



CANADIAN STRUCTURAL GUIDE



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

Hourly Wind Pressure q <sub>1/50</sub> (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	#3 (10M) @ 18" C/C	#3 (10M) @ 12" C/C	#3 (10M) @ 12" C/C	#3 (10M) @ 18" C/C	#3 (10M) @ 12" C/C	#4 (13M) @ 18" C/C	#3 (10M) @ 18" C/C	#3 (10M) @ 12" C/C	#4 (13M) @ 12" C/C	#3 (10M) @ 24" C/C
0.80	#3 (10M) @ 12" C/C	#3 (10M) @ 12" C/C	#4 (13M) @ 18" C/C	#3 (10M) @ 12" C/C	#3 (10M) @ 12" C/C	#4 (13M) @ 12" C/C	#3 (10M) @ 12" C/C	#3 (10M) @ 12" C/C	#4 (13M) @ 12" C/C	#3 (10M) @ 24" C/C
1.00	#3 (10M) @ 12" C/C	#4 (13M) @ 18" C/C	#4 (13M) @ 12" C/C	#3 (10M) @ 12" C/C	#4 (13M) @ 18" C/C	#4 (13M) @ 12" C/C	#3 (10M) @ 12" C/C	#4 (13M) @ 12" C/C	#4 (13M) @ 12" C/C	#3 (10M) @ 24" C/C
1.20	#4 (13M) @ 18" C/C	#4 (13M) @ 12" C/C		#4 (13M) @ 18" C/C	#4 (13M) @ 12" C/C		#4 (13M) @ 18" C/C	#4 (13M) @ 12" C/C		#3 (10M) @ 24" C/C

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RM APEGA ID #: 88905

DATE: 2023-12-15

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

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

Hourly Wind Pressure q <sub>1/50</sub> (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	#3 (10M) @ 18" C/C	#3 (10M) @ 12" C/C	#3 (10M) @ 12" C/C	#3 (10M) @ 18" C/C	#3 (10M) @ 12" C/C	#3 (10M) @ 12" C/C	#3 (10M) @ 18" C/C	#3 (10M) @ 12" C/C	#3 (10M) @ 12" C/C	#3 (10M) @ 24" C/C
0.80	#3 (10M) @ 12" C/C	#3 (10M) @ 12" C/C	#3 (10M) @ 12" C/C	#3 (10M) @ 12" C/C	#3 (10M) @ 12" C/C	#4 (13M) @ 18" C/C	#3 (10M) @ 12" C/C	#3 (10M) @ 12" C/C	#4 (13M) @ 18" C/C	#3 (10M) @ 24" C/C
1.00	#3 (10M) @ 12" C/C	#3 (10M) @ 12" C/C	#4 (13M) @ 18" C/C	#3 (10M) @ 12" C/C	#3 (10M) @ 12" C/C	#4 (13M) @ 12" C/C	#3 (10M) @ 12" C/C	#3 (10M) @ 12" C/C	#4 (13M) @ 12" C/C	#3 (10M) @ 24" C/C
1.20	#3 (10M) @ 12" C/C	#3 (10M) @ 12" C/C	#4 (13M) @ 12" C/C	#3 (10M) @ 12" C/C	#3 (10M) @ 12" C/C	#4 (13M) @ 12" C/C	#3 (10M) @ 12" C/C	#4 (10M) @ 18" C/C	#4 (13M) @ 12" C/C	#3 (10M) @ 24" C/C

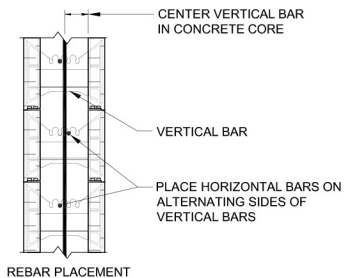
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ECB Engineering Ltd.  
Number C1198

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Discipline: STRUCT    Sk. Reg. No.: 28787    Signature:

