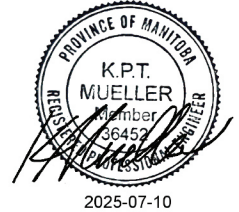




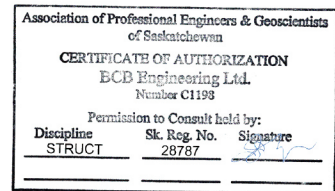
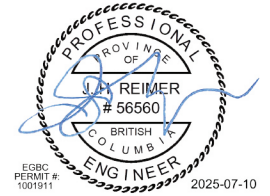
CANADIAN STRUCTURAL GUIDE





Superform 6" (or 6.5") Standard Block ICF - Above-Grade Reinforcing Requirements for Part 9 Buildings

Hourly Wind Pressure q _{1/50} (kPa)	Vertical Rebar									Horizontal Rebar
	Wall Construction									All Construction
	1-Storey w/ Wood Frame Roof (or Top Wall of 2-Storey w/ Wood Frame Roof)			Bottom Wall of 2-Storey w/ Wood Frame Upper Wall & Wood Frame Floor/Roof			Bottom Wall of 2-Storey w/ Superform ICF Upper Wall & Wood Frame Floor/Roof			
	Wall Height (ft)									
	8	10	12	8	10	12	8	10	12	All Heights
0.60	10M @ 18" C/C	10M @ 18" C/C	10M @ 18" C/C	10M @ 18" C/C	10M @ 18" C/C	10M @ 18" C/C	10M @ 18" C/C	10M @ 18" C/C	10M @ 12" C/C	10M @ 24" C/C
0.80	10M @ 18" C/C	10M @ 18" C/C	10M @ 12" C/C	10M @ 18" C/C	10M @ 18" C/C	10M @ 12" C/C	10M @ 18" C/C	10M @ 18" C/C	15M @ 18" C/C	10M @ 24" C/C
1.00	10M @ 18" C/C	10M @ 18" C/C	10M @ 12" C/C	10M @ 18" C/C	10M @ 18" C/C	15M @ 18" C/C	10M @ 18" C/C	10M @ 12" C/C	15M @ 18" C/C	10M @ 24" C/C
1.20	10M @ 18" C/C	10M @ 12" C/C	15M @ 18" C/C	10M @ 18" C/C	10M @ 12" C/C	15M @ 18" C/C	10M @ 18" C/C	15M @ 18" C/C	15M @ 12" C/C	10M @ 24" C/C



Superform 8" Standard Block ICF - Above-Grade Reinforcing Requirements for Part 9 Buildings

Hourly Wind Pressure q _{1/50} (kPa)	Vertical Rebar									Horizontal Rebar
	Wall Construction									All Construction
	1-Storey w/ Wood Frame Roof (or Top Wall of 2-Storey w/ Wood Frame Roof)			Bottom Wall of 2-Storey w/ Wood Frame Upper Wall & Wood Frame Floor/Roof			Bottom Wall of 2-Storey w/ Superform ICF Upper Wall & Wood Frame Floor/Roof			
	Wall Height (ft)									
	8	10	12	8	10	12	8	10	12	All Heights
0.60	10M @ 18" C/C	10M @ 18" C/C	10M @ 18" C/C	10M @ 18" C/C	10M @ 18" C/C	10M @ 18" C/C	10M @ 18" C/C	10M @ 18" C/C	10M @ 18" C/C	10M @ 24" C/C
0.80	10M @ 18" C/C	10M @ 18" C/C	10M @ 18" C/C	10M @ 18" C/C	10M @ 18" C/C	10M @ 18" C/C	10M @ 18" C/C	10M @ 18" C/C	10M @ 18" C/C	10M @ 24" C/C
1.00	10M @ 18" C/C	10M @ 18" C/C	10M @ 18" C/C	10M @ 18" C/C	10M @ 18" C/C	10M @ 12" C/C	10M @ 18" C/C	10M @ 18" C/C	10M @ 12" C/C	10M @ 24" C/C
1.20	10M @ 18" C/C	10M @ 18" C/C	10M @ 12" C/C	10M @ 18" C/C	10M @ 12" C/C	10M @ 12" C/C	10M @ 18" C/C	10M @ 12" C/C	15M @ 18" C/C	10M @ 24" C/C



NOTES:

- This table is suitable for use when construction falls within the following limitations:
 - The walls must be laterally supported at the top & bottom of each wall by the floor and roof systems. Supports are considered "pinned" for design and it is assumed that sufficient lateral restraint is being provided top & bottom by diaphragm action.
 - Design is limited to a maximum of 2-stories above grade. It is assumed that the above-grade walls are on top of ICF below-grade walls.
 - Maximum roof clear span = 40 ft. Maximum floor clear span = 30 ft. Maximum building length = 80 ft.
 - Design loads assumed for this table are as follows:
 - Floor dead load = 20 lb/ft². Floor live load = 40 lb/ft².
 - Roof dead load = 20 lb/ft². Roof snow load = 100 lb/ft².
 - Wall dead (self-weight) load = 90 lb/ft² for 6" walls and 115 lb/ft² for 8" walls. Table does not allow for brick veneer hanging from wall.
 - Wind loads consider Open Terrain and Internal Pressure Category = 2.
 - Seismic loads not considered.
 - Floor systems are assumed to be ledgered to the side of the wall with a maximum design eccentricity of 6" for 6" thick walls and 7" for 8" walls. Connection design between wall and floor system is the responsibility of others.
 - Roofs are assumed to sit directly on top of the wall with a maximum design eccentricity of 1" for both 6" & 8" walls. Connection design between wall and roof is the responsibility of others.
- Vertical reinforcing is to be placed in the middle of the wall. Horizontal reinforcing is to be placed alternating sides of the vertical bars. 24" x 24" corner bars matching the horizontal bar are to be provided at all wall intersections.
- Minimum concrete strength, f'c = 20 MPa (3000 psi). Minimum reinforcing strength, Fy = 400 MPa (60 ksi).
- No openings should occur within 4' of interior and exterior corners of above-grade walls unless plans are reviewed and approved by a local structural engineer to determine additional reinforcing requirements. Minimum solid wall length requirements will also vary based on local conditions and should be reviewed by a local structural engineer as needed.
- Vertical bars interrupted by an opening should be replaced by an equal amount divided between each side of the opening. Lintels are to have reinforcing as required by the Superform lintel tables. As a minimum, 2-10M bars are to be provided around any opening, extending 2' past each side of the opening. Reinforcing around openings wider than 6'-0" should be reviewed by a local structural engineer as needed.

