



Eclipse

RESIDENTIAL ELEVATOR

Planning Guide

Applicable Codes:

ASME A17.1/CSA-B44
Safety Code for Elevators and Escalators
Section 5.3—Private Residential Elevators

25-m09-2009
Part No.000623

Purpose of this guide

This guide assists architects, contractors, and lift professionals to incorporate the Eclipse Residential Elevator into a residential building design. The design and manufacture of the Eclipse Residential Elevator meets the requirements of the ASME A17.1/CSA-B44–Safety Code for Elevators and Escalators—specifically Section 5.3–Private Residence Elevators.

We recommend that you contact your local authority having jurisdiction to ensure that you adhere to all local rules and regulations pertaining to residential elevators.

How to use this guide

- 1 Determine your client's intended use of the lift.
- 2 Determine the local code requirements.
- 3 Determine the site installation parameters.
- 4 Determine the car type and hoistway size requirements.
- 5 Plan for electrical requirements.

History

April 2, 2008

- Added rail forces

July 31, 2008

- Added rail forces diagram

January 8, 2009

- Added component weights to specifications
- Modified center of door for type 5 center

June 4, 2009

- Added WARNING on page 6 not to install pipes conveying steam, gas or liquid in the hoistway

June 23, 2009

- Added dimension to structural view drawing Figure 1-11 on page 8 (centerline to center of vertical support stack = 18.5")

September 25, 2009

- Corrected power supply and lighting supply specifications on pages 2, 12, 13 and 14

Table 1-0: Eclipse specifications (meets ASME A17.1 Part V Section 5.3 residential elevator requirements)




Specification type	Specification data													
Load capacity	750 lbs. (340 kg), 950 lbs. (431 kg),1000 lbs. (454 kg)													
Component weights	367 lbs. - sling and base rail section 170 lbs. - middle rail Variable weight - top rail/bed plate 600 lbs. - control wall stack (variable) 440 to 660 lbs. cab (+ 263 lbs. speedy sling) 100 lbs. motor drive 50 lbs. controller 2 lbs. per foot chain (two runs)													
Rail forces	<table><tr><th colspan="2">RAIL FORCES</th><th>R3 NOTE</th></tr><tr><td colspan="2"></td><td rowspan="3">PIT FLOOR TO SUPPORT LOAD OF: 6400 .LBS * (INCLUDES IMPACT) 4 WALL ANCHOR POINTS MIN. PER BRACKET 2 PER SIDE OF RAIL BRACKET CENTER LINE. PULL OUT FORCE PER FASTENER 152 .LBS.</td></tr><tr><td>*R1</td><td>*R2</td></tr><tr><td>304 lbf</td><td>194 lbf</td></tr><tr><td colspan="2">Rail Weight 6.0 lbs / ft</td><td></td></tr></table>	RAIL FORCES		R3 NOTE			PIT FLOOR TO SUPPORT LOAD OF: 6400 .LBS * (INCLUDES IMPACT) 4 WALL ANCHOR POINTS MIN. PER BRACKET 2 PER SIDE OF RAIL BRACKET CENTER LINE. PULL OUT FORCE PER FASTENER 152 .LBS.	*R1	*R2	304 lbf	194 lbf	Rail Weight 6.0 lbs / ft		
RAIL FORCES		R3 NOTE												
		PIT FLOOR TO SUPPORT LOAD OF: 6400 .LBS * (INCLUDES IMPACT) 4 WALL ANCHOR POINTS MIN. PER BRACKET 2 PER SIDE OF RAIL BRACKET CENTER LINE. PULL OUT FORCE PER FASTENER 152 .LBS.												
*R1	*R2													
304 lbf	194 lbf													
Rail Weight 6.0 lbs / ft														
Rated speed	40 fpm (0.20 mps) standard.													
Power supply (circuit by others)	208 volt - 230 volt, single phase, 60 Hz, 20 amps (consumption)													
Lighting supply (circuit by others)	120 volt, 60 Hz, 2 amps (consumption)													
Drive system	Automatic 2HP-geared roller chain variable frequency drive, complete with counterweight													
Temperature operating range	- 10°C to + 40°C / 14°F to 104°F													
Cab size	<ul style="list-style-type: none">• W36" x L48" x H80" (914 mm x 1219 mm x 2032 mm), Type 1, 2, 3, 4, 5• W36" x L54" x H80" (914 mm x 1371 mm x 2032 mm), Type 1, 2, 3, 4, 5• W36" x L60" x H80" (914 mm x 1524 mm x 2032 mm), Type 1, 2, 3, 4, 5• W40" x L54" x H80" (1067mm x 1371 mm x2032 mm), Type 1, 2, 3, 4, 5													
Cab panel and finish	Solid melamine or MDF panels (standard), unfinished oak veneer panels (optional), finished recessed veneer panels (optional), solid hardwood raised panels (optional)													
Maximum travel	50 feet (12.24 m) - 60 feet (18.29 m) available where code permits													
Control system	Relay logic controller complete with diagnostic LEDs													
Levels and openings	Up to 4 stops / up to 2 cab openings													
Pit depth requirement	6" (152 mm) minimum up to 96" (2845 mm), 11" (279 mm) minimum with buffer springs													
Minimum overhead clearance	96" (2438 mm) for standard 80" cab, 114" (2896 mm) for 96" cab													
Hall station and control panel finish	<ul style="list-style-type: none">• Clear or bronze anodized aluminum (standard), or stainless steel (optional), or brass (optional)• Rectangular (standard) or oval (optional) hall stations, keyless (standard) or keyed (optional)													

Table 1-0: Eclipse specifications (meets ASME A17.1 Part V Section 5.3 residential elevator requirements)

Specification type	Specification data
Standard features	<ul style="list-style-type: none"> • Automatic cab on/off lighting • Recessed gate pocket • Digital display in car operating panel • Clear or bronze anodized aluminum cab entrance trim and handrail • Data plates, capacity tags • Proximity floor selection, stopping and two-way levelling • Motor access cover (locked and switched) • Home landing feature • Presentation drawings • Modular rail sections • Unfinished plywood sub-floor • White ceiling with four incandescent pot lights • Melamine cab with six different color choices
Safety features	<ul style="list-style-type: none"> • Cab gate safety switch • Pit run/stop switch and car top run/stop switch • Emergency stop and alarm buttons • Uninterruptible power supply (UPS)/battery back-up system for lowering, automatic gate operation (if equipped), and electrical interlock operation and lighting in the event of a power failure • Upper and lower terminal limits • Final limit switch • Mechanical rail shoring blocks • Sling: factory pre-assembled speedy sling c/w pre-set slack chain safety brake and switch
Options	<ul style="list-style-type: none"> • 96" high cab • Rated speed - (50 fpm (0.250 mps) available where code permits) • Accordion car gate (choice of style) • Stainless steel trim pack • Brass trim pack • Automatic gate operator (accordion gates only) • Automatic swing landing door operator • Buffer springs (11" pit depth minimum) • Laminate flooring in finished oak, maple, or cherry • Interlocks for <i>doors by others</i> (Kwiklock or EMI) • keyed on/off control panel and hall stations • Cab interior in unfinished oak, birch, cherry, or maple veneer • Recessed cab panels in cherry, oak, or maple veneer • Raised cab panels in solid cherry, oak, or maple veneer • Telephone cabinet to match trim • Custom cab size

Eclipse cab types

Note: All measurements in Inches (").