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/ft<sup>2</sup>. Floor live load = 40 lb/ft<sup>2</sup>.
    - Roof dead load = 20 lb/ft<sup>2</sup>. Roof snow load = 100 lb/ft<sup>2</sup>.
    - Wall dead (self-weight) load = 90 lb/ft<sup>2</sup> for 6" walls and 115 lb/ft<sup>2</sup> 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). GFRP to be MST-BAR Grade III, Ft = 1000 MPa (145 ksi) Integrally Ribbed bar. These charts are not valid for use with any other GFRP bars. These charts are not valid to be used interchangeably with steel reinforcing. If a combination of GFRP and steel reinforcing is being contemplated for a project, the plans should be reviewed by a local structural engineer to confirm requirements.
- 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-#4 (13M) 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.
- Providing the #3 (10M) temperature and shrinkage reinforcing at 24" c/c exceeds the prescriptive requirement of 400mm (16") per Clause 8.4.6.1 of CSA S806, but is considered acceptable due to ideal curing conditions within the ICF system, which reduces the risk of cracking. Also, since finishes are not applied directly to the concrete wall, the risk of potential cracks propagating to the surface of the finishes is minimized.



**Superform 6" or 6.5" Block ICF Wall - Below-Grade MST-BAR 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		
		#3 (10M)	#4 (13M)	#5 (16M)	#3 (10M)	#4 (13M)	#5 (16M)	#3 (10M)	#4 (13M)	#5 (16M)
8	4	18			18			12	18	
	5	18			12	18		12	18	
	6	12	18		12	18		12	18	
	7	12	18		12	18		12	18	
	8	6	12	18		6	12	18	6	12
9	4	18			18			12	18	
	5	12	18		12	18		12	18	
	6	12	18		12	18		12	18	
	7	12	18		12	18		12	18	
	8	6	12	18		6	12	18	6	12
10	4	12	18		12	18		12	18	
	5	12	18		12	18		12	18	
	6	12	18		12	18		12	18	
	7	12	18		12	18		6	12	18
	8	6	12	18		6	12	18	6	12
11	4	12	18		12	18		12	18	
	5	12	18		12	18		12	18	
	6	12	18		12	18		6	12	18
	7	12	18		12	18		6	12	18
	8	6	12	18		6	12	18	6	12
12	4	12	18		12	18		12	18	
	5	12	18		12	18		12	18	
	6	12	18		12	18		12	18	
	7	12	18		12	18		6	12	18
	8	6	12	18		6	12	18	6	12

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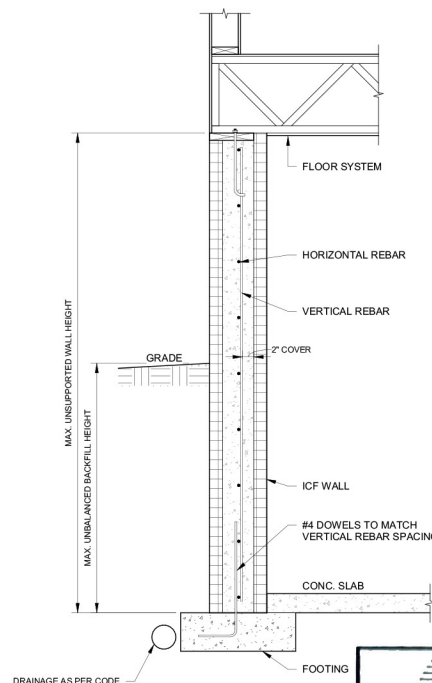
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**NOTES:**

