

SEISMIC SYSTEM/LOADING DATA:

MAIN BUILDING

SEISMIC FORCE RESISTING SYSTEM (SFRS)

SFRS: SYSTEM & CONNECTIONS: (2012 OBC CLAUSE 4.1.8.9/4.1.8.10) LATERAL LOAD RESISTING SYSTEM: CONVENTIONAL CONSTRUCTION BRACED FRAMES, WOOD SHEARWALLS

SEISMIC IMPORTANCE FACTOR: (2012 OBC CLAUSE 4.1.8.5) Ie = 1.0

PROJECT CITY: ARNPRIOR ONTARIO

SITE CLASS: THE NOTED SITE CLASSIFICATION FOR SEISMIC SITE RESPONSE AND SHEAR WAVE VELOCITY PARAMETERS INDICATED ARE AS REPORTED IN THE GEOTECHNICAL REPORT # 64356.01 BY HOULE CHEVRIER ENGINEERING

PGA: 0.310

RESPONSE SPECTRUM DATA:

5% DAMPED SPECTRAL RESPONSE ACCELERATION VALUES: (2012 OBC SUPPLEMENT STANDARD SB-1)

Sa(0.2) = 0.610
Sa(0.5) = 0.290
Sa(1.0) = 0.130
Sa(2.0) = 0.044

DESIGN SPECTRAL RESPONSE ACCELERATION VALUES (DSRAV): (2012 OBC CLAUSE 4.1.8.4)

CLASS D: (Fa=1.156/Fv=1.37)

S(0) = 0.705
S(0.2) = 0.705
S(0.5) = 0.397
S(1.0) = 0.178
S(2.0) = 0.060
S(4.0) = 0.030

SYSTEM RESTRICTION VALUE: IeFaSa(0.2) = 0.705 >= 0.35

PERIOD DATA:

STATIC PERIOD: (2012 OBC CLAUSE 4.1.8.11(3))

Ta (STATIC) NS = 0.125 sec
Ta (STATIC) EW = 0.125 sec

DESIGN PERIODS/MODE & MOMENT FACTORS: (2012 OBC CLAUSE (4.1.8.11(5)))

Sa(0.2)/Sa(2.0) = 13.9 >= 8.0

Ta (DESIGN) NS = 0.125 sec MV = 1.00 J = 1.00
Ta (DESIGN) EW = 0.125 sec MV = 1.00 J = 1.00

DESIGN FUNDAMENTAL PERIOD BASED DSRAV:

S(Ta) NS = 0.705
S(Ta) EW = 0.705

IRREGULARITY REVIEW (2012 OBC CLAUSE 4.1.8.6)

1. VERTICAL STIFFNESS: YES NO
2. WEIGHT: YES NO
3. VERTICAL GEOMETRIC: YES NO
4. IN PLANE DISCONTINUITY: YES NO
5. OUT OF PLANE: YES NO
6. WEAK STOREY: YES NO
7. TORSIONAL: YES NO

8. NON-ORTHOGONAL: YES NO

CONCLUSION: BUILDING IS DYNAMIC ANALYSIS: DYNAMIC PROCEDURE METHOD:

TORSIONAL ECCENTRICITY: +/- 0.10 Dnx (4.1.8.11(10a)), B < 1.7 EQUIV. STATIC FORCE PROCEDURE

STRUCTURAL SEPARATION: THE NEW AND EXISTING STRUCTURES HAVE BEEN SEPARATED IN ACCORDANCE WITH 4.1.8.14(1) OF THE 2012 O.B.C.

BASE SHEARS/MOMENTS (2012 OBC CLAUSE 4.1.8.11)

Vstatic = S(Ta)MvleW/(RdRo) = 974 kN W = 2695 kN

STATIC MAXIMUM/MINIMUM VALUES:

NORTH-SOUTH: Vmin = S(2.0)MvleW/(RdRo) = 83 kN W = 2695 kN
Vmax = 2/3 S(0.2)IeW/(RdRo) = 650 kN W = 2695 kN

EAST-WEST: Vmin = S(2.0)MvleW/(RdRo) = 83 kN W = 2695 kN
Vmax = 2/3 S(0.2)IeW/(RdRo) = 650 kN W = 2695 kN

GENERAL NOTES

1. ANY DEVIATION FROM THE CONDITIONS SHOWN ON THESE DRAWINGS MUST BE REPORTED TO THE ENGINEER.

2. THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF PART 4 OF THE O.B.C. (2012 EDITION) ONTARIO REGULATION 332/12 (AS AMENDED)

3. STANDARDS -CSA STANDARD A23.3-04 DESIGN OF CONCRETE STRUCTURES -CAN/CSA-116-09 LIMIT STATES DESIGNS OF STEEL STRUCTURES -CSA STANDARD S304.1-04 DESIGN OF MASONRY STRUCTURES -CAN/CSA-086-09 ENGINEERING DESIGN IN WOOD

