DISCLAIMER

By using the LOGIX Design Manual, in part or in whole, the user accepts the following terms and conditions.

The LOGIX Design Manual shall be used for the sole purpose of estimating, design or construction of LOGIX Insulated Concrete Forms used in residential, commercial or industrial structures.

The information represented herein is to be used as a reference guide only. The user shall check to ensure the information provided in this manual, including updates and amendments, meets local building codes and construction practices by consulting local building officials, construction and design professionals, including any additional requirements.

Logix reserves the right to make changes to the information provided herein without notice and assumes no liability in connection with the use of this manual including modification, copying or distribution.

The user shall check to ensure that any construction projects utilizing the LOGIX Design Manual includes the latest updates/amendments (related to the version of the LOGIX Design Manual being used at the time of the construction project). Updates/amendments to the LOGIX Design Manual are available for download in the "Technical Library" under "Addenda" at www.logixicf.com.

6.2 – CANADIAN ENGINEERING ANALYSIS REPORT: IMPERIAL UNITS

INTRODUCTION

LOGIX walls are intended to be used both above and below grade, and can carry large vertical as well as lateral loads. They are particularly effective for residential, commercial and industrial buildings; providing excellent insulation as well as thermal mass and structural strength. They can be easily adapted to accommodate concrete floors and other "non-standard" building systems.

Construction must be in conformance with the LOGIX Design Manual, including assembly of formwork, bracing, accurate rebar positioning, concrete mix design and placement, and details for interconnection with the other building components.

STRUCTURAL DESIGN AND PERFORMANCE

The LOGIX Building System can be used for an infinite variety of building situations with proper engineering. This report, with its load tables and diagrams, is intended to assist with the structural design of buildings using the LOGIX system for the basement only, or continuing to a second floor and/or roof. Where unusual conditions are encountered, it is recommended that the user consult a designer who can evaluate the loadings to the various components and who can appreciate the limitations of "prescriptive" design under unusual conditions. Connection details have generally been excluded from this report because of the great variety of floor and roof systems that can be used with the Logix wall system. The designer should refer to the Logix Product Manual and the literature for the various proprietary products that are available for connections, which are an important part of the total design.

REINFORCEMENT TABLES

Above- and below-grade walls and lintels were developed using the design criteria of Part 4 of the National Building Code of Canada 2010, and CSA A23.3-04, Design of Concrete Structures.

The reinforcement tables allow for bar spacings common in residential construction. In addition, the above-grade wall reinforcement tables have been properly developed to include LOGIX with a 4 inch concrete core. This is provided to reflect the construction industry's common practice of using 4 inch concrete walls above-grade with both traditional concrete and ICF walls. This is further reflected by the fact that building codes in the United States (International Residential Code 2012) allows for larger bar spacings, and the use of ICF walls above-grade with concrete core thicknesses of 3.5 inches.

HELIX TSMR TABLES - ALTERNATIVE TO REBAR REINFORCEMENT TABLES

Where applicable, Helix TSMR (Twisted Steel Micro Rebar) Tables 1A-H to 1D-H, and Tables 2.1-H to 2.5-H, may be used in lieu of reinforcment requirements in Tables 1A to 1D, and Table 2. Helix is steel fibre reinforcment that can significantly reduce the amount of horizontal and vertical reinforcement in above- and below-grade concrete walls, with exception of lintel and shear wall reinforcement. (For lintel reinforcement see Tables 3A to 3E, and 4A to 4E)

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LIMITATIONS
The limitations of Reinforcement Tables 1A to 1D, and Table 2, also apply to Helix alternative reinforcement Tables 1A-H to 1D-H, and Table 2.1-H to 2.5-H.

Building limitations used to develop above- and below-grade Tables include:

Building perimeter = 24.384 m (80 ft) max x 12.192 m (40 ft) max
Roof clear span = 12.192 m (40 ft) max
Floor clear span = 9.754 m (32 ft) max
Number of stories above grade = 2 max
Number of stories below grade = 1

Tables 3A to 3E and Tables 4A to 4E provide lintel tables for factored uniform and concentrated loading conditions, respectively.

In addition, crawl space reinforcement requirements were developed and can be found in Figure 1.

More specific design assumptions and limitations are located with the corresponding reinforcement tables.

ABOVE-GRADE WALL TABLE

LOGIX above-grade tables cover three different construction types:

- One storey LOGIX supporting wood roof frame (Fig. 3A)
- One storey LOGIX supporting 2nd storey wood frame plus wood roof frame (Fig. 3B)
- Two storey LOGIX supporting wood roof frame (Fig. 3C)

For two story buildings, the height of the second story wall is equal to the height of the first story provided the height of the first storey wall is not more than 12 feet high.

For first story walls greater than 12 feet high, the second story wall height is a maximum of 12 feet.

With the exception of 4" LOGIX, the second story concrete wall thickness is one size less than the concrete core thickness used for the first storey wall.

