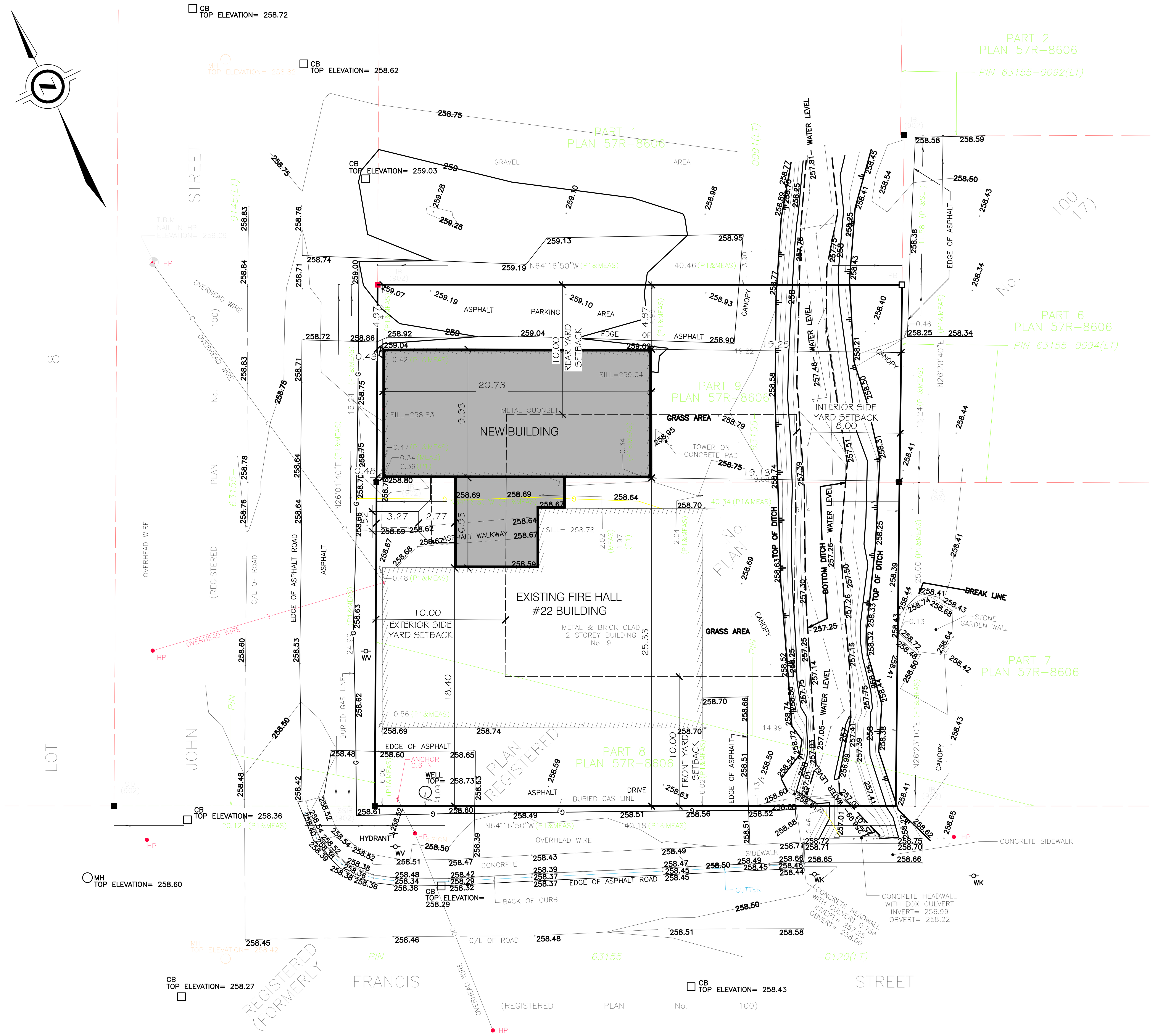
ITEM	ONTARIO BUILDING CODE DATA MATRIX PART 3 and 9	OBC REFERENCE PART 3	PART 9	PART 11
1.	PROJECT DESCRIPTION ☐ NEW ☐ ALTERATION ■ ADDITION ☐ CHANGE OF USE	2.1.1	2.1.1 and 9.10.1.3	11.1 to 11.4
2.	MAJOR OCCUPANCY(s) GROUP F2	3.1.2.1.(1)	9.10.2	
3.	BUILDING AREA (m²) EXISTING: 569 NEW: 50 TOTAL: 619	1.1.3.2	1.1.3.2	
4.	GROSS AREA EX: 569+MEZZ. 75 NEW: 50 TOTAL: 694	1.1.3.2	1.1.3.2	
5.	NUMBER OF STOREYS ABOVE GRADE: 1 BELOW GRADE: 0	3.2.1.1. and 1.1.3.2	2.1.1.3	
6.	NUMBER OF STREETS / FIRE FIGHTER ACCESS 2	3.2.2.10. and 3.2.5	9.10.19	
7.	BUILDING CLASSIFICATION 3.2.2.80	3.2.2.20-.83	9.10.4	
8.	SPRINKLER SYSTEM PROPOSED ☐ ENTIRE BUILDING ☐ BASEMENT ONLY ☐ IN LIEU OF ROOF RATING ■ NOT REQUIRED	3.2.2.20-.83 3.2.1.5 3.2.2.17	9.10.8	
9.	STANDPIPE REQUIRED ☐ YES ■ NO	3.2.9	N/A	
10.	FIRE ALARM REQUIRED ☐ YES ■ NO	3.2.4	9.10.17.2	
11.	WATER SERVICE / SUPPLY IS ADEQUATE ■ YES ☐ NO	3.2.5.7	N/A	
12.	HIGH BUILDING ☐ YES ■ NO	3.2.6	N/A	
13.	PERMITTED CONSTRUCTION ☐ COMBUSTIBLE ☐ NON-COMB. ■ BOTH ACTUAL CONSTRUCTION ☐ COMBUSTIBLE ☐ NON-COMB. ■ BOTH	3.2.2.20-.83	9.10.6	
14.	MEZZANINE(s) AREA m² 75	3.2.1.1.(3)-(8)	9.10.4.1	
15.	OCCUPANT LOAD BASED ON ☐ m² / PERSON ☐ DESIGN OF BUILDING BASEMENT: OCCUPANCY N/A LOAD N/A PERSONS 1ST FLOOR: OCCUPANCY EX. LOAD EX. PERSONS 2ND FLOOR: OCCUPANCY N/A LOAD N/A PERSONS 3RD FLOOR: OCCUPANCY N/A LOAD N/A PERSONS NOTE: FOR ADDITIONAL FLOORS, GO TO PAGE 2	3.1.16	9.9.1.3	
16.	BARRIER-FREE DESIGN ■ YES ☐ NO ☐ EXPLAIN:	3.8	9.5.2	
17.	HAZARDOUS SUBSTANCES ☐ YES ■ NO ☐	3.3.1.2. and 3.3.1.19	9.10.1.3(4)	
18.	REQUIRED FIRE RESISTANCE RATING (FRR)	3.2.2.20-.83 and 3.2.1.4	9.10.8 9.10.9	

HORIZONTAL ASSEMBLIES FRR (HOURS)	LISTED DESIGN No. OR DESCRIPTION (SB-2)
FLOORS: 3/4 HOURS	N/A
ROOF: 0 HOURS	---
MEZZANINE: 0 HOURS	N/A
FRR OF SUPPORTING MEMBERS	**LISTED DESIGN No. OR DESCRIPTION (SB-2)**
FLOORS: 3/4 HOURS	N/A
ROOF: 0 HOURS	---
MEZZANINE: 0 HOURS	N/A

19. SPATIAL SEPARATION - CONSTRUCTION OF EXTERIOR WALLS N/A — 3.2.3 — 9.10.14 — 9.10.14

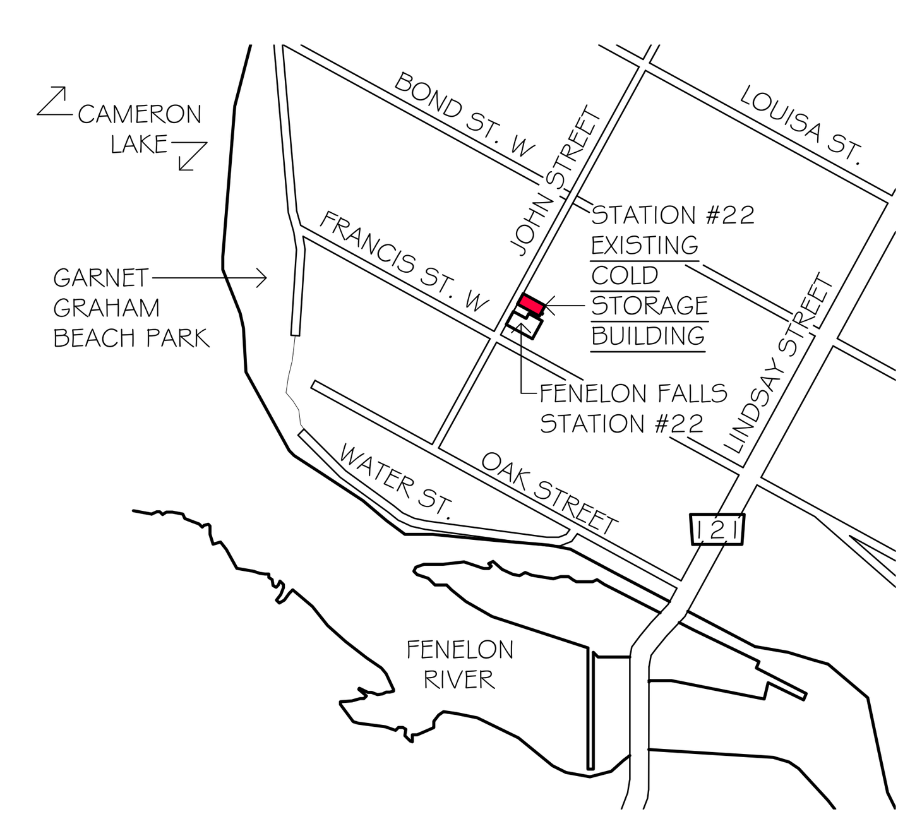
WALLS	AREA OF EBF (m²)	L.D. (m)	L/H or H/L	PERMITTED MAX. % of OPENINGS	PROPOSED % of OPENINGS	FRR (HOURS)	LISTED DESIGN or DESCRIPTION	COMB. CONST.	NON-COMB. CONSTR. NON-COMB. CLADDING	NON-COMB. CONSTR.
NORTH										
SOUTH										
EAST										
WEST										

NOTE: FOR ADDITIONAL WALLS, GO TO PAGE 2



1/A1 SITE PLAN
SCALE: 1:200 METRIC

SCALE 1 : 200



2/A1 EX. LOCATION PLAN
SCALE: N.T.S.

COVERAGE: 39% (MAX. 40%)

PLAN OF SURVEY ILLUSTRATING TOPOGRAPHY OF
PART OF MARKET SQUARE
REGISTERED PLAN No. 17
GEOGRAPHIC TOWNSHIP OF FENELON
CITY OF KAWARTHA LAKES

SITE PLAN SURVEY OBTAINED FROM
COE FISHER CAMERON, A DIVISION OF
J.D. BARNES LIMITED DATED 07/09/25

NEW BUILDING OVERLAY BY:
WILCOX ARCHITECTS INC.
74 LINDSAY ST. SOUTH
LINDSAY, ONTARIO
K9V 2M2
705-328-0175
wilcox.off@gmail.com

LEGEND:
- ■ – FOUND SURVEY MONUMENT
- □ – SET SURVEY MONUMENT
- SIB – STANDARD IRON BAR
- SSIB – SHORT STANDARD IRON BAR
- IB – IRON BAR
- PB – PLASTIC BAR
- 902 – COE, FISHER, CAMERON O.L.S.
- SS – SMITH & SMITH, O.L.S.
- P1 – PLAN 57R–8606

TOPO LEGEND:
- MH – MANHOLE
- CB – CATCH BASIN
- WK – WATER KEY
- WV – WATER VALVE
- HP – HYDRO POLE

THE LOCATION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND ANY OTHER UNDERGROUND AND ABOVEGROUND UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THIS PLAN, AND WHERE SHOWN, THE ACCURACY OF THE LOCATION OF SUCH UTILITIES ARE NOT GUARANTEED. THE CONTRACTOR SHALL CONFIRM THE EXACT LOCATION AND INVERT MEASUREMENTS OF ALL SUCH UTILITIES AND STRUCTURES PRIOR TO CONSTRUCTION AND SHALL ASSUME LIABILITY FOR ANY DAMAGE TO THEM.

NOTES

BEARINGS ARE UTM GRID, DERIVED BY REAL TIME NETWORK (RTN) OBSERVATIONS, UTM ZONE 17, NAD83 (CSRS)(2010.0).

FOR BEARING COMPARISONS, A ROTATION OF 01°29'50" COUNTER–CLOCKWISE WAS APPLIED TO BEARINGS ON PLAN 57R–8606.

BUILDING TIES TAKEN TO METAL SIDING UNLESS NOTED OTHERWISE.

ELEVATIONS:

ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM AND ARE DERIVED FROM THE MINISTRY OF NATURAL RESOURCES AND FORESTRY BENCHMARK No. 0011919U294G HAVING A PUBLISHED ELEVATION OF 258.942 METRES. (CGVD 1928:1978)

TEMPORARY BENCHMARK:

T.B.M (TEMPORARY SITE BENCHMARK) REFERS TO A NAIL IN A HYDRO POLE HAVING AN ELEVATION OF 259.09m (CGVD 1928:1978)

ALL SET SSIB AND PB MONUMENTS WERE USED DUE TO LACK OF OVERBURDEN AND/OR PROXIMITY OF UNDERGROUND UTILITIES IN ACCORDANCE WITH SECTION 11 (4) OF O.REG. 525/91.

WILCOX ARCHITECTS INC.
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ONTARIO ASSOCIATION of ARCHITECTS — GLENN A. WILCOX LICENCE 3966

PROJECT NORTH

ISSUED:	DATE:
REVISED FOR PERMIT (1)	JAN 27/2026
FOR PERMIT	AUGUST 14/2025

THIS DRAWING IS COMPLIMENTARY & MUST BE READ IN CONJUNCTION WITH ALL THE OTHER DRAWINGS AND/ OR SPECIFICATIONS. REPORT ANY INCONSISTENCIES TO THE ARCHITECT.

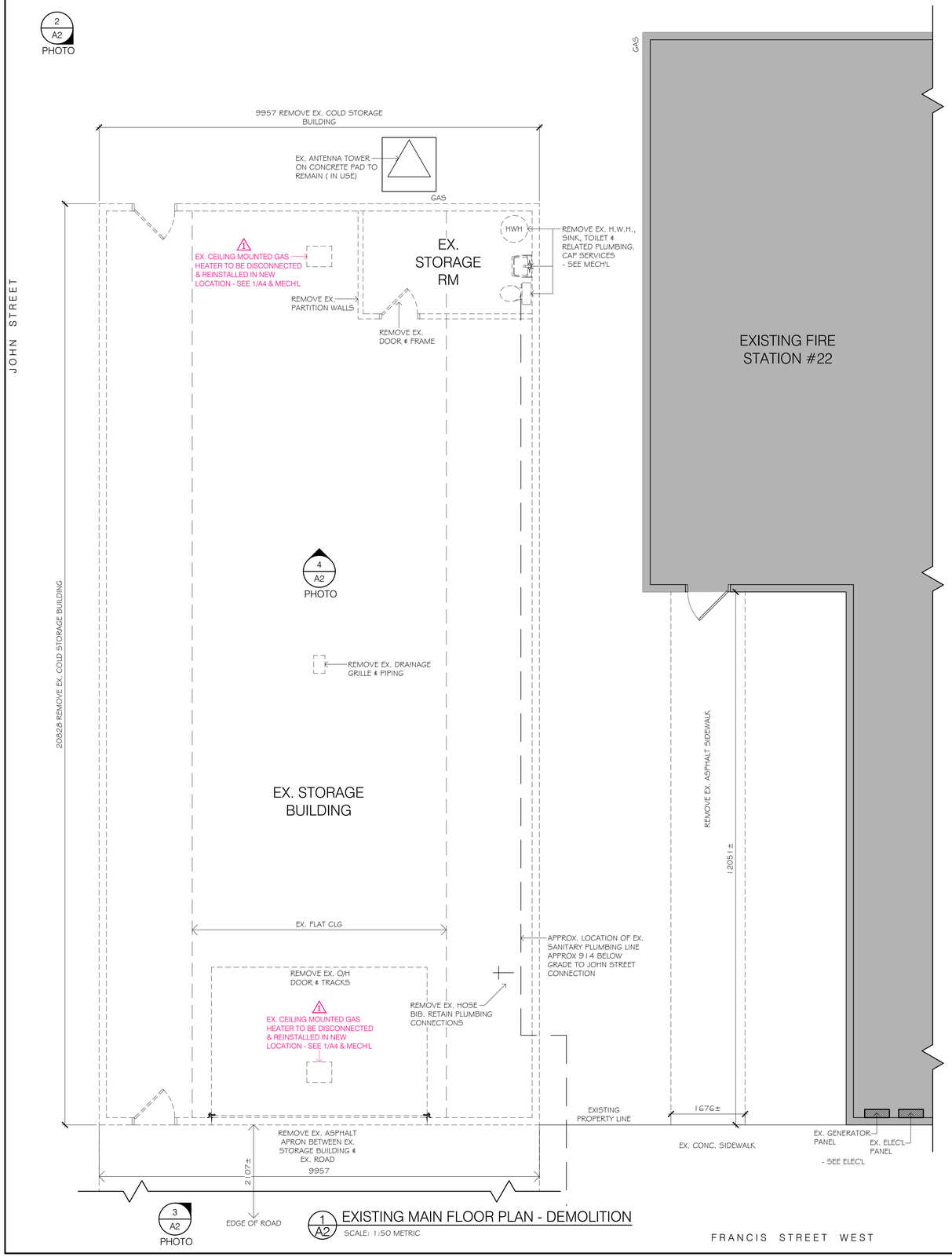
PROJECT:
FENELON FALLS FIRE STATION #22 STORAGE BUILDING

9 JOHN STREET, FENELON FALLS, ON, K9V 1J2

DRAWING TITLE:
MATRIX
SITE PLAN
LOCATION PLAN

SCALE: AS NOTED
DRAWN BY: SV
CHECKED BY: GW

DRAWING NUMBER: A1 OF 6
23040



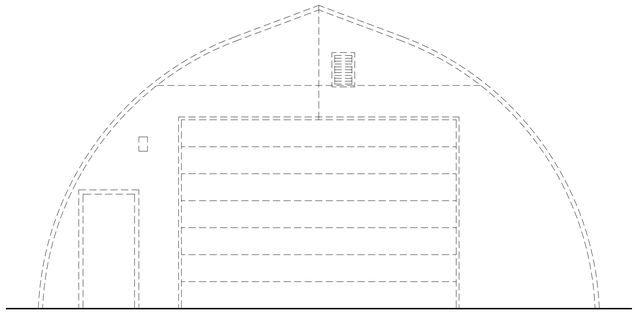
1 A2 EXISTING MAIN FLOOR PLAN - DEMOLITION
SCALE: 1:50 METRIC

2 A2 EX. PHOTO
SCALE: N.T.S.

NOTE: TREE HAS BEEN REMOVED

3 A2 EX. PHOTO
SCALE: N.T.S.

4 A2 EX. PHOTO
SCALE: N.T.S.



5 A2 EX. WEST ELEVATION
SCALE: 1:50

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ONTARIO ASSOCIATION OF ARCHITECTS
GLENN A. WILCOX
LICENCE 3966

PROJECT NORTH

CONSULTANTS:
STRUCTURAL ENGINEERS
AMR ENGINEERING LTD.
MECHANICAL/ELECTRICAL ENGINEERS
KIRKLAND ENGINEERING LTD

GENERAL NOTES

1. EXTERIOR WALL DIMENSIONS TO OUTSIDE FACE OF SHEATHING/FDN WALLS.
2. INTERIOR WALL DIMENSIONS TO DWALL OR CONC. BLOCK
3. DOOR DIMENSIONS TO ℄ OF R.S.O. (R.S.O. TO BE DETERMINED BY WINDOW/DOOR MANUFACTURER).
4. DOUBLE STUDS AT ALL OPENINGS & TRIPLE AT CORNERS U.O.N..
5. TYPE/PROFILE OF METAL SIDING TO BE SPECIFIED BY OWNER. CONTRACTOR TO PROVIDE ALL RELATED CONNECTIONS, FLASHING, ACCESSORIES & TRIM.
6. MAKE GOOD ALL FINISHES WHICH HAVE BEEN ALTERED DUE TO RENOVATIONS.
7. SEE STRUCTURAL & MECHANICAL/ELECTRICAL FOR FURTHER DETAILS
8. ALL WORK TO MEET OR EXCEED O.B.C. STANDARDS.

REVISED FOR PERMIT ⚠	JAN 27/2026
FOR PERMIT	JULY 14/2025
ISSUED:	DATE:

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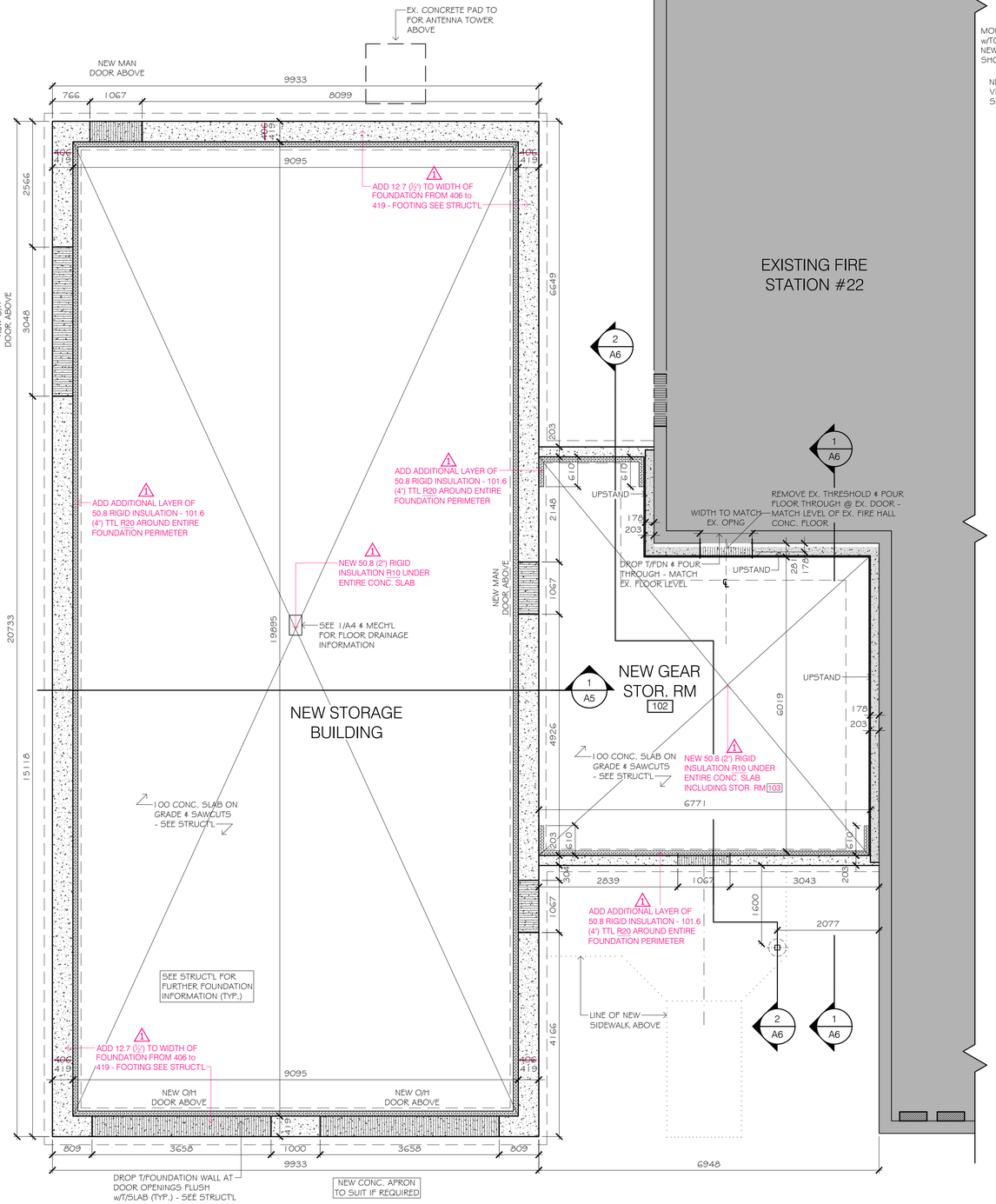
PROJECT:
FENELON FALLS
FIRE STATION #22
STORAGE BUILDING

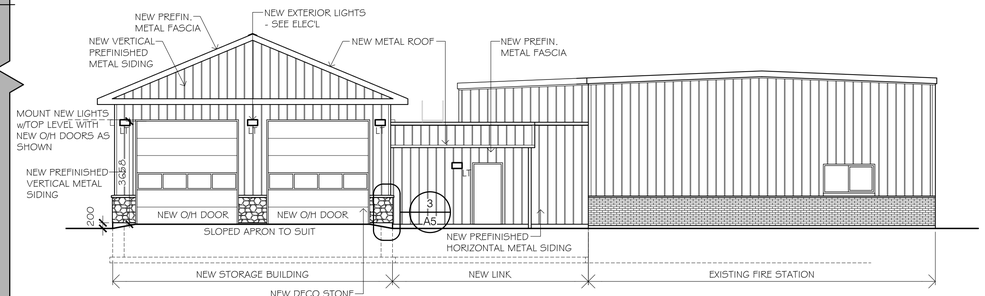
9 JOHN STREET, FENELON FALLS, ON, K9V 1J2

DRAWING TITLE:
EX. STORAGE BUILDING PLAN
EX. PHOTOS
EX. WEST ELEVATION

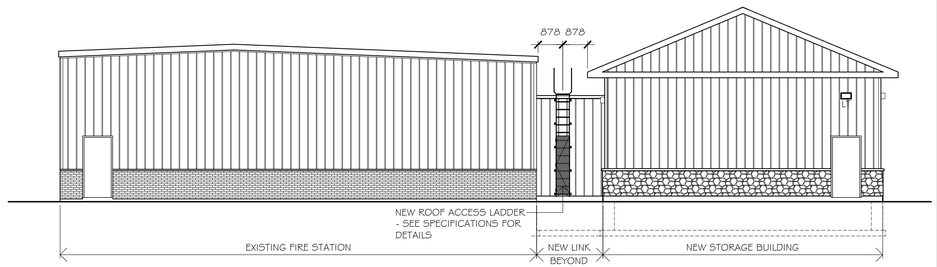
SCALE: AS NOTED	DRAWING NUMBER: A2 OF 6
DRAWN BY: SV	23040
CHECKED BY: GW	



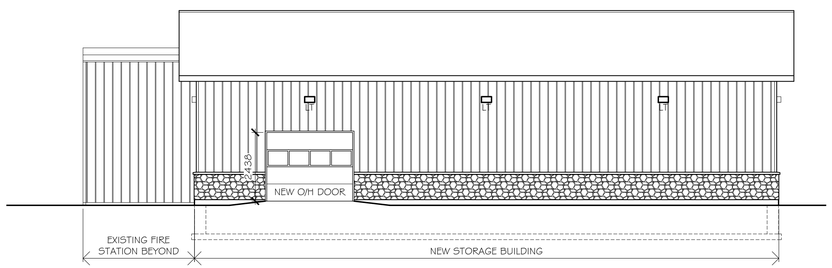
1 A3 NEW FOUNDATION PLAN
SCALE: 1:50 METRIC



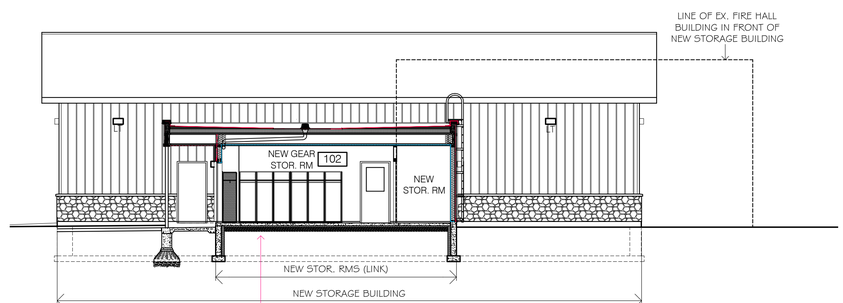
2 A3 NEW WEST ELEVATION
SCALE: 1:100 (TYP. FINISHES)



3 A3 NEW EAST ELEVATION
SCALE: 1:100



4 A3 NEW NORTH ELEVATION
SCALE: 1:100



5 A3 NEW SOUTH ELEVATION
SCALE: 1:100

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GLENN A. WILCOX
LICENCE 3966

PROJECT NORTH

CONSULTANTS:
STRUCTURAL ENGINEERS
AMR ENGINEERING LTD.
MECHANICAL/ELECTRICAL ENGINEERS
KIRKLAND ENGINEERING LTD

REVISED FOR PERMIT 1	JAN 27/2026
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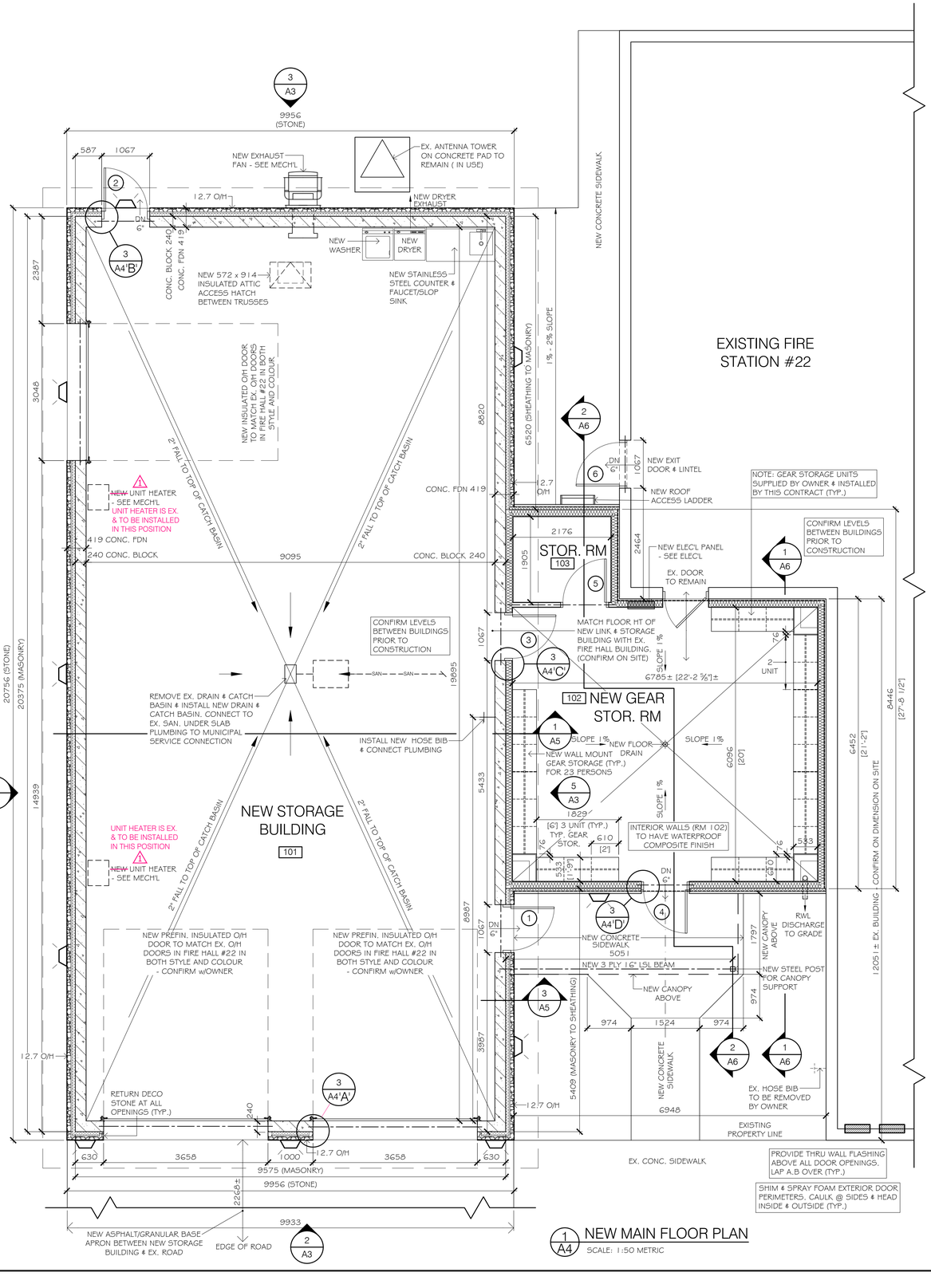
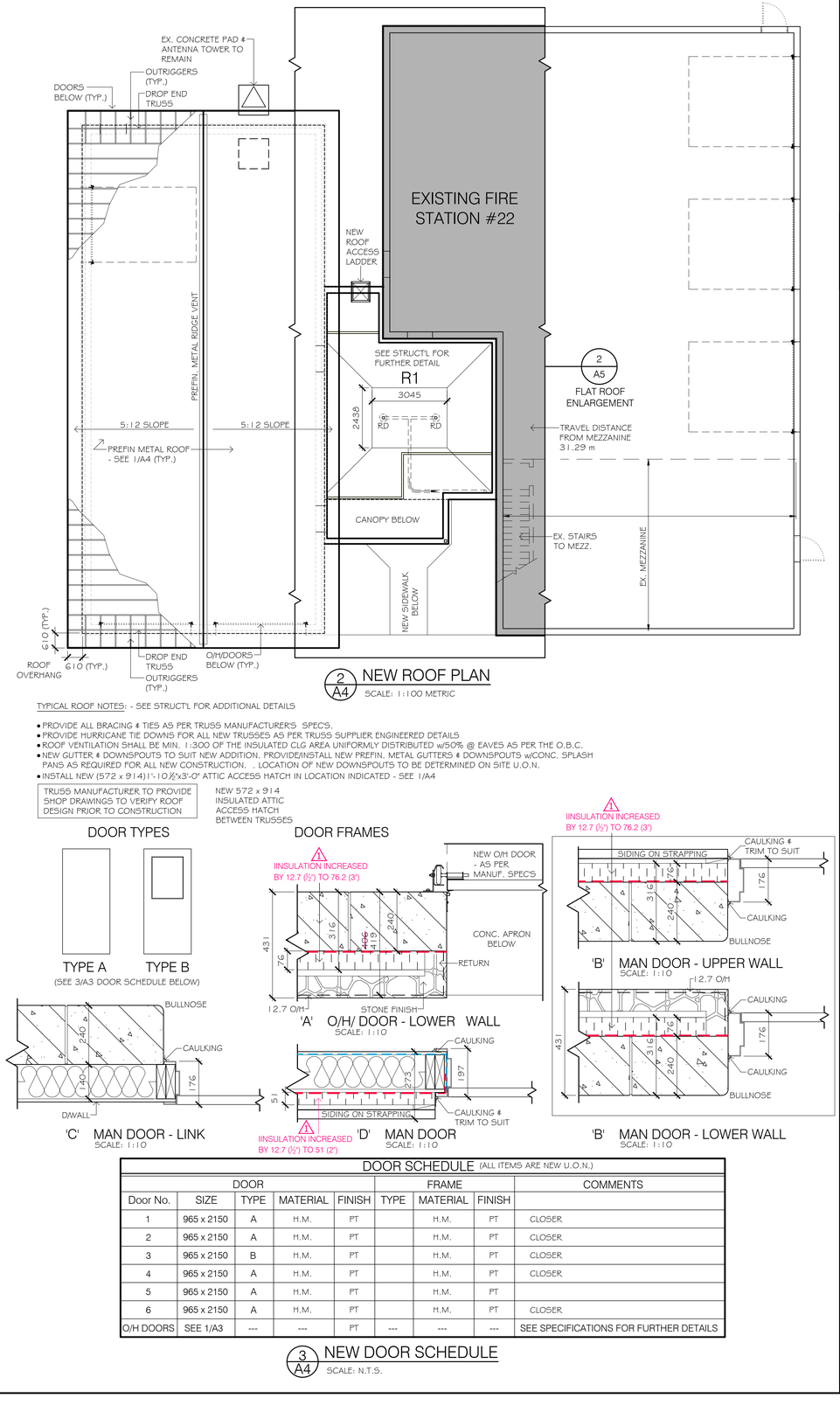
PROJECT:
FENELON FALLS
FIRE STATION #22
STORAGE BUILDING

9 JOHN STREET, FENELON FALLS, ON, K9V 1J2

DRAWING TITLE:
NEW FOUNDATION PLAN
ELEVATIONS

SCALE: AS NOTED	DRAWING NUMBER: A3 OF 6
DRAWN BY: SV	23040
CHECKED BY: GW	





TYPICAL ROOF NOTES: - SEE STRUCT'L FOR ADDITIONAL DETAILS

- PROVIDE ALL BRACING & TIES AS PER TRUSS MANUFACTURER'S SPEC'S.
- PROVIDE HURRICANE TIE DOWNS FOR ALL NEW TRUSSES AS PER TRUSS SUPPLIER ENGINEERED DETAILS
- ROOF VENTILATION SHALL BE MIN. 1:300 OF THE INSULATED CLG AREA UNIFORMLY DISTRIBUTED w/50% @ EAVES AS PER THE O.B.C.
- NEW GUTTER & DOWNSPOUTS TO SUIT NEW ADDITION. PROVIDE/INSTALL NEW PREFIN. METAL GUTTERS & DOWNSPOUTS w/CONC. SPLASH PANS AS REQUIRED FOR ALL NEW CONSTRUCTION. . LOCATION OF NEW DOWNSPOUTS TO BE DETERMINED ON SITE U.O.N.
- INSTALL NEW (572 x 914) 1'-10½"x3'-0" ATTIC ACCESS HATCH IN LOCATION INDICATED - SEE 1/A4

TRUSS MANUFACTURER TO PROVIDE SHOP DRAWINGS TO VERIFY ROOF DESIGN PRIOR TO CONSTRUCTION

NEW 572 x 914 INSULATED ATTIC ACCESS HATCH BETWEEN TRUSSES

DOOR TYPES

DOOR FRAMES

DOOR SCHEDULE (ALL ITEMS ARE NEW U.O.N.)