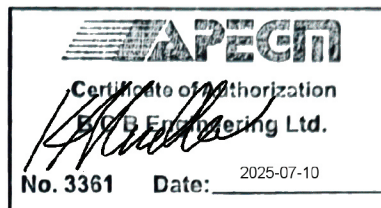
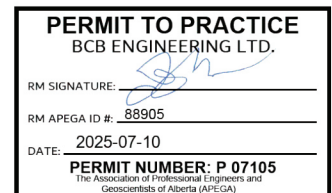
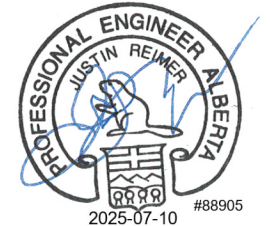
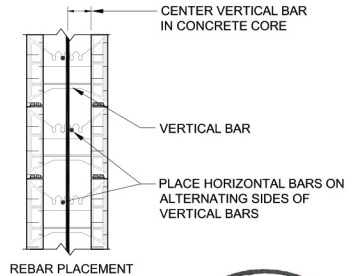




Table 1A - Superform 6" or 6.5" Block ICF Wall - Below-Grade Reinforcing Requirements for Part 9 Buildings

Maximum Unsupported Wall Height (ft)	Maximum Unbalanced Backfill Height (ft)	Minimum Vertical Reinforcement Bar Spacing (inches)								
		Maximum Design Equivalent Soil Density								
		30 psf/ft			45 psf/ft			60 psf/ft		
		10M	15M	20M	10M	15M	20M	10M	15M	20M
8	4	18			18			18		
	5	18			18			18		
	6	18			18			12	18	
	7	18			12	18		12	18	
	8	12	18		12	18		6	12	18
9	4	18			18			18		
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	6	18			18			12	18	
	7	18			12	18		6	12	18
	8	12	18		6	12	18	6	12	18
11	4	18			18			18		
	5	18			18			18		
	6	18			18			12	18	
	7	12	18		12	18		6	12	18
	8	12	18		6	12	18	6	12	18
12	4	18			18			18		
	5	18			18			18		
	6	18			12	18		12	18	
	7	12	18		6	12	18	6	12	18
	8	12	18		6	12	18	6	12	18

NOTES:

- This table does not consider seismic loads. Refer to Table 2A for walls located where seismic loading must be considered as per Clause 4.1.8.16.4) of the National Building Code of Canada (2015) or the applicable Provincial Code.
- Reinforcing bars must be placed on the tension side of the wall (interior face opposing the backfill). The effective depth considered for the vertical reinforcing in this table is 3.75" for the 6" block and 4.25" for the 6.5" block (2" cover from the interior face of wall to the rebar).
- Minimum concrete strength, $f_c = 20$ MPa (3000 psi). Minimum reinforcing strength, $F_y = 400$ MPa (60 ksi).
- Wall must be laterally supported at the top and the bottom.
- Backfill is assumed to be free draining material.
- This table does not consider surcharge loading adjacent to the wall. For a 2.4 kPa (50 psf) surcharge load (typical garage), increase the backfill height by 1'. For higher surcharge loading, consult a local structural engineer.
- Provide 2-15M bar around openings, extending 2' past each side of the openings. No openings should occur within 4' of interior and exterior corners. Consult a local structural engineer to determine additional wall reinforcing requirements if any opening is more than 4' wide and/or if the length of solid wall between 2 openings is less than 4'. Lintels over openings shall be constructed in accordance with applicable Building Code requirements.
- Refer to a geotechnical report if possible to determine the appropriate equivalent fluid density or consult a local geotechnical engineer as required to determine local requirements.
- Provide horizontal 10M reinforcing at 24" c/c.

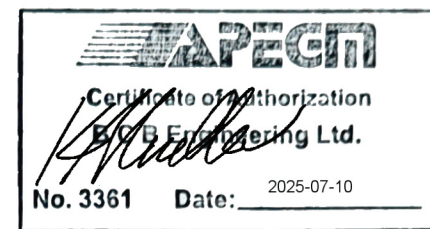
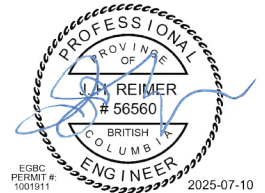
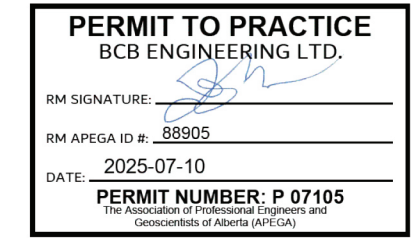
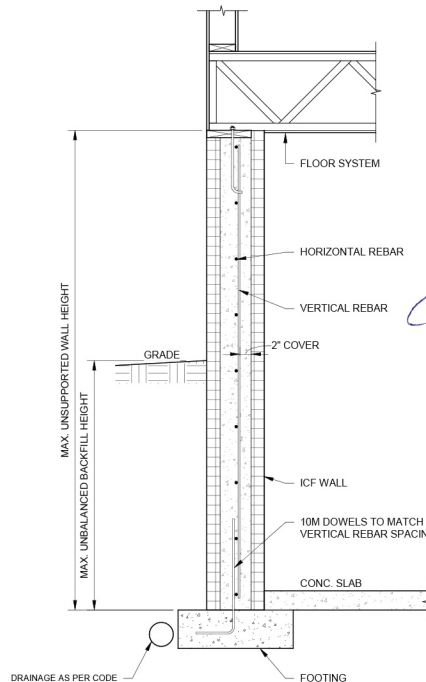
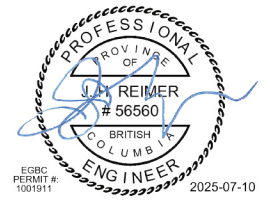
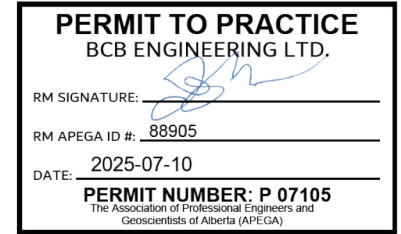


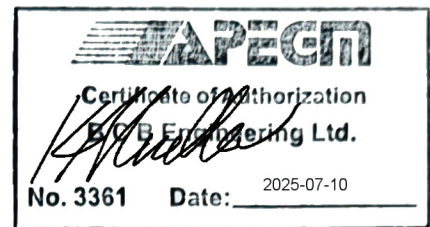
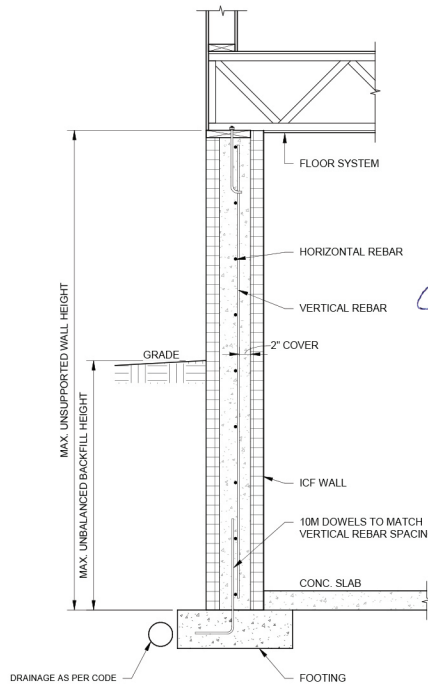


Table 1B - Superform 8" Block ICF Wall - Below-Grade Reinforcing Requirements for Part 9 Buildings