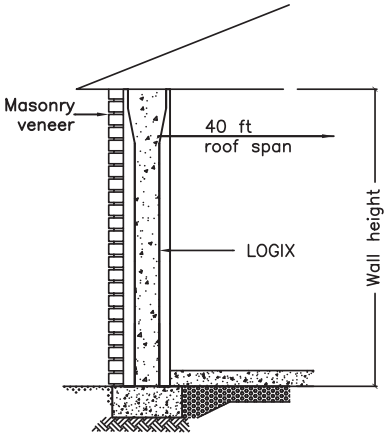

Fig 3A
Assumed typical flooring, wall & roof section for **Table 3, LOGIX Supporting Roof Only**.

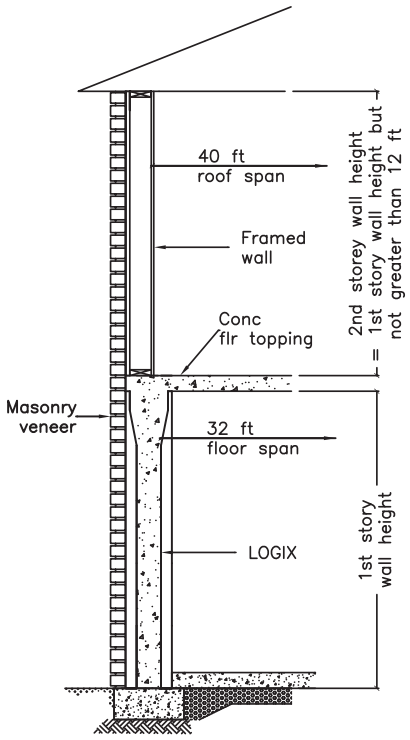

Fig 3B
Assumed typical flooring, wall & roof section for **Table 3, LOGIX Supporting 2nd Story Wood Frame & Roof Structure**.

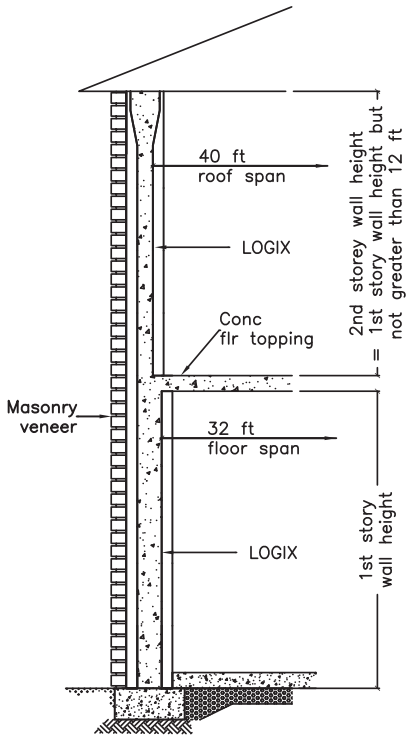

Fig 3C
Assumed typical flooring, wall & roof section for **Table 3, LOGIX Supporting 2nd Story LOGIX & Roof Structure**.

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6.2 – CANADIAN ENGINEERING ANALYSIS REPORT: IMPERIAL UNITS

NOTES FOR ABOVE-GRADE WALL TABLES

The above-grade tables shall be used in conjunction with the notes listed below, the building limitations noted in the "Reinforcement Tables", "Helix TSMR Tables - Alternative to Rebar Reinforcement Tables" section, and Figures 3A to 3B, which form the basis of this table.

1. 28 day concrete compressive strength = 20 MPa. Steel yield strength = 400 MPa.
2. Vertical rebar to be placed in middle of wall. Minimum horizontal rebar shall be:
   - 4" & 6.25" LOGIX = 10M @ 32" o/c
   - 8", 10" & 12" LOGIX = 10M @ 16" o/c.

   Provide additional mat of rebar for 12" LOGIX
   - Horizontal rebar = 10M @ 16" o/c
   - Vertical rebar = to match vertical bar spacing in **Table 2**
3. Provide at least one 10M bar to be placed at the bottom course and top course.
4. Max roof clear span = 40 ft. Max floor clear span = 32 ft.
5. Deflection criteria = L/240
6. Assumed eccentricity = 1".
7. Provide two 15M bars (One 15M bar for 4" concrete core thickness) to be placed around all openings (along the vertical sides and bottom of opening), and extend a minimum of 2 ft beyond openings.
8. The walls must be supported at the top and bottom of the wall.
9. Where spaces have been left blank, the corresponding bar size is presumed to be less economical and/or practical than that shown. Consult a local licensed engineer to determine proper design.
10. Carefully consider floor/wall connection details for lateral loads, especially with higher backfills, walkout basements, and active seismic areas.
11. Consult a local licensed engineer for design of walls that fall outside the scope of the above table.
12. 1 psf = 0.0479 kPa.
13. Governing load case is predominantly wind loading. Factored wind loading applicable by Provinces:

    British Columbia: 35psf
    Alberta: 40 psf
    Saskatchewan: 30psf
    Manitoba: 30psf
    Ontario: 25psf
    Quebec: 45psf
    New Brunswick: 35psf
    Nova Scotia: 35psf
    New Foundland: 55psf
    Prince Edward Island: 35psf
14. Where applicable alternative Helix dosage Tables 2.1-H to 2.5-H may be used in lieu of Logix reinforcement Table 2.