DOOR					FRAME			COMMENTS
Door No.	SIZE	TYPE	MATERIAL	FINISH	TYPE	MATERIAL	FINISH	
1	965 x 2150	A	H.M.	PT		H.M.	PT	CLOSER
2	965 x 2150	A	H.M.	PT		H.M.	PT	CLOSER
3	965 x 2150	B	H.M.	PT		H.M.	PT	CLOSER
4	965 x 2150	A	H.M.	PT		H.M.	PT	CLOSER
5	965 x 2150	A	H.M.	PT		H.M.	PT	
6	965 x 2150	A	H.M.	PT		H.M.	PT	CLOSER
O/H DOORS	SEE 1/A3	---	---	PT	---	---	---	SEE SPECIFICATIONS FOR FURTHER DETAILS

3 A4 NEW DOOR SCHEDULE
SCALE: N.T.S.

WILCOX ARCHITECTS INC.
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GLENN K. WILCOX
LICENCE 3966

PROJECT NORTH

CONSULTANTS:

STRUCTURAL ENGINEERS
AMR ENGINEERING LTD.

MECHANICAL/ELECTRICAL ENGINEERS
KIRKLAND ENGINEERING LTD

NEW ROOF ASSEMBLY

R1
- FULLY ADHERED SIKA SARNAFIL G410.15 TEXTURED MEMBRANE and SIKA SARNAFIL g410.15 MEMBRANE FOR FLASHINGS
- 6.35 mm (¼") DENSDECK PRIMED
- FOAM ADHESIVE
- PERIMETER BACKSLOPE 'X' 38.1 mm to 12.7 mm (1½" to ½") and "x" SUMPED DRAIN
- FOAM ADHESIVE
- 63.5 mm (2½") SARNATHERM A POLISOCYANURATE INSULATION
- FOAM ADHESIVE
- 63.5 mm (2½") SARNATHERM A POLISOCYANURATE INSULATION
- FOAM ADHESIVE
- SARNAVAP SELF ADHERED VAPOUR BARRIER
- 12. 7mm (½") DENSDECK PRIMED
- FOAM ADHESIVE
- ¾" PLYWOOD DECK

REVISED FOR PERMIT !	JAN 27/2026
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ISSUED:	DATE:

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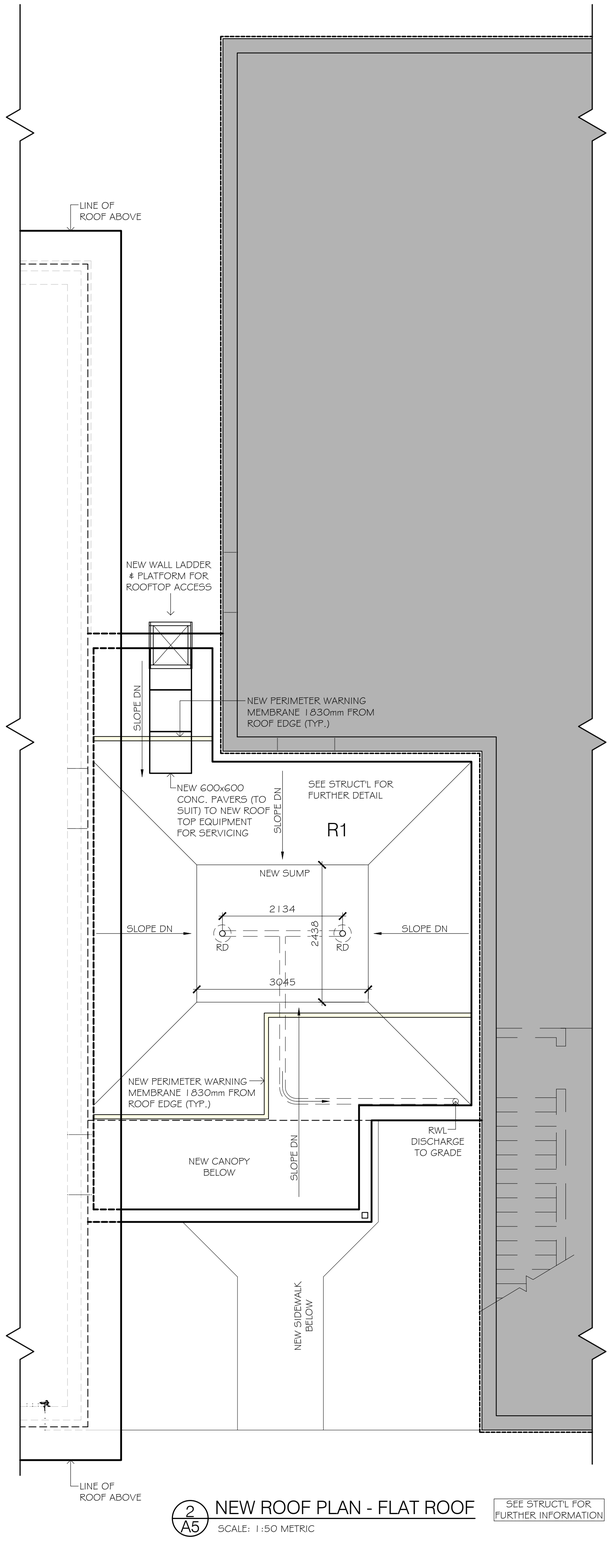
PROJECT:
FENELON FALLS
FIRE STATION #22
STORAGE BUILDING

9 JOHN STREET, FENELON FALLS, ON, K9V 1J2

DRAWING TITLE:
NEW FLOOR PLAN
ROOF PLAN
DOOR SCHEDULE

SCALE:	AS NOTED
DRAWN BY:	SV
CHECKED BY:	GW

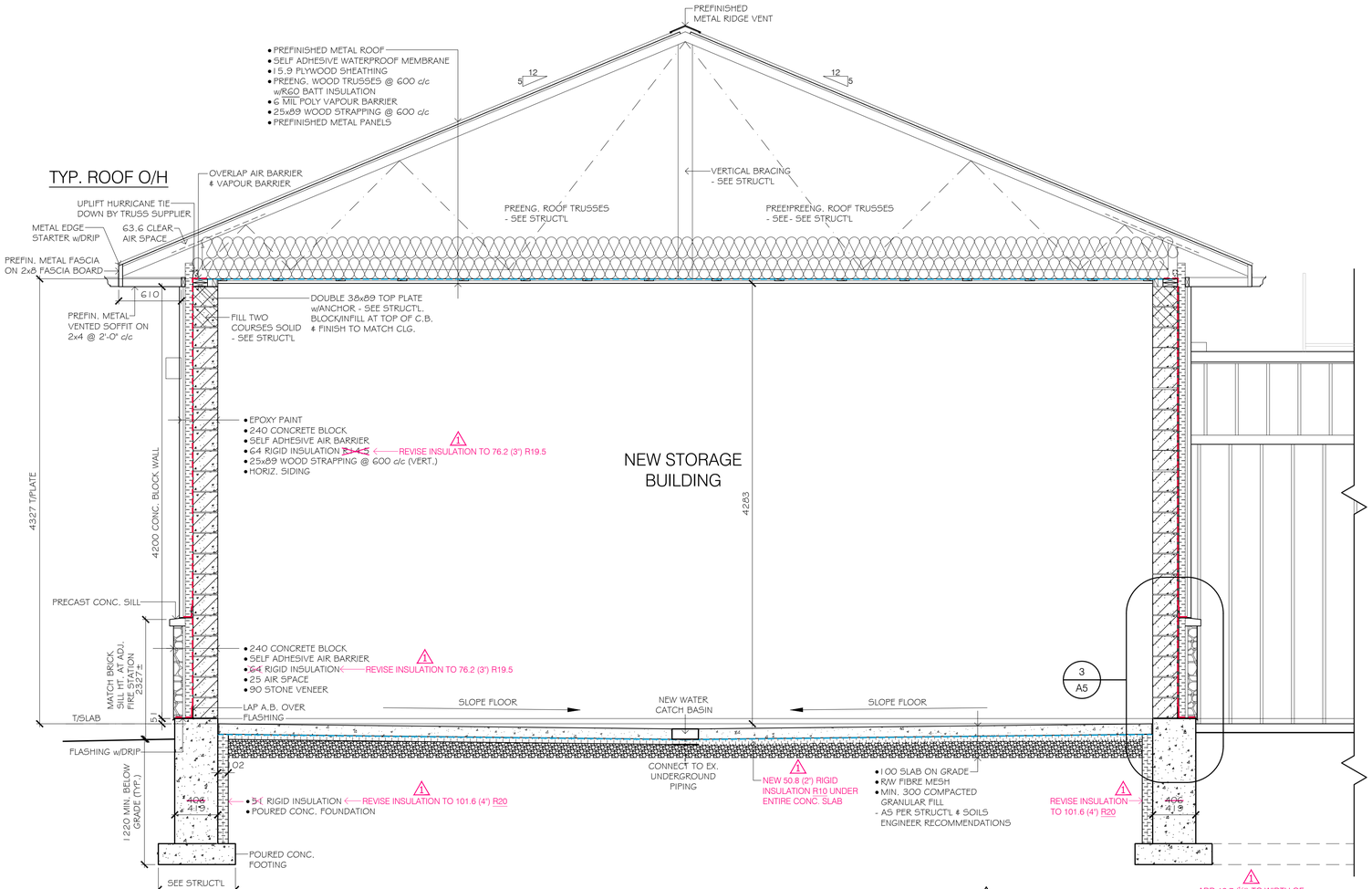
DRAWING NUMBER: A4 OF 6
23040



2 A5 NEW ROOF PLAN - FLAT ROOF

SCALE: 1:50 METRIC

SEE STRUCTL FOR FURTHER INFORMATION



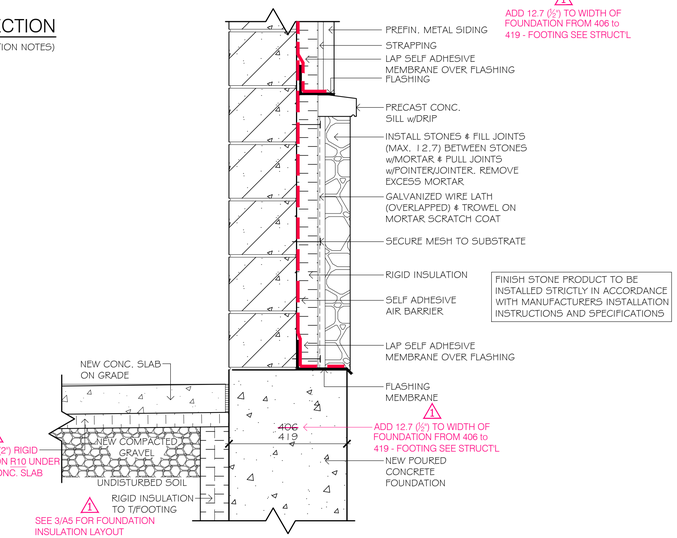
1 A5 NEW STORAGE BUILDING SECTION

SCALE: 1:25 METRIC (TYP. SECTION NOTES)

SEE STRUCTL FOR FURTHER INFORMATION

TYPICAL ROOF NOTES: - SEE STRUCTL FOR ADDITIONAL DETAILS

- PROVIDE ALL BRACING & TIES AS PER TRUSS MANUFACTURER'S SPECS.
- PROVIDE HURRICANE TIE DOWNS FOR ALL NEW TRUSSES AS PER TRUSS SUPPLIER ENGINEERED DETAILS
- ROOF VENTILATION SHALL BE MIN. 1:300 OF THE INSULATED CLG AREA UNIFORMLY DISTRIBUTED w/50% @ EAVES AS PER THE O.B.C.
- NEW GUTTER & DOWNSPOUTS TO SUIT NEW ADDITION. PROVIDE/INSTALL NEW PREFIN. METAL GUTTERS & DOWNSPOUTS w/CONC. SPLASH PANS AS REQUIRED FOR ALL NEW CONSTRUCTION. LOCATION OF NEW DOWNSPOUTS TO BE DETERMINED ON SITE U.O.N.



3 A5 NEW DECO STONE WALL SECTION

SCALE: 1:10 METRIC

WILCOX ARCHITECTS INC.
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GLENN A. WILCOX
LICENCE 3966

PROJECT NORTH

CONSULTANTS:
STRUCTURAL ENGINEERS
AMR ENGINEERING LTD.
MECHANICAL/ELECTRICAL ENGINEERS
KIRKLAND ENGINEERING LTD

REVISED FOR PERMIT 1	JAN 27/2026
FOR PERMIT	JULY 14/2025
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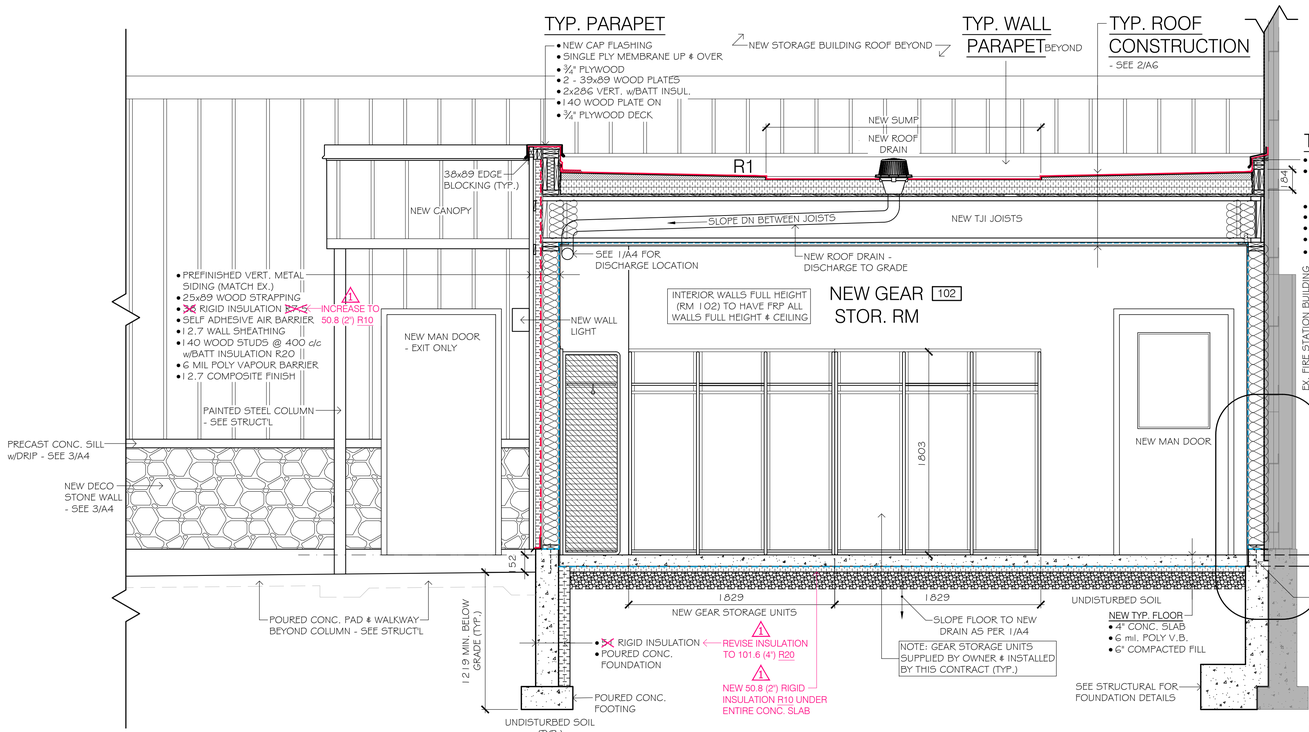
PROJECT:
FENELON FALLS
FIRE STATION #22
STORAGE BUILDING

9 JOHN STREET, FENELON FALLS, ON, K9V 1J2

DRAWING TITLE:
ROOF PLAN - ENLARGEMENT
BUILDING SECTION
DETAIL

SCALE: AS NOTED	DRAWING NUMBER: A5 OF 6
DRAWN BY: SV	23040
CHECKED BY: GW	



1/A6 WALL SECTION

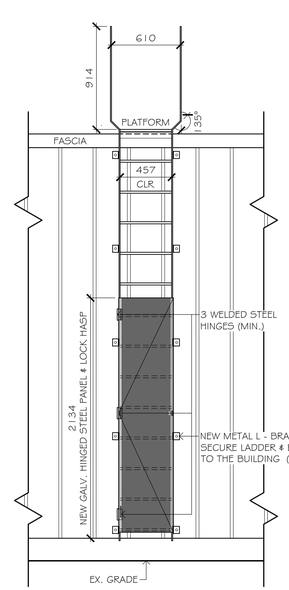
SCALE: 1:25 METRIC

SEE STRUCT'L FOR FURTHER INFORMATION

TYP. ROOF CONSTRUCTION

3/A6 WALL SECTION

SCALE: 1:10 METRIC



3/A6 LADDER ELEVATION

SCALE: 1:25 METRIC

2/A6 WALL SECTION

SCALE: 1:25 METRIC

SEE STRUCT'L FOR FURTHER INFORMATION

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ONTARIO ASSOCIATION OF ARCHITECTS
GLENN K. WILCOX
LICENCE 3966

PROJECT NORTH

REVISED FOR PERMIT ⚠1	JAN 27/2026
FOR PERMIT	JULY 14/2025
ISSUED:	DATE:

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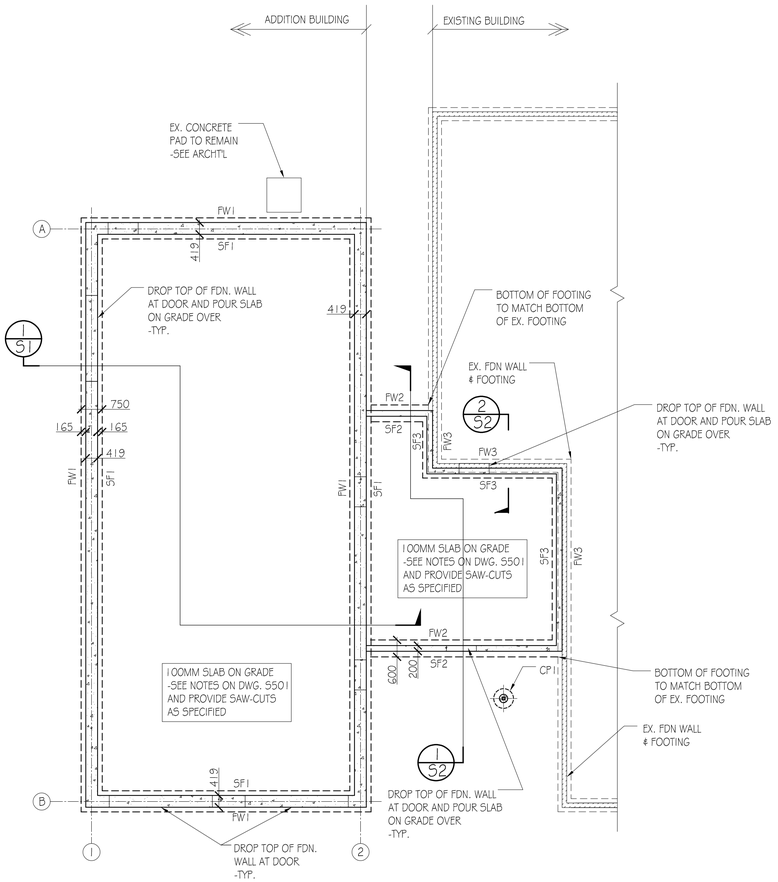
PROJECT:
FENELON FALLS
FIRE STATION #22
STORAGE BUILDING

9 JOHN STREET, FENELON FALLS, ON, K9V 1J2

DRAWING TITLE:
BUILDING SECTIONS
DETAIL

SCALE: AS NOTED	DRAWING NUMBER: A6 OF 6
DRAWN BY: SV	23040
CHECKED BY: GW	



FOUNDATION PLAN

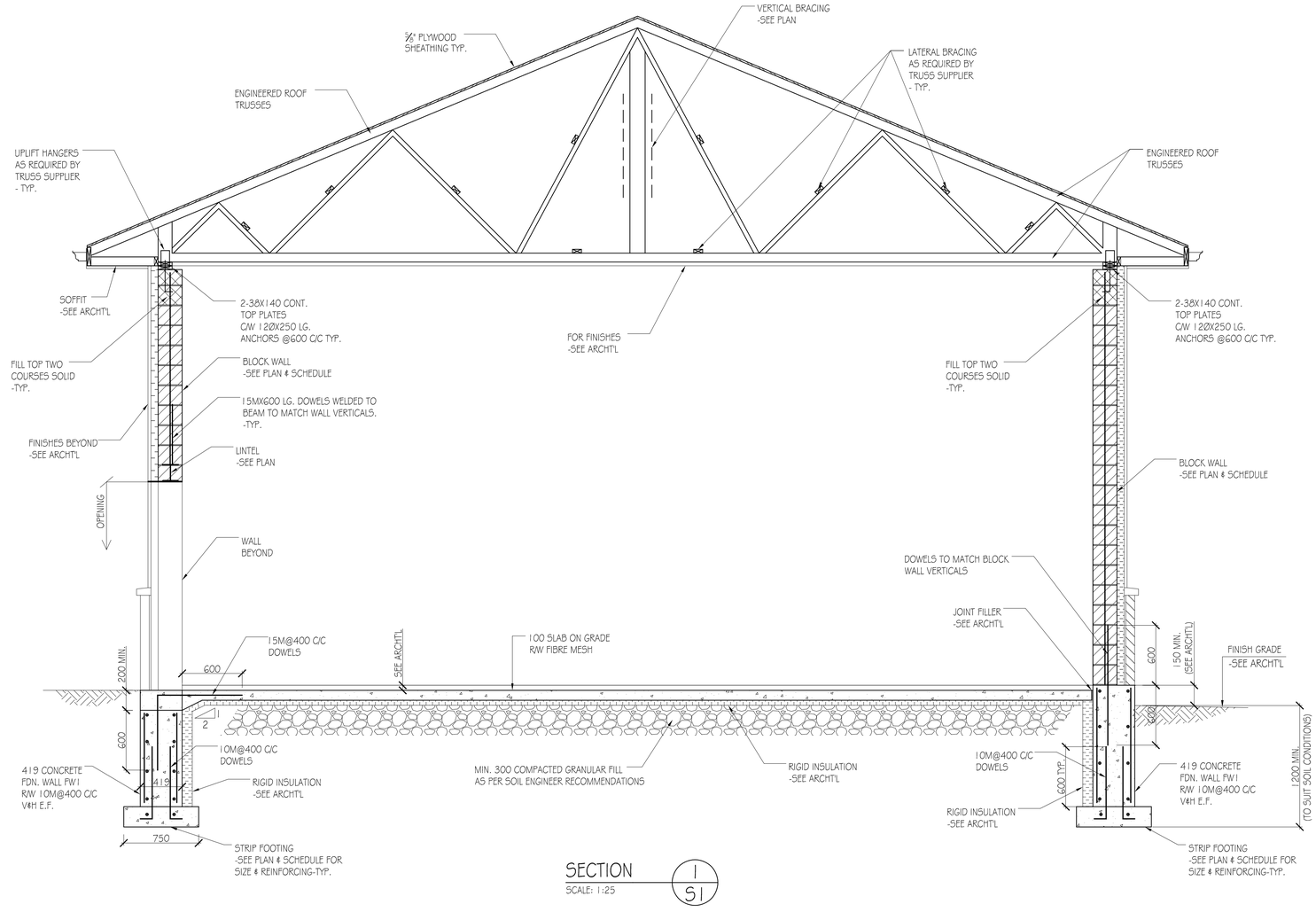
SCALE: 1:100

A / S1

NOTES :

1. SEE ARCHT'L DRAWINGS FOR DIMENSIONS, ELEVATIONS AND ROOF SLOPES.
2. SEE ALSO SCHEDULES, GENERAL NOTES AND TYPICAL DETAILS ON DRAWINGS S3 & S4.

ASSUMED SOIL BEARING CAPACITY OF 100 KPa (SLS) & 150 KPa. (ULS) AND ASSUMED SEISMIC SITE CLASS TO BE CONFIRMED ON SITE BY GEOTECHNICAL ENGINEER PRIOR TO CONSTRUCTION.



SECTION

SCALE: 1:25

1 / S1

CONCRETE FOUNDATION WALL SCHEDULE

MARK.	SIZE	NOTES
FW1	419 CONC. FDN. WALL R/W + 10M@400 V4H E.F. -SEE ALSO SECTION	REFER TO FOUNDATION PLAN FOR LOCATION
FW2	200 CONC. FDN. WALL R/W +2-15M TOP # BOTTOM + 15M@400 V4H @ CENTRE -SEE ALSO SECTION	REFER TO FOUNDATION PLAN FOR LOCATION
FW3	200 CONC. FDN. WALL +2-15M TOP # BOTTOM + 15M@400 V4H @ CENTRE -SEE ALSO SECTION	REFER TO FOUNDATION PLAN FOR LOCATION

SPREAD & STRIP FOOTING SCHEDULE

MARK.	SIZE	NOTES
SF1	750 X 200 DP. + 3-15M CONT. BOTTOM	PROVIDE DOWELS TO CONCRETE WALL ABOVE (SEE SECTIONS)
SF2	600 X 200 DP. + 2-15M CONT. BOTTOM	PROVIDE DOWELS TO CONCRETE WALL ABOVE (SEE SECTIONS)
SF3	500 X 400 DP. + 2-15M CONT. BOTTOM + 15M@400 C/C X 550 LG. DRILL # GROUT HORIZ. DOWELS -SEE ALSO SECTION	PROVIDE DOWELS TO CONCRETE WALL ABOVE (SEE SECTIONS)

MASONRY WALL SCHEDULE

MARK.	SIZE	REINFORCING
MW1	240 BLOCK WALL (TYPE 'S' MORTAR)	15M@400 C/C VERTICALS+ 4.76MM EXTRA HEAVY DUTY BLOK LOK (LADDER TYPE) REINFORCING @400 C/C MAX. -TYP. FULL HEIGHT. SEE ALSO GENERAL NOTES.
MW2	240 BLOCK WALL (TYPE 'S' MORTAR)	15M@200 C/C VERTICALS+4.76MM EXTRA HEAVY DUTY BLOK LOK (LADDER TYPE) REINFORCING @400 C/C MAX. -TYP. FULL HEIGHT. SEE ALSO GENERAL NOTES.

CONCRETE PIER SCHEDULE

MARK.	SIZE	NOTES
CP1	300 Ø CONC. PIER +700Ø CONC. BASE R/W 6-15M VERTICALS +10M @ 12" TIES (2 TIES AT TOP TYP.)	BIGFOOT PIER SYSTEM

NOTES:
1. TOP OF INTERIOR PIERS IS 200MM BELOW FINISH FLOOR ELEVATION TYP. U.N.O.

BIGFOOT PIER SYSTEMS NOTES

1. THE TOTAL COMBINED HEIGHT OF BIGFOOT SYSTEMS FOOTING FORM MUST NOT EXCEED THIRTEEN FEET (13').
2. SCREW CONSTRUCTION TUBE TO FOOTING FORM WITH MINIMUM OF FOUR (4) 'X' #8 WOOD SCREWS.
3. BIGFOOT SYSTEMS FOOTING FORMS MUST BE PLACED ON UNDISTURBED GROUND OR 4"+6" COMPACTED GRAVEL.
4. BACKFILL MUST BE PLACED UP TO A MINIMUM OF (2') TO MAXIMUM (5') FROM THE BOTTOM OF THE FOOTING FORM. THE BACKFILL IS INTENDED TO HOLD THE FOOTING FORM IN PLACE.
5. BACKFILL SHOULD BE CONSOLIDATED WITH A MANUAL PLATE TAMPER OR 2"X4" ON END, DO NOT STRIKE BIGFOOT SYSTEMS FOOTING FORM. DO NOT OVER CONSOLIDATE SO AS TO DISTORT THE SHELL OF THE FOOTING FORM.
6. CHECK ALIGNMENT OF CONSTRUCTION TUBE AFTER BACKFILLING.

WOOD BEAM SCHEDULE

MARK.	SIZE	BEARING	NOTES
B1	2- 45 X 406 LVL 2.0 E		

WOOD POST SCHEDULE

MARK.	SIZE	NOTES
P1	3-38 X140 [2 BEARING + 1 FULL HEIGHT]	NAILED
P2	3-38 X140 [3 BEARING]	NAILED
P3	4-38 X140 [3 BEARING + 1 FULL HEIGHT]	NAILED

NOTES:
1. POSTS ARE REQUIRED AT THE ENDS OF ALL BEAMS. IF NOT SPECIFIED ON PLAN PROVIDE A BUILT-UP STUD POST TO MATCH THE WIDTH OF THE BEAM. PROVIDE A 3-STUD BUILT-UP POST (1K+2.1) AS A MINIMUM, U.N.O.
2. ALL POSTS ATE TO BE CARRIED DOWN TO THE CONCRETE SLAB LEVEL, U.N.O. PROVIDE SOLID BLOCKING AT FLOOR FRAMING, TYPICAL AT ALL POSTS AND BUILT-UP POSTS.
3. P.A - INDICATES BEARING POSTS ABOVE.
4. NOT ALL POSTS ARE USED ON PLAN.

WOOD LINTEL SCHEDULE

MARK.	SIZE	BEARING	NOTES
L1	2- 38 X286	POSTS@EE -SEE PLAN	
L2	3- 38 X286	POSTS@EE -SEE PLAN	

NOTE: ALL WOOD LINTELS NOT SHOWN ARE 2-38X140+TRIPLE STUD@EE (1K+2.1)
ALL LINTELS SHALL BE DROPPED UNLESS NOTED OTHERWISE ON PLAN

WOOD SHEARWALL SCHEDULE

MARK.	SIZE	NOTES U.N.O.
SW1	12MM EXTERIOR GRADE PLYWOOD SHEATHING +38X140@400 C/C MAX. STUD WALL + 12MM GWB TYPE 'X'	1. PROVIDE BLOCKING AT ALL UNSUPPORTED EDGES. 2. NAIL PLYWOOD SHEATHING MEMBERS WITH 0.131" DIA X 2.87" LONG COMMON NAILS AT 6" C/C MAXIMUM ALONG PANEL EDGES AND AT 12" C/C MAXIMUM AT INTERMEDIATE SUPPORTS AT PANEL EDGES 3. NAIL SHEATHING TO EVERY WALL STUD AND PLATE. 4. SEE ALSO GENERAL NOTES.