Maximum Unsupported Wall Height (ft)	Maximum Unbalanced Backfill Height (ft)	Minimum Vertical Reinforcement Bar Spacing (inches)								
		Maximum Design Equivalent Soil Density								
		30 psf/ft			45 psf/ft			60 psf/ft		
		10M	15M	20M	10M	15M	20M	10M	15M	20M
8	4	18			18			18		
	5	18			18			18		
	6	18			18			18		
	7	18			18			12	18	
9	8	18			12	18		12	18	
	4	18			18			18		
	5	18			18			18		
	6	18			18			18		
	7	18			18			12	18	
10	8	18			12	18		6	12	18
	9	12	18		6	12	18	6	12	18
	10	12	18		6	12	18	6	12	18
	4	18			18			18		
	5	18			18			18		
	6	18			18			18		
11	7	18			18			12	18	
	8	18			12	18		6	12	18
	9	12	18		6	12	18	6	12	18
	10	12	18		6	12	18	6	12	18
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5		18			18			18		
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9		12	18		6	12	18	6	12	18
10		12	18		6	12	18	6	12	18
11	6	12	18		6	12	6	12	18	
12	6	12	18		6	12	6	12	18	



- NOTES:
- 1) This table does not consider seismic loads. Refer to Table 2B for walls located where seismic loading must be considered as per Clause 4.1.8.16.4) of the National Building Code of Canada (2015) or the applicable Provincial Code.
 - 2) Reinforcing bars must be placed on the tension side of the wall (interior face opposing the backfill). The effective depth considered for the vertical reinforcing in this table is 5.75" (2" from the interior face to the rebar).
 - 3) Minimum concrete strength, $f'c = 20$ MPa (3000 psi). Minimum reinforcing strength, $Fy = 400$ MPa (60 ksi).
 - 4) Wall must be laterally supported at the top and the bottom.
 - 5) Backfill is assumed to be free draining material.
 - 6) This table does not consider surcharge loading adjacent to the wall. For a 2.4 kPa (50 psf) surcharge load (typical garage), increase the backfill height by 1'. For higher surcharge loading, consult a local structural engineer.
 - 7) Provide 2-15M bar around openings, extending 2' past each side of the openings. No openings should occur within 4' of interior and exterior corners. Consult a local structural engineer to determine additional wall reinforcing requirements if any opening is more than 4' wide and/or if the length of solid wall between 2 openings is less than 4'. Lintels over openings shall be constructed in accordance with applicable Building Code requirements.
 - 8) Refer to a geotechnical report if possible to determine the appropriate equivalent fluid density or consult a local geotechnical engineer as required to determine local requirements.
 - 9) Provide horizontal 10M reinforcing at 24" c/c.





Box 2696
1065 Willow Street
Pincher Creek, AB T0K 1W0



555 WT Hill Blvd S
Lethbridge, AB T1J 1Y6

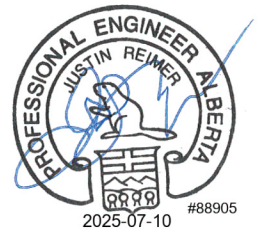
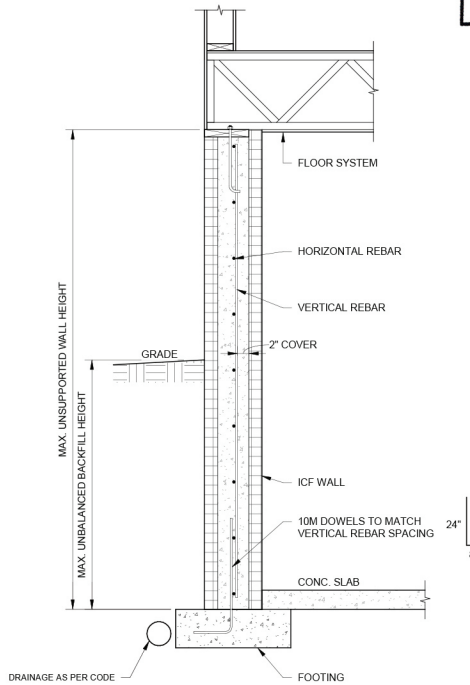


Table 2A - Superform 6" or 6.5" Block ICF Wall - Below-Grade Reinf Requirements (Seismic Considered) for Part 9 Buildings

Maximum Unsupported Wall Height (ft)	Maximum Unbalanced Backfill Height (ft)	Minimum Vertical Reinforcement Bar Spacing (inches)								
		Maximum Design Equivalent Soil Density								
		30 psf/ft			45 psf/ft			60 psf/ft		
		10M	15M	20M	10M	15M	20M	10M	15M	20M
8	4	18			12	18		12	18	
	5	12	18		6	12	18	6	12	18
	6	6	12	18	6	12	18		6	12
	7			6			6			6
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	6		6	12			6			6
	7			6			6			6
	8			6			6			6
	9			6			6			6

NOTES:

- 1) This table is to be used where seismic loading must be considered as per Clause 4.1.8.16.7) of the National Building Code of Canada (2015) or the applicable Provincial Code. It is applicable for through the provinces of Alberta, Saskatchewan, Manitoba, & for the majority of British Columbia and Ontario, excepting medium-high and high seismicity regions. See the maps on Figure 2C for restricted locations. Consult a local structural engineer to determine increased reinforcing requirements in these restricted medium-high and high seismicity regions.
- 2) Reinforcing bars must be placed on the tension side of the wall (interior face opposing the backfill). The effective depth considered for the vertical reinforcing in this table is 5.75" (2" from the interior face to the rebar).
- 3) Minimum concrete strength, $f'_c = 20$ MPa (3000 psi). Minimum reinforcing strength, $F_y = 400$ MPa (60 ksi).
- 4) Wall must be laterally supported at the top and the bottom.
- 5) Backfill is assumed to be free draining material.
- 6) This table does not consider surcharge loading adjacent to the wall. For a 2.4 kPa (50 psf) surcharge load (typical garage), increase the backfill height by 1'. For higher surcharge loading, consult a local structural engineer.
- 7) Provide 2-15M bar around any openings, extending 2' past each side of the openings. No openings should occur within 4' of interior and exterior corners. Consult a local structural engineer to determine additional wall reinforcing requirements if any opening is more than 4' wide and/or if the length of solid wall between 2 openings is less than 4'. Lintels over openings shall be constructed in accordance with applicable Building Code requirements.
- 8) Refer to a geotechnical report if possible to determine the appropriate equivalent fluid density or consult a local geotechnical engineer as required to determine local requirements.
- 9) Provide horizontal 10M reinforcing at 12" c/c.



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DATE: 2025-07-10

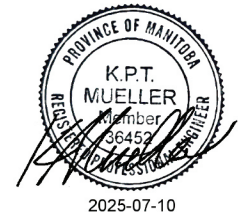
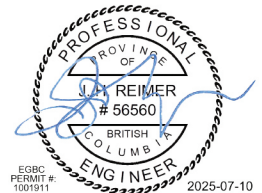
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The Association of Professional Engineers and Geoscientists of Alberta (APEGA)



Association of Professional Engineers & Geoscientists of Saskatchewan

CERTIFICATE OF AUTHORIZATION
BCB Engineering Ltd.
Number C1193

Permission to Consult held by:
Discipline: STRUCT Sk. Reg. No. 28787 Signature: _____



APEGM

Certificate of Authorization
BCB Engineering Ltd.