4. ANY MODIFICATIONS TO EXISTING STRUCTURES ARE TO BE LIMITED TO WORK NOTED ON THESE DRAWINGS. ANY ADDITIONAL OR PROPOSED MODIFICATIONS TO EXISTING STRUCTURES MUST BE APPROVED BY THE ENGINEER

5. FOUNDATIONS

1. ALL FOOTINGS ARE TO BEAR ON NATURAL UNDISTURBED SOIL OR ENGINEERED FILL.
2. BEARING CAPACITY USED IN THE FOOTING DESIGN IS ASSUMED TO BE SL= 150 kPa/ULS=300 kPa

3. PROVIDE 12 mm ASPHALT IMPREGNATED FIBREBOARD BETWEEN SLABS ON GRADE & FOUNDATION WALLS OR COLUMNS.
4. SAWCUT SLAB ON GRADE TO (1/4 x SLAB DEPTH) 8 HOURS AFTER CONCRETE PLACEMENT.

7. MATERIALS

1. CONCRETE STRENGTH AT 28 DAYS TO BE AS NOTED ON THESE DRAWINGS AND SPECIFICATIONS.
2. REINFORCING STEEL TO BE DEFORMED GRADE 400R WITH Fy= 400 MPa.

3. HOLLOW STRUCTURAL STEEL SECTIONS TO BE ASTM A500 GRADE C OR G40.21 35W CLASS C.
4. ALL 'W' & 'WWF' SHAPE STEEL SECTIONS TO BE GRADE G40.21 35W WITH Fy= 350 MPa.

8. CONCRETE COVER

1. FOOTINGS 75 mm BOTTOM 50 mm SIDES
2. WALLS 40 mm UNLESS NOTED OTHERWISE
3. PIERS 40 mm

9. REINFORCING STEEL DESIGNATION

8-20M x 1500 T/B
8 = NUMBER OF BARS
20M = SIZE OF BARS
1500 = LENGTH OF BARS

10. DOWELS DOWELS TO FOOTINGS TO BE OF SAME DIAMETER AS THE LOWEST LIFT OF VERTICAL REINFORCING IN COLUMNS, PIERS OR WALLS.

11. REINFORCING STEEL SPLICES

REINFORCING STEEL SPLICES TO BE AS NOTED IN REINFORCING BAR LAP LENGTH TABLE ON S01 U/N.

WIND UPLIFT (REF FIG I-9 NBC 2010 STRUCTURAL COMMENTARY I)

PNET = 1.4 (pe-pi) - 0.9 D
P = lw q Ce Cp Cg Pf = 1.4 Pw NET - 0.9 Pd
Pw NET = Pe - Pi
Pw NET INTERIOR = 0.82 kPa
Pw NET PERIMETER = 1.07 kPa

DESIGN SNOW LOAD PARAMETERS

S = Is [Ss(CbCwCsCa)+Sr]
Ss = 2.5 kPa
Sr = 0.4 kPa
Is = 1.10
S = 1.0 [2.5(0.8x1.0x1.0x1.0)+0.4]
S = 2.40 kPa

12. OPENINGS

1. AT OPENINGS IN WALLS PROVIDE 2-20M T & B OF OPENING EXTENDING 600 mm MIN. BEYOND CORNERS OF OPENINGS.
2. FOR ADDITIONAL OPENINGS 300 x 300 OR SMALLER SEE ARCHITECTURAL & MECHANICAL DRAWINGS.

13. LOADS

ALL LOADS & FORCES INDICATED ON THESE DRAWINGS ARE UNFACTORED WORKING LOADS UNLESS NOTED.

14. CONCRETE BLOCK MASONRY

1. 140 mm CONCRETE BLOCK: VERT: 1-15M @ 800 o/c HORIZ: SL2 @ 200 o/c OR HL2 @ 400 o/c
2. 190 mm CONCRETE BLOCK: VERT: 1-15M @ 800 o/c HORIZ: HL2 @ 200 o/c

LEGEND

S- STANDARD 9 GAUGE LONGITUDINAL & CROSS WIRES
H- HEAVY 5 mm LONGITUDINAL WIRES
9 GAUGE CROSS WIRES
L- LADDER TYPE REINFORCEMENT
T- TRUSS TYPE REINFORCEMENT
2- 2 LONGITUDINAL WIRES