Figure 1-1: Type 1 left hand

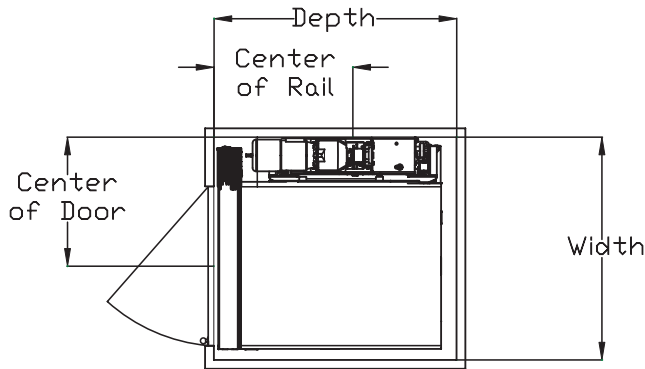


Figure 1-2: Type 1 right hand

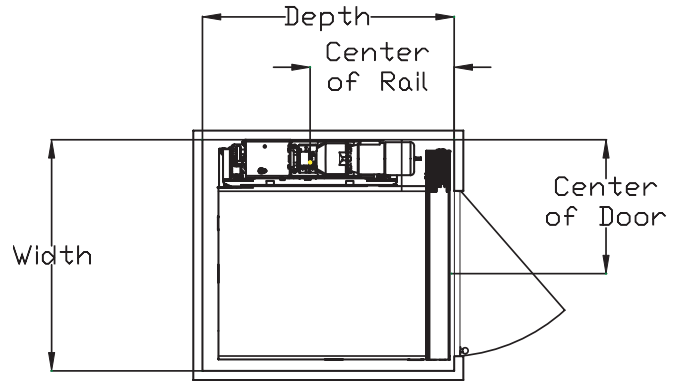


Table 1-1: Type 1 left hand

Car size	Width	Depth	Center of rail	Center of door	Clear opening
36 x 48	50 $\frac{1}{2}$	55	31*	29 $\frac{1}{4}$	36
36 x 54	50 $\frac{1}{2}$	61	33	29 $\frac{1}{4}$	36
36 x 60	50 $\frac{1}{2}$	67	36	29 $\frac{1}{4}$	36
40 x 54	54 $\frac{1}{2}$	61	33	33 $\frac{1}{4}$	36

Note: * 30" if right hand motor

Table 1-2: Type 1 right hand

Car size	Width	Depth	Center of rail	Center of door	Clear opening
36 x 48	50 $\frac{1}{2}$	55	31*	29 $\frac{1}{4}$	36
36 x 54	50 $\frac{1}{2}$	61	33	29 $\frac{1}{4}$	36
36 x 60	50 $\frac{1}{2}$	67	36	29 $\frac{1}{4}$	36
40 x 54	54 $\frac{1}{2}$	61	33	33 $\frac{1}{4}$	36

Note: * 30" if left hand motor

Figure 1-3: Type 2

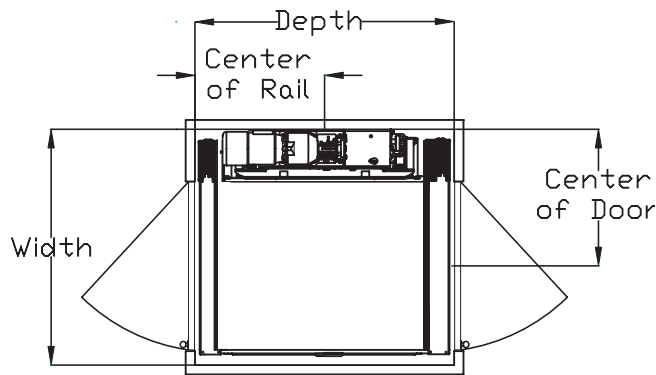


Figure 1-4: Type 3

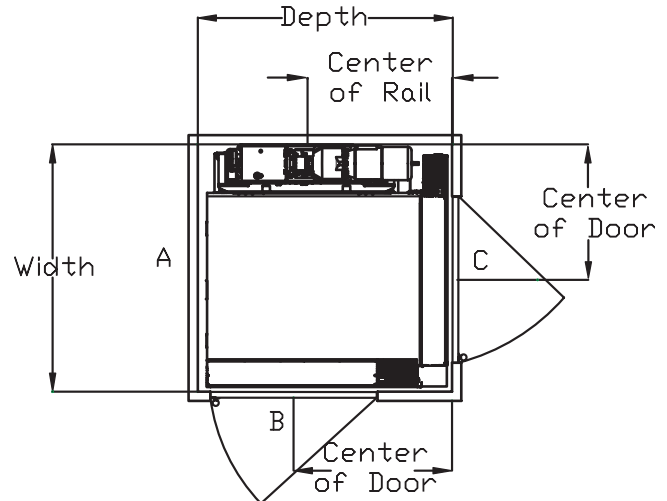


Table 1-3: Type 2

Car size	Width	Depth	Center of rail	Center of door	Clear opening
36 x 48	50 $\frac{1}{2}$	55 $\frac{1}{2}$	27 $\frac{3}{4}$	29 $\frac{1}{4}$	36
36 x 54	50 $\frac{1}{2}$	61 $\frac{1}{2}$	30 $\frac{3}{4}$	29 $\frac{1}{4}$	36
36 x 60	50 $\frac{1}{2}$	67 $\frac{1}{2}$	33 $\frac{3}{4}$	29 $\frac{1}{4}$	36
40 x 54	54 $\frac{1}{2}$	61 $\frac{1}{2}$	30 $\frac{3}{4}$	33 $\frac{1}{4}$	36

Table 1-4: Type 3

Car size	Width	Depth	Center of rail	Center of door C	Center of door B	Clear opening C	Clear opening B
36 x 48	52 $\frac{1}{8}$	55	31	28 $\frac{9}{16}$	34 $\frac{1}{4}$	34 $\frac{5}{8}$	36
36 x 54	52 $\frac{1}{8}$	61	33	28 $\frac{9}{16}$	40 $\frac{1}{4}$	34 $\frac{5}{8}$	36
36 x 60	52 $\frac{1}{8}$	67	36	28 $\frac{9}{16}$	46 $\frac{1}{4}$	34 $\frac{5}{8}$	36
40 x 54	56 $\frac{1}{8}$	61	33	31 $\frac{5}{8}$	40 $\frac{1}{4}$	36	36

Figure 1-5: Type 4

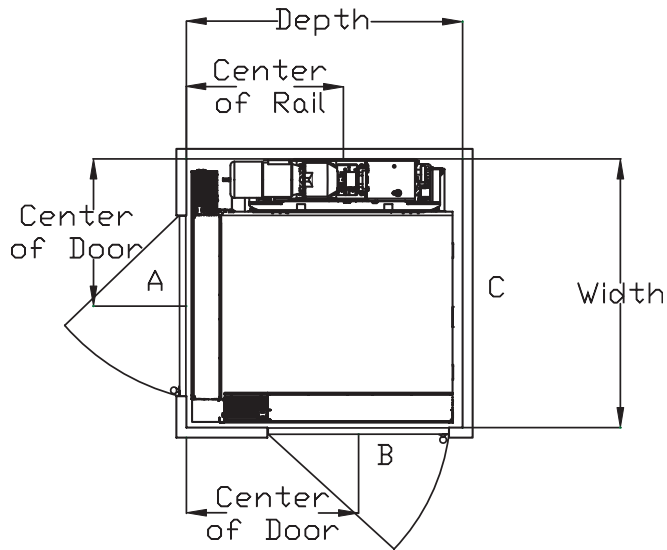


Table 1-5: Type 4

Car size	Width	Depth	Center of rail	Center of door A	Center of door B	Clear opening A	Clear opening B
36 x 48	52 $\frac{1}{8}$	55	31	28 $\frac{9}{16}$	34 $\frac{1}{4}$	34 $\frac{5}{8}$	36
36 x 54	52 $\frac{1}{8}$	61	33	28 $\frac{9}{16}$	40 $\frac{1}{4}$	34 $\frac{5}{8}$	36
36 x 60	52 $\frac{1}{8}$	67	36	28 $\frac{9}{16}$	46 $\frac{1}{4}$	34 $\frac{5}{8}$	36
40 x 54	56 $\frac{1}{8}$	61	33	31 $\frac{5}{8}$	40 $\frac{1}{4}$	36	36