No. 3361 Date: 2025-07-10



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1065 Willow Street
Pincher Creek, AB T0K 1W0

2025-07-10



555 WT Hill Blvd S
Lethbridge, AB T1J 1Y6



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RM SIGNATURE: _____
RM APEGA ID #: 88905
DATE: 2025-07-10
PERMIT NUMBER: P 07105
The Association of Professional Engineers and Geoscientists of Alberta (APEGA)

Table 2B - Superform 8" Block ICF Wall - Below-Grade Reinf Requirements (Seismic Considered) for Part 9 Buildings

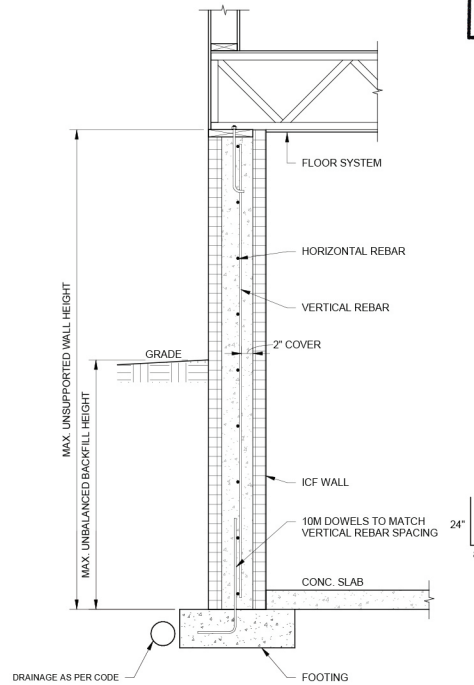
Maximum Unsupported Wall Height (ft)	Maximum Unbalanced Backfill Height (ft)	Minimum Vertical Reinforcement Bar Spacing (inches)								
		Maximum Design Equivalent Soil Density								
		30 psf/ft			45 psf/ft			60 psf/ft		
		10M	15M	20M	10M	15M	20M	10M	15M	20M
8	4	18			18			18		
	5	18			12	18		12	18	
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	10			6			6			6



Association of Professional Engineers & Geoscientists of Saskatchewan
CERTIFICATE OF AUTHORIZATION
BCB Engineering Ltd.
Number C1193
Permission to Consult held by:
Discipline: STRUCT Sk. Reg. No.: 28787 Signature: _____
Date: _____

NOTES:

- 1) This table is to be used where seismic loading must be considered as per Clause 4.1.8.16.7) of the National Building Code of Canada (2015) or the applicable Provincial Code. It is applicable for through the provinces of Alberta, Saskatchewan, Manitoba, & for the majority of British Columbia and Ontario, excepting medium-high and high seismicity regions. See the maps on Figure 2C for restricted locations. Consult a local structural engineer to determine increased reinforcing requirements in these restricted medium-high and high seismicity regions.
- 2) Reinforcing bars must be placed on the tension side of the wall (interior face opposing the backfill). The effective depth considered for the vertical reinforcing in this table is 5.75" (2" from the interior face to the rebar).
- 3) Minimum concrete strength, $f_c = 20$ MPa (3000 psi). Minimum reinforcing strength, $F_y = 400$ MPa (60 ksi).
- 4) Wall must be laterally supported at the top and the bottom.
- 5) Backfill is assumed to be free draining material.
- 6) This table does not consider surcharge loading adjacent to the wall. For a 2.4 kPa (50 psf) surcharge load (typical garage), increase the backfill height by 1'. For higher surcharge loading, consult a local structural engineer.
- 7) Provide 2-15M bar around any openings, extending 2' past each side of the openings. No openings should occur within 4' of interior and exterior corners. Consult a local structural engineer to determine additional wall reinforcing requirements if any opening is more than 4' wide and/or if the length of solid wall between 2 openings is less than 4'. Lintels over openings shall be constructed in accordance with applicable Building Code requirements.
- 8) Refer to a geotechnical report if possible to determine the appropriate equivalent fluid density or consult a local geotechnical engineer as required to determine local requirements.
- 9) Provide horizontal 10M reinforcing at 12" c/c.

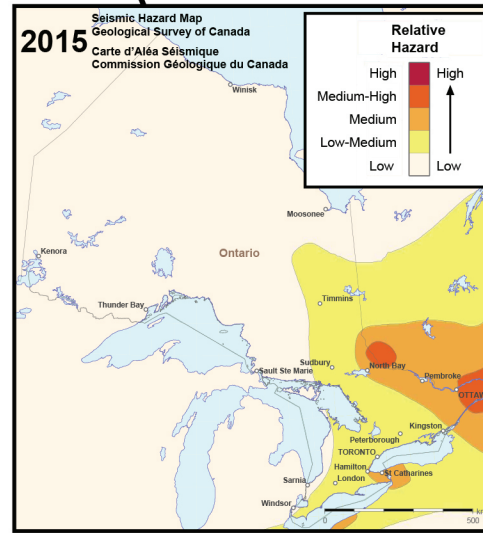
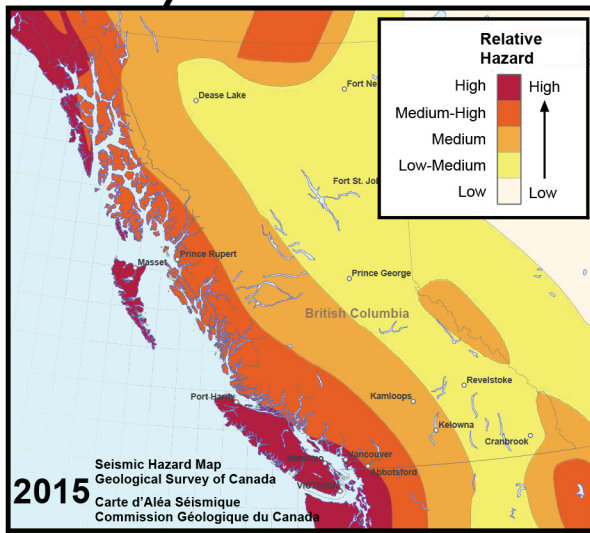
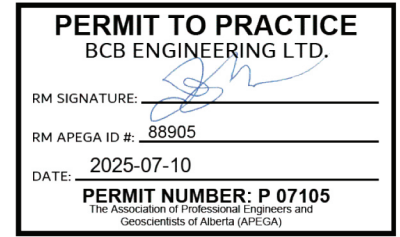
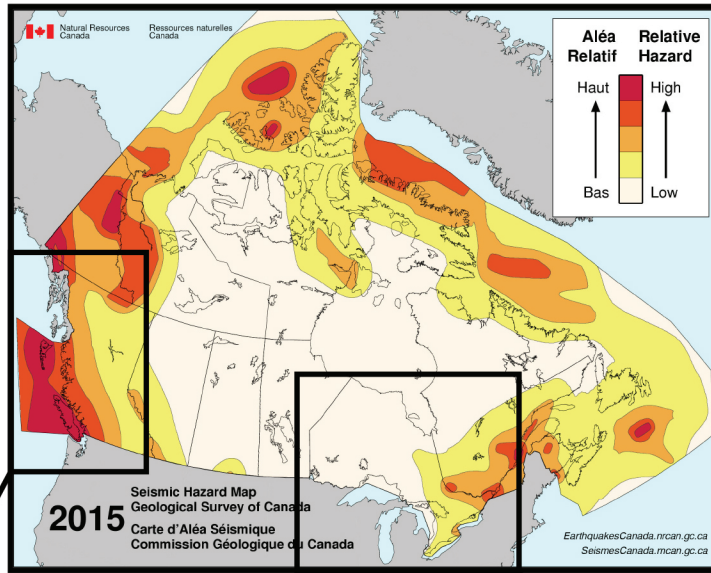