BEAM BEARING PLATE SCHEDULE

MARK.	SIZE	ANCHORS	NOTES:
BPL1	300 X 12X 225	2-16Ø X200 LONG WELDED ANCHORS	800X400 DP. FULLY GROUTED BLOCK COURSES AT BPL1 LOCATIONS

STEEL LINTEL SCHEDULE

MARK.	SIZE	BEARING PLATE	NOTES
SL1	W200X31 +225 X 8 THK. CONT. WELDED BOTTOM PLATE +12Ø X 400 LG. @600 C/C WELDED ANCHORS AT TOP OF BEAM	PROVIDE BEARING PLATE BPL1 AT EE	(PROVIDE MIN. 200 BEARING @ EE
SL2	L 127 X 127 X 9.5 + L 102 X 89 X 7.9 (LLV)	SEE PLANS AND SCHEDULE	(PROVIDE MIN. 200 BEARING @ EE

STEEL COLUMN SCHEDULE

MARK.	SIZE	BASEPLATE	ANCHOR BOLTS	BASE PLATE DETAIL
SC1	HSS 102X102X6.4 (GALVANIZED)	200X160X200	4-12mm Ø X 350 LONG ANCHOR RODS (SQ HOOK)	

ROOF JOIST SCHEDULE

MARK.	SIZE	NOTES
RJ1	406 TJI 560 @ 305 O/C	PROVIDE BRIDGING @ 2000 C/C MAX.
RJ2	406 TJI 230 @ 406 O/C	PROVIDE BRIDGING @ 2000 C/C MAX.

No.	REVISION	DATE	BY
3	ISSUED FOR TENDER	FEB. 02/26	D.K
2	ISSUED FOR PERMIT	APR. 28/25	D.K
1	ISSUED FOR CLIENT REVIEW	JUL. 26/24	D.K

PROJECT NORTH

CLIENT: WILCOX ARCHITECTS INC.
74 LINDSAY ST. S. LINDSAY, ONT.

PROJECT:

FENELON FALLS FIRE STATION #22 STORAGE BUILDING

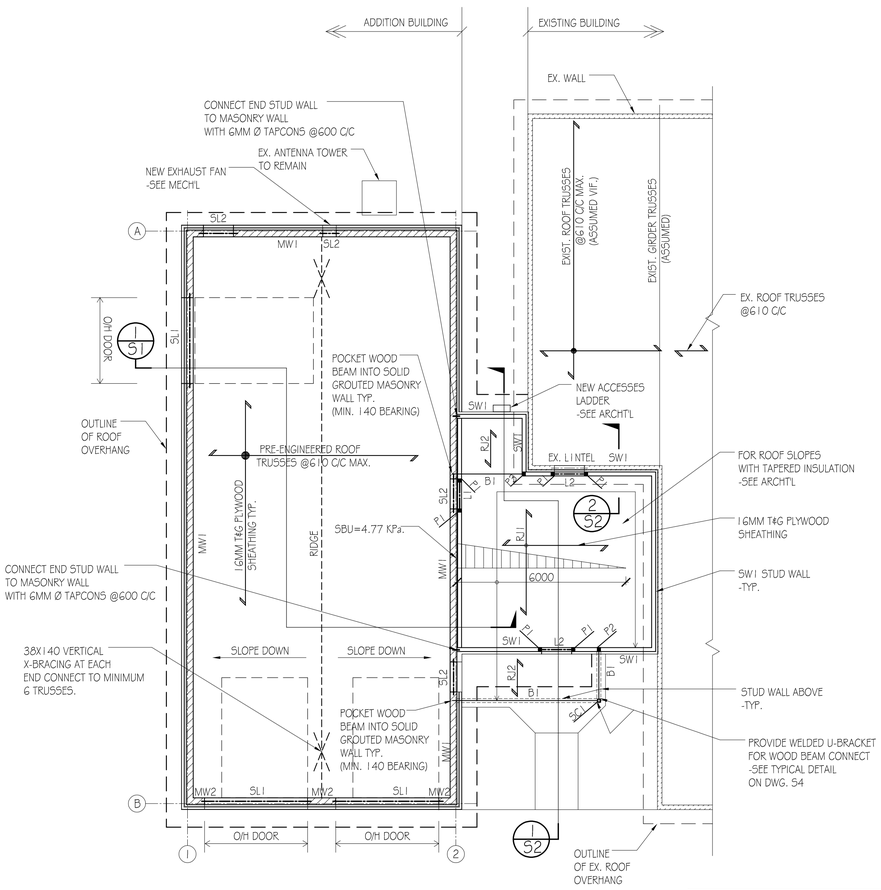
9 John St. Fenelon Falls, ON K9V 1J2

DRAWING: FOUNDATION PLAN, SECTIONS AND SCHEDULE

AMR ENGINEERING LTD.
STRUCTURAL ENGINEERS
920 ALNESS STREET, SUITE 205
TORONTO, ON M3J 2H7
(416) 551-1611

REGISTERED PROFESSIONAL ENGINEER 24-2283 D. KOTOBELLI PROVINCE OF ONTARIO

DRAWN BY:	M.K.	AMR PROJECT No.	24-2283
CHECKED BY:	D.K.		
DATE:	FEB. 02/26	DWG. No.	S1
SCALE:	AS NOTED		OF 4



ROOF FRAMING PLAN

SCALE: 1:100

A / S2

NOTES :

1. SEE ARCH'L DRAWINGS FOR DIMENSIONS, ELEVATIONS AND ROOF SLOPES.
2. SEE ALSO SCHEDULES, GENERAL NOTES AND TYPICAL DETAILS ON DRAWINGS S3 & S4.
3. BUILDING IMPORTANCE CATEGORY (SNOW, WIND, AND EARTHQUAKE) IS POST DISASTER. (Iw=1.25, Is=1.25, Ie=1.5)
4. STIFF ELEMENTS NOT PART OF SFRS SHALL BE SEPARATED FROM THE STRUCTURE AS PER OBC CLAUSE 4.1.8.3. (Ga). EXAMPLES INCLUDE BUT NOT LIMITED TO MASONRY PARTITIONS, BRICK VENEER, PRECAST CLADDING ETC. IT IS RESPONSIBILITY OF THE SUBCONTRACTOR TO PROVIDE SHOP DRAWINGS, STAMPED, SIGNED AND DATED BY AN PROFESSIONAL ENGINEER DEMONSTRATING COMPLIANCE. PROVIDE MINIMUM 15mm SEPARATION UNLESS NOTED OTHERWISE.

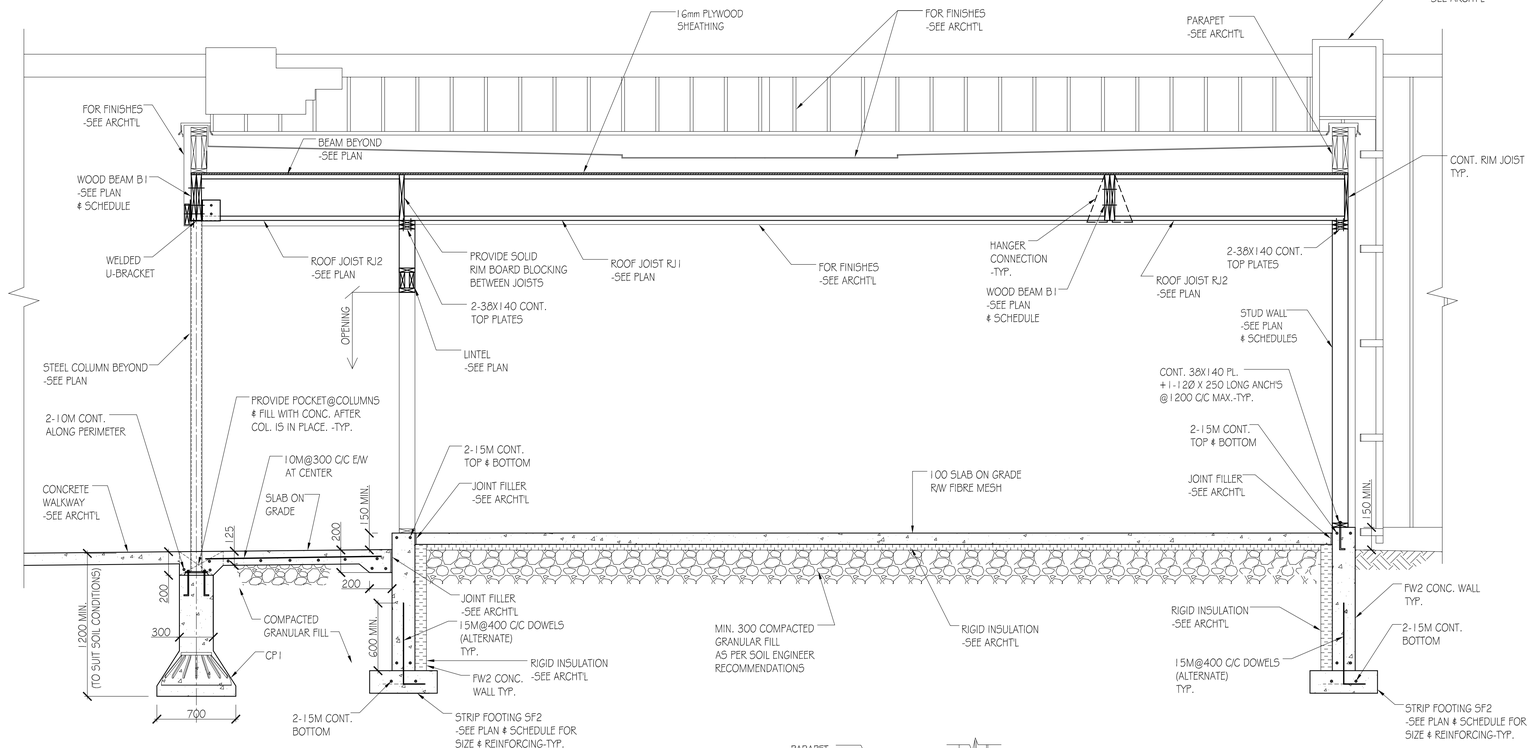
LOADING FOR ENGINEERED ROOF TRUSSES:

TOP CHORD	DL	= 0.48 KPa.
	LL	= 2.80 KPa. +SBU
BOTTOM CHORD	DL	= 0.48 KPa.
	LL	= 0.48 KPa.
TOTAL LOAD	TL	= 4.24 KPa. +SBU

LOADING ROOF JOISTS:

DEAD LOAD	=0.48 KPa.
LIVE LOAD	=2.80 KPa.+SBU
TOTAL LOAD	= 3.28 KPa.+SBU

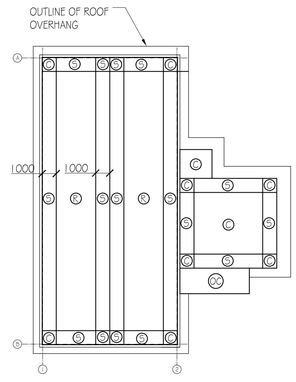
NOTE:
Ie5(0.2)=0.45>0.35, SEISMIC CATEGORY SC3 (POST-DISASTER)
IT IS THE RESPONSIBILITY OF THE CONTRACTOR WHO IS SUPPLYING AND INSTALLING EQUIPMENT, THAT ALL ELEMENTS OF STRUCTURES LISTED IN TABLE 4.1.8.18 THE OBC 2024 ARE DESIGNED IN ACCORDANCE WITH CLAUSE 4.1.8.18 CONTRACTOR TO PROVIDE SHOP DRAWINGS STAMPED, SIGNED AND DATED BY PROFESSIONAL ENGINEER FOR CONNECTION OF THESE ITEMS.



SECTION

SCALE: 1:25

1 / S2



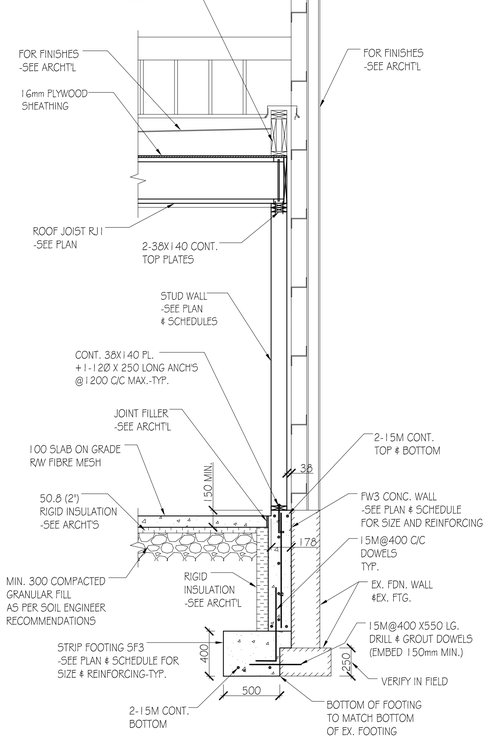
GROSS WIND UPLIFT DIAGRAM

SCALE: 1:200

B / S2

FOR CALCULATION OF NET UPLIFT ON ROOF DIAGRAM

1. ROOF DEAD LOAD FOR UPLIFT = 0.5 KPa.
   R = 0.69 KPa.
   S = 1.13 KPa.
   C = 2.44 KPa.
   OC = 2.44 KPa.



SECTION

SCALE: 1:25

2 / S2

No.	REVISION	DATE	BY
3	ISSUED FOR TENDER	FEB. 02/26	D.K
2	ISSUED FOR PERMIT	APR. 28/25	D.K
1	ISSUED FOR CLIENT REVIEW	JUL. 26/24	D.K

PROJECT NORTH

CLIENT: WILCOX ARCHITECTS INC.
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FENELON FALLS FIRE STATION #22 STORAGE BUILDING

9 John St. Fenelon Falls, ON K9V 1J2

DRAWING: ROOF FRAMING PLAN , SECTIONS & GROSS WIND UPLIFT DIAGRAM

AMR ENGINEERING LTD.
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920 ALNESS STREET, SUITE 205
TORONTO, ON M3J 2H7
(416) 551-1611

REGISTERED PROFESSIONAL ENGINEER 24-2283 D. KOTOBELLI PROVINCE OF ONTARIO

DRAWN BY:	M.K.	AMR PROJECT No.	24-2283
CHECKED BY:	D.K.		
DATE:	FEB. 02/26	DWG. No.	S2 OF 4
SCALE:	AS NOTED		

LIST OF STRUCTURAL DRAWINGS

S1. FOUNDATION PLAN, SECTIONS AND SCHEDULE.
S2. ROOF FRAMING PLAN & GROSS WIND UPLIFT DIAGRAM.
S3. GENERAL NOTES & TYPICAL DETAILS.
S4. GENERAL NOTES & TYPICAL DETAILS.

DESIGN CODE

1. THE COMPLETED BASE BUILDING STRUCTURE SHOWN ON THE STRUCTURAL DRAWINGS HAS BEEN DESIGNED IN SUBSTANTIAL ACCORDANCE WITH THE ONTARIO BUILDING CODE 2024 WHICH IS BASED ON THE NATIONAL BUILDING CODE OF CANADA 2020.

GENERAL NOTES

1. THE USE OF THESE DRAWINGS IS LIMITED TO THAT IDENTIFIED IN THE REVISIONS COLUMN.
2. THE INFORMATION ON THESE DRAWINGS SHALL NOT BE USED FOR ANY OTHER PROJECT OR WORKS. THE INFORMATION ON THESE DRAWINGS APPLIES SOLELY TO THIS PROJECT.
3. THE DRAWINGS DO NOT SHOW COMPONENTS THAT MAY BE NECESSARY FOR CONSTRUCTION SAFETY. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR SAFETY IN AND ABOUT THE JOB SITE DURING CONSTRUCTION, AND THE DESIGN AND ERECTION OF ALL TEMPORARY STRUCTURES, FORMWORK, FALSE WORK, SHORING, ETC. REQUIRED TO COMPLETE THE WORK.
4. "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 AMR ENGINEERING LIMITED, WHERE STRUCTURAL ENGINEERING RESPONSIBILITY IS REQUIRED FOR THESE ELEMENTS, THIS SHALL BE PROVIDED BY SPECIALTY STRUCTURAL ENGINEERS, WHO SHALL ALSO PROVIDE ANY LETTERS REQUIRED BY BUILDING PERMIT AUTHORITIES.
5. SHOP DRAWINGS FOR NON-STRUCTURAL ELEMENTS WHICH MAY AFFECT THE PRIMARY STRUCTURAL SYSTEM SHALL BE SUBMITTED TO AMR ENGINEERING LIMITED. THESE DRAWINGS WILL BE REVIEWED ONLY FOR THE EFFECT OF THE ELEMENT ON THE PRIMARY STRUCTURAL SYSTEM.

DESIGN LOADS

1. FLOOR AND ROOF PLAN LOADING IS SHOWN ON PLANS.

   CONTRACTOR CONSTRUCTION LOADS MUST NOT EXCEED THE SPECIFIED DESIGN LOADS. DESIGN LOADS MAY ONLY BE APPLIED AFTER CONCRETE REACHES IT'S DESIGN STRENGTH.

2. SPECIFIED CONCENTRATED LOADS ARE AS FOLLOWS U.N.O. ON PLAN:

   A. ROOFS -- 1.8 kN
   B. FLOORS -- 4.5 kN

3. SEISMIC AND WIND DESIGN: (FENELON FALLS, ONTARIO)

3a. EARTHQUAKE DESIGN PARAMETERS

Sa (0.2) = 0.301	Sa (2.0) = 0.089	SITE CLASSIFICATION:
Sa (0.5) = 0.301	Sa (5.0) = 0.024	SITE CLASS "D" (ASSUMED)
Sa (1.0) = 0.184	Sa (10.0) = 0.008	SITE DESIGNATION "XS" (ASSUMED)
PGA (X_D) = 0.159	$T_{a\ computed}$ = 0.19s	SEISMIC CATEGORY "SC3" (ASSUMED)
PGV (X_D) = 0.193	M_V = 1	Ie = 1.5 S(Ta)=S(0.19)=0.301
		Rd = 2.0
		Ro = 1.5

3b. WIND DESIGN PARAMETERS:

   Ce, Cg, and Cp ARE BASED ON OBC CL.4.1.7.
   $q(1/50)$ = 0.36 kPa, Iw = 1.25 ULS, 0.75 SLS

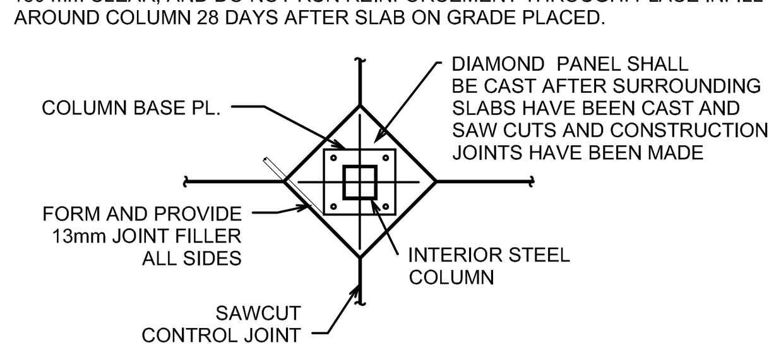
   WIND UPLIFT LOADS ON WOOD ROOFS SHALL BE 0.70 kPa NET UNLESS NOTED OTHERWISE ON PLAN.

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 AMR ENGINEERING LIMITED. WHERE STRUCTURAL ENGINEERING RESPONSIBILITY IS REQUIRED FOR THESE ELEMENTS, THIS SHALL BE PROVIDED BY SPECIALTY STRUCTURAL ENGINEERS, WHO SHALL 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. MECHANICAL AND ELECTRICAL EQUIPMENT.
   F. WINDOW WASHING EQUIPMENT AND ITS ATTACHMENTS.
   G. ESCALATORS, ELEVATORS, AND CONVEYING SYSTEMS.
   H. BRICK OR BLOCK VENEERS AND THEIR ATTACHMENTS.
   I. NON-LOAD BEARING MASONRY.
   J. NON-STRUCTURAL CONCRETE TOPPINGS.
3. SHOP DRAWINGS FOR NON-STRUCTURAL ELEMENTS WHICH MAY AFFECT THE PRIMARY STRUCTURAL SYSTEM SHALL BE SUBMITTED TO AMR ENGINEERING LIMITED. THESE DRAWINGS WILL BE REVIEWED ONLY FOR THE EFFECT OF THE ELEMENT ON THE PRIMARY STRUCTURAL SYSTEM.
4. THE DESIGN WIND LOAD TO BE USED FOR INTERIOR STUDS AND PARTITIONS IS 0.25 kPa (UNFACTORED) UNLESS NOTED OTHERWISE.

SLAB ON GRADE REINF. & 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. U.N.O REINFORCE SLAB ON GRADE WITH FIBRE MESH EQUIVALENT MASTERFIBER MAC MATRIX FIBRES WITH A DOSAGE OF 0.9 KG/M3 OR AN APPROVED EQUAL.
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 5mm WIDE AND 25 mm DEEP AS SOON AS PRACTICAL, BUT NO LATER THAN 24 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, SAWCUT DIAMOND PATTERN AROUND COLUMNS, 150 mm CLEAR OF COLUMNS.
7. 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.

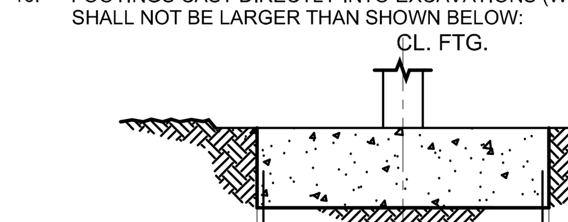


FOUNDATIONS

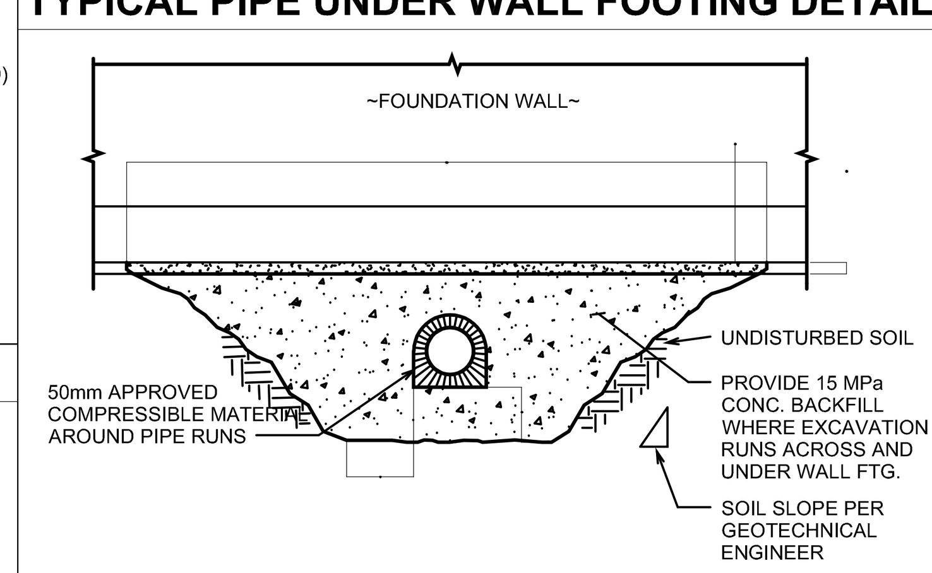
1. FOOTINGS HAVE BEEN DESIGNED FOR THE FOLLOWING ASSUMED BEARING RESISTANCE:

   A. STRIP FOOTINGS: ULS: 150 KPa, SLS: 100 KPa
   B. SPREAD FOOTINGS: ULS: 150 KPa, SLS: 100 KPa

2. BEARING SURFACES MUST BE APPROVED BY THE SOILS ENGINEER IMMEDIATELY BEFORE FOOTING CONCRETE IS PLACED. AMR IS NOT RESPONSIBLE FOR CONFIRMING BEARING CAPACITIES OF SOILS.
3. UNLESS OTHERWISE SHOWN, CENTER FOOTINGS UNDER COLUMNS AND WALLS.
4. DOWELS SHALL BE PLACED BEFORE CONCRETE IS PLACED. TEMPLATES SHALL BE USED TO ENSURE CORRECT PLACEMENT OF DOWELS.
5. PROVIDE 50 mm GROUND SEAL/ SKIM COAT, MUD SLAB UNDER FOOTINGS AS REQUIRED BY SOIL CONDITIONS.
6. FOR GROUND ELEVATIONS AND DRAINAGE SLOPES, SEE ARCHITECT'S DRAWINGS.
7. VARY FOOTING ELEVATIONS WHERE REQUIRED IN ACCORDANCE WITH DETAIL FOR "TYPICAL STEPPED FOOTING"(S.D.F.), SHOWN ON STRUCTURAL DRAWINGS.
8. 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.
9. FOOTING ELEVATIONS, IF SHOWN, ARE FOR PRICE ESTIMATING 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 SOILS ENGINEER.
10. BEARING SURFACES MUST BE PROTECTED FROM FREEZING BEFORE AND AFTER FOOTINGS ARE POURED.
11. SUB-BASE DESIGN OF SOIL UNDER THE SLAB ON GRADE SHALL BE IN ACCORDANCE WITH THE SOIL REPORT.
12. CONCRETE PLACED UNDER WATER SHALL CONFORM TO CAN/CSA-A23.1.
13. WHERE A FOUNDATION WALL RETAINS SOIL ON EACH SIDE, PLACE BACKFILL ON BOTH SIDES SIMULTANEOUSLY.
14. FOUNDATION WALLS RETAINING EARTH BETWEEN SLABS AT DIFFERENT LEVELS SHALL BE SHORED UNTIL THE SLAB AT HIGHER LEVEL IS IN PLACE AND HAS REACHED ITS REQUIRED STRENGTH.
15. DESIGN AND FIELD REVIEW OF EXCAVATION SHORING AND BACKFILL IS NOT DONE BY AMR.
16. FOOTINGS CAST DIRECTLY INTO EXCAVATIONS (WITHOUT SIDE FORMS) SHALL NOT BE LARGER THAN SHOWN BELOW:

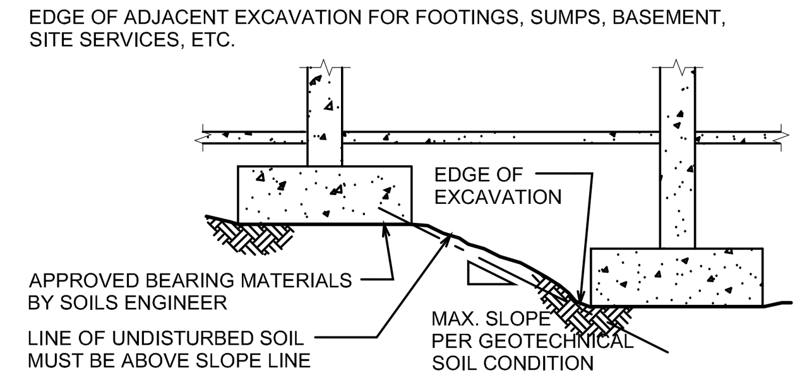


TYPICAL PIPE UNDER WALL FOOTING DETAIL

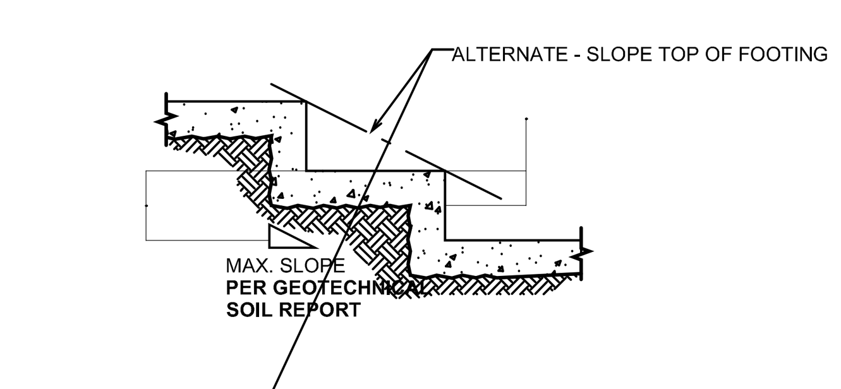


TYPICAL FOOTING ADJACENT TO EXCAVATION

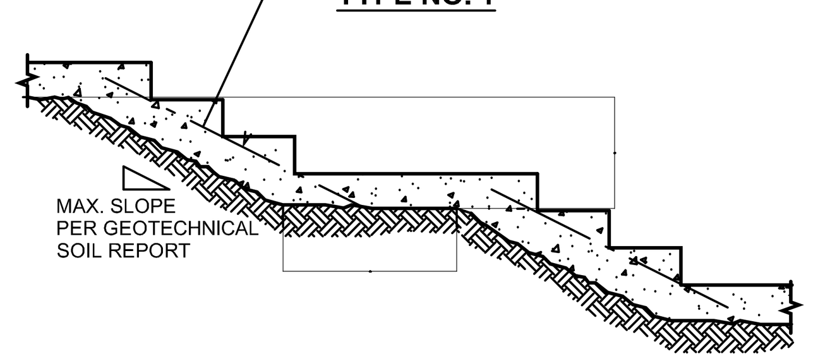
EDGE OF ADJACENT EXCAVATION FOR FOOTINGS, SUMPS, BASEMENT, SITE SERVICES, ETC.



TYPICAL STEPPED FOOTINGS *ON SOIL* (WALLS)



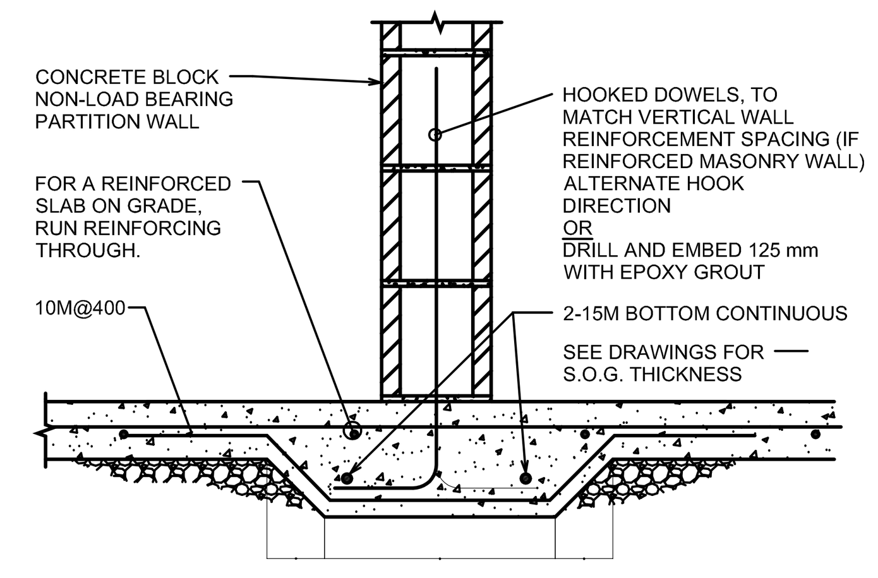
TYPE NO. 1



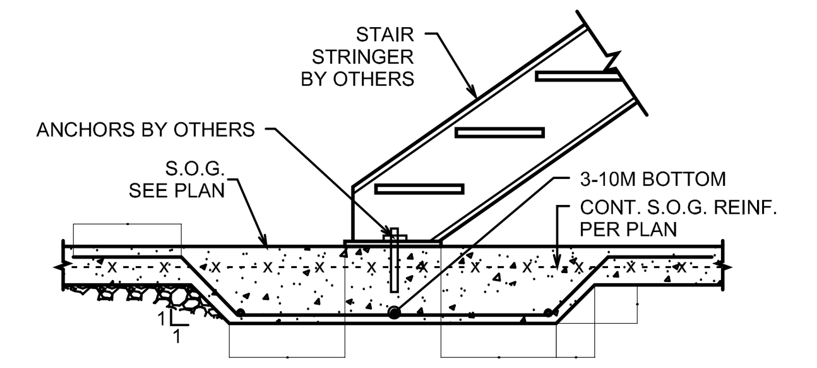
TYPE NO. 2

NOTE: IF TOTAL STEPPING 'H' EXCEEDED PROVIDE INTERMEDIATE FLAT HORIZONTAL SECTION BETWEEN SLOPED FOOTINGS U.N.O. ON PLAN

TYPICAL SLAB ON GRADE THICKENING UNDER NON-LOAD BEARING BLOCK PARTITION - U.N.O.

