Homelifts
BY CAMBRIDGE ELEVATING

Homelifts Design Guide



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Homelift Site Preparation Guide

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Introduction

This site preparation guide assists builders & contractors in planning for a Homelift (home elevator) installation that meets the requirements of ASME A17.1 Part V/CSA B44-16.

Please note that due to product enhancements and continually evolving codes, the information in this guide is subject to change without notice.

Special consideration has been given to the location, dimensions and available options for controls allowing for safe and unaided use by persons with impaired mobility whether ambulant or in a wheelchair. Controls are provided in the lift car and at both floors making both unattended and attended use possible.

Planning for a Homelift

The following planning procedure is strongly recommended:

1. Determine the customer's intended use.

2. Determine the customer's desired location for install + scope of renovation.

3. Determine if home's existing power supply meets electrical requirements.

4. Determine the customer's desired convenience level with respect to model type:
   - 750 - single person seated, or two persons standing
   - 1250 - wheelchair user configuration

5. Determine local, provincial and national code requirements of site. Obtain required permits (Building & Electrical).

6. Confirm adequacy of existing framing for the required modifications and loading identified on pages 15 and 16.

7. Use page 6 to determine required usable area for Homelift.

8. Use page 7 to determine required minimum ceiling height & clearances. If minimum height is not available, do not modify ceiling structure without further review by engineer.

9. Use aperture examples on pages 9 & 10 to plan for aperture construction.

10. Use page 17 to determine where to route electrical.

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Technical Specification Summary

Drive System	**Winding Drum**
Application	Private use by ambulantory users
Lift Safe Working Load	507 lbs (230 kg)
Trapdoor Safe Working Load	507 lbs (230 kg)
Cabin Head Height	6' 2 $^{13}/_{16}$"(1900mm)
750 Platform (w)x(l)	2' 9 $^{7}/_{16}$" (850mm) x 2' 5 $^{1}/_{2}$" (750mm)
750 Footprint (w)x(l)	3' 7 $^{1}/_{4}$" (1098mm) x 3' 7 $^{1}/_{4}$" (1098mm)
1250 Platform (w)x(l)	2' 9 $^{7}/_{16}$" (850mm) x 4' 1 $^{3}/_{16}$" (1250mm)
1250 Footprint (w)x(l)	3' 7 $^{1}/_{4}$" (1098mm) x 5' 2 $^{15}/_{16}$" (1598mm)
Maximum Travel	13' 8 $^{3}/_{8}$" (4.175m)
Rated Speed [fast motor]	16 fpm (0.08m/s)
Noise dB (1m/5m)	55 / 50
Power Supply	Single phase 120V 60Hz
Electrical Requirements	Dedicated 20-amp circuit with 20-amp electrical outlet
Low voltage operating system	24VDC Battery driven – do not disconnect from mains for extended periods
Motor Size	AMPs3.2 (110V 0.75kW)
Duty Cycle	10 cycles/hour
Safety	Sensitive cap, bottom tray & Trapdoor. Overspeed & brake.
Lifting Mechanism	Rope suspension system
Design & Manufacturing Standard	Machinery Directive 2006/42/EC BS 5900:2012
750 - Cabin & Drive Kit and Aperture Kit	W.1.3m x L1.2m x H2.25m 600 kg
Rail Kit (4m)	W0.25m x L4.2m x H0.25m 110 kg
1250 - Cabin & Drive Kit and Aperture Kit	W.1.4m x L1.5m x H2.25m 700kg
Rail Kit (4m)	W0.25m x L4.2m x H0.25m 110 kg