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Figure 2C - Seismic Hazard Maps

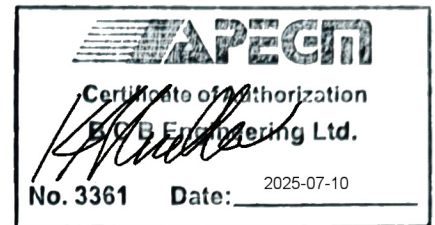
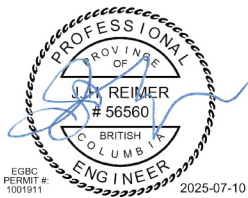


Tables 1A & 1B are applicable to all low and low-medium seismic hazard regions.

Tables 2A & 2B are recommended for all medium seismic hazard regions and required wherever $S_a(0.2)$ exceeds 0.40.

A local engineer is to be consulted to confirm reinforcing requirements for all medium-high and high seismic hazard regions.

Only sites with soil conditions meeting classes A, B, C, & D as defined in Part 4 of the National Building Code of Canada (2020) are permitted.



Superform 6" (or 6.5") Standard Block ICF - Lintel Bottom Steel Reinforcing Requirements for Part 9 Buildings **

Opening Width (ft)	Factored Uniform Load (lbs/ft)											
	400		800		1200		1600		2000		2400	
	Lintel Depth (inches)											
	12	24	12	24	12	24	12	24	12	24	12	24
3	1-15M	1-15M	1-15M	1-15M	1-15M	1-15M	1-15M	1-15M	1-15M	1-15M	1-15M	1-15M
4	1-15M	1-15M	1-15M	1-15M	1-15M	1-15M	1-15M	1-15M	1-15M	1-15M	1-15M	1-15M
5	1-15M	1-15M	1-15M	1-15M	1-15M	1-15M	1-15M	1-15M	1-15M	1-15M	1-15M	1-15M
6	1-15M	1-15M	1-15M	1-15M	1-15M	1-15M	1-15M	1-15M	1-15M	1-15M	1-15M	1-15M
7	1-15M	1-15M	1-15M	1-15M	1-15M	1-15M	1-15M	1-15M	1-20M	1-15M	1-20M	1-15M
8	1-15M	1-15M	1-15M	1-15M	1-15M	1-15M	1-15M	1-15M	2-15M	1-15M	2-15M	1-15M
9	1-15M	1-15M	1-15M	1-15M	1-20M	1-15M	2-15M	1-15M	2-20M	1-15M	2-20M	1-20M
10	1-15M	1-15M	1-15M	1-15M	1-20M	1-15M	2-20M	1-15M	2-20M	1-20M	2-20M	1-20M
12	1-15M	1-15M	1-20M	1-15M	2-20M	1-15M	2-20M	1-20M	2-15M	2-15M	2-20M	1-20M
14	1-15M	1-15M	2-15M	1-15M	2-15M	1-20M	2-15M	2-20M	2-20M	2-20M	2-20M	2-20M
16	1-20M	1-15M	2-20M	1-20M	2-15M	2-15M	2-20M	2-20M	2-20M	2-20M	2-20M	2-20M

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RM APEGA ID #: 88905

DATE: 2025-07-10

PERMIT NUMBER: P 07105
The Association of Professional Engineers and Geoscientists of Alberta (APEGA)

PROFESSIONAL ENGINEER
JUSTIN REIMER
MEMBER 28787
2025-07-10
YRL M.N. DAY
SASKATCHEWAN

Association of Professional Engineers & Geoscientists of Saskatchewan

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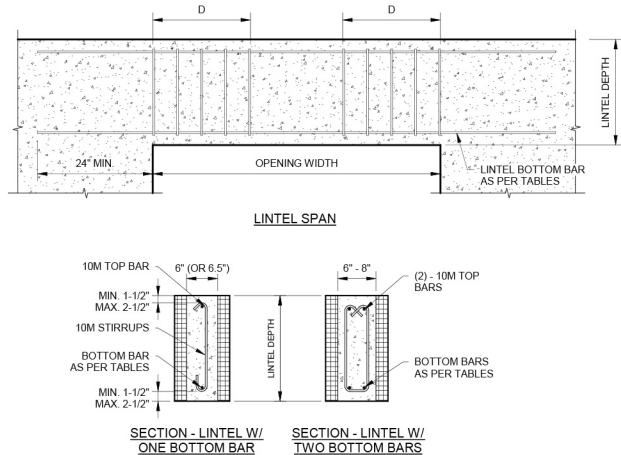
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** A MINIMUM OF 2-15M ARE TO BE PROVIDED AROUND ALL OPENINGS IF LOCATED IN BELOW-GRADE WALLS **

- D** - Shading Indicates that the lintel requires stirrups. Stirrups are to be spaced at 6" c/c in 12" deep lintels and at 12" c/c in 24" deep lintels. The distance (D) indicated below the reinforcing is the minimum length of the region where stirrups are required (from each end of the lintel). See sections for further details.
- - Indicates that a lintel design with these requirements may not be practical. Consult a local structural engineer if required.

NOTES:

- This table is suitable for openings in both above-grade walls and in foundation (below-grade) walls, provided all superimposed uniform loads over the opening are considered.
- The total factored load considered when using these tables must include all of the live and dead loads from the structure (roof, floors and wall loads) above the lintel opening. Dead loads should be multiplied by 1.25 and live loads should be multiplied by 1.50 when calculating the total factored load for design.
- Lintel depth is measured as the concrete depth enclosing the bottom and top bars in the lintel. If the lintel depth available is less than 12", consult a structural engineer. If the available lintel depth is between 12" and 24", use the 12" column.
- These tables are applicable only for uniform loading situations and do not apply for any type of point loading. Consult a structural engineer if point loads from a beam, girder truss, or other sources are present.
- Seismic and wind loads are not considered in these tables. The top of the lintel is assumed to be laterally supported.
- Minimum concrete strength, $f'c = 20$ MPa (3000 psi). Minimum reinforcing strength, $F_y = 400$ MPa (60 ksi).
- The lintel bottom steel reinforcing is to extend a minimum of 24" past the opening on each side. In addition, 15M bar reinforcing, matching the number of bottom bars required in the lintel shall be provided as a minimum all around openings. Consult a local structural engineer for additional reinforcing requirements around any openings wider than 4' and/or if the length of solid wall between openings is less than 2' wide.