Figure 1-6: Type 5 center

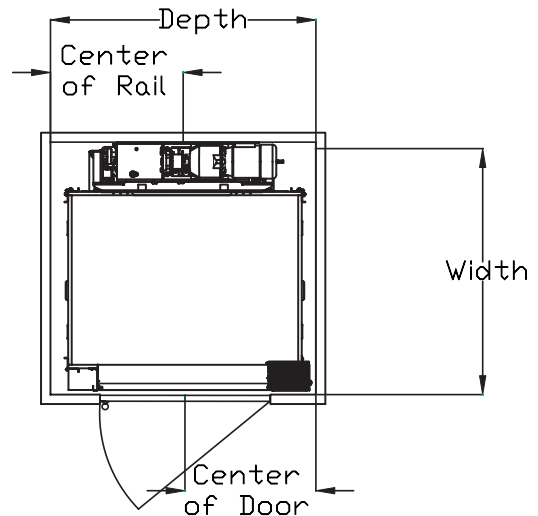


Table 1-6: Type 5 center

Car size	Width	Depth	Center of rail	Center of door	Clear opening
36 x 48	52 $\frac{1}{8}$	56 $\frac{1}{4}$	28 $\frac{1}{8}$	27 $\frac{3}{4}$	36
36 x 54	52 $\frac{1}{8}$	62 $\frac{1}{4}$	31 $\frac{1}{8}$	33 $\frac{1}{4}$	36
36 x 60	52 $\frac{1}{8}$	68 $\frac{1}{4}$	34 $\frac{1}{8}$	34 $\frac{5}{8}$	36
40 x 54	56 $\frac{1}{8}$	62 $\frac{1}{4}$	31 $\frac{1}{8}$	33 $\frac{1}{4}$	36

Figure 1-7: Type 5 left hand

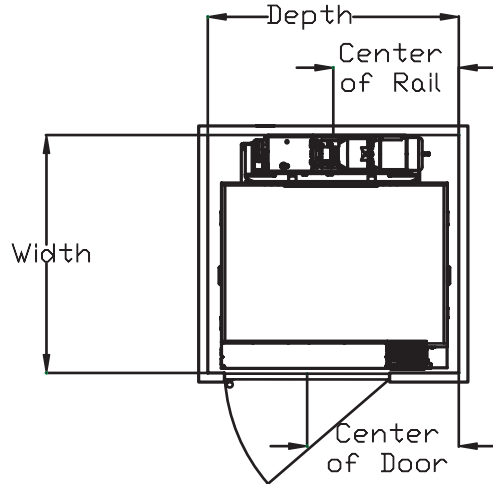


Table 1-7: Type 5: left hand

Car size	Width	Depth	Center of rail	Center of door	Clear opening
36 x 48	52 $\frac{1}{8}$	55	27 $\frac{1}{2}$	33 $\frac{1}{4}$	36
36 x 54	52 $\frac{1}{8}$	61	30 $\frac{1}{2}$	39 $\frac{1}{4}$	36
36 x 60	52 $\frac{1}{8}$	67	33 $\frac{1}{2}$	45 $\frac{1}{4}$	36
40 x 54	56 $\frac{1}{8}$	61	30 $\frac{1}{2}$	39 $\frac{1}{4}$	36

Figure 1-8: Type 5 right hand

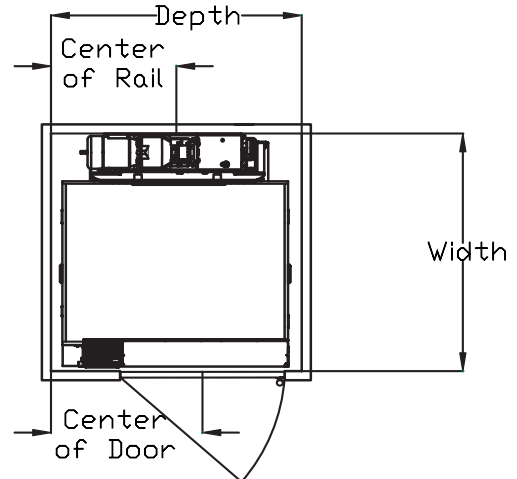
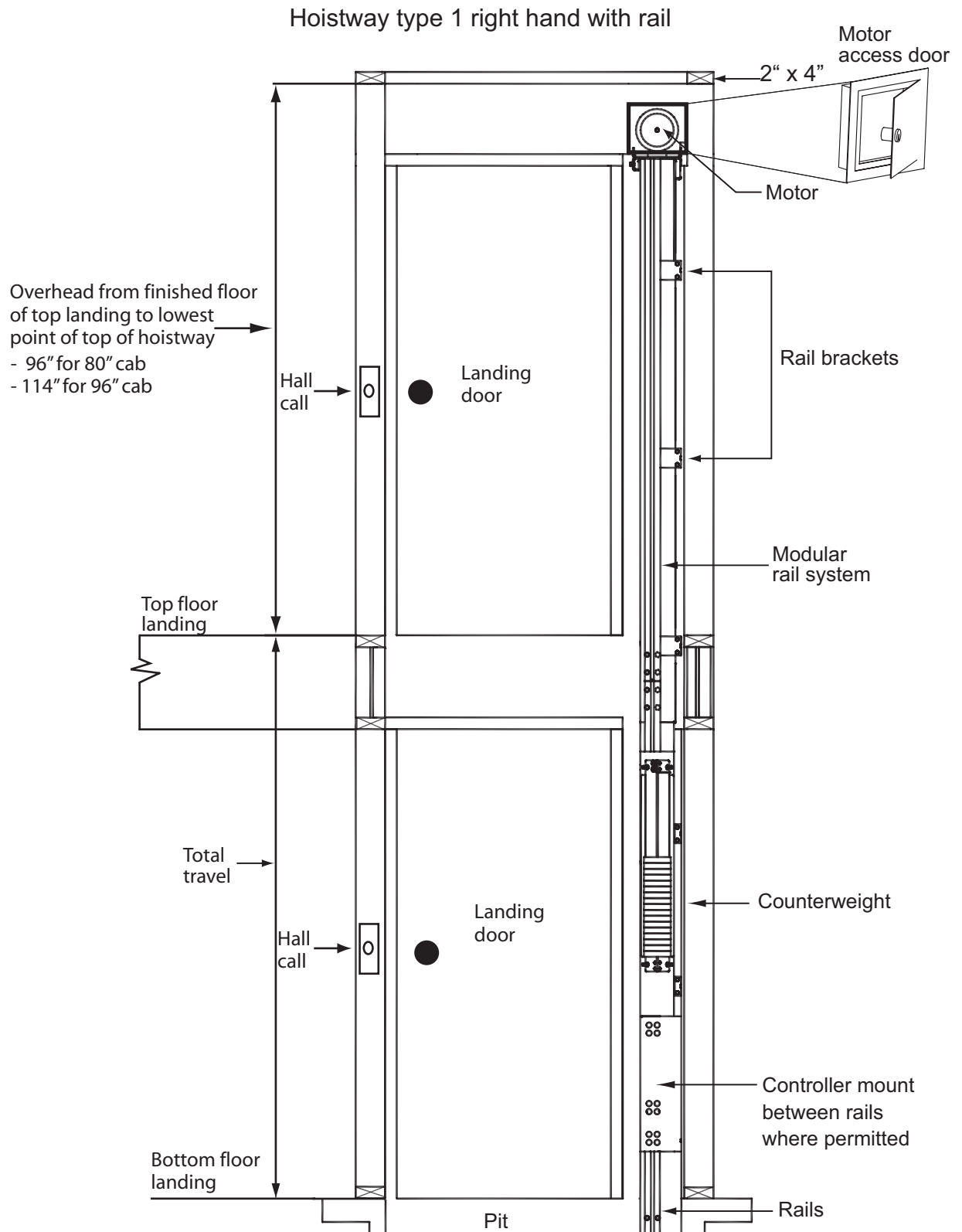


