

Structural Engineering Design Letter

Client: RM Construction **Project I.D.:** CEC-26-0367
Project Address: 63 Sylvan Drive **Date Issued:** 2026-04-23
North Dumfries, Ontario

This report includes our review of the structural items listed within it. If any site inspections or additional engineering is required, please contact us directly.

This letter is to be read in conjunction with the attached sheet CEC-SS1 which includes an outline of our structural specifications regarding materials, loading, and design assumptions.

Please note that inspections of the items listed in this report are by others.

Item #1: Armour Stone Retaining Wall
Notes: <ul style="list-style-type: none">• See attached detail SK-1 for Armour Stone retaining wall specifications.

We trust that this document meets your satisfaction, if you need further clarification, please do not hesitate to contact us.

End of Structural Engineering Design Letter

Regards,

Centric Engineering Corporation



Edward Gomez
P. Eng. | Associate



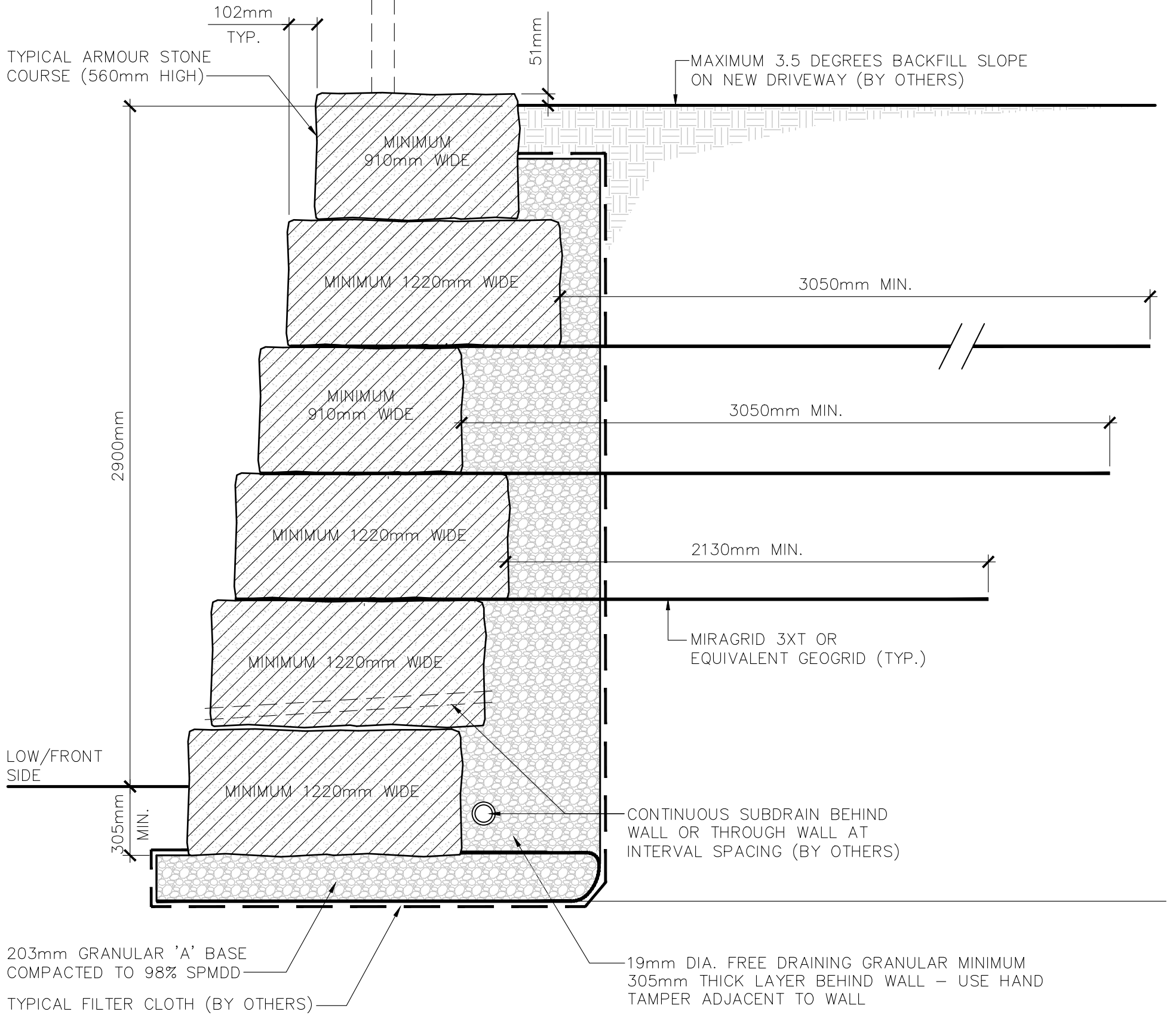
Centric Engineering Corporation



Teagan Van Ginneken
BASc | Structural Designer

PEDESTRIAN GUARD
(AS PER 2024 OBC) w/ PICKETS
TO ALLOW PASSAGE OF WIND
(DESIGNED BY OTHERS)

TYPICAL HIGH GRADE MAX.
12.0 kPa SURCHARGE



NOTES:

- ASSUMED STONE WEIGHT IS MINIMUM 25.9 kN/m^3
- ASSUMED SOIL PARAMETERS (GEOTECHNICAL ENGINEER TO CONFIRM):
 $K_a = 0.35$, $\gamma = 22 \text{ kN/m}^3$, $\sigma_{all} = 143 \text{ kPa}$ (FACTOR OF SAFETY = 3.0)
- DEEP-SEATED FAILURE MODE TO BE CHECKED BY A GEOTECHNICAL ENGINEER.
- BOTH SIDES OF WALL TO BE BACKFILLED EQUALLY UNTIL LOW SIDE FINAL GRADE IS ACHIEVED.
- RETAINING WALL HAS BEEN DESIGNED FOR THE FOLLOWING LOADS:
 - PEDESTRIAN TRAFFIC LOADING (SURCHARGE) OF 2.4 kPa (50 psf) ON THE HIGH SIDE OF THE WALL.
 - PEDESTRIAN GUARD (WITH PICKETS TO ALLOW PASSAGE OF WIND) FASTENED DIRECTLY TO THE TOP OF THE WALL.
 - HEAVY VEHICLE TRAFFIC LOADING INCLUDING FIREFIGHTING EQUIPMENT (12.0 kPa (250 psf) FOR VEHICLES EXCEEDING $9,000 \text{ kg}$ GROSS WEIGHT) ON THE HIGH SIDE OF THE WALL
- THE FOLLOWING IS NOT PERMITTED WITHOUT DESIGN/APPROVAL FROM CENTRIC ENGINEERING CORPORATION PRIOR TO CONSTRUCTION:
 - HYDROSTATIC PRESSURE ON THE WALL (CONTRACTOR TO PROVIDE PROPER DRAINAGE AS SHOWN).
 - BRICK LEDGES OR VENEER.
 - VEHICULAR GUARD LOADING ACTING AT THE TOP OF THE WALL.
 - ANY FENCING FASTENED TO TOP OF WALL.
- WATER TABLE TO BE LOCATED BELOW THE UNDERSIDE OF RETAINING WALL BASE AT A DISTANCE EQUAL TO NO LESS THAN THE TRANSVERSE STONE WIDTH.
- STONES TO BE STACKED SUCH AS TO MAXIMIZE CONTACT AREA BETWEEN COURSES.
- GEOGRID TO HAVE FULL CONTACT AREA WITH STONE COURSE ABOVE (OR MECHANICAL CONNECTION RATED FOR GEOGRID CAPACITY, DESIGN BY OTHERS).

SK-1

DRAWING No.:

PROJECT TITLE:
RM CONSTRUCTION
63 SYLVAN DR., NORTH DUMFRIES, ONT.

DRAWING TITLE:
**ARMOUR STONE
RETAINING WALL
(MAXIMUM 2900mm HIGH)**

PROJECT ID.: CEC-26-0367

DRAWN BY: RLW

DATE ISSUED: 2026/04/23

SCALE: N.T.S.

ISSUED FOR: PERMIT

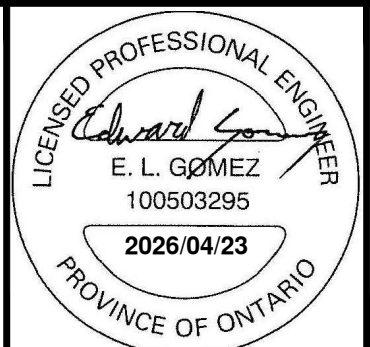
REFERENCE: N/A

centric
ENGINEERING

LONDON OFFICE: 1584 N. ROUTLEDGE PK UPPER FLOOR LONDON, ON, N6H 5L6

CAMBRIDGE OFFICE: 1315 BISHOP STREET NORTH SUITE 200 CAMBRIDGE, ON, N1R 6Z2

TELEPHONE: (519) 963-0444



GENERAL NOTES.

THE FOLLOWING NOTES SHALL GOVERN, UNLESS NOTED OTHERWISE ON THE SEALED DESIGN DOCUMENTS PROVIDED:

- (1) THE SEALED DESIGN DOCUMENTS ARE PREPARED BY CENTRIC ENGINEERING CORPORATION (CEC) SOLELY FOR USE BY THE PARTY WITH WHOM CEC HAS ENTERED INTO A CONTRACT (HEREBY REFERRED TO AS THE CLIENT).
- (2) THIS STRUCTURAL SPECIFICATION SHEET IS INTENDED TO SUPPLEMENT THE SEALED DESIGN DOCUMENTS PROVIDED AS WELL AS THE 2024 ONTARIO BUILDING CODE (2024 OBC), AS IT DOES NOT INCLUDE ALL REQUIREMENTS PROVIDED THEREIN. IF THE CLIENT REQUIRES FURTHER CLARIFICATION, PLEASE CONTACT CEC OR THE LOCAL BUILDING DIVISION.
- (3) CEC HAS PROVIDED ITS SERVICES AS A DESIGNER WITHIN AND TO THE STANDARDS REQUIRED IN THE 2024 ONTARIO BUILDING CODE ACT, 1992 – S.O. 1992, CHAPTER 23 (OBCA) AS APPLICABLE AT THE DATE OF THE PROVISION OF DESIGN SERVICES CONCERNING PART 9 STRUCTURES FOR HOUSING AND SMALL BUILDINGS ONLY.
- (4) IT IS ASSUMED THAT INSPECTIONS RELATED TO ANY DOCUMENTATION ISSUED BY CEC WILL BE PERFORMED BY THE LOCAL BUILDING DIVISION. CEC'S SCOPE DOES NOT INCLUDE ANY INSPECTIONS.
- (5) IF REQUIRED BY THE CLIENT, CEC MAY BE RETAINED UNDER A SEPARATE CONTRACT TO PERFORM A GENERAL REVIEW OF CONSTRUCTION. CEC WILL ONLY PERFORM GENERAL REVIEWS OF PROJECTS WHERE A BUILDING PERMIT HAS BEEN ISSUED.
- (6) CEC SHALL NOT BE RESPONSIBLE FOR STRUCTURAL DESIGN, REVIEWS, INSPECTIONS AND SUPERVISION OF ANY TEMPORARY STRUCTURAL MEMBERS, INCLUDING FORMWORK OR FALSEWORK, WHICH SHALL REMAIN THE RESPONSIBILITY OF THE CLIENT AND ITS GENERAL CONTRACTOR.
- (7) CEC IS NOT RESPONSIBLE FOR THE CONTRACTOR'S MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES OF CONSTRUCTION, NOR FOR SAFETY PROGRAMS OR PROCEDURES EMPLOYED BY THE CONTRACTOR ON THE JOB SITE. IT IS EXPLICITLY UNDERSTOOD THAT THE PROPER IMPLEMENTATION OF THE DESIGN, AS WELL AS THE MANAGEMENT OF CONSTRUCTION OPERATIONS, RESTS SOLELY WITH THE CONTRACTOR.
- (8) CEC'S REVIEW IS BASED ON THE INFORMATION PROVIDED TO CEC BY THE CLIENT AT THE TIME OF OUR REVIEW. INFORMATION INCLUDES, BUT IS NOT LIMITED TO: PLANS, ELEVATIONS, SECTIONS, DETAILS, GEOTECHNICAL REPORTS, SHOP DRAWINGS FOR PRE-ENGINEERED ELEMENTS, ETC. CEC ACCEPTS NO RESPONSIBILITY FOR ANY ERRORS TO, OR OMISSIONS FROM, THIS INFORMATION. IT IS THE CLIENT'S RESPONSIBILITY TO PROVIDE CEC WITH ALL RELEVANT INFORMATION, ADDITIONS OR CHANGES.
- (9) ALL PARTIES INVOLVED IN THE CONSTRUCTION OF THIS HOUSE OR SMALL BUILDING SHALL CONFORM TO THE REQUIREMENTS OF PART 9 OF THE 2024 OBC INCLUDING ALL STANDARDS REFERENCED THEREIN, AND ANY APPLICABLE ACTS OF AUTHORITY HAVING JURISDICTION.
- (10) ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS – O.REG. 213/91.
- (11) ALL EXISTING STRUCTURAL CONDITIONS ARE TO BE CONFIRMED BY THE CONTRACTOR. THE CONTRACTOR IS TO ENSURE EXISTING STRUCTURE IS IN GOOD CONDITION AND TO NOTIFY CEC PRIOR TO CONSTRUCTION IF OTHERWISE IS FOUND.

SHOP DRAWINGS

- (1) SHOP DRAWINGS SUBMITTED TO CEC MAY BE USED AS A DESIGN TOOL FOR OUR SCHEMATIC DESIGN. CEC HAS NOT REVIEWED SHOP DRAWINGS FOR STRUCTURAL ADEQUACY.
- (2) CEC ASSUMES ALL SHOP DRAWINGS PROVIDED ARE STRUCTURALLY ADEQUATE AND IS NOT LIABLE FOR ANY ERRORS.
- (3) ALL PRE-ENGINEERED SYSTEMS (i.e. ROOF TRUSSES, FLOOR JOISTS, ETC.) ARE TO BE DESIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN ONTARIO AND RETAINED BY THE COMPONENT DESIGNER. PROVIDE LAYOUTS AND SEALED DESIGN SHEETS TO THE LOCAL BUILDING DIVISION. ANY MODIFICATION TO THESE SYSTEMS ARE TO BE REVIEWED AND APPROVED BY THE ORIGINAL DESIGNER.
- (4) ALL FASTENING, HANGERS, UPLIFT CONNECTORS ETC. FOR PRE-ENGINEERED SYSTEMS ARE BY THE SYSTEM DESIGNER.

