUCTION CHEMICALS. ALTERNATIVELY, USE C-XL CONCRETE WITH CURING TYPE 3 (EXTENDED) PER CSA A23.1.
3. ALL BOTTOM EDGES OF EXPOSED SLABS AND BEAMS, AS WELL AS EDGES OF WALLS AND COLUMNS, TO BE CHAMFERED 20 mm X 20 mm. ALL TOP EDGES OF EXPOSED SLABS, BEAMS, UPSTANDS AND STAIRS TO BE TOOLED UNLESS NOTED OTHERWISE. SEE ALSO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR OTHER FINISH REQUIREMENTS.
4. NO CALCIUM CHLORIDE IS PERMITTED, IN ANY FORM, IN ANY CONCRETE MIX WITHOUT THE EXPRESS WRITTEN CONSENT OF READ JONES CHRISTOFFERSEN LTD.
5. CURING AND PROTECTION OF CONCRETE FOR HOT, COLD OR DRY WEATHER IS TO BE AS PER CSA A23.1 AS A MINIMUM. SEE ALSO "CONCRETE COLD WEATHER REQUIREMENTS" IN THE STRUCTURAL DRAWINGS.

CONCRETE COLD WEATHER REQUIREMENTS (CAST-IN-PLACE)

(SEE ALSO CSA A23.1, EXCEPT THE FOLLOWING MINIMUM REQUIREMENTS MUST ALSO BE MET)

1. FORECASTED AIR TEMPERATURE AT OR BELOW 5°C
   A. THE AGGREGATE OR MIXING WATER SHALL BE HEATED TO MAINTAIN A MINIMUM CONCRETE TEMPERATURE OF 10°C AT POINT OF POUR.
   B. CONCRETE SHALL NOT BE PLACED ON OR AGAINST ANY SURFACE WHICH IS AT A TEMPERATURE LESS THAN 5°C.
   C. CONTRACTOR SHALL BE PREPARED TO COVER SLABS IF UNEXPECTED DROP IN AIR TEMPERATURE SHOULD OCCUR.
   D. CONCRETE EXPOSURE CLASSES REQUIRING CURING TYPE 1 (BASIC) IN ACCORDANCE WITH CSA A23.1 SHALL HAVE THE THE CONCRETE TEMPERATURE MAINTAINED ABOVE 10°C FOR AT LEAST 7 DAYS OR UNTIL THE CONCRETE REACHES 70% OF SPECIFIED STRENGTH.
   E. CONCRETE EXPOSURE CLASSES REQUIRING CURING TYPE 2 (ADDITIONAL CURING) OR CURING TYPE 3 (EXTENDED WET CURING) IN ACCORDANCE WITH CSA A23.1 SHALL HAVE THE THE CONCRETE TEMPERATURE MAINTAINED ABOVE 10°C FOR AT LEAST THE DURATION INDICATED IN THE STANDARD.
2. FORECASTED AIR TEMPERATURE BELOW 2°C BUT NOT BELOW -4°C

   (NOTE - FOR THESE CONDITIONS STRUCTURAL CONCRETE TOPPINGS ON METAL DECK SHALL SATISFY THE REQUIREMENTS OF NOTE 3).

   FOLLOW REQUIREMENTS OF NOTES 1A, 1B, 1D, 1E, AND:

   A. FORMS AND STEEL SHALL BE FREE FROM ICE AND SNOW.
   B. SLABS SHALL BE COVERED WITH CANVAS OR SIMILAR, KEPT A FEW INCHES CLEAR OF SURFACE.
   C. IN WINDY WEATHER, STOREY BELOW SLAB SHALL BE ENCLOSED.
   D. PROTECTION SHALL BE MAINTAINED FOR AT LEAST THE SPECIFIED CURING PERIOD.

3. FORECASTED AIR TEMPERATURE BELOW -4°C

   FOLLOW REQUIREMENTS OF NOTES 1A, 1B, 2A, 2B, AND:

   A. STOREY BELOW SHALL BE ENCLOSED AND ARTIFICIAL HEAT PROVIDED. HEATING TO BE STARTED AT LEAST ONE HOUR AHEAD OF POURING AND MAINTAINED FOR A MINIMUM OF THE SPECIFIED CURING PERIOD.
   B. TEMPERATURE OF THE CONCRETE AT ALL SURFACES SHALL BE KEPT AT A MINIMUM OF 20°C FOR 3 DAYS, OR 10°C FOR 7 DAYS. CONCRETE SHALL BE KEPT ABOVE FREEZING TEMPERATURES UNTIL IT REACHES 70% OF ITS SPECIFIED STRENGTH.
   C. ENCLOSURE MUST BE CONSTRUCTED SO THAT AIR CAN CIRCULATE OUTSIDE THE OUTER EDGES AND MEMBERS.
   D. REINFORCING TO BE COVERED AND WARMED TO MAINTAIN ITS TEMPERATURE AT 0°C OR HIGHER AT THE TIME OF CONCRETE PLACEMENT.

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No.	Revision	Date
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5	ISSUED FOR 100% CONSTRUCTION DOCUMENTS	2023-11-24
4	ISSUED FOR 95% CONSTRUCTION DOCUMENTS	2023-11-10
3	ISSUED FOR BUILDING PERMIT	2023-11-01
2	ISSUED FOR 75% CONSTRUCTION DOCUMENTS	2023-10-13
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Seal

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Project Information

CITY OF BARRIE FIRE STATION 6

845 Mapleview Drive East, Barrie Ontario

For

Barrie Fire and Emergency Services

Drawing Title

GENERAL NOTES AND TYPICAL DETAILS

TYPICAL PIT OR TRENCH DETAIL-U.N.O.

PROVIDE SHORING IN TRENCHES OVER 1200mm IN DEPTH DURING BACKFILLING

NOTE: THE USE OF PRECAST TRENCHES IS ACCEPTABLE PROVIDED THEY ARE SUPPLIED WITH A CONCRETE BASE.

MASONRY NOTES

READ IN CONJUNCTION WITH THE MASONRY SPECIFICATIONS AND STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

1. ALL MASONRY WORK SHALL CONFORM TO CAN/CSA S304.1 AND IT'S REFERENCED DOCUMENTS, INCLUDING BUT NOT LIMITED TO:
   - A. CONCRETE BLOCK TO CAN/CSA-A165.1 TYPE H/15/A/M UNLESS NOTED OTHERWISE (BASED ON NET AREA).
   - B. MASONRY WIRE REINFORCING TO CSA-A371 AND ASTM 1064-GRADE 485.
   - C. REINFORCING BARS TO CSA-A371 AND CSA G30.18 - GRADE 400.
   - D. GROUT PREPARED ON OR OFF SITE SHALL BE IN ACCORDANCE WITH CAN/CSA-A179 AND SUPPLIER RECOMMENDATIONS
     - i. MINIMUM 28 DAY COMPRESSIVE STRENGTH – 12.5 MPa
     - ii. SLUMP 200mm (MIN) TO 250mm (MAX).
     - iii. FINE AGGREGATE SHALL BE USED WHERE SPACES TO BE GROUTED HAVE DIMENSIONS LESS THAN 50mm
   - E. CONNECTORS FOR MASONRY TO CAN/CSA-A370.
   - F. MORTAR SHALL BE TYPE S PREPARED IN ACCORDANCE WITH CAN/CSA-A179.
   - G. CONNECTIONS TO CAN/CSA-A370.
   - H. PRACTICE TO CAN/CSA-A371.
2. THE MASONRY CONTRACTOR SHALL BE A MEMBER OF THE CANADIAN MASONRY CONTRACTORS ASSOCIATION.
3. NO MASONRY CONSTRUCTION SHALL BE PERMITTED WITHOUT THE CONTRACTOR ENSURING ALL NECESSARY PROTECTION AND CONSTRUCTION METHODS CAN BE READILY IMPLEMENTED IN ACCORDANCE WITH CAN/CSA-A371 PRIOR TO TEMPERATURES AND WEATHER CONDITIONS REACHING THE FOLLOWING:
   - A. HOT WEATHER – TEMPERATURE ABOVE +30°C
   - B. COLD WEATHER – TEMPERATURE BELOW +5°C
   - C. WET WEATHER OR SNOW PROTECTION (STORAGE AND CONSTRUCTION)
   - D. HIGH WIND CONSTRUCTION
4. ALL WALLS SHALL BE BUILT USING RUNNING BOND. STACK BOND SHALL NOT BE USED WITHOUT THE PRIOR APPROVAL OF THE STRUCTURAL ENGINEER.
5. MORTAR MAY NOT BE SUBSTITUTED FOR GROUT.
6. ALL MORTAR JOINTS IN CONCRETE BLOCK WORK SHALL BE TOOLED CONCAVE UNLESS NOTED OTHERWISE IN THE ARCHITECTURAL DRAWINGS.
7. FILL BOND BEAMS AND CELLS CONTAINING VERTICAL REINFORCEMENT OR BOLTS WITH GROUT, VIBRATE OR PUDDLE TO COMPLETELY FILL CELLS.
8. UNLESS MASONRY WALLS ARE NOTED AS "FULLY GROUTED" OR "GROUT SOLID", GROUT ONLY CELLS CONTAINING VERTICAL OR HORIZONTAL REINFORCEMENT, ANCHOR RODS, BOLTS OR OTHER SPECIFICALLY NOTED AREAS. VIBRATE OR PUDDLE TO ENSURE CELLS ARE FILLED COMPLETELY AND PROPERLY CONSOLIDATED.
9. GROUTING OF WALLS SHALL BE CARIED OUT FOLLOWING ONE OF THE TWO METHODS BELOW. THE METHOD OF GROUTING SHALL BE INDICATED IN THE SHOP DRAWINGS.
   - A. LOW LIFT GROUTING
     - i. LIFTS SHALL NOT EXCEED 1400mm IN HEIGHT.
     - ii. TERMINATE EACH LIFT 40mm BELOW THE TOP OF EACH MASONRY UNIT.
   - B. HIGH LIFT GROUTING
     - i. LIFTS SHALL NOT EXCEED 2400mm IN HEIGHT.
     - ii. THE MASONRY MUST BE ALLOWED TO CURE FOR AT LEAST 4 HOURS PRIOR TO PLACING GROUT.
     - iii. GROUT SLUMP MUST BE MAINTAINED AT 250mm.
     - iv. THE WALL SHALL NOT INCLUDE ANY INTERMEDIATE BOND BEAMS BETWEEN THE TOP AND BOTTOM OF THE LIFT.
     - v. CLEANOUTS SHALL BE PROVIDED FOR ALL CELLS TO BE REINFORCED AND FILLED WITH GROUT. REPEAT CLEANOUTS ABOVE BOND BEAMS. THESE CELLS ARE TO BE KEPT CLEAR AND CLEAN OF MORTAR.
10. GROUT NOT PLACED WITHIN 1.5 HOURS AFTER WATER IS FIRST ADDED TO THE BATCH SHALL BE DISCARDED.
11. REINFORCEMENT SHALL HAVE SPLICES IN ACCORDANCE WITH THE EMBEDMENT / DEVELOPMENT LENGTHS AND SPLICE LENGTHS NOTE.
12. COVER FOR VERTICAL REINFORCEMENT EXPOSED TO WEATHER OR EARTH SHALL BE INCREASED TO 50mm.
13. REINFORCING BAR POSITIONERS SHALL BE PROVIDED AS PER THE TYPICAL DETAIL MW03 TO ENSURE BARS REMAIN WITHIN TOLERANCE DURING PLACEMENT OF GROUT OR MORTAR.
14. HORIZONTAL JOINT REINFORCEMENT AND CONNECTIONS TO BASE BUILDING STRUCTURE SHALL HAVE THE FOLLOWING FINISH BASED ON LOCATION:
   - A. EXTERIOR WALLS EXPOSED TO EARTH OR WEATHER OR INTERIOR WALLS EXPOSED TO HUMIDITY > 75% MUST BE HOT-DIP GALVANIZED, EPOXY COATED (REQUIRING INCREASED EMBED & SPLICE LENGTHS), OR STAINLESS STEEL.
15. PROVIDE LADDER STYLE HORIZONTAL REINFORCEMENT FOR ALL REINFORCED WALLS AND TRUSS STYLE REINFORCEMENT FOR UNREINFORCED WALLS UNLESS NOTED OTHERWISE.
16. PROVIDE PRE-FABRICATED CORNER AND TEE SECTIONS FOR JOINT REINFORCEMENT.
17. PROVIDE DOWELS INTO FOUNDATION WALLS, CONCRETE FOOTINGS SUSPENDED SLABS, OR SLAB-ON-GRADE:
   - A. TO MATCH VERTICAL REINFORCEMENT DETAILED FOR WALLS.
   - B. AT MINIMUM PROVIDE 15M@1200 STARTER DOWELS WITH STANDARD HOOK DEVELOPMENT AND 1200mm PROJECTION INTO MASONRY ABOVE.
18. FOR DOWELS IN CONCRETE ON DECK PROVIDE DROP IN ANCHORS.
19. PROVIDE LINTELS OVER ALL OPENINGS IN WALLS. SEE LINTEL SCHEDULE, UNLESS NOTED OTHERWISE ON PLAN.
20. CONTROL JOINTS SHALL BE PROVIDED IN ACCORDANCE WITH TYPICAL DETAIL MW-102 UNLESS NOTED OTHERWISE.
   - A. REFER TO CONTROL JOINT DETAIL FOR REINFORCEMENT THAT SHALL BE CARRIED THROUGH AT BOND BEAMS UNLESS NOTED OTHERWISE.
   - B. LOCATIONS OF CONTROL JOINTS SHALL BE LAID OUT TO ENSURE NO FREE STANDING WIDTHS OF WALL LESS THAN 4000mm ARE CREATED.
   - C. CONTRACTOR TO SUBMIT A SHOP DRAWING SHOWING COORDINATED CONTROL JOINTS WITH STRUCTURAL NOTES, OPENINGS AND ARCHITECTURAL DRAWINGS.
21. PROVIDE CONTROL JOINTS (WITH VERTICAL MOVEMENT ALLOWANCE) BETWEEN ALL LOAD-BEARING AND NON LOAD-BEARING WALLS.
22. OUTSIDE FACES OF EXTERIOR WALLS SHALL BE WATERPROOFED AS PER ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.

TYPICAL MECHANICAL / ELECTRICAL HOUSEKEEPING PAD & FLOATING SLAB

1. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR LOCATION, EXTENT, AND THICKNESS OF HOUSEKEEPING PADS.
2. THIS DETAIL PROVIDES RESISTANCE TO HORIZONTAL (SLIDING) FORCES ONLY FROM EARTHQUAKE LOADING ON PAD AND EQUIPMENT. ADDITIONAL CONNECTIONS FOR UPLIFT FORCES FROM EQUIPMENT TO BE DESIGNED AND DETAILED BY SPECIALTY ENGINEER AND WILL REQUIRE ANCHORING THROUGH THE PAD AND INTO OR THROUGH THE STRUCTURAL SLAB. IN POST-TENSIONED FLOORS, LOCATE TENDONS BEFORE DRILLING HOLES.

PAD THICKNESS 't'	REINFORCEMENT
50	152x152MW18.7xMW18.7WWF 1 LAYER
100	152x152MW18.7xMW18.7WWF 1 LAYER
150	10M @300 EW AT CENTRE
200	10M @400 T&BEW

FLOATING SLAB DETAIL

TYPICAL EXTERIOR PIPE SUPPORT DETAIL - U.N.O.

NOTES:

1. MECHANICAL CONTRACTOR SHALL SET PIPE SLEEVES AND SHALL CO-OPERATE WITH GENERAL CONTRACTOR TO LOCATE SLEEVES IN FOUNDATION WALL TO SUIT PIPE BRIDGE SUPPORT AS DETAILED.
2. THIS DETAIL APPLIES TO ALL SERVICE PIPING PASSING THROUGH FOUNDATION WALLS BELOW GRADE, INCLUDING SEWER LINES, WATER MAINS, GAS LINES ETC.

'L'	'A'
UP TO 2400	4-15M
2425 TO 2850	4-20M
2875 TO 3150	4-25M

TYPICAL PRECAST MECHANICAL PIT-U.N.O.