- 1) This table does not consider seismic loads. Consult a local engineer 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 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).
- 3) Minimum concrete strength,  $f_c = 20$  MPa (3000 psi). GFRP to be MST-BAR Grade III,  $F_t = 1000$  MPa (145 ksi) Integrally Ribbed bar. These charts are not valid for use with any other GFRP bars. These charts are not valid to be used interchangeably with steel reinforcing. If a combination of GFRP and steel reinforcing is being contemplated for a project, the plans should be reviewed by a local structural engineer to confirm requirements.
- 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-#5 bars 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 #3 (10M) temperature and shrinkage reinforcing at maximum 24" c/c spacing. This exceeds the prescriptive requirement of 400mm (16") per Clause 8.4.6.1 of CSA S806, but is considered acceptable due to ideal curing conditions within the ICF system, which reduces the risk of cracking. Also, since finishes are not applied directly to the concrete wall, the risk of potential cracks propagating to the surface of the finishes is minimized.



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**Superform 8" Block ICF Wall - Below-Grade MST-BAR 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		
		#3 (10M)	#4 (13M)	#5 (16M)	#3 (10M)	#4 (13M)	#5 (16M)	#3 (10M)	#4 (13M)	#5 (16M)
8	4	18			18			18		
	5	18			18			18		
	6	12	18		12	18		12	18	
	7	12	18		12	18		12	18	
	8	12	18		6	12	18	6	12	18
9	4	18			18			18		
	5	18			18			18		
	6	12	18		12	18		12	18	
	7	12	18		12	18		12	18	
	8	12	18		6	12	18	6	12	18
10	4	18			18			18		
	5	12	18		12	18		12	18	
	6	12	18		12	18		12	18	
	7	12	18		12	18		12	18	
	8	12	18		6	12	18	6	12	18
11	4	12	18		12	18		12	18	
	5	12	18		12	18		12	18	
	6	12	18		12	18		12	18	
	7	12	18		12	18		6	12	18
	8	12	18		6	12	18	6	12	18
12	4	12	18		12	18		12	18	
	5	12	18		12	18		12	18	
	6	12	18		12	18		12	18	
	7	12	18		12	18		6	12	18
	8	12	18		6	12	18	6	12	18

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PROFESSIONAL ENGINEER  
REIMER  
MEMBER 28787  
2023-12-15  
YR. MNL. DAY  
SASKATCHEWAN

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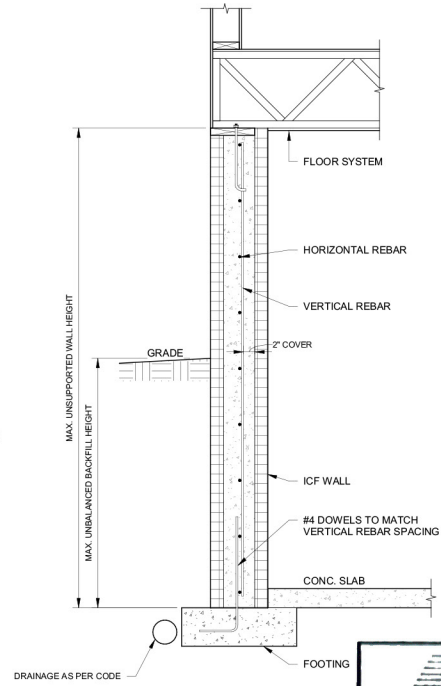
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K.P.T. MUELLER  
190201089  
PROVINCE OF ONTARIO

2023-12-15

PROVINCE OF MANITOBA  
K.P.T. MUELLER  
Member 36452  
REGISTERED PROFESSIONAL ENGINEER

2023-12-15

- NOTES:
- 1) This table does not consider seismic loads. Consult a local engineer 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). GFRP to be MST-BAR Grade III,  $F_t = 1000$  MPa (145 ksi) Integrally Ribbed bar. These charts are not valid for use with any other GFRP bars. These charts are not valid to be used interchangeably with steel reinforcing. If a combination of GFRP and steel reinforcing is being contemplated for a project, the plans should be reviewed by a local structural engineer to confirm requirements.
  - 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-#5 bars 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 #3 (10M) temperature and shrinkage reinforcing at maximum 24" c/c spacing. This exceeds the prescriptive requirement of 400mm (16") per Clause 8.4.6.1 of CSA S806, but is considered acceptable due to ideal curing conditions within the ICF system, which reduces the risk of cracking. Also, since finishes are not applied directly to the concrete wall, the risk of potential