FOOTINGS AND FOUNDATIONS

- (1) ALL FOOTINGS AND FOUNDATIONS SHALL CONFORM TO SECTION 9.15. OF THE 2024 OBC.
- (2) DEPTH OF FOOTINGS SHALL CONFORM TO SECTION 9.12.2. OF THE 2024 OBC. ALL FOOTINGS SHALL REST ON UNDISTURBED EARTH.
- (3) CONSTRUCT ALL FOOTINGS EXPOSED TO FROST ACTION A MINIMUM OF 4"-0" BELOW FINISHED GRADE.
- (4) STEP FOOTINGS SHALL BE INSTALLED AS PER SECTION 9.15.3.9. OF THE 2024 OBC.
- (5) FOOTINGS HAVE BEEN DESIGNED TO BE SUPPORTED ON NATIVE SOIL WITH AN ASSUMED ALLOWABLE SOIL BEARING PRESSURE OF 75 kPa (1567 psf). IF THIS BEARING PRESSURE CANNOT BE ACHIEVED ON SITE, PLEASE CONTACT CEC PRIOR TO CONSTRUCTION.
- (6) FOUNDATION WALLS HAVE BEEN DESIGNED TO SUPPORT DRAINED EARTH IN ACCORDANCE WITH THE LOADS PROVIDED IN SECTION 9.4.4.6.(1)(a) OF THE 2024 OBC. ENSURE PROVISIONS ARE MADE FOR APPROPRIATE DRAINAGE OF GROUNDWATER.
- (7) CONTRACTOR IS TO ENSURE THAT ALL FOUNDATION WALLS HAVE SUFFICIENT LATERAL SUPPORT AT THE TOP AND BOTTOM AS PER SECTIONS 9.15.4.3. AND 9.15.4.4. OF THE 2024 OBC PRIOR TO THE PLACEMENT OF BACKFILL.
- (8) WHERE FLOOR JOIST FRAMING SPANS PARALLEL TO THE FOUNDATION WALL, CEC RECOMMENDS THE ADDITION OF SOLID BLOCKING AT 16"o.c. BETWEEN THE FOUNDATION WALL AND FLOOR JOISTS FOR ADDITIONAL LATERAL SUPPORT FOR THE TOP OF THE FOUNDATION WALL.
- (9) NO ADDITIONAL CONSIDERATIONS HAVE BEEN TAKEN IN THE FOUNDATION DESIGN FOR HIGH WATER TABLES, FLOOD PLAINS OR ANY OTHER REQUIREMENTS PUT FORTH BY THE MUNICIPALITY OR CONSERVATION AUTHORITY HAVING JURISDICTION. IF SUCH REQUIREMENTS EXIST, CEC IS TO BE NOTIFIED TO REVIEW THE DESIGN OF THE FOUNDATIONS.
- (10) LOCATE ALL FOOTINGS AND PIERS CENTRALLY UNDER COLUMNS AND WALLS.
- (11) PROTECT SOIL FROM FREEZING ADJACENT TO AND BELOW ALL FOUNDATIONS.

CONCRETE

- (1) ALL CONCRETE SHALL CONFORM TO SECTION 9.3.1. OF THE 2024 OBC.
- (2) FOLLOW MANUFACTURER'S INSTRUCTIONS REGARDING INSTALLATION PROCEDURES AND MINIMUM EMBEDMENT OF ANCHORS.
- (3) COMPLETELY FILL VOIDS BENEATH STEEL BASE AND BEARING PLATES ON CONCRETE WITH AN APPROVED NON-SHRINK 35MPa GROUT.
- (4) MINIMUM CONCRETE COMPRESSIVE STRENGTH PER SECTION 9.3.1.6. OF THE 2024 OBC:
 - a) 32 MPa FOR GARAGE FLOORS, CARPORT FLOORS, AND ALL EXTERIOR FLATWORK
 - b) 20 MPa FOR INTERIOR FLOORS OTHER THAN THOSE FOR GARAGES AND CARPORTS
 - c) 20 MPa FOR REINFORCED CONCRETE
 - d) 15 MPa FOR ALL OTHER APPLICATIONS
- (5) CONCRETE EXPOSED TO DE-ICING CHEMICALS (CHLORIDES) SHALL CONFORM TO CAN/CSAA23.1 EXPOSURE CLASS C-1 FOR STRUCTURALLY REINFORCED CONCRETE AND CLASS C-2 FOR UN-REINFORCED (PLAIN) CONCRETE.

REINFORCING STEEL

- (1) ALL REINFORCING STEEL TO CONFORM TO GRADE 400 IN CSA G30.18.
- (2) REINFORCING BARS SHALL BE DEFORMED HI-BOND HARD GRADE WITH A MINIMUM YIELD STRENGTH (FY) = 400 MPa. WELDED WIRE FABRIC (WWF) SHALL HAVE A MINIMUM YIELD STRENGTH (FY) = 385 MPa.
- (3) THE CONTRACTOR SHALL ENSURE THAT REINFORCING STEEL IS ADEQUATELY BRACED AGAINST MOVEMENT DURING POURING OF CONCRETE.
- (4) MAINTAIN THE FOLLOWING CLEAR CONCRETE COVER TO REINFORCING STEEL:
 - a) PLACED IN FORMWORK – INSIDE VAPOUR BARRIER – 1¼"
 - b) PLACED IN FORMWORK – OUTSIDE VAPOUR BARRIER – 1½"
 - c) GARAGE/EXTERIOR SLAB – TOP OF SLAB TO TOP OF REINFORCING STEEL – 2¾"
 - d) CONCRETE PLACED DIRECTLY AGAINST SOIL – 3"
- (5) PROVIDE THE FOLLOWING MINIMUM LAP LENGTHS PER SECTION 9.3.1.1.(4)(b) OF THE 2024 OBC:
 - a) 10M BARS – 18" LAP LENGTH
 - b) 15M BARS – 26" LAP LENGTH
 - c) 20M BARS – 32" LAP LENGTH
- (6) LAP ALL HORIZONTAL BARS AT CORNERS WITH BENT DOWELS MEETING THE MINIMUM LAP REQUIREMENTS IN BOTH DIRECTIONS.