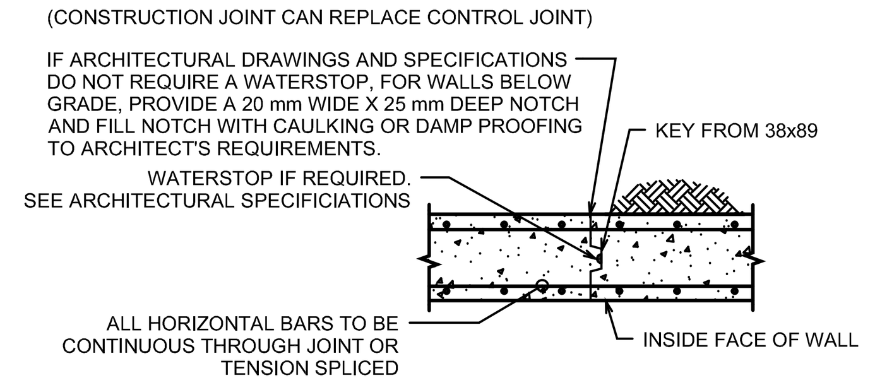


THICKENING SLAB ON GRADE AT STAIRS



WALL CONSTRUCTION JOINT

(CONSTRUCTION JOINT CAN REPLACE CONTROL JOINT)

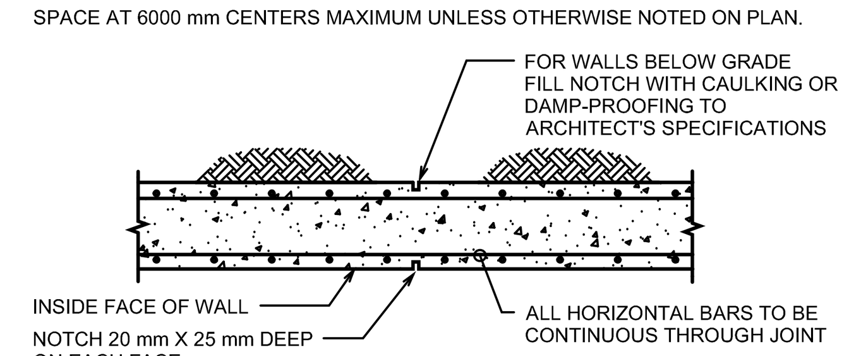


PLAN

WALL CONTROL JOINT

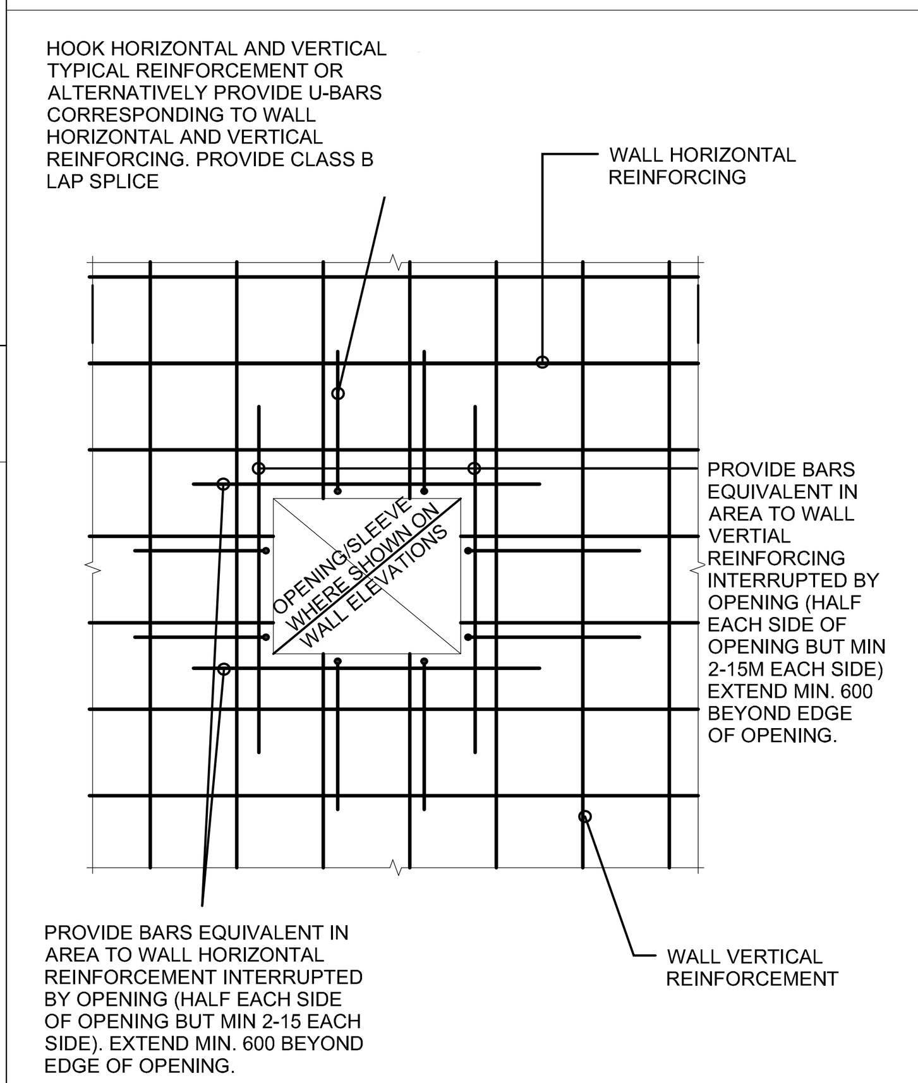
UNLESS NOTED OTHERWISE FOR EXTERIOR WALLS BELOW GRADE AND EXTERIOR WALLS EXPOSED TO WEATHER ABOVE GRADE.

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



PLAN

TYPICAL ADDITIONAL REINFORCEMENT FOR WALL OPENINGS UP TO 750mm x 750mm SIZE



NOTE: FOR LARGER OPENINGS SEE REINFORCEMENT ON WALL ELEVATIONS.

CONCRETE

1. CONCRETE IS SPECIFIED AS PER THE "PERFORMANCE" ALTERNATE AS OUTLINED IN TABLE 5 OF CAN/CSA-A23.
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 TABLE 5 OF CAN/CSA-A23.
3. THE SUPPLIER SHALL MEET ALL CERTIFICATION AND DOCUMENTATION REQUIREMENTS AS OUTLINED UNDER THE "PERFORMANCE" ALTERNATE OF TABLE 5 OF CAN/CSA-A23.
4. THE CONCRETE SUPPLIER SHALL BE CERTIFIED BY THE READY MIXED CONCRETE ASSOCIATION OF ONTARIO.
5. PORTLAND CEMENT SHALL BE TYPE GU UNLESS NOTED OTHERWISE.
6. CONCRETE SHALL HAVE A UNIT WEIGHT OF 23±1 kN/m³ (145±5 PCF) UNLESS NOTED OTHERWISE.
7. CONCRETE PROPERTIES:

STRUCTURAL CONCRETE REQUIREMENTS				
	MIN. 28 DAY STRENGTH	EXPOSURE CLASS	AIR CONTENT	W/C RATIO
FOOTINGS	25 MPA	N	N.A.	N.A.
FOUNDATION WALLS	25 MPA	F-2	4-7%	0.55
INTERIOR				
SLAB ON GRADE	25 MPA	N	N.A.	0.45
COLUMNS	25 MPA	N	N.A.	0.55
INTERIOR FOUNDATION WALLS	25 MPA	N.	N/A	N/A
EXTERIOR				
SLAB ON GRADE	32 MPA	C-2	5-8%	0.45
FOUNDATION WALLS	25 MPA	F-2	4-7%	0.55
SIDE WALK / PAVEMT	32 MPA	C-2	5-8%	0.45
SLABS / BEAMS / COL. / WALLS	35 MPA	C-1	5-8%	0.45

NOTES:
1. THE ABOVE REPRESENT MINIMUM REQUIREMENTS.
2. HIGHER GRADES OF CONCRETE WILL BE NOTED ON STRUCTURAL DRAWING WHERE REQUIRED.

8. 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.
9. MAXIMUM WATER/CEMENT RATIO AND AIR CONTENT TO MEET THE REQUIREMENTS FOR THE EXPOSURE CLASS AS OUTLINED IN TABLE 2, 4 AND 20 OF CAN/CSA-A23.
10. DO NOT USE CALCIUM CHLORIDE OR OTHER CHLORIDE PRODUCTS IN CONCRETE.
11. FOR CONCRETE TOPPING USE PEA SIZE AGGREGATE (MAX. 10mm DIAMETER).
12. CURING OF CONCRETE TO MEET THE REQUIREMENTS FOR THE EXPOSURE CLASS AS OUTLINED IN CLAUSE 7.4.1.7 AS WELL AS TABLES 2 AND 20 OF CAN/CSA-A23.
13. CONCRETE REINFORCEMENT SHALL CONFORM TO THE FOLLOWING STANDARDS:
    A. CAN/CSA-G30.18R - GRADE 400 MPa - 10M AND LARGER (U.N.O.)
    B. CSA STANDARD G30.5 - GRADE 400 MPa - WELDED WIRE REINFORCEMENT
    C. CAN/CSA-G30.18W - GRADE 400 MPa - 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).
    D. CSA STANDARD G279 - PRESTRESSING STRANDS
    E. EPOXY REINFORCING - ASTM A775M AND ASTM D3963
14. TENSION AND COMPRESSION EMBEDMENT AND SPLICE LENGTHS SHALL CONFORM TO CAN/CSA-A23.3.
15. DO NOT SUBSTITUTE DEFORMED WIRE FOR REINFORCING BARS WITHOUT PRIOR APPROVAL OF THE AMR.
16. SUPPORT REINFORCING WITH CHAIRS, ACCESSORIES, OR REINFORCING BARS AS REQUIRED. BARS USED AS SUPPORT BARS SHALL BE CONSIDERED AS ACCESSORIES.
17. 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.

CONCRETE COVER TO REINFORCEMENT		
FOOTINGS	TOP	50 MM
	BOTTOM	75 MM
	SIDES	75 MM
FOUNDATION WALLS	INSIDE SIDE	30 MM
	SOIL SIDE	40 MM
COLUMNS	SIDES	40 MM
SLABS / BEAMS	UNDERSIDE (NOT EXPOSED)	25 MM
	UNDERSIDE (EXPOSED)	40 MM

16. DETAIL REINFORCING IN ACCORDANCE WITH REINFORCING STEEL MANUAL OF STANDARD PRACTICE RSIC IAAC.
17. SUBMIT SHOP DRAWINGS FOR CONCRETE REINFORCEMENT, BAR SUPPORT AND ACCESSORIES FOR REVIEW BY AMR PRIOR TO PLACEMENT OF REBAR. CLEARLY INDICATE BAR SIZES, GRADES, SPACING, LOCATION AND QUANTITIES OF REINFORCING MESH, BAR SUPPORTS AND ACCESSORIES AND IDENTIFYING CODE MARKS TO PERMIT CORRECT PLACEMENT WITHOUT REFERENCE TO STRUCTURAL DRAWINGS.
    PLACING DRAWINGS AND BAR LISTS WILL BE REVIEWED FOR NUMBER AND SIZE OF BARS ONLY AND THIS REVIEW SHALL IN NO WAY RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY FOR CARRYING OUT THE WORK IN ACCORDANCE WITH THE DRAWINGS.
    SUBSTITUTION OF IMPERIAL REINFORCING SIZES AND GRADES WILL ONLY BE ACCEPTED IF PLACING DRAWINGS SHOWING IMPERIAL SIZES ARE SUBMITTED TO THE CONSULTANT FOR REVIEW. APPROVAL MUST BE OBTAINED BEFORE ANY WORK IS COMMENCED.

EMBEDMENT / DEVELOPMENT LENGTHS AND SPLICE LENGTHS

BASED ON CAN/CSA-A23.3-04

WHERE EMBEDMENT OR SPLICES ARE DIMENSIONED ON THE DRAWINGS, SUCH DIMENSION SHALL APPLY.

WHERE THE DRAWINGS INDICATE A COMPRESSION EMBEDMENT, IT IS A COMPRESSION EMBEDMENT LENGTH AND IT SHALL BE AS NOTED BELOW.

WHERE THE DRAWINGS INDICATE A TENSION EMBEDMENT, IT IS A TENSION EMBEDMENT LENGTH AND SHALL BE AS NOTED BELOW.

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.

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.

IN TABLES BELOW, EMBEDMENT LENGTHS ARE SHOWN WITHOUT BRACKETS, AND SPLICE LENGTHS ARE SHOWN IN BRACKETS.

ALL LENGTHS ARE FOR Fy = 400 MPa REBAR.

ALL TENSION SPLICE LENGTHS ARE CLASS "B" (1.3 ℓd).

COMPRESSION EMBEDMENT AND SPLICE LENGTHS

- COMPRESSION EMBEDMENT REFERS TO THE LENGTH REQUIRED TO PROVIDE THE "COMPRESSION DEVELOPMENT LENGTH" AS DEFINED IN CAN/CSA-A23.3-04 CLAUSE 12.3.2.
- SPLICE LENGTH REFERS TO THE MINIMUM LAP LENGTH REQUIRED FOR A COMPRESSION SPLICE AS DEFINED IN CAN/CSA-A23.3-04 CLAUSE 12.16.1.

CONCRETE STRENGTH	FUNCTION	REBAR DESIGNATION					
		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)

TENSION EMBEDMENT AND SPLICE LENGTHS

- TENSION EMBEDMENT REFERS TO THE LENGTH REQUIRED TO PROVIDE A "TENSION DEVELOPMENT LENGTH" AS DEFINED IN CAN/CSA-A23.3-04 CLAUSE 12.2.3.
- SPLICE LENGTH REFERS TO THE MINIMUM LAP LENGTH REQUIRED FOR A CLASS 'B' TENSION SPLICE (1.3ℓd) AS PER CAN/CSA-A23.3-04 CLAUSE 12.15.

CASE 1 CONDITIONS

TENSION EMBEDMENT AND SPLICE LENGTHS CONFORMING TO CAN/CSA-A23.3-04 TABLE 12.1 ($0.45\ k_1\ k_2\ k_3\ k_4\ f_y\ d_b / \sqrt{f'_c}$) ARE TO BE AS PER THE FOLLOWING TABLE FOR:

- COLUMNS.
- BEAM AND GIRDER TOP AND BOTTOM BARS.
- SLAB BAND TOP BARS.
- TWO WAY SLAB TOP AND BOTTOM BARS.
- ONE WAY SLAB BOTTOM BARS.
- WALL HORIZONTAL AND VERTICAL DISTRIBUTED REINFORCING.
- SEE ALSO NOTES ON TOP BARS AND EPOXY COATED REINFORCEMENT.
- 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					
		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)

NOTE: "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.

NOTE: EPOXY COATED REINFORCEMENT
INCREASE THESE TABLE LENGTHS BY 1.5 FOR EPOXY COATED REINFORCEMENT. INCREASE THESE TABLE LENGTHS BY 1.7 FOR EPOXY COATED TOP REINFORCEMENT.

CASE 2 CONDITIONS

TENSION EMBEDMENT AND SPLICE LENGTHS CONFORMING TO CAN/CSA-A23.3-04 TABLE 12.1 ($0.6\ k_1\ k_2\ k_3\ k_4\ f_y\ d_b / \sqrt{f'_c}$) ARE TO BE AS PER THE FOLLOWING TABLE FOR MEMBERS NOT SATISFYING CASE 1 CONDITIONS AS SET OUT ABOVE. FOR EXAMPLE:

- ONE WAY SLAB TOP BARS (SEE TOP BAR NOTE).
- SLAB BAND BOTTOM BARS.
- BARS (EXCLUDING THE SPLICE) SPACED CLOSER TOGETHER THAN 2 BAR DIAMETERS.
- STIRRUPS IN BEAMS, GIRDERS AND TRANSFER SLABS.
- SEE ALSO NOTES ON TOP BARS AND EPOXY COATED REINFORCEMENT.

CONCRETE STRENGTH	FUNCTION	REBAR DESIGNATION					
		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)

NOTE: "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.

NOTE: EPOXY COATED REINFORCEMENT
INCREASE THESE TABLE LENGTHS BY 1.5 FOR EPOXY COATED REINFORCEMENT. INCREASE THESE TABLE LENGTHS BY 1.7 FOR EPOXY COATED TOP REINFORCEMENT.

EXCAVATIONS AND EARTHWORK

1. ALL EXCAVATION WORK TO BE CARRIED OUT IN ACCORDANCE WITH RECOMMENDATIONS OF SOIL ENGINEER.
2. BEFORE COMMENCING WORK, CONTRACTOR SHALL ESTABLISH THE LOCATION OF ALL BURIED SERVICES ON THE SITE AND ARRANGE WITH APPROPRIATE AUTHORITY FOR RELOCATION OF BURIED SERVICES.
3. SHORE AND BRACE EXCAVATIONS, PROTECT SLOPES AND BANKS AND PERFORM ALL WORK IN ACCORDANCE WITH PROVINCIAL AND MUNICIPAL REGULATIONS.
4. PROTECT EXCAVATIONS FROM FREEZING, KEEP EXCAVATIONS CLEAN, FREE OF STANDING WATER AND LOOSE SOIL.
5. BACKFILL MATERIAL AND SPACES TO BE REVIEWED AND APPROVED BY SOIL CONSULTANT. REMOVE SNOW, ICE, CONSTRUCTION DEBRIS, ORGANIC SOIL AND STANDING WATER FROM SPACES TO BE FILLED. MAINTAIN EVEN LEVELS OF BACKFILL AROUND STRUCTURES AS WORK PROGRESSES, TO EQUALIZE EARTH PRESSURES.
6. TESTING OF COMPACTION TO BE CARRIED OUT BY TESTING LABORATORY DESIGNATED BY THE SOIL CONSULTANT.

CONCRETE COLD WEATHER REQUIREMENTS

(SEE ALSO CAN/CSA-A23.1, CLAUSE 7.4.2.5, 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.
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 SLAB IF UNEXPECTED DROP IN AIR TEMPERATURE SHOULD OCCUR.
D. CONCRETE TEMPERATURE SHALL BE MAINTAINED ABOVE 10°C FOR AT LEAST 7 DAYS OR UNTIL THE CONCRETE REACHES 70% OF SPECIFIED STRENGTH.

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 3).

A. FORMS AND STEEL SHALL BE FREE FROM ICE AND SNOW.
B. THE AGGREGATE OR MIXING WATER SHALL BE HEATED TO GIVE A MINIMUM CONCRETE TEMPERATURE OF 10°C AT POINT OF POUR.
C. CONCRETE SHALL NOT BE PLACED ON OR AGAINST ANY SURFACE WHICH IS AT A TEMPERATURE OF LESS THAN 5°C.
D. SLABS SHALL BE COVERED WITH CANVAS OR SIMILAR, KEPT A FEW INCHES CLEAR OF SURFACE.
E. PROTECTION SHALL BE MAINTAINED FOR AT LEAST THE SPECIFIED CURING PERIOD.
F. CONCRETE TEMPERATURE SHALL BE MAINTAINED ABOVE 10°C FOR AT LEAST THE SPECIFIED CURING PERIOD.

3. FORECASTED AIR TEMPERATURE BELOW -4°C

A, B, C, D, AS UNDER POINT 2.

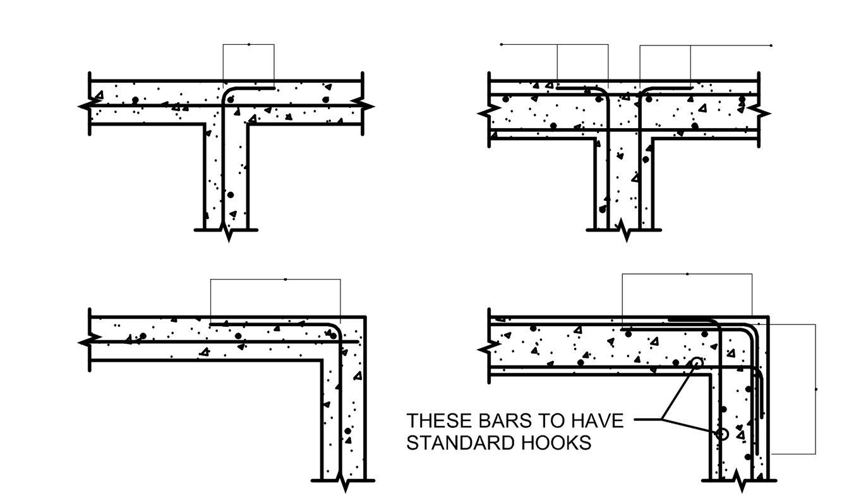
E. WORK AREA SHALL BE ENCLOSED AND ARTIFICIAL HEAT PROVIDED. HEATING TO BE STARTED AT LEAST ONE HOUR AHEAD OF POURING AND MAINTAINED FOR A MINIMUM OF THE SPECIFIED CURING PERIOD.
F. TEMPERATURE OF THE CONCRETE AT ALL SURFACES SHALL BE KEPT AT A MINIMUM OF 20°C FOR 3 DAYS, OR 10°C FOR 7 DAYS. CONCRETE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

CONCRETE FORMWORK STRIPPING

1. THE DESIGN AND FIELD REVIEW OF FORMWORK, SHORING AND RESHORING IS THE RESPONSIBILITY OF THE CONTRACTOR. RESHORING DRAWINGS SHALL BE SUBMITTED TO AMR 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. NO SLAB FORMS OR BEAM FORMS SHALL BE REMOVED BEFORE CONCRETE HAS REACHED 75% OF THE 28 DAY STRENGTH BEFORE STRIPPING/ RE-SHORING.
4. 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 AMR, MAY BE USED.
5. ALL SLABS, BEAMS, WALLS ETC. TO BE SHORED UNTIL CONCRETE REACHES DESIGN STRENGTH.
6. NO CONCRETE MAY BE REMOVED WITH PERCUSSIVE METHODS SUCH AS CHIPPING OR JACK-HAMMERING WITHOUT PRIOR APPROVAL OF AMR.

CONCRETE WALLS

1. DETAILS OF HORIZONTAL REINFORCEMENT AT CORNERS



2. PLACE HORIZONTAL REINFORCEMENT IN OUTTER LAYERS OF THE CURTAINS AND VERTICALS AS 2ND INSIDE LAYER (BEHIND HORIZONTALS).
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 CENTRE OF WALL.
4. ENDS OF ALL WALLS SHALL HAVE 2-15M VERTICAL LAPPED 600 UNLESS OTHERWISE NOTED ON DRAWINGS.
5. ADD 2-15M PARALLEL TO ALL EDGES AND EXTENDING 625 BEYOND CORNERS AT OPENINGS IN WALLS.

No.	REVISION	DATE	BY
3	ISSUED FOR TENDER	FEB. 02/26	D.K
2	ISSUED FOR PERMIT	APR. 28/25	D.K
1	ISSUED FOR CLIENT REVIEW	JUL. 26/24	D.K

CLIENT: WILCOX ARCHITECTS INC. 74 LINDSAY ST. S. LINDSAY, ONT.

PROJECT:
FENELON FALLS
FIRE STATION #22
STORAGE BUILDING

9 John St. Fenelon Falls, ON K9V 1J2

DRAWING: GENERAL NOTES AND TYPICAL DETAILS

AMR ENGINEERING LTD.
STRUCTURAL ENGINEERS
920 ALNESS STREET, SUITE 205
TORONTO, ON M3J 2H7
(416) 551-1611

REGISTERED PROFESSIONAL ENGINEER 24-2283 D. KOTOBELLI PROVINCE OF ONTARIO

DRAWN BY:	M.K.	AMR PROJECT No.	24-2283
CHECKED BY:	D.K.		
DATE:	FEB. 02/26	DWG. No.	S3 OF 4
SCALE:	AS NOTED		

WOOD FRAMING

GENERAL

1. ALL DESIGN, DETAILS, MATERIALS AND CONSTRUCTION PROCEDURES SHALL CONFORM TO CURRENT EDITIONS OF THE FOLLOWING AS A MINIMUM:
   - ONTARIO BUILDING CODE 2024 - PART 9
   - CAN/CSA-O86 - ENGINEERING DESIGN IN WOOD
   - CSA O121 - DOUGLAS FIR PLYWOOD
   - CAN/CSA-LO 4000 - PARALLAMS AND MICROLLAMS
   - CAN/CSA-O122 - STRUCTURAL GLUED-LAMINATED TIMBER
   - CSA O437 SERIES - STANDARDS FOR OSB AND WAFERBOARD
   - CSA B111 - WIRE NAILS, SPIKES AND STAPLES
   - CAN/CSA-B34 - MISCELLANEOUS BOLTS AND SCREWS
   - CANADIAN WOOD-FRAME HOUSE CONSTRUCTION-CMHC
   - "WOOD DESIGN MANUAL" - CANADIAN WOOD COUNCIL

   ANY CHANGES TO THE FRAMING SHOWN ON THESE DRAWINGS SHALL HAVE PRIOR WRITTEN APPROVAL OF AMR. FRAMING CHANGES WHICH HAVE NOT BEEN SO APPROVED WILL BE REJECTED.

   CONFIRM ALL DIMENSIONS AND OUTLINES WITH THE ARCHITECTURAL DRAWINGS. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL DIMENSIONS, ELEVATIONS AND DETAILS.
2. ANY TIMBER NOT GRADE MARKED WILL BE REJECTED.
3. FINISHES SHALL BE DETAILED TO ACCOMMODATE SHRINKAGE OF THE TIMBER OVER TIME.
4. DO NOT COVER WOOD FRAMING WITH FINISHES UNTIL AMR'S FRAMING REVIEW IS COMPLETE. PROVIDE 48 HOURS ADVANCE NOTIFICATION WHEN FRAMING REVIEWS ARE REQUIRED.
5. NOTCHING AND DRILLING OF STRUCTURAL ELEMENTS SHALL FOLLOW THE GUIDELINES SET FORTH IN THE BUILDING CODE PART 9, UNLESS OTHERWISE APPROVED IN WRITING BY AMR.
6. ALL TIMBER ELEMENTS ARE DESIGNED FOR DRY-SERVICE CONDITIONS. SEE ARCHITECTURAL DRAWINGS FOR WATERPROOFING AND VENTILATION DETAILS.
7. ANY TIMBER NOT GRADE MARKED WILL BE REJECTED. TIMBER SHALL BE DRY SPRUCE #1 OR #2 CONFORMING TO CSA-086-14 U/N OTHERWISE
8. TRUS JOISTS AND MICRO LAM BEAMS (MLB) SHALL BE AS MANUFACTURED BY TRUS JOIST CANADA LTD. OR AN APPROVED EQUAL.
9. ALL LOAD BEARING STUDS SHALL HAVE ONE ROW OF SOLID BLOCKING AT MID-HEIGHT UNLESS NOTED OTHERWISE.
10. PROVIDE 38X38 BRIDGING AT 2000 C/C MAXIMUM FOR FLOOR JOISTS.
11. BRIDGING FOR TRUSS JOISTS SHALL BE AS RECOMMENDED BY THE MANUFACTURER, HOWEVER, PROVIDE MINIMUM ONE ROW OF BRIDGING AT MID-SPAN FOR JOIST SPANS > 4800.
12. PROVIDE ADEQUATE TEMPORARY BRACING FOR ALL STUD WALLS DURING CONSTRUCTION.
13. ALL CONNECTIONS, UNLESS NOTED OTHERWISE, TO BE IN ACCORDANCE WITH O.B.C 2024, TABLE 9.23.3.4. & TABLE 9.23.3.5
14. ALL WOOD FRAME CONSTRUCTION SHALL SATISFY THE FOLLOWING CONSTRUCTION TOLERANCES AS A MINIMUM. REFER TO ARCHITECTURAL AND WARRANTY REQUIREMENTS FOR ADDITIONAL TOLERANCE SPECIFICATIONS.
    - A. FLOORS - NOT MORE THAN 6 mm IN 3 m OUT OF LEVEL.
    - B. WALLS - NOT MORE THAN 6 mm IN 2.4 m OUT OF PLUMB. - NOT MORE THAN 6 mm IN 3 m FOR ANY BOWING.
    - C. OVERALL - BUILDING WALLS AND FLOORS SHALL NOT BE MORE THAN 10 mm DIFFERENCE IN MEASUREMENT FROM DIMENSIONS SHOWN ON CONTRACT DOCUMENTS.

MATERIALS

1. STUDS AND BUILT-UP POSTS TO BE S-P-F #2 GRADE OR BETTER U.N.O.
2. JOISTS TO BE S-P-F #2 GRADE OR BETTER.
3. BUILT-UP BEAMS AND HEADERS TO BE S-P-F #2 GRADE OR BETTER.
4. WALL PLATES TO BE S-P-F #2 GRADE. WALL PLATES SHALL BE KILN-DRIED AND MAY BE FINGER JOINTED EXCEPT IN SHEAR WALLS.
5. BEAMS TO BE S-P-F #2 GRADE OR BETTER.
6. ALL DIMENSION LUMBER TO BE SURFACED FOUR SIDES ('S4S').
7. PLYWOOD TO BE DOUGLAS FIR SHEATHING GRADE.
8. O.S.B. TO CONFORM TO CSA O325.
9. TIMBER CONNECTION HARDWARE TO BE SIMPSON STRONG-TIE, OR EQUIVALENT APPROVED BY AMR. COMPLETE WITH NAILS SUPPLIED BY MANUFACTURER. DO NOT USE P NAILS.
10. NAILS SHALL BE COMMON ROUND STEEL WIRE NAILS. NAILS ARE CALLED UP BY LENGTH AND SHALL CONFORM TO THE FOLLOWING TABLE:

LENGTH	DIAMETER	PENNY-WEIGHT
50 mm (2")	2.84 mm (0.113")	6d
65 mm (2 1/2")	3.25 mm (0.131")	8d
75 mm (3")	3.66 mm (0.148")	10d
80 mm (3 1/4")	3.66 mm (0.148")	12d
90 mm (3 1/2")	4.06 mm (0.162")	16d
100 mm (4")	4.88 mm (0.192")	20d
115 mm (4 1/2")	5.38 mm (0.225")	30d
125 mm (5")	5.89 mm (0.244")	40d

NOTE: SPIRAL OR PNEUMATIC NAILS MAY BE USED IF THEY CONFORM TO THE TABLE ABOVE.

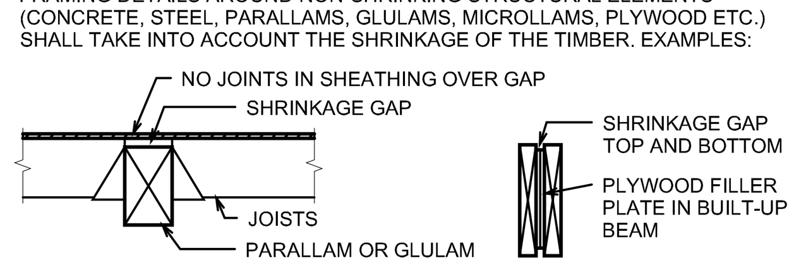
11. MISCELLANEOUS STEEL TO BE CAN/CSA-G40.21 OR APPROVED EQUAL.
12. ANCHOR BOLTS SHALL BE ASTM F1554 OR ASTM A36 OR APPROVED EQUAL. ANCHOR BOLTS SHALL BE DEFORMED, THREADED ALONG THEIR FULL LENGTH OR HOOKED 40 mm AT THE BOTTOM.
13. BOLTS SHALL BE ASTM A307 OR APPROVED EQUAL, USED WITH STANDARD CUT STEEL WASHERS UNLESS NOTED OTHERWISE ON DRAWINGS.
14. MOISTURE CONTENT OF ALL TIMBER ELEMENTS SHALL NOT EXCEED 19% AT THE TIME OF CONSTRUCTION OR FABRICATION.
15. ALL FASTENERS AND CONNECTION HARDWARE THROUGH PRESERVATIVE TREATED MATERIALS OR OUTSIDE OF THE MOISTURE BARRIER TO BE HOT DIPPED GALVANIZED OR STAINLESS STEEL STEEL AS SPECIFIED.

NAILING

1. NAILING SHALL CONFORM TO THE BUILDING CODE PART 9, AND "WOOD BUILDING TECHNOLOGY" PUBLISHED BY THE CANADIAN WOOD COUNCIL. NAILING CALLED UP ON THESE DRAWINGS (I.E. FOR SHEATHING) IS BASED ON COMMON NAILS. SEE NOTE 10 UNDER MATERIALS FOR COMMON NAIL SIZES.
2. UNLESS NOTED OTHERWISE NAIL ALL WALL, FLOOR AND ROOF SHEATHING WITH 65 mm NAILS AT 150 mm O/C AT SUPPORTED EDGES OF SHEATHING SHEETS, AND AT 250 mm O/C FOR FLOORS AND AT 300 mm O/C FOR ROOFS AT INTERMEDIATE SUPPORTS TO ALL SUPPORTING MEMBERS. FLOOR SHEATHING SHALL BE NAILED WITH SPIRAL NAILS AND SHALL BE GLUED TO THE JOISTS IN ADDITION TO NAILING. IF SMALLER DIAMETER NAILS (I.E. PNEUMATICALLY DRIVEN NAILS OR 'P-NAILS') ARE USED, INCREASE THE NUMBER OF NAILS BY 33%. SEE SHEAR WALL SCHEDULE OR DIAPHRAGM NAILING SCHEDULE FOR ADDITIONAL REQUIREMENTS.
3. DO NOT USE PNEUMATICALLY DRIVEN NAILS WITH JOIST HANGERS OR CONNECTING HARDWARE. NAILS FOR HARDWARE SHOULD BE AS SPECIFIED OR SUPPLIED BY MANUFACTURER.
4. DO NOT USE PNEUMATICALLY DRIVEN NAILS IN SHEAR WALL SHEATHING UNLESS THE NAILS MEET THE LENGTH AND DIAMETER OF NOTE 9 UNDER MATERIALS.

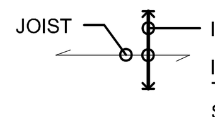
SHRINKAGE

1. FRAMING DETAILS SHALL ENSURE UNIFORM VERTICAL SHRINKAGE. ADJACENT PORTIONS OF STRUCTURE SHALL BE SUPPORTED ON ROUGHLY EQUIVALENT AMOUNTS OF HORIZONTAL TIMBER (JOISTS AND SILL PLATES). DO NOT MIX KILN-DRIED AND NON-KILN DRIED JOISTS IN ANY GIVEN FLOOR.
2. FRAMING DETAILS AROUND NON-SHRINKING STRUCTURAL ELEMENTS (CONCRETE, STEEL, PARALLAMS, GLULAMS, MICROLLAMS, PLYWOOD ETC.) SHALL TAKE INTO ACCOUNT THE SHRINKAGE OF THE TIMBER. EXAMPLES:

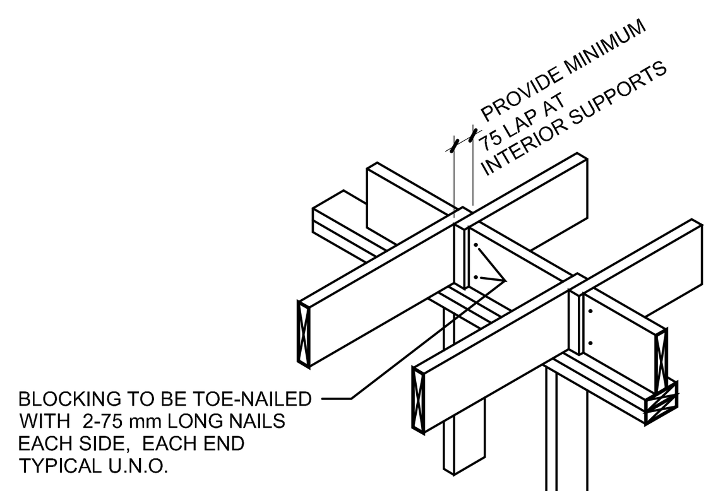


JOISTS

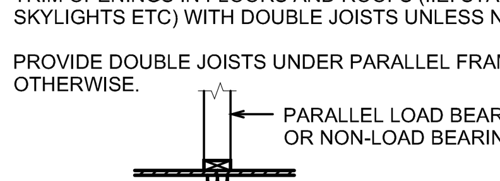
1. REFER TO PLAN AND JOIST SCHEDULE FOR JOIST TYPE, SIZE, AND SPACING.