Handing of Lift



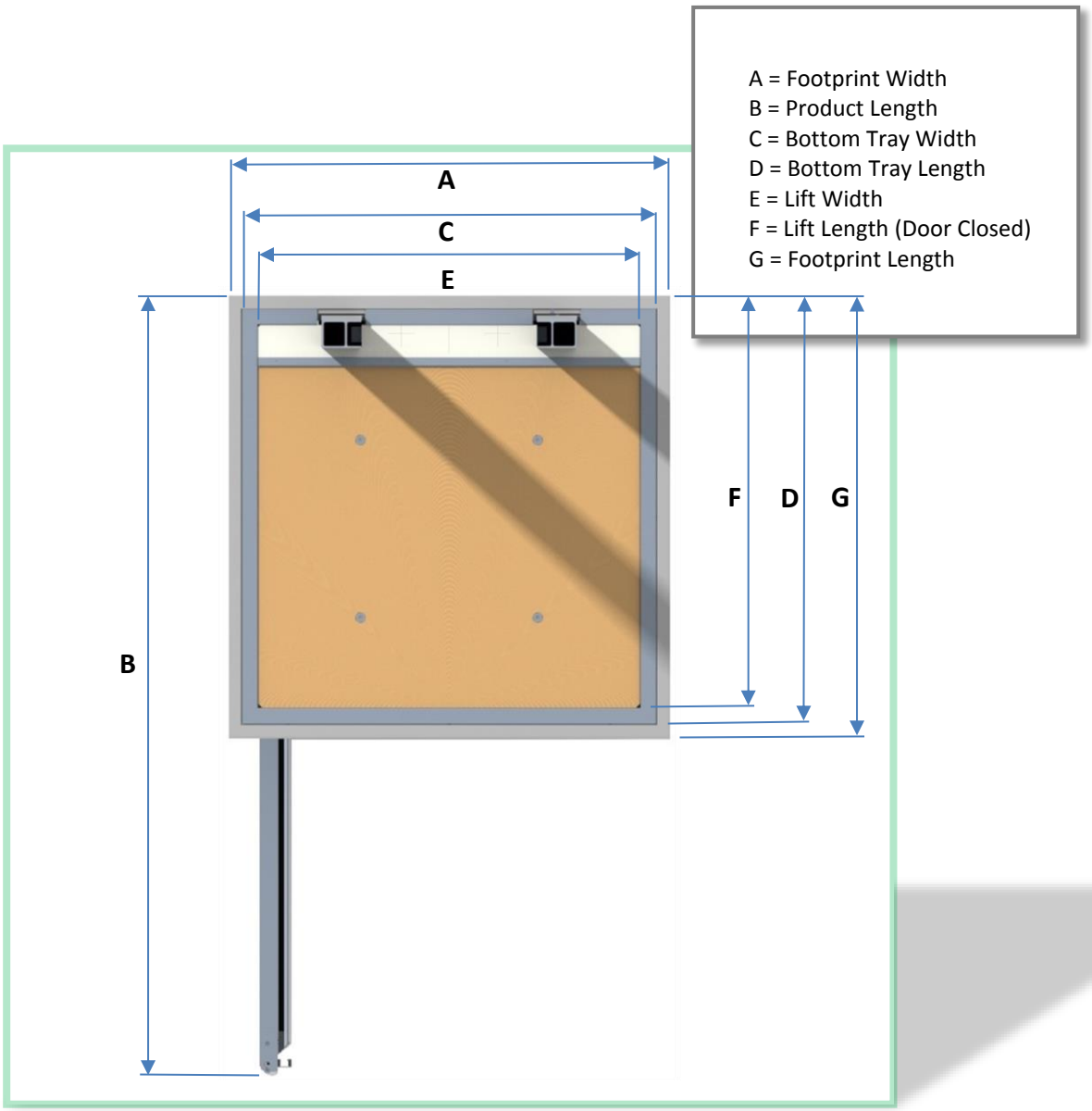
Left Hand



Right Hand

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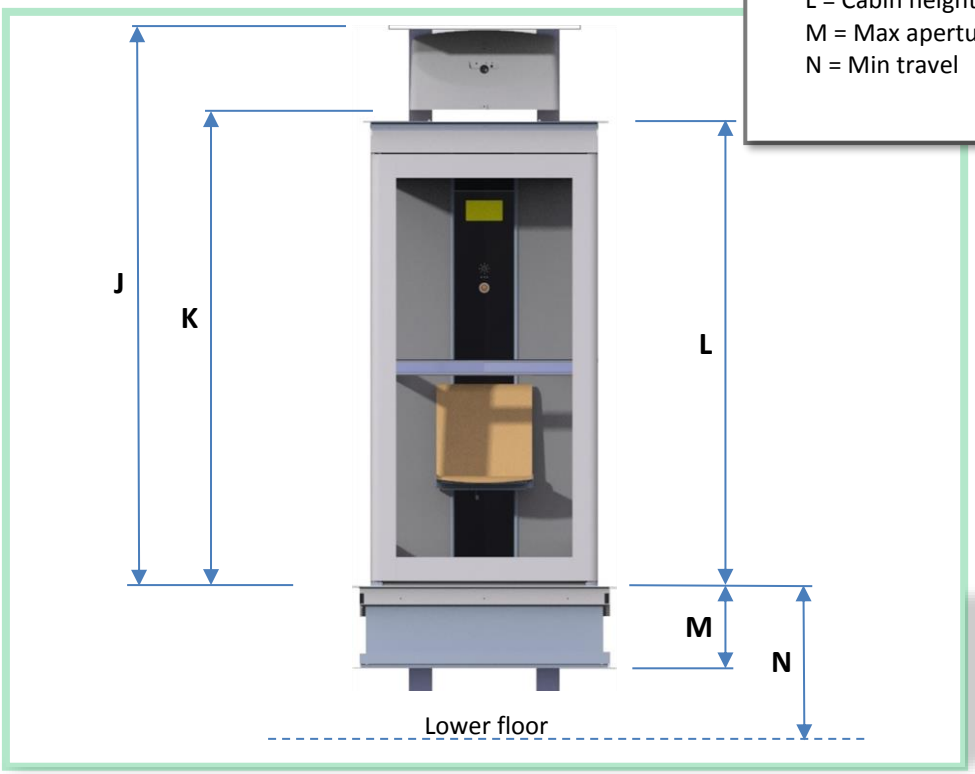
Layout Dimensions



	Dimension >	A	B	C	D	E	F	G
Model	**Lift**							
750	2' 9 7/16" x 2' 5 1/2" (Usable Area)	3' 7 1/4" (1098mm)	6' 3 7/8" (1928mm)	3' 4 1/2" (1028mm)	3' 5 7/8" (1063mm)	3' 1 3/8" (950mm)	3' 4 3/8" (1025mm)	3' 7 1/4" (1098mm)
1250	2' 9 7/16" x 4' 1 3/16" (Usable Area)	3' 7 1/4" (1098mm)	7' 11 9/16" (2428mm)	3' 4 1/2" (1028mm)	5' 1 9/16" (1563mm)	3' 1 3/8" (950mm)	5' 1/16" (1525mm)	5' 2 15/16" (1598mm)