INSULATING CONCRETE FORMS (ICF)

- (1) ALL ICF CONSTRUCTION SHALL CONFORM TO SECTION 9.20. OF THE 2024 OBC AND THE INSULATING CONCRETE FORMS MANUFACTURERS ASSOCIATION PRESCRIPTIVE ICF DESIGN FOR PART 9 STRUCTURES IN CANADA MANUAL (ICFMA MANUAL).
- (2) WHERE CEC IS RETAINED TO COMPLETE ITEMIZED DESIGN FOR STRUCTURAL ELEMENTS OUTSIDE OF THE SCOPE OF THE ICFMA MANUAL, IT IS ASSUMED THAT ALL OTHER STRUCTURAL ELEMENTS NOT INCLUDED IN CEC'S SCOPE CONFORM TO THE ICFMA MANUAL AND WILL BE SPECIFIED BY A QUALIFIED DESIGNER AND/OR CONTRACTOR.
- (3) WHERE CEC IS RETAINED TO SPECIFY STRUCTURE AS PER THE ICFMA MANUAL, NOTE THAT CEC ASSUMES RESPONSIBILITY SOLELY FOR THE APPLICATION OF THE GUIDELINE TO THE STRUCTURE. CEC WILL NOT COMPLETE DESIGN REVIEW OR VALIDATION OF THE TECHNICAL CONTENTS OF THE GUIDELINE, AND THE CORRECTNESS OF THE GUIDELINE REMAINS THE RESPONSIBILITY OF ITS AUTHOR(S).

STRUCTURAL STEEL

- (1) ALL STEEL BEAMS SHALL CONFORM TO SECTION 9.23.4.3. AND ALL STEEL COLUMNS SHALL CONFORM TO 9.17.3. OF THE 2024 OBC.
- (2) ALL STRUCTURAL STEEL SHALL CONFORM TO CAN/CSA-G40.20 FOR GENERAL REQUIREMENTS AND CAN/CSA-G40.21 FOR QUALITY:
 - a) HOLLOW STEEL SECTION (HSS) MEMBERS – GRADE 350W, CLASS 'C'
 - b) W-SHAPES, S-SHAPE, C-SHAPE, TEES – GRADE 350W
 - c) STEEL PLATE MATERIAL AND ANGLES – GRADE 300W
- (3) ALL WELDING SHALL BE PERFORMED BY A CANADIAN WELDING BUREAU CERTIFIED WELDER, CONFORMING TO ALL APPLICABLE STANDARDS.
- (4) AT EACH SUPPORT LOCATION OF A BEAM AND AT LOCATIONS WHERE STEEL COLUMNS ARE SUPPORTED BY STEEL BEAMS, ¾" THICK STEEL WEB STIFFENERS SHALL BE WELDED ON EITHER SIDE OF THE BEAM WEB CENTERED ON THE COLUMN/SUPPORT.
- (5) STEEL BEAMS TO BE INSTALLED WITH CAMBER UP.
- (6) PROVIDE LATERAL SUPPORT TO THE TOP FLANGE OF ALL STEEL BEAMS. LATERAL SUPPORT MAY BE PROVIDED AS FOLLOWS :
 - a) DROPPED STEEL BEAM – AS PROVIDED IN SECTION 9.23.4.3.(3) OF THE 2024 OBC.
 - b) DROPPED STEEL BEAM – A 2x6 TOP PLATE FASTENED TO THE TOP FLANGE w/ ¾" DIAMETER THROUGH BOLTS OR APPROVED SELF-TAPPING METAL FASTENERS @ 24" o.c., (STAGGERED SIDE TO SIDE). PROVIDE TWO (2) 3¼" TOE-NAILS FROM EACH JOIST INTO THE TOP PLATE.
 - c) FLUSH STEEL BEAM – FILL WEB OF BEAM WITH SOLID BLOCKING (2x LUMBER AND PLYWOOD AS REQUIRED) BOLTED TO THE BEAM WEB WITH ½" DIAMETER THROUGH BOLTS AT 16" o.c., (STAGGERED TOP AND BOTTOM). PROVIDE APPROVED FACE MOUNT JOIST HANGERS FROM THE JOIST TO THE BLOCKING.
- (7) WHERE STEEL BEAM IS DROPPED TO AN ELEVATION REQUIRING WALL STUDS BETWEEN u/s OF FLOOR/ROOF FRAMING AND t/o STEEL BEAM, EXTEND COLUMNS TO u/s OF DOUBLE TOP PLATE AND CONNECT CAP PLATE WITH THROUGH BOLTS.
- (8) PROVIDE SUFFICIENT LATERAL SUPPORT FOR STEEL COLUMNS TO PREVENT LATERAL DIFFERENTIAL MOVEMENT AS PROVIDED IN SECTION 9.17.2.2. OF THE 2024 OBC SUFFICIENT LATERAL SUPPORT EXAMPLE:
 - a) ENSURE COLUMN EXTENDS TO THE CONCRETE FOUNDATION WALL/FOOTING AND PROVIDE A MINIMUM ¾" THICK STEEL BEARING PLATE SIZED TO ALLOW FOR MINIMUM TWO (2) ½" DIAMETER ANCHOR BOLTS INTO FOUNDATION WALL/FOOTING.
- (9) PROVIDE END BEARING PLATES FOR STEEL COLUMNS AS PER SECTION 9.17.3.2. OF THE 2024 OBC.
- (10) ALL STEEL BEAMS SUPPORTED BY BEARING PLATES SHALL BE CENTERED ON PLATE AND EXTEND BEARING FOR THE FULL LENGTH OF THE PLATE. FASTEN THE BEAM TO THE PLATE USING A CONTINUOUS ¼" FILLET WELD ON BOTH SIDES OF FLANGE.
- (11) STEEL BEAMS WITH A PLATE SUPPORTING MASONRY VENEER ARE TO HAVE THE PLATE WELDED TO THE TOP OR BOTTOM FLANGE OF THE BEAM WITH 2" LONG ¼" FILLET WELDS AT 8" o.c. MIN., STAGGERED EACH SIDE.
- (12) ALL STEEL-TO-STEEL CONNECTIONS ARE TO BE DESIGNED BY THE STEEL SUPPLIER. STANDARD CONNECTIONS SHALL CONFORM TO THE HANDBOOK OF STEEL CONSTRUCTION. NON-STANDARD CONNECTIONS (INCLUDING MOMENT CONNECTIONS) SHALL BE DESIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN ONTARIO.
- (13) ALL BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A325.
- (14) ALL STRUCTURAL STEEL SHALL RECEIVE A SHOP PRIMER CONFORMING TO CISG/CPMA 2-75. PRIMING AND PAINTING SHALL CONFORM TO CAN/CSA-S16. TOUCH-UP AS REQUIRED ON SITE.
- (15) ALL STRUCTURAL STEEL EXPOSED TO WEATHER SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH CAN/CSA-G164.
- (16) DO NOT CUT OPENINGS IN STRUCTURAL STEEL WITHOUT WRITTEN APPROVAL FROM CEC.
- (17) ANCHOR BOLTS SHALL BE FABRICATED FROM STEEL ROD CONFORMING TO CSA G40.21 OR ASTM F1554 WITH A MINIMUM YIELD STRENGTH OF 250 MPa.
- (18) STEEL BEAMS SUPPORTED AT CONCRETE FOUNDATION WALLS TO BEAR ON CONCRETE FOUNDATION WALL, BEARING PLATE, OR TYPE 'S' NON-SHRINK GROUT. STEEL BEAMS ARE NOT TO BEAR ON SILL PLATES.