Table 1-8: Type 5: right hand

Car size	Width	Depth	Center of rail	Center of door	Clear opening
36 x 48	52 $\frac{1}{8}$	55	27 $\frac{1}{2}$	33 $\frac{1}{4}$	36
36 x 54	52 $\frac{1}{8}$	61	30 $\frac{1}{2}$	39 $\frac{1}{4}$	36
36 x 60	52 $\frac{1}{8}$	67	33 $\frac{1}{2}$	45 $\frac{1}{4}$	36
40 x 54	56 $\frac{1}{8}$	61	30 $\frac{1}{2}$	39 $\frac{1}{4}$	36

Figure 1-9: Eclipse hoistway with rail

**WARNING**

Pipes conveying steam, gas or liquids, which, if discharged into the hoistway would endanger life, shall not be installed in the hoistway.

Figure 1-10: Eclipse hoistway mount

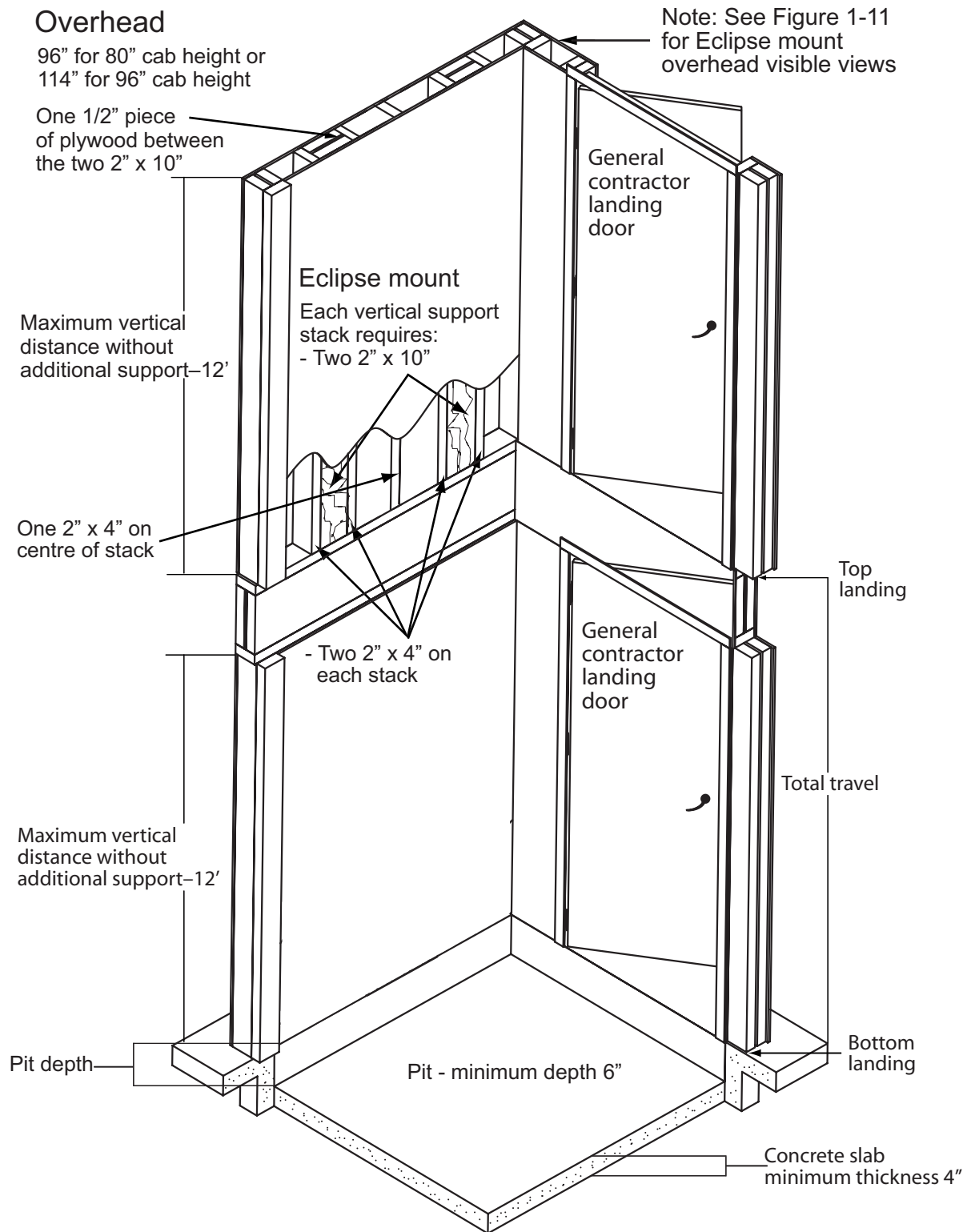


Figure 1-11: Eclipse top of hoistway view for wood construction

Structural views for elevator

Overhead view of Eclipse support wall

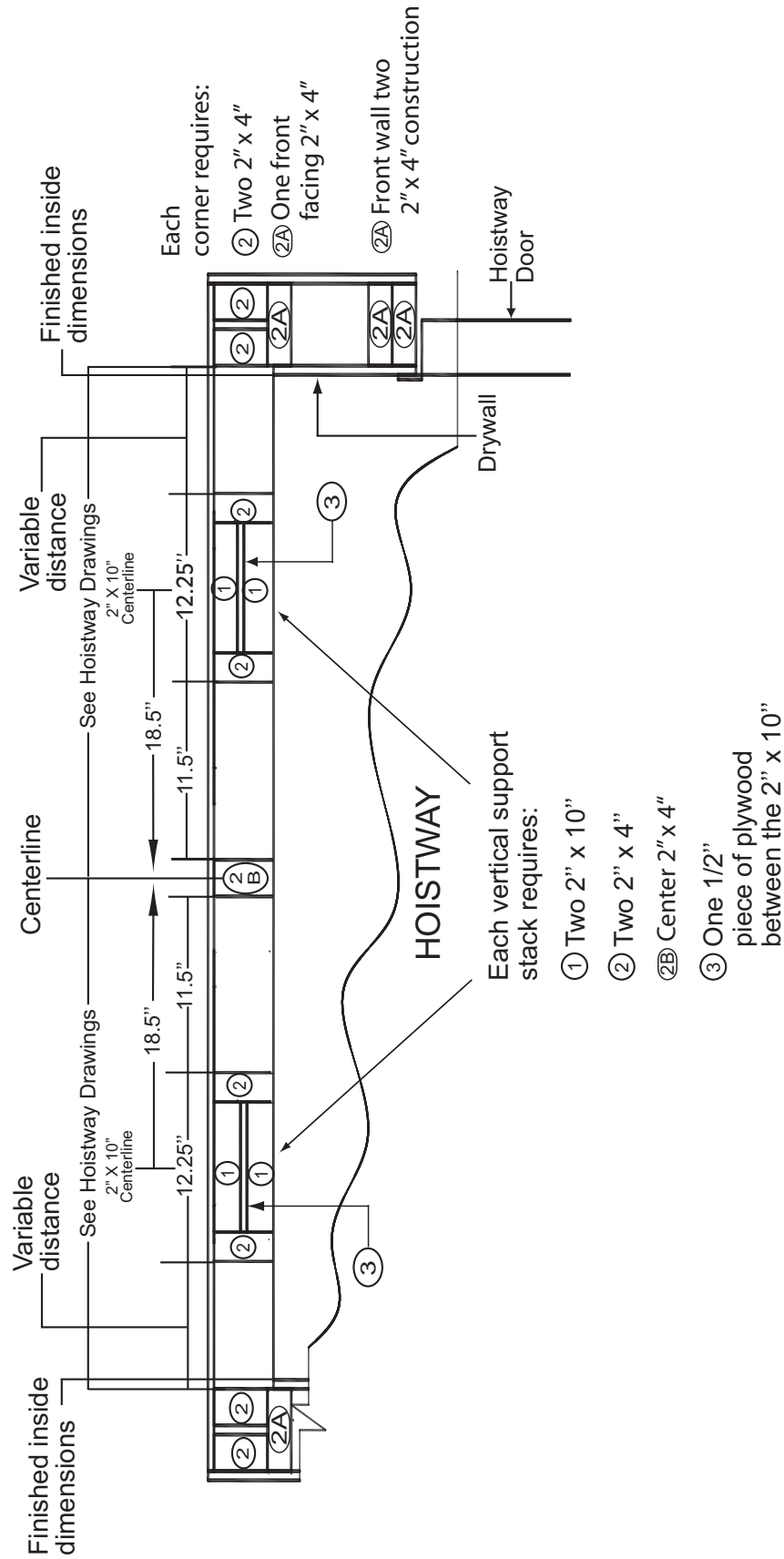


Figure 1-12: Wall configuration for wood construction (continued)

Structural views for elevator shaft (continued)