NOTE: REFER TO MECHANICAL DRAWINGS FOR SIZE AND DEPTH.

MASONRY - INSPECTION & TESTING

1. AN INDEPENDENT TESTING AGENCY SHALL BE RETAINED TO PROVIDE AN ON-GOING SERVICE OF ON-SITE QUALITY CONTROL REVIEWS FOR THE MASONRY WORKS.
2. A TESTING AND INSPECTION PROGRAM SHALL BE DEVELOPED IN ACCORDANCE WITH THE STANDARDS IN THE MASONRY NOTES, THE DRAWINGS, SPECIFICATIONS AND TMS 402/602-16 BUILDING CODE REQUIREMENTS AND SPECIFICATION FOR MASONRY STRUCTURES **LEVEL B QUALITY ASSURANCE**.
3. THE CONTRACTOR SHALL CONTACT THE STRUCTURAL CONSULTANT FOR SITE VISITS 48 HOURS PRIOR TO POURING GROUT.

TYPICAL PRESSURE RELIEF PLUG DETAIL

LOCATIONS OF PRESSURE RELIEF PLUGS SHOWN THUS ⊗ ON PLAN.

CONSTRUCTION JOINTS THROUGH SLABS, SLAB BANDS, AND BEAMS

LOCATIONS TO BE APPROVED BY RJC

KEY FROM 38x38 FOR SLABS UP TO 140 mm
KEY FROM 38x64 FOR SLABS 150 mm TO 190 mm
KEY FROM 38x89 FOR SLABS 200 mm TO 240 mm
FOR SLABS 250 mm AND OVER USE
KEY 1/3 THE SLAB DEPTH

THROUGH SLABS

THICKENING SLAB ON GRADE AT CONCRETE STAIRS

THICKENING SLAB ON GRADE AT STEEL STAIRS

NON-STRUCTURAL CONCRETE TOPPING ON CONCRETE SLABS

1. SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR EXTENT, THICKNESS, AND DETAILS.
2. REINFORCE AS SHOWN ON STRUCTURAL OR ARCHITECTURAL PLANS AND SPECIFICATIONS, EXCEPT MINIMUM REINFORCING TO BE:

TOPPING THICKNESS	REINFORCING (TO BE PLACED AT MID-DEPTH)
UP TO 50 mm	1 SHEET OF WWR 152 X 152 - MW9.1 X MW9.1 LAP 300
75 mm	1 SHEET OF WWR 152 X 152 - MW13.3 X MW13.3 LAP 300 OR 2 SHEETS OF WWR 152 X 152 - MW9.1 X MW9.1 LAP 300
100 mm	2 SHEETS OF WWR 152 X 152 - MW9.1 X MW9.1 LAP 300 OR 10M @ 500 EACH WAY AT MID-DEPTH OF TOPPING
125 mm OR GREATER	TEMPERATURE REINFORCING EACH WAY, SEE "SLAB NOTES".

FOR OTHER THICKNESSES, REINFORCEMENT TO BE PROPORTIONAL TO ABOVE.

3. SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR CONTROL JOINTS AND EXPANSION JOINTS, DETAILS, JOINT SPACING AND PATTERN. UNLESS NOTED OTHERWISE, PROVIDE 25 mm DEEP SAWCUTS OR TOOLED JOINTS. MINIMUM SPACING OF JOINTS IN EACH DIRECTION IS 3000 mm. IF SAWCUTS ARE USED, DO NOT CUT REINFORCING AND MAKE THE SAWCUTS WITHIN 12 HOURS OF POURING.
4. PROVIDE 12 mm GAP (MIN.) AT EDGES TO ALLOW FOR EXPANSION. SEE ALSO ARCHITECTURAL DETAILS AND REQUIREMENTS.

5. SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR JOINT FILLERS AND SLIP SHEETS, IF REQUIRED.
6. FIELD REVIEW OF ARCHITECTURAL TOPPING DETAILS SUCH AS REINFORCING, JOINTS, JOINT SPACING, JOINT FILLER, SLIP SHEETS ETC., BY OTHERS, NOT BY RJC. CALL ARCHITECT TO SCHEDULE FIELD REVIEW OF THOSE ELEMENTS.

WALLS - MISCELLANEOUS DETAILS

1. UNLESS NOTED OTHERWISE, PROVIDE U-BARS AS SHOWN WHERE NO WALLS OR COLUMNS EXTEND BELOW SLAB FOR SUPPORT.

2. SEE ARCHITECTURAL DRAWINGS FOR EXTENT, THICKNESS, AND LOCATION OF CONCRETE UPSTAND WALLS, PLANTER WALLS AND CURBS. BELOW ARE TYPICAL DETAILS WHERE NOT INDICATED ON PLAN:

3. TOP OF WALL TRANSITION UNLESS NOTED OTHERWISE:

4. NOMINAL U-BARS / STIRRUPS ABOVE WALL OPENINGS UP TO 1200 mm WIDE UNLESS NOTED OTHERWISE:

SLAB ON GRADE REINFORCEMENT AND CONTROL JOINTS

1. SLAB ON GRADE SHALL BE PLACED ON SOIL CAPABLE OF SUSTAINING 25.0 kPa MIN. WITHOUT SETTLEMENT RELATIVE TO THE BUILDINGS FOOTINGS. IN AREAS WHERE S.O.G. USED TO SUPPORT TEMPORARY SHORING LOADS, LARGER SUBGRADE CAPACITIES MAY BE REQUIRED PER LOADS SUPPLIED BY TEMPORARY WORKS ENGINEER.
2. REINFORCE SLAB ON GRADE PER TABLE BELOW LOCATED 40mm FROM TOP OF SLAB WITH PROPER CHAIRS.

S.O.G. THICKNESS	MIN. REINFORCING U.N.O. ON PLAN
≤ 125mm	152x152 MW 18.7 x MW 18.7
126mm TO 175mm	10M @400 E.W.
>176mm	15M @400 E.W.

3. UNLESS MORE RIGOROUS REQUIREMENTS ARE INDICATED ELSEWHERE ON THE STRUCTURAL AND ARCHITECTURAL DRAWINGS AND SPECIFICATIONS, SPACE CONTROL JOINTS AT 4500 mm O/C MAXIMUM.
4. SAWCUT JOINTS 4mm WIDE AND 38 mm DEEP AS SOON AS PRACTICAL, BUT NO LATER THAN 12 HOURS AFTER PLACEMENT OF SLAB. USE EQUIPMENT THAT DOES NOT "RAVEL" THE EDGES OF THE CUT, SEAL AS REQUIRED.
5. UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS, RUN ANY SLAB ON GRADE REINFORCEMENT THROUGH THE JOINTS.
6. UNLESS NOTED OTHERWISE, FORM A DIAMOND SHAPE AROUND COLUMNS, 150 mm CLEAR, AND DO NOT RUN REINFORCEMENT THROUGH. PLACE INFILL AROUND COLUMN 28 DAYS AFTER SLAB ON GRADE PLACED.

7. APPROVAL OF ARCHITECT IS REQUIRED TO SUBSTITUTE "ZIP STRIPS" FOR SAWCUTS.
8. REINFORCEMENT AS SPECIFIED IN NOTE #2 ABOVE TO CROSS AND LAP MIN 400mm AT COLD JOINTS. FOR UNREINFORCED SLAB ON GRADE PROVIDE 38x38mm DEEP CONTINUOUS SHEAR KEY IN S.O.G. FACE.

WALLS

1. THESE NOTES APPLY SPECIFICALLY TO CONCRETE WALLS NOT CLASSIFIED AS SHEAR WALLS. SEE ALSO CONCRETE SHEAR WALL NOTES.

   UNLESS NOTED OTHERWISE, WALLS SHALL BE REINFORCED AS FOLLOWS:

WALL THICKNESS	FIRE EXPOSURE	VERTICAL REINFORCING	HORIZONTAL REINFORCING
150 mm	1 SIDE	10M @ 450 CENTERED	10M @ 330 CENTERED
	2 SIDES	10M @ 450 E.F. STAG.	10M @ 450 E.F. STAG.
200 mm	1 SIDE	10M @ 330 CENTERED	10M @ 250 OR 15M @ 500 CENTERED
	2 SIDES	10M @ 500 E.F. STAG.	10M @ 500 E.F. STAG.
250 mm	1 OR 2 SIDES	10M @ 500 E.F. STAG.	10M @ 400 E.F STAG.
300 mm	1 OR 2 SIDES	10M @ 440 E.F.	10M @ 330 E.F.
350 mm	1 OR 2 SIDES	10M @ 380 E.F.	10M @ 280 E.F.
400 mm	1 OR 2 SIDES	10M @ 330 E.F.	10M @ 250 E.F OR 15M @ 500 E.F. STAG.

   FOR OTHER THICKNESSES, REINFORCEMENT TO BE PROPORTIONAL TO ABOVE.

   15M @ 500 MAY BE SUBSTITUTED FOR 10M @ 330 ONLY WITH THE APPROVAL OF RJC. FOR WALLS WITH A SINGLE LAYER OF STEEL, THE WALL REINFORCING SHALL BE PLACED IN THE CENTER OF THE WALL U.N.O.

   REFER TO THE "CONCRETE REINFORCEMENT" NOTE AND THE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR FIRE EXPOSURE REQUIREMENTS. ALL WALLS DESIGNED FOR FIRE EXPOSURE ONE SIDE U.N.O. ON STRUCTURAL DRAWINGS.
2. PLACE VERTICAL REINFORCEMENT IN OUTER LAYERS OF THE CURTAINS AND HORIZONTAL REINFORCEMENT IN INNER LAYERS (BEHIND VERTICALS), UNLESS NOTED OTHERWISE.
2. PLACE HORIZONTAL REINFORCEMENT IN OUTER LAYERS OF THE CURTAINS AND VERTICAL REINFORCEMENT IN INNER LAYERS (BEHIND HORIZONTALS), UNLESS NOTED OTHERWISE.
3. ALL WALL REINFORCING SHALL BE CONTINUOUS, WITH HOOKS OR CORNER BARS USED AT ALL WALL JUNCTIONS. EXTEND HOOKS TO FAR FACE OF WALL. CORNER BARS TO BE LOCATED ON OUTSIDE FACE OR CENTER OF WALL.
4. HORIZONTAL AND VERTICAL SPLICES SHALL BE CASE 1 TENSION SPLICES. U.N.O. HORIZONTAL BARS NEED NOT BE CONSIDERED TOP BARS.
5. ENDS OF ALL WALLS AND ALL WALL INTERSECTIONS SHALL HAVE 2-15M VERTICAL MINIMUM UNLESS NOTED OTHERWISE ON DRAWINGS.
6. ADD 2-15M PARALLEL TO ALL EDGES AND EXTENDING 625 mm BEYOND CORNERS AT OPENINGS IN WALLS.
7. UNLESS NOTED OTHERWISE, PROVIDE DOWELS AT BOTTOM OF WALLS (E.G. AT FOOTINGS OR WHEREVER WALL BEGINS) AS SHOWN BELOW. DOWELS TO MATCH VERTICAL REINFORCEMENT.

8. UNLESS NOTED OTHERWISE, ALL RETAINING WALLS BELOW GRADE AND ALL EXTERIOR WALLS EXPOSED TO THE WEATHER ABOVE GRADE SHALL HAVE CONTROL JOINTS. SEE CONTROL JOINT DETAIL. CONSTRUCTION JOINT MAY REPLACE CONTROL JOINT WHERE REQUIRED. THE LOCATION OF CONTROL JOINTS IN EXPOSED CONCRETE WALLS SHALL BE SUBMITTED TO THE ARCHITECT FOR REVIEW.
9. UNLESS NOTED OTHERWISE, PLACE TOP OF WALLS 0 mm TO 12 mm BELOW SOFFIT OF SUPPORTED CONCRETE STRUCTURE. IF TOP OF WALL PLACED ABOVE SOFFIT, CAREFULLY CHIP DOWN MINIMUM 3 DAYS AFTER ELEMENT POURED AND AS REQUIRED BY RJC.

WALLS - CORNER DETAILS

1. DETAILS OF HORIZONTAL REINFORCEMENT AT CORNERS (SEE ALSO ZONE REINFORCING DETAILS):

WALL CONSTRUCTION JOINT

(CONSTRUCTION JOINT CAN REPLACE CONTROL JOINT)

PLAN

WALL CONTROL JOINT

UNLESS NOTED OTHERWISE FOR EXTERIOR WALLS BELOW GRADE AND EXTERIOR WALLS EXPOSED TO WEATHER ABOVE GRADE.

SPACE AT 6000 mm CENTERS MAXIMUM UNLESS OTHERWISE NOTED ON PLAN.

PLAN

LOAD BEARING MASONRY – LOW SEISMIC ($I_E F_a S_a(0.2)$<0.35)

1. PROVIDE 1-15M CONTINUOUS IN TOP COURSE OF THE WALL UNDER BEAMS OR JOIST BEARING POINTS AND FILL SOLID WITH 12.5 MPa (MIN) GROUT.

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OPENING LINTELS IN NON LOAD-BEARING MASONRY

PROVIDE LINTELS OVER ALL OPENINGS IN THE MASONRY WALLS IN ACCORDANCE WITH THE TABLES BELOW UNLESS THE SPANS EXCEED WHAT IS ALLOWED OR UNLESS SHOWN OTHERWISE.
ALL STEEL LINTELS SHALL BE HOT-DIP GALVANIZED WHERE THEY ARE IN EXTERIOR WALLS OR WALLS THAT ARE EXPOSED TO MOISTURE OR RELATIVE HUMIDITY > 75%

STEEL LINTELS

WALL THICKNESS	SPAN	ANGLE SIZE	DETAIL
90 (4") VENEER	UP TO 1200 (4'-0")	L89x89x7.9	BRICK, 89
	1200 (4'-0") TO 1800 (6'-0")	L127x89x7.9 LLV	
	1800 (6'-0") TO 2400 (8'-0")	L152x89x7.9 LLV	
140 (6") WALL	UP TO 1200 (4'-0")	2 - L64x64x6.4	CMU BLOCK, 64, 64
	1200 (4'-0") TO 1800 (6'-0")	2 - L89x64x6.4 LLV	
	1800 (6'-0") TO 2400 (8'-0")	2 - L89x64x7.9 LLV	
	2400 (8'-0") TO 3000 (10'-0")	2 - L89x64x9.5 LLV	
190 (8") WALL	UP TO 1200 (4'-0")	2 - L89x89x7.9	CMU BLOCK, 89, 89
	1200 (4'-0") TO 1800 (6'-0")	2 - L127x89x7.9 LLV	
	1800 (6'-0") TO 2400 (8'-0")	2 - L127x89x9.5 LLV	
	2400 (8'-0") TO 3000 (10'-0")	2 - L152x89x9.5 LLV	
240 (10") WALL	UP TO 1200 (4'-0")	L89x89x7.9 + L127x89x7.9 LLV	CMU BLOCK, 89
	1200 (4'-0") TO 1800 (6'-0")	L127x89x7.9 LLV + L127x127x7.9	
	1800 (6'-0") TO 2400 (8'-0")	L127x89x9.5 LLV + L127x127x7.9	
	2400 (8'-0") TO 3000 (10'-0")	L152x89x9.5 LLV + L152x127x9.5	
290 (12") WALL	UP TO 1200 (4'-0")	3 - L89x89x7.9	CMU BLOCK, 89, 89, 89
	1200 (4'-0") TO 1800 (6'-0")	3 - L127x89x7.9 LLV	
	1800 (6'-0") TO 2400 (8'-0")	3 - L127x89x9.5 LLV	
	2400 (8'-0") TO 3000 (10'-0")	3 - L152x89x9.5 LLV	

1. MINIMUM BEARING LENGTH FOR MASONRY LINTELS SHALL BE 200mm.
2. PRIOR TO SHIPMENT WELD BACK TO BACK ANGLES TOGETHER TOP AND BOTTOM WITH 5mm FILLET WELDS 50mm LONG AT 450mm MAXIMUM CENTERS AND 75mm FROM EACH END.
3. STEEL LINTELS ARE TO BE SUPPLIED BY STEEL CONTRACTOR BUT PLACED BY GENERAL CONTRACTOR OR MASONRY SUB-CONTRACTOR.
4. FOR WALLS OVER 290mm IN WIDTH PROVIDE ONE ADDITIONAL ANGLE FOR EVERY ADDITIONAL 100mm OF WIDTH OR PART THERE OF.