TABLE 2 - LOGIX ABOVE-GRADE WALL MINIMUM VERTICAL REINFORCEMENT

NOTE: LOGIX recommends builders, owners and/or designers using these tables confirm that on-site building conditions are w/in the scope of the tables being used.

LOGIX ABOVE-GRADE WALLS - VERTICAL REINFORCEMENT SPACING, in.

Ground Floor LOGIX Supporting Roof Only

Wall Height, ft	4" LOGIX Wall Thickness						6.25" LOGIX Wall Thickness						8" LOGIX Wall Thickness						10" LOGIX Wall Thickness						12" LOGIX Wall Thickness
	Factored Wind Load, psf						Factored Wind Load, psf						Factored Wind Load, psf						Factored Wind Load, psf						Factored Wind Load, psf
	25	30	35	40	45	55	25	30	35	40	45	55	25	30	35	40	45	55	25	30	35	40	45	55	25 to 55
8	48	48	48	48	40	32	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
9	48	48	40	40	32	24	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
10	48	40	32	32	24	16	48	48	48	48	48	40	48	48	48	48	48	48	48	48	48	48	48	48	48
12	32	24	24	16	16	12	48	48	40	40	32	24	48	48	48	48	48	32	48	48	48	48	48	48	48
14	16	16	12	12	8	8	32	32	32	24	24	16	40	40	40	32	32	24	40	40	40	40	40	32	40
16	12	12	8	6	-	-	24	24	24	16	16	12	24	24	24	24	24	16	24	24	24	24	24	24	32
18	-	-	-	-	-	-	16	16	16	16	12	8	16	16	16	16	16	16	16	16	16	16	16	16	16
20	-	-	-	-	-	-	8	8	8	8	8	8	12	12	12	12	12	12	12	12	12	12	12	12	16

Ground Floor LOGIX Supporting 2nd Storey Wood Frame & Roof Structure

Wall Height, ft	4" LOGIX Wall Thickness						6.25" LOGIX Wall Thickness						8" LOGIX Wall Thickness						10" LOGIX Wall Thickness						12" LOGIX Wall Thickness
	Factored Wind Load, psf						Factored Wind Load, psf						Factored Wind Load, psf						Factored Wind Load, psf						Factored Wind Load, psf
	25	30	35	40	45	55	25	30	35	40	45	55	25	30	35	40	45	55	25	30	35	40	45	55	25 to 55
8	32	32	32	32	32	32	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
9	32	32	32	32	24	24	40	40	40	40	40	40	48	48	48	48	48	48	48	48	48	48	48	48	48
10	32	32	24	24	24	16	40	40	40	40	40	32	40	40	40	40	40	40	48	48	48	48	48	48	48
12	16	16	16	16	12	8	32	32	32	32	32	24	40	40	40	40	40	32	40	40	40	40	40	40	40
14	-	-	-	-	-	-	24	24	24	24	16	16	24	24	24	24	24	24	32	32	32	32	32	32	40
16	-	-	-	-	-	-	16	16	16	16	16	12	16	16	16	16	16	16	24	24	24	24	24	24	24
18	-	-	-	-	-	-	8	8	8	8	8	8	12	12	12	12	12	12	16	16	16	16	16	16	16
20	-	-	-	-	-	-	6	6	6	6	6	6	8	8	8	8	8	8	12	12	12	12	12	12	12

Ground Floor LOGIX Supporting 2nd Storey LOGIX & Roof Structure

Wall Height, ft	4" LOGIX Wall Thickness						6.25" LOGIX Wall Thickness						8" LOGIX Wall Thickness						10" LOGIX Wall Thickness						12" LOGIX Wall Thickness
	Factored Wind Load, psf						Factored Wind Load, psf						Factored Wind Load, psf						Factored Wind Load, psf						Factored Wind Load, psf
	25	30	35	40	45	55	25	30	35	40	45	55	25	30	35	40	45	55	25	30	35	40	45	55	25 to 55
8	24	24	24	24	24	24	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
9	24	24	24	24	24	16	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
10	16	16	16	16	16	16	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
12	-	-	-	-	-	-	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
14	-	-	-	-	-	-	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
16	-	-	-	-	-	-	8	8	8	8	8	8	12	12	12	12	12	12	16	16	16	16	16	16	16
18	-	-	-	-	-	-	6	6	6	6	6	6	8	8	8	8	8	8	8	8	8	8	8	8	8
20	-	-	-	-	-	-	-	-	-	-	-	-	6	6	6	6	6	6	8	8	8	8	8	8	8

NOTES:

1. **Table 2** must be used in conjunction with the notes listed under **"Notes For Above-Grade Wall Table"**.
2. Vertical bar spacing is for 15M rebar. 10M rebar can be substituted provided the spacing is multiplied by 0.5. Spacing shall be no more than 48 inches on center.
3. See **"Notes For Above-Grade Wall Table"** for wind loading applicable by Provinces.
4. 1 psf = 0.0479 kPa, 1" = 25.4 mm, 1 ft = 0.3048 m
5. Where cells show "-" engineering is required.
6. Unless cell is shaded, appropriate alternative Helix dosage **Tables 2.1-H to 2.5-H** may be used for Logix 4" to 10", respectively in lieu of **Table 2**.