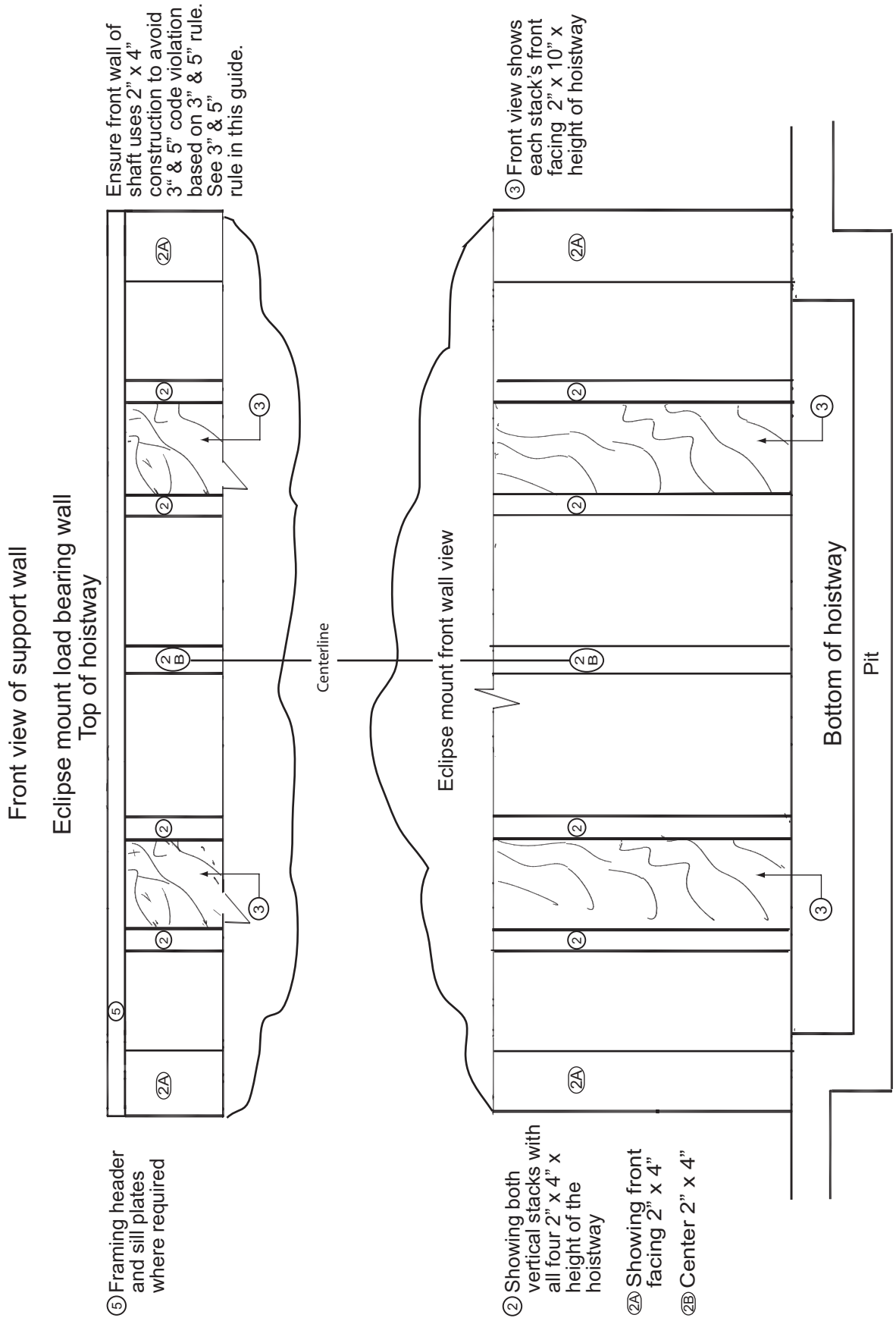



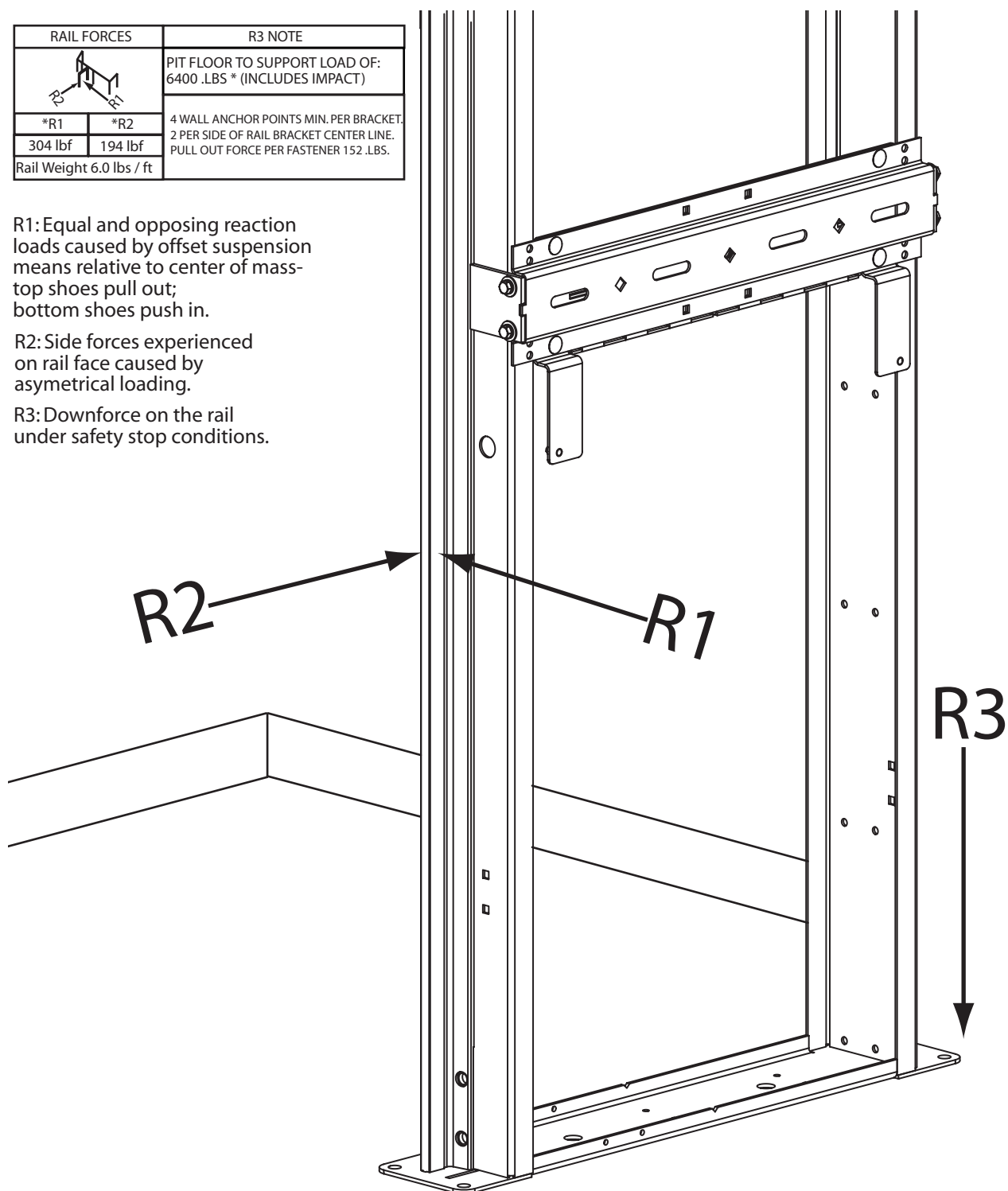
Figure 1-13: Loads on building and forces on rails

RAIL FORCES		R3 NOTE
		PIT FLOOR TO SUPPORT LOAD OF: 6400 .LBS * (INCLUDES IMPACT)
*R1	*R2	4 WALL ANCHOR POINTS MIN. PER BRACKET. 2 PER SIDE OF RAIL BRACKET CENTER LINE. PULL OUT FORCE PER FASTENER 152 .LBS.
304 lbf	194 lbf	
Rail Weight 6.0 lbs / ft		

R1: Equal and opposing reaction loads caused by offset suspension means relative to center of mass- top shoes pull out; bottom shoes push in.

R2: Side forces experienced on rail face caused by asymmetrical loading.

R3: Downforce on the rail under safety stop conditions.