MASONRY LINTELS

CLEAR SPAN mm (ft-in)	WALL THICKNESS mm (inches)	DEPTH mm (inches)	REINFORCING (TOP AND BOTTOM)
UP TO 1200 (4'-0)	140 (6")	200 (8")	1-10M
	190 (8")	200 (8")	1-15M
	240 (10")	200 (8")	1-15M
	290 (12")	200 (8")	1-15M
1201 TO 1800 (4'-0 TO 6'-0)	140 (6")	200 (8")	1-15M
	190 (8")	200 (8")	1-15M
	240 (10")	200 (8")	1-15M
	290 (12")	200 (8")	1-15M
1801 TO 2400 (6'-0 TO 8'-0)	140 (6")	400 (16")	1-15M
	190 (8")	400 (16")	2-15M
	240 (10")	400 (16")	2-15M
	290 (12")	200 (8")	2-15M
2401 TO 3000 (8'-0 TO 10'-0)	140 (6")	600 (24")	1-20M
	190 (8")	600 (24")	2-15M
	240 (10")	400 (16")	2-15M
	290 (12")	400 (16")	2-15M

1. MINIMUM BEARING LENGTH FOR MASONRY LINTELS SHALL BE 200mm.
2. USE MASONRY LINTELS FOR ALL FIRE RATED MASONRY WALL - SEE THE ARCHITECTURAL DRAWINGS FOR WALL RATINGS.

PRECAST CONCRETE BEAM LINTELS

WALL OPENING CLEAR SPAN mm (ft-in)	MASONRY BLOCK THICKNESS				
	90 (4")	140 (6")	190 (8")	240 (10")	290 (12")
0 TO 1200 (0" TO 4'-0")	1-10M T&B	2-10M T&B	2-10M T&B	2-10M T&B	3-10M T&B
1200 TO 1830 (4'-0" TO 6'-0")	1-15M T&B	2-10M T&B	2-10M T&B	2-10M T&B	3-10M T&B
1830 TO 2440 (6'-0" TO 8'-0")	N/A	2-15M T&B	2-15M T&B	2-15M T&B	3-15M T&B
2440 TO 3080 (8'-0" TO 10'-0")	N/A	2-15M T&B	2-15M T&B	2-15M T&B	3-15M T&B

NON-LOAD BEARING MASONRY WALL REINFORCEMENT

UNLESS NOTED OTHERWISE PROVIDE THE FOLLOWING MINIMUM REINFORCEMENT.

LOW SEISMIC CONDITION ($I_EFaSa(0.2) < 0.35$)

1. VERTICAL REINFORCEMENT

WALL THICK (mm)	INTERIOR (Partition Wall) Maximum Wall Height (mm) and Minimum Reinforcing Pressure (kPa)			EXTERIOR (Wind Bearing Wall) Maximum Wall Height (mm) and Minimum Reinforcing Pressure (kPa)				
	0.25	0.375	0.50	1.00	1.20	1.50	2.00	2.40
140	4200 Unreinf.	3400 Unreinf.	3000 Unreinf.	4800 10M @400 V	4400 10M @400 V	4200 15M @600 V	4000 15M @400 V	3800 15M @400 V
	5000 10M @400 V	5000 10M @400 V	5000 10M @400 V					
190	5600 Unreinf.	5000 Unreinf.	4200 Unreinf.	6200 15M @600 V	6000 15M @600 V	5600 15M @600 V	5200 15M @400 V	5000 20M @600 V
	6800 15M @1200 V	6800 15M @1200 V	6800 15M @800 V					
240	7200 Unreinf.	6200 Unreinf.	5400 Unreinf.	7600 20M @800 V	7200 20M @600 V	7200 20M @600 V	6600 20M @400 V	6200 20M @400 V
	8600 15M @600 V	8600 15M @600 V	8400 15M @600 V					
290	8600 Unreinf.	7600 Unreinf.	6600 Unreinf.	8600 20M @600 V	8600 20M @600 V	8400 20M @400 V	7600 20M @400 V	7200 20M @400 V
	9200 20M @600 V	8600 20M @600 V	8600 20M @600 V					

2. HORIZONTAL REINFORCEMENT
   A. PROVIDE STANDARD (9 GAUGE / 3.7mm) HORIZ. REINF. @ 400mm O/C U.N.O.
   B. WHERE THE WALL IS FULLY GROUTED PROVIDE REINFORCEMENT @ 200mm O/C.

STRUCTURAL STEEL SYMBOLS

1. FRAMING AND BRACING:

STEEL COLUMN: I □ ○ STEEL ANGLE:
STEEL BEAM/GIRDER: SECONDARY STEEL:
OWSJ: OWSJ BRIDGING:
STEEL TRUSS:
STEEL BRACE: BRACE BRACE

2. LOADING DEFINITIONS AND SPECIAL CONNECTIONS:
   A. "A" AXIAL FORCE SUFFIX (E.G. 150A) DENOTES COMPRESSION / TENSION FORCE.
   B. "C" AXIAL FORCE SUFFIX (E.G. 100C) DENOTES COMPRESSION FORCE.
   C. "T" AXIAL FORCE SUFFIX (E.G. 100T) DENOTES TENSION FORCE.
   D. "M" STRONG AXIS MOMENT PREFIX (M100) DENOTES CONNECTION DESIGN MOMENT.
3. TYPICAL BEAM INFORMATION:

4. GIRDER SPLICE:

5. MOMENT CONNECTIONS:

MOMENT CONNECTION FORCES PREFIXED WITH "M" ARE DESIGN MOMENTS. SEE PLAN FOR CONNECTION FORCES. PROVIDE FULL CAPACITY MOMENT CONNECTION WHERE FORCE IS NOT SPECIFIED.

6. BEAM CANTILEVERING OVER COLUMN:

7. EMBEDDED PLATE:

8. FLOOR AND ROOF DECK:

SEE PLAN OR SCHEDULES FOR DEPTH OF DECK PROFILE, CONCRETE DEPTH, MINIMUM DECK GAUGE, MINIMUM CONNECTIONS, ETC.

TYPICAL TENSION SPLICE FOR ANGLES

ALTERNATE 1

ALTERNATE 2

400 MPa THREADED REINFORCING BAR ANCHOR RODS

Tf (kN)	REQUIRED Ø (TURNED TO SUIT NUT) (mm)	USE THIS BAR SIZE	A325 NUT SIZE (mm)	WASHER (mm)
50	15 ±	20M	15.9 mm	38 X 38 X 6
73	20 ±	25M	19.0 mm	50 X 50 X 10
129	25 ±	30M	25.4 mm	60 X 60 X 10
164	30 ±	35M	28.6 mm	70 X 70 X 10
245	35 ±	45M	34.9 mm	85 X 85 X 10
384	45 ±	55M	44.5 mm	100 X 100 X 10

ALL REINFORCING BARS TO BE GRADE 400W U.N.O.
REINFORCING BARS TO BE TURNED DOWN TO A SMOOTH, CONSISTENT DIAMETER AT END BEFORE THREADING.

ANCHOR ROD EMBEDMENT TO BE NO LESS THAN CASE 2 TENSION SPLICE FOR SPECIFIED BAR SIZE U.N.O

STRUCTURAL STEEL - FABRICATION AND DETAILING

1. FABRICATION, ERECTION, STRUCTURAL DRAWINGS, AND DETAILING OF ALL STEEL SHALL BE IN ACCORDANCE WITH CSA S16.
2. PRIOR TO SUBMITTING SHOP DRAWINGS THE CONTRACTOR SHALL NOTIFY RJC IN WRITING THAT THE FABRICATOR IS CERTIFIED TO A MINIMUM OF DIVISION 2 OF CSA W47.1.
3. SUBMIT SHOP DRAWINGS FOR REVIEW PRIOR TO START OF STEEL FABRICATION. ALSO REFER TO "SHOP DRAWINGS" NOTE IN THE GENERAL NOTES SECTION OF THE STRUCTURAL DRAWINGS.
4. FILLET WELDS SHALL BE 5 mm MINIMUM UNLESS NOTED OTHERWISE.
5. BOLTS SHALL BE 3/4" MINIMUM A325 UNLESS NOTED OTHERWISE.
6. BOLTED CONNECTIONS SHALL HAVE A MINIMUM OF TWO BOLTS IN EACH CONNECTED PIECE AND BE DESIGNED AS BEARING CONNECTIONS, U.N.O.
7. UNLESS NOTED OTHERWISE, BOLTED CONNECTIONS WITH OVERSIZED OR SLOTTED HOLES SHALL HAVE WASHERS PER CISC STANDARD PRACTICE:
   A. OVERSIZED AND SHORT SLOTS: HARDENED WASHERS.
   B. LONG SLOTS: PLATE WASHERS FULLY COVERING THE SLOTS.
8. IN ADDITION TO ALL OTHER CRITERIA SPECIFIED IN ASTM F1554, ALL HOOKED ANCHOR RODS IN CONCRETE SHALL BE MANUFACTURED WITH A MINIMUM INSIDE BEND RADIUS OF 3 TIMES THE ROD DIAMETER, UNLESS NOTED OTHERWISE.
9. ALL WELDED HEADED STUDS AND WELDED DEFORMED BAR ANCHORS SHALL BE INSTALLED AS PER THE MANUFACTURERS SPECIFICATIONS AND RECOMMENDATIONS OR SHOP FILLET WELDED TO DEVELOP THE TENSILE FACTORED RESISTANCE OF THE BAR. ANY FIELD FILLET WELDED DEFORMED BARS OR STUDS WILL BE REJECTED. SEE PLANS, SECTIONS, DETAILS, AND SCHEDULES FOR LOCATIONS ETC., THE CONTRACTOR SHALL CO-ORDINATE THE DESIGN, SUPPLY, AND INSTALLATION OF ALL STUDS AND ANCHORS, INCLUDING, BUT NOT LIMITED TO STUDS AND DEFORMED BAR ANCHORS ON COMPOSITE BEAMS, DRAG STRUTS, EMBEDDED PLATES, ETC.
10. UNLESS NOTED OTHERWISE, COLUMN CAP PLATES SHALL BE 16 mm THICK AND COLUMN BASE PLATES SHALL BE 20 mm MINIMUM THICK.
11. PROVIDE 6 mm CAP PLATES FOR ALL HSS MEMBERS U.N.O.
12. CONNECTION DETAILS SHOWN ON THE STRUCTURAL DRAWINGS SHALL NOT BE ALTERED BY THE CONTRACTOR WITHOUT WRITTEN APPROVAL FROM READ JONES CHRISTOFFERSEN LTD.
13. UNLESS NOTED OTHERWISE ON THE PLANS, REFER TO THE DETAILS IN THE GENERAL NOTES FOR FRAMING FOR SUPPORT OF ROOF TOP MECHANICAL EQUIPMENT.
14. STEEL SHALL BE PREPARED AND FINISHED IN ACCORDANCE WITH CSA S16 AND THE ARCHITECTURAL DRAWINGS AND PAINTING SPECIFICATIONS WHICH MAY INCLUDE ADDITIONAL CLEANING AND PRIMING REQUIREMENTS.
15. ALL STRUCTURAL STEEL OUTSIDE OF THE BUILDING ENVELOPE TO BE HOT-DIP GALVANIZED UNLESS NOTED OTHERWISE.
16. DESIGN DRAWINGS INCLUDE ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS. IT IS ALSO ARCHITECTURAL DRAWINGS FOR ROOF AND FLOOR ELEVATIONS, ROOF SLOPES, EDGE DETAILS, AND ADDITIONAL DIMENSIONS AND DETAILS. WHERE ELEVATIONS, ROOF SLOPES, ETC., ARE SHOWN ON THE STRUCTURAL DRAWINGS, THEY MUST BE CONFIRMED WITH THE ARCHITECTURAL DRAWINGS.
17. UNLESS INDICATED ON APPROVED SHOP DRAWINGS OR OTHERWISE APPROVED IN WRITING BY RJC, DO NOT CONSTRUCT REINFORCED OR UN-REINFORCED SLEEVES THROUGH STEEL BEAMS
18. UNLESS NOTED OTHERWISE, DO NOT OVERSIZE HOLES IN STEEL TO FIT ANY CAST-IN-PLACE OR POST-INSTALLED ANCHORS WITHOUT APPROVAL IN WRITING BY RJC.
19. UNLESS NOTED OTHERWISE, CAST-IN-PLACE ANCHOR RODS FOR COLUMN BASES TO HAVE PLACEMENT TOLERANCE PER CSA A23.1 AND CISC CODE OF STANDARD PRACTICE FOR STRUCTURAL STEEL. ANCHOR ROD HOLE SIZES IN STEEL PLATES NOT TO EXCEED DIAMETER OF FASTENER + 6 mm.
20. UNLESS NOTED OTHERWISE, HOLE SIZES IN STEEL PLATES FOR POST-INSTALLED ANCHORS IN ACCORDANCE WITH CSA S16 REQUIREMENTS FOR STANDARD DIAMETER HOLES IN BOLTED STEEL CONNECTIONS:
   A. METRIC FASTENERS SMALLER THAN M24: DIAMETER OF FASTENER + 2 mm.
   B. US CUSTOMARY FASTENERS SMALLER THAT 1": DIAMETER OF FASTENER + 1/16".

   [ALSO REFER TO "POST-INSTALLED MECHANICAL AND ADHESIVE ANCHOR" NOTES AND "RENOVATION" NOTES.]
21. GENERAL SEISMIC REQUIREMENTS
   A. WHERE CONNECTION FORCES ARE NOT SHOWN ON THE DRAWINGS, THE CONNECTION DESIGN SHALL SATISFY THE REQUIREMENTS OF CSA S16 - CLAUSE 27.
   B. STEEL IN THE ENERGY DISSAPATION SYSTEM SHALL SATISFY THE LIMITS OF F_y, F_u, AND CHARPY V-NOTCH IMPACT REQUIREMENTS AS NOTED IN CSA S16 - CLAUSE 27.1.5.
   C. WELDS AND WELD MATERIAL SHALL SATISFY CSA S16 - CLAUSE 27.1.5.3 (CHARPY REQUIREMENTS).
   D. BOLTED CONNECTIONS SHALL SATISFY CSA S16 - CLAUSE 27.1.6.
22. UNLESS NOTED, BEAM AND GIRDER SHEAR CONNECTIONS TO EMBEDDED PLATES SHALL BE DOUBLE ANGLE FRAMING CONNECTIONS WELDED TO THE BEAM WEB THUS:

23. UNLESS NOTED OTHERWISE ALL CONNECTIONS FOR BEAMS AND GIRDERS SHALL BE DESIGNED FOR A SHEAR BASED ON THE MEMBER'S FULL MOMENT RESISTANCE CAPACITY RELATED TO A UNIFORM LOAD ON A SIMPLE SUPPORTED SPAN.
24. TOP FLANGES OF BEAMS TO BE FREE OF ALL PAINT, DIRT, HEAVY RUST, MILL SCALE, SAND AND OTHER MATERIALS WHICH WILL INTERFERE WITH WELDING OF STUD SHEAR CONNECTIONS AND STEEL DECK TO BEAMS.
25. BEAMS NOTED AS COMPOSITE ON THE DRAWINGS REQUIRE STUD SHEAR CONNECTIONS, SEE ALSO SHEAR CONNECTOR NOTES. SEE ALSO PLANS, SECTIONS, DETAILS AND SCHEDULES FOR STUDS SHOWN ON BEAMS/GIRDERS/DRAG-STRUTS ETC. OTHER THAN COMPOSITE BEAMS.
26. UNLESS NOTED OTHERWISE WHERE BEAMS SIT OVER COLUMNS, PROVIDE FULL WIDTH PL10 STIFFENER EACH SIDE OVER COLUMN. FULL HEIGHT STIFFENERS REQUIRED WHERE A COLUMN IS OVER THE BEAM OR WHERE NOTED ON PLANS AND DETAILS.