Elevations

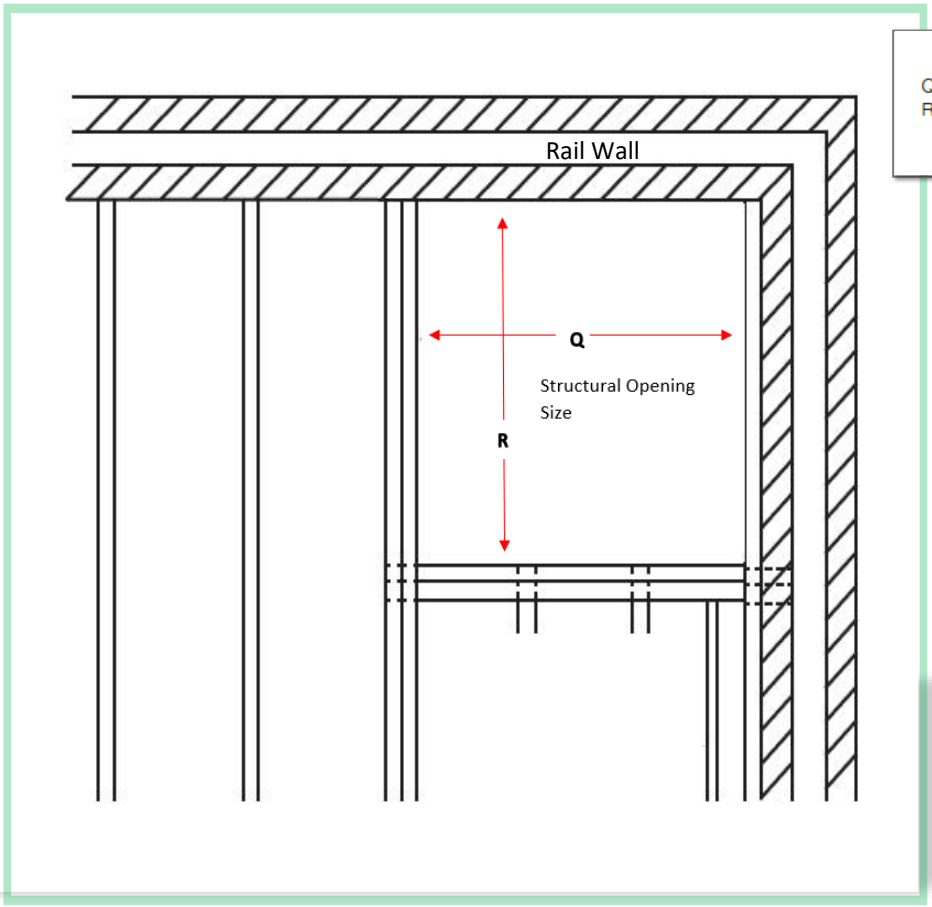
J = Min upper ceiling height
K = Clearance under mount
L = Cabin height + trap
M = Max aperture depth
N = Min travel



Dimension >	J	K	L	M	N_{min}	N_{max}
L						
Traction - 1.9 m cabin	7' 9 7/8" (2385mm)	6' 9 15/16" (2082mm)	6'9" (2057mm)	1' 5 11/16" (450mm)	6' 10 11/16" (2100mm)	13' 9 3/8" (4200mm)

NOTE: If minimum height is not available, do not modify ceiling structure without further review by engineer.