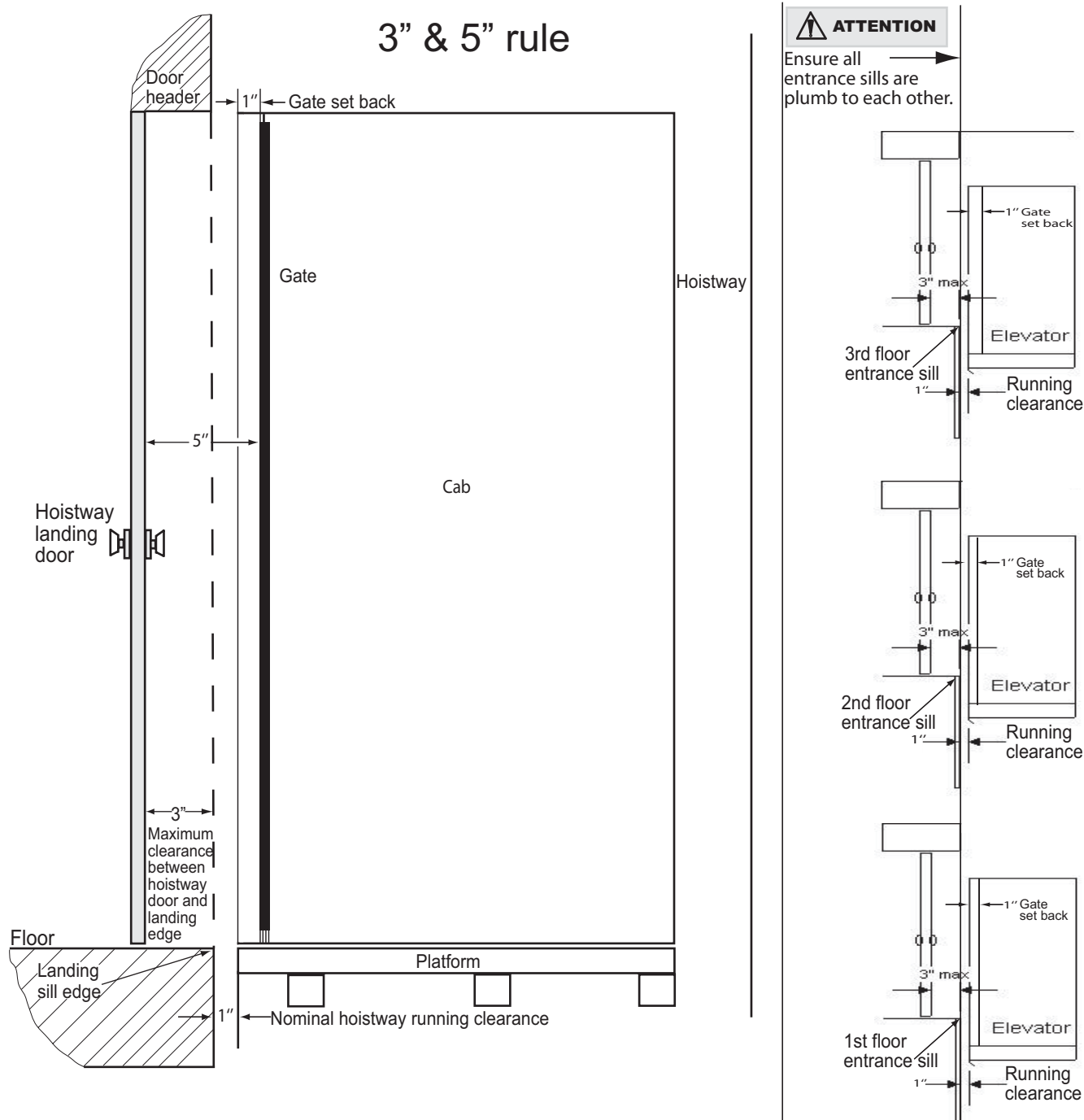
Safety first–3 & 5 rule

The ASME A17.1/CSA-B44–Safety Code for Elevators and Escalators mandates the following maximum hoistway door clearances:

- Clearance between the hoistway side of the landing door and the edge of the landing sill shall not exceed 3 in. (76 mm).
- Distance between the hoistway face of the landing door or gate and the car door or gate shall not exceed 5 in. (127 mm).
- Eclipse Residential Elevator design is with a 1 inch running clearance and a 1 inch gate set back on the car; thus the hoistway doors must maintain a maximum set back of 3 inches.