15. LEGEND

B = BOTTOM
B1 = BOTTOM LOWER LAYER
B2 = BOTTOM UPPER LAYER
BL = BOTTOM LOWER LAYER
BBP1 = BEAM (OR OWLS) BEARING PLATE NUMBER
BP1 = BASE PLATE NUMBER
BUL = BOTTOM UPPER LAYER
C1 = CONCRETE COLUMN NUMBER
CONT= CONTINUOUS
DP = DEPTH
DWL = DOWELS
EF = EACH FACE
EL = ELEVATION
ES = EACH SIDE
EW = EACH WAY
F1 = PAD FOOTING NUMBER
H = HORIZONTAL
(H) = HOOKED BAR
MP1 = MASONRY PIER NUMBER
O/C = ON CENTER
P1 = PIER NUMBER/PILE NUMBER
SC1 = STEEL COLUMN NUMBER
T = TOP
T1 = TOP UPPER LAYER
T2 = TOP LOWER LAYER
TLL = TOP LOWER LAYER
TUL = TOP UPPER LAYER
U/N = UNLESS NOTED OTHERWISE
V = VERTICAL
WF1 = WALL FOOTING NUMBER

DESIGN & DETAILING CRITERIA FOR SUPPLIERS

1. CURTAIN WALLS

SUPPORTS FOR CURTAIN WALLS ARE TO BE DESIGNED AND DETAILED BY CURTAIN WALL SUPPLIER. SHOP DRAWINGS ARE TO BE SUBMITTED TO DESIGN TEAM FOR REVIEW. SHOP DRAWINGS ARE TO BE STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE PROVINCE OF ONTARIO. ALL SUPPORTS ARE TO BE INSPECTED DURING CONSTRUCTION BY THE SUPPORT DESIGN ENGINEER.

2. STRUCTURAL STEEL CONNECTIONS

STRUCTURAL STEEL CONNECTIONS ARE TO BE DESIGNED AND DETAILED BY STRUCTURAL STEEL SUPPLIER. SHOP DRAWINGS ARE TO BE SUBMITTED TO DESIGN TEAM FOR REVIEW. SHOP DRAWINGS ARE TO BE STAMPED AND SIGNED FOR CONNECTIONS ONLY BY A PROFESSIONAL ENGINEER LICENSED IN THE PROVINCE OF ONTARIO. INSPECTION OF WELDS, CONNECTIONS & INSTALLATION IS TO BE UNDERTAKEN BY A 3RD PARTY, CERTIFIED INSPECTION SERVICE.

3. COLD FORMED STEEL STUDS & JOISTS

STEEL STUDS & JOISTS ARE TO BE DESIGNED AND DETAILED BY STEEL STUDS & JOISTS SUPPLIER. SHOP DRAWINGS ARE TO BE SUBMITTED TO DESIGN TEAM FOR REVIEW. SHOP DRAWINGS ARE TO BE STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE PROVINCE OF ONTARIO. ALL STEEL STUD & JOIST WORK IS TO BE INSPECTED DURING CONSTRUCTION BY THE STEEL STUD & JOIST DESIGN ENGINEER.

4. MISCELLANEOUS METALS & STEEL STAIRS

MISC METALS & STEEL STAIRS ARE TO BE DESIGNED AND DETAILED BY MISC METALS & STEEL STAIRS SUPPLIER. SHOP DRAWINGS ARE TO BE SUBMITTED TO DESIGN TEAM FOR REVIEW. SHOP DRAWINGS ARE TO BE STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE PROVINCE OF ONTARIO. ALL MISC METAL & STEEL STAIR WORK IS TO BE INSPECTED DURING CONSTRUCTION BY THE MISC METALS & STEEL STAIRS DESIGN ENGINEER.

5. GUARDS & HANDRAILS

GUARDS & HANDRAILS ARE TO BE DESIGNED AND DETAILED BY STEEL SUPPLIER IN ACCORDANCE WITH THE CURRENT BUILDING CODE REQUIREMENTS. SHOP DRAWINGS ARE TO BE SUBMITTED TO DESIGN TEAM FOR REVIEW. SHOP DRAWINGS ARE TO BE STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE PROVINCE OF ONTARIO. ALL GUARDS & HANDRAIL WORK IS TO BE INSPECTED DURING CONSTRUCTION BY THE GUARD & HANDRAIL DESIGN ENGINEER.