WOOD FRAMED CONSTRUCTION

- (1) ALL LUMBER AND WOOD PRODUCTS SHALL CONFORM TO SECTION 9.3.2. OF THE 2024 OBC AND ALL WOOD-FRAME CONSTRUCTION SHALL CONFORM TO SECTION 9.23. OF THE 2024 OBC.
- (2) ALL LUMBER TO BE S.P.F No.1/No.2 (OR BETTER).
- (3) STRUCTURAL COMPOSITE LUMBER (SCL) SHALL HAVE THE FOLLOWING PROPERTIES (OR APPROVED EQUIVALENT). REPLACEMENT PRODUCTS OF SAME CATEGORY BUT HIGHER GRADE ARE ACCEPTABLE.
 - a) LVL – 2.0E, 2600Fb
 - b) PSL – 1.8E, 2400Fb
 - c) LSL – 1.55E, 2360Fb
- (4) ALL BUILT-UP SCL MEMBERS ARE TO BE LAMINATED TOGETHER AS PER THE MANUFACTURER'S REQUIREMENTS. ENSURE FASTENING AT CONCENTRATED LOADS IS CONSIDERED.
- (5) ALL BUILT-UP LUMBER MEMBERS ARE TO BE LAMINATED TOGETHER AS PER SECTION 9.23.8.3 (7) & (8) FOR BEAMS AND SECTION 9.17.4.2. OF THE 2024 OBC FOR COLUMNS.