Aperture Size



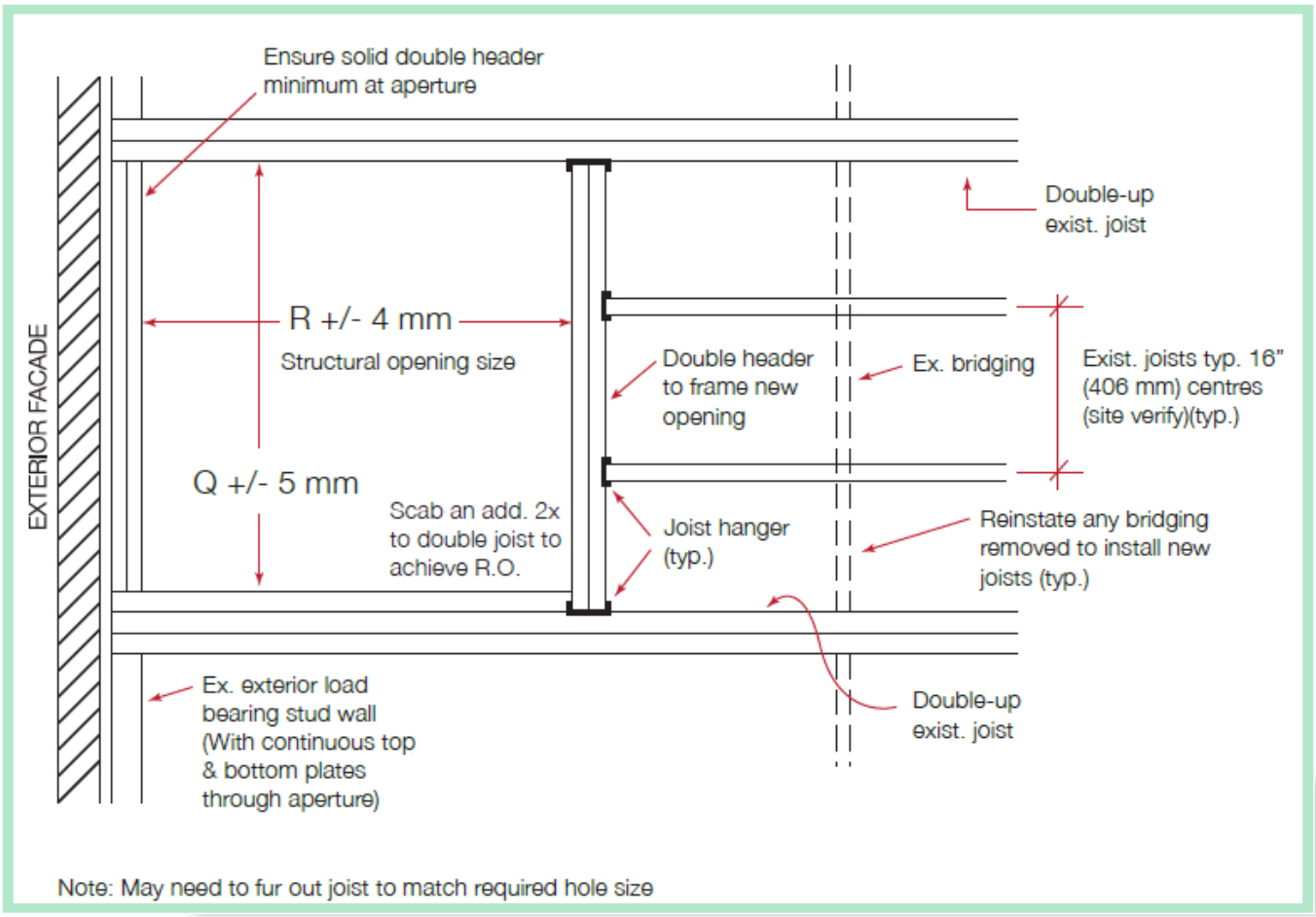
Aperture cannot be undersized, but can be oversized by a maximum of 10mm or 3/8 inch

Models	Q	R	Dimension >
750	3' 5 13/16" (1062mm)	3' 6 11/16" (1085mm)	2' 9 7/16" x 2' 5 1/2" (850mm x 750mm)
1250	3' 5 13/16" (1062mm)	5' 2 3/8" (1585mm)	2' 9 7/16" x 4' 1 3/16" (850mm x 1250mm)

Note: Aperture build must be square and completely flush so as to not interfere with the installation of ring beam. Use 1/4" or 1/2" plywood on all four sides if needed to hide joist hangers. Real lumber and plywood to be used for aperture build. Pressboard or MDF not acceptable.

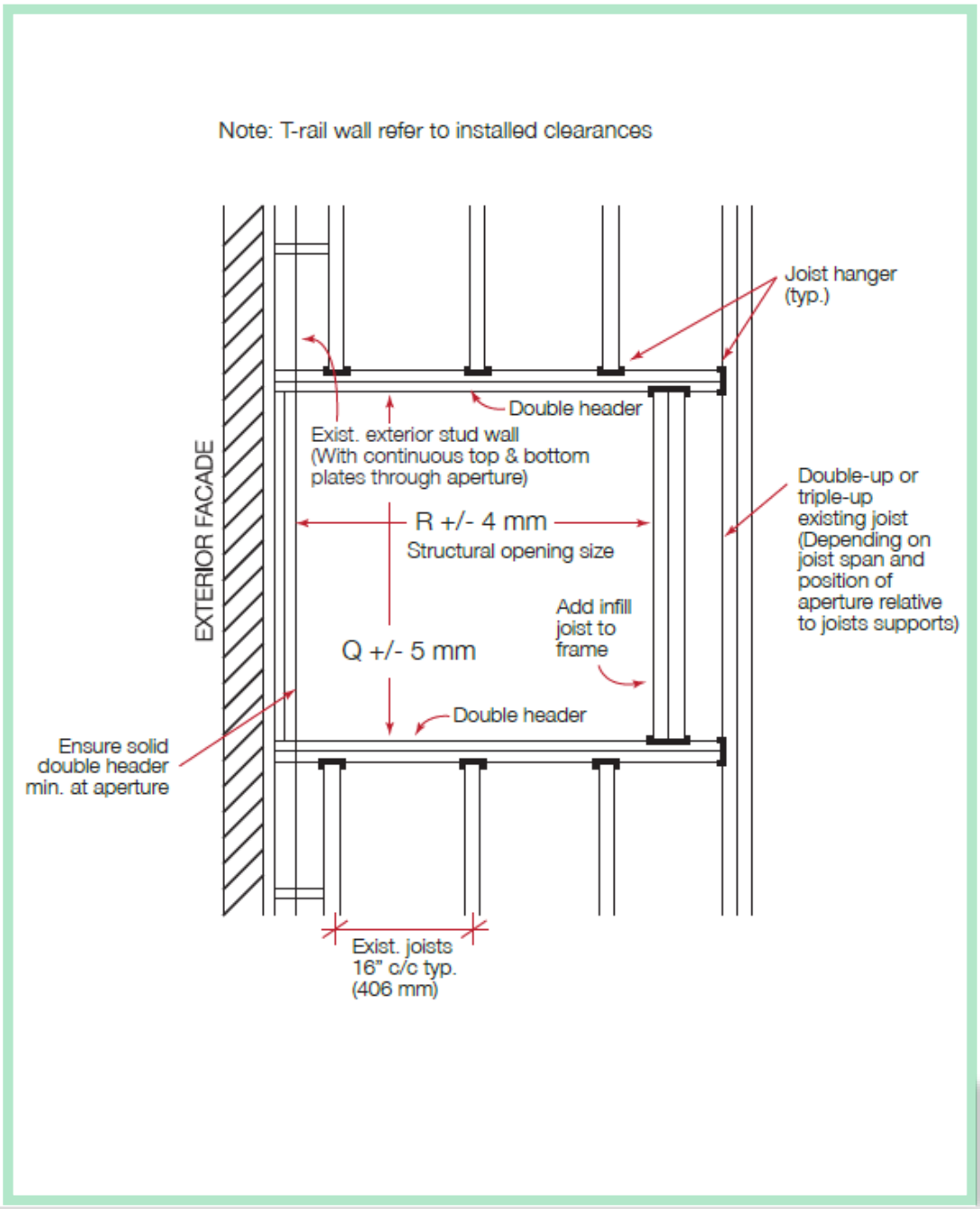
Aperture Examples:

Joists Running Side to Side



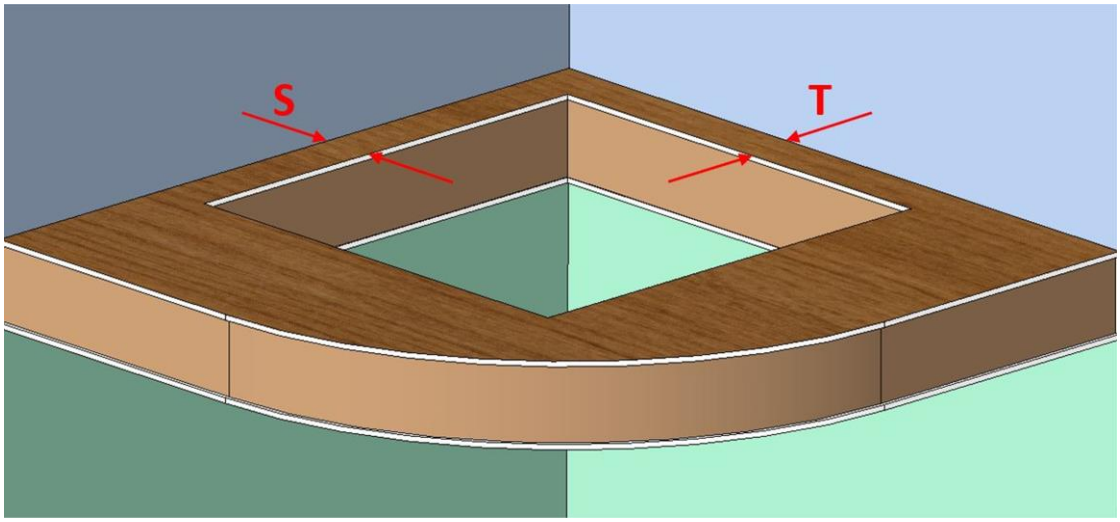
Aperture Examples:

Joists Running Front to Back



Aperture Positions & Clearances

S = Min clearance to side wall
T = Min clearance to rail wall



Dimension >	S	T
Lift		
Traction	1 1/4" (32mm)	1" (25mm)

NOTES:

- S dim not applicable if no side wall is present
- Clearances are from finished wall/drywall
- Wall clearances do not apply to enclosed shaft, closet applications. If you wish to enclose Homelift or install in a closet, please provide architectural drawings and confirm required wall clearances with Cambridge Elevating prior to build.