Note: Concrete block/masonry shafts and some commercial metal door frames often create 3 & 5 rule violations.

Figure 1-14: 3 & 5 rule



Eclipse electrical requirements

By General Contractor/Owner

Your electrician and phone installer supply the following connections:

Main disconnect - One (1) 208V - 230V single-phase 30 Amp fused disconnect
 Lighting disconnect - One (1) 120V 15 Amp fused disconnect or circuit breaker for cab lighting
 Telephone line - One (1) telephone line jack in close proximity to the controller

Note: Savaria Concord Lifts Inc. does not provide power cable to main disconnect.

Recommended manufacturers for fused disconnect

Square D

- Main disconnect: 208V - 230V single-phase disconnect
 model # H221N
 240V - 30 Amp with Interlock Kit - ELK031 Aux Contacts
 (normally opened/normally closed)
 In addition, two each - 250V, 20 Amp, RK5 fuses
 - Lighting disconnect: 120V 15 Amp fused disconnect
 or circuit breaker

Siemens

- Main disconnect: 208V - 230V single-phase disconnect
 model #HF221N
 240V - 30 Amp with Interlock Kit-HA 161234 Aux Contacts
 (normally opened/normally closed)
 In addition, two each - 250V, 20 Amp, RK5 fuses
 - Lighting disconnect: 120V 15 Amp fused disconnect
 or circuit breaker

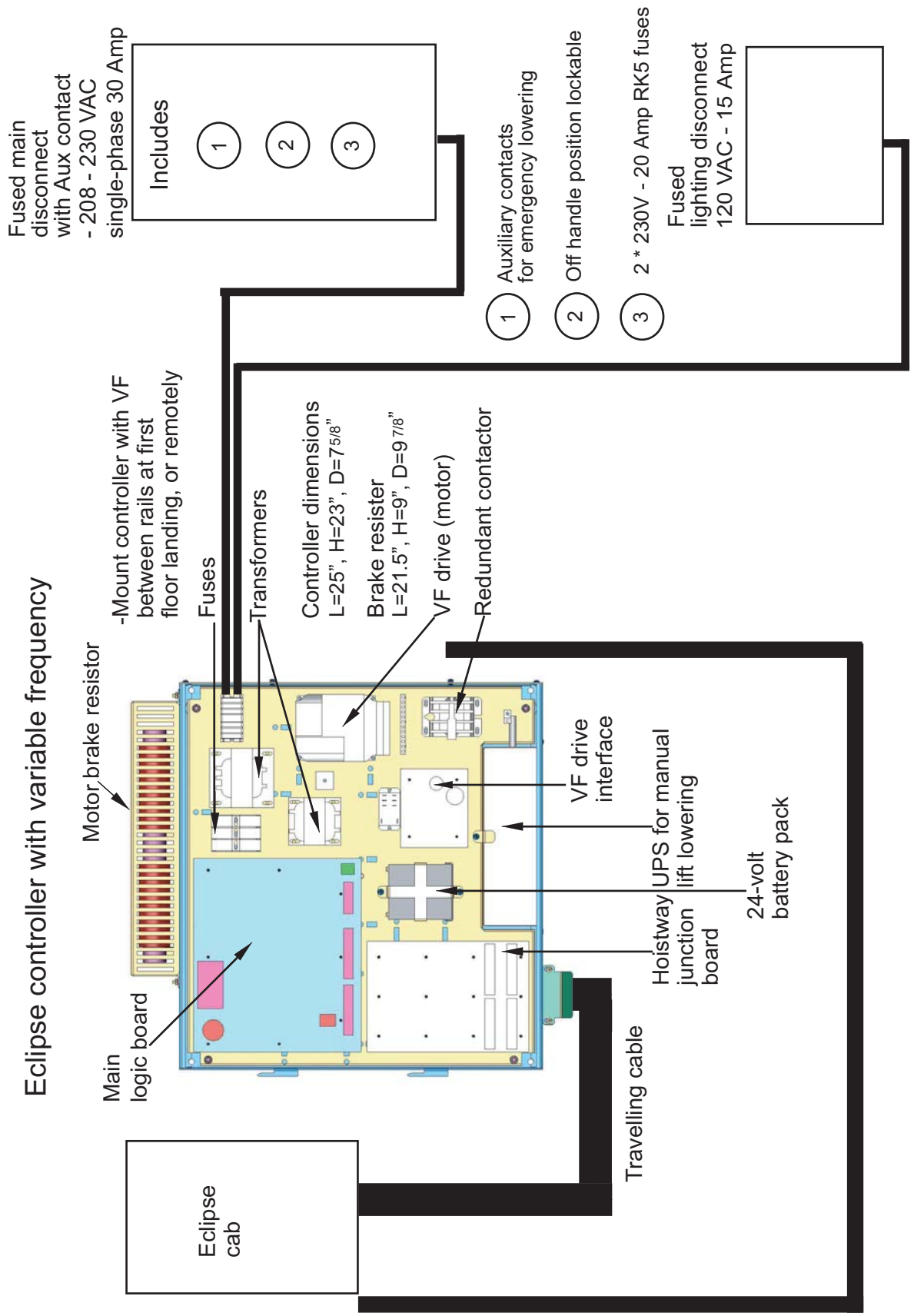
G.E.

- Main disconnect: 208V - 230V single-phase disconnect
 model # TH3221
 240V - 30 Amp with Interlock Kit - THAUX21D Aux Contacts
 (normally opened/normally closed)
 In addition, two each - 250V, 20 Amp, RK5 fuses
 - Lighting disconnect - 120V 15 Amp fused disconnect
 or circuit breaker

Cutler Hammer

- Main disconnect: 208V - 230V single-phase disconnect
 model # DH221NGK
 240V - 30 Amp with Interlock Kit - THAUX21D Aux Contacts
 (normally opened/normally closed)
 In addition, two each - 250V, 20 Amp, RK5 fuses
 - Lighting disconnect: 120V 15 Amp fused disconnect
 or circuit breaker

Eclipse electrical setup with controller mount between rails



Eclipse Residential Elevator Specification

PART 1 - GENERAL

1.01 SCOPE

The product described herein, manufactured by Savaria Concord Lifts Inc., is a private residence home elevator designed and dimensioned to provide access to all levels of the home based on the individual's requirements.