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Member #36452
2025-07-10

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PROFESSIONAL ENGINEER
JUSTIN REIMER
#100637788
PROVINCE OF ONTARIO
2025-07-10

Superform 8" Standard Block ICF - Lintel Bottom Steel Reinforcing Requirements for Part 9 Buildings

Opening Width (ft)	Factored Uniform Load (lbs/ft)											
	400		800		1200		1600		2000		2400	
	Lintel Depth (inches)											
	12	24	12	24	12	24	12	24	12	24	12	24
3	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M
4	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M
5	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M
6	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M
7	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M
8	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M
9	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-20M	2-15M
10	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-20M	2-15M	2-15M	2-15M
12	2-15M	2-15M	2-15M	2-15M	2-20M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M	2-15M
14	2-15M	2-15M	2-15M	2-15M	2-20M	2-15M	2-15M	2-15M	2-15M	2-15M	2-20M	2-15M
16	2-15M	2-15M	2-20M	2-15M	2-15M	2-15M	2-15M	2-20M	2-20M	2-20M	2-20M	2-15M

D - Shading Indicates that the lintel requires stirrups. Stirrups are to be spaced at 6" c/c in 12" deep lintels and at 12" c/c in 24" deep lintels. The distance (D) indicated below the reinforcing is the minimum length of the region where stirrups are required (from each end of the lintel). See sections for further details.

■ - Indicates that a lintel design with these requirements may not be practical. Consult a local structural engineer if required.

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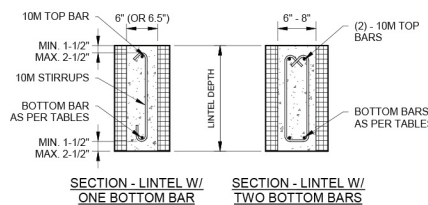
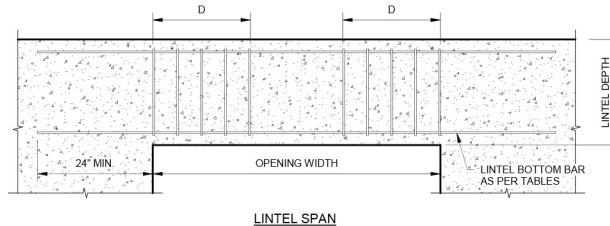
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NOTES:

- This table is suitable for openings in both above-grade walls and in foundation (below-grade) walls, provided all superimposed uniform loads over the opening are considered.
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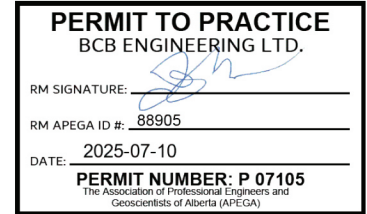
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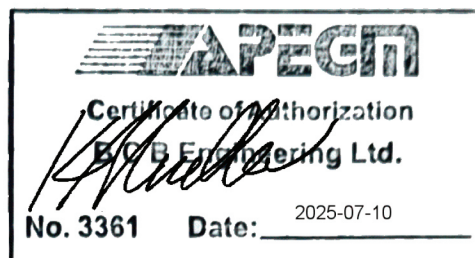
Minimum Solid Wall Length For Walls With An Opening Located Within 4' Of An Outside Corner

Minimum Solid Wall Length (as a % of Total Wall Length) - Up To 40' Wide Building					
Hourly Wind Pressure q1/50 (kPa)	Building Length (ft)	Wall Construction			
		1-Storey w/ Wood Frame Roof (or Top Wall of 2-Storey w/ Wood Frame Roof)		Bottom Wall of 2-Storey w/ Wood Frame or ICF Top Wall & Wood Frame Floor/Roof	
		Wall Location			
		Short (End) Wall	Long (Side) Wall	Short (End) Wall	Long (Side) Wall
0.60	40	30%	30%	30%	30%
	60	30%	30%	35%	30%
	80	30%	30%	45%	30%
0.80	40	30%	30%	30%	30%
	60	30%	30%	45%	30%
	80	35%	30%	60%	30%
1.00	40	30%	30%	30%	30%
	60	35%	30%	50%	30%
	60	45%	30%	70%	30%
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	60	40%	30%	60%	30%
	80	50%	30%	80%	30%



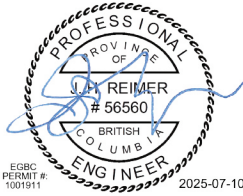
NOTES:

- Use of this table and the associated details on the next pages overrides the prescriptive requirements of Section 9.20.17.3.(1) for above-grade walls and Section 9.20.17.4.(4) for below-grade walls. It is only suitable for use when construction falls within the following limitations:
 - The walls must be laterally supported at the top & bottom of each wall by the floor and roof systems.
 - Design is limited to a maximum of 2-storeys above grade. It is assumed that the above-grade walls are on top of ICF below-grade foundation walls.
 - Maximum roof clear span = 40 ft. Maximum floor clear span = 30 ft. Maximum building length = 80 ft.
 - Maximum below-grade wall height = 10 ft. Maximum above-grade wall height = 12 ft. Maximum roof slope = 12:12.
- Design loads assumed for this table are as follows:
 - Wind loads consider Open Terrain and Internal Pressure Category = 2.
 - Seismic loads not considered. A local structural engineer should be engaged for review where seismic loads govern shear wall design.
- The minimum solid wall length required in the table is the sum of all wall segments >= 4' wide between openings in each wall. If a greater % of openings in a wall are desired, a local structural engineer should be engaged for review.
- The bottom walls in 2-storey buildings and all below-grade foundation walls shall have, at a minimum, the solid wall segments walls considered in the walls above carried down to the foundation level.
- Concentrated reinforcement is to be provided around openings as per the details on the following pages. The vertical bars are to be continuous from top of wall to bottom of foundation wall.
- Vertical reinforcing is to be placed in the middle of the walls. Horizontal reinforcing is to be placed alternating sides of the vertical bars. 24" x 24" corner bars matching the horizontal bar are to be provided at all wall intersections.
- Minimum concrete strength, $f_c = 20$ MPa (3000 psi). Minimum reinforcing strength, $F_y = 400$ MPa (60 ksi) if using steel rebar. GFRP to be MST-BAR Grade III, $F_t = 1000$ MPa (145 ksi) Integrally Ribbed bar if using fiber rebar. The charts are not valid for use