ARCHITECTURAL BRICK VENEER LEDGER ANGLES

1. SEE AND COORDINATE WITH ARCHITECTURAL DRAWINGS FOR BRICK VENEERS. UNLESS NOTED OTHERWISE, 90mm BRICK VENEERS SHALL BE SUPPORTED AT BOTTOM BY DIRECT BEARING ON CONCRETE SLAB OR CORBEL (IF SHOWN ON STRUCTURAL DRAWINGS) OR ON A STEEL LEDGER ANGLE.
2. SEE ARCHITECTURAL DRAWINGS FOR BRICK SUPPORTS IN CASES DIFFERENT THAN SHOWN IN "ARCHITECTURAL BRICK VENEER LEDGER DETAILS" NOTE.
3. SEE ARCHITECTURAL DRAWINGS FOR LATERAL SUPPORT OF BRICK VENEER TO WALL BEHIND (CONCRETE, CONCRETE BLOCK, STEEL STUD, WOOD STUD, ETC.).
4. CORROSION PROTECTION OF LEDGER ANGLES SHALL BE HOT-DIP GALVANIZING AFTER ALL SHOP FABRICATION, GRIND SMOOTH ALL WELDS. AFTER WELDING OR BOLTING THE ANGLE IN PLACE, COAT ALL NON-GALVANIZED STEEL (EXPOSED PORTION OF EMBED PLATES, WELDS, AND BOLT HEADS) WITH GALVACON OR EQUIVALENT ZINC RICH PAINT.
5. PROVIDE LEDGER ANGLE AT EVERY FLOOR, UNLESS NOTED OTHERWISE.
6. BRICK LEDGER ANGLES SHOULD BE INSTALLED WITH MINIMUM 150mm CLEARANCE ABOVE SOIL AND 50mm CLEARANCE ABOVE CONCRETE. SEE ARCHITECTURAL DRAWINGS FOR UNDERSIDE OF BRICK LEDGER ANGLE ELEVATIONS.
7. SHOP DRAWINGS SHOWING ALL STEEL SUPPORTS FOR BRICK VENEER SHALL BE SUBMITTED FOR REVIEW. SHOP DRAWINGS SHALL INCLUDE ELEVATION DRAWINGS SHOWING DIMENSIONED LOCATIONS FOR ALL EMBEDS IN CONCRETE.
8. U.N.O. BRICK LEDGER ANGLES SHOWN IN "ARCHITECTURAL BRICK VENEER LEDGER ANGLE DETAILS" NOTE MAY BE FLIPPED ON HORIZONTAL AXIS IF REQUIRED FOR ARCHITECTURAL ELEVATIONS.

BRICK VENEER LOOSE LINTELS

1. MASONRY VENEER CONSISTING OF 90mm MAXIMUM WIDE BRICK OVER OPENINGS SHALL BE SUPPORTED BY STEEL ANGLES CONFORMING TO THE TABLE BELOW:

MAX. ALLOWABLE SPAN SUPPORTING 90mm BRICK (mm)	STEEL LOOSE LINTEL ANGLE (L.L.V.)
1200	L89x89x6.4
1500	L102x89x7.9
1800	L127x89x7.9
2000	L127x89x9.5
2200	L152x89x7.9
2400	L152x89x9.5

2. MAXIMUM HEIGHT OF BRICK SUPPORTED ABOVE OPENING TO BE 3600mm. NO ADDITIONAL DISTRIBUTED OR CONCENTRATED LOADS PERMITTED ABOVE OPENING.
3. STEEL ANGLES SHALL HAVE A MINIMUM BEARING LENGTH OF 90mm ON EACH SIDE OF OPENING.
4. STEEL ANGLES SUBJECT TO EXTERIOR EXPOSURE SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION. TOUCH UP ALL DAMAGED GALVANIZING WITH GALVACON OR EQUIVALENT ZINC RICH PAINT.
5. GENERAL CONTRACTOR TO COORDINATE SUPPLY AND INSTALL OF STEEL ANGLES.

STRUCTURAL STEEL - GENERAL

1. STRUCTURAL STEEL SECTIONS SHALL BE NEW AND CONFORM TO THE FOLLOWING U.N.O.:
   A. W AND WT SHAPES ---------- CSA G40.21 GRADE 345WM / ASTM A992
   B. C, L, M, MC, MT, S, AND ST SHAPES ---------- CSA G40.21 CSA G40.21 350W, ASTM A992, OR ASTM A572 GRADE 50
   C. HP SHAPES ---------- ASTM A572 GRADE 50
   D. RECTANGULAR OR SQUARE HSS ---------- ASTM A500 GRADE C, CSA G40.21 GRADE 350W, OR ASTM A1085 CLASS C OR ASTM A1085
   E. ROUND HSS ---------- ASTM A500 GRADE C
   F. PIPE ---------- ASTM A53 GRADE B
   G. ROLLED PLATES AND BARS ---------- CSA G40.21 GRADE 300W
   H. WWF AND WRF SHAPES ---------- CSA G40.21 GRADE 350W
   J. BOLTS (SEE PLANS AND DETAILS) ---------- ASTM F3125 GRADE A325 OR A490
   K. STRUCTURAL STEEL ANCHOR RODS (UNLESS NOTED OTHERWISE) ---------- ASTM F1554 GRADE 36 MINIMUM
   L. REINFORCING BAR ANCHOR BOLTS ---------- CSA G30.18 GRADE 400R
2. USE OF STRUCTURAL STEEL SHAPES, PLATE OR BARS WITH HIGHER GRADE THAN NOTED ABOVE SUBJECT TO APPROVAL BY RJC.
3. ALL ASTM F1554 ANCHOR RODS SHALL HAVE SHOP-APPLIED COLOUR MARKING TO FACILITATE IDENTIFICATION OF GRADE IN FIELD: GRADE 36 = BLUE; GRADE 55 = YELLOW; GRADE 105 = RED.
4. DESIGN FORCES INDICATED ON DRAWINGS FOR STRUCTURAL STEEL WORK ARE FACTORED FORCES UNLESS NOTED OTHERWISE. FORCES ARE VERTICAL SHEAR FORCES UNLESS NOTED OTHERWISE.

   METRIC

   A. FORCES ---------- kN
   B. MOMENTS ---------- kN-m
   C. LINE LOADS ---------- kN/m
   D. DISTRIBUTED LOADS ---------- kPa

   SEE "DESIGN LOADS" NOTES FOR DEFINITIONS AND VALUES OF LIVE LOAD, DEAD LOAD AND SUPERIMPOSED DEAD LOAD. SEE ALSO PLANS FOR OTHER LOAD/FORCE REQUIREMENTS.

DUCTILE SEISMIC REQUIREMENTS FOR STEELWORK

1. CONNECTIONS FOR THE SEISMIC FORCE RESISTING SYSTEM WHERE Rd > 1.5 (REFER TO SHEET s1.0) SHALL MEET THE REQUIREMENTS OF CAN/CSA S16 – CLAUSE 27.
2. PROTECTED ZONES OF SEISMIC FORCE RESISTING ELEMENTS ARE TYPICALLY REQUIRED FOR SYSTEMS WITH Rd >= 2.0.
3. SOME EXAMPLES OF PROTECTED ZONES INCLUDE SECTIONS OF BEAMS AND COLUMNS IN THE HINGE ZONES OF MOMENT FRAMES WHERE IN ELASTIC DEFORMATION IS ANTICIPATED, THE LINK BEAMS FOR ECCENTRICALLY BRACED FRAMES, AND THE BRACE AND ITS CONNECTIONS FOR BRACED FRAMES.
4. PROTECTED ZONES ARE IDENTIFIED ON THE STRUCTURAL DRAWINGS AND MUST ALSO BE IDENTIFIED BY THE CONCRATOR ON THE SHOP DRAWINGS AND ERECTION DRAWINGS.
5. ATTACHMENTS TO THE STEEL THAT CREATE NOTCHES OR STRESS CONCENTRATIONS IN THE PROTECTED ZONES OF SEISMIC LOAD RESISTING ELMENTS ARE NOT PERMITTED. THIS INCLUDES FASTENERS FOR SECONDARY-STRUCTURAL AND NON-STRUCTURAL ELEMENTS THAT ARE NOT PART OF THE PRIMARY BUILDING STRUCTURE.
6. EXAMPLES OF FASTENERS THAT ARE NOT PERMITTED INCLUDENELSON STUDS, PINS, AND SCREWS.
7. ARC SPOT WELDS ARE PERMITTED IN PROTECTED ZONES.
8. ANY DAMAGE TO PROTECTED ZONES MUST BE REPAIRED OR REPLACED AS INSTRUCTED BY THE STRUCTURAL ENGINEER AT THE CONTRACTORS COST.

MINIMUM BEND RADIUS FOR STEEL PLATES

"T" (PLATE THICKNESS)	"R" (MINIMUM INSIDE RADIUS)
0 mm TO 6 mm	3 x "T"
6 mm TO 12 mm	4 x "T"

NON LOAD BEARING MASONRY DELEGATED DESIGN

1. UNLESS NOTED OTHERWISE ALL NON-LOAD BEARING MASONRY TO BE DESIGNED BY SPECIALTY ENGINEER IN ACCORDANCE WITH THE SPECIFICATIONS.
2. THE FOLLOWING NOTES FOR NON-LOAD BEARING MASONRY ARE PROVIDED FOR INITIAL PRICE ESTIMATING PURPOSES AND AS AN OUTLINE SPECIFICATION FOR TENDERING OF THE MASONRY PACKAGE. THESE NOTES SHALL NOT BE CONSIDERED PART OF THE CONSTRUCTION DOCUMENTS.
3. UNDER AWARD OF THE MASONRY CONTRACT THE SUCCESSFUL CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR THE ENGINEERING DESIGN OF THE NON-LOAD BEARING MASONRY AS DEPICTED ON THE ARCHITECTURAL DRAWINGS AND SHALL ALSO COORDINATE THE DESIGN OF THE MASONRY WITH MECHANICAL AND ELECTRICAL TRADES FOR WALL OPENINGS.
4. NON-LOAD BEARING PARTITIONS SHALL NOT BE CONNECTED TO THE BASE BUILDING STRUCTURE IN A WAY THAT WOULD ALTER THE LATERAL STIFFNESS OF THE PRIMARY STRUCTURAL SYSTEM OR THE GRAVITY LOAD PATH.
5. ANY CONNECTIONS OTHER THAN THOSE PROVIDING LATERAL SUPPORT OF THE WALL MUST BE SUBMITTED TO RJC FOR REVIEW AND COMMENT PRIOR TO COMMENCING CONSTRUCTION. THE SUBMISSION SHALL BE SIGNED AND SEALED BY THE SPECIALTY ENGINEER AND SHALL INDICATE ALL FACTORED FORCES IMPOSED ON THE PRIMARY STRUCTURAL SYSTEM.
6. THE SPECIALTY ENGINEER SHALL ENSURE
   A. PROVIDE DEFLECTION GAPS BETWEEN NON-LOAD BEARING MASONRY AND ADJACENT COLUMNS AND WALLS EQUAL TO THE MAXIMUM SEISMIC DRIFT AT THAT LOCATION INDICATED ON THE "STRUCTURAL MOVEMENT" NOTES OR AS PROVIDED ON DETAILS, BUT IN NO CASE LESS THAN 25 mm.
   B. MASONRY UNITS OF NON-LOAD BEARING WALLS BELOW OR ADJACENT TO GRAVITY STRUCTURE SHALL BE DESIGNED AND CONSTRUCTED TO ALLOW FOR THE FOLLOWING DEFLECTIONS:
      i. FLOOR FRAMING - L/300 OR 25 mm (MIN.)
      ii. ROOF FRAMING - L/180 OR 25 mm (MIN.)
   C. DEFLECTION GAPS MAY BE FILLED WITH COMPRESSIBLE MATERIAL IF REQUIRED BUT THIS MATERIAL SHALL NOT IMPEDE THE OPEINING OR CLOSING OF THE GAP DURING AN EARTHQUAKE.
7. FIELD REVIEW OF NON-LOAD BEARING MASONRY IS NOT PART OF RJC's SCOPE AS REVIEWER OF THE PRIMARY STRUCTURAL SYSTEM.
8. THE SPECIALTY ENGINEER OR THEIR REPRESENTATIVE SHALL ENSURE QUALITY ASSURANCE OF THE WORK ON SITE BY PERFORMING ALL NECESSARY FIELD REVIEWS INCLUDING REVIEW OF THE PROVIDED DEFLECTION GAPS.
9. UNLESS NOTED OTHERWISE, VERTICAL REINFORCEMENT:
   A. ALL VERTS TO HAVE MATCHING DOWELS FROM SLAB OR FOUNDATION BELOW.
   B. PROVIDE LATERAL RESTRAINT AT TOP PER DETAILS MW301, MW302 OR MW303 AS APPLICABLE, OR DETAILS PROVIDING EQUIVALENT OR BETTER RESTRAINT. IMPOSED RESTRAINT FORCES ON THE BASE BUILDING STRUICTURE TO BE INDICATED ON THE SHOP DRAWINGS.

EMBEDMENT / DEVELOPMENT

BEAM BEARING ON COLUMN

COLUMN WEB PERPENDICULAR TO BEAM WEB

COLUMN WEB PARALLEL TO BEAM WEB

COLUMN WEB PERPENDICULAR TO BEAM WEB

NOTE:
FOR LIGHTLY LOADED COLUMNS WHERE (Cf < 100 kN) COLUMN WEB IS PERPENDICULAR TO BEAM WEB, ONE (1) BEAM STIFFENER PLATE CAN BE USED CENTERED ON COLUMN WEB.

TYPICAL BRACE CONNECTION DETAILS (LOADS FOR CONNECTION DESIGN TO BE SHOWN ON ELEVATION TYPICAL)

FIRE RATING FOR STRUCTURAL STEEL

1. TO DETERMINE THE FIRE RATING BASED ON ULC RATINGS, THE STEEL STRUCTURE IS CONSIDERED RESTRAINED.
2. THE STRUCTURE IS DESIGNED AS NON-LOAD RESTRICTED. THE ULC FIRE RATED ASSEMBLIES MUST BE CHOSEN AS NON-LOAD RESTRICTED.

ARCHITECTURALLY EXPOSED STRUCTURAL STEEL (AESS)

1. DRAWINGS
   - A. WORK SHALL BE IN ACCORDANCE WITH THE "CISC GUIDE FOR SPECIFYING ARCHITECTURALLY EXPOSED STRUCTURAL STEEL".
   - B. SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS AND SPECIFICATIONS, FOR LOCATION AND CATEGORY OF AESS.
2. FABRICATION
   - A. SEE SPECIFICATIONS.
3. WELDING
   - A. FOR WELDING CRITERIA SEE DRAWINGS FOR CATEGORY AND LOCATION OF AESS AND USE APPLICABLE LEVEL AS PER "CISC GUIDE FOR SPECIFYING ARCHITECTURALLY EXPOSED STRUCTURAL STEEL" AND SPECIFICATIONS.
4. PAINTING
   - A. SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS AND SPECIFICATIONS.
   - B. SURFACES WITHIN 50 mm OF ANY FIELD WELD LOCATION SHALL BE FREE OF MATERIALS THAT WOULD PREVENT PROPER WELDING OR PRODUCE OBJECTIONABLE FUMES WHILE WELDING IS BEING DONE. IF SHOP PAINTED, SURFACES TO BE WELDED SHALL BE WIRE BRUSHED IN THE FIELD BEFORE WELDING TO REDUCE THE PAINT FILM TO A MINIMUM. LEVEL OF WORKMANSHIP AND QUALITY CONTROL AS PER SPECIFICATIONS AND "CISC GUIDE FOR SPECIFYING ARCHITECTURALLY EXPOSED STRUCTURAL STEEL".
5. ERECTION
   - A. THE ERECTOR SHALL USE SPECIAL CARE IN UNLOADING, HANDLING, AND ERECTING THE STEEL TO AVOID BENDING, TWISTING, OR OTHERWISE DISTORTING THE STEEL MEMBERS. THE ERECTOR SHALL HANDLE THE MATERIAL IN SUCH A WAY AS TO MINIMIZE THE DAMAGE TO SHOP COAT OF PAINT. LEVEL OF CARE AS OUTLINED IN "CISC GUIDE FOR SPECIFYING ARCHITECTURALLY EXPOSED STRUCTURAL STEEL" FOR SPECIFIED CATEGORY OF AESS.
   - B. IF TEMPORARY BRACES OR ERECTION CLIPS ARE EMPLOYED, CARE SHALL BE TAKEN TO AVOID UNSIGHTLINESS UPON REMOVAL. TACK WELDS SHALL BE GROUND SMOOTH AND HOLES SHALL BE FILLED WITH WELD METAL OR BODY SOLDER AND SMOOTHED BY GRINDING OR FILING.
   - C. PAINT ALL AREAS SCRATCHED, MARRED, OR LEFT UNPAINTED FOR ERECTION PURPOSES.