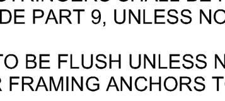
2. DIMENSIONAL LUMBER JOISTS SHALL HAVE CROSS-BRIDGING OR FULL-DEPTH BLOCKING AT 1800 O/C ALONG THE SPAN FOR ALL SPANS GREATER THAN 3600. CROSS BRIDGING SHALL CONSIST OF 38 X 38 TIMBER OR APPROVED STEEL BRIDGING. TJI JOISTS SHALL BE BLOCKED AS PER MANUFACTURERS REQUIREMENTS. JOISTS SHALL HAVE FULL-DEPTH BLOCKING OVER LOAD BEARING WALLS, DROPPED BEAMS OR HEADERS. SEE TYPICAL LOAD BEARING WALL AND SHEAR WALL CONNECTIONS BETWEEN FLOORS FOR ADDITIONAL BLOCKING REQUIREMENTS.



3. TRIM OPENINGS IN FLOORS AND ROOFS (I.E. STAIRS, FIREPLACES, SKYLIGHTS ETC) WITH DOUBLE JOISTS UNLESS NOTED OTHERWISE.
4. PROVIDE DOUBLE JOISTS UNDER PARALLEL FRAME WALLS UNLESS NOTED OTHERWISE.



5. STAIRS AND STRINGERS SHALL BE FRAMED IN ACCORDANCE WITH THE BUILDING CODE PART 9, UNLESS NOTED OTHERWISE.
6. JOISTS ARE TO BE FLUSH UNLESS NOTED OTHERWISE. USE JOIST HANGERS OR FRAMING ANCHORS TO CONNECT JOISTS.



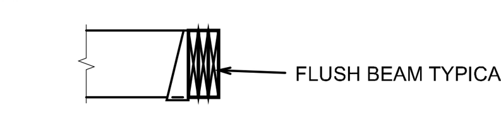
7. UNLESS NOTED OTHERWISE JOIST HANGERS OR FRAMING ANCHORS SHALL BE CAPABLE OF DEVELOPING THE SHEAR STRENGTH OF THE SUPPORTED MEMBER. FOR DIMENSIONAL LUMBER JOISTS, THE FOLLOWING CAPACITIES ARE REQUIRED: (BASED ON CASE 2 S-P-F NO.1/NO.2)

JOIST SIZE	REQUIRED SHEAR RESISTANCE (kN)	
	WORKING LOAD	FACTORED LOAD
38 X 89	5.5	7.2
38 X 140	7.2	9.4
38 X 184	8.2	10.6
38 X 235	9.53	12.4
38 X 286	10.5	13.7

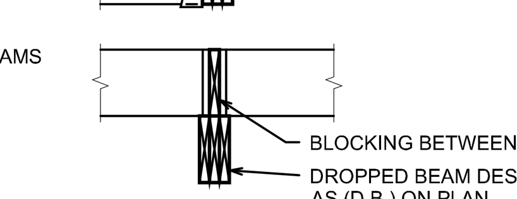
FOR I-JOISTS, HANGERS SHALL BE SPECIFIED ON ENGINEERED SHOP DRAWINGS PROVIDED BY THE JOIST SUPPLIER.

BEAMS

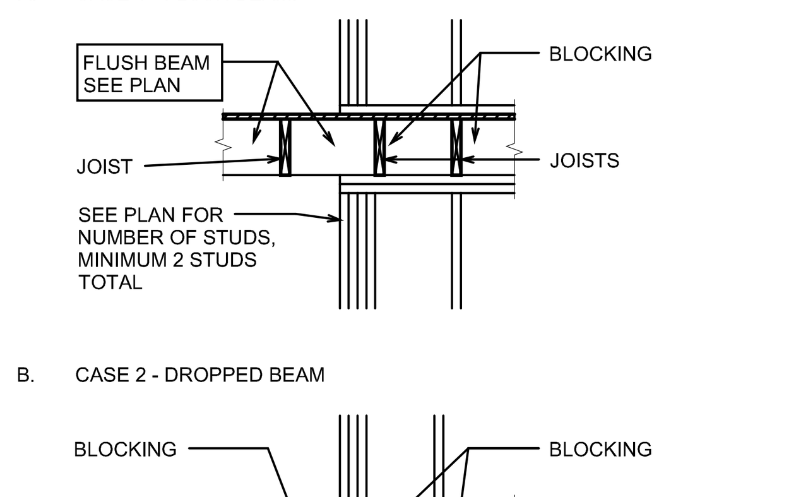
1. BUILT-UP BEAMS (I.E. 3-38 X 235) SHALL BE NAILED TOGETHER WITH 2 ROWS OF 75 mm NAILS, EACH ROW WITH NAILS AT 300 O/C. INDIVIDUAL MEMBERS MAY NOT BE SPLICED BETWEEN SUPPORTS. FOR ENGINEERED PRODUCTS, NAILING REQUIREMENTS OF LAMINATES SHALL BE SPECIFIED ON ENGINEERED SHOP DRAWINGS PROVIDED BY BEAM SUPPLIER.
2. FLUSH BEAMS



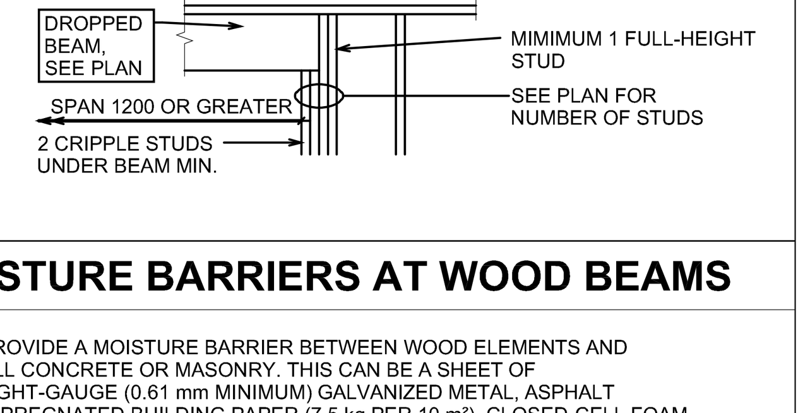
3. DROPPED BEAMS



4. U.N.O. ALL EXTERIOR WALL BEAMS, INTERIOR WALL BEAMS, AND DOOR HEADER BEAMS ARE DROPPED. UNLESS NOTED OTHERWISE ALL OTHER INTERIOR BEAMS ARE FLUSH.
5. USE 2-38 x 184 BEAMS OVER ALL OPENINGS IN LOAD BEARING AND NON LOAD BEARING WALLS UNLESS NOTED OTHERWISE. BEAMS SHALL BE SUPPORTED AT EACH END AS SHOWN BELOW UNLESS NOTED OTHERWISE.
   - A. CASE 1 - FLUSH BEAM:



   - B. CASE 2 - DROPPED BEAM

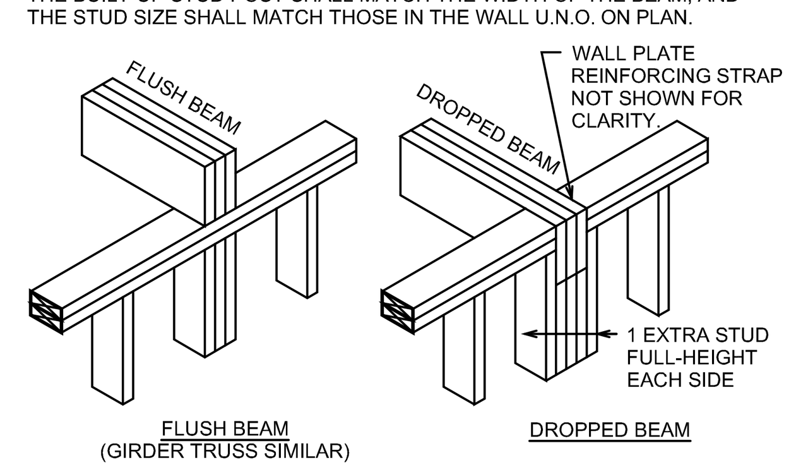


MOISTURE BARRIERS AT WOOD BEAMS

1. PROVIDE A MOISTURE BARRIER BETWEEN WOOD ELEMENTS AND ALL CONCRETE OR MASONRY. THIS CAN BE A SHEET OF LIGHT-GAUGE (0.61 mm MINIMUM) GALVANIZED METAL, ASPHALT IMPREGNATED BUILDING PAPER (7.5 kg PER 10 m²), CLOSED-CELL FOAM GASKET MATERIAL, TYPE S ROLL ROOFING. SHEET POLYETHYLENE NOT PERMITTED. ALL JUNCTIONS AND TERMINATIONS TO BE LAPPED (50 mm MINIMUM) AND SEALED. BUTT JOINTS IN MOISTURE BARRIERS NOT PERMITTED.

WALLS

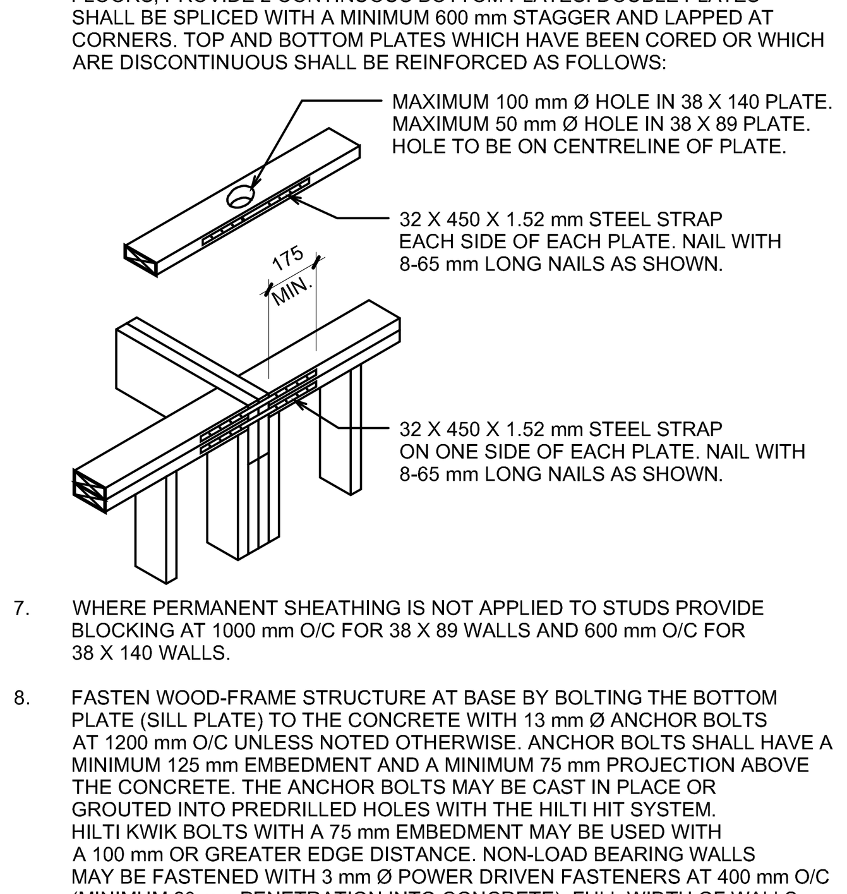
1. LOAD BEARING WALLS: (symbol) DENOTED ON PLAN THUS.
2. SEE TYPICAL DETAILS FOR LOAD BEARING WALL CONNECTIONS BETWEEN FLOORS U.N.O.
3. UNLESS NOTED OTHERWISE, PROVIDE A BUILT-UP STUD POST AT THE ENDS OF ALL BEAMS AND GIRDER TRUSSES FRAMING INTO A WALL. THE BUILT-UP STUD POST SHALL MATCH THE WIDTH OF THE BEAM, AND THE STUD SIZE SHALL MATCH THOSE IN THE WALL U.N.O. ON PLAN.



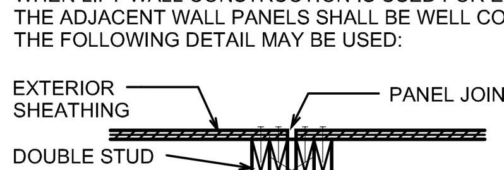
4. NAILING OF BUILT-UP STUD POSTS SHALL CONFORM TO THE FOLLOWING SCHEDULE. EACH STUD OF BUILT-UP POST SHALL BE NAILED.

STUD	NAILING
38 X 89	75 mm NAILS @ 220 mm O/C
38 X 140	2 - ROWS OF 75 mm NAILS mm @ 220 mm O/C
38 X 184	2 - ROWS OF 75 mm NAILS @ 220 mm O/C

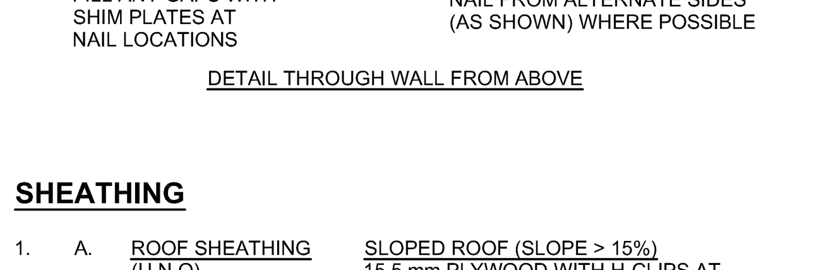
5. ALL POSTS AND BUILT-UP STUD POSTS SHOWN ON ANY LEVEL SHALL BE CARRIED DOWN TO THE CONCRETE UNLESS NOTED OTHERWISE. PROVIDE SOLID BLOCKING BETWEEN JOISTS UNDER ALL POSTS AND BUILT-UP POSTS.
6. ALL LOAD BEARING WALLS SHALL HAVE 2 CONTINUOUS TOP PLATES AND 1 CONTINUOUS BOTTOM PLATE. BEAMS OR HEADERS OVER OPENINGS IN WALLS SHALL BE DROPPED TO ALLOW THE TOP PLATES TO BE CONTINUOUS. WHERE 25 mm CONCRETE TOPPING IS USED ON THE FLOORS, PROVIDE 2 CONTINUOUS BOTTOM PLATES. DOUBLE PLATES SHALL BE SPLICED WITH A MINIMUM 600 mm STAGGER AND LAPPED AT CORNERS. TOP AND BOTTOM PLATES WHICH HAVE BEEN CORED OR WHICH ARE DISCONTINUOUS SHALL BE REINFORCED AS FOLLOWS:



7. WHERE PERMANENT SHEATHING IS NOT APPLIED TO STUDS PROVIDE BLOCKING AT 1000 mm O/C FOR 38 X 89 WALLS AND 600 mm O/C FOR 38 X 140 WALLS.
8. FASTEN WOOD-FRAME STRUCTURE AT BASE BY BOLTING THE BOTTOM PLATE (SILL PLATE) TO THE CONCRETE WITH 13 mm Ø ANCHOR BOLTS AT 1200 mm O/C UNLESS NOTED OTHERWISE. ANCHOR BOLTS SHALL HAVE A MINIMUM 125 mm EMBEDMENT AND A MINIMUM 75 mm PROJECTION ABOVE THE CONCRETE. THE ANCHOR BOLTS MAY BE CAST IN PLACE OR GROUTED INTO PREDRILLED HOLES WITH THE HILTI HIT SYSTEM. HILTI KWIK BOLTS WITH A 75 mm EMBEDMENT MAY BE USED WITH A 100 mm OR GREATER EDGE DISTANCE. NON-LOAD BEARING WALLS MAY BE FASTENED WITH 3 mm Ø POWER DRIVEN FASTENERS AT 400 mm O/C (MINIMUM 20 mm PENETRATION INTO CONCRETE). FULL WIDTH OF WALLS SHALL BEAR ON CONCRETE UNLESS NOTED OTHERWISE. SEE SHEAR WALL SCHEDULE FOR ADDITIONAL ANCHORING REQUIREMENTS OF SHEAR WALLS.
9. SILL PLATES SHALL BEAR ON A LEVEL SURFACE; PROVIDE A LEVELLING BED OF MORTAR IF REQUIRED. PROVIDE A SILL GASKET UNDER SILL PLATES BEARING ON CONCRETE.
10. WHERE THE SPACING OF JOISTS OR ROOF TRUSSES MATCHES THE SPACING OF THE STUDS IN THE SUPPORTING WALL (OR A MULTIPLE THEREOF), EACH JOIST OR TRUSS SHALL BEAR DIRECTLY OVER A STUD.



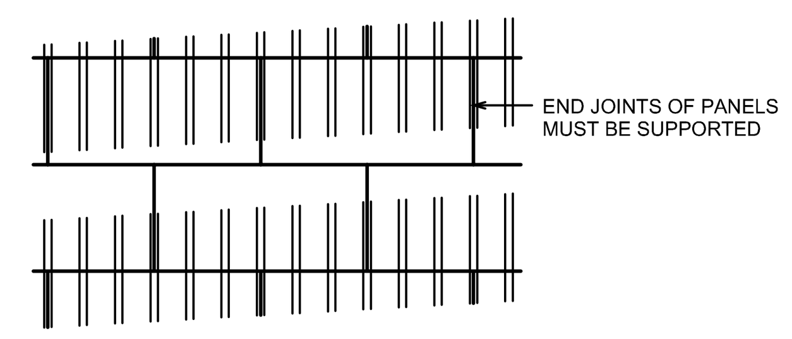
11. WHEN LIFT-WALL CONSTRUCTION IS USED FOR EXTERIOR WALLS, THE ADJACENT WALL PANELS SHALL BE WELL CONNECTED. THE FOLLOWING DETAIL MAY BE USED:



DETAIL THROUGH WALL FROM ABOVE

SHEATHING

1.
   - A. ROOF SHEATHING (U.N.O) — SLOPED ROOF (SLOPE > 15%) 15.5 mm PLYWOOD WITH H-CLIPS AT UNSUPPORTED JOINTS. FLAT ROOF (SLOPE≤ 15%) 15.5 mm TONGUE AND GROOVE PLYWOOD.
   - B. FLOOR SHEATHING (U.N.O) — 19 mm TONGUE AND GROOVE PLYWOOD IF NO CONCRETE TOPPING IS USED. (ANY JOINT WITHOUT A TONGUE AND GROOVE CONNECTION SHALL BE BLOCKED WITH A 38 X 89). 15.5 mm BUTT JOINT PLYWOOD IF 38 mm CONCRETE TOPPING IS USED.
   - C. EXTERIOR WALL SHEATHING (U.N.O) — 15.5 mm PLYWOOD ON EXTERIOR SIDE TYP. 15.5 mm PLYWOOD SHEATHING IF WALLS CLAD WITH VERTICAL STRAPPING OR BRICK VENEER. SEE ALSO ARCHITECTURAL FOR ADDITIONAL SHEATHING REQUIREMENTS.
   - D. SHEAR WALL SHEATHING (U.N.O) — SEE SHEAR WALL SCHEDULE FOR SHEATHING REQUIREMENTS AT SHEAR WALL LOCATIONS.
2. LAY FLOOR AND ROOF SHEATHING WITH THE SURFACE GRAIN AT RIGHT ANGLES TO THE JOISTS. STAGGER THE JOINTS PARALLEL TO THE JOISTS.



3. DRYWALL OR SHEATHING ON LOAD BEARING WALLS OR SHEAR WALLS SHALL BE FASTENED DIRECTLY TO THE STUDS, WITHOUT THE USE OF RESILIENT METAL CHANNELS.

ENGINEERED WOOD TRUSSES

1. THE STRUCTURAL DRAWINGS SHOW CONCEPTUAL WOOD TRUSS FRAMING ONLY. SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS, ROOF SLOPES, ROOF OVERHANGS, ELEVATIONS, OPENINGS ETC.
2. WOOD TRUSSES ARE BOTTOM CHORD BEARING UNLESS NOTED OTHERWISE.
3. THE DESIGN, PREPARATION OF SHOP DRAWINGS, REVIEW OF FABRICATION AND FIELD REVIEW OF INSTALLATION SHALL BE CARRIED OUT AND STAMPED BY A SPECIALTY STRUCTURAL ENGINEER.
4. THE WOOD TRUSSES SHALL BE DESIGNED FOR THE LOADS SPECIFIED IN THE GENERAL NOTES, OR AS SHOWN ON PLAN. SNOW LOADS SHALL BE BASED ON PART 4 OF THE BUILDING CODE, INCLUDING THE EFFECT OF SLIDING OR DRIFTING SNOW, PLUS ANY ADDITIONAL REQUIREMENTS SET OUT IN THE LOCAL BUILDING BY-LAW. THEY SHOULD ALSO BE DESIGNED FOR A VERTICAL POINT LOAD OF 0.90 kN (UNFACTORED) APPLIED ANYWHERE ON BOTTOM CHORD (ONE POINT LOAD PER TRUSS).
5. TRUSS SUPPLIER MUST DESIGN AND SUPPLY THE ENTIRE TRUSS SYSTEM WHICH INCLUDES THE FOLLOWING ELEMENTS:
   - LATERAL BRACING AND BRIDGING.
   - CONNECTING HARDWARE.
   - BEARING PLATES, HOLD DOWNS, AND TENSION TIES SHOWN ON TRUSS SHOP DRAWINGS.
6. THE SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING ELEMENTS:
   - A. FRAMING LAYOUT, SECTIONS, CONNECTION DETAILS, DESIGN LOADS, WOOD SPECIES AND WOOD GRADE.
   - B. COMPLETE DIMENSIONS.
   - C. ALL BRACING AND BRIDGING NECESSARY FOR THE STABILITY OF THE TRUSSES DURING ERECTION AND IN THE COMPLETED STRUCTURE.
   - D. HOLD DOWN ANCHORS TO RESIST WIND UPLIFT, CONNECTING ROOF TRUSSES TO THE SUPPORTING STRUCTURE.
   - E. END REACTIONS OF GIRDER TRUSSES ON THE SUPPORTING STRUCTURE IN kN (UNFACTORED). NOTE THAT IT IS THE TRUSS ENGINEER'S RESPONSIBILITY TO CHECK BEARING CONDITIONS AT THE SUPPORT POINTS OF ALL TRUSSES BUT ESPECIALLY GIRDERS AND PROVIDE STEEL HARDWARE AS REQUIRED TO PREVENT OVER STRESS IN BOTH THE TOP PLATES AND THE GIRDERS.
7. THE WOOD TRUSS LAYOUT SHOWN ON THESE DRAWINGS HAS BEEN COORDINATED WITH THE SUPPORTING STRUCTURE BELOW. THE WOOD TRUSS LAYOUT SHALL NOT BE CHANGED WITHOUT PRIOR WRITTEN APPROVAL OF AMR. THE COST OF REDESIGNING THE SUPPORTING STRUCTURE TO SUIT CHANGES TO THE TRUSS LAYOUT WILL BE CHARGED TO THE CONTRACTOR.
8. TRUSS SUPPLIER SHALL SUBMIT A LETTER ATTESTING TO THE SUCCESSFUL COMPLETION AND INSTALLATION OF ALL ELEMENTS IN COMPLIANCE WITH THE ENGINEERED TRUSS SHOP DRAWINGS TO THE ENGINEER OF RECORD. THIS LETTER SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF ONTARIO.
9. THE WOOD TRUSSES SHALL BE DESIGNED FOR A MAXIMUM LIVE LOAD DEFLECTION OF 1/360 OF THE SPAN.
10. (arrow) INDICATES PRE-ENGINEERED WOOD TRUSSES @ 600 mm O/C UNLESS NOTED OTHERWISE ON PLAN. SEE ARCHITECTURAL DRAWINGS FOR ROOF GEOMETRY.
11. TRUSS DESIGNATIONS:
    - G.T. INDICATES GIRDER TRUSS.
    - H.T. INDICATES HIP TRUSS.
    - D.T. INDICATES DRAG TRUSS (SEE DRAG TRUSS SCHEDULE FOR ADDITIONAL REQUIREMENTS)
12. THE WOOD TRUSSES SHALL BE KEPT DRY AND PROTECTED FROM THE ENVIRONMENT DURING STORAGE ON OR OFF THE PROJECT SITE AS PER THE MANUFACTURES REQUIREMENTS.

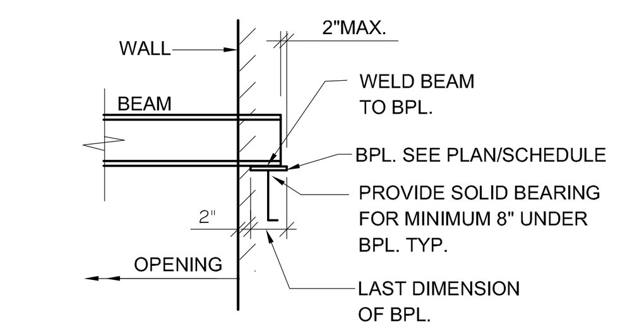
RENOVATIONS

1. THE CONTRACT DOCUMENTS ARE BASED ON ASSUMED AS-BUILT DIMENSIONS FOR THE EXISTING BUILDING STRUCTURE AND ASSUMPTIONS IN ACCORDANCE WITH DETAILING AND PLACING PRACTICE. THESE ASSUMPTIONS MAY VARY FROM THE ACTUAL ON-SITE CONDITIONS. THE CONTRACTOR SHALL IMMEDIATELY INFORM THE CONSULTANT OF ANY ACTUAL VARIATIONS FROM THE ASSUMED CONDITIONS.
2. MINOR MODIFICATIONS TO SUIT TOLERANCES OF +/- 50mm WILL BE REQUIRED TO THE WORK INDICATED ON THESE DRAWINGS TO REFLECT ACTUAL SITE CONDITIONS. THE CONTRACTOR WILL COOPERATE WITH THE CONSULTANT AND AMR IN THIS REGARD. MINOR MODIFICATIONS WILL BECOME THE RESPONSIBILITY OF THE CONTRACTOR AND WILL NOT RESULT IN A CHANGE IN THE CONTRACT PRICE.
3. ENSURE THAT ALL NECESSARY JOB DIMENSIONS ARE TAKEN AND ALL TRADES ARE COORDINATED FOR THE PROPER EXECUTION OF THE WORK. THE CONTRACTOR SHALL ASSUME COMPLETE RESPONSIBILITY FOR THE ACCURACY AND COMPLETENESS OF SUCH DIMENSIONS, AND FOR COORDINATION.
4. PRIOR TO FABRICATION OF ANY STRUCTURAL MEMBERS, THE CONTRACTOR SHALL COMPLETE THIS SITE REVIEW OF CRITICAL "TIE-IN" DIMENSIONS AND CONFIRM ALL DIMENSIONS TO ENSURE PROPER FIT OF NEW WORK TO EXISTING. REPORT ANY DISCREPANCIES TO AMR PRIOR TO STARTING WORK.
5. COMMENCEMENT OF CONSTRUCTION OR ANY PART THEREOF CONSTITUTES ACCEPTANCE OF EXISTING CONDITIONS AND MEANS DIMENSIONS AND ELEVATIONS HAVE BEEN CONSIDERED, VERIFIED AND ARE ACCEPTABLE.
6. ANY OPENINGS THAT ARE NOT SHOWN OR INDICATED ON THE STRUCTURAL DRAWINGS SHALL BE REPORTED TO AMR FOR REVIEW. THESE OPENINGS MAY NOT BE ALLOWED, MAY HAVE TO BE MOVED, OR MAY REQUIRE ADDITIONAL STRUCTURAL WORK AND DETAILING. DO NOT PROCEED WITH THESE OPENINGS WITHOUT WRITTEN PERMISSION FROM AMR.
7. UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS, THE CORING OR CUTTING OF OPENINGS AND HOLES SHOWN ON THE STRUCTURAL DRAWINGS THROUGH THE EXISTING STRUCTURE SHALL NOT CUT ANY REINFORCING BARS. THE CONTRACTOR SHALL LOCATE THE LOCATION, SIZE, LENGTH, ORIENTATION AND POSITION OF EXISTING REINFORCING AND PROVIDE AMR WITH HARD COPIES OF SUCH FOR OUR REVIEW IN THE VICINITY OF THE HOLES AND SLEEVES TO BE CUT OR CORED, AND THE HOLES AND SLEEVES SHALL BE LOCATED TO AVOID CUTTING OF REINFORCING BARS. WHERE THIS IS NOT POSSIBLE, IT SHALL BE REPORTED TO AMR FOR REVIEW.
8. UNLESS NOTED OTHERWISE AT ALL LOCATIONS WHERE NEW CONCRETE WILL BE IN CONTACT WITH EXISTING CONCRETE SURFACES, THE EXISTING CONCRETE SURFACE IS TO BE COMPLETELY CLEANED AND ROUGHENED BY HYDRODEMOLITION, BUSH HAMMERING, (OR APPROVED EQUAL) TO AN AMPLITUDE OF 6 mm (1/4").
9. CONNECTIONS FOR NEW STRUCTURAL STEEL FRAMING TO EXISTING STRUCTURAL STEEL SHALL BE ACHIEVED THROUGH WELDED CONNECTIONS UNLESS OTHERWISE NOTED. WELDING OF NEW STEEL TO "OLD" STEEL (STEEL PRODUCED IN EARLY 20TH CENTURY) MAY REQUIRE MODIFICATIONS TO THE STANDARD WELDING PROCEDURES. PROCEDURES OF WELDING NEW STEEL TO "OLD" STEEL SHALL BE PREPARED BY THE CONTRACTOR'S SPECIALTY STRUCTURAL ENGINEER AND REVIEWED AND APPROVED BY AMR. CONTRACTOR TO ALSO PROVIDE A REPORT FROM MATERIALS TESTING COMPANY COMMENTING ON CHEMICAL COMPOSITION AND WELDABILITY OF OLD STEEL.
10. CONTRACTOR TO ENSURE THAT UNDERGROUND OR IN-SLAB SERVICES ARE NOT DAMAGED THROUGH DEMOLITION, SAWCUTTING, HOLE AUGURING, OR OTHER CONSTRUCTION ACTIVITIES. SEE SPECIFICATION FOR TESTING/LOCATING REQUIREMENTS.
11. DRILL AND SITE MEASURE BOLT HOLES IN EXISTING STRUCTURE PRIOR TO FABRICATING STEEL CONNECTION PLATES. BOLT HOLES MAY HAVE TO BE MOVED FROM WHAT IS SHOWN ON THE DRAWINGS TO AVOID CUTTING EXISTING REINFORCING OR TO AVOID OTHER SITE CONDITIONS. SITE MODIFICATION OF STEEL CONNECTION PLATES WILL NOT BE ACCEPTED WITHOUT THE PRIOR APPROVAL OF AMR.

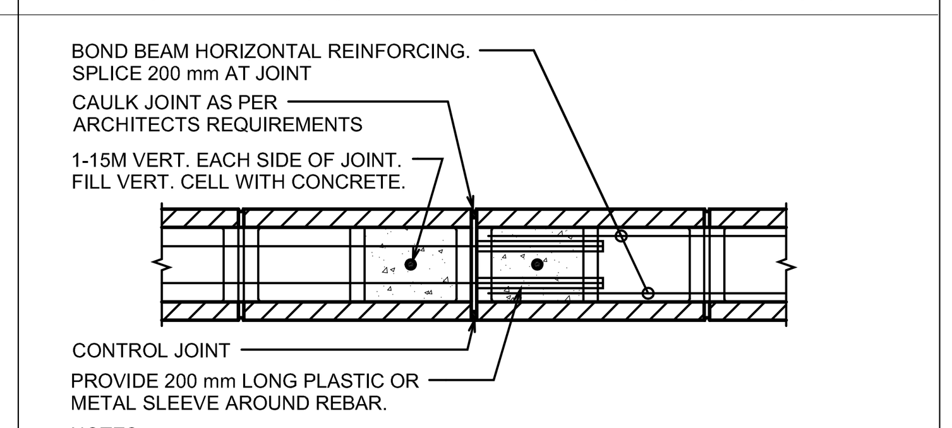
STRUCTURAL STEEL

1. STRUCTURAL STEEL SECTIONS SHALL BE NEW AND CONFORM TO THE FOLLOWING:
   - A. WIDE FLANGE BEAMS AND WWF SECTIONS --- CSA G40.21 350W
   - B. MISCELLANEOUS ROLLED SECTIONS (EXCEPT WIDE FLANGES) ---------- CSA G40.21 300W
   - C. HOLLOW STRUCTURAL SECTIONS (CLASS C U.N.O.) ---------- CSA G40.21 350W
   - D. ROLLED PLATES ---------- CSA G40.21 300W
   - E. BOLTS (SEE PLANS AND DETAILS) ---------- ASTM A325 OR ASTM A490
   - F. STRUCTURAL STEEL ANCHOR RODS (U.N.O.) -- ASTM F1554 GRADE 36 MINIMUM
   - G. REINFORCING BAR ANCHOR BOLTS ---------- CAN/CSA-G30.18R, GRADE 400
3. ALL CONNECTIONS TO BE DESIGNED BY FABRICATOR UNLESS NOTED OTHERWISE. ALL BEAM CONNECTIONS TO BE STANDARD FRAME BEAM CONNECTIONS OR EQUIVALENT, UNLESS NOTED OTHERWISE. SUBMIT A LETTER OF CERTIFICATION BY P.ENG RESPONSIBLE FOR DESIGN OF CONNECTIONS.
4. SHOP DRAWINGS SHALL BE PREPARED UNDER THE DIRECTION OF A SPECIALTY STRUCTURAL ENGINEER. FOR THOSE CONNECTIONS AND COMPONENTS DESIGNED BY THE FABRICATOR. THIS ENGINEER OR THEIR REPRESENTATIVE SHALL VISIT THE SITE TO REVIEW IN PLACE THE CONNECTIONS AND COMPONENTS DESIGNED BY THIS ENGINEER TO SATISFY THEMSELVES THAT THESE CONNECTIONS AND COMPONENTS COMPLY WITH THEIR DESIGN ON THE SHOP DRAWINGS. THIS ENGINEER SHALL PROVIDE A LETTER TO AMR TO THIS EFFECT. THIS ENGINEER SHALL ALSO PROVIDE SEALED SKETCHES FOR ALL FIELD MODIFICATIONS MADE TO THEIR DESIGN.
5. SUBMIT SHOP DRAWINGS FOR REVIEW PRIOR TO START OF STEEL FABRICATION.
6. FABRICATION, ERECTION, STRUCTURAL DESIGN, AND DETAILING OF ALL STEEL SHALL BE IN ACCORDANCE WITH CAN/CSA-S16.
7. FILLET WELDS SHALL BE 5 mm MINIMUM U.N.O.
8. BOLTS SHALL BE A325 19 mm Ø MINIMUM U.N.O.
9. BOLTED CONNECTIONS SHALL HAVE A MINIMUM OF TWO BOLTS IN EACH MEMBER U.N.O.
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 AMR ENGINEERING LIMITED.