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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%
1.20	40	30%	30%	40%	40%
	60	40%	30%	60%	30%
	80	50%	30%	80%	30%

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**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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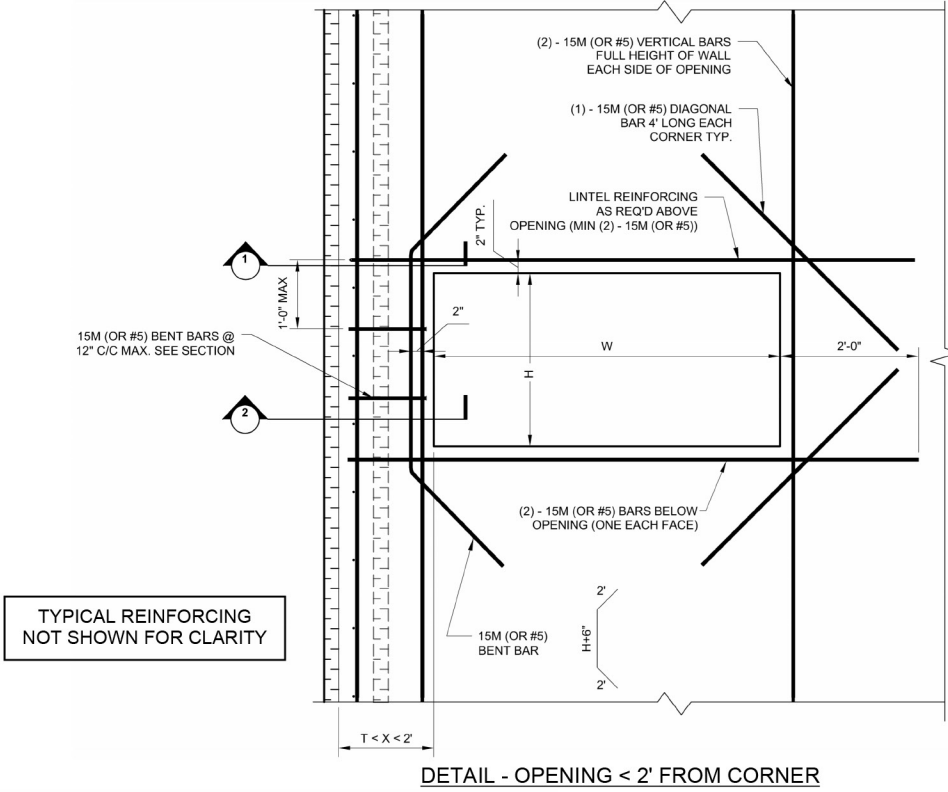
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TYPICAL REINFORCING NOT SHOWN FOR CLARITY

DETAIL - OPENING < 2' FROM CORNER

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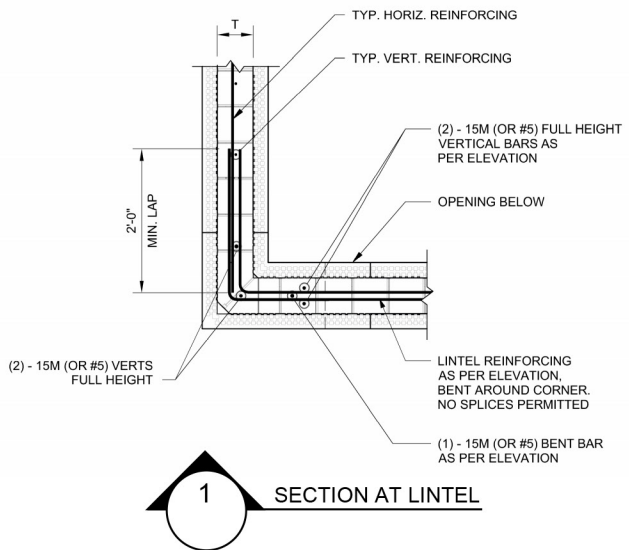
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MEMBER 28787  
2023-12-15  
YR. MIN. DAY  
SASKATCHEWAN