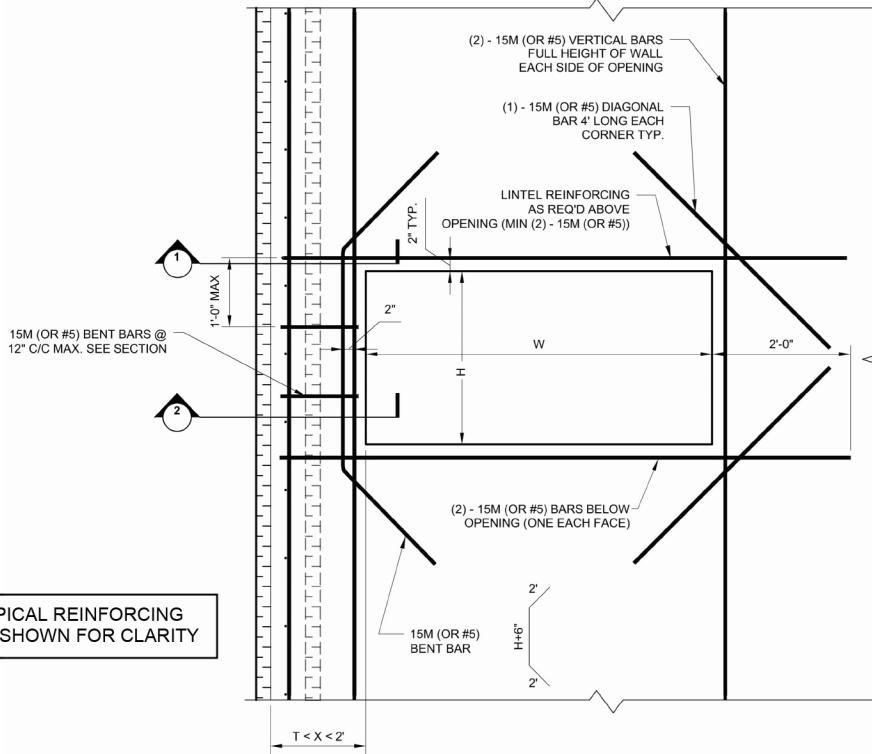
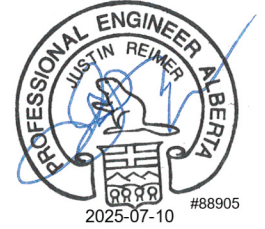




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1065 Willow Street
Pincher Creek, AB T0K 1W0



555 WT Hill Blvd S
Lethbridge, AB T1J 1Y6



TYPICAL REINFORCING NOT SHOWN FOR CLARITY

DETAIL - OPENING < 2' FROM CORNER

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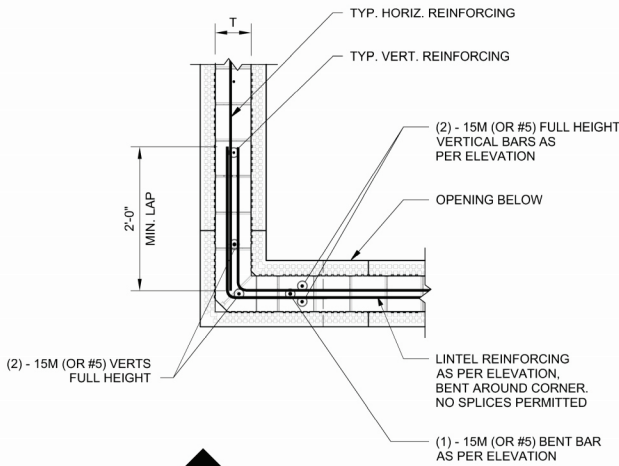


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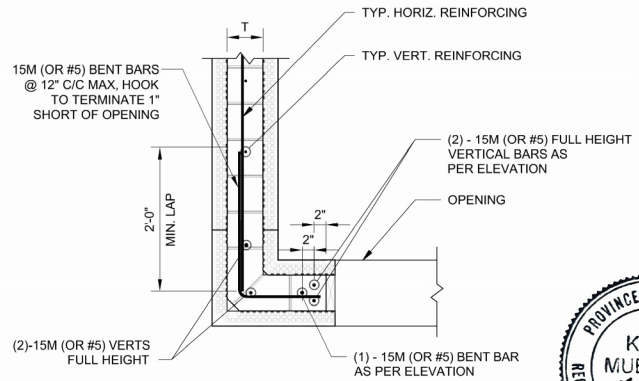
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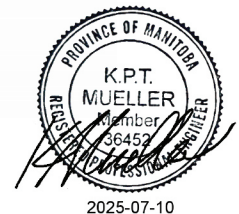
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STRUCT	28787	<i>[Signature]</i>



1 SECTION AT LINTEL



2 SECTION AT JAMB



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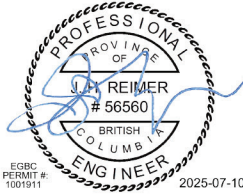
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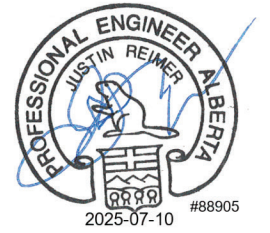
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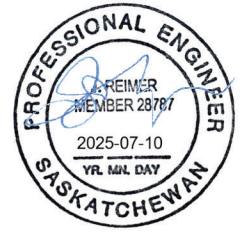
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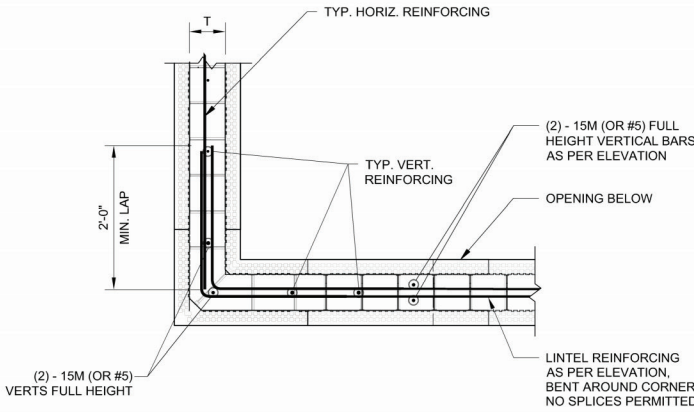
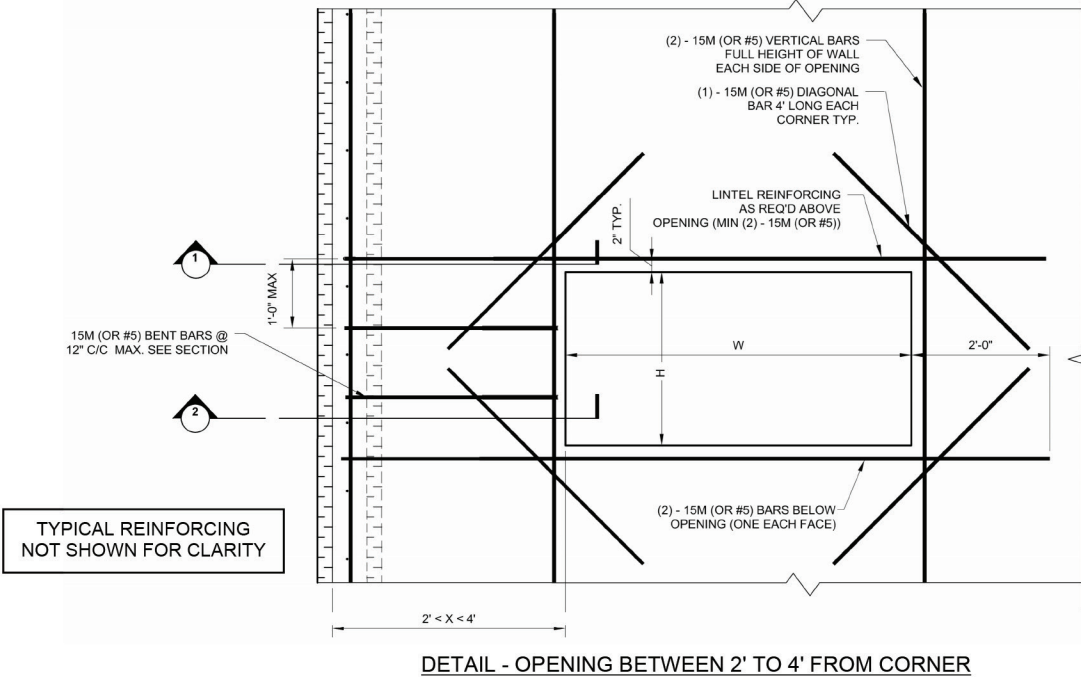