COLUMN BEARING ON BEAM

WEB PARALLEL TO GIRDER WEB

WEB PERPENDICULAR TO GIRDER WEB

HSS COLUMN

REPRESENTATIVE ELEVATION

VERTICALLY SLOTTED CONNECTION DETAIL

1. VERTICAL SLOTTED CONNECTIONS TO HAVE VERTICAL DEFLECTION ALLOWANCE OF +/- 25mm U.N.O.

3.0 ON-SITE TRAINING AND CERTIFICATION

3.1 THE CONTRACTOR SHALL RETAIN AN ANCHOR MANUFACTURER'S REPRESENTATIVE TO PROVIDE ON-SITE INSTALLATION TRAINING FOR ALL OF THE ANCHORING PRODUCTS SPECIFIED.

3.2 ALL PERSONNEL WHO INSTALL ANCHORS MUST HAVE RECEIVED TRAINING WITHIN THE PREVIOUS 12 MONTHS FOR THE SPECIFIC ANCHOR SYSTEM TO BE UTILIZED.

3.3 PERSONNEL INSTALLING ADHESIVE ANCHORS IN HORIZONTAL, UPWARDLY INCLINED OR OVERHEAD APPLICATIONS MUST RECEIVE SPECIALIZED INSTALLATION TRAINING BY THE MANUFACTURER SPECIFIC TO THESE ANCHOR ORIENTATIONS AND FOR USE OF THE REQUIRED INSTALLATION ACCESSORIES AS SPECIFIED BY THE MANUFACTURER.

3.4 PERSONNEL INSTALLING ADHESIVE ANCHORS IN WATER-FILLED HOLES OR SUBMERGED CONDITIONS MUST RECEIVE SPECIALIZED INSTALLATION TRAINING BY THE MANUFACTURER.

3.5 SUBMIT CERTIFICATION OF TRAINING FOR ALL OF THE CONTRACTOR'S PERSONNEL WHO MAY BE INSTALLING ANCHORS TO THE ENGINEER OF RECORD PRIOR TO THE COMMENCEMENT OF INSTALLING ANCHORS.

4.0 REVIEW AND TESTING OF ANCHORS

4.1 INSTALLATION OF ADHESIVE ANCHORS HORIZONTALLY OR UPWARDLY INCLINED TO SUPPORT SUSTAINED TENSION LOADS SHALL BE CONTINUOUSLY INSPECTED DURING INSTALLATION IN ACCORDANCE WITH CSA A23.3 BY A SPECIAL INSPECTOR WHO IS SPECIALLY QUALIFIED FOR THAT WORK. THE SPECIAL INSPECTOR IS TO BE FROM AN INDEPENDENT TESTING AGENCY RETAINED BY THE OWNER.

4.2 REFER TO THE GENERAL NOTES AND THE SPECIFICATIONS FOR TESTING REQUIREMENTS TO BE COMPLETED BY AN INDEPENDENT TESTING AGENCY RETAINED BY THE OWNER.

POST-INSTALLED ADHESIVE AND MECHANICAL ANCHORS

1.0 PRODUCTS

1.1 MECHANICAL ANCHORS AND SCREW ANCHORS TO MEET THE ASSESSMENT CRITERIA OF ACI 355.2.

1.2 ADHESIVE ANCHORS TO MEET THE ASSESSMENT CRITERIA OF ACI 355.4.

1.3 EXCEPT WHERE NOTED OTHERWISE ON THE DRAWINGS, ANCHORS SHALL CONSIST OF THE FOLLOWING ANCHOR TYPES AS PROVIDED BY HILTI (CANADA) LTD. CONTACT HILTI AT (800) 363-4458 FOR PRODUCT RELATED QUESTIONS. OR APPROVED EQUAL:

A. ANCHORAGE TO CONCRETE:

ADHESIVE ANCHORS:	HILTI HIT-RE 500-V3
MECHANICAL ANCHORS:	KWIK BOLT KB1
SCREW ANCHORS:	HILTI KWIK HUS
SHALLOW EMBEDMENT MECHANICAL ANCHORS:	HILTI HDI-P TZ DEWALT MINI- UNDERCUT

B. ANCHORAGE TO SOLID GROUTED MASONRY:

ADHESIVE ANCHORS:	HILTI HIT-HY 270 MASONRY ADHESIVE ANCHORING SYSTEM
MECHANICAL ANCHORS:	HILTI KWIK BOLT KB-TZ2 EXPANSION ANCHORS

C. ANCHORAGE TO HOLLOW / MULTI-WYTHE MASONRY:
HILTI HIT-HY 270 MASONRY ADHESIVE ANCHORING SYSTEM.
THE APPROPRIATE SIZE SCREEN TUBE SHALL BE USED PER ADHESIVE MANUFACTURER'S RECOMMENDATION.

D. UNLESS NOTED OTHERWISE, STEEL ANCHOR ELEMENT USED WITH ADHESIVE ANCHORAGE SYSTEM INTO CONCRETE OR MASONRY SHALL BE HILTI HAS-E (55 KSI) CONTINUOUSLY THREADED ROD OR CONTINUOUSLY DEFORMED STEEL REBAR. UNMARKED THREADED ROD WILL BE REJECTED.

1.4 U.N.O., ANCHOR LENGTHS INDICATED ON DRAWINGS SHALL BE THE NOMINAL EMBEDMENT LENGTH. THE MINIMUM HOLE DEPTH TO ACHIEVE THE NOMINAL EMBEDMENT SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFIED REQUIREMENTS.

1.5 ALL NUTS, WASHERS AND OTHER HARDWARE TO BE HOT-DIP GALVANIZED IF PART OF AN ASSEMBLY WITH AN ANCHOR NOTED AS HOT-DIP GALVANIZED. ELECTROPLATE GALVANIZING IS NOT ACCEPTABLE. DISSIMILAR METAL ASSEMBLIES SHALL BE SEPARATED BY NYLON, EPDM, OR OTHER APPROVED NON-METALLIC WASHERS UNLESS NOTED OTHERWISE.

1.6 ANCHOR CAPACITY USED IN DESIGN IS BASED ON ICC TEST REPORT DATA AND GUIDELINES PUBLISHED BY HILTI.

1.7 ALTERNATE FASTENING SYSTEMS PROPOSED BY THE CONTRACTOR SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW AND APPROVAL. ALTERNATE ADHESIVE OR MECHANICAL ANCHORS MUST BE EQUAL CONSIDERING LOAD RESISTANCE, USE IN CRACKED OR UNCRACKED CONCRETE, IN SERVICE AND INSTALLATION TEMPERATURE, AVAILABILITY OF COMPREHENSIVE INSTALLATION INSTRUCTIONS, CREEP TESTING, SEISMIC TESTING, AND APPROPRIATE ON SITE TRAINING. PERFORMANCE OF ALTERNATE SYSTEMS MUST BE VALIDATED BY ICC ESR TEST REPORTS AND MUST BE QUALIFIED UNDER ACI 355.2 OR ACI 355.4 AS APPROPRIATE.

1.7 REDESIGN OR REVIEW OF CONNECTIONS BY RJC TO UTILIZE ANCHOR SYSTEMS BY OTHER MANUFACTURERS AND REQUESTED BY THE CONTRACTOR TO BE PAID FOR BY THE CONTRACTOR.

2.0 INSTALLATION

2.1 INSTALL ANCHORS PER THE MANUFACTURER'S INSTRUCTIONS, AS INCLUDED IN THE ANCHOR PACKAGING.

2.2 ADHESIVE OR MECHANICAL 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.

2.3 ADHESIVE OR MECHANICAL ANCHOR CAPACITY IS DEPENDANT ON THE HOLE DRILLING METHOD AND HOLE CLEANING TECHNIQUE. UNLESS NOTED OTHERWISE, ALL ANCHOR CAPACITIES ARE BASED ON HAMMER DRILLED HOLES USING CARBIDE TIPPED BITS AND STANDARD HOLE CLEANING USING MULTIPLE BRUSHING AND AIR BLAST STEPS. UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS, DO NOT SUBSTITUTE OTHER HOLE DRILLING METHODS (DIAMOND CORING, SAFESET, ETC.) OR HOLE CLEANING METHODS (SAFESET, ETC.) WITHOUT PRIOR WRITTEN APPROVAL BY RJC.

2.4 ADHESIVE ANCHOR CAPACITY IS DEPENDANT ON THE MOISTURE CONDITION IN THE CONCRETE AT TIME OF INSTALLATION. UNLESS NOTED OTHERWISE:
A. ALL ANCHORS USING HILTI-RE 500-V3 ASSUME DRY CONCRETE OR SATURATED CONCRETE BUT HOLES FREE OF WATER.
B. ALL ANCHORS USING HILTI-HY 200 ASSUME DRY CONDITIONS.

2.5 MINIMUM AGE OF CONCRETE FOR ADHESIVE ANCHOR INSTALLATION TO BE 21 DAYS UNLESS NOTED OTHERWISE.

2.6 MINIMUM CONCRETE TEMPERATURE AT THE TIME OF ADHESIVE ANCHOR INSTALLATION TO BE 10 °C UNLESS DOCUMENTATION BY MANUFACTURER IS SUBMITTED VERIFYING PERFORMANCE AT LOWER TEMPERATURES. 100 PERCENT OF ANCHORS INSTALLED AT CONCRETE TEMPERATURES BELOW 10 °C TO BE PROOF LOAD TESTED.

2.7 THE MAXIMUM PENETRATION OF SHALLOW EMBEDMENT MECHANICAL ANCHORS IN POST-TENSIONED CONCRETE SLABS SHALL BE 20 mm UNLESS THE P/T TENDONS ARE LOCATED BY X-RAY SCANNING OR OTHER METHODS ACCEPTABLE TO THE STRUCTURAL ENGINEER [AND THE BUILDING OPERATOR]. MAINTAIN MINIMUM 100 mm TO ANY P/T TENDONS UNLESS NOTED OTHERWISE ON PLANS AND DETAILS OR APPROVED IN WRITING BY RJC. ALL SHALLOW EMBEDMENT ANCHORS SHALL BE INSTALLED PER MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS INCLUDING USE OF MANUFACTURER SPECIFIED INSTALLATION SYSTEM THAT PREVENTS ANY OVERDRILLING BEYOND 20 mm DEPTH.

2.8 ADHESIVE ANCHORS INSTALLED FOR HORIZONTAL, UPWARDLY INCLINED OR OVERHEAD ORIENTATIONS MUST BE INSTALLED USING THE MANUFACTURER'S SPECIFIED PROCEDURES AND ACCESSORIES APPROPRIATE TO THE ORIENTATION INCLUDING PISTON PLUGS, EXTENSION HOSES, DRIP GUARDS AND WEDGES. INSTALLERS REQUIRE SPECIALIZED TRAINING BY THE MANUFACTURER'S PERSONNEL FOR THESE ANCHOR ORIENTATIONS.

2.9 DO NOT CUT REINFORCING BARS TO INSTALL ANCHORS UNLESS THE STRUCTURAL DRAWINGS SPECIFICALLY NOTE FOR A PARTICULAR DETAIL THAT THE REINFORCING BARS IN THE CONCRETE OR MASONRY CAN BE CUT.

2.10 EXISTING REINFORCING BARS IN THE CONCRETE OR MASONRY 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 CONCRETE ANCHORS, BY HILTI FERROSCAN, HILTI PS 1000, GPR, X-RAY, OR OTHER MEANS, BEFORE ANY HOLES ARE DRILLED.

2.11 AT LOCATIONS OF INTERFERENCE BETWEEN CONCRETE ANCHORS AND EXISTING REINFORCEMENT, ADJUST PROPOSED LOCATIONS OF ANCHORS AS REQUIRED TO AVOID CUTTING REINFORCEMENT. SUBMIT A PROPOSED ANCHOR LAYOUT TO RJC FOR REVIEW AND APPROVAL BEFORE INSTALLING ANCHORS.

2.12 WHEN ANCHORS ARE USED TO ATTACH STRUCTURAL STEEL, THE CONTRACTOR SHALL USE A TEMPLATE TO LOCATE THE ANCHOR HOLES. IF THIS IS NOT DONE OR IF ANCHORS ARE RE-LOCATED DUE TO CONFLICTS, THE CONTRACTOR SHALL PREPARE TEMPLATES OF THE AS-BUILT ANCHOR POSITIONS UPON COMPLETION OF ANCHOR INSTALLATION. THE CONTRACTOR SHALL REFER TO THESE TEMPLATES FOR THE FABRICATION OF THE STEEL STRUCTURE.

2.13 DO NOT OVERSIZE HOLES IN STEEL MATERIAL TO FIT ANCHOR LOCATIONS EXCEPT FOR COLUMN BASE PLATE HOLES WHICH ARE FABRICATED SLIGHTLY OVERSIZED AS PER THE "STRUCTURAL STEEL" GENERAL NOTES ON THESE DRAWINGS.

2.14 THE EXPOSED PORTION OF ANCHORS INCLUDES MANUFACTURER'S MARKINGS THAT DESIGNATE ANCHOR TYPE, MATERIAL GRADE, LENGTH, ETC. CUTTING OFF OF THESE MARKINGS PRIOR TO REVIEW OF ANCHOR INSTALLATION IN CONFORMANCE WITH THE STRUCTURAL DRAWINGS WILL RESULT IN REJECTION OF THE ANCHORS.

2.15 UNLESS NOTED OTHERWISE, ALL ABANDONED HOLES IN CONCRETE SHALL BE FILLED WITH NON-SHRINK GROUT OR EPOXY. GROUT SHALL BE PLACED ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS AND PACKAGING.