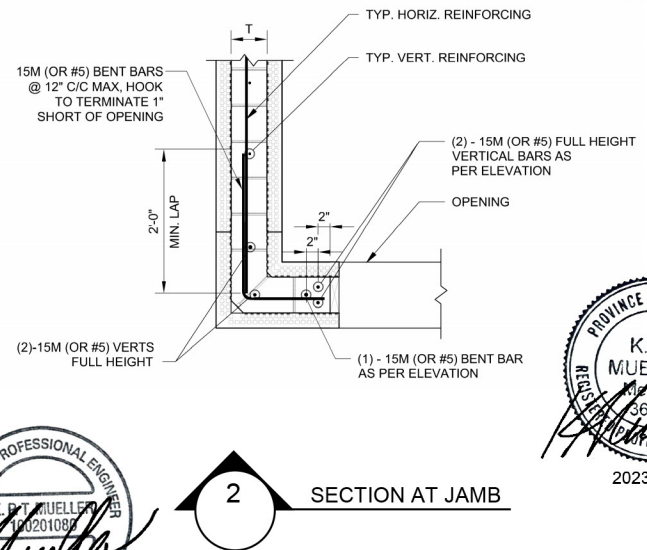
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1 SECTION AT LINTEL



2 SECTION AT JAMB

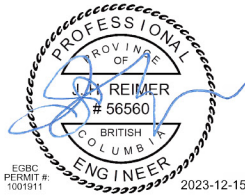
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100201080  
PROVINCE OF ONTARIO  
2023-12-15

PROVINCE OF MANITOBA  
K.P.T. MUELLER  
Member #36452  
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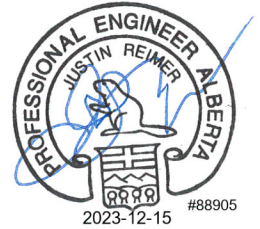
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1065 Willow Street  
Pincher Creek, AB T0K 1W0