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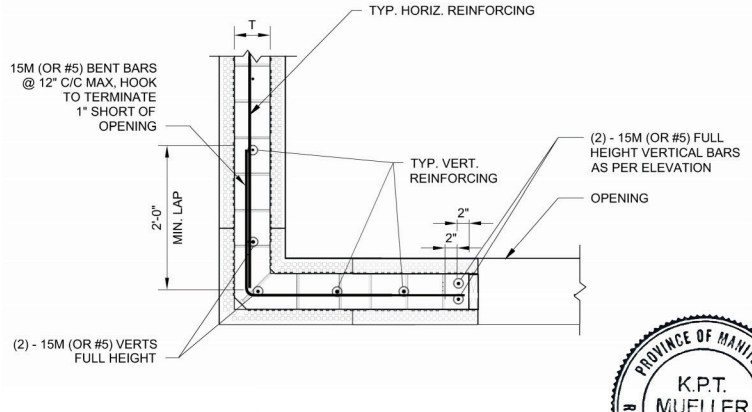
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STRUCT	28787	<i>[Signature]</i>



1 SECTION AT LINTEL



2 SECTION AT JAMB

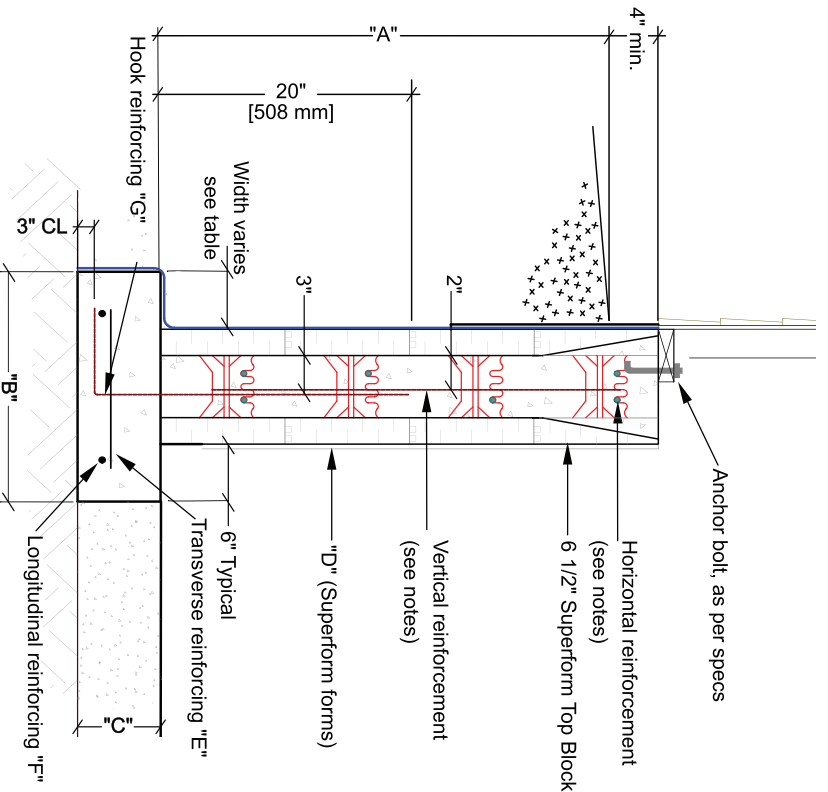


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DIMENSION TABLE

DIM "A" (WALL HEIGHT)	DIM "B" (WIDTH OF FOOTING)	DIM "C" (FOOTING DEPTH)	DIM "D" (SUPERFORM CORE)	TRANSVERSE REINFORCING "E"	LONGITUDINAL REINFORCING "F"	HOOK REINFORCING "G"	NOTE
UP TO 48"	2'-0"	10" MIN.	6" MIN.	N/A	2 - 10M	10M HOOK @12O/C	If laterally supported by the floor system DIM "A" could be extended to 96"
FROM 49"-60"	2'-6"	10" MIN.	6" MIN.	N/A	2 - 10M	10M HOOK @12O/C	
FROM 61"-72"	3'-0"	10" MIN.	6" MIN.	N/A	3 - 10M	15M HOOK @12O/C	extended to 96"
FROM 73"-84"	3'-6"	10" MIN.	8" MIN.	N/A	3 - 10M	15M HOOK @12O/C	
GREATER THAN 84"	4'-0"	10" MIN.	8" MIN.	N/A	3 - 10M	15M HOOK @12O/C	

NOTES:

- The above knee wall is applicable under the following conditions:
1. Min. vertical rebar, use #4@12" max. (10M@300 mm max.) on center for 60ksi steel (#4@24" for 40ksi steel). Footing dowels to match vertical rebar in wall for size and spacing.
2. Horizontal rebar: #4@12" max (10M@300 mm max.) on center.
3. Max. backfill height: See Table; Equivalent fluid density: <= 75pcf (1200 kg/m³) w/ no surcharge; Soil must be well drained (no heavy clay)
4. Min. soil bearing capacity: 2000 psf (13.8 MPa)
5. Min. 28 day concrete compressive strength: 3750 psi (25 MPa)
6. Max. knee wall length: 40 ft (12 m) Max. 2 stories above-grade of stud framed wall construction – house superstructure not to exceed 2000 lb/ft.
7. Consult a local licensed engineer for knee walls that do not meet the above notes and drawing.

IMPORTANT NOTE:
 THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO CHECK AND VERIFY ALL EXISTING SITE DIMENSIONS WITH DRAWINGS AND REPORT ALL DISCREPANCIES AND OMISSIONS TO THE ENGINEER, PRIOR TO CONSTRUCTION. (DO NOT SCALE THESE DRAWINGS)

REVISION RECORD	NO.	DESCRIPTION



ABS CONCRETE SYSTEMS LTD.
 21041 BIG HILL SPRINGS ROAD
 AIRDRIE, ALBERTA T4B 2A3
 MAIN PHONE: 403-297-9898
 MOBILE: 403-651-5322
 CONTACT: M. J. MCLEOD, P. ENG.

SUPERFORM ICF KNEEWALL

SCALE: N.T.S.

DATE: _____

DESIGNED: _____

DRAWN: _____

PROJ. ENG.: _____

APPROVED: _____

DRAWING NO.: **SF-1**

SHT. NO.: 1 OF 1



T 877.627.3555

F 403.627.3553

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