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5	ISSUED FOR 100% CONSTRUCTION DOCUMENTS	2023-11-24
4	ISSUED FOR 95% CONSTRUCTION DOCUMENTS	2023-11-10
3	ISSUED FOR BUILDING PERMIT	2023-11-01
2	ISSUED FOR 75% CONSTRUCTION DOCUMENTS	2023-10-13
1	ISSUED FOR PROGRESS	2023-09-22

Orientation

Seal

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Project Information
CITY OF BARRIE FIRE STATION 6
845 Mapleview Drive East, Barrie Ontario

For
Barrie Fire and Emergency Services

Drawing Title
GENERAL NOTES AND TYPICAL DETAILS

Date	Project No	Drawing No
2024-02-23	TOR. 134748.01	S104
Drawn by: KS		
Scale: As indicated		

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SHEAR TRANSFER DETAIL

BEAM TO JOIST CONNECTION DETAIL

OPTION 1: BENT PLATE

OPTION 2: ANGLE

STEEL DECK

1. STEEL DECKING SHALL CONFORM TO CSA S136.
2. STEEL DECKING SHALL CONFORM TO CSSBI SPECIFICATION 10M MINIMUM GRADE 230 ZINC COATED STRUCTURAL QUALITY STEEL FOR ROOF AND FLOOR DECK. THICKNESSES INDICATED ON THE DRAWINGS ARE MINIMUM REQUIREMENTS TO BE CONFIRMED BY DECK SUPPLIER.
3. INTERIOR EXPOSURE DECK SHALL BE ZINC COATED WIPE COAT ZF075 FOR FLOORS AND FOR ROOFS. EXTERIOR EXPOSURE DECK SHALL BE Z275 ZINC COATED UNLESS NOTED OTHERWISE.
4. FOR DECKS WITH CONCRETE TOPPING, SEE ALSO "STEEL DECK (WITH CONCRETE TOPPING)" NOTES.
5. STEEL DECKING SHALL BE INSTALLED SUCH THAT SHEETS ARE SET FOR A MINIMUM OF THREE SPANS CONTINUOUS UNLESS NOTED OTHERWISE. LAPS OF DECKING SHALL BE LIMITED OR DETAILED TO PREVENT UNDUE VERTICAL DEFORMATIONS AT THE END OF THE DECK DUE TO END ROTATIONS.
6. SEE DRAWINGS FOR DECK THICKNESSES OR DESIGN LOADS. DECK THICKNESS INDICATED ON DRAWINGS ARE MINIMUM REQUIREMENTS ONLY.
7. WHERE DECK IS CALLED UP ON THE DRAWINGS, ALTERNATES MUST BE THE SAME DEPTH, BE EQUIVALENT FOR DEFLECTIONS, VERTICAL LOAD, AND SHEAR CAPACITY, AND BE PRE-APPROVED.
8. SUBMIT SHOP DRAWINGS INDICATING THE DECK SPANS, THICKNESSES, PROFILES, AND DETAILS. WHERE THE DECK THICKNESSES AND CONNECTIONS ARE NOT SHOWN ON THE DRAWINGS, THE FABRICATOR SHALL DESIGN THE DECK AND CONNECTIONS FOR THE VERTICAL LOADS AND THE SHEAR/DIAPHRAGM LOADS NOTED ON THE DRAWINGS AND HAVE THE SHOP DRAWINGS SEALED BY THE CONTRACTOR'S SPECIALTY STRUCTURAL ENGINEER.
9. WHERE POWDER ACTUATED FASTENERS SPECIFIED:
   - A. USE HILTI X-ENP-19 FASTENERS WHERE SUPPORTING STRUCTURAL STEEL THICKNESS GREATER THAN OR EQUAL TO 6 mm.
   - B. USE HILTI X-HSN-24 FASTENERS WHERE SUPPORTING STRUCTURAL STEEL OR OWSJ TOP CHORD THICKNESS LESS THAN 6 mm.
   - C. OR APPROVED EQUAL.
10. REMOVE WATER BETWEEN THE DECK AND SUPPORTING STEEL BEFORE WELDING DECK.
11. IF NOT SHOWN OTHERWISE, ALL EDGES OF STEEL DECKING SHALL BE SUPPORTED ON CONTINUOUS ANGLE L76x76x4.8.
12. SEE ALSO MECHANICAL, ELECTRICAL AND ARCHITECTURAL DRAWINGS FOR ALL OPENINGS IN DECK.
13. FOR CONTRACTOR DESIGNED DECKS, A MINIMUM DIAPHRAGM SHEAR OF 3.5 kN/m SHALL BE USED UNLESS NOTED OTHERWISE.
14. SEE PLANS FOR ADDITIONAL FASTENING REQUIREMENTS ALONG DRAG STRUTS AND SHEAR COLLECTORS. ALSO SEE "SHEAR TRANSFER DETAIL"

TYPICAL DECK SUPPORT AT COLUMNS

ROOF ANCHOR SUPPORT DETAILS

PART PLAN 2 **PART PLAN 1**

A TYPICAL WINDOW WASHING SAFETY ANCHOR DETAIL AT STEEL BEAM *WWA1*

NOTES:
1. DESEGN JOIST 'B' FOR ADDITIONAL FACTORED MOMENT OF ±10kN.m. DESIGN JOIST 'A' AND 'C' FOR AN ADDITIONAL VERTICAL LOAD OF 3.5 kN (UPWARD OR DOWNWARD).
2. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS TYP. U.N.O

PART PLAN 3

B TYPICAL WINDOW WASHING SAFETY ANCHOR DETAIL AT JOIST *WWA2*

NOTES:
1. DESEGN JOIST 'B' FOR ADDITIONAL FACTORED MOMENT OF ±10kN.m. DESIGN JOIST 'A' AND 'C' FOR AN ADDITIONAL VERTICAL LOAD OF 3.5 kN (UPWARD OR DOWNWARD).
2. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS TYP. U.N.O

OPEN WEB STEEL JOISTS

1. OPEN WEB STEEL JOISTS (O.W.S.J.) SHALL CONFORM TO CSA S16.
2. DESIGN OF O.W.S.J. SHALL CONFORM TO CLAUSE 16 OF CSA S16 (LIMIT STATES DESIGN OF STEEL STRUCTURES) AND CAN/CSA-S136 (DESIGN OF LIGHT GAUGE STEEL STRUCTURAL MEMBERS), BASED ON THE LOADINGS INDICATED ON THE DRAWINGS AND LISTED BELOW.
3. O.W.S.J. SHALL BE DESIGNED FOR THE LOADS SHOWN ON THE DRAWINGS.
4. IN ADDITION TO THE POINT LOADS CALLED FOR ON THE DRAWINGS AND IN THE GOVERNING BUILDING CODE, DESIGN O.W.S.J. FOR A 1.8 kN FACTORED ADDITIONAL POINT LOAD AT ANY LOCATION ON TOP CHORD AND BOTTOM CHORD (INCLUDING THE EFFECTS OF LOCAL BENDING) CONCURRENT WITH OTHER DESIGN LOADS. OVER MECHANICAL AREAS THE DESIGN LOADS SHALL BE 4.5 kN FACTORED. THE ADDITIONAL POINT LOADS ON EACH CHORD NEED NOT BE APPLIED CONCURRENTLY WITH EACH OTHER.
5. ATTACHMENTS TO OWSJ FOR MECHANICAL, ELECTRICAL, ARCHITECTURAL AND OTHER BUILDING SERVICES SHALL BE MADE USING CLAMPING DEVICES OR U-BOLTS UNLESS NOTED OTHERWISE. ALSO REFER TO "NON-STRUCTURAL ELEMENTS" NOTE.
6. UNLESS NOTED OTHERWISE, SEE [SPECIFICATIONS][PLAN NOTES] [JOIST SCHEDULE] FOR DEFLECTION CRITERIA.
7. CAMBER ALL O.W.S.J. FOR DEAD LOAD PLUS 1/2 LIVE LOAD UNLESS OTHERWISE NOTED. PROVIDE A MINIMUM CAMBER OF 12 mm.
8. DESIGN AND PROVIDE O.W.S.J. BRIDGING IN ACCORDANCE WITH CSA S16 UNLESS OTHERWISE INDICATED ON THE DRAWINGS. REFER TO THE DRAWINGS FOR AREAS OF NON-TYPICAL O.W.S.J. BRIDGING AND BRACING.
9. SUBMIT SHOP DRAWINGS FOR REVIEW PRIOR TO START OF O.W.S.J FABRICATION. SHOP DRAWINGS SHALL BEAR THE SEAL OF THE SPECIALTY STRUCTURAL ENGINEER WHO IS RESPONSIBLE FOR THE DESIGN OF THE O.W.S.J. REFER TO THE SPECIFICATIONS. SPECIALTY STRUCTURAL ENGINEER SHALL SUBMIT SCHEDULES SB AND SC.
10. ALL O.W.S.J. TO HAVE BUILDING SERVICES PASS THROUGH THEM. WEB MEMBERS OF ADJACENT O.W.S.J. TO LINE UP TO ACCOMMODATE CONTINUOUS PENETRATION OF SERVICES.
11. WELDING SHALL CONFORM TO CSA W59.
12. O.W.S.J. TO BE PAINTED SHALL BE CLEANED AND SHALL RECEIVE ONE COAT OF SHOP PRIMER IN ACCORDANCE WITH CSA S16 UNLESS OTHERWISE NOTED IN THE DRAWINGS OR SPECIFICATIONS. REFER ALSO TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.
13. O.W.S.J. TO BE EXPOSED IN FINISHED WORK SHALL BE PAINTED WITH SHOP PRIMER MEETING THE REQUIREMENTS OF CSA S16. CLEANING, PREPARATION OF STEEL AND THE PAINT PRODUCT SHALL BE COMPATIBLE WITH REQUIREMENTS OF FINISHED PAINTING AS SPECIFIED IN ARCHITECTURAL FINISHES. REFER TO THE SPECIFICATIONS.
14. BOTTOM CHORD EXTENSIONS (B.C.E.) ARE EXTENSIONS OF THE BOTTOM CHORD WHICH TRANSMIT AN AXIAL FORCE TO EITHER A COLUMN, BEAM BOTTOM FLANGE, JOIST GIRDER BOTTOM CHORD OR WALL. THE EXTENSION MAY BE EITHER FLAT OR SLOPED. SEE PLANS, SCHEDULES, AND DETAILS FOR AXIAL FORCES.

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Orientation

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Project Information

CITY OF BARRIE FIRE STATION 6

845 Mapleview Drive East, Barrie Ontario

For

Barrie Fire and Emergency Services

Drawing Title

GENERAL NOTES AND TYPICAL DETAILS

Date	Project No	Drawing No
2024-02-23	TOR. 134748.01	S105
Drawn by: KS		
Scale: As indicated		

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4 / S106 RETAINING WALLS - TYP. CORNER BARS
1 : 20

NOTES:

1. STRAIGHT VERTS WITH HOOKED DOWELS MAY BE USED WITH TENSION SPLICE. DO NOT WET SET DOWELS OR VERTS.
2. PROVIDE 4-19mm ANCHOR RODS w/ 300 mm EMBEDMENT MIN. (U.N.O.)
3. LEVELING PLATES ARE NOT PERMITTED (U.N.O.)

3 / S106 STEEL COLUMN ON FOOTING WITH PEDESTAL
1 : 20

2 / S106 STEEL COLUMN BEARING DIRECTLY ON FOOTING
1 : 20

NOTE:

1. FOR PRICING: ASSUME 1V:2H SLOPE (SOIL), ASSUME 7V:10H (ROCK) U.N.O. SEE ALSO GEOTECHNICAL REPORT AND SPECIFICATIONS.

1 / S106 FOOTINGS ADJACENT TO EXCAVATION
1 : 50

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7 / S106 PIPE UNDER WALL FOOTING DETAIL
1 : 1

6 / S106 INTERIOR SHEAR WALL FOOTINGS WITHOUT PEDESTAL
1 : 20

NOTES:

1. IF TOTAL STEPPING 'H' EXCEEDED, PROVIDE INTERMEDIATE FLAT HORIZONTAL SECTION BETWEEN SLOPED FOOTINGS U.N.O. ON PLAN.
2. FOR PRICING: ASSUME 1V:2H SLOPE (SOIL), ASSUME 7V:10H (ROCK) U.N.O. SEE ALSO GEOTECHNICAL REPORT AND SPECIFICATIONS.
3. U.N.O. PROVIDE MINIMUM 1 BAR ACROSS FULL WIDTH OF FOOTING PLACED AT INSIDE OF ALL HOOKS AND CRANKS WITH BAR SIZE TO MATCH THE HOOKED OR CRANKED BAR.

5 / S106 STEPPED STRIP FOOTINGS
1 : 20

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Toronto, ON M5J 2X4 Canada
tel 416-977-5335 rjc.ca

NOTES:

1. SEE ARCHITECTURAL AND ELECTRICAL DRAWINGS FOR LOCATION, EXTENT AND NUMBER OF ELECTRICAL DUCTS.
2. ENCASEMENT FOR ELECTRICAL DUCTS TO BE CAST IN RED CONCRETE OR PAINTED RED.

11 / S106 SLAB ON GRADE ENCASEMENT OF ELECTRICAL MAIN FEEDERS
N.T.S.

TYPICAL SLAB ON GRADE THICKENING UNDER NON-LOAD BEARING BLOCK PARTITION
10 / S106
1 : 20

STAIRS (MAXIMUM 12 RISERS)

9 / S106 SLAB ON GRADE STAIRS
1 : 20

CASE A: 150 mm MAXIMUM STEP

CASE B: 300 mm MAXIMUM STEP

CASE C: 1200 mm MAXIMUM STEP

CASE D: 1200 mm MAXIMUM STEP - ALTERNATE

8 / S106 SLAB ON GRADE STEP DETAILS
1 : 20

Project Information

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845 Mapleview Drive East, Barrie Ontario

For

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Drawing Title

GENERAL NOTES AND TYPICAL DETAILS

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Drawn by: KS		
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MASONRY PILASTER REINFORCEMENT

HORIZONTAL REINFORCEMENT PLACEMENT

MASONRY LINTEL AND BEAM REINFORCEMENT

2 S107 MASONRY REINFORCEMENT PLACEMENT
1 : 10

STANDARD VERTICAL REINF. GEOMETRY

STANDARD HORIZONTAL REINF. GEOMETRY

CASE 1: NO VERT. REINFORCEMENT

CASE 2: SINGLE/ DOUBLE VERTICAL REINFORCEMENT

DOWELLED CONTROL JOINTS AT BOND BEAMS

JOINT REINFORCEMENT AT CONTROL JOINT

REINFORCEMENT AT CONTROL JOINT

NOTES:

1. LOCATE CONTROL JOINTS ON SHOP DRAWINGS IN ACCORDANCE WITH THE SPACING REQUIREMENTS BELOW AND IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS:
   A. 6000 mm MAX
   B. 1.5 x WALL HEIGHT
2. CONTROL JOINTS ARE TO BE LOCATED AT STRESS CONCENTRATIONS, SUCH AS CHANGES IN WALL HEIGHT, WALL THICKNESS, OR NEAR OPENINGS OR CORNERS U.N.O.
3. CONTROL JOINTS SHALL BE LOCATED 400 mm MIN. FROM CONCENTRATED LOADS SUCH AS BEAMS OR OWSJs.
4. FOR REINFORCED WALLS PROVIDE 1-15M (MIN OR MATCH WALL REINF.) VERT. EACH SIDE OF CONTROL JOINTS U.N.O.
5. TERMINATE ALL HORIZONTAL REINFORCEMENT 50 mm FROM CONTROL JOINTS, UNLESS SHOWN OTHERWISE.
6. WHERE DOWELLED CONTROL JOINTS ARE INDICATED PROJECT REINFORCEMENT 200 mm BEYOND JOINT WITH GREASED BAR IN PLASTIC OR METAL SLEEVE TO ALLOW FOR 25 mm MOVEMENT.
7. REFER TO ARCHTECTURAL DRAWINGS FOR CAULKING, BACKER RODS, JOINT FILLERS, ETC.

1 S107 CONTROL JOINTS IN NON LOAD-BEARING WALLS (IE Fa Sa(0.2) < 0.35)
1 : 10

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CONCRETE WALLS OR COLUMNS

STEEL COLUMNS

4 S107 LINTELS SUPPORTED BY COLUMNS OR WALLS
1 : 10

MECHANICALLY FASTENED WALLS ALTERNATE 3

MECHANICALLY FASTENED WALLS ALTERNATE 2

MECHANICALLY FASTENED WALLS ALTERNATE 1

PROVIDE PRE-FABRICATED CORNER AND TEE SECTIONS FOR JOINT REINFORCEMENT

PHYSICALLY CONNECTED WALLS

NOTES:

1. UNLESS NOTED OTHERWISE ALL INTERCONNECTED INTERSECTING MASONRY WALLS SHALL BE PHYSICALLY CONNECTED WITH INTERSECTING BLOCK WORK. MECHANICAL FASTENER STRAPS MAY ONLY BE SUBSTITUED BASED ON WRITTEN APPROVAL FROM THE ENGINEER.
2. WHERE WALL REINFORCEMENT IS NOT LOCATED AT CELLS AS SHOWN IN DETAIL, ADD EXTRA VERTICAL REINFORCEMENT AT SAME SIZE AND QUANITITY AS WALL REINFORCEMENT FOR A CELL, U.N.O.