TYP. BEAM BEARING DETAIL AT MASONRY WALLS



TYPICAL MASONRY WALL CONTROL JOINT

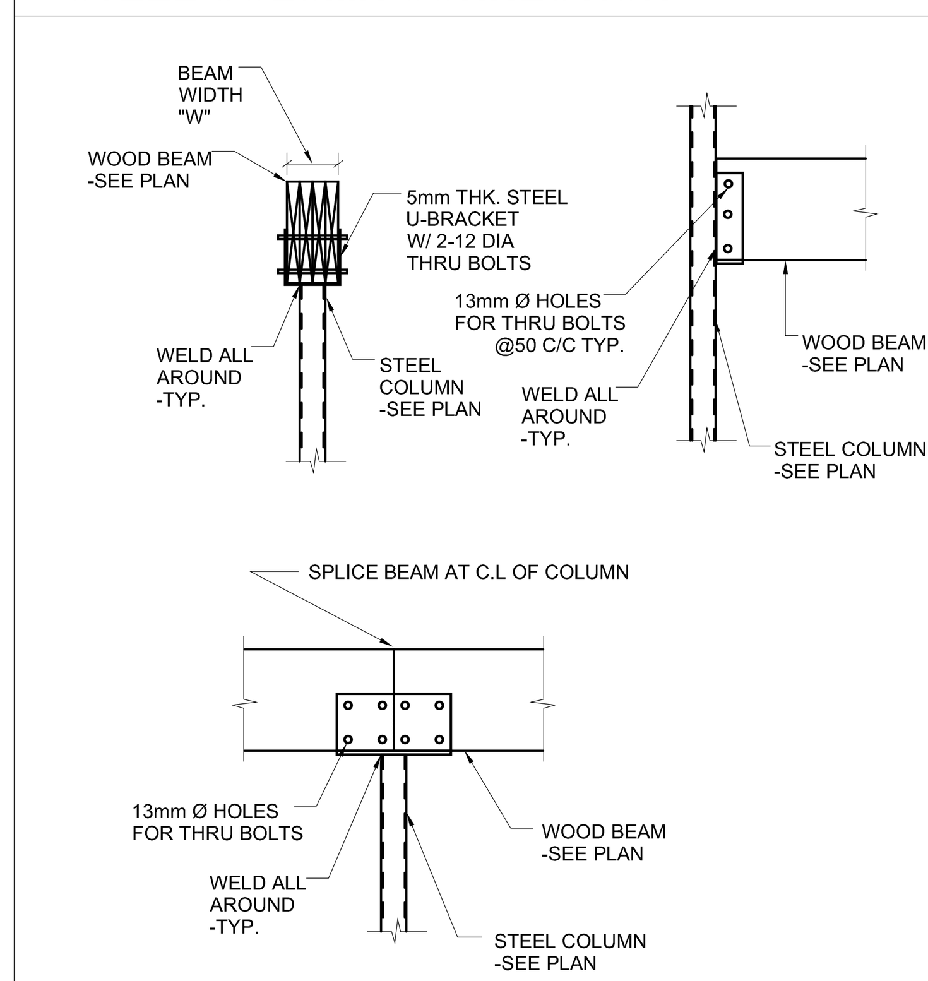


NOTES:

PLAN SECTION TAKEN THROUGH BOND BEAM.

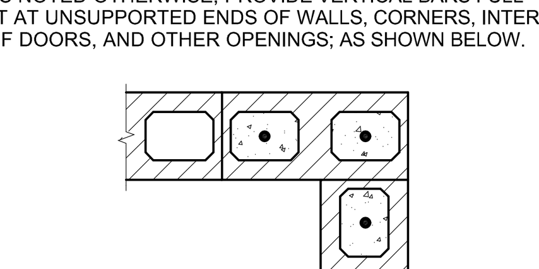
SPACE CONTROL JOINTS AT 7200 mm O/C MAXIMUM UNLESS NOTED OTHERWISE ON PLAN.
COORDINATE LOCATIONS WITH ARCHITECT AND AMR
CONTROL JOINTS SHALL NOT BE LOCATED UNDER OWSJ OR STEEL BEAMS.

TYPICAL DETAIL FOR WOOD BEAM TO STEEL COLUMN CONNECTION

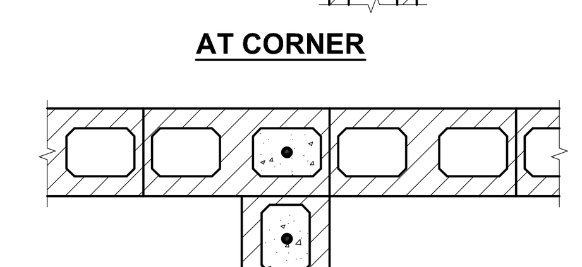


LOAD BEARING MASONRY

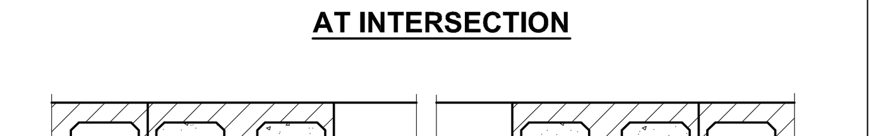
1. MASONRY WORK SHALL CONFORM TO CSA S304.1 AND ITS REFERENCED DOCUMENTS, INCLUDNG:
   - A. CONCRETE BLOCK TO CAN/CSA-A165.1, TYPE H15/A, UNLESS NOTED OTHERWISE ON SCHEDULE (BASED ON NET AREA).
   - B. MORTAR TO CAN/CSA-A179, TYPE 'S' FOR ALL WALLS.
   - C. GROUT TO CAN/CSA-A179.
   - D. MASONARY WIRE REINFORCING TO CSA G30.5.
   - E. REINFORCING BARS TO CAN/CSA-G30.18 - 400 MPa.
   - F. WELDED REINFORCING BARS TO CAN/CSA-G30.18 - 400 MPa.
   - G. CONNECTIONS TO CAN/CSA-A370.
   - H. PRACTICE TO CAN/CSA-A371.
2. STRUCTURAL DRAWINGS INDICATE ONLY LOAD-BEARING WALLS. DESIGN IS BASED ON ENGINEERING ANALYSIS ACCORDING TO CSA S304.1.
3. FILL BLOCK CORES UNDER ALL CONCENTRATED LOADS WITH 12.5 MPa MIN. GROUT TO A DEPTH OF AT LEAST 400 mm MEASURED DOWN FROM THE BEARING UNLESS NOTED OTHERWISE. PROVIDE 20MPa. GROUT AT MASONRY WALL AROUND FLOOR LEVELS AS PER DETAIL 13/S10
4. PROVIDE EXTRA HEAVY DUTY LADDER TYPE OR TRUSS TYPE MASONRY REINFORCING (4.76 mm DIAMETER) IN HORIZONTAL JOINTS EVERY SECOND COURSE (400 mm) UNLESS NOTED OTHERWISE IN SCHEDULE.
5. PROVIDE LINTELS OVER ALL OPENINGS IN WALLS. SEE LINTEL SCHEDULE, UNLESS NOTED OTHERWISE ON PLAN. CONNECT BACK TO BACK ANGLES TOGETHER AT 500 mm O/C MAXIMUM. PROVIDE 150 mm MINIMUM END BEARING FOR LINTELS.
6. PROVIDE 1-15M CONTINOUS IN TOP COURSE OF WALL UNDER FLOOR SLAB TYP. U.N.O. AND FILL CELLS SOLID WITH 12.5 MPa GROUT MIN.
7. LAPS: WIRE REINFORCEMENT ------ 200 mm; 10M BARS ---------- 400 mm; 15M BARS ---------- 600 mm; 20M BARS ---------- 1000 mm
8. UNLESS NOTED OTHERWISE, PROVIDE VERTICAL BARS FULL HEIGHT AT UNSUPPORTED ENDS OF WALLS, CORNERS, INTERSECTIONS, SIDE OF DOORS, AND OTHER OPENINGS; AS SHOWN BELOW.



AT CORNER



AT INTERSECTION



AT OPENING

9. PROVIDE 1-15M IN EACH CELL OF ALL PIERS AND PILASTERS UNLESS OTHERWISE NOTED. ALL VERTICAL REINFORCING SHALL BE CONTINUED TO WITHIN 50 mm OF TOP OF THE WALL.
10. PROVIDE CLEANOUTS FOR ALL CELLS TO BE REINFORCED, REPEAT CLEANOUTS ABOVE BOND BEAMS.
11. FILL CELLS CONTAINING VERTICAL REINFORCING AND BOLTS WITH 12.5 MPa GROUT MIN. VIBRATE OR PUDDLE TO FILL CELLS COMPLETELY.
12. FILL CELLS IN 1200 mm LIFTS OR BETWEEN BOND BEAMS, WHICHEVER IS LESS.
13. CONTROL JOINTS SHALL BE INSTALLED AT MAXIMUM SPACING OF 7200 mm, IF NOT OTHERWISE SHOWN ON DRAWINGS.
14. CONTROL JOINTS AND EXPANSION JOINTS SHALL CONTINUE THROUGH BOND BEAMS IF NOT OTHERWISE SHOWN.
15. OUTSIDE FACE OF EXTERIOR WALLS SHALL BE WATERPROOFED AS PER SPECIFICATIONS AND ARCHITECTURAL DRAWINGS.
16. NO MASONRY WORK SHALL BE PERMITED WITH TEMPERATURE BELOW 5° CELSIUS, UNLESS PROVISIONS ARE MADE FOR HEATING THE MATERIALS AND PROTECTING THE WORK.
17. PROVIDE 15M @ 800 mm O/C FULL HEIGHT FOR ALL LOAD BEARING MASONRY WALLS, UNLESS NOTED OTHERWISE ON SCHEDULE.
18. BUILD MASONRY TIGHT INTO BEAM WEB.
19. PROVIDE EXTRA HEAVY DUTY BLOCK LOK LADDER TYPE REINFORCING OR AN APPROVED EQUAL AT 400 C/C MAXIMUM UNLESS NOTED IN ALL MASONRY WITH TWO OR MORE WYTHES.
20. THE CONTRACTOR SHALL PROVIDE ADEQUATE TEMPORARY BRACING TO HOLD FREE STANDING MASONRY WALLS PLUMB & TRUE TO LINE DURING CONSTRUCTION.
21. LOAD BEARING MASONRY IS SHOWN THUS (symbol) ON PLAN/SCHEDULE/ SECTION.

No.	REVISION	DATE	BY
3	ISSUED FOR TENDER	FEB. 02/26	D.K
2	ISSUED FOR PERMIT	APR. 28/25	D.K
1	ISSUED FOR CLIENT REVIEW	JUL. 26/24	D.K

CLIENT: WILCOX ARCHITECTS INC. 74 LINDSAY ST. S. LINDSAY, ONT.

PROJECT:
FENELON FALLS
FIRE STATION #22
STORAGE BUILDING

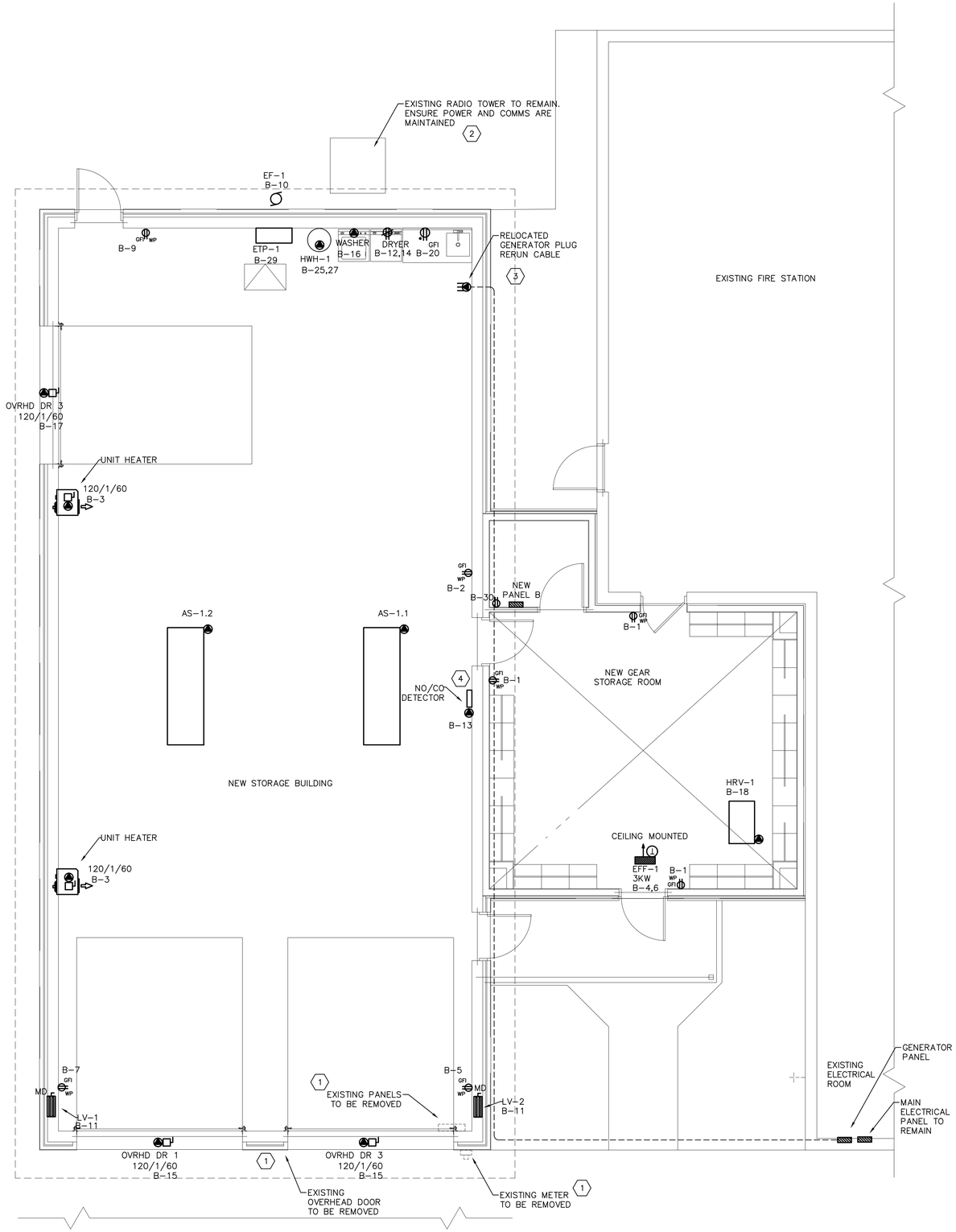
9 John St. Fenelon Falls, ON K9V 1J2

DRAWING: GENERAL NOTES AND TYPICAL DETAILS

AMR ENGINEERING LTD.
STRUCTURAL ENGINEERS
920 ALNESS STREET, SUITE 205
TORONTO, ON M3J 2H7
(416) 551-1611

REGISTERED PROFESSIONAL ENGINEER 24-2283 D. KOTOBELLI PROVINCE OF ONTARIO

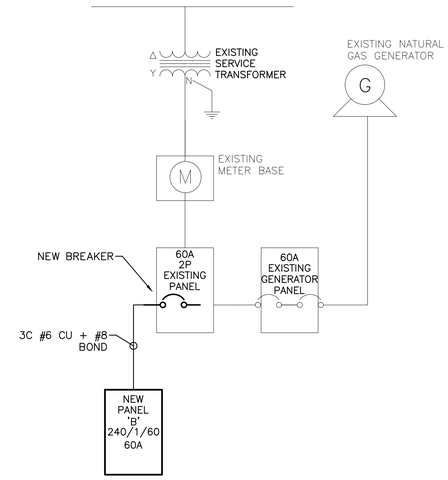
DRAWN BY:	M.K.	AMR PROJECT No.	24-2283
CHECKED BY:	D.K.		
DATE:	FEB. 02/26	DWG. No.	
SCALE:	AS NOTED	S4	OF 4



1 E1 POWER LAYOUT
SCALE: 1:50
500 0 500 1000 1500 2000 2500 3000 3500 mm

LEGEND

- RECEPTACLE
- DRYER RECEPTACLE
- WP WEATHER RATED
- GFI GROUND FAULT INTERRUPTER
- DIRECT CONNECTION
- DISCONNECT
- PANEL



2 E1 SINGLE LINE DIAGRAM
SCALE:

NEW PANEL 'B'
120/240V, 1 PHASE, 3 WIRE, 36 CIRCUIT, C/W 60A MAIN BREAKER

DESCRIPTION	LOAD	BKR	CCT		CCT	BKR	LOAD	DESCRIPTION
LINK RECEPTACLES	x	15A	1		2	15A	x	STORAGE RECEPTACLE
UNIT HEATERS	x	15A	3		4	20A	x	EFF-1
STORAGE RECEPTACLE	x	15A	5		6		x	
STORAGE RECEPTACLE	x	15A	7		8	15A	x	CEILING MOUNTED REC
STORAGE RECEPTACLE	x	15A	9		10	15A	x	EF-1
LOUVER DAMPERS	x	15A	11		12	30A	x	DRYER
NO/CO SENSOR	x	15A	13		14			
OVERHEAD DOOR 1/2	x	15A	15		16	20A	x	WASHING MACHING
OVERHEAD DOOR 3	x	15A	17		18	15A	x	HRV-1
LIGHTING STORAGE	x	15A	19		20	15A	x	COUNTER RECEPTACLE
AS-1.1	x	15A	21		22	15A	x	AS-1.2
			23		24			
AS-1.1	x	15A	25		26	15A	x	SPARE
			27		28	15A	x	SPARE
ETP-1	x	15A	29		30	15A	x	PANEL RECEPTACLE
SPARE	x	15A	31		32	15A	x	SPARE
SPARE	x	15A	33		34	15A	x	SPARE
SPARE	x	15A	35		36	15A	x	SPARE

COORDINATE POWER REQUIREMENTS WITH DOOR OPERATORS

NOTES

1. PRIOR TO BUILDING DEMOLITION CONTRACTOR TO COORDINATE WITH HYDRO ONE TO HAVE EXISTING ELECTRICAL SERVICE DISCONNECTED AND REMOVED, METER RETURNED AND ALL ELECTRICAL IN BUILDING DISCONNECTED AND MADE SAFE. SEE NOTE 2 + 3 FOR RELOCATIONS. ALL REMOVED EQUIPMENT TO BE DISPOSED OF PROPERLY BY CONTRACTOR. COORDINATE REMOVAL OF OVERHEAD COMMS LINE AS WELL.
2. RADIO TOWER TO REMAIN OPERATIONAL. RE-RUN CABLES AS NEEDED BEFORE EXISTING BUILDING IS REMOVED.
3. EXISTING GENERATOR TO BE RELOCATED TO NEW BUILDING COORDINATE RELOCATION WITH OPERATORS.
4. NO/CO DETECTOR BY MECH. COORDINATE EQUIPMENT LOCATION AND POWER REQUIREMENTS WITH MECH.

NO.	DESCRIPTION	DATE	BY
1	RE-ISSUED FOR PERMIT	2026.01.27	DRM
0	ISSUED FOR PERMIT	2025.07.03	DRM

REVISIONS

Kirkland Engineering Ltd BCIN: 28857

REGISTERED PROFESSIONAL ENGINEER
D.R.MILLEN
100134238
JAN 27, 2026
PROVINCE OF ONTARIO
ELECTRICAL

NOT TO BE USED FOR CONSTRUCTION UNLESS SIGNED BY THE ENGINEER.

570 Water Street
Peterborough, Ontario
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www.kirklandeng.com
KIRKLAND ENGINEERING LTD.

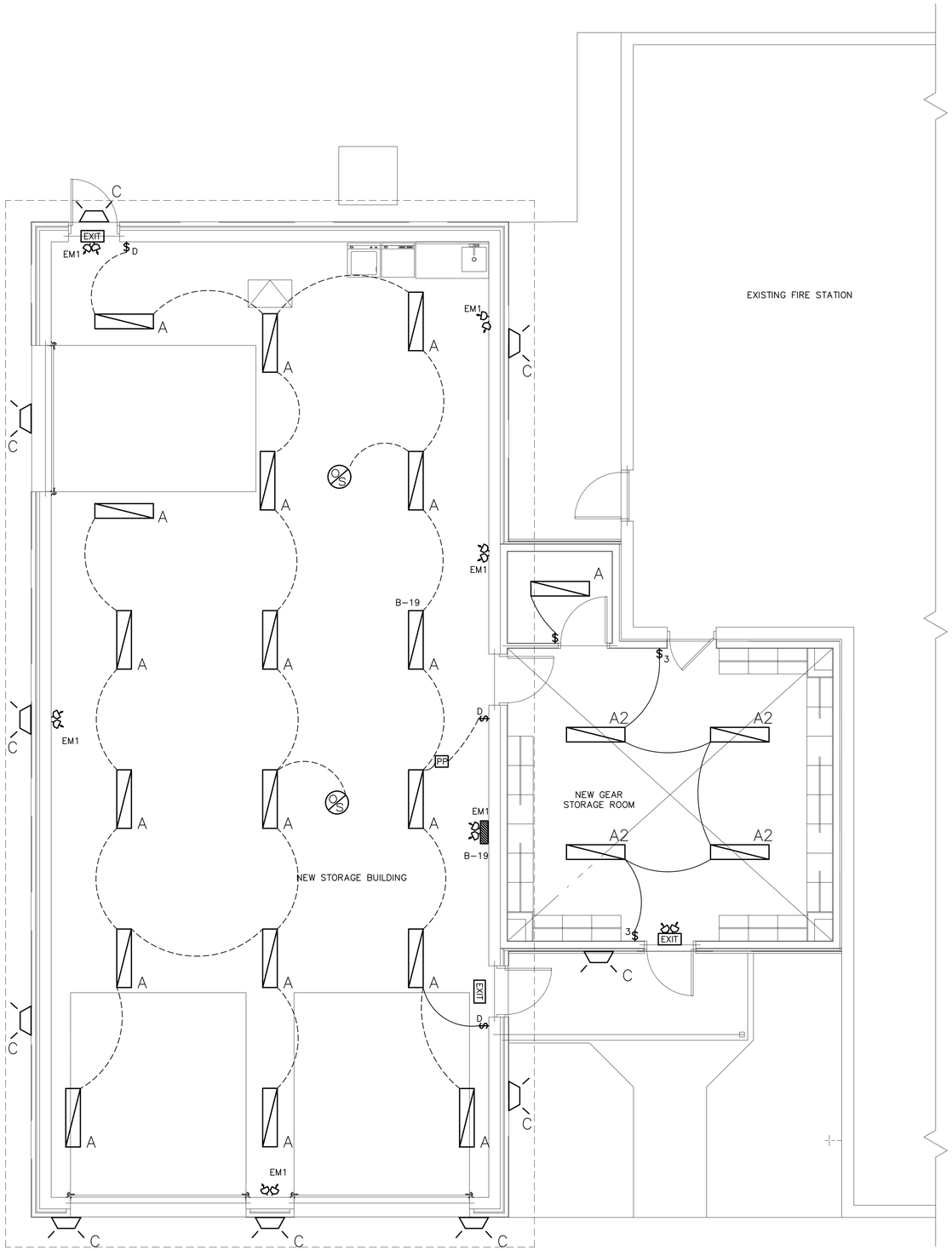
PROJECT
FENELON FALLS
FIRE STATION #22
STORAGE BUILDING
4 John Street
Fenelon Falls, Ontario

TITLE
POWER
LAYOUT

DESIGN	DRM
DRAWN	KCS
CHECKED	DRM
APPROVED	DRM
PROJECT	7445

SCALE AS NOTED
DWG NO. E1

CADD FILE NO. 7445E1



1 LIGHTING LAYOUT
E2 SCALE: 1:50

500 0 500 1000 1500 2000 2500 3000 3500 mm

LIGHTING SCHEDULE

SYMBOL	DESCRIPTION	MANUFACTURER	MODEL No.
A	4' WRAP AROUND LED FIXTURE FOR DAMP LOCATIONS. 3500K, 4800 LUMENS, 120V, 40.5W	LITHONIA OR ACCEPTED EQUAL	LBL4 4800LM 80CRI 35K MIN10 GZT MVOLT
A2	4' WRAP AROUND LED FIXTURE FOR DAMP LOCATIONS. 3500K, 4800 LUMENS, 120V, 40.5W WITH INTEGRAL OCCUPANCY SENSOR	LITHONIA OR ACCEPTED EQUAL	LBL4 4800LM 80CRI 35K MIN10 GZT MVOLT LSXR10
C	LED WALL PACK 3000K 1200 LUMENS 80CRI TYPE 3 DISTRIBUTION 120V WITH PHOTOCELL WALL MOUNT @ DARK BRONZE	LITHONIA OR ACCEPTED EQUAL	WDGE2 LED P15W 30K 80CRI VF MVOLT SRM PE DDBXD

LIGHTING CONTROL SCHEDULE

SYMBOL	DESCRIPTION	MANUFACTURER	MODEL No.
$	SWITCH	–	–
$D	ON/OFF/DIM PICO WALL CONTROL AT EACH ENTRANCE AND AT THE FRONT OF THE ROOM BEHIND PROFESSOR ONE PER ZONE UP TO 10 LOCATIONS PER ZONE. WIRELESS, WHITE.	LUTRON	PJ2-3BRL-GWH-L01
$3	3-WAY SWITCH	–	–
PP	0-10V DIMMING POWER PACK MOUNTED IN CEILING SPACE. 8AMP RATED POWER PACKS.	LUTRON	LRF2-OCR2B-P-WP
RMJS	RADIO POWER SAVER WIRELESS CEILING-MOUNTED OCCUPANCY/VACANCY SENSOR. WHITE.	LUTRON	RMJS-8T-DV-B

EMERGENCY LIGHTING & EXIT SCHEDULE

SYMBOL	DESCRIPTION	MANUFACTURER	MODEL No.
EM1	EMERGENCY LIGHTING UNIT, 72W, 12VDC, 10 YEAR BATTERY, C/W 2 MR16 LED 4W LAMPS.	LUMACELL OR APPROVED EQUAL	RG12C722LD4
EXIT	RUNNING MAN EXIT SIGN/ EMERGENCY LIGHT UNIT COMBO PAC, SINGLE FACE, MOUNTING AS NEEDED	LUMACELL OR APPROVED EQUAL	LAC SERIES
B-19	LED 2W REMOTE HEAD 1 OR 2 LAMP AS SHOWN	LUMACELL OR APPROVED EQUAL	CM-R

GENERAL NOTES

1. WALL PACKS TO BE MOUNTED AS SHOWN ON ARCHITECTURAL DRAWINGS.

NO.	DESCRIPTION	DATE	BY
1	RE-ISSUED FOR PERMIT	2026.01.27	DRM
0	ISSUED FOR PERMIT	2025.07.03	DRM

REVISIONS

Kirkland Engineering Ltd BCIN: 28857

REGISTERED PROFESSIONAL ENGINEER
D.R.MILLEN
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JAN 27, 2026
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PROJECT
FENELON FALLS
FIRE STATION #22
STORAGE BUILDING
4 John Street
Fenelon Falls, Ontario

TITLE
LIGHTING
LAYOUT

DESIGN	DRM	SCALE	AS NOTED
DRAWN	KCS	DWG NO.	E2
CHECKED	DRM		
APPROVED	DRM		
PROJECT	7445		

CADD FILE NO. 7445E2

ELECTRICAL SPECIFICATIONS

1 GENERAL CONDITIONS

.1 DO ALL WORK IN ACCORDANCE WITH ONTARIO ELECTRICAL SAFETY CODE, CURRENT EDITION, BASED UPON THE CANADIAN ELECTRICAL CODE, PART I, CSA STANDARD C22.1, AND ALL BULLETINS TO DATE.
.2 THE QUALITY OF THE MATERIALS AND WORKMANSHIP SHALL BE ACCEPTABLE TO THE ARCHITECT, OWNER AND ENGINEER.

2 SCOPE OF WORK

.1 PROVIDE ALL MATERIALS EQUIPMENT AND LABOUR TO PROVIDE A COMPLETE OPERATING INSTALLATION AS DESIGNATED IN THIS SPECIFICATION AND AS INDICATED ON THE DRAWINGS EXCEPT WHERE OTHERWISE NOTED.
.2 THE SCOPE OF WORK INCLUDES, BUT IS NOT LIMITED TO, SUPPLY AND INSTALLATION OF THE FOLLOWING ITEMS:
.2.1 POWER DISTRIBUTION.
.2.2 INTERIOR LIGHTING AND CONTROLS
.2.3 EXTERIOR LIGHTING AND CONTROLS
.2.4 EMERGENCY LIGHTING AND EXIT SIGNAGE.
.2.5 FEEDERS AND OVER CURRENT PROTECTION FOR MECHANICAL EQUIPMENT.

3 INSURANCE

MAINTAIN INSURANCE TO FULLY PROTECT THE OWNER, CONTRACTOR AND ENGINEER FROM ANY AND ALL CLAIMS UNDER THE WORKMEN'S COMPENSATION ACT. ALSO ALL INSURANCE AS NOTED WITHIN ARCHITECTURAL GENERAL CONDITIONS. POST PROJECT NOTIFICATION AT THE SITE IN ACCORDANCE WITH MINISTRY OF LABOUR REQUIREMENTS.

4 PERMITS, FEES AND INSPECTION

.1 PAY ALL ELECTRICAL SAFETY AUTHORITY (ESA) FEES ASSOCIATED WITH PERMIT, INSPECTION AND EQUIPMENT APPROVAL.
.2 NOTIFY ENGINEER OF CHANGES REQUIRED BY ELECTRICAL SAFETY AUTHORITY PRIOR TO MAKING CHANGES.
.3 FURNISH CERTIFICATES OF ACCEPTANCE FROM ESA AND AUTHORITIES HAVING JURISDICTION OF COMPLETION OF WORK TO ENGINEER.

5 DRAWINGS

.1 PREPARE WITHOUT EXTRA COST, ANY LARGE SCALE INTERERENCE DRAWINGS WHICH MAY BE REQUIRED BY THE EXAMINING AUTHORITIES OR THE ENGINEER.
.2 PRIOR TO PROCEEDING WITH THE WORK; EXAMINE DRAWINGS BY OTHER TRADES INCLUDING ARCHITECTURAL AND MECHANICAL.
.3 WHERE DISCREPANCIES ARE NOTED BETWEEN THE DRAWINGS AND/OR SPECIFICATIONS, CONTACT ENGINEER FOR RESOLUTION BEFORE STARTING ON THAT PART OF THE WORK.

6 SHOP DRAWINGS AND PRODUCT DATA

.1 'SHOP DRAWINGS' MEANS DRAWINGS, DIAGRAMS, ILLUSTRATIONS, SCHEDULES, PERFORMANCE, CHARTS, BROCHURES, AND OTHER DATA WHICH ARE TO BE PROVIDED BY CONTRACTOR TO ILLUSTRATE DETAILS OF A PORTION OF THE WORK.
.2 INDICATE MATERIALS, METHODS OF CONSTRUCTION, AND ATTACHMENT OR ANCHORAGE, NECESSARY FOR COMPLETION OF WORK.
.3 ADJUSTMENTS MADE ON SHOP DRAWINGS BY OWNER OR ENGINEER ARE NOT INTENDED TO CHANGE CONTRACT PRICE.
.4 MAKE CHANGES IN SHOP DRAWINGS AS OWNER OR ENGINEER MAY REQUIRE.
.5 SUBMIT 6 COPIES OR 1 GOOD QUALITY DIGITAL COPY OF PRODUCT DATA SHEETS OR BROCHURES FOR LIGHTING FIXTURES, LIGHTING CONTROLS EMERGENCY LIGHTING, EXIT SIGNS, POWER DISTRIBUTION EQUIPMENT AND FIRE ALARM COMPONENTS.
.6 PROVIDE 1 HARD COPY AND 1 DIGITAL COPY OF MAINTENANCE MANUALS COMPLETE WITH WARRANTEE, CERTIFICATE OF INSPECTION BY ESA, FIRE ALARM VERIFICATION REPORT, AND COPY OF ALL PRODUCT LITERATURE AND MAINTENANCE INFORMATION.

7 AS BUILT DRAWINGS

PROVIDE TWO MARKED COPIES OF "AS-BUILT" DRAWINGS SHOWING ALL CHANGES TO THE ORIGINAL DESIGN AND SYSTEMS AS INSTALLED. ALL CHANGES SHALL BE MARKED CLEARLY AND NEATLY.

8 CUTTING AND PATCHING

ELECTRICAL CONTRACTOR SHALL PERFORM ALL CUTTING AND PATCHING REQUIRED FOR THE WORK OF THIS DIVISION. CUTTING AND DRILLING SHALL BE PERFORMED IN A MANNER SO AS TO CAUSE LITTLE DAMAGE AS POSSIBLE. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE AND PAY FOR ANY DAMAGE CAUSED TO THE BUILDING BY WORK OF THIS DIVISION.