TABLE 2.1-H - LOGIX 4" RESIDENTIAL ABOVE-GRADE WALL, HELIX 5-25 ALTERNATIVE REINFORCEMENT

Ground Floor LOGIX Supporting Roof Only

Wall Height, ft	Factored Wind Load, psf					
	25	30	35	40	45	55
8	12 lb/yd³	12 lb/yd³	12 lb/yd³	12 lb/yd³	13.5 lb/yd³	16 lb/yd³
9	12 lb/yd³	12 lb/yd³	13.5 lb/yd³	13.5 lb/yd³	16 lb/yd³	21 lb/yd³
10	12 lb/yd³	13.5 lb/yd³	16 lb/yd³	16 lb/yd³	21 lb/yd³	30 lb/yd³
12	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	30 lb/yd³ + 10M @ 18"	30 lb/yd³ + 10M @ 18"	30 lb/yd³ + 15M @ 18"
14	30 lb/yd³ + 10M @ 18"	30 lb/yd³ + 10M @ 18"	30 lb/yd³ + 15M @ 18"	30 lb/yd³ + 15M @ 18"	30 lb/yd³ + 15M @ 12"	30 lb/yd³ + 15M @ 12"
16	30 lb/yd³ + 15M @ 18"	30 lb/yd³ + 15M @ 18"	30 lb/yd³ + 15M @ 12"	22.5 lb/yd³ + 15M @ 8"	-	-
18	22.5 lb/yd³ + 15M @ 8"	22.5 lb/yd³ + 15M @ 8"	-	-	-	-
20	-	-	-	-	-	-

Ground Floor LOGIX Supporting 2nd Storey Wood Frame & Roof Structure

Wall Height, ft	Factored Wind Load, psf					
	25	30	35	40	45	55
8	13.5 lb/yd³	13.5 lb/yd³	13.5 lb/yd³	13.5 lb/yd³	13.5 lb/yd³	16 lb/yd³
9	16 lb/yd³	16 lb/yd³	16 lb/yd³	16 lb/yd³	16 lb/yd³	21 lb/yd³
10	16 lb/yd³	16 lb/yd³	16 lb/yd³	21 lb/yd³	21 lb/yd³	30 lb/yd³
12	30 lb/yd³ + 10M @ 18"	30 lb/yd³ + 10M @ 18"	30 lb/yd³ + 10M @ 18"	30 lb/yd³ + 10M @ 18"	30 lb/yd³ + 15M @ 18"	30 lb/yd³ + 15M @ 12"
14	30 lb/yd³ + 15M @ 12"	30 lb/yd³ + 15M @ 12"	30 lb/yd³ + 15M @ 12"	30 lb/yd³ + 15M @ 12"	22.5 lb/yd³ + 15M @ 8"	-
16	-	-	-	-	-	-
18	-	-	-	-	-	-
20	-	-	-	-	-	-

Ground Floor LOGIX Supporting 2nd Storey LOGIX & Roof Structure

Wall Height, ft	Factored Wind Load, psf					
	25	30	35	40	45	55
8	21 lb/yd³	21 lb/yd³	21 lb/yd³	21 lb/yd³	21 lb/yd³	21 lb/yd³
9	21 lb/yd³	21 lb/yd³	21 lb/yd³	21 lb/yd³	21 lb/yd³	30 lb/yd³
10	21 lb/yd³	21 lb/yd³	21 lb/yd³	30 lb/yd³	30 lb/yd³	30 lb/yd³
12	30 lb/yd³ + 15M @ 18"	30 lb/yd³ + 15M @ 18"	30 lb/yd³ + 15M @ 18"	30 lb/yd³ + 15M @ 18"	30 lb/yd³ + 15M @ 12"	30 lb/yd³ + 15M @ 12"
14	-	-	-	-	-	-
16	-	-	-	-	-	-
18	-	-	-	-	-	-
20	-	-	-	-	-	-

Notes:

1. Design and installation of Helix 5-25 Micro-Rebar reinforced concrete must be in accordance with Uniform Evaluation Service, ER-279.
2. Designs given in the unshaded rows of the above table are Helix Design Class B, and walls must conform to all restrictions of Section 4.3.6 of ER-279.
3. Designs given in the shaded rows of the above table are Helix Design Class C, and walls must conform to all restrictions of Section 4.3.5 or Section 4.3.6 of ER-279 except for the minimum wall thickness requirement. In addition, Helix Design Class C must meet the requirements of Section 5.6 of ER-279.
4. Designs given in the shaded rows are not allowed in Seismic Design Categories C, D, E or F.
5. Table shall be read in conjunction with **Fig 3A, Fig 3B, Fig 3C**, and section "NOTES FOR ABOVE-GRADE WALL TABLES."
6. Table shall be used for residential construction only. Additional tables provide designs for commercial construction.
7. Dowels shall be used at connection of wall to footing; the use of a keyway with this table is prohibited.
8. Conventional reinforcement (as required) to be placed at mid-depth of the concrete wall.
9. Conventional rebar yield strength = 400 MPa, 28 day concrete compressive strength = 20.7 MPa (3000 psi) for Helix Design Class B and 27.6 MPa (4000 psi) for Helix Design Class C.
10. Walls must be laterally supported at top and bottom of wall.
11. The listed Helix 5-25 dosage rate is adequate to replace the required horizontal 10M bars at 32 inches.
12. Where spaces have been left blank, the Helix design is outside the scope of this table. Contact Helix Steel to determine proper design.
13. For more information contact your local Logix rep.

TABLE 2.2-H - LOGIX 4" COMMERCIAL ABOVE-GRADE WALL, HELIX 5-25 ALTERNATIVE REINFORCEMENT

Ground Floor LOGIX Supporting Roof Only

Wall Height, ft	Factored Wind Load, psf					
	25	30	35	40	45	55
8	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"
9	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"
10	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	30 lb/yd³ + 10M @ 18"
12	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	30 lb/yd³ + 10M @ 18"	30 lb/yd³ + 10M @ 18"	30 lb/yd³ + 15M @ 18"
14	30 lb/yd³ + 10M @ 18"	30 lb/yd³ + 10M @ 18"	30 lb/yd³ + 15M @ 18"	30 lb/yd³ + 15M @ 18"	30 lb/yd³ + 15M @ 12"	30 lb/yd³ + 15M @ 12"
16	30 lb/yd³ + 15M @ 18"	30 lb/yd³ + 15M @ 18"	30 lb/yd³ + 15M @ 12"	22.5 lb/yd³ + 15M @ 8"	-	-
18	22.5 lb/yd³ + 15M @ 8"	22.5 lb/yd³ + 15M @ 8"	-	-	-	-
20	-	-	-	-	-	-

Ground Floor LOGIX Supporting 2nd Storey Wood Frame & Roof Structure

Wall Height, ft	Factored Wind Load, psf					
	25	30	35	40	45	55
8	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"
9	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"
10	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	30 lb/yd³ + 10M @ 18"
12	30 lb/yd³ + 10M @ 18"	30 lb/yd³ + 10M @ 18"	30 lb/yd³ + 10M @ 18"	30 lb/yd³ + 10M @ 18"	30 lb/yd³ + 15M @ 18"	30 lb/yd³ + 15M @ 12"
14	30 lb/yd³ + 15M @ 12"	30 lb/yd³ + 15M @ 12"	30 lb/yd³ + 15M @ 12"	30 lb/yd³ + 15M @ 12"	22.5 lb/yd³ + 15M @ 8"	-
16	-	-	-	-	-	-
18	-	-	-	-	-	-
20	-	-	-	-	-	-

Ground Floor LOGIX Supporting 2nd Storey LOGIX & Roof Structure

Wall Height, ft	Factored Wind Load, psf					
	25	30	35	40	45	55
8	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"
9	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	30 lb/yd³ + 10M @ 18"
10	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	15 lb/yd³ + 10M @ 18"	30 lb/yd³ + 10M @ 18"	30 lb/yd³ + 10M @ 18"	30 lb/yd³ + 10M @ 18"
12	30 lb/yd³ + 15M @ 18"	30 lb/yd³ + 15M @ 18"	30 lb/yd³ + 15M @ 18"	30 lb/yd³ + 15M @ 18"	30 lb/yd³ + 15M @ 12"	30 lb/yd³ + 15M @ 12"
14	-	-	-	-	-	-
16	-	-	-	-	-	-
18	-	-	-	-	-	-
20	-	-	-	-	-	-

Notes:

1. Design and installation of Helix 5-25 Micro-Rebar reinforced concrete must be in accordance with Uniform Evaluation Service, ER-279.
2. Designs given in the above table are Helix Design Class C, and walls must conform to all restrictions of Section 4.3.5 of ER-279 except for the minimum wall thickness requirement. In addition, Helix Design Class C must meet the requirements of Section 5.6 of ER-279.
3. Helix designs are not allowed in Seismic Design Categories C, D, E or F.
4. Table shall be read in conjunction with **Fig 3A, Fig 3B, Fig 3C**, and section "NOTES FOR ABOVE-GRADE WALL TABLES."
5. Conventional reinforcement (as required) to be placed at mid-depth of the concrete wall.
6. Conventional rebar yield strength = 400 MPa, 28 day concrete compressive strength = 27.6 MPa (4000 psi) for Helix Design Class C.
7. Walls must be laterally supported at top and bottom of wall.
8. The listed Helix 5-25 dosage rate is adequate to replace the required horizontal 10M bars at 32 inches.
9. Where spaces have been left blank, the Helix design is outside the scope of this table. Contact Helix Steel to determine proper design.
10. For more information contact your local Logix rep.