3 S107 CONSTRUCTION OF INTERSECTING WALLS
1 : 10

SIMPLY SUPPORTED STEEL LINTEL

SIMPLY SUPPORTED PRECAST LINTEL

SIMPLY SUPPORTED MASONRY LINTEL

MASONRY LINTEL IN CONTINUOUS WALL

6 S107 LINTELS IN NON LOAD-BEARING MASONRY
1 : 20

NOTE:

1. VERTICAL BAR POSITIONERS SHALL BE PROVIDED TO ENSURE BARS REMAIN WITHIN PLACEMENT TOLLERANCES DURING PLACEMENT OF GROUT OR MORTAR. VERTICAL BAR POSITIONERS SHALL BE LOCATED AT THE TOP AND BOTTOM OF VERT. REINFORCEMENT AND AT INTERVALS NOT EXCEEDING 200 BAR DIAMETERS.
2. HORIZONTAL BAR POSITIONERS SHALL BE LOCATED 1200 mm O/C MAX.

7 S107 REINFORCING BAR POSITIONERS
1 : 10

BEAM BEARING

END OF WALL/ OPENING PIER

WALL CORNER

WALL INTERSECTION
(READ IN CONJUNCTION WITH MW101)

NOTES:

1. BARS SHOWN ABOVE ARE TO BE PLACED IN ADDITION TO, AND MATCH THE WALL REINFORCEMENT SPECIFICED ELSEWHERE (15M MIN).
2. WHERE SPECIFIED REINFORCEMENT REQUIRES 2 BARS PER CELL THE ADDED REINFORCEMENT SHOWN IN THIS DETAIL SHOULD BE IN PAIRS.

5 S107 ADDITIONAL VERT. REINFORCEMENT
1 : 10

No.	Revision	Date
6	ISSUED FOR TENDER	2024-02-23
5	ISSUED FOR 100% CONSTRUCTION DOCUMENTS	2023-11-24
4	ISSUED FOR 95% CONSTRUCTION DOCUMENTS	2023-11-10
3	ISSUED FOR BUILDING PERMIT	2023-11-01
2	ISSUED FOR 75% CONSTRUCTION DOCUMENTS	2023-10-13
1	ISSUED FOR PROGRESS	2023-09-22

Orientation

Seal

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Project Information
CITY OF BARRIE FIRE STATION 6
845 Mapleview Drive East, Barrie Ontario

For
Barrie Fire and Emergency Services

Drawing Title
GENERAL NOTES AND TYPICAL DETAILS

Date	Project No	Drawing No
2024-02-23	TOR 134748.01	S107
Drawn by: KS		
Scale: As indicated		

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CASE TS4: FRAMING PARALLEL AND OFFSET FROM WALL

ALTERNATE 1 **ALTERNATE 2**

CASE TS3: FRAMING PERPENDICULAR TO WALL

ALTERNATE 1 **ALTERNATE 2**

CASE TS2: FRAMING PARALLEL TO WALL BELOW

ALTERNATE 1 **ALTERNATE 2**

CASE TS1: UNDERSIDE OF CONCRETE ON DECK

NOTES:

1. ALL LATERAL SUPPORT CONNECTIONS SHALL BE LOCATED AT 1200 mm MAXIMUM AND REFLECT THE DETAILS SHOWN UNLESS NOTED OTHERWISE.
2. ALL NOTED DESIGN FORCES AND MEMBER SIZES ARE THE MINIMUM UNLESS NOTED OTHERWISE ON PLANS OR IN DETAILS.
3. PROVIDE MINIMUM GAPS BETWEEN UNDERSIDE OF STRUCTURE AND TOP OF MASONRY UNLESS NOTED OTHERWISE ON PLANS AND DETAILS OR AS REQUIRED IN THE STRUCTURAL MOVEMENTS GENERAL NOTE.
   A. 35 mm AT FLOOR STRUCTURE
   B. 45 mm TO ROOF STRUCTURE
   C. 50 mm AT ROOF DECK
4. ENSURE A MINIMUM OF 50 mm VERTICAL OVERLAP BETWEEN STEEL LATERAL SUPPORT PLATES/ANGLES AND TOP OF MASONRY WALL AND INCREASE SIZE OF ANGLES OR PLATES AS REQUIRED.
5. CONTINUOUS BOND BEAM AT TOP OF WALL TO BE REINFORCED PER PLAN (MIN 1-15M CONT) AND GROUTED SOLID WITH DRY PACK AFTER UNITS PLACED.

1 S108 LATERAL SUPPORT AT TOP OF PARTITIONS (STEEL STRUCTURE)
N.T.S.

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CASE 3: W-SHAPE (WEB PARALLEL) BLOK-LOK DETAIL

CASE 2: W-SHAPE (WEB PARALLEL) BLOK-LOK DETAIL

CASE 1: W-SHAPE (WEB PARALLEL) BENT PLATE DETAIL

3 S108 W-SHAPE (WEB PARALLEL) BLOK-LOK DETAIL
N.T.S.

CASE 3: W-SHAPE (WEB PERP) BENT PLATE DETAIL

CASE 2: W-SHAPE(WEB PERP) BLOK-LOK DETAIL

CASE 1: W-SHAPE(WEB PERP) BLOK-LOK DETAIL

2 S108 MASONRY CONNECTIONS AT STEEL COLUMNS (IE Fa Sa(0.2) < 0.35)
N.T.S.

CASE 3: HSS BLOK-LOK / BENT PLATE ALTERNATE DETAILS

CASE 2: W-SHAPE BLOK-LOK / BENT PLATE ALTERNATE DETAILS

CASE 1: W-SHAPE BENT PLATE DETAIL WALL ALIGNED WITH STEEL COLUMN

5 S108 MASONRY CONNECTION AT STEEL COLUMNS (IE Fa Sa(0.2) < 0.35)
N.T.S.

CASE 2: HSS BLOK-LOK DETAIL

CASE 1: HSS BLOK-LOK DETAIL

4 S108 HSS BLOK-LOK DETAIL
N.T.S.

CASE 5: ANGLE AT HORIZ. STEEL GIRT

7 S108 ARCHITECTURAL BRICK VENEER LEDGER ANGLE DETAILS
N.T.S.

ALTERNATE 2

ALTERNATE 1

CASE MS1: FRAMING PARALLEL TO WALL

6 S108 LATERAL SUPPORT AT MID-HEIGHT OF PARTITIONS (STEEL STRUCTURES)
N.T.S.

No.	Revision	Date
6	ISSUED FOR TENDER	2024-02-23
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4	ISSUED FOR 95% CONSTRUCTION DOCUMENTS	2023-11-10
3	ISSUED FOR BUILDING PERMIT	2023-11-01
2	ISSUED FOR 75% CONSTRUCTION DOCUMENTS	2023-10-13
1	ISSUED FOR PROGRESS	2023-09-22

Orientation

Seal

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Engineers tel 416-977-5335 rjc.ca

Project Information
CITY OF BARRIE FIRE STATION 6
845 Mapleview Drive East, Barrie Ontario

For
Barrie Fire and Emergency Services

Drawing Title
GENERAL NOTES AND TYPICAL DETAILS

Date	Project No	Drawing No
2024-02-23	TOR 134748.01	S108
Drawn by: KS		
Scale: As indicated		

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DECK SUPPORT AT GIRDERS SUPPORTING O.W.S.J. WHERE CHANGE IN STEEL DECK ORIENTATION

5 / S109 N.T.S. SD405

6 / S109 TYPICAL CHANGE IN STEEL DECK ORIENTATION

N.T.S. SD406

CASE A: DECK SPANNING PARALLEL TO BEAM

CASE B: DECK SPANNING PERPENDICULAR TO BEAM

CASE C: DECK AT O.W.S.J. SEATS

4 / S109 STEEL DECK EDGE DETAILS

N.T.S. SD404

PLAN

FOR OPENINGS LESS THAN 150 mm AT LESS THAN 600 mm O/C

PROCEDURE:

1. BULKHEAD SLAB.
2. INSTALL REINFORCING.
3. PLACE CONCRETE.
4. WHEN CONCRETE HAS REACHED THE DESIGN STRENGTH, CUT OUT THE METAL DECK WITHIN THE OPENING.

PLAN

FOR OPENINGS 150 mm TO 1200 mm

OPENING REINFORCING SCHEDULE			
DIMENSION 'L'	'A' BARS BOTTOM OF FLUTE	'B' BARS TOP OF DECK	'C' BARS BOTTOM OF FLUTE
150 TO 600	1-15M EACH SIDE	1-15M EACH SIDE	1-10M/FLUTE
600 TO 1200	2-15M EACH SIDE	2-15M EACH SIDE	2-10M/FLUTE
ABOVE 1200	STRUCTURAL STEEL FRAMING REQUIRED		

NOTE:

1. OPENINGS LARGER THAN 600 mm IN EITHER DIRECTION WHICH ARE NOT SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE APPROVED BY RJC PRIOR TO PLACING CONCRETE.

3 / S109 TYPICAL OPENING THROUGH STEEL DECK WITH CONCRETE TOPPING

N.T.S. SD403

CONNECT ANGLES FOR MAXIMUM FACTORED VERTICAL LOAD OF 6 kN.

GENERAL OPENING REINFORCEMENT			
MECH. UNIT OR OPENING SIZE 'A' x 'B'	ANGLE 'C'	ANGLE 'D'	MECHANICAL UNIT WEIGHT (SPECIFIED)
150 X 150 TO 450 X 450	L76x76x6.4	L76x76x4.8	0.25 kN TO 1.0 kN
450 X 450 TO 1500 X 1500	L102x102x6.4	L76x76x4.8	NO UNIT
450 X 450 TO 1500 X 900	L102x102x6.4	L76x76x6.4	LESS THAN OR EQUAL TO 2 kN (1500 mm MAX. HIGH)
450 X 900 TO 1500 X 1500	L102x102x6.4	L102x102x6.4	LESS THAN OR EQUAL TO 2 kN (1500 mm MAX. HIGH)

NOTES:

1. SEE ALSO MECHANICAL, ELECTRICAL AND ARCHITECTURAL DRAWINGS FOR ALL OPENINGS IN DECK.
2. UNLESS NOTED OTHERWISE, REINFORCE OPENINGS WITHOUT MECHANICAL UNITS BETWEEN 150 mm TO 450 mm MAXIMUM DIMENSION WITH L76x76x4.8. FASTEN TO EVERY FLUTE. MINIMUM 600 mm CLEAR BETWEEN OPENINGS.
3. OPENINGS LESS THAN 150 mm DO NOT REQUIRE REINFORCEMENT IF MINIMUM 300 mm CLEAR BETWEEN OPENINGS.
4. TYPICAL DETAILS FOR SMALL MECHANICAL UNITS AND/OR OPENINGS IN DECK UNLESS NOTED OTHERWISE ON PLANS AND DETAILS:
5. WHERE AN OPENING IN DECK IS UNDER A MECHANICAL UNIT AND IS SMALLER THAN THE FRAMING REQUIRED TO SUPPORT THE MECHANICAL UNIT, REINFORCE THE OPENING WITH L76x76x4.8 ON ALL FOUR SIDES SPANNING BETWEEN THE MECHANICAL UNIT SUPPORT MEMBERS. SEE NOTE 4, PLANS AND DETAILS FOR MECHANICAL UNIT SUPPORT FRAMING.

2 / S109 TYPICAL FRAMING AROUND OPENINGS IN STEEL DECK WITHOUT CONCRETE TOPPING

N.T.S. SD402

OPTION B IS NOT PERMITTED FOR O.W.S.J. OR OTHER SUPPORTS WITH INTERRUPTED TOP SURFACE.

OPTION B IS NOT PERMITTED AT LOCATIONS OF COPED BEAM FLANGES WHERE FULL SUPPORT ADJACENT TO BUTT JOINT IS NOT PROVIDED.

CASE A: TYPICAL DETAIL AT SUPPORTING MEMBER WITH UNBROKEN TOP SURFACE

CASE B: TYPICAL DETAIL AT SUPPORTING MEMBER WITH INTERRUPTED TOP SURFACE

NOTE:

1. ALTERNATE LAP CONFIGURATIONS MAY BE SUBMITTED FOR REVIEW DEMONSTRATING ADEQUATE BEARING LENGTH AND FASTENER EDGE DISTANCES IN CONFORMANCE WITH RELEVANT DESIGN STANDARDS.

1 / S109 STEEL DECK LAP OVER SUPPORTING MEMBERS

N.T.S. SD401

NOTES:

1. CONNECTION TO BE DESIGNED BY CONNECTION ENGINEER FOR FORCES GIVEN ON PLANS AND ELEVATIONS.
2. IF FORCES ARE NOT INDICATED ON THE DRAWINGS, DESIGN CONNECTIONS FOR PROBABLE RESISTANCE OF BRACE IN TENSION OR COMPRESSION AS REQUIRED BY SECTION 27 OF CAN/CSA S16.
3. t = GUSSET PLATE THICKNESS AS DETERMINED BY CONNECTION ENGINEER.

9 / S109 TYPICAL CONCENTRICALLY BRACED FRAME CONNECTION (Rd ≥ 2.0)

1 : 10

NOTES:

1. CONNECTION TO BE DESIGNED BY CONNECTION ENGINEER FOR FORCES GIVEN ON PLANS AND ELEVATIONS.
2. IF FORCES ARE NOT INDICATED ON THE DRAWINGS, DESIGN CONNECTIONS FOR PROBABLE RESISTANCE OF BRACE IN TENSION OR COMPRESSION AS REQUIRED BY SECTION 27 OF CAN/CSA S16.

10 / S109 TYPICAL STEEL BRACE CROSSING DETAIL

1 : 10

NOTES:

1. C150 TO O.W.S.J. CONNECTION FORCE IS FACTORED UNLESS NOTED OTHERWISE.
2. FASTEN DECK TO ALL SUPPORT FRAMING PER STEEL DECK NOTES UNLESS NOTED OTHERWISE ON PLAN.
3. SEE MECHANICAL DRAWINGS FOR SEISMIC RESTRAINT OF MECHANICAL EQUIPMENT.
4. FOR MECHANICAL DUCT OPENINGS SEE "STEEL DECK WITHOUT CONCRETE TOPPING NOTES".

8 / S109 MECHANICAL UNIT SUPPORTED BY JOISTS

N.T.S. SM601

1. JOISTS SHALL BE FIELD WELDED TO BEAMS UNLESS NOTED OTHERWISE.

1. JOISTS MAY BE AFFIXED TO BEAMS BY FIELD WELDING OR BOLTING. WHERE BOLTING IS USED A MAXIMUM OF 2 - 20 mm DIA. BOLTS BOLTS ACROSS THE ENTIRE FLANGE WIDTH IS PERMITTED UNLESS NOTED OTHERWISE.

2. MINIMUM BEARING DIMENSIONS:

7 / S109 O.W.S.J. BEARING ON BEAMS

N.T.S. SJ201

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3	ISSUED FOR BUILDING PERMIT	2023-11-01
2	ISSUED FOR 75% CONSTRUCTION DOCUMENTS	2023-10-13
1	ISSUED FOR PROGRESS	2023-09-22

Orientation

Seal

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Engineers tel 416-977-5335 rjc.ca

Project Information

CITY OF BARRIE FIRE STATION 6

845 Mapleview Drive East, Barrie Ontario

For

Barrie Fire and Emergency Services

Drawing Title

GENERAL NOTES AND TYPICAL DETAILS

Date	Project No	Drawing No
2024-02-23	TOR. 134748.01	S109
Drawn by: KS		
Scale: As indicated		

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PROVISIONAL ITEM

REFUSE ENCLOSURE & GENERATOR PAD PLAN

1 : 100

ALL CONCRETE AT REFUSE ENCLOSURE & GENERATOR PAD TO BE 35MPa, CLASS C-1

PIER SCHEDULE

MARK	SIZE	REINFORCING
P1	600 X 600	8-20M V. + 10M@320 TIES

COLUMN FOUNDATION SCHEDULE

MARK	SIZE	REINFORCING	COMMENTS
F1	1700 X 1700 X 300 DP.	6-15M B.E.W.	
F2	1700 X 2600 X 300 DP.	6-15M B.L.W./T.L.W. + 10-15M B.S.W/T.S.W	
F3	1700 X 3000 X 300 DP.	6-15M B.L.W./T.L.W. + 11-15M B.S.W/T.S.W	

WALL FOUNDATION SCHEDULE

MARK	SIZE	REINFORCING	COMMENTS
WF1	600 X 300 DP.	2-20M BOT. CONT.	
WF2	800 X 300 DP.	2-20M BOT. CONT.	