6. SEISMIC RESTRAINT OF MECH'L EQUIPMENT & PIPING

SEISMIC RESTRAINT OF MECH'L EQUIPMENT & PIPING TO BE DETAILED BY MECH'L EQUIPMENT & PIPING SUPPLIER OR CONTRACTOR. SHOP DRAWINGS ARE TO BE SUBMITTED TO DESIGN TEAM FOR REVIEW. SHOP DRAWINGS ARE TO BE STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE PROVINCE OF ONTARIO. ALL SEISMIC RESTRAINT INSTALLATIONS ARE TO BE INSPECTED DURING CONSTRUCTION BY THE DESIGN ENGINEER OF RECORD

7. SEISMIC RESTRAINT OF SUSPENDED CEILING

SEISMIC RESTRAINT OF SUSPENDED CEILING TO BE DETAILED BY CEILING SUPPLIER OR CONTRACTOR. SHOP DRAWINGS ARE TO BE SUBMITTED TO DESIGN TEAM FOR REVIEW. SHOP DRAWINGS ARE TO BE STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE PROVINCE OF ONTARIO. ALL SEISMIC RESTRAINT INSTALLATIONS ARE TO BE INSPECTED DURING CONSTRUCTION BY THE DESIGN ENGINEER OF RECORD

8. CONCRETE BLOCK MASONRY WALLS-CONSTRUCTION BRACING

ALL LOAD BEARING CONCRETE BLOCK MASONRY WALLS ARE TO BE LATERALLY BRACED DURING CONSTRUCTION UNTIL STRUCTURE AND DIAPHRAGM IS CONSTRUCTED ON WALL. ALL NON LOAD BEARING CONCRETE BLOCK MASONRY WALLS ARE TO BE LATERALLY BRACED DURING CONSTRUCTION UNTIL PERMANENT LATERAL BRACING IS INSTALLED AS PER TYPICAL DETAILS AND/OR SECTIONS. LATERAL CONSTRUCTION BRACING DRAWINGS ARE TO BE SUBMITTED TO DESIGN TEAM FOR REVIEW. SHOP DRAWINGS ARE TO BE STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE PROVINCE OF ONTARIO.

9. GLULAM CONNECTIONS AND HOLD DOWNS

GLULAM CONNECTIONS AND HOLD DOWNS ARE TO BE DESIGNED AND DETAILED BY GLULAM SUPPLIER. SHOP DRAWINGS ARE TO BE SUBMITTED TO DESIGN TEAM FOR REVIEW. SHOP DRAWINGS ARE TO BE STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE PROVINCE OF ONTARIO.

10. TEMPORARY SHORING (FOR DEMOLITION AND/OR CONSTRUCTION)

TEMPORARY SHORING FOR THE PURPOSES OF DEMOLITION AND/OR CONSTRUCTION IS TO BE DESIGNED & DETAILED BY A PROFESSIONAL ENGINEER LICENSED IN ONTARIO. SHOP DRAWINGS ARE TO BE SUBMITTED TO THE DESIGN TEAM FOR REVIEW. SHOP DRAWINGS ARE TO BE STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE PROVINCE OF ONTARIO. PERMIT REVIEW OF TEMPORARY SHORING BY CUNLIFFE & ASSOCIATES PRIOR TO COMMENCEMENT OF CONSTRUCTION AND/OR DEMOLITION AND ALSO PRIOR TO REMOVAL OF TEMPORARY SHORING.

11. ROOF SCREEN

ROOF SCREEN TO BE DETAILED BY SCREEN SUPPLIER. SHOP DRAWINGS ARE TO BE SUBMITTED TO DESIGN TEAM FOR REVIEW. SHOP DRAWINGS ARE TO BE STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE PROVINCE OF ONTARIO. ALL SCREEN INSTALLATIONS ARE TO BE INSPECTED DURING CONSTRUCTION BY THE DESIGN ENGINEER OF RECORD

NOTE:

INSPECTION REPORTS CREATED AS A RESULT OF THE ABOVE NOTED WORK MUST BE SUBMITTED TO THE CONSTRUCTION MANAGER. CONSTRUCTION MANAGER IS TO PROVIDE COPIES TO THE CONSULTANTS.

Table with 3 columns: No., REVISION, DATE. Contains 7 rows of revision data.

Table with 3 columns: No., REVISION, DATE. Contains 1 row of revision data.

1. THE CONTRACTOR IS RESPONSIBLE FOR CHECKING AND VERIFYING ALL DIMENSIONS. ANY DISCREPANCY SHALL BE REPORTED TO THE ENGINEER.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL MATERIAL RELEVANT TO THE PROJECT.
3. ADDITIONAL INFORMATION MAY BE ISSUED FOR CLARIFICATION TO ASSIST PROPER EXECUTION OF WORK. SUCH DRAWINGS WILL HAVE THE SAME BEARING AND INTENT AS IF THEY WERE INCLUDED WITH THE DRAWINGS IN THE CONTRACT DOCUMENTS.
4. DO NOT SCALE DRAWINGS

PROJECT: 1632 McNAB / BRAESIDE TOWN HALL

ARCHITECT: +VG ARCHITECTS

DRAWING: GENERAL NOTES

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Professional Engineer Seal for J.C. Cluff, License No. 17-052, dated Oct 11, 2017. Includes scale 1:100, drawing number S01, and revision number 7.