9 SUPPORTS AND HANGERS

PROVIDE STRUCTURAL SUPPORTS HANGERS BRACKETS AND INSERTS REQUIRED FOR INSTALLATION OF EQUIPMENT AND CONDUIT. PROVIDE CONDUIT FOR ALL SERVICES PENETRATING THE FLOOR SLAB. SEAL ALL PENETRATIONS THROUGH FIRE WALLS AND FLOOR SLABS WITH AN APPROVED NON-SHRINK, FIREPROOF AND WATERPROOF FIRESTOPPING MATERIAL APPROVED BY THE ARCHITECT.

10 EQUIPMENT AND MATERIAL

ALL MATERIALS USED THROUGHOUT SHALL BE NEW, C.S.A. APPROVED AND OF ONE MANUFACTURE FOR LIKE EQUIPMENT. OBTAIN AND PAY FOR SPECIAL ELECTRICAL SAFETY AUTHORITY INSPECTION OF SPECIFIED NON-C.S.A. ELECTRICAL EQUIPMENT.

11 CARE, OPERATION AND STARTUP

INSTRUCT OPERATING PERSONNEL IN THE OPERATION, CARE AND MAINTENANCE OF EQUIPMENT.

12 CO-ORDINATION

CO-ORDINATE WITH OTHER TRADES, INCLUDING MECHANICAL SYSTEMS, SO AS NOT TO INTERFERE WITH THE WORK OR SCHEDULE OF OTHER TRADES.

13 IDENTIFICATION

PROVIDE LAMACOID NAMEPLATES AND TYPEWRITTEN DIRECTORIES FOR ALL NEW PANELS.

14 WARRANTY

UPON COMPLETION OF THE WORK, PROVIDE A WRITTEN ONE YEAR GUARANTEE COVERING MATERIALS AND WORKMANSHIP. REPAIR OR REPLACE, WITHOUT COST TO THE OWNER, ANY DEFECTS IN WORKMANSHIP OR MATERIALS WHICH IN THE OPINION OF THE OWNER, ARE NOT DUE TO MISUSE OR NEGLECT.

15 CONDUITS

.1 RIGID GALVANIZED STEEL CONDUIT TO BE USED WHERE SUBJECT TO MECHANICAL DAMAGE.
.2 ELECTRICAL METALLIC TUBING (EMT) WITH COUPLINGS TO BE USED EXCEPT WHERE EMBEDDED IN CONCRETE OR SUBJECT TO UNDUE MOISTURE OR MECHANICAL DAMAGE.
.3 RIGID PVC CONDUIT WHERE EMBEDDED IN CONCRETE OR BELOW GRADE.
.4 FOR UNDERGROUND CONDUITS, SLOPE CONDUITS TO PROVIDE DRAINAGE.
.5 FLEXIBLE ALUMINUM CONDUIT WITH WEATHERPROOF COVERING TO BE USED WHERE SUBJECT TO VIBRATION OR STRAIN RELIEF.
.6 INSTALL CONDUITS TO CONSERVE HEADROOM IN EXPOSED LOCATIONS AND CAUSE MINIMUM INTERFERENCE IN SPACES THROUGH WHICH THEY PASS.
.7 CONCEAL CONDUITS EXCEPT IN MECHANICAL AND ELECTRICAL SERVICE ROOMS AND IN UNFINISHED AREAS.
.8 MINIMUM CONDUIT SIZE FOR LIGHTING AND POWER CIRCUITS SHALL BE 1/2". BEND CONDUIT COLD. REPLACE IF KINKED OR FLATTENED MORE THAN 1/10TH OF ITS ORIGINAL DIAMETER.
.9 MECHANICALLY BEND STEEL CONDUIT OVER 3/4" DIA.
.10 FIELD THREADS ON RIGID CONDUIT MUST BE OF SUFFICIENT LENGTH TO DRAW CONDUITS UP TIGHT.
.11 INSTALL FISH CORD IN EMPTY CONDUITS.
.12 RUN 2-1" SPARE CONDUITS UP TO CEILING SPACE AND 2-1" SPARE CONDUITS DOWN TO CEILING SPACE FROM EACH FLUSH MOUNTED PANEL. TERMINATE THESE CONDUITS IN 6" x 6" x 4" JUNCTION BOXES IN CEILING SPACE OR IN CASE OF AN EXPOSED CONCRETE SLAB, TERMINATE EACH CONDUIT IN FLUSH CONCRETE SURFACE TYPE BOX.
.13 REMOVE AND REPLACE BLOCKED CONDUIT SECTIONS.
.14 DRY CONDUITS OUT BEFORE INSTALLING WIRE.
.15 RUN CONDUITS PARALLEL OR PERPENDICULAR TO BUILDING LINES.
.16 LOCATE CONDUITS BEHIND INFRARED OR GAS FIRED HEATERS WITH MINIMUM 5' CLEARANCE
.17 GROUP CONDUITS WHEREVER POSSIBLE ON SUSPENDED OR SURFACE CHANNELS.
.18 DO NOT PASS CONDUITS THROUGH STRUCTURAL MEMBERS EXCEPT AS INDICATED.
.19 DO NOT LOCATE CONDUITS LESS THAN 3" PARALLEL TO HOT WATER LINES WITH MINIMUM OF 1" AT CROSSOVERS.
.20 FOR CONDUITS IN CAST-IN-PLACE CONCRETE, LOCATE TO SUIT REINFORCING STEEL. INSTALL IN CENTRE ONE THIRD OF SLAB.
.21 PROTECT CONDUITS FROM DAMAGE WHERE THEY STUB OUT OF CONCRETE.
.22 INSTALL SLEEVES WHERE CONDUITS PASS THROUGH SLAB OR WALL.
.23 PROVIDE OVERSIZED SLEEVE FOR CONDUITS PASSING THROUGH WATERPROOF MEMBRANE, BEFORE MEMBRANE IS INSTALLED. USE COLD MASTIC BETWEEN SLEEVE AND CONDUIT.
.24 DO NOT PLACE CONDUITS IS SLABS IN WHICH SLAB THICKNESS IS LESS THAN 4 TIMES CONDUIT DIAMETER.
.25 FOR CONDUITS IN CAST-IN-PLACE CONCRETE, ENCASE CONDUITS COMPLETELY IN CONCRETE COVER AND ORGANIZE CONDUITS IN SLAB TO MINIMIZE CROSS-OVERS.
.26 FOR CONDUITS IN CAST-IN-PLACE SLABS ON GRADE RUN CONDUITS 25mm AND LARGER BELOW SLAB AND ENCASED IN 75mm CONCRETE ENVELOPE. PROVIDE 50mm OF SAND OVER CONCRETE ENVELOPE BELOW FLOOR SLAB.

16 SPLITTERS, JUNCTION, PULL BOXES AND CABINETS

.1 INSTALL SPLITTERS AND MOUNT PLUMB, TRUE AND SQUARE TO THE BUILDING LINES.
.2 EXTEND SPLITTERS FULL LENGTH OF EQUIPMENT ARRANGEMENT EXCEPT WHERE INDICATED OTHERWISE.
.3 INSTALL PULL BOXES IN INCONSPICUOUS BUT ACCESSIBLE LOCATIONS.
.4 MOUNT CABINETS WITH NO OVERCURRENT DEVICE OPERATING HANDLE MORE THAN 1.7m ABOVE FINISHED FLOOR.
.5 INSTALL PULL BOXES SO AS NOT TO EXCEED 30m OF CONDUIT RUN BETWEEN PULL BOXES.
.6 SUPPORT PULL BOXES INDEPENDENTLY OF CONDUIT.
.7 BOXES INSTALLED OUTDOORS SHALL BE WEATHERPROOF COMPLETE WITH GASKET.

17. INSTALLATION OF OUTLETS

.1 THE DRAWINGS SHOW APPROXIMATE LOCATION OF OUTLETS, EXACT LOCATION SHALL BE COORDINATED ON THE SITE WITH OTHER TRADES, ARCHITECTURAL DRAWINGS, ETC. OUTLETS INACCURATELY LOCATED SHALL BE READJUSTED OR RELOCATED. THE CONTRACTOR'S EXPENSE.

UNLESS OTHERWISE NOTED ON THE DRAWING LOCATE OUTLETS AS FOLLOWS:

.2 RECEPTACLES, TELEPHONE AND ALARM OUTLETS (18") 450mm ABOVE FINISHED FLOOR.
.3 OUTLETS OVER COUNTER (45") 1143mm ABOVE FLOOR OR AS DIRECTED BY OWNER OR ARCHITECT.
.4 OUTLETS IN MECHANICAL, ELECTRICAL AND TELEPHONE ROOMS (47") 1200mm ABOVE FLOOR.
.5 LIGHT SWITCHES MAXIMUM (47") 1200mm ABOVE FLOOR.
.6 RACEWAYS SHALL BE EMT UNLESS OTHERWISE NOTED.
.7 MANUAL PULL STATION (47") 1200mm ABOVE FLOOR.

18 WIRE AND CABLE

.1 MINIMUM SIZE OF CONDUCTORS SHALL BE #12 AWG.
.2 CONDUCTORS SHALL BE COPPER, SIZED AS INDICATED, WITH 600V INSULATION OF CROSS LINKED THERMOSETTING POLYETHYLENE MATERIAL RW90-XLPE.
.3 SIZE OF WIRING FOR BRANCH CIRCUITS GREATER THAN 30m IN LENGTH SHALL BE #10 AWG UNLESS OTHERWISE INDICATED ON THE PLANS.
.4 WIRES TO BE COLOURED AS FOLLOWS:

12V DC BLUE
120V AC NEUTRAL WHITE
120V AC SWITCHED BLACK OR RED
120V AC LINE BLACK.
347/600V LINE BLACK OR RED

.5 USE MATERIALS AND METHODS APPROVED BY THE ONTARIO ELECTRICAL SAFETY CODE FOR USE IN NON-COMBUSTIBLE CONSTRUCTION.
.6 ARMOURED CABLE TYPE AC90 (BX) WITH INTERLOCKING ARMOUR FABRICATED FROM ALUMINUM STRIP C/W COPPER INSULATED CONDUCTORS, SIZE AS INDICATED, TO BE USED IN CONCEALED WALL AND CEILING CAVITIES.

19 GROUNDING

.1 INSTALL COMPLETE PERMANENT, CONTINUOUS GROUNDING SYSTEM INCLUDING, ELECTRODES, CONDUCTORS, CONNECTORS, ACCESSORIES AS INDICATED TO CONFORM TO REQUIREMENTS OF ESA, ENGINEER, AND LOCAL AUTHORITY HAVING JURISDICTION OVER THE INSTALLATION. WHERE EMT IS USED, RUN BOND WIRE IN CONDUIT.
.2 INSTALL CONNECTORS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
.3 PROTECT EXPOSED GROUNDING CONDUCTORS FROM MECHANICAL INJURY.
.4 MAKE BURIED CONNECTIONS, AND CONNECTIONS TO ELECTRODES, USING COPPER CAD WELDING PROCESS CONNECTORS.
.5 USE MECHANICAL CONNECTORS FOR GROUNDING CONNECTIONS TO EQUIPMENT PROVIDED WITH LUGS.
.6 SOLDERED JOINTS NOT PERMITTED.
.7 INSTALL BONDING WIRE FOR FLEXIBLE CONDUIT, CONNECTED AT BOTH ENDS TO GROUNDING BUSHING, SOLDERLESS LUG, CLAMP OR CUP WASHER AND SCREW.

20 DISCONNECT SWITCHES

.1 FUSIBLE, AND NON-FUSIBLE, DISCONNECT SWITCH SWITCHES IN ENCLOSURE, SIZE AS INDICATED.
.2 PROVISION FOR PADLOCKING IN OFF SWITCH POSITION BY THREE LOCKS.
.3 MECHANICALLY INTERLOCKED DOOR TO PREVENT OPENING WHEN HANDLE IN ON POSITION.
.4 FUSES: SIZE AS INDICATED. PROVIDE THREE SPARE FUSES OF EACH TYPE AND SIZE INSTALLED ABOVE 600A AND SIX SPARE FUSES OF EACH TYPE AND SIZE INSTALLED UP TO AND INCLUDING 600A. PROVIDE SUITABLE SIZED CABINET TO STORE SPARE FUSES.
.5 FUSEHOLDERS: SUITABLE WITHOUT ADAPTORS, FOR TYPE AND SIZE OF FUSE INDICATED.
.6 QUICK-MAKE, QUICK-BREAK ACTION.
.7 ON-OFF SWITCH POSITION INDICATION ON SWITCH ENCLOSURE COVER.
.8 ENCLOSURES SHALL BE RATED EEMAC 1 EXCEPT FOR WEATHERPROOF ENCLOSURES WHICH SHALL BE EEMAC 3.

21 PANEL BOARDS

.1 PANELBOARDS SHALL BE THE PRODUCT OF ONE MANUFACTURER. SIEMENS, CUTLER HAMMER AND SCHNEIDER ARE ACCEPTABLE.
.2 INSTALL CIRCUIT BREAKERS IN PANELBOARDS BEFORE SHIPMENT.
.3 SEQUENCE PHASE BUSSING WITH ODD NUMBER BREAKERS ON LEFT AND EVEN ON RIGHT, WITH EACH BREAKER IDENTIFIED BY PERMANENT NUMBER IDENTIFICATION AS TO CIRCUIT NUMBER AND PHASE.
.4 PANELBOARDS: MAINS, NUMBER OF CIRCUITS, AND NUMBER AND SIZE OF BRANCH CIRCUIT BREAKERS AS INDICATED ON DRAWINGS.
.5 TWO KEYS FOR EACH PANELBOARD AND KEY PANELBOARDS ALIKE.
.6 ALUMINUM OR COPPER BUS WITH NEUTRAL OF SAME AMPERE RATING AS MAINS.
.7 MAINS: SUITABLE FOR BOLT-ON BREAKERS.
.8 TRIM WITH CONCEALED FRONT BOLTS AND HINGES.
.9 TRIM AND DOOR FINISH: BAKED GREY ENAMEL.
.10 TWO AND THREE POLE BREAKER OPERATION SHALL BE BY MEANS OF A COMMON TRIP AND A SINGLE HANDLE. A TIE HANDLE CONNECTING TWO OR THREE SINGLE POLE BREAKERS WILL NOT BE ACCEPTED.

22 ELECTRIC MOTORS EQUIPMENT AND CONTROLS

.1 CONTROL WIRING AND CONDUIT IS SPECIFIED BY ELECTRICAL EXCEPT FOR CONDUIT, WIRING AND CONNECTIONS BELOW 50V WHICH ARE RELATED TO CONTROL SYSTEMS SPECIFIED BY MECHANICAL AND SHOWN ON MECHANICAL DRAWINGS.
.2 ELECTRICAL SHALL CHECK ALL MOTOR CONNECTION FOR CORRECT PHASE ROTATION, WHERE APPLICABLE.

23 LIGHTING FIXTURES

.1 PROVIDE LIGHT FIXTURES AS SHOWN ON LIGHTING SCHEDULE ON THE DRAWINGS. ENSURE THAT ALL EQUIPMENT IS EQUAL TO THE PRODUCTS SPECIFIED IN ALL RESPECTS.
.2 LOCATE AND INSTALL LUMINAIRES AS INDICATED.
.3 JUNCTION BOXES IN SUSPENDED CEILING SPACES SHALL BE ACCESSIBLE THROUGH THE FIXTURES OR BY REMOVABLE CEILING.
.4 FOR SUSPENDED CEILING INSTALLATIONS SUPPORT LUMINAIRES INDEPENDENTLY OF CEILING BY AIRCRAFT CABLE
.5 ALIGN LUMINAIRES MOUNTED INDIVIDUALLY PARALLEL OR PENDICULAR TO BUILDING GRID.

24 INSTALLATION OF OUTLETS

.1 THE DRAWINGS SHOW APPROXIMATE LOCATION OF OUTLETS, EXACT LOCATION SHALL BE COORDINATED ON THE SITE WITH OTHER TRADES, ARCHITECTURAL DRAWINGS, ETC. OUTLETS INACCURATELY LOCATED SHALL BE READJUSTED OR RELOCATED AT THE CONTRACTOR'S EXPENSE. UNLESS OTHERWISE NOTED ON THE DRAWING LOCATE OUTLETS AS FOLLOWS:
.1.1 RECEPTACLES, TELEPHONE AND ALARM OUTLETS (12") 305mm ABOVE FINISHED FLOOR.
.1.2 OUTLETS OVER COUNTER (45") 1143mm ABOVE FLOOR OR CO-ORDINATION.
.1.3 OUTLETS IN MECHANICAL, ELECTRICAL AND TELEPHONE ROOMS (48") 1220mm ABOVE FLOOR.
.1.4 LIGHT SWITCHES NOT LESS THAN (35.4") 900mm AND NOT MORE THAN (43") 1100mm ABOVE FLOOR.
.2 RACEWAYS SHALL BE EMT UNLESS OTHERWISE NOTED.
.3 SUPPORT OUTLET BOXES, JUNCTION BOXES, CONDUIT AND THE LIKE.
.4 LABEL ALL OUTLETS WITH THE PANEL AND CIRCUIT NUMBER FROM WHICH IT IS FED

25 RECEPTACLES

.1 WHITE DUPLEX RECEPTACLES CSA TYPE 5-15R, 125V, 20A, T-SLOT, U GROUND.
.2 METAL COVER PLATES.
.3 IF RECEPTACLE IS SURFACE MOUNTED USE CAST BOX.

26 RESERVED

27 TELEPHONE/COMPUTER RACEWAY SYSTEM

.1 PROVIDE EMPTY CONDUIT SYSTEMS FOR TELEPHONE AND DATA AS SHOWN ON THE DRAWINGS.
.2 WHERE CONDUITS NOT SHOWN ON DRAWINGS PROVIDE CONDUITS FROM OUTLET BOX TO ACCESSIBLE CEILING SPACE.
.3 RACEWAYS SHALL BE EMT.
.4 A MAXIMUM OF 2 LONG RADIUS 90 DEGREE BENDS SHALL BE PROVIDED BETWEEN PULL BOXES.
.5 A WIRE SHALL BE PULLED AND LEFT IN EACH CONDUIT RUN TO FACILITATOR THE FUTURE PULLING OF WIRES.
.6 PROVIDE NECESSARY BOXES AND ASSOCIATED COVER PLATES AS REQUIRED FOR THE ABOVE SYSTEMS.

28. THIRD PARTY TESTING

.1 THE CONTRACTOR IS RESPONSIBLE TO PROVIDE THIRD PARTY TESTING OF THE LIGHTING SYSTEM IN ACCORDANCE WITH ASHRAE STANDARD 90.1-2010, SECTION 9.4.4 FUNCTIONAL TESTING. THE PARTY RESPONSIBLE FOR THE FUNCTIONAL TESTING SHALL NOT BE DIRECTLY INVOLVED IN EITHER THE DESIGN OR CONSTRUCTION OF THE PROJECT AND SHALL PROVIDE DOCUMENTATION CERTIFYING THAT THE INSTALLED LIGHTING CONTROLS MEET OR EXCEED ALL DOCUMENTED PERFORMANCE CRITERIA.
.2 LIGHTING CONTROL DEVICES AND CONTROL SYSTEMS SHALL BE TESTED TO ENSURE THAT CONTROL HARDWARE AND SOFTWARE ARE CALIBRATED, ADJUSTED, PROGRAMMED AND IN PROPER WORKING CONDITION IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND MANUFACTURER'S INSTALLATION INSTRUCTIONS.
.3 WHEN SENSORS, TIME SWITCHES, PROGRAMMABLE SCHEDULE CONTROLS OR PHOTOSENSORS ARE INSTALLED, THE FOLLOWING PROCEDURES SHALL BE PERFORMED:
.4 CONFIRM THAT THE PLACEMENT, SENSITIVITY AND TIME-OUT ADJUSTMENTS FOR OCCUPANT SENSORS YIELD ACCEPTABLE PERFORMANCE, LIGHTS TURN OFF ONLY AFTER SPACE IS VACATED. WHERE AN AUTO-ON MODE HAS BEEN SELECTED, LIGHTS DO NOT TURN ON UNLESS SPACE IS OCCUPIED.
.5 CONFIRM THAT THE TIME SWITCHES AND PROGRAMMABLE SCHEDULE CONTROLS ARE PROGRAMMED CORRECTLY TO TURN THE LIGHTS OFF.
.6 WHERE DAYLIGHT HARVESTING CAPABILITY HAS BEEN INSTALLED, CONFIRM THAT PHOTOSENSOR CONTROLS REDUCE ELECTRIC LIGHT LEVELS BASED ON THE AMOUNT OF USABLE DAYLIGHT IN THE SPACE AS SPECIFIED.

NO.	DESCRIPTION	DATE	BY
1	RE-ISSUED FOR PERMIT	2026.01.27	DRM
0	ISSUED FOR PERMIT	2025.07.03	DRM

REVISIONS

Kirkland Engineering Ltd BCIN: 28857

REGISTERED PROFESSIONAL ENGINEER
D.R.MILLEN
100134238
JAN 27, 2026
PROVINCE OF ONTARIO
ELECTRICAL

NOT TO BE USED FOR CONSTRUCTION UNLESS SIGNED BY THE ENGINEER.

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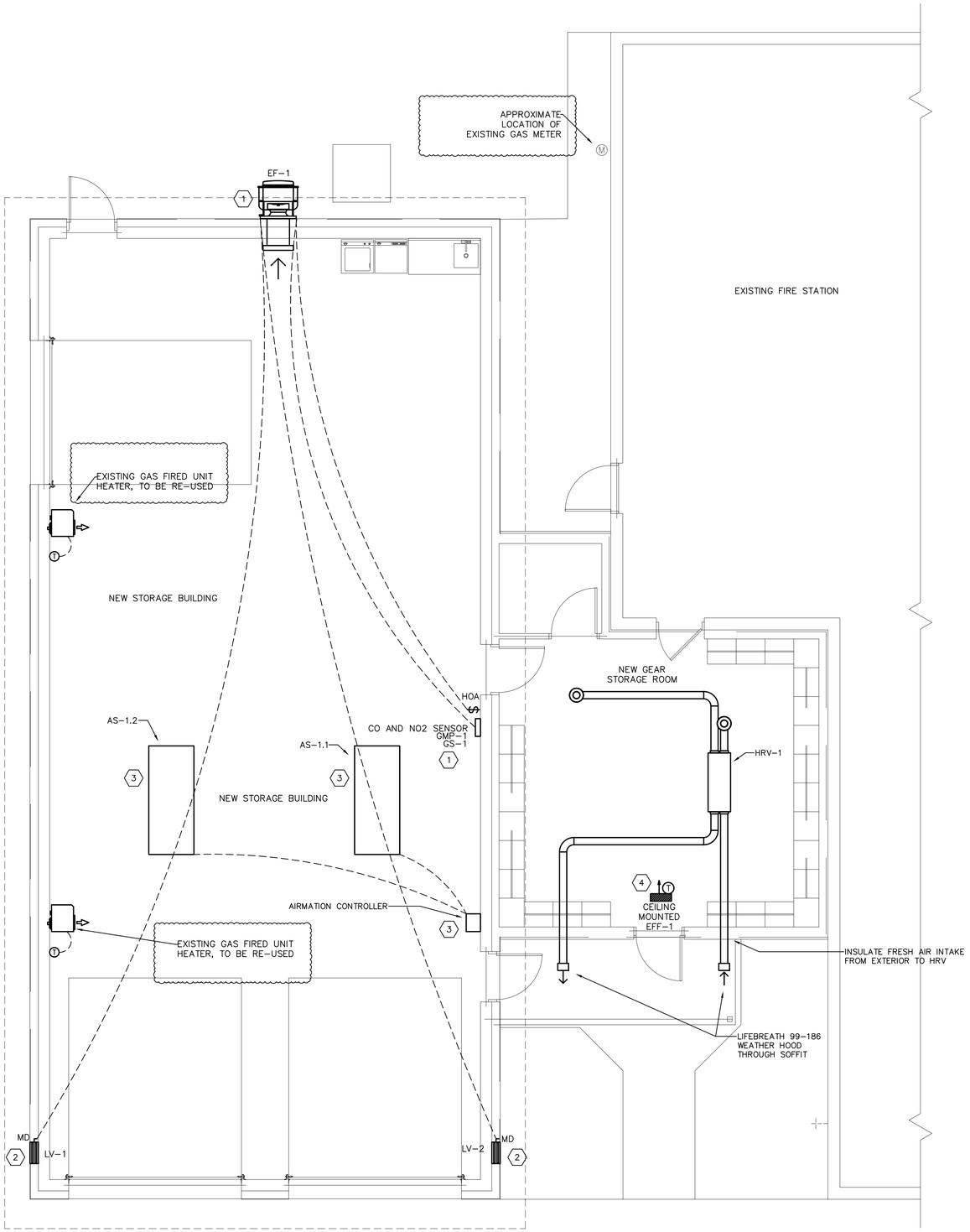
PROJECT
FENELON FALLS
FIRE STATION #22
STORAGE BUILDING
4 John Street
Fenelon Falls, Ontario

TITLE
ELECTRICAL
SPECIFICATION

DESIGN	DRM
DRAWN	KCS
CHECKED	DRM
APPROVED	DRM
PROJECT	7445

SCALE AS NOTED
DWG NO. E3

CADD FILE NO. 7445E3



1 / M1 HVAC LAYOUT
SCALE: 1:50

500 0 500 1000 1500 2000 2500 3000 3500 mm

Minimum Required Exhaust Rate						
Room Name	# of WC or urinals (if applicable)	Square Footage	Occupancy Category (Ashrae 62.1 Table 6.4)	Exhaust Rate per	Area Outdoor Air Rate (cfm/ft^2)	Fresh air Required (CFM)
Storage	0	2110.5	Parking Garages	0	0.75	1582.875
				0	0	0
				0	0	0
				0	0	0
				0	0	0

EXHAUST FAN SCHEDULE								
IDENT.	MANUFACTURER	TYPE	POWER	DUCT SIZE	MODEL	CONTROL	CFM/STATIC PRESSURE	REMARKS
EF–1	GREENHECK	WALL UPBLAST EXHAUST FAN	208/1/60 1/2 HP	AS NOTED	CUBE–180H VG–2	SWITCH AND GAS SENSOR	3243 CFM @ 0.25"	c/w BACKDRAFT DAMPER, ACOUSTIC INSULATION, DISCONNECT, MOUNTING BRACKETS, BIRDSCREEN, VARI–GREEN DRIVE

LOUVER SCHEDULE					
IDENT.	DESCRIPTION	SIZE	MANUFACTURER	MODEL	NOTES
LV–1,2	MAKE UP AIR INTAKE LOUVER	24"Hx18"W	NAILOR	1604AD	COMPLETE WITH BIRDSCREEN

GAS DETECTION SCHEDULE					
IDEN.	ITEM	MANUFACTURER	MODEL	VOLTAGE	NOTES
GMP–1	GAS MONITOR PANEL	ARMSTRONG	AMC–1AD1/2	120/1/60	SINGLE/DUAL ZONE GAS MONITOR, RED/YELLOW/GREEN LED INDICATORS, 95 dBa AUDIO ALARM, UP TO 8 MODULES PER ZONE, MOUNTING HEIGHT AS PER MANUFACTURER'S SPECIFICATIONS. LOW VOLTAGE OUTPUTS FOR SENSORS.
GS–1	CO/NO2 GAS SENSOR	ARMSTRONG	AMC–1220	12–24VDC	CO & NO2 ELECTROCHEMICAL SENSOR, 0–100ppm CO/0–3ppm NO2, LOW POWER 3 WIRE 18 AWG SHIELDED INSTALLATION WIRING, 50' RADIUS COVERAGE AREA. MAXIMUM 150FT BETWEEN SENSORS AND PANEL. POWERED FROM PANEL.

FAN FORCED HEATER SCHEDULE							
IDENT.	MANUFACTURER	TYPE	POWER	MODEL	FINISH	CONTROL	REMARKS
EFF–1	OUELLET	RECESSED FAN FORCED HEATER	208/1/60 3000W	OACP4000–T	BY ARCHITECT	BUILT–IN THERMOSTAT	CEILING MOUNTED FAN FORCED HEATER BUILT–IN TAMPERPROOF THERMOSTAT, 160CFM. MINIMUM CLEARANCE OF 10" (254mm) FROM WALLS AND FLOOR. SUPPLIED BY MECHANICAL AND INSTALLED BY ELECTRICAL

AIR SCRUBBER SCHEDULE				
IDENT.	MANUFACTURER	POWER	MODEL	REMARKS
AS–1.1 AS–1.2	AIRMATION	208–230 1 PHASE 4.7A	AMB 302–NDR	PRE–FILTER #AMPF–04 HEPA FILTER #AMVBD–95 CARBON FILTER #AMCF–26 C/W AIRMATION TSCMM CONTROLLER

HRV SCHEDULE							
IDENT.	MANUFACTURER	MODEL	POWER	DUCT SIZE	CFM/STATIC PRESSURE	CONTROL	NOTES
HRV–1	LIFEBREATH	195 DCS	120/1/60 1.5A 67W	6"ø COLLARS	193 CFM @ 0.3"	WALL MOUNT CONTROLLER (H)	c/w 99–DXPL02 DIGITAL CONTROLLER, MOUNTING BRACKETS, 6"ø 99–186 WEATHERHOOD KIT FOR INTAKE AND EXHAUST

GENERAL NOTES

1. MECHANICAL CONTRACTOR RESPONSIBLE FOR CONTROLS. POWER BY ELECTRICAL.

NOTES

1. EF–1 FAN TO BE CONTROLLED BY HAND/OFF/AUTO SWITCH. HAND SETTING TO RUN AT EITHER HIGH OR LOW SETTING, LOW SETTING IS SUCH THAT IT MEETS MINIMUM REQUIRED EXHAUST RATE FOR THE SPACE. AUTO SETTING TO RUN FAN AT LOW SPEED WHEN RECEIVING SIGNAL FROM OCCUPANCY SENSOR, AND HIGH SPEED WHEN RECEIVING ALERT FROM CO AND NO2 SENSOR.
2. MOTORIZED DAMPERS TO RECEIVE SIGNAL TO OPEN FROM EF–1 SUCH THAT DAMPERS LV–1 AND LV–2 OPENS WHEN EF–1 IS TURNED ON, AND LOUVERS ARE CLOSED WHEN EF–1 IS OFF.
3. AIR SCRUBBER TO BE CONTROLLED BY CONTROLLER. AUTO TO RUN WHENEVER AN OVERHEAD DOOR IS OPEN. COORDINATE WITH SELECTED OVERHEAD DOOR.
4. ELECTRIC HEAT BY MECHANICAL. WIRING BY ELECTRICAL.