- (6) ALL WOOD FRAMING DESIGNED ASSUMING DRY SERVICE CONDITION WITH A MOISTURE CONTENT LESS THAN 19%. USE PRESSURE TREATED LUMBER (CWPB APPROVED) OR APPLY SUITABLE WOOD PRESERVATIVE TO ALL WOOD EXPOSED TO MOISTURE. ALL SCL MEMBERS EXPOSED TO MOISTURE ARE TO BE CAPPED/PROTECTED AS PER THE MANUFACTURER'S REQUIREMENTS.
- (7) DO NOT NOTCH OR DRILL HOLES OUTSIDE THE SCOPE OF SECTION 9.23.5. OF THE 2024 WITHOUT PRIOR APPROVAL FROM A PROFESSIONAL ENGINEER. ANY NOTCH OR HOLE IN AN SCL MEMBER IS TO BE REVIEWED BY THE SUPPLIER OF THE SCL MEMBER.
- (8) PROVIDE SUFFICIENT LATERAL SUPPORT FOR THE TOP OF ALL DROPPED BEAMS AND LINTELS AS PER 9.23.3.4. OF THE 2024 OBC.
- (9) ALL STRUCTURAL MEMBERS (BEAMS, JOISTS, ETC.) FRAMING INTO THE SIDE OF A SUPPORTING MEMBER ARE TO BE FASTENED TO THE SUPPORTING MEMBER WITH A BEAM HANGER.
- (10) ANCHORAGE FOR THE BUILDING FRAME AND COLUMNS AND POSTS SHALL CONFORM TO SECTION 9.23.6. OF THE 2024 OBC.
- (11) THE CONTRACTOR SHALL PROVIDE STANDARD SIMPSON STRONG-TIE CONNECTORS OR APPROVED ALTERNATIVE FOR ALL JOIST HANGERS, BEAM HANGERS, BEAM SEATS, POST ANCHORS, ETC. ALL CONNECTORS ARE TO BE INSTALLED AS PER THE MANUFACTURER'S SPECIFICATIONS.
- (12) FOR ALL BUILT-UP MEMBERS (TRUSSES, BEAMS, LINTELS) PROVIDE A BUILT-UP POST WITH AN EQUAL OR GREATER THICKNESS. ALL BUILT-UP POSTS TO BE CONTINUOUS (INCLUDING TRANSFER BLOCKING AT FLOORS) DOWN TO THE FOUNDATIONS.
- (13) THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING SUFFICIENT TEMPORARY BRACING TO KEEP THE STRUCTURAL FRAME PLUMB AND IN TRUE ALIGNMENT UNTIL THE COMPLETION OF STRUCTURAL FRAMING.
- (14) ENSURE THAT EXTERIOR WALLS ARE BRACED PER SECTION 9.23.10.2. OF THE 2024 OBC TO PROVIDE LATERAL SUPPORT FOR THE BUILDING.
- (15) PROVIDE MINIMUM BEARING OF 3½" FOR ALL BEAMS PER SECTION 9.23.8.1. OF THE 2024 OBC.
- (16) PROVIDE MINIMUM BEARING OF 1½" FOR ALL JOISTS PER SECTION 9.23.9.1. OF THE 2024 OBC.
- (17) REFER TO SECTION 9.23.9.8. OF THE 2024 OBC FOR SUPPORT OF WALLS ON FLOOR FRAMING. THE FOLLOWING METHODS ARE RECOMMENDED:
 - a) PROVIDE DOUBLE FLOOR JOISTS BELOW ALL NON-LOADBEARING PARTITION WALLS SPANNING PARALLEL TO THE FLOOR FRAMING.
 - b) PROVIDE SOLID BLOCKING, MATCHING JOIST SIZE, UNDER ALL LOADBEARING AND NON-LOADBEARING WALLS OFFSET FROM THE SUPPORTS BELOW FOR FLOOR JOISTS SPANNING PERPENDICULAR TO THE WALL.
 - c) PROVIDE SOLID BLOCKING BETWEEN JOISTS OVER SUPPORT AT ALL CANTILEVERED CONDITIONS.
- (18) PROVIDE 2x2 DIAGONAL CROSS BRIDGING OR APPROVED ALTERNATIVE AT MAXIMUM 7'-0" o.c. FOR ALL SAWN JOIST LOCATIONS.
- (19) WOOD IS NOT PERMITTED TO BEAR DIRECTLY ON MASONRY OR CONCRETE WITHOUT PROTECTION AS PER SECTION 9.23.2.3. OF THE 2024 OBC.
- (20) PROVIDE INTERMEDIATE SUPPORT FOR ROOF RAFTERS/JOISTS AS PER 9.23.14.7. OF THE 2024 OBC (WHERE REQUIRED). CEC'S DESIGN ASSUMES THAT ALL ROOF RAFTERS/JOISTS BEAR ON EXTERIOR WALLS ONLY AND INTERIOR WALLS SUPPORT CEILING JOISTS ONLY. CEC'S DESIGN ASSUMES THE USE OF COLLAR TIES FOR INTERMEDIATE SUPPORT IN LIEU OF STRUTS OR DWARF WALLS.
- (21) WHERE THE RIDGE IS UNSUPPORTED, PROVIDE NAILING AS PER TABLE 9.23.14.8. OF THE 2024 OBC FROM THE ROOF RAFTERS/JOISTS TO THE CEILING FRAMING TO PREVENT OUTWARD MOVEMENT.
- (22) OVER-FRAMED ROOF AREAS SHALL BE SUPPORTED DOWN TO LOWER ROOF RAFTERS/JOISTS BY MINIMUM 2x4 STRUTS SPACED AT MAXIMUM 24" o.c. EACH WAY.
- (23) ALL GUARDS SHALL CONFORM TO SECTION 9.8.8. OF THE 2024 OBC AND SUPPLEMENTARY STANDARD SB-7. PRE-ENGINEERED GUARDRAIL SYSTEMS (BY OTHERS) MAY BE USED.
- (24) ALL CONNECTIONS TO PRESERVATIVE-TREATED WOOD TO BE COMPLETED AS PER SECTION 9.23.2.4. OF THE 2024 OBC.
- (25) TIMBER MEMBER'S ACTUAL DIMENSIONS SHALL BE NO LESS THAN ½" SMALLER IN EACH DIRECTION THAN THE NOMINAL SIZE SPECIFIED.
- (26) TIMBER MEMBER'S TO BE VISUALLY GRADED ACCORDING TO 'NLGA STANDARD FRAMING RULES' FOR BEAMS, COLLAR-TIES, STRUTS AND POSTS.