TABLE 2.3-H - LOGIX 6.25" COMMERCIAL ABOVE-GRADE WALL, HELIX 5-25 ALTERNATIVE REINFORCEMENT

Ground Floor LOGIX Supporting Roof Only

Wall Height, ft	Factored Wind Load, psf					
	25	30	35	40	45	55
8	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³
9	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³
10	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³
12	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	11 lb/yd³	14 lb/yd³
14	15 lb/yd³ + 10M @ 14"	15 lb/yd³ + 10M @ 14"	15 lb/yd³ + 10M @ 14"	15 lb/yd³ + 10M @ 14"	15 lb/yd³ + 10M @ 14"	15 lb/yd³ + 15M @ 24"
16	15 lb/yd³ + 10M @ 14"	15 lb/yd³ + 10M @ 14"	15 lb/yd³ + 10M @ 14"	15 lb/yd³ + 15M @ 24"	15 lb/yd³ + 15M @ 24"	30 lb/yd³ + 15M @ 24"
18	15 lb/yd³ + 15M @ 24"	15 lb/yd³ + 15M @ 24"	15 lb/yd³ + 15M @ 24"	15 lb/yd³ + 15M @ 24"	30 lb/yd³ + 15M @ 24"	22.5 lb/yd³ + 15M @ 12"
20	22.5 lb/yd³ + 15M @ 12"	22.5 lb/yd³ + 15M @ 12"	22.5 lb/yd³ + 15M @ 12"	22.5 lb/yd³ + 15M @ 12"	22.5 lb/yd³ + 15M @ 12"	22.5 lb/yd³ + 15M @ 12"

Ground Floor LOGIX Supporting 2nd Storey Wood Frame & Roof Structure

Wall Height, ft	Factored Wind Load, psf					
	25	30	35	40	45	55
8	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³
9	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³
10	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³
12	11 lb/yd³	11 lb/yd³	11 lb/yd³	11 lb/yd³	11 lb/yd³	14 lb/yd³
14	15 lb/yd³ + 10M @ 14"	15 lb/yd³ + 10M @ 14"	15 lb/yd³ + 10M @ 14"	15 lb/yd³ + 10M @ 14"	15 lb/yd³ + 15M @ 24"	15 lb/yd³ + 15M @ 24"
16	15 lb/yd³ + 15M @ 24"	15 lb/yd³ + 15M @ 24"	15 lb/yd³ + 15M @ 24"	15 lb/yd³ + 15M @ 24"	15 lb/yd³ + 15M @ 24"	30 lb/yd³ + 15M @ 24"
18	22.5 lb/yd³ + 15M @ 12"	22.5 lb/yd³ + 15M @ 12"	22.5 lb/yd³ + 15M @ 12"	22.5 lb/yd³ + 15M @ 12"	22.5 lb/yd³ + 15M @ 12"	22.5 lb/yd³ + 15M @ 12"
20	22.5 lb/yd³ + 15M @ 8"	22.5 lb/yd³ + 15M @ 8"	22.5 lb/yd³ + 15M @ 8"	22.5 lb/yd³ + 15M @ 8"	22.5 lb/yd³ + 15M @ 8"	22.5 lb/yd³ + 15M @ 8"

Ground Floor LOGIX Supporting 2nd Storey LOGIX & Roof Structure

Wall Height, ft	Factored Wind Load, psf					
	25	30	35	40	45	55
8	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³
9	11 lb/yd³	11 lb/yd³	11 lb/yd³	11 lb/yd³	11 lb/yd³	11 lb/yd³
10	11 lb/yd³	11 lb/yd³	11 lb/yd³	11 lb/yd³	11 lb/yd³	11 lb/yd³
12	14 lb/yd³	14 lb/yd³	14 lb/yd³	14 lb/yd³	14 lb/yd³	14 lb/yd³
14	15 lb/yd³ + 15M @ 24"	15 lb/yd³ + 15M @ 24"	15 lb/yd³ + 15M @ 24"	15 lb/yd³ + 15M @ 24"	15 lb/yd³ + 15M @ 24"	15 lb/yd³ + 15M @ 24"
16	22.5 lb/yd³ + 15M @ 12"	22.5 lb/yd³ + 15M @ 12"	22.5 lb/yd³ + 15M @ 12"	22.5 lb/yd³ + 15M @ 12"	22.5 lb/yd³ + 15M @ 12"	22.5 lb/yd³ + 15M @ 12"
18	22.5 lb/yd³ + 15M @ 8"	22.5 lb/yd³ + 15M @ 8"	22.5 lb/yd³ + 15M @ 8"	22.5 lb/yd³ + 15M @ 8"	22.5 lb/yd³ + 15M @ 8"	22.5 lb/yd³ + 15M @ 8"
20	-	-	-	-	-	-

Notes:

1. Design and installation of Helix 5-25 Micro-Rebar reinforced concrete must be in accordance with Uniform Evaluation Service, ER-279.
2. Designs given in the unshaded rows of the above table are Helix Design Class B, and walls must conform to all restrictions of Section 4.3.5 or Section 4.3.6 of ER-279.
3. Designs given in the shaded rows of the above table are Helix Design Class C, and walls must conform to all restrictions of Section 4.3.5 or Section 4.3.6 of ER-279 except for the minimum wall thickness requirement. In addition, Helix Design Class C must meet the requirements of Section 5.6 of ER-279.
4. Designs given in the shaded rows are not allowed in Seismic Design Categories C, D, E or F.
5. Table shall be read in conjunction with **Fig 3A, Fig 3B, Fig 3C**, and section "NOTES FOR ABOVE-GRADE WALL TABLES."
6. Conventional reinforcement (as required) to be placed at mid-depth of the concrete wall.
7. Conventional rebar yield strength = 400 MPa, 28 day concrete compressive strength = 20.7 MPa (3000 psi) for Helix Design Class B and 27.6 MPa (4000 psi) for Helix Design Class C.
8. Walls must be laterally supported at top and bottom of wall.
9. The listed Helix 5-25 dosage rate is adequate to replace the required horizontal 10M bars at 32 inches.
10. Where spaces have been left blank, the Helix design is outside the scope of this table. Contact Helix Steel to determine proper design.
11. For more information contact your local Logix rep.

TABLE 2.4-H - LOGIX 8" COMMERCIAL ABOVE-GRADE WALL, HELIX 5-25 ALTERNATIVE REINFORCEMENT

Ground Floor LOGIX Supporting Roof Only

Wall Height, ft	Factored Wind Load, psf					
	25	30	35	40	45	55
8	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³
9	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³
10	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³
12	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³
14	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	12 lb/yd³
16	12 lb/yd³	12 lb/yd³	12 lb/yd³	12 lb/yd³	12 lb/yd³	16 lb/yd³
18	15 lb/yd³ + 15M @ 22"	15 lb/yd³ + 15M @ 22"	15 lb/yd³ + 15M @ 22"	15 lb/yd³ + 15M @ 22"	15 lb/yd³ + 15M @ 22"	15 lb/yd³ + 15M @ 22"
20	15 lb/yd³ + 15M @ 18"	15 lb/yd³ + 15M @ 18"	15 lb/yd³ + 15M @ 18"	15 lb/yd³ + 15M @ 18"	15 lb/yd³ + 15M @ 18"	15 lb/yd³ + 15M @ 18"

Ground Floor LOGIX Supporting 2nd Storey Wood Frame & Roof Structure

Wall Height, ft	Factored Wind Load, psf					
	25	30	35	40	45	55
8	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³
9	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³
10	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³
12	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³
14	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	12 lb/yd³
16	16 lb/yd³	16 lb/yd³	16 lb/yd³	16 lb/yd³	16 lb/yd³	16 lb/yd³
18	15 lb/yd³ + 15M @ 18"	15 lb/yd³ + 15M @ 18"	15 lb/yd³ + 15M @ 18"	15 lb/yd³ + 15M @ 18"	15 lb/yd³ + 15M @ 18"	15 lb/yd³ + 15M @ 18"
20	30 lb/yd³ + 15M @ 18"	30 lb/yd³ + 15M @ 18"	30 lb/yd³ + 15M @ 18"	30 lb/yd³ + 15M @ 18"	30 lb/yd³ + 15M @ 18"	30 lb/yd³ + 15M @ 18"

Ground Floor LOGIX Supporting 2nd Storey LOGIX & Roof Structure

Wall Height, ft	Factored Wind Load, psf					
	25	30	35	40	45	55
8	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³
9	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³
10	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³
12	12 lb/yd³	12 lb/yd³	12 lb/yd³	12 lb/yd³	12 lb/yd³	12 lb/yd³
14	16 lb/yd³	16 lb/yd³	16 lb/yd³	16 lb/yd³	16 lb/yd³	16 lb/yd³
16	21 lb/yd³	21 lb/yd³	21 lb/yd³	21 lb/yd³	21 lb/yd³	21 lb/yd³
18	30 lb/yd³ + 15M @ 18"	30 lb/yd³ + 15M @ 18"	30 lb/yd³ + 15M @ 18"	30 lb/yd³ + 15M @ 18"	30 lb/yd³ + 15M @ 18"	30 lb/yd³ + 15M @ 18"
20	30 lb/yd³ + 15M @ 10"	30 lb/yd³ + 15M @ 10"	30 lb/yd³ + 15M @ 10"	30 lb/yd³ + 15M @ 10"	30 lb/yd³ + 15M @ 10"	30 lb/yd³ + 15M @ 10"