1.02 References

The Residential Elevator shall be designed and manufactured and installed in accordance with the following standards:

1. American Society of Mechanical Engineers (ASME)/Canadian Standards Association (CSA)
2. American National Standards Institute (ANSI)
3. National Electrical Code (NFPA 70)/Canadian Electrical Code
4. International Building Code (IBC)/Canadian Building Code (CBC)
5. Americans with Disabilities Act Architectural Guidelines (ADAAG) – where applicable
6. Local Codes and Regulations as applicable

1.03 System Description

- A: Drive System: Automatic 2 HP - Geared Roller Chain Variable Frequency Drive complete with counterweight, Relay Logic Controller and Diagnostic LEDs.
- B: Number of Stops: (specify) Two to Four
- C: Car Configuration: (specify) On/Off Same Side, Walk through, or 90 degree entry
- D: Maximum Travel: (specify) 50 feet (Up to 60 feet – where permitted)
- E: Rated Load: (specify) 750 lbs or 1000 lbs
- F: Rated Speed: (specify) 40 fpm – 50 fpm option available where permitted
- G: Car Size:
 1. (specify): 36 x 48, 36 x 54, 36 x 60, 40 x 54 or custom
 2. (specify): 80" or 96" high ceiling
- H: Car Walls: (specify) Solid Melamine or MDF Panels (Standard), Unfinished Oak Veneer Panels (optional), Finished Recessed Veneer Panels (Optional), Solid Hardwood Raised Panels (optional)
- I: Car Entrance Trim: (specify) Clear anodized aluminum or bronze anodized aluminum
- J: Car Ceiling: (specify) White or Wood Veneer to match wall panels
- K: Car Lighting: Four Recessed Incandescent Down Lights (specify) stainless steel or brass
- L: Handrail: (specify) Clear anodized aluminum, Bronze anodized aluminum, Stainless Steel or Brass
- M: Operating Features:
 1. Car Operating Panel: (specify) Clear anodized aluminum, Bronze anodized aluminum, Stainless Steel or Brass panel with illuminated automatic controls, emergency stop switch, alarm button and car position and direction indicator and key lock.
 2. Hall Stations: (specify) Clear anodized aluminum, Bronze anodized aluminum, Stainless Steel or Brass panel with illuminated automatic button (specify option) rectangular or oval design.
 3. Pit Switch and Car top run/stop switch
 4. Uninterruptible power supply (UPS)/Battery Back-up system for lowering, automatic gate operation (if equipped), and electrical interlock operation and lighting in the event of a power failure.
 5. Automatic homing option to (specify) floor available.
 6. Telephone Cabinet: (specify) Clear anodized aluminum, Bronze anodized aluminum, Stainless steel or Brass
 7. Car Gate(s): (specify) Accordion folding gate with offset safety hinge and safety switch (specify style) Panelfold (clear anodized aluminum or bronze anodized aluminum with 3 clear acrylic inserts), Clearfold (clear anodized aluminum with clear acrylic inserts) or Visifold (bronze anodized aluminum with bronze acrylic inserts) or Black

Scissor Gate complete with safety switch

8. Hoistway Door Interlocks: (specify) Electromechanical interlocks (Kwiklock or EMI)
9. Upper and Lower terminal limits
10. Final limits
11. Slack Chain safety with manual reset switch
12. Two-way leveling
13. Trip timer motor protection system
14. (specify option) Automatic accordion style gate operator(s)
15. (specify option) Automatic swing style landing door operator
16. (specify option) Cab flooring (specify) cherry, maple, or oak
17. (specify option) Buffer springs (requires 12" pit).

1.04 Quality Assurance

- A. Manufacturer: Provide elevator manufactured by a firm with a minimum of 20 years experience in fabrication of elevators equivalent to those specified.
- B. All designs, clearances, workmanship and material, unless specifically accepted, shall be in accordance with all codes having legal jurisdiction.
- C. All load ratings and safety factors shall meet or exceed those specified by all governing agencies with jurisdiction and shall be certified by a professional engineer.
- D. Elevator shall be subject to applicable state, local and city approval prior to installation and subject to inspection after installation. Determination of and adherence to these regulations is the responsibility of the elevator contractor.
- E. Welders certified in accordance with the (AWS D1.1/CWB 47.1) requirements shall perform all welding of all parts.
- F. Substitution: No Substitutions permitted

1.05 Warranty

- A. Savaria Concord Limited Warranty: Manufacturer shall warrant component parts of the Eclipse Residential Elevator for a period of 3 years from shipment from the manufacturing facility.

1.06 Maintenance

- A. The Eclipse Residential Elevator must be maintained in accordance with manufacturer's instructions.

Part 2 Product

2.01 Manufacturer

- A. Provide the Eclipse Residential Elevator with variable frequency drive manufactured by Savaria Concord Lifts Inc.
 1. Contact 107 Alfred Kuehne Blvd.
Brampton, Ontario, Canada;
Telephone: 1-800-661-5112;
Fax: 1-905-791-2222;
e-mail: info@concordelevator.com
web site: www.savariaconcord.com

2.02 Material

- A. Guide Rail: Modular Guide Rail assembly incorporating 6 lb machined elevator T" Rails
- B. Chain: 2 only #60 roller chains
- C. Sling: Factory pre-assembled speedy sling c/w pre-set slack chain safety brake
- D. Platform Floor: Unfinished recessed plywood flooring

2.03 Finishes

- A. Components shall be prepared with a 3 stage cleaning process and finished with an electrostatically applied baked polyester Concord White gloss powder.

2.04 Electrical Systems

- A. The electrical contractors shall provide:
 1. 230 VAC, 30 Amp, 60 Hz, single phase disconnect complete with auxiliary disconnect, neutral and ground (4 wires) in the controller area.
 2. 120 VAC, 15 Amp, 60 Hz, single phase disconnect in the controller area for the car lights.
 3. Telephone circuit in the controller area.

Part 3 Execution

3.01 Acceptable Installers

- A. Installers shall be experienced in performing work of this section who have specialized in work comparable to that required for this project.
- B. Installers shall be certified and trained by the manufacturer.

3.02 Examination

- A. Use field dimensions and approved manufacturer's shop drawings to examine substrates, supports and other conditions under which this work is performed. Do not proceed with work until unsatisfactory conditions are corrected.

3.03 Installation

- A. The Eclipse Residential elevator shall be installed in accordance with manufacturer's instructions and as specified and approved by architect.
- B. Hoistway doors shall be installed by others.

3.04 Demonstration

- A. The elevator contractor shall make a final check of the elevator's operation in accordance with the instruction outlined in the Installation and Maintenance Manual with the Owner or Owner's representative present prior to turning the elevator over for use. The elevator contractor shall determine that operating and safety devices are functioning properly.

Note 1: It is the intent of this specification to broadly outline the equipment required. This specification does not cover the details of the design and construction.

Note 2: Dimensions and specifications are subject to constant change and continually evolving codes and product applications. For additional technical information, contact Savaria Concord Lifts at 1-800-661-5112 or www.savariaconcord.com.

Important notice

This Planning Guide provides nominal dimensions and specifications useful for the initial planning of a lift project. Dimensions and specifications are subject to constant change and continually evolving codes and product applications.

Before beginning actual construction of the hoistway, please consult Savaria Concord Lifts Inc. or the authorized Savaria Concord dealer in your area to ensure you receive site specific application drawings with the specifications and dimensions for your project.

Visit our website for the most recent Eclipse drawings and dimensions.

—end—

Savaria Concord Lifts Inc.

Eclipse Planning Guide

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25-m09-2009

