



**LEE'S SUMMIT**  
MISSOURI

**CODE MODIFICATION REQUEST**  
(COMMERCIAL)

BUILDING/STRUCTURE NAME: Lee's Summit Fire Station No. 4 & No. 5

PREMISE ADDRESS: FS #4: 5031 Northeast Lakewood Way, Lee's Summit, Missouri 64064  
FS #5: 801 Missouri Highway 150, Lee's Summit, Missouri 64082

PERMIT NUMBER (if applicable): FS #4: PRCOM20225294  
FS #5: PRCOM20225393

OWNER'S NAME: City of Lee's Summit

TO: Director of Development Services

In accordance with the Lee's Summit Building Code, I wish to apply for a modification to one or more provisions of the code as I feel that the spirit and intent of the Lee's Summit Building Code are observed the public health, welfare and safety are assured. The following articulates my request for your review and action. (NOTE: ATTACH ANY ADDITIONAL INFORMATION NECESSARY)

We request a deviation from the provisions of IBC 3005.2 "Venting" based on the attached memorandum and backup information. The machineroom-less LULA elevator is expected to receive infrequent use and the temperature / humidity ranges should fall within the manufacturer's accepted ranges during the anticipated frequency of operation through heat transfer through the interior wall construction and exterior building envelope. We request not to provide independent ventilation in the elevator shaft. Please see attached calculations. Thanks you.

SUBMITTED BY:

NAME: Chad Bard  
ADDRESS: 9229 Ward Parkway  
CITY, STATE, ZIP: Kansas City, MO 64114

( ) OWNER ( ) OWNER'S AGENT  
Tel.# (816)652-2059  
SIGNATURE: Chad R. Bard

TRACY DEISTER – MANAGER OF CODES ADMINISTRATION: (X) APPROVAL ( ) DENIAL

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

JOSH JOHNSON – DIRECTOR OF DEVELOPMENT SERVICES:

SIGNATURE: Joshua Johnson DATE: 5-3-2023

COMMENTS: Based on engineers attached report.

**A COPY MUST BE ATTACHED TO THE APPROVED PLANS ON THE JOB SITE**

3/20/2023 N:\CODES ADMIN\Forms 2019

## MEMORANDUM

Date: March 28, 2023  
From: Jim Lord, Hoss & Brown Engineers  
To:  
Subject: Elevator Ventilation

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Lee's Summit Fire Stations #4 & #5

Fire Station #4: 5031 Northeast Lakewood Way – Lee's Summit, MO 64064

Fire Station #5: 801 Missouri Hwy 150 – Lee's Summit, MO 64064

Elevator Hoist HVAC Calculations:

Elevator Machine Room-Less Traction Elevator requirements from Manufacturer:

- The maximum heat output of the elevator equipment to the hoist way is approx. 3,200 - 6,400 Btu/hr.
- The acceptable maximum machine room temperature is 80 deg. F.
- The acceptable maximum humidity is 80% non-condensing.
- Refer to the attached elevator submittal information.

Elevator Operation:

The elevator in this building is expected to operate on a very limited basis. The manufacturer suggests that 15 starts in a 1-hr period would be average, but it is estimated that this elevator will run significantly less than this value. The actual heat generated should be well below the lowest value of the heat output listed in the manufacturers data. When the elevator does not run it produces almost no heat.

HVAC Calculation Basis:

1. The shaft walls are constructed of 8" CMU with furring channels and gypsum board on finished walls. This assembly has an R-value of 3.1 (U value of 0.32). The elevator shaft is surrounded by interior spaces conditioned to 70°F in heating mode and 75°F occupied in cooling mode, assuming the building is always in occupied mode due to 24/7 operation. The humidity is maintained at a maximum of 60%RH.
2. The top of the elevator hoist ends at the roof and is 8" above the level of the surrounding roof. This is constructed of metal deck with continuous insulation. This assembly has an R-value of 25 (0.04).
3. Energy transmission through hoist are calculated using the formula:  
$$\text{Transmitted BTU/HR} = \text{U-value} \times \text{Area} \times (\text{Delta T between hoist and adjacent space})$$

HVAC Calculations:

1. Maintaining humidity should not be an issue, since the areas of the building surrounding the elevator shaft/machine space is conditioned to maintain 60% RH max. The interior conditions will be 25% winter and 50% summer and the elevator maximum is 80% RH per the cut-sheets. Evaluating the Vapor/pressure relationships of the spaces, the elevator shaft is 'open' to the surrounding conditioned spaces via the elevator doors. The elevator shaft will inherit the relative humidity conditions of the surrounding spaces.
2. Thermal calculations (Cooling): The following table summarizes the heat energy transmission through the hoist way surfaces in cooling mode. The table shows that the heat gain through the roof is more than made up for by the heat transfer through the walls to the adjacent spaces. The heat loss through the walls would be offset if the elevator is only occasionally used at the rated heat output of the elevator equipment.

COOLING							
Hoist Area	U-Value	Wall Length (ft)	Wall Height (ft)	Area (ft <sup>2</sup> )	Adj. Space Temp.	Hoist Temp	Transmitted BTU/HR
Roof of Hoist way	0.04	-	-	38	110	80	45.6
Walls of Hoist (int)	0.26	25	29	725	75	80	-942
Walls of Host (ext)	0.26	25	1	25	110	80	195
Net Heat Loss to Adjacent Spaces							<b>-702</b>

3. Thermal calculations (Heating): The following table summarizes the heat energy transmission through the hoist way surfaces in heating mode. As indicated, the Heat loss through the roof and to the surrounding spaces is considerably greater than the rated heat output of the elevator equipment.

HEATING							
Hoist Area	U-Value	Wall Length (ft)	Wall Height (ft)	Area (ft <sup>2</sup> )	Adj. Space Temp.	Hoist Temp	Transmitted BTU/HR
Roof of Hoist way	0.04	-	-	38	0	50	-76
Walls of Hoist (int)	0.26	25	29	725	70	50	3,770
Walls of Host (ext)	0.26	25	1	25	0	50	-325
Net Heat Gain to the Hoist Way							<b>3,369</b>

#### HVAC Summary:

The adjacent conditioned spaces will provide heating and cooling of the hoist equipment through wall transmission to maintain the equipment temperature in the range required by the elevator manufacturer based on the anticipated use of the elevator. The building cooling systems will maintain the humidity of the building within the range recommended by the manufacturer by interaction with the hoist way through door gaps. There will also be air movement through the elevator hoist way as the elevator doors open and close and the cab moves floor-to-floor.



# ORION™

LIMITED USE / LIMITED APPLICATION ELEVATOR

## **Planning Guide**

Limited Use / Limited Application Elevator

### **Applicable Codes:**

ASME A17.1, Section 5.2  
CAN/CSA B44, Section 5.2

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# GENERAL

This planning guide is designed to assist architects, contractors and lift professionals in planning for a Orion Elevator to meet the requirements of the following codes and standards:

ASME A17.1/CSA B44 2000, Section 5.2  
ASME A17.1/CSA B44 2004, Section 5.2  
ASME A17.1 2004, Addendum 2005, Section 5.2  
ASME A17.1/CSA B44 2007, Section 5.2  
ASME A17.1/CSA B44 2004, Addendum 2008, Section 5.2  
ASME A17.1/CSA B44 2010, Section 5.2  
ASME A17.1/CSA B44 2013, Section 5.2  
ASME A17.1/CSA B44 2016, Section 5.2  
ASME A17.1/CSA B44 2019, Section 5.2

This unique elevator is designed to help solve accessibility problems in commercial buildings, and meets state and national codes covering the Limited Use/Limited Application (LULA) elevators.

We strongly recommend you contact the Authority Having Jurisdiction (AHJ) in the region where the equipment will be installed. Become familiar with all requirements governing the installation and use of elevators in public and private buildings. It is extremely important for you to know and adhere to all regulations concerning installation and use of elevators.

## DOCUMENT REVISION HISTORY

Initial Release - September 1, 2006  
Revised - May 22, 2008  
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Revised - January 29, 2015  
Revised - February 4, 2015  
Revised - February 19, 2015  
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Revised - September 24, 2015  
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Revised - March 7, 2016  
Revised - June 6, 2016  
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Revised - June 12, 2017  
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Revised - August 8, 2018  
Revised - April 23/24/25, 2019  
Revised - December 2, 2019  
Revised - February 24-25, 2020  
Revised - April 13, 2020  
Revised - May 12, 2020  
Revised - June 17, 2020  
Revised - August 11, 2020

## IMPORTANT NOTICE

This Planning Guide provides nominal dimensions and specifications useful for the INITIAL planning of an elevator project. BEFORE beginning actual construction, be sure to receive application drawings customized with specifications and dimensions for your specific project.

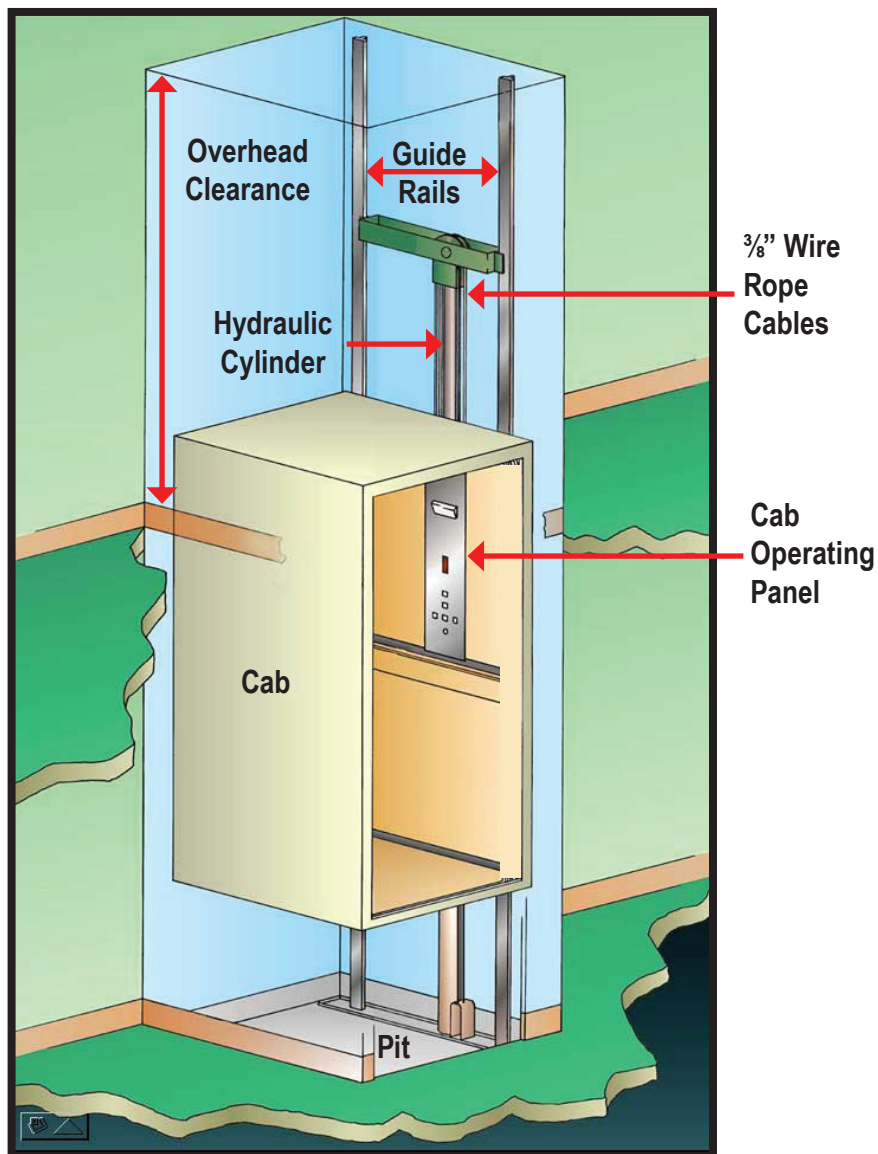
**NOTE: The cab dimensions provided in this manual are based on a PLAM cab.**

Lift configurations and dimensions are in accordance with our interpretation of the standards set forth by the codes listed above. Please consult Savaria or the authorized Savaria dealer in your area for more specific information pertaining to your project, including any discrepancy between referenced standards and those of any local codes or laws (AHJ).

The dimensions and specifications in this Planning Guide are subject to change (without notice) due to product enhancements and continually evolving codes and product applications.

- Determine customer's intention for use.
- Determine code requirements of site.
- Determine installation parameters of site.
- Use page 6 to determine the car type and hoistway size requirements.
- Use pages 7, 8 and 27 to plan for machine room and electrical requirements.

## PRODUCT DESCRIPTION



Orion in Hoistway

### Meets (ADA) Americans with Disabilities Act Requirements

The Orion meets the requirements of the ADA Accessibility Guidelines as a means to provide public building access.

### Design Assistance

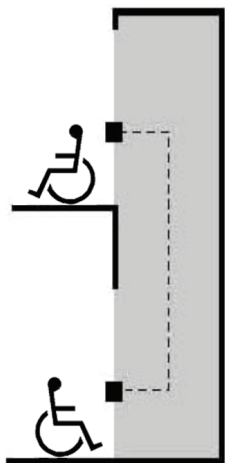
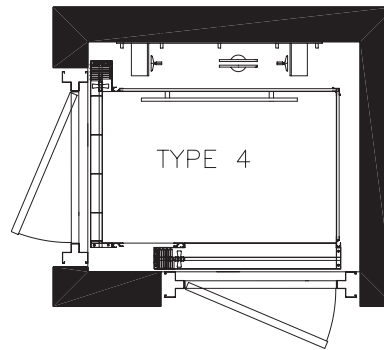
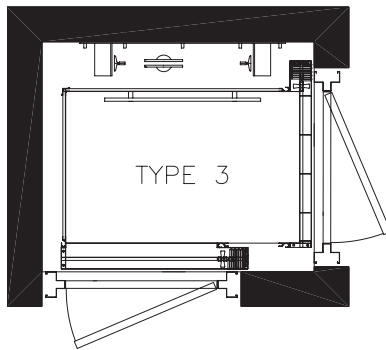
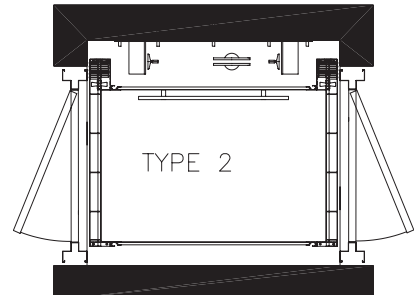
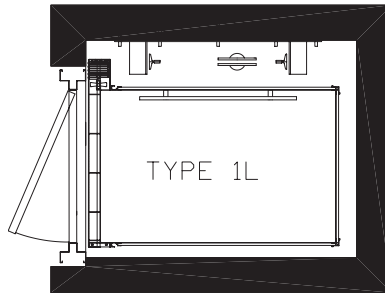
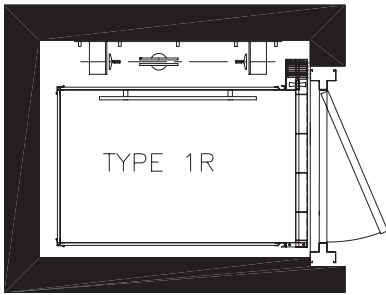
With over 30 years of experience, Savaria has the expertise to provide solutions to practically every design challenge you face. Please call our Customer Service Department for professional advice at (800)661-5112 or (905)791-5555.

# ORION LU/LA ELEVATOR SPECIFICATIONS

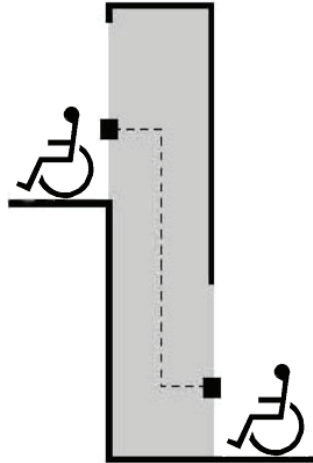
Load Capacity	1400 lb (635 kg)
Rated Speed	30 fpm (0.15 mps)
Power Supply (circuit by others)	208 Volt, three-phase, 30 Amps, 60 Hz or 240 Volt, single-phase, 40 Amps, 60 Hz
Lighting Supply (circuit by others)	120 Volt, 15 Amps, 60 Hz
Drive System	1:2 cable hydraulic with slack cable safety device 5 hp submersed motor Two 3/8" diameter steel aircraft cables; rope wedge sockets
Cab Size	W48" x 54" x H84" (1219 mm x 1371 mm x 2134 mm), Type 1, 2, 3, 4 W42" x L60" x H84" (1067 mm x 1524 mm x 2134 mm), Type 1, 2, 3, 4 W51" x L51" x H84" (1295 mm x 1295 mm x 2134 mm), Type 3, 4
Floor By Others (in cab)	5/8" (15.9 mm) maximum
Cab Panel Finish	Steel panel cab with optional laminates
Maximum Travel	18 inches (457 mm) to 25 feet (7.6 m) ANSI, up to 40 feet residential and CSA
Control System	Automatic user interface; Programmable Logic Controller (PLC)
Controller Specs	Operating Temperature: 50 to 80 degrees F (10 to 27 degrees C) Humidity: 20 to 80% (non-condensing) Vibration: 2G, Shock: 11G, Weight: Approx. 90 lbs
Distance between 2 landings	18" (457 mm) minimum
Noise level (typical installation)	73.2 dBA; measured at a height of 1m, distance of 1m, in front of tank, in closed machine room
Daily cycle	Normal: 30, Heavy: 75, Excessive: 100 Maximum starts in 1 hour on standard installation: 15 NOTE: Consult your Sales Representative if there's a chance you may exceed these amounts.
Maximum machine room temperature	80 degrees F (27 degrees C); tank generating ~ 3200 BTU/HR to 6400 BTU/HR
Levels and Openings	Up to 6 stops (maximum 6 landing doors on all cab types)
Pit Depth Required	14 inches (355 mm) minimum up to 96 inches (2438 mm)
Minimum Overhead Clearance	108 inches (2743 mm) for existing construction without overspeed governor 120 inches (3048 mm) for existing construction with overspeed governor 134 inches (3404 mm) for new construction 110 inches (2794 mm) for Orion17 cab
Hall Station and Control Panel Finish	Rectangular stainless steel (standard) or brass (optional)
Standard Features	8 lb/ ft or 16 lb/ft T-rail system Anti-creep device Architectural white ceiling Automatic cab ON/OFF lighting Car top stop switch and car top prop (where required) Data plates, capacity tags and rope tags Digital floor and directional indicator Emergency manual lowering, stop key switch and alarm buttons Emergency battery back-up for lighting, alarm and emergency lowering Floor specific battery lowering Illuminated cab operating buttons Limited warranty covers the repair or replacement of any defective parts for a period of 36 months from date of shipment Magnetic floor selection, stopping and re-leveling Manual reset slack rope safety switch Maintenance pit props Pit switch Pit clearance switch Presentation drawings Pump run timer Rail sections (8 ft standard or 16 ft optional) LED lights in stainless steel Recessed plywood floor Two 12V, 4AH, sealed no maintenance batteries with 24 V, 4 Amp Smart Charge™ battery charge Variable speed pressure compensated valve with manual lowering Upper and lower terminal limits
Options	2 speed sliding doors for drywall or Masonry hoistway finish 2 speed steel doors with infrared closing sensors in black, architectural white or stainless steel Steel panels with plastic laminate in a variety of colors 15 ft, 20 ft, or 25 ft hose with flow control 90 degree entry/exit cab Automatic cab gate operator and automatic hoistway door operator Automatic home landing to pre-selected floor Brass COP, hall call stations, handrail and recessed down lights Buffer springs, 15" (381 mm) minimum pit depth required Conductor cable for hoistway to pump wiring, 40 ft (12.19 m), 60 ft (18.29 m) or 80 ft (24.38 m) Firefighter service - phase 1 and 2 (dependable on applicable code year) Flow control, overspeed valve and pipe rupture valve Hands-free telephone Overspeed governor Fire recall service Raised plastic laminated panels in a choice of 7 colors Recessed stainless steel or brass telephone cabinet Savaria Link remote monitoring



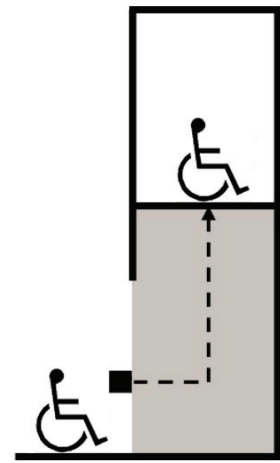
# CAB TYPE SELECTION SHEET



Type 1



Type 2

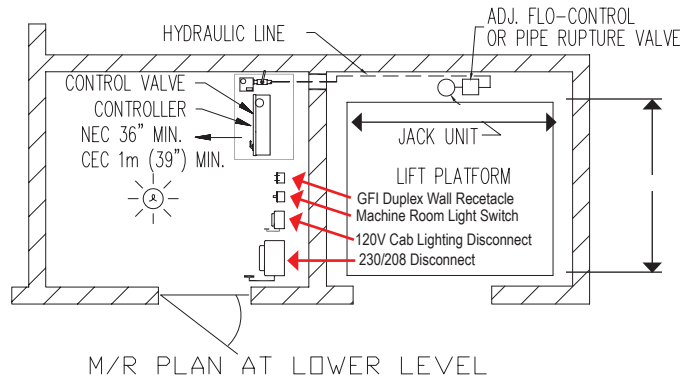


Type 3 and 4

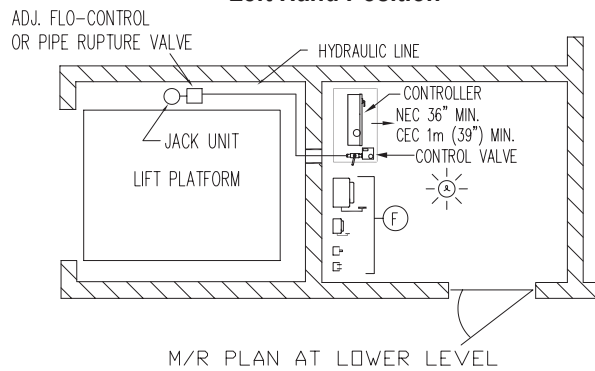
## IMPORTANT

Finished hoistway dimensions must include the drywall. Determine the fire rating of the hoistway, the type and layers of sheet rock and build only off the final shop drawings specific to your project.

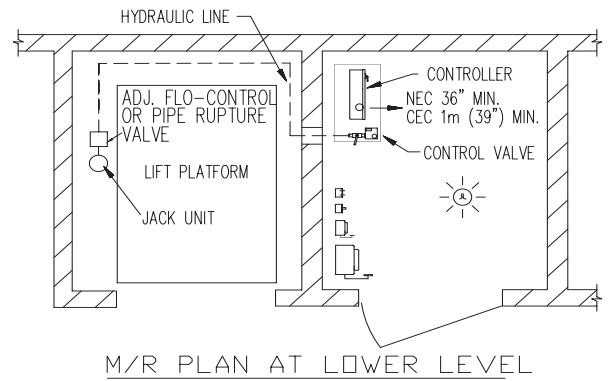
# MACHINE ROOM OPTIONS



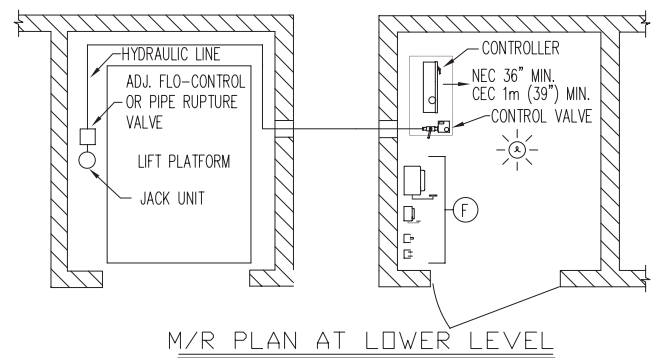
**Left Hand Position**



**Back Position**



**Right Hand Position**

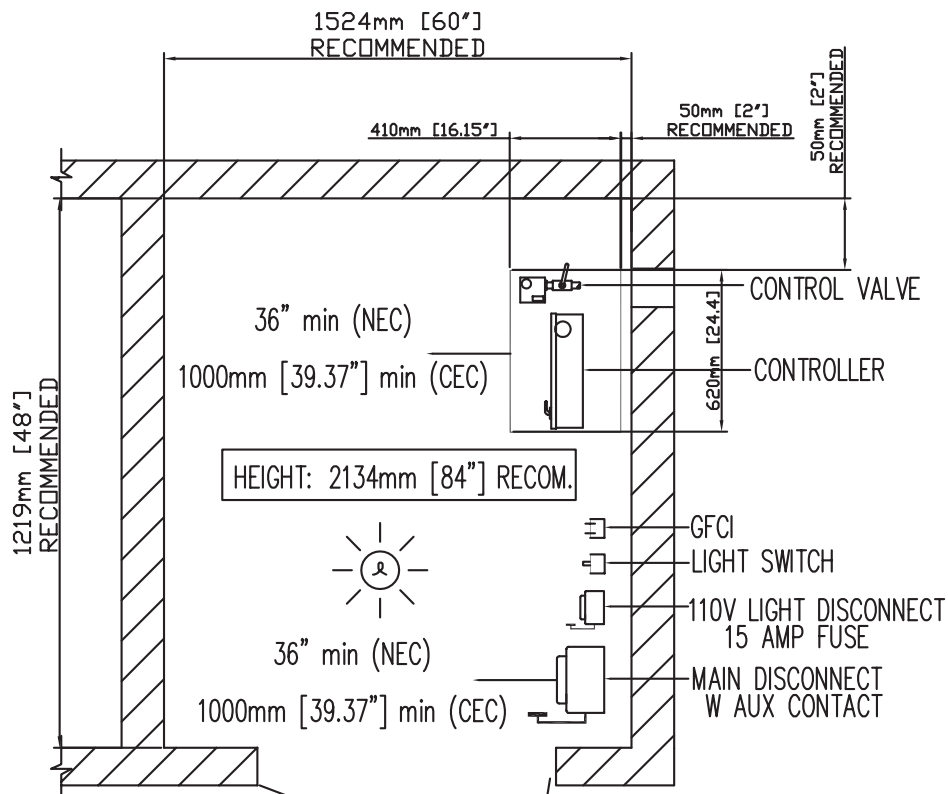


**Remote Position**

- Machine room must be built in accordance with elevator manufacturer and applicable building codes and regulations. Adequate ventilation is required to maintain a temperature of 50° to 80°F (10 to 27°C) for output of 3600 BTU per hour.
- A convenience outlet of 120 VAC 15 Amp single-phase with G.F.I. shall be located next to the light switch in the machine room (provided and installed by others).
- Provide lockable, in open position, fused disconnect switches located adjacent to the elevator controller. Fusing must be selectively coordinated. Fuse either 208V three-phase w/30 Amp or 240V single-phase w/40 Amp service; fuse 120V for 15 Amp service for cab lighting. (Must comply with applicable codes.)
- The electrical circuit provided shall be either 30 Amp 208V three-phase or 40 Amp 240V single-phase, dedicated circuit with equipment ground. The circuit shall terminate on the line side terminal lugs of the disconnect. The electrical circuit is provided and installed by others.
- Disconnect switch to have auxiliary normally open interlock switch. Interlock equal to Square D EK-300-Z.
- 30" wide x 36" deep work space required in front of the disconnects and the elevator controller.
- Machine room lighting shall be a minimum of 19 foot-candles (204 lux) at working surfaces. The switch for the light must be within 18" of the strike side of the machine room door. The light must be guarded to prevent accidental breakage or contact with the hot bulb. The switch, light, wiring, and guard are provided and installed by others.
- A telephone line circuit is to be provided and installed by others. This circuit shall be brought to the machine room controller in conduit. This circuit must be connected to a dedicated outside line or a 24 hour central exchange.
- The elevator controller/pump unit dimensions - 27.5" wide x 62.8" high x 16.15" deep with 39" clear space in front.
- Machine room access door must be self closing, self locking, key locked and have a spring return latch.
- Consult local building codes for door construction. The door and hardware are both provided and installed by others.
- Machine room is required to be free of all pipes, wiring and obstructions not related to the operation of the elevator. Provide a 4 inch conduit from the lift shaft to the remote machine room.

# MACHINE ROOM DIMENSIONS

IMPORTANT NOTE:  
CONFIRM REQUIREMENTS WITH LOCAL CODE