Notes:

1. Design and installation of Helix 5-25 Micro-Rebar reinforced concrete must be in accordance with Uniform Evaluation Service, ER-279.
2. Designs given in the unshaded rows of the above table are Helix Design Class B, and walls must conform to all restrictions of Section 4.3.5 or Section 4.3.6 of ER-279.
3. Designs given in the shaded rows of the above table are Helix Design Class C, and walls must conform to all restrictions of Section 4.3.5 or Section 4.3.6 of ER-279 except for the minimum wall thickness requirement. In addition, Helix Design Class C must meet the requirements of Section 5.6 of ER-279.
4. Designs given in the shaded rows are not allowed in Seismic Design Categories C, D, E or F.
5. Table shall be read in conjunction with **Fig 3A, Fig 3B, Fig 3C**, and section "NOTES FOR ABOVE-GRADE WALL TABLES."
6. Conventional reinforcement (as required) to be placed at mid-depth of the concrete wall.
7. Conventional rebar yield strength = 400 MPa, 28 day concrete compressive strength = 20.7 MPa (3000 psi) for Helix Design Class B and 27.6 MPa (4000 psi) for Helix Design Class C.
8. Walls must be laterally supported at top and bottom of wall.
9. The listed Helix 5-25 dosage rate is adequate to replace the required horizontal 10M bars at 16 inches.
10. For more information contact your local Logix rep.

TABLE 2.5-H - LOGIX 10" COMMERCIAL ABOVE-GRADE WALL, HELIX 5-25 ALTERNATIVE REINFORCEMENT

Ground Floor LOGIX Supporting Roof Only						
Wall Height, ft	Factored Wind Load, psf					
	25	30	35	40	45	55
8	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³
9	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³
10	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³
12	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³
14	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³
16	10 lb/yd³	10 lb/yd³	10 lb/yd³	10 lb/yd³	10 lb/yd³	10 lb/yd³
18	13.5 lb/yd³	13.5 lb/yd³	13.5 lb/yd³	13.5 lb/yd³	13.5 lb/yd³	13.5 lb/yd³
20	17 lb/yd³	17 lb/yd³	17 lb/yd³	17 lb/yd³	17 lb/yd³	17 lb/yd³

Ground Floor LOGIX Supporting 2nd Storey Wood Frame & Roof Structure						
Wall Height, ft	Factored Wind Load, psf					
	25	30	35	40	45	55
8	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³
9	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³
10	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³
12	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³
14	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³
16	10 lb/yd³	10 lb/yd³	10 lb/yd³	10 lb/yd³	10 lb/yd³	10 lb/yd³
18	13.5 lb/yd³	13.5 lb/yd³	13.5 lb/yd³	13.5 lb/yd³	13.5 lb/yd³	13.5 lb/yd³
20	17 lb/yd³	17 lb/yd³	17 lb/yd³	17 lb/yd³	17 lb/yd³	17 lb/yd³

Ground Floor LOGIX Supporting 2nd Storey LOGIX & Roof Structure						
Wall Height, ft	Factored Wind Load, psf					
	25	30	35	40	45	55
8	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³
9	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³
10	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³
12	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³	9 lb/yd³
14	13.5 lb/yd³	13.5 lb/yd³	13.5 lb/yd³	13.5 lb/yd³	13.5 lb/yd³	13.5 lb/yd³
16	13.5 lb/yd³	13.5 lb/yd³	13.5 lb/yd³	13.5 lb/yd³	13.5 lb/yd³	13.5 lb/yd³
18	17 lb/yd³	17 lb/yd³	17 lb/yd³	17 lb/yd³	17 lb/yd³	17 lb/yd³
20	25 lb/yd³	25 lb/yd³	25 lb/yd³	25 lb/yd³	25 lb/yd³	25 lb/yd³

Notes:

1. Design and installation of Helix 5-25 Micro-Rebar reinforced concrete must be in accordance with Uniform Evaluation Service, ER-279.
2. Designs given in the above table are Helix Design Class B, and walls must conform to all restrictions of Section 4.3.5 or Section 4.3.6 of ER-279.
3. Table shall be read in conjunction with **Fig 3A, Fig 3B, Fig 3C**, and section "NOTES FOR ABOVE-GRADE WALL TABLES."
4. Conventional reinforcement (as required) to be placed at mid-depth of the concrete wall.
5. Conventional rebar yield strength = 400 MPa, 28 day concrete compressive strength = 20.7 MPa (3000 psi) for Helix Design Class B.
6. Walls must be laterally supported at top and bottom of wall.
7. The listed Helix 5-25 dosage rate is adequate to replace the required horizontal 10M bars at 16 inches.
8. For more information contact your local Logix rep.

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