STEEL COLUMN SCHEDULE

MARK	SIZE	REINFORCING	COMMENTS
SC1	HSS152x152x6.4	PL.300x20x300 C/W 4-19 DIA. ANCHOR RODS	
SC2	HSS203x203x7.9	PL.350x20x350 C/W 4-19 DIA. ANCHOR RODS	
SC3	HSS203x203x9.5	PL.350x20x350 C/W 4-19 DIA. ANCHOR RODS	

TYPICAL COLUMN BASEPLATE DETAIL

LOAD-BEARING CMU WALL SCHEDULE

MARK	SIZE (mm)	REINFORCING	COMMENTS
MW1	190	15M@1200 V. + HEAVY DUTY LADDER HORIZ. REINF. @ 600 c/c	
MW2	240	20M@1200 V. + HEAVY DUTY LADDER HORIZ. REINF. @ 400 c/c	
MW3	290	25M@1200V. + HEAVY DUTY LADDER HORIZ. REINF. @ 600 c/c	
MW4	190	15M@800V. + 10M@200BOND BEAM	

LEVEL 1 FOUNDATION PLAN

1 : 100

NOTES:

1. ASSUME ALL PERIMETER FOOTINGS FOUNDED AT 1500 BELOW GROUND FLOOR SLAB
2. ASSUME TOP OF ALL INTERIOR FOOTINGS -450mm FROM TOP OF SLAB ON GRADE
3. FOUNDATION ELEVATIONS AND BEARING STRATA TO BE VERIFIED BY GEOTECHNICAL ENGINEER ON SITE AND MAY HAVE TO BE ADJUSTED FURTHER TO GENERAL NOTES. 'B.O.F.' DENOTES BOTTOM OF FOOTING ELEVATION TO BE USED FOR PRICING ONLY.
4. CENTRE ALL CAPS, PILASTERS, AND FOOTINGS UNDER COLUMNS EXCEPT AS NOTED ON PLAN
5. MAINTAIN SLAB-ON-GRADE THICKNESS SHOWN AT ALL LOCATIONS UNLESS NOTED AS RECESS ON PLAN.
6. SEE GENERAL NOTES FOR CONTROL JOINT REQUIREMENTS U.N.O. ON PLAN. CONTROL JOINTS MAY BE REPLACED WITH CONSTRUCTION JOINTS U.N.O.
7. REFER TO THE FOLLOWING DRAWINGS:
   - GENERAL NOTES - S100 SERIES
   - WALL ELEVATIONS - S400 SERIES
   - FOUNDATION WALL SECTIONS - S700 SERIES

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1	ISSUED FOR DD SIGN-OFF	2023-08-23

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Project Information

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Drawing Title

LEVEL 1 FOUNDATION PLAN

Date	Project No	Drawing No
2024-02-23	TOR. 134748.01	S201
Drawn by: KS		
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BEARING PLATE SCHEDULE			
MARK	SIZE	ANCHORS	BEARING PAD
BRG1	150 x 16 x 300	2-15M x 400 LG.	800x400DP 100% FULLY GROUTED BLOCK
BRG2	150 x 16 x 400	3-15M x 400 LG.	800x400DP 100% FULLY GROUTED BLOCK
PROVIDE BEARING PLATE AT ALL LOCATIONS WHERE STEEL BEAM FRAMES INTO LOAD-BEARING MASONRY WALL. IF BRG PLATE IS NOT INDICATED ON PLAN, PROVIDE BRG1 TYP., U.N.O.			

LOWER ROOF FRAMING PLAN

1 : 100

NOTES:

1. ROOF
   - SUPERIMPOSED DEAD LOAD (kPa):
   - ROOFING ALLOWANCE: 1.5
   - CEILING, MECH + ELEC.: 0.5
   - TOTAL: 2.0
2. SNOW LOAD (kPa): 2.4kPa OR DRIFT NOTED ON PLAN
   - SNOW IMPORTANCE FACTOR (POST-DISASTER): SLS=0.9, ULS = 1.25 (NOT INCLUDED IN VALUE SHOWN IN LOADING TABLE, NOR ON DRIFT DIAGRAMS ON PLAN) CONTRACTOR'S ENGINEER TO APPLY IMPORTANCE FACTOR TO THE LOADS SHOWN ON THESE DIAGRAMS
3. REFER TO ARCHITECTURAL DRAWINGS FOR T/STEEL ELEVATIONS, SLOPES AND DIMENSIONS.
4. REFER TO THE FOLLOWING DRAWINGS:
   - GENERAL NOTES - S100 SERIES
   - WALL ELEVATIONS - S400 SERIES
   - SECTIONS AND DETAILS - S800 SERIES
5. TOP OF DECK ELEVATION VARIES, SEE PLAN. T/STEEL ELEVATION SHOWN RELATIVE TO U/S DECK NOTED THUS (XXX) ON PLAN.
6. CO-ORDINATE LOCATION OF MECHANICAL EQUIPMENT & ROOF OPENINGS WITH MECHANICAL AND ELECTRICAL DRAWINGS.
7. U.N.O. ALL BEAMS AND BRACES ARE CENTERED ON COLUMNS.
8. DESIGN BEAM CONNECTIONS FOR FORCES NOTED ON PLAN. WHERE NO SHEAR FORCE NOTED, DESIGN FOR Vf=4xMu/L, WHERE MU = FULLY BRACED MOMENT CAPACITY OF BEAM AND L = BEAM SPAN.
9. '▶' DENOTES FULL MPOMENT CONNECTION, U.N.O.
10. DESIGN STEEL DECK AND CONNECTIONS FOR MINIMUM FACTORED DIAPHRAGM SHEAR OF 10 kN/m, TYP, U.N.O.
11. DESIGN STEEL DECK AND CONNECTIONS FOR UNFACTORED WIND UPLIFT OF 1.0kPa TYPICAL AND 2.0 kPa AT CORNERS.
    - Af = FACTORED AXIAL FORCE (kN)
    - Vf = FACTORED VERTICAL SHEAR FORCE (kN)
    - Mf = FACTORED MOMENT (kNm)
12. REFER TO ELEVATIONS FOR LINTEL SIZES

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No.	Revision	Date
7	ISSUED FOR TENDER	2024-02-23
6	ISSUED FOR 100% CONSTRUCTION DOCUMENTS	2023-11-24
5	ISSUED FOR 95% CONSTRUCTION DOCUMENTS	2023-11-10
4	ISSUED FOR BUILDING PERMIT	2023-11-01
3	ISSUED FOR 75% CONSTRUCTION DOCUMENTS	2023-10-13
2	ISSUED FOR PROGRESS	2023-09-22
1	ISSUED FOR DD SIGN-OFF	2023-08-23

Orientation

Seal

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tel 416-977-5335 rjc.ca
Engineers

Project Information

CITY OF BARRIE FIRE STATION 6

845 Mapleview Drive East, Barrie Ontario

For

Barrie Fire and Emergency Services

Drawing Title

LEVEL 2 FLOOR/ROOF PLAN

Date	Project No	Drawing No
2024-02-23	TOR. 134748.01	S202
Drawn by: KS		
Scale: As indicated		

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2024-02-26 4:02:59 PM

2 S203 ENLARGED PARTIAL PLAN - TOWER ROOF
1 : 50

NOTE: ALL EXTERIOR STEEL TO BE HOT DIP GALVANIZED

1 S203 ENLARGED PARTIAL PLAN - TOWER PLATFORM
1 : 50

UPPER ROOF FRAMING PLAN
1 : 100

NOTES:

1. ROOF
   - SUPERIMPOSED DEAD LOAD (kPa):
   - ROOFING ALLOWANCE + PV PANELS: 1.5
   - CEILING, MECH + ELEC.: 0.5
   - TOTAL: 2.0
2. SNOW LOAD (kPa): 2.4kPa OR DRIFT NOTED ON PLAN
   - SNOW IMPORTANCE FACTOR (POST-DISASTER): SLS=0.9, ULS = 1.25 (NOT INCLUDED IN VALUE SHOWN IN LOADING TABLE, NOR ON DRIFT DIAGRAMS ON PLAN) CONTRACTOR'S ENGINEER TO APPLY IMPORTANCE FACTOR TO THE LOADS SHOWN ON THESE DIAGRAMS
3. REFER TO ARCHITECTURAL DRAWINGS FOR T/STEEL ELEVATIONS, SLOPES AND DIMENSIONS.
4. REFER TO THE FOLLOWING DRAWINGS:
   - GENERAL NOTES - S100 SERIES
   - WALL ELEVATIONS - S400 SERIES
   - SECTIONS AND DETAILS - S800 SERIES
5. TOP OF DECK ELEVATION VARIES, SEE PLAN. T/STEEL ELEVATION SHOWN RELATIVE TO U/S DECK NOTED THUS (XXX) ON PLAN.
6. CO-ORDINATE LOCATION OF MECHANICAL EQUIPMENT & ROOF OPENINGS WITH MECHANICAL AND ELECTRICAL DRAWINGS.
7. JOIST SHOE DEPTH TO BE ASSUMED 125mm.
8. (JS) DENOTES BEAM ELEVATION DROPPED TO SUIT JOIST SHOE.
9. 'T.J.' INDICATES TIE JOIST.
10. JOIST SUPPLIER/CONTRACTOR TO COORDINATE BRIDGING LOCATIONS WITH DUCT LOCATIONS. REFER TO ARCH. AND MECH. DRAWINGS.
11. ALL JOIST SHOES TO BE DESIGNED FOR ROLLOVER FORCE OF 12kN, MIN.
12. 'BCE' INDICATES BOTTOM CHORD EXTENSION. MIN. AXIAL DESIGN FORCE = 10kN FOR BCE U.N.O.
13. U.N.O. ALL BEAMS AND BRACES ARE CENTERED ON COLUMNS.
14. DESIGN BEAM CONNECTIONS FOR FORCES NOTED ON PLAN. WHERE NO SHEAR FORCE NOTED, DESIGN FOR Vf=4xMu/L, WHERE MU = FULLY BRACED MOMENT CAPACITY OF BEAM AND L = BEAM SPAN.
15. '▶' DENOTES FULL MPOMENT CONNECTION, U.N.O.
16. DESIGN STEEL DECK AND CONNECTIONS FOR MINIMUM FACTORED DIAPHRAGM SHEAR OF 10 kN/m, TYP, U.N.O.
17. DESIGN STEEL DECK AND CONNECTIONS FOR UNFACTORED WIND UPLIFT OF 1.0kPa TYPICAL AND 2.0 kPa AT CORNERS.
   - Af = FACTORED AXIAL FORCE (kN)
   - Vf = FACTORED VERTICAL SHEAR FORCE (kN)
   - Mf = FACTORED MOMENT (kNm)
18. REFER TO ELEVATIONS FOR LINTEL SIZES

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1	ISSUED FOR DD SIGN-OFF	2023-08-23

Orientation

Seal

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tel 416-977-5335 rjc.ca
Engineers

Project Information

CITY OF BARRIE FIRE STATION 6

845 Mapleview Drive East, Barrie Ontario

For

Barrie Fire and Emergency Services

Drawing Title

ROOF PLAN

Date	Project No	Drawing No
2024-02-23	TOR. 134748.01	S203
Drawn by: KS		
Scale: As indicated		

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2024-02-28 4:02:59 PM

2 S400 1 : 50

1 S400 1 : 50

3 S400 1 : 50

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Toronto, ON M5J 2X4 Canada
tel 416-977-5335
rjc.ca

Project Information

CITY OF BARRIE FIRE STATION 6

845 Mapleview Drive East, Barrie Ontario

For

Barrie Fire and Emergency Services

Drawing Title

FRAMING ELEVATIONS

Date	Project No	Drawing No
2024-02-23	TOR. 134748.01	S400
Drawn by: KS		
Scale: 1 : 50		

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2 S401 1 : 50

1 S401 1 : 50

4 S401 1 : 50

3 S401 1 : 50

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1	ISSUED FOR DD SIGN-OFF	2023-08-23

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Project Information

CITY OF BARRIE FIRE STATION 6

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Barrie Fire and Emergency Services

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FRAMING ELEVATIONS

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Drawn by: KS		
Scale: 1 : 50		

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2
S402
1 : 50

1
S402
1 : 50

3
S402
1 : 50

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Project Information

CITY OF BARRIE FIRE STATION 6

845 Mapleview Drive East, Barrie Ontario

For

Barrie Fire and Emergency Services

Drawing Title

FRAMING ELEVATIONS

Date	Project No	Drawing No
2024-02-23	TOR. 134748.01	S402
Drawn by: KS		
Scale: 1 : 50		

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1 S403 1 : 50

2 S403 1 : 50

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Project Information

CITY OF BARRIE FIRE STATION 6

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For

Barrie Fire and Emergency Services

Drawing Title

FRAMING ELEVATIONS

Date	Project No	Drawing No
2024-02-23	TOR. 134748.01	S403
Drawn by: KS		
Scale: As indicated		

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6 S500 1 : 20

5 S500 1 : 20

4 S500 1 : 20

3 S500 1 : 20

2 S500 1 : 20

1 S500 1 : 20

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Orientation

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Engineers

Project Information

CITY OF BARRIE FIRE STATION 6

845 Mapleview Drive East, Barrie Ontario

For

Barrie Fire and Emergency Services

Drawing Title

SECTIONS AND DETAILS

Date	Project No	Drawing No
2024-02-23	TOR. 134748.01	S500
Drawn by: KS		
Scale: 1 : 20		

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5 S501 1 : 20

DELETED

4 S501 1 : 20

3 S501 1 : 20

2 S501 1 : 20

1 S501 **PYLON SIGNAGE FOUNDATION**
1 : 20

7 S501 1 : 20

NOTE: PROVIDE SLAB BELOW OIL INTERCEPTOR OR FORMED 150mm PIT PER GENERAL NOTES AS REQUIRED BY OIL INTERCEPTOR SHOP DRAWINGS

6 S501 1 : 20

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rjc Engineers

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tel 416-977-5335 rjc.ca

Project Information

CITY OF BARRIE FIRE STATION 6

845 Mapleview Drive East, Barrie Ontario

For

Barrie Fire and Emergency Services

Drawing Title

SECTIONS AND DETAILS

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Drawn by: KS		
Scale: 1 : 20		

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S502 1 : 20

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S502 1 : 20

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S502 1 : 20

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S502 1 : 20

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S502 1 : 20

6
S502 1 : 20

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2. These drawings are "design drawings" only. They may not be suitable for use as shop drawings. Use of these drawings as base drawings for "shop drawings" is not permitted unless written permission containing certain conditions and limitations is obtained from RJC. The work "as constructed" may vary from what is shown on these drawings.

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No.	Revision	Date
6	ISSUED FOR TENDER	2024-02-23
5	ISSUED FOR 100% CONSTRUCTION DOCUMENTS	2023-11-24
4	ISSUED FOR 95% CONSTRUCTION DOCUMENTS	2023-11-10
3	ISSUED FOR BUILDING PERMIT	2023-11-01
2	ISSUED FOR 75% CONSTRUCTION DOCUMENTS	2023-10-13
1	ISSUED FOR PROGRESS	2023-09-22

Orientation

Seal

All dimensions to be checked and verified on the job by the Contractor. Any discrepancies are to be reported to the Consultant prior to action. Only the latest approved drawings to be used for construction in conformance with all applicable codes, by-laws and regulations. All drawings remain the property of the Consultant.

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Project Information

CITY OF BARRIE FIRE STATION 6

845 Mapleview Drive East, Barrie Ontario

For

Barrie Fire and Emergency Services

Drawing Title

SECTIONS AND DETAILS

Date	Project No	Drawing No
2024-02-23	TOR 134748.01	S502
Drawn by KS		
Scale 1 : 20		

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