555 WT Hill Blvd S  
Lethbridge, AB T1J 1Y6



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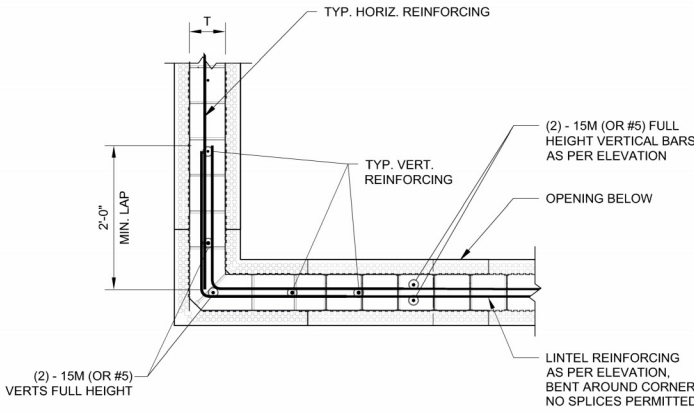
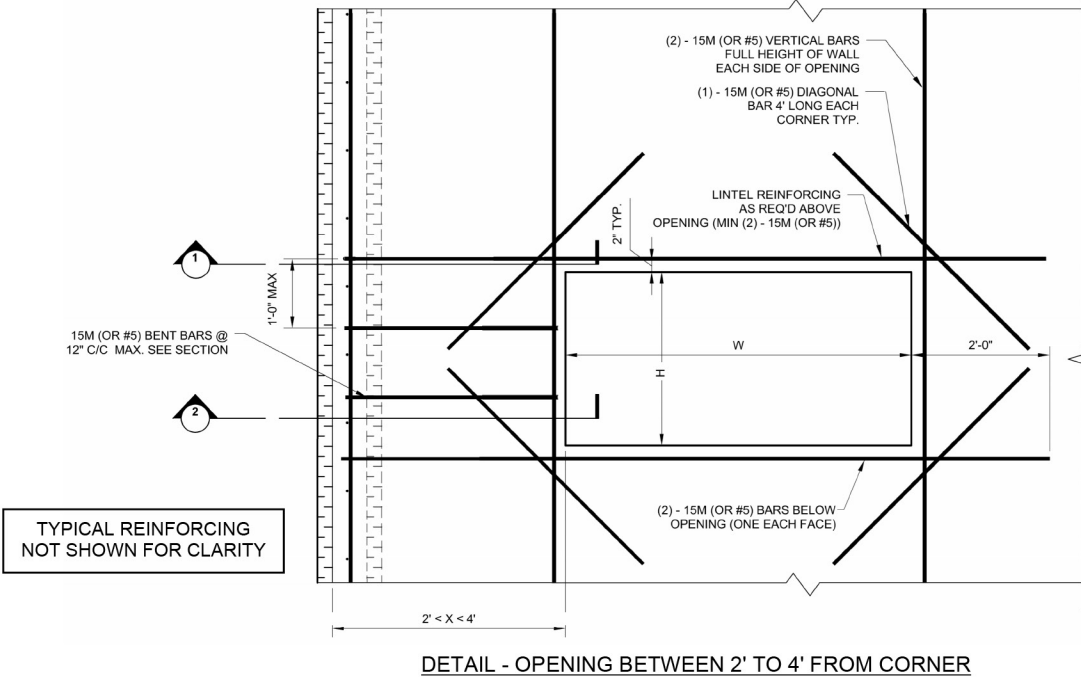


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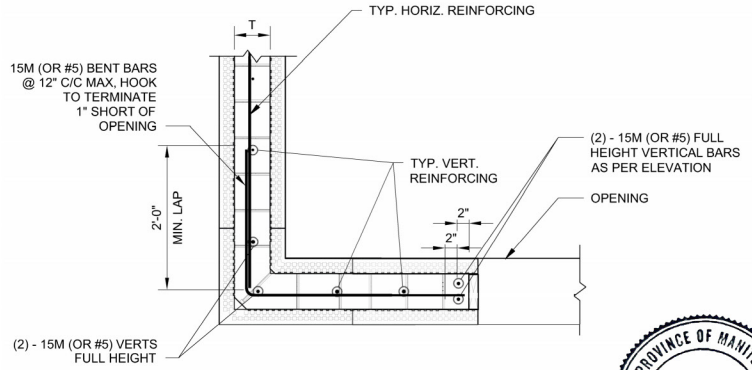
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**1 SECTION AT LINTEL**