NO.	DESCRIPTION	DATE	BY
1	RE–ISSUED FOR PERMIT	2026.01.27	CSM
0	ISSUED FOR PERMIT	2025.07.03	CSM

REVISIONS

Kirkland Engineering Ltd BCIN: 28857

REGISTERED PROFESSIONAL ENGINEER C.S.MULLER 100572425 JAN 27, 2026 PROVINCE OF ONTARIO
MECHANICAL

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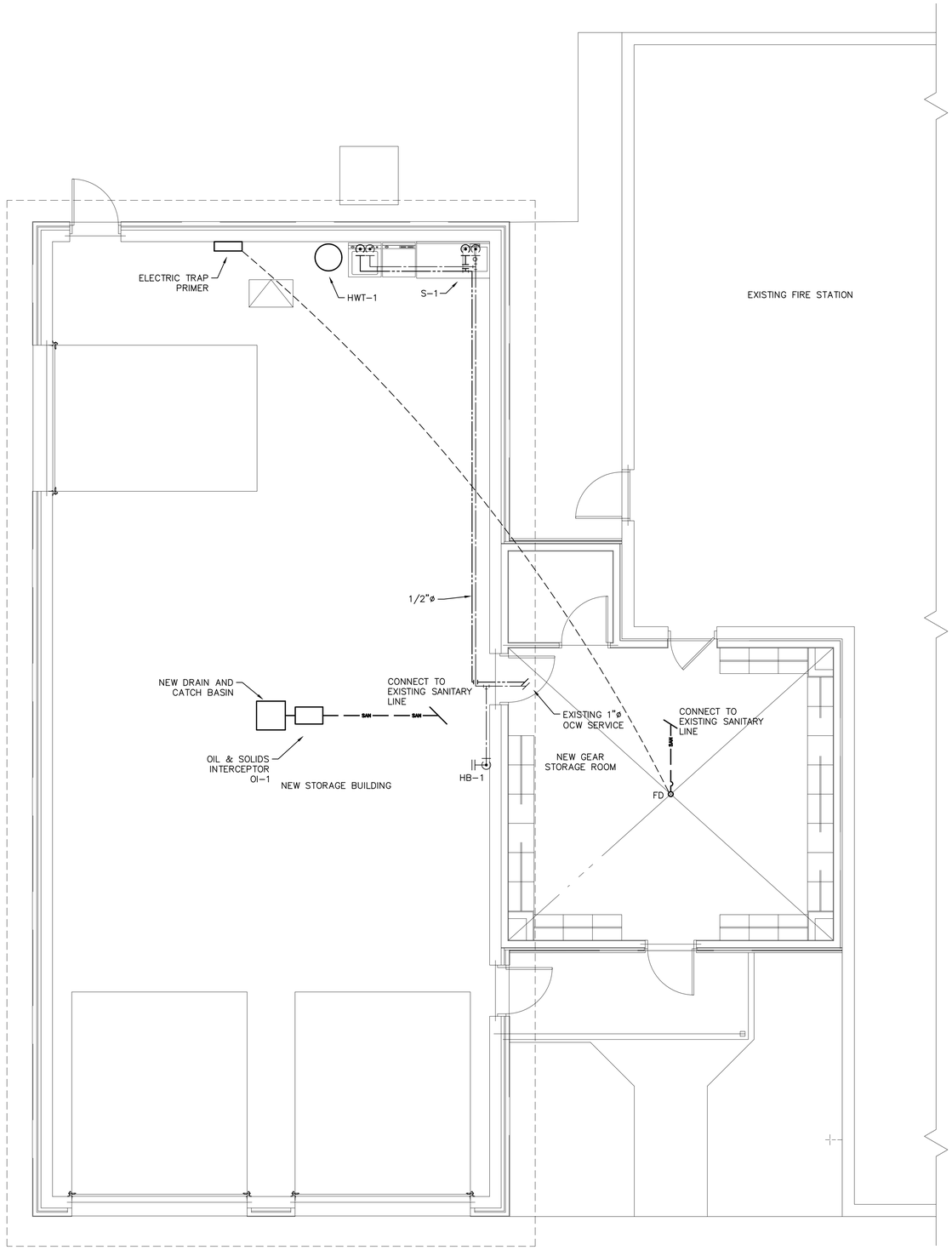
PROJECT
FENELON FALLS
FIRE STATION #22
STORAGE BUILDING
4 John Street
Fenelon Falls, Ontario

TITLE
HVAC
LAYOUT

DESIGN	CSM
DRAWN	ABS
CHECKED	CSM
APPROVED	CSM
PROJECT	7445

SCALE AS NOTED
DWG NO. M1

CADD FILE NO. 7445M1



1 M2 PLUMBING LAYOUT
SCALE: 1:50
500 0 500 1000 1500 2000 2500 3000 3500 mm

PLUMBING/GENERAL SCHEDULE				
IDENT.	ITEM	MANUFACTURER	MODEL	DESCRIPTION
HB-1	HOSE BIBB	ZURN	Z1345-CP3	EXPOSED NON-FREEZE, ANTI-SIPHON, COLD WALL FAUCET, CHROME FINISH, 3/4" (19mm) FEMALE/MALE INLET CONNECTIONS, 3/4" MALE HOSE CONNECTION. CONTRACTOR TO SPECIFY LENGTH TO SUIT WALL THICKNESS. TO BE PROVIDED WITH ZURN #720A, 19mm (3/4") PRESSURE VACUUM BREAKER ASSEMBLY(S), SUCH THAT BACKFLOW IS PREVENTED FROM ENTERING COLD WATER PIPING. INSTALL ACCORDING TO MANUFACTURER'S INSTRUCTIONS.
OI-1	OIL INTERCEPTOR	ZURN	Z1186 SIZE 300	10 GPM, 7 USG CAPACITY, 3" INLET, C/W HD HEAVY DUTY TRAFFIC COVER, C/W SPACERS AS REQUIRED TO SUIT INVERT
CB	CATCH BASIN	WATTS	FD-490-F-4	12"X12" DRAIN, 17"X17" GRATE

HOT WATER TANK				
IDENT.	MANUFACTURER	MODEL	CAPACITY (MBH)	REMARKS
HWT-1	AO SMITH	EPSX 50	50 USG CAPACITY 3KW ELEMENTS 50 USG FHR	3KW 50USG COMMERCIAL-GRADE WATER HEATER. 22" DIAMETER, 48-3/4" HEIGHT. 125 LBS

S-1: COUNTER MOUNTED – DROP-IN – COMMERCIAL SINKS
FRANKE COMMERCIAL LBS4010P-1-3 SINK – SINGLE COMPARTMENT SINK, 203 MM (8") CENTERSET, COMMERCIAL SINKS, WITH OVERALL DIMENSION 562 MM (22-1/8") LONG, 478 MM (18-13/16") WIDE, 254 MM (10") HIGH, CONSTRUCTED FROM 18 GAUGE TYPE 304 STAINLESS STEEL, BOWL DIMENSIONS ARE 508 MM (20") LONG, 356 MM (14") WIDE, 254 MM (10") DEEP, POLISHED TO #4 SATIN FINISH, FACTORY INSTALLED EZ TORQUE™ FASTENERS, FACTORY APPLIED RIM SEAL, CENTER BACK WASTE LOCATION, 38 MM (1-1/2") (DN38) BRASS TAILPIECE, 89 MM (3-1/2") CRUMB CUP STRAINER, COMPLIANCES AND CERTIFICATIONS: ASME A112.19.3 COMPLIANT, CSA B45.4 COMPLIANT.
AMERICAN STANDARD 6403V10170.002 FAUCET – MONTERREY, COUNTER MOUNTED, MANUAL, TWO HANDLES, SINK FAUCET, POLISHED CHROME FINISH, 203 MM (8") CENTERSET, LEAD FREE ANSI/NSF 372 COMPLIANT SOLID BRASS CONSTRUCTION, CERAMIC DISC CARTRIDGES, 3.8 LPM (1.0 GPM) MAXIMUM FLOWRATE, VANDAL-RESISTANT PRESSURE COMPENSATING AERATOR, RIGID/SWING GOOSENECK SPOUT, 203 MM (8") SPOUT REACH, 340 MM (13-3/8") HIGH.
LAWLER 570-86820 MIXING VALVE – POINT OF USE AND MASTER CONTROLLED FIXTURES, THERMOSTATIC MASTER WATER MIXING CONTROL VALVE
MCGUIRE LFCK165LK SUPPLY – ICV DEFENDER FAUCET SUPPLY KIT, CONSISTING OF (2) STOP VALVES, (2) RISERS, (2) FLANGES (STANDARD), LEAD FREE BRASS BODY, CHROME-PLATED FINISH, 138 – 862 KPA (20 – 125 PSI) OPERATING PRESSURE, 4 TO 60 °C (40 TO 140 °F) OPERATING TEMPERATURE, LOOSE KEY HANDLE, FULL TURN, ANGLE STOP, SPRING ACTUATED INTEGRAL CHECK VALVE, C.P. WROUGHT STEEL SHALLOW WALL FLANGE (STANDARD), 305 MM (12") C.P. LAVATORY FLEXIBLE COPPER RISER TUBES (STANDARD), 10 MM (3/8") I.P.S. INLET X 10 MM (3/8") O.D. OUTLET, 82 °C (180 °F) MAXIMUM DURING HIGH-TEMPERATURE SYSTEM FLUSH, AB 100 COMPLIANT, ASME A112.18.3, ASME A112.18.2-2 (RISERS), CSA B125.2 COMPLIANT (RISERS), CERTIFIED TO NSF/ANSI 372, CERTIFIED TO NSF/ANSI 61, UPC COMPLIANT.
MCGUIRE 8912CB P-TRAP – HEAVY CAST BRASS, 38 X 38 MM (1-1/2" X 1-1/2") SIZE, WITH CLEANOUT PLUG, 292 MM (11-1/2") LENGTH

GENERAL NOTES

1. COORDINATE SANITARY VENT ROUTING WITH SITE CONDITIONS.
2. WASHER AND DRYER SUPPLIED BY OWNER. CONTRACTOR TO INSTALL.

NO.	DESCRIPTION	DATE	BY
1	RE-ISSUED FOR PERMIT	2026.01.27	CSM
0	ISSUED FOR PERMIT	2025.07.03	CSM

REVISIONS

Kirkland Engineering Ltd BCIN: 28857

REGISTERED PROFESSIONAL ENGINEER
C.S.MULLER
100572425
JAN 27, 2026
PROVINCE OF ONTARIO
MECHANICAL

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PROJECT
FENELON FALLS
FIRE STATION #22
STORAGE BUILDING
4 John Street
Fenelon Falls, Ontario

TITLE
PLUMBING
LAYOUT

DESIGN	CSM	SCALE	AS NOTED
DRAWN	ABS	DWG NO.	M2
CHECKED	CSM		
APPROVED	CSM		
PROJECT	7445		

CADD FILE NO. 7445M2

GENERAL MECHANICAL SPECIFICATIONS

1. THE MECHANICAL DRAWINGS DO NOT SHOW ALL THE ARCHITECTURAL, STRUCTURAL AND ELECTRICAL DETAILS. INFORMATION INVOLVING ACCURATE DIMENSIONING OF THE SITE CONDITIONS SHALL BE TAKEN FROM SITE BY CONTRACTOR. CONTRACTOR TO MAKE ANY NECESSARY MODIFICATIONS OR ADDITIONS, WITHOUT CHARGE, TO ACCOMMODATE THE SITE CONDITIONS.

2. EQUIPMENT TO BE AS SPECIFIED OR APPROVED EQUIVALENT. DESIGN BASED ON EQUIPMENT AS SPECIFIED IN EQUIPMENT SCHEDULE AND IS NOT INTENDED TO SHOW EQUIPMENT IN EXACT LOCATIONS. CONTRACTOR IS RESPONSIBLE TO VERIFY EQUIPMENT DIMENSIONS TO ENSURE THAT EQUIPMENT WILL FIT SITE CONDITIONS. ANY COST ASSOCIATED WITH USING EQUIPMENT OTHER THAN WHAT IS SPECIFIED IS THE FULL RESPONSIBILITY OF THE CONTRACTOR AND NO EXTRA WILL BE ALLOWED FOR THESE COSTS.

3. ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS, THE SPECIFICATION, AND ALL OTHER TENDER DOCUMENTS.

4. ALL FLOOR MOUNTED EQUIPMENT TO BE PLACED ON HOUSE KEEPING PAD.

5. ALL PIPING AND DUCT WORK TO BE LABELED INCLUDING DIRECTION OF FLOW EVERY 8' AND EACH CHANGE IN DIRECTION.

6. CONTRACTOR IS RESPONSIBLE TO PROVIDE A COMPLETE CONTROL SYSTEM. DESIGN TO BE APPROVED BY THE ENGINEER, PROVIDE ALL EQUIPMENT SHOP DRAWINGS FOR THE CONTROL SYSTEM TO BE APPROVED. CONTRACTOR IS RESPONSIBLE FOR COMPLETE INSTALLATION OF THE CONTROL SYSTEM AND FINAL TESTING OF ALL MECHANICAL EQUIPMENT FOR FULLY FUNCTIONING SYSTEM IN ALL SEASONS.

7. CONTRACTOR IS RESPONSIBLE TO ENSURE ALL EQUIPMENT AND MATERIALS CAN FIT INTO MECHANICAL ROOM OR ITS PLACE, THROUGH FINISHED OPENINGS, OR THAT MATERIAL IS PLACED IN MECHANICAL ROOM AT APPROPRIATE PHASE OF CONSTRUCTION.

8. PRIOR TO SUBMITTING TENDERS, THE CONTRACTOR SHALL VISIT THE SITE TO DETERMINE ALL EXISTING CONDITIONS. ALLOW FOR ALL COSTS ASSOCIATED WITH COMPLETING THE WORK OF MECHANICAL DIVISION IN ACCORDANCE WITH EXISTING SITE AND BUILDING CONDITIONS. CONTRACTOR TO VERIFY LOCATION OF EXISTING UTILITY CONNECTIONS WHERE CONNECTIONS ARE REQUIRED. CONTRACTOR TO VERIFY LOCATION, DEPTH, ELEVATION, AND SIZE OF INVERT. NO ALLOWANCE FOR EXTRA PAYMENTS TO THE CONTRACTOR WILL BE MADE BY THE OWNER FOR FAILING TO VISIT AND EXAMINE SITE CONDITIONS.

9. SUB-CONTRACTOR SHALL MAINTAIN SUCH INSURANCE AS WILL FULLY PROTECT BOTH THE OWNER AND THE SUB-CONTRACTOR FROM ANY AND ALL CLAIMS UNDER THE WORKMEN'S COMPENSATION ACT, ALSO ALL INSURANCE AS NOTED WITHIN ARCHITECTURAL GENERAL CONDITIONS.

10. MAINTAIN A SEPARATE SET OF WHITE PRINTS ON THE SITE AND NOTE ALL CHANGES AND DEVIATIONS FROM THE ORIGINAL DESIGN. TWO SETS OF THESE DRAWINGS SHOWING ALL AS-BUILT CONDITIONS SHALL BE FORWARDED TO THE ARCHITECT AT THE COMPLETION OF THIS CONTRACT AND BEFORE APPLYING FOR FINAL PAYMENT.

11. ADDITIONAL MONEY OVER THE CONTRACT PRICE SHALL NOT BE PAID UNLESS AN APPROVED CHANGE ORDER IS ISSUED BY THE ARCHITECT. CLAIMS FOR EXTRAS SHALL BE SUBMITTED WITH A COMPLETE BREAKDOWN OF MATERIAL, LABOUR, HOURLY RATES, ETC.

12. BE RESPONSIBLE TO KEEP THE AREA CLEAN AT ALL TIMES AND TO PERIODICALLY REMOVE ALL DEBRIS. CONSTRUCTION AREA TO BE ISOLATED BY MEANS OF TARPS AND/OR TEMPORARY PARTITIONS.

13. ALL CUTTING AND PATCHING REQUIRED FOR THE WORK OF THIS DIVISION SHALL BE CARRIED OUT BY THIS DIVISION. CUTTING AND DRILLING SHALL BE PERFORMED IN A MANNER SO AS TO CAUSE LITTLE DAMAGE. BE RESPONSIBLE AND PAY FOR ANY DAMAGE TO THE BUILDING INCURRED BY WORK OF THIS DIVISION.

14. BE RESPONSIBLE TO COORDINATE THE INSTALLATION OF EQUIPMENT, DUCTING, PIPING, ETC. WITH OTHER TRADES AND THE OWNER'S REPRESENTATIVE PRIOR TO THE ACTUAL INSTALLATION.

15. BE RESPONSIBLE FOR MECHANICAL WORK UNTIL THE COMPLETION AND FINAL ACCEPTANCE, FOR REPLACING ANY ITEM THAT MAY BE DEFECTIVE, DAMAGED, LOST OR STOLEN WITHOUT ADDITIONAL COST TO THE OWNER OR DELAY TO THE COMPLETION OF THE PROJECT.

16. SHOP DRAWINGS AND PRODUCT DATA. 'SHOP DRAWINGS' MEANS DRAWINGS, DIAGRAMS, ILLUSTRATIONS, SCHEDULES, PERFORMANCE, CHARTS, BROCHURES, AND OTHER DATA WHICH ARE TO BE PROVIDED BY THE CONTRACTOR TO ILLUSTRATE DETAILS OF A PORTION OF THE WORK. INDICATE MATERIALS METHODS OF CONSTRUCTION AND ATTACHMENT OR ANCHORAGE, NECESSARY FOR COMPLETION OF WORK. ADJUSTMENTS MADE ON SHOP DRAWINGS BY OWNER OR ENGINEER ARE NOT INTENDED TO CHANGE CONTRACT PRICE. MAKE CHANGES IN SHOP DRAWINGS AS OWNER OR ENGINEER MAY REQUIRE. SUBMIT 6 HARD COPIES, OR 1 HIGH QUALITY ELECTRONIC COPY OF PRODUCT DATA SHEETS OR BROCHURES FOR ALL MECHANICAL EQUIPMENT. PROVIDE 2 MAINTENANCE MANUALS COMPLETE WITH WARRANTEE, CERTIFICATE OF INSPECTIONS, AND COPY OF ALL PRODUCT LITERATURE AND MAINTENANCE INFORMATION.

17. PRIOR TO FINAL INSPECTION DEMONSTRATE OPERATION OF EACH SYSTEM TO OWNER AND ENGINEER. INSTRUCT PERSONNEL IN OPERATION ADJUSTMENT AND MAINTENANCE OF EQUIPMENT AND SYSTEMS, USING PROVIDED OPERATION AND MAINTENANCE DATA AS BASIS FOR INSTRUCTION.

18. AFTER THE WORK IS COMPLETED, GIVE A WRITTEN GUARANTEE FOR ONE YEAR COVERING WORKMANSHIP AND MATERIALS. REPAIR OR REPLACE, WITHOUT EXPENSE TO THE OWNER, ANY DEFECTS DUE TO WORKMANSHIP OR MATERIALS WHICH IN THE OWNER'S OPINION, ARE NOT DUE TO MISUSE OR NEGLECT.

19. WHERE REQUIRED FOR UNDERGROUND SERVICE THE EXCAVATION, BACKFILL AND CONCRETE WORK SHALL BE BY THE GENERAL CONTRACTOR. THE MECHANICAL TRADE SHALL SUPERVISE THE PROCESSING OF CONCRETE TO ENSURE THEY ARE FREE FROM VOIDS AND SHALL ADVISE THE GENERAL CONTRACTOR OF THIS WORK FOR INCLUSION IN THE GENERAL CONTRACTOR'S TENDER PRICE.

20. THE MECHANICAL CONTRACTOR SHALL ENSURE THAT EVERY FIXTURE, PLUMBING APPLIANCE, INTERCEPTOR, CLEANOUT, VALVE, DEVICE OR PIECE OF EQUIPMENT SHALL BE LOCATED IN A MANNER THAT IT IS READILY ACCESSIBLE FOR USE, CLEANING, MAINTENANCE OR REPAIR. MECHANICAL CONTRACTOR SHALL PROVIDE ACCESS DOORS LARGE ENOUGH TO PERMIT EASY ACCESS TO CONCEALED FIXTURES, PLUMBING APPLIANCES, FIRE DAMPERS, INTERCEPTORS, CLEANOUTS, VALVES, DEVICES OR PIECES OF EQUIPMENT.

21. CONTRACTOR SHALL CARRY THE SERVICES OF AN APPROVED FIRE STOPPING INSTALLER AND SHALL PROVIDE ALL FIRE STOPPING FOR ALL MECHANICAL AND ELECTRICAL PENETRATIONS. PROVIDE SHOP DRAWINGS FOR FIRE STOPPING MATERIALS USED.

22. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SECURITY OF THEIR PROPERTY. THE OWNER BEARS NO RESPONSIBILITY FOR PROTECTION FROM THEFT, FIRE, OR ENVIRONMENTAL CONDITIONS.

23. PRIOR TO STARTING CONSTRUCTION THE CONTRACTOR SHALL DETERMINE EXACT INVERT ELEVATION, DEPTH, SIZE, AND LOCATION OF EXISTING UTILITIES WHERE CONNECTIONS ARE TO BE MADE OR INTERSECTIONS OCCUR. NOTIFY ARCHITECT OR ENGINEER OF ANY DISCREPANCY BETWEEN DRAWINGS AND ACTUAL FIELD CONDITIONS. WORK BACK TOWARDS BUILDING FROM UTILITY CONNECTION FOR ALL PIPING SYSTEM.

24. ALL PIPING AND DUCTING SHOWN FOR SCHEMATIC AND SCOPE OF WORK PURPOSES IN GENERAL LOCATION OF USE. COORDINATE EXACT ROUTING ON SITE AND WITH BEST PRACTICES.

25. ALL EQUIPMENT (PUMPS, HVAC UNITS, ROOFTOP FANS, ETC.) TO BE PROVIDED WITH VIBRATION ISOLATION DEVICES.

GENERAL HVAC SPECIFICATIONS

1. PROVIDE DUCTWORK IN ACCORDANCE WITH A.S.H.R.A.E. AND INTERNATIONAL MECHANICAL CODES CHAPTER 5 SECTION 506,, LATEST EDITION. ALL DUCTS SHALL BE FABRICATED FROM PRIME QUALITY GALVANIZED STEEL AS PER A.S.H.R.A.E. STANDARDS. DUCTS SHALL BE INSTALLED AS HIGH AS POSSIBLE. PROPER ANGLE IRON SUPPORTS, HANGERS, ETC., SHALL BE PROVIDED FOR ALL DUCTS. SEAL ALL JOINTS OF DUCTS WITH HIGH PRESSURE SEALER. APPLY SEALANT TO OUTSIDE OF JOINTS AS PER MANUFACTURERS RECOMMENDATIONS.
   CONSTRUCT DUCTS IN ACCORDANCE WITH THE FOLLOWING:

MAX DUCT DIMENSION	U.S. GAUGE
UP TO 12"	26
13" TO 30"	24
31" TO 54"	22

   CONSTRUCT ROUND DUCTS IN ACCORDANCE WITH THE FOLLOWING:

   4" TO 8" DIAMETER – 26 GAUGE
   9" TO 24" DIAMETER – 24 GAUGE

2. EQUIVALENT DUCT SIZES MAY BE SUBSTITUTED IN LIEU OF THOSE SHOWN, IN ORDER TO AVOID INTERFERENCE WITH STRUCTURE AND OTHER MECHANICAL SERVICES. CONTRACTOR TO PROVIDE DRAWINGS OF ANY PROPOSED CHANGES TO ENGINEER FOR APPROVAL. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN DESIGN AIR FLOW WITH DUCT INSTALLATION. ALL SUPPLY & RETURN BRANCHES SHALL BE AT 45° TAKE OFFS.

3. THE CONTRACTOR SHALL VERIFY EXACT LOCATION OF EQUIPMENT PRIOR TO FABRICATION AND INSTALLATION OF DUCTWORK. THE CONTRACTOR SHALL PROVIDE ALL REQUIRED ELBOWS, DUCT ACCESSORIES, ETC. TO COMPLETE THE INTENT OF THE MECHANICAL DRAWINGS.

4. HVAC EQUIPMENT MUST NOT BE USED DURING CONSTRUCTION. DUCT OPENINGS SHALL BE COVERED TO KEEP OUT DUST AND DEBRIS. COMMISSIONING MUST NOT BE PERFORMED UNTIL ALL INTERIOR FINISHES ARE COMPLETE.

5. INSULATE ALL DUCTS IN ACCORDANCE WITH ASHRAE 90.1, LATEST EDITION.

6. MECHANICAL EQUIPMENT TO BE ISOLATED FROM DUCT WORK USING 6" FLEXIBLE DUCT CONNECTORS ON BOTH THE SUPPLY AND RETURN DUCTS.

7. ALL MITERED ELBOWS TO BE COMPLETE WITH DOUBLE THICKNESS AIR VANES. ALL RADIUSED ELBOWS TO BE COMPLETE WITH SPLITTER VANES PER SMACNA DUCT CONSTRUCTION STANDARDS.

8. PROVIDE VOLUME DAMPERS AT ALL DUCT BRANCHES AND TAKE-OFFS.

9. PROVIDE AN INDEPENDENT FIRM CERTIFIED BY NEBB TO CONDUCT TESTING, ADJUSTING AND BALANCING OF ALL MECHANICAL SYSTEMS AND COMPONENTS, INCLUDING ALL DUCTS AND HYDRONIC PIPING. SUBMIT WRITTEN REPORT IN TRIPLICATE TO MECHANICAL ENGINEER UPON COMPLETION.

10. MAXIMUM LENGTH OF FLEX DUCT PERMITTED IS 10' PER DIFFUSER. NO FLEX DUCT IS PERMITTED ON EXPOSED DUCT WORK.

11. PROVIDE FIRE DAMPERS IN DUCTS AT FLOOR, WALL, CEILING, AND ROOF PENETRATIONS WHERE FIRE SEPARATIONS ARE CROSSED, AND WHERE REQUIRED BY LOCAL AUTHORITIES AND CODES. FIRE DAMPERS SHALL MAINTAIN 100% FREE AREA OF DUCTWORK (TYPE 'B' FIRE DAMPERS). RATE FIRE DAMPERS TO MATCH THE FIRE RATING OF SEPARATION CROSSED. PROVIDE ONLY ULC LABELED DAMPERS AND INSTALL AS SPECIFIED IN NFPA/CUA 90A.

12. SUPPLY AND RETURN DUCTS SHALL BE CONNECTED TO THE HVAC UNIT THROUGH A FLEXIBLE NON METALLIC DUCT.

13. 10' OF ACOUSTIC SOUND INSULATION SHALL BE PROVIDED TO THE DUCTS AT THE BEGINNING NEAR THE HVAC UNIT.

14. SMOKE DETECTORS AT SUPPLY DUCTS SHALL BE PROVIDED TO AUTOMATICALLY SHUT DOWN UNITS UPON DETECTION OF SMOKE.

GENERAL GAS SPECIFICATIONS

1. INSTALL GAS PIPING IN ACCORDANCE WITH LATEST EDITION OF CAN/CSA B149.1-00, NATURAL GAS & PROPANE INSTALLATION CODE INCLUDING LATEST AMENDMENTS, AND LOCAL AUTHORITY HAVING JURISDICTION.

2. PROVIDE COMPLETE DISTRIBUTION SYSTEM AND CONNECT TO ALL GAS APPLIANCES. PROVIDE UNION SYSTEM & SHUT OFF VALVES AT ISOLATION POINTS, AS INDICATED, AND AT GAS APPLIANCES.

3. TEST PIPING BEFORE APPLIANCES ARE CONNECTED AS REQUIRED BY THE GAS AUTHORITY.

4. IDENTIFY PIPING AS PER CODES AND REGULATIONS.

5. VENTING FOR DIRECT VENT APPLIANCES SHALL CONFORM TO CSA 149.1 AND VLC S636 NATURAL GAS AND PROPANE INSTALLATION CODE.

GENERAL PLUMBING SPECIFICATIONS

1. ALL HOT AND COLD WATER PIPING AFTER THE MAIN BUILDING CWS ISOLATION VALVE SHALL BE HARD COPPER TYPE L PIPING WHICH SHALL CONFORM TO ASTM B42 AND ASTM B88.

2. ALL DOMESTIC WATER PIPING TO BE INSULATED c/w VAPOUR BARRIER. PIPE INSULATION TO CONFORM O.B.C. TABLE 12.3.4.5.

3. ALL DRAINAGE, WASTE, AND VENT PIPE TO BE PVC DWV WITH FLAME SPREAD RATING < 25. PIPES TO BE XFR WHERE PENETRATING FIRE RATED WALLS.

4. WATER HAMMER ARRESTORS TO BE STAINLESS STEEL BELLOWS TYPE; WATTS SS-A OR APPROVED EQUIVALENT.

5. ROUTE ABOVE GROUND PIPING IN CEILING SPACE OF WALL INTERIORS FOR CONCEALMENT WHERE EVER POSSIBLE UNLESS SPECIFICALLY NOTED OTHERWISE ON DRAWINGS. COORDINATE PIPE INSTALLATION IN WALLS WITH MASON AND OR DRYWALLER OR APPROPRIATE TRADE INVOLVED.

6. INSTALL ISOLATION VALVES IN EACH BRANCH LINE FROM COLD AND HOT WATER MAINS, AT BASE OF EACH RISER, AND BEFORE EACH FIXTURE OR EQUIPMENT CONNECTED TO COLD/HOT WATER SYSTEM. PROVIDE A FIRE RATED ACCESS DOOR AT EACH CONCEALED VALVE.

7. INSTALL FLANGES OR UNIONS TO PERMIT REMOVAL OF EQUIPMENT WITHOUT DISTURBING PIPING SYSTEMS.

8. PROVIDE COMPLETE DRAINAGE AND VENT SYSTEMS TO SERVE FIXTURES AND ITEMS SPECIFIED AND AS SHOWN ON PLANS.

9. WHERE EXPOSED PIPES PASSES THROUGH FINISHED FLOORS, WALLS, OR CEILINGS, PROVIDE CHROME PLATED ESCUTCHEON WITH SET SCREW.

10. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ALL NECESSARY MATERIALS & LABOUR TO MAINTAIN ALL FIRE SEPARATIONS AFFECTED BY THE WORK PERFORMED.

11. GRADE HORIZONTAL SANITARY DRAINAGE AND VENT PIPING AT MINIMUM 1:50.

12. ALL FAUCET AND TOILET SUPPLY LINES SHALL BE STAINLESS BRAIDED HOSE.

13. ALL FLOOR DRAINS TO BE TRAPPED, PRIMED, AND VENTED WITH STRAINER INSTALLED FLUSH WITH FINISHED FLOOR. SUPPLY AND INSTALL PRIMER AND TUBING FROM CLOSEST COLD WATER BRANCH, C/W SPECIALTY BLEED VALVE (P.P.P. OR EQUAL), UNLESS OTHERWISE SPECIFIED IN DRAWINGS.

14. EXPOSED P-TRAPS SHALL BE CHROME PLATED BRASS.

15. SIZE OF DRAINAGE PIPE SERVING FIXTURES:

DISHWASHER	1-1/2"	(38mm)	LAVATORY	1-1/2"	(38mm)
SINK	1-1/2"	(38mm)	SHOWER	1-1/2"	(38mm)
SERVICE SINK	1-1/2"	(38mm)	URINAL	2"	(51mm)
WC	3"	(76mm)	FLOOR DRAIN	2"	(51mm)

16. SIZE OF EITHER CWS & HWS ISOLATION VALVES SERVING FIXTURES:

DISHWASHER	1/2"	(13mm)	LAVATORY	1/2"	(13mm)
SINK	1/2"	(13mm)	SHOWER	1/2"	(13mm)
SERVICE SINK	1/2"	(13mm)	URINAL	3/4"	(19mm)
WC	1/2"	(13mm)	WF	1/2"	(13mm)

17. ALL PIPING FITTINGS WITH TERMINAL EQUIPMENT SHALL BE LEAD FREE.

18. THE CONTRACTOR IS RESPONSIBLE FOR THE INSULATION OF THE STORM PIPES INSIDE THE BUILDING.

19. ALL PIPING IS TO BE STRAIGHT, PARALLEL AND PERPENDICULAR TO THE BUILDING STRUCTURE. SLOPE ALL PIPING TO DRAIN POINTS.

20. WHEN PIPE LAYING NOT IN PROGRESS, CLOSE OFF OPEN ENDS OF PIPE WITH WATER TIGHT PLUG OR CAP.

21. INSTALL CLEANOUTS AS REQUIRED BY PLUMBING CODES. SIZE OF CLEANOUTS TO MATCH SIZE OF ASSOCIATED SANITARY PIPE. ENSURE CLEAN OUTS ARE MADE ACCESSIBLE.

22. CONNECT FIXTURES COMPLETE WITH SUPPLIES AND DRAINS, TRAPPED, SUPPORTED, SANITARY LEVEL AND SQUARE WITH HOT WATER FAUCETS ON THE LEFT.

NO.	DESCRIPTION	DATE	BY
1	RE-ISSUED FOR PERMIT	2026.01.27	CSM
0	ISSUED FOR PERMIT	2025.07.03	CSM

REVISIONS

Kirkland Engineering Ltd BCIN: 28857

REGISTERED PROFESSIONAL ENGINEER
C.S.MULLER
100572425
JAN 27, 2026
PROVINCE OF ONTARIO
MECHANICAL

NOT TO BE USED FOR CONSTRUCTION UNLESS SIGNED BY THE ENGINEER.

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KIRKLAND ENGINEERING LTD.

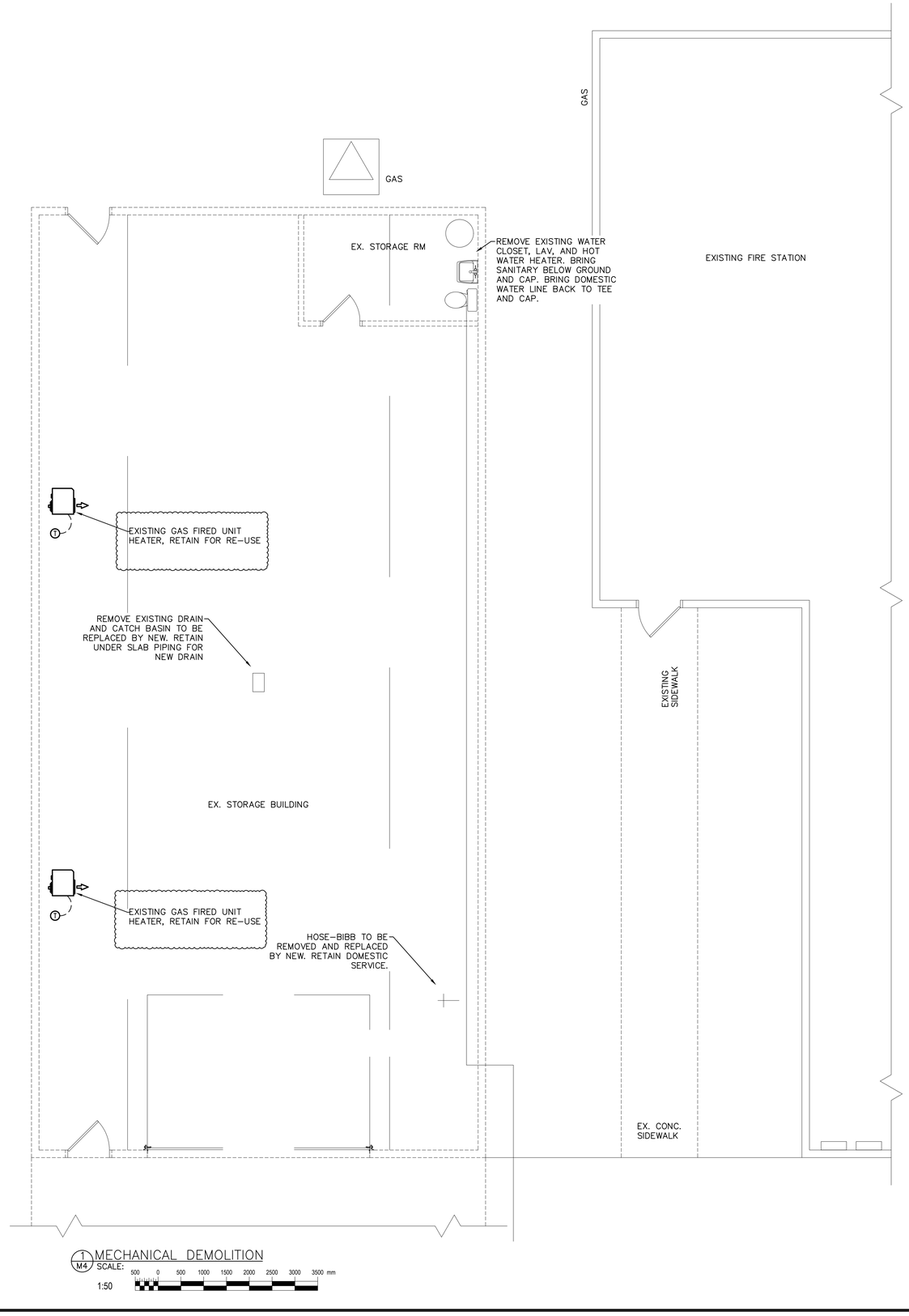
PROJECT
FENELON FALLS
FIRE STATION #22
STORAGE BUILDING
4 John Street
Fenelon Falls, Ontario

TITLE
MECHANICAL
SPECIFICATION

DESIGN	CSM
DRAWN	ABS
CHECKED	CSM
APPROVED	CSM
PROJECT	7445

SCALE AS NOTED
DWG NO. M3

CADD FILE NO. 7445M3



1 MECHANICAL DEMOLITION
M4 SCALE: 1:50

500 0 500 1000 1500 2000 2500 3000 3500 mm

NO.	DESCRIPTION	DATE	BY
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DWG NO. M4

CADD FILE NO. 7445M4