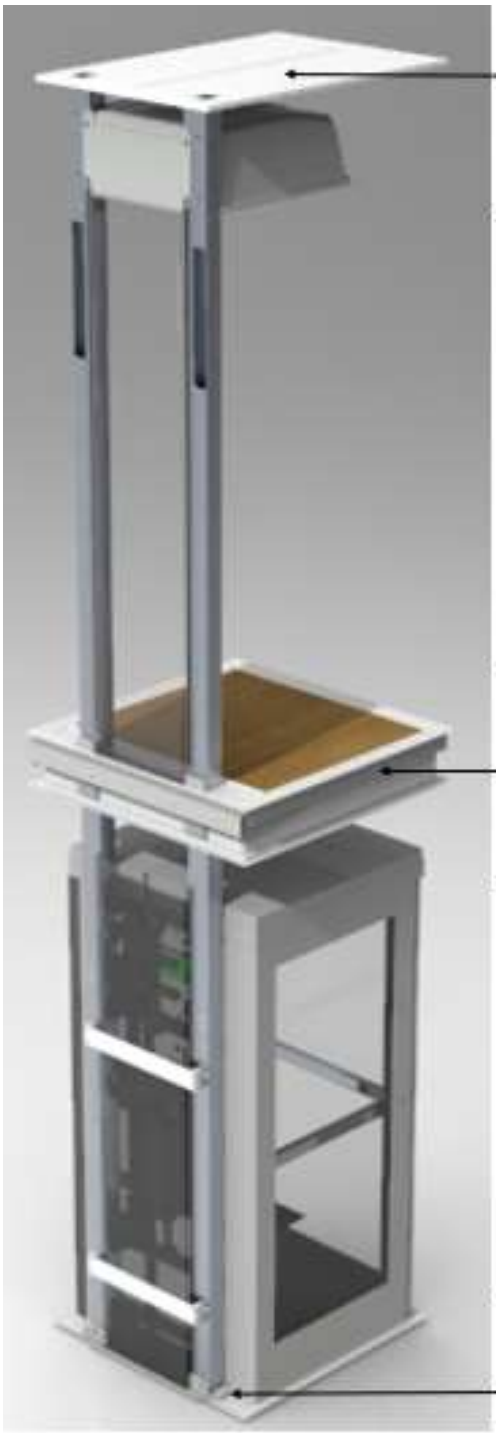
Trapdoor Flooring Details

Lift Size/ Type	Trapdoor Type	Max Thickness	Max Weight
2' 9 7/16" x 2' 5 1/2" (850mm x 750mm)	MDF	1/4" (6mm)	11lbs (5kg)
2' 9 7/16" x 4' 1 3/16" (850mm x 1250mm)	MDF	1/4" (6mm)	11lbs (5kg)

NOTE: Trapdoor flooring to be installed by contractor

Structural Fixing: Ceiling

NOTE:
If minimum height is not available, do not modify ceiling structure without further review by engeineer.



MDF Spreader board fixed to upper ceiling joists using atleast 12-off equi-spaced #8 wood screws in to solid wood joists/ blocking.

Provide solid blocking within ceiling framing for positive securement of spreader board.

Spreader Board
= 47 1/4" x 31 1/2"
(1200mm (l) x 800m (w)

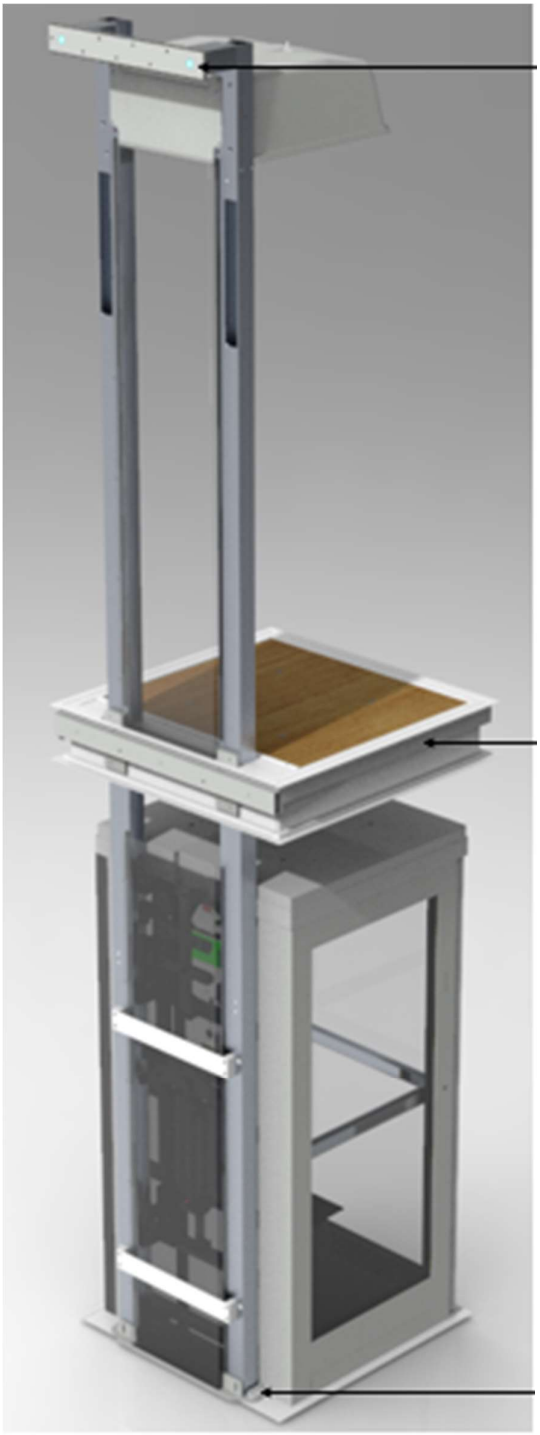
Steel ring beam fixed into midfloor aperture joists using 4- 3/8" x 3 1/2" lag screws on the rail side and 1/4" x 3 1/2" lag screws for the other 12 fastening positions.

Base plate fixed to ground floor using 3 - off 1/4" tapcon anchors into concrete slab on grade or 1/4" lag screws in to solid wood joists/blocking.

Provide solid blocking within floor framing for positive securement of baseplate.

Baseplate = 28 1/2" x 4 1/4"
(725mm long X 108mm deep)

Structural Fixing: Wall



Wall bracket fixed to upper wall using 8-off #10 wood screws into solid wood studs/blocking.