**2 SECTION AT JAMB**



Valid for a period of (5) years from date of stamp, or until new Building Code comes into effect  
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**Superform 6" (or 6.5") Standard Block ICF - Lintel Bottom MST-BAR 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- #5 (16M)	1- #5 (16M)	1- #5 (16M)	1- #5 (16M)	1- #5 (16M) FW	1- #5 (16M)	1- #5 (16M) FW	1- #5 (16M)	1- #5 (16M) FW	1- #5 (16M)	1- #5 (16M) FW	1- #5 (16M)
4	1- #5 (16M)	1- #5 (16M)	1- #5 (16M)	1- #5 (16M)	1- #5 (16M) FW	1- #5 (16M)	1- #5 (16M) FW	1- #5 (16M)	1- #5 (16M) FW	1- #5 (16M)	1- #5 (16M) FW	1- #5 (16M)
5	1- #5 (16M)	1- #5 (16M)	1- #5 (16M)	1- #5 (16M)	1- #5 (16M) 1'-0"	1- #5 (16M)	1- #5 (16M) FW	1- #5 (16M)	1- #5 (16M) FW	1- #5 (16M)	1- #5 (16M) FW	1- #5 (16M)
6	1- #5 (16M)	1- #5 (16M)	1- #5 (16M)	1- #5 (16M)	1- #5 (16M) 1'-6"	1- #5 (16M)	1- #5 (16M) FW	1- #5 (16M)	1- #5 (16M) FW	1- #5 (16M)	1- #5 (16M) 2'-0"	1- #5 (16M)
7	1- #5 (16M)	1- #5 (16M)	1- #5 (16M) 1'-0"	1- #5 (16M)	1- #5 (16M) 2'-0"	1- #5 (16M)	1- #5 (16M)	1- #5 (16M) 2'-0"	1- #5 (16M)	1- #5 (16M) 2'-0"	1- #5 (16M) 2'-0"	1- #5 (16M)
8	1- #5 (16M)	1- #5 (16M)	1- #5 (16M) 1'-6"	1- #5 (16M)	1- #5 (16M) 2'-6"	1- #5 (16M)	1- #5 (16M)	1- #5 (16M) 2'-0"	1- #5 (16M)	1- #5 (16M) 2'-0"	1- #5 (16M) 2'-0"	1- #5 (16M)
9	1- #5 (16M)	1- #5 (16M)	1- #5 (16M) 2'-0"	1- #5 (16M)	1- #6 (20M) 3'-0"	1- #5 (16M) 2'-0"	1- #5 (16M)	1- #5 (16M) 2'-0"	1- #5 (16M)	1- #5 (16M) 3'-0"	1- #5 (16M)	1- #5 (16M)
10	1- #5 (16M)	1- #5 (16M)	1- #6 (20M) 2'-6"	1- #5 (16M)	1- #5 (16M)	1- #5 (16M) 2'-0"	1- #5 (16M) 2'-0"	1- #5 (16M) 3'-0"	1- #5 (16M)	1- #5 (16M)	1- #5 (16M)	1- #5 (16M)
12	1- #5 (16M) 1'-6"	1- #5 (16M)		1- #5 (16M)		1- #5 (16M)	1- #5 (16M) 3'-0"					
14	1- #5 (16M) 2'-6"	1- #5 (16M)		1- #5 (16M) 2'-0"		1- #5 (16M)	4'-0"					
16	1- #6 (20M) 3'-6"	1- #5 (16M)		1- #5 (16M) 3'-0"								

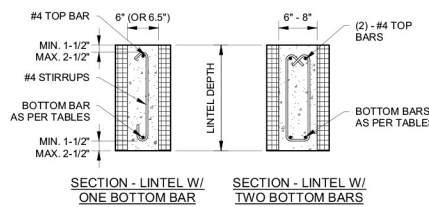
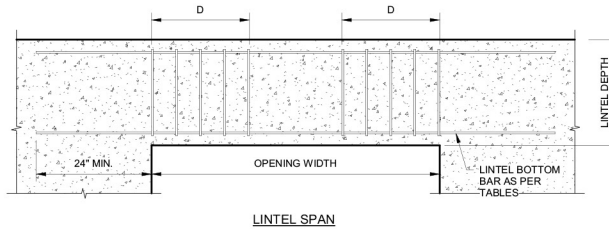
\*\* A MINIMUM OF 2 - #5 ARE TO BE PROVIDED AROUND ALL OPENINGS IF LOCATED IN BELOW-GRADE WALLS \*\*

**D or FW** - 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. FW indicates that stirrups are to be provided for the full width of the beam.