MASONRY

- (1) ALL MASONRY CONSTRUCTION SHALL CONFORM TO SECTION 9.20. OF THE 2024 OBC.
- (2) ALL MASONRY BLOCK TO BE CONSTRUCTED IN A RUNNING BOND ORIENTATION.
- (3) PROVIDE A MINIMUM LENGTH OF 8" AND DEPTH OF 16" OF SOLID OR GROUT FILLED MASONRY UNITS FOR BEARING OF STEEL, CONCRETE OR REINFORCED MASONRY LINTELS.
- (4) DO NOT FILL MASONRY VOIDS WITH MORTAR. FILL ONLY WITH GROUT.
- (5) CONCRETE BLOCKS SHALL BE REGULAR WEIGHT WITH A MINIMUM 15 MPa COMPRESSIVE STRENGTH BASED ON NET CROSS-SECTIONAL AREA.
- (6) MORTAR SHALL CONFORM TO CAN/CSA-A179. MORTAR SHALL BE TYPE 'S' FOR LOAD BEARING MASONRY WITH A MINIMUM TWENTY EIGHT (28) DAY STRENGTH OF 12.5 MPa.
- (7) GROUT SHALL CONFORM TO CAN/CSA-A179. TWENTY EIGHT (28) DAY GROUT STRENGTH SHALL BE 10 MPa (MINIMUM).
- (8) WHERE REQUIRED BY SECTION 9.20.1.2. OF THE 2024 OBC, PROVIDE REINFORCEMENT AS PER SECTION 9.20.15. OF THE 2024 OBC.
- (9) INSTALL (1) 15M VERTICAL BAR IN ONE CORE BESIDE MASONRY OPENINGS EXCEEDING 20", FULL HEIGHT AND GROUTED SOLID.
- (10) WHERE NOTE IS MADE TO FILL MASONRY SOLID, ALL CORES SHALL BE FILLED SOLID FROM THE BEARING POINT DOWN TO THE FOUNDATION WITH GROUT.
- (11) ALL LOOSE LINTELS SUPPORTING MASONRY VENEER SHALL CONFORM TO TABLE 9.20.5.2.B OF THE 2024 OBC.
- (12) ALL MASONRY VENEER IS TO BE SUPPORTED ON STEEL, MASONRY, OR CONCRETE DOWN TO FOUNDATIONS.

LOADING

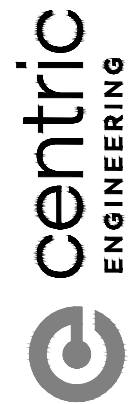
- (1) ALL LOADING AND MAXIMUM ALLOWABLE DEFLECTIONS HAVE BEEN CALCULATED IN ACCORDANCE WITH SECTION 9.4 OF THE 2024 OBC (STRUCTURAL REQUIREMENTS).
- (2) ROOF LOADING:
 - a) SNOW LOAD: AS PER SECTION 9.4.2.2. OF THE 2024 OBC.
 - b) DEAD LOAD: 6 psf (TRUSS TOP CHORD, ROOF JOIST TOP CHORD, OR ROOF RAFTERS) – ROOF DEAD LOAD IS FOR CONVENTIONAL FRAMING WITH TYPICAL ROOF FINISHES (i.e. ASPHALT SHINGLES, STEEL ROOF ETC.) NO PROVISION HAS BEEN MADE FOR HEAVY ROOFING MATERIALS (i.e. SLATE, GREEN ROOF CONSTRUCTION, ETC.) OR SOLAR PANELS UNLESS NOTED OTHERWISE.
- (3) CEILING LOADING:
 - a) TOTAL LOAD: 7.5 psf (AS PER SECTION 9.4.2.4.(1) OF THE 2024 OBC) OR
 - b) LIVE LOAD: 10 psf + DEAD LOAD: 7 psf (TRUSS BOTTOM CHORD, ROOF JOIST BOTTOM CHORD, OR CEILING JOISTS)
- (4) FLOOR LOADING:
 - a) LIVE LOAD: 40 psf (AS PER TABLE 4.1.5.3. OF THE 2024 OBC)
 - b) DEAD LOAD: 15 psf – FLOOR DEAD LOAD IS FOR CONVENTIONAL FRAMING WITH TYPICAL FLOOR FINISHES (i.e. TILE, CARPET, HARDWOOD FLOORING). NO CONSIDERATION HAS BEEN MADE FOR CONCRETE TOPPING UNLESS NOTED OTHERWISE.
- (5) PLATFORMS SUBJECTED TO SNOW AND OCCUPANCY LOADS AS PER SECTION 9.4.2.3. OF THE 2024 OBC.
 - a) LIVE LOAD: 40 psf OR SNOW LOAD (WHICHEVER IS GREATER)



NOTES:

THIS DOCUMENT IS THE PROPERTY OF CENTRIC ENGINEERING CORPORATION AND IS NOT TO BE DUPLICATED OR DISTRIBUTED WITHOUT CONSENT.

THIS DOCUMENT IS TO BE READ IN CONJUNCTION WITH THE LATEST CONSTRUCTION DOCUMENTS. ENSURE LATEST DRAWINGS ARE BEING USED FOR CONSTRUCTION.



LONDON OFFICE | CAMBRIDGE OFFICE
1584 N. ROUTLEDGE PK | 1315 BISHOP STREET NORTH
UPPER FLOOR | SUITE 200
LONDON, ON, N6H 5L6 | CAMBRIDGE, ON, N1R 6Z2

TELEPHONE: (519) 963-0444

DOCUMENT TITLE:

STRUCTURAL SPECIFICATIONS SHEET

ISSUED DATE: JANUARY 05, 2026

EFFECTIVE UNTIL: DECEMBER 31, 2026

ISSUED FOR: BUILDING PERMIT

CEC-SS1