Provide solid blocking within wall framing for positive securement of wall bracket. Blocking to be located between 82" and 96" above upper landing floor, along entire aperture width. Drywall over blocking needs to be finished and smooth (no bumps or crowning)

Bracket = 28 1/4" x 4 3/4 (718mm long x 120mm tall)

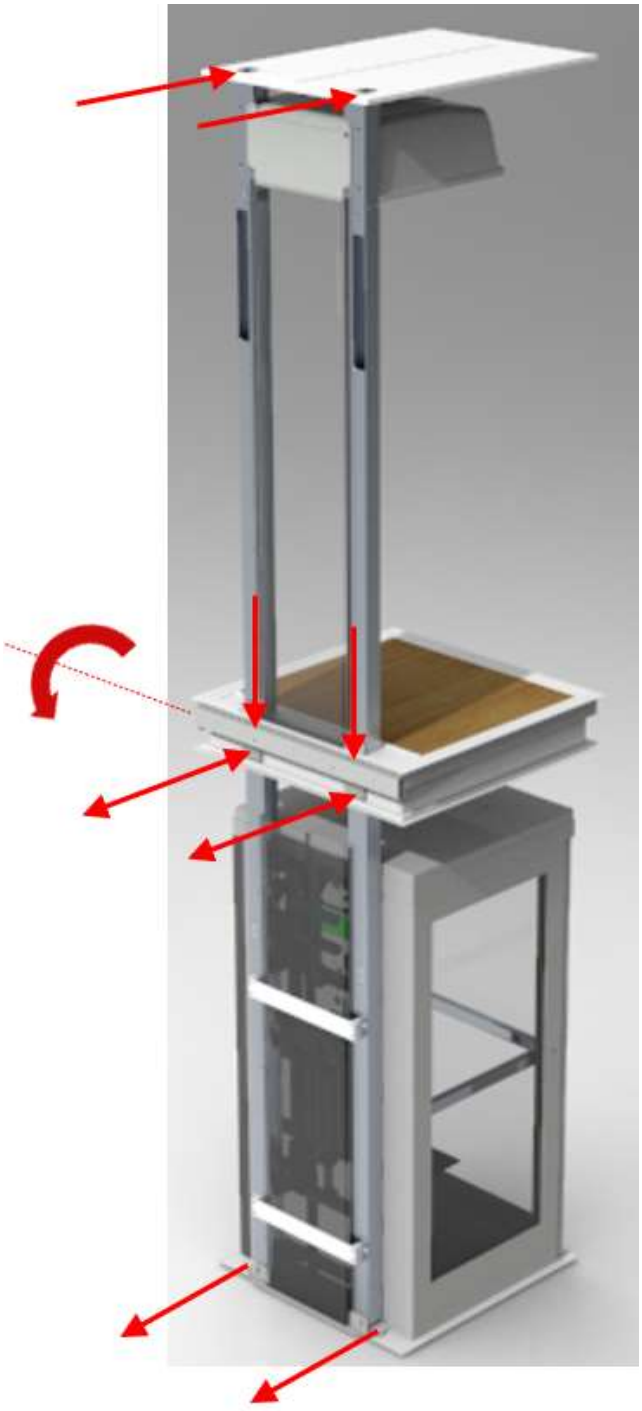
Steel ring beam fixed into midfloor aperture joists using 4 - 3/8" x 3 1/2" lag screws on the rail side and 1/4" x 3 1/2" lag screws for other 12 fastening positions.

Base plate fixed to ground floor using 3-off 1/4" tapcon anchors into concrete slab on grade or 1/4" lag screws into solid wood joists/blocking.

Provide solid blocking within floor framing for positive securement of baseplate.

Baseplate = 28 1/2" x 4 1/4 (725mm long x 108mm deep)

Ceiling Fixed Loadings

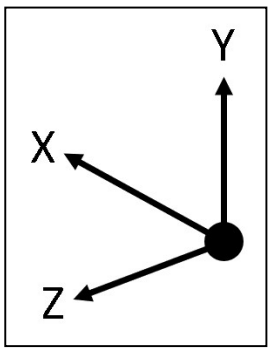


Description	Ceiling fixed Traction loadings			
	X (kN)	Y (kN)	Z (kN)	MX (kNm)
Base Plate	0	0	3.376	0
Ring beam	0	-6.9	3.161 -3.260	4.5132
Spreader Plate	0	0	2.841	0

+ve = compressive force on support (pushing into wall)

-ve = tensile force on support (pulling away from wall)

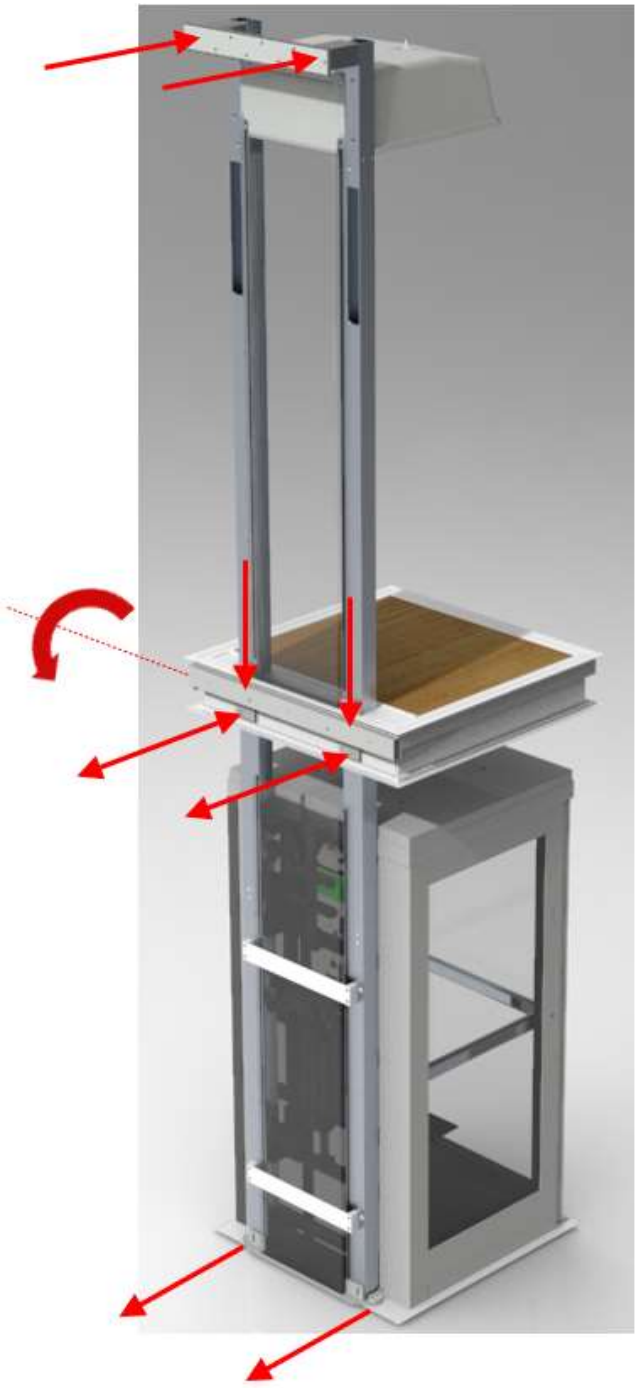
Where there are both +ve and -ve values the loading changes direction. For example, as the lift moves from the lower rails to the upper rails and from -ve loading to +ve loading respectively.