**[Shaded Box]** - 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). GFRP to be MST-BAR Grade III,  $F_t = 1000$  MPa (145 ksi) Integrally Ribbed bar. These charts are not valid for use with any other GFRP bars. These charts are not valid to be used interchangeably with steel reinforcing. If a combination of GFRP and steel reinforcing is being contemplated for a project, the plans should be reviewed by a local structural engineer to confirm requirements.
- The lintel bottom steel reinforcing is to extend a minimum of 24" past the opening on each side. In addition, #5 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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RM SIGNATURE: *[Signature]*

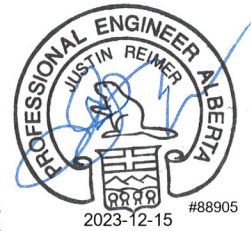
RM APEGA ID #: 88905

DATE: 2023-12-15

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



555 WT Hill Blvd S  
 Lethbridge, AB T1J 1Y6



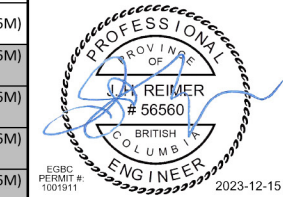
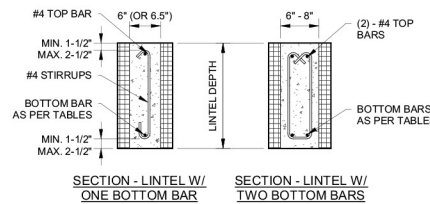
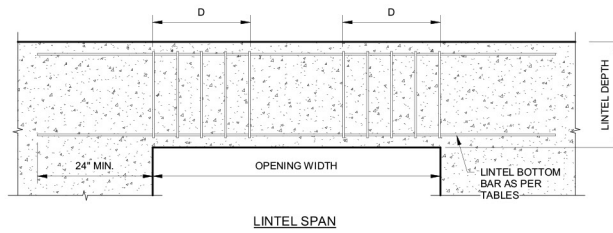
**Superform 8" Standard Block ICF - Lintel Bottom MST-BAR Reinforcing Requirements for Part 9 Buildings**

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 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M) FW	2 - #5 (16M)	2 - #5 (16M) FW	2 - #5 (16M)	2 - #5 (16M) FW	2 - #5 (16M)
4	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M) FW	2 - #5 (16M)	2 - #5 (16M) FW	2 - #5 (16M)	2 - #5 (16M) FW	2 - #5 (16M)
5	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M) FW	2 - #5 (16M)	2 - #5 (16M) FW	2 - #5 (16M)	2 - #5 (16M) FW	2 - #5 (16M)
6	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M) 1'-0"	2 - #5 (16M)	2 - #5 (16M) 1'-6"	2 - #5 (16M)	2 - #5 (16M) FW	2 - #5 (16M)	2 - #5 (16M) FW	2 - #5 (16M)
7	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M) 1'-0"	2 - #5 (16M)	2 - #5 (16M) 2'-0"	2 - #5 (16M)	2 - #5 (16M) FW	2 - #5 (16M)	2 - #5 (16M) FW	2 - #5 (16M)
8	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M) 2'-0"	2 - #5 (16M)	2 - #5 (16M) 2'-6"	2 - #5 (16M)	2 - #5 (16M) FW	2 - #5 (16M)	2 - #5 (16M) FW	2 - #5 (16M)
9	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M) 1'-0"	2 - #5 (16M)	2 - #5 (16M) 2'-6"	2 - #5 (16M)	2 - #5 (16M) 3'-0"	2 - #5 (16M)	2 - #6 (20M) FW	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)
10	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M) 1'-6"	2 - #5 (16M)	2 - #5 (16M) 3'-0"	2 - #5 (16M)	2 - #6 (20M) 3'-6"	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)
12	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M) 2'-6"	2 - #5 (16M)	2 - #5 (20M) 4'-0"	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)
14	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M) 3'-6"	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)
16	2 - #5 (16M) 2'-0"	2 - #5 (16M)	2 - #5 (16M) 4'-6"	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)	2 - #5 (16M)

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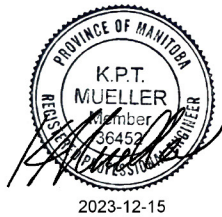


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