Ceiling Fixed Traction Lift Loadings

(Fixings through ring beam into rear wall)

Wall Fixed Loadings

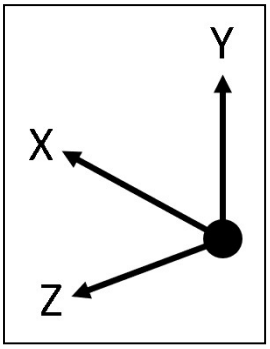


Description	Wall fixed Traction loadings			
	X (kN)	Y (kN)	Z (kN)	MX (kNm)
Base Plate	0	0	3.376	0
Ring beam	0	-6.9	3.161 -3.260	4.5132
Wall fixing	0	0	3.161	0

+ve = compressive force on support (pushing into wall)

-ve = tensile force on support (pulling away from wall)

Where there are both +ve and -ve values the loading changes direction. For example, as the lift moves from the lower rails to the upper rails and from -ve loading to +ve loading respectively.



Wall Fixed Traction Lift Loadings

(Fixings through ring beam into rear wall)

Electrical



Electrical & Phone Jack/Cable Routing Location:

Height - Between 72-84 inches above the upper landing floor, on the rail side wall, in line with the inside corner (right or left) of the aperture.

Electrical:

Dedicated 20-amp circuit with 20-amp electrical outlet

Colour Coding & Materials



Spreader plate – primed white, can be painted to any colour after installation.
Material: 18mm MDF.

Motor Mount – RAL 7035
Material: Mild Steel, FR ABS Cover, other.

Tracks – anodized aluminium (not painted)
Material: Aluminium

Upper Liner – white colour RAL 9003
Material: Aluminium

Lower Liner – white colour RAL 9003
Material: Mild Steel

Lift Car – standard RAL 7035 or Custom RAL
Material: Aluminium, Mild Steel, UV resistant Polycarbonate fillings, Vinyl floor mat, Rubber gasket, other.

Rear Side Panels – standard RAL 7042 or Custom RAL limited by material supplier
Material: Alu panel.

Centre Panel – standard RAL 9005 Black
Material: Acrylic, Mild Steel.

Handrails – standard RAL 7035 or Custom RAL
Material: Aluminium extrusion.

Bottom Tray – white colour RAL 9003
Material: Mild steel.

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Contractor Checklist

- ☐ Aperature Width (page 8)
  - 750 Model: Minimum = 41 ¾" (1062mm), Maximum = 42 1/8" (1072mm)
  - 1250 Model: Minimum = 41 ¾" (1062mm), Maximum = 42 1/8" (1072mm)
- ☐ Aperature Depth (page 8)
  - 750 Model: Minimum = 42 ¾" (1085mm), Maximum = 43 1/8" (1095mm)
  - 1250 Model: Minimum = 62 3/8" (1585mm), Maximum = 62 ¾" (1595mm)
- ☐ Aperature Appearance (page 8)
  - Square
  - Smooth
- ☐ Aperature Clearances (page 11)
  - Rail Wall (T)= Minimum 1"
  - Side Wall (S) = Minimum 1 ¼"
- ☐ Flooring
  - Installed right up to aperature edges
- ☐ Trapdoor Flooring (page 12)
  - Max Thickness = ¼", Max Weight = 11lbs
    - ➢ Completed after Homelift installation
- ☐ Structural Fixing: Ceiling (page 13)
  - Ceiling Blocking
  - Spreader Board primed & painted
    - ➢ Completed after Homelift installation
- ☐ Structural Fixing: Wall (page 14)
  - Wall Blocking
  - Drywall, Mud & Tape
  - Painted
- ☐ Structural Fixing: Baseplate (page 13/14)
  - Baseplate blocking
- ☐ Electrical Routing (page 17)
  - Height = 72-84" above upper landing floor
  - Position = Rail wall, in line with inside corner (right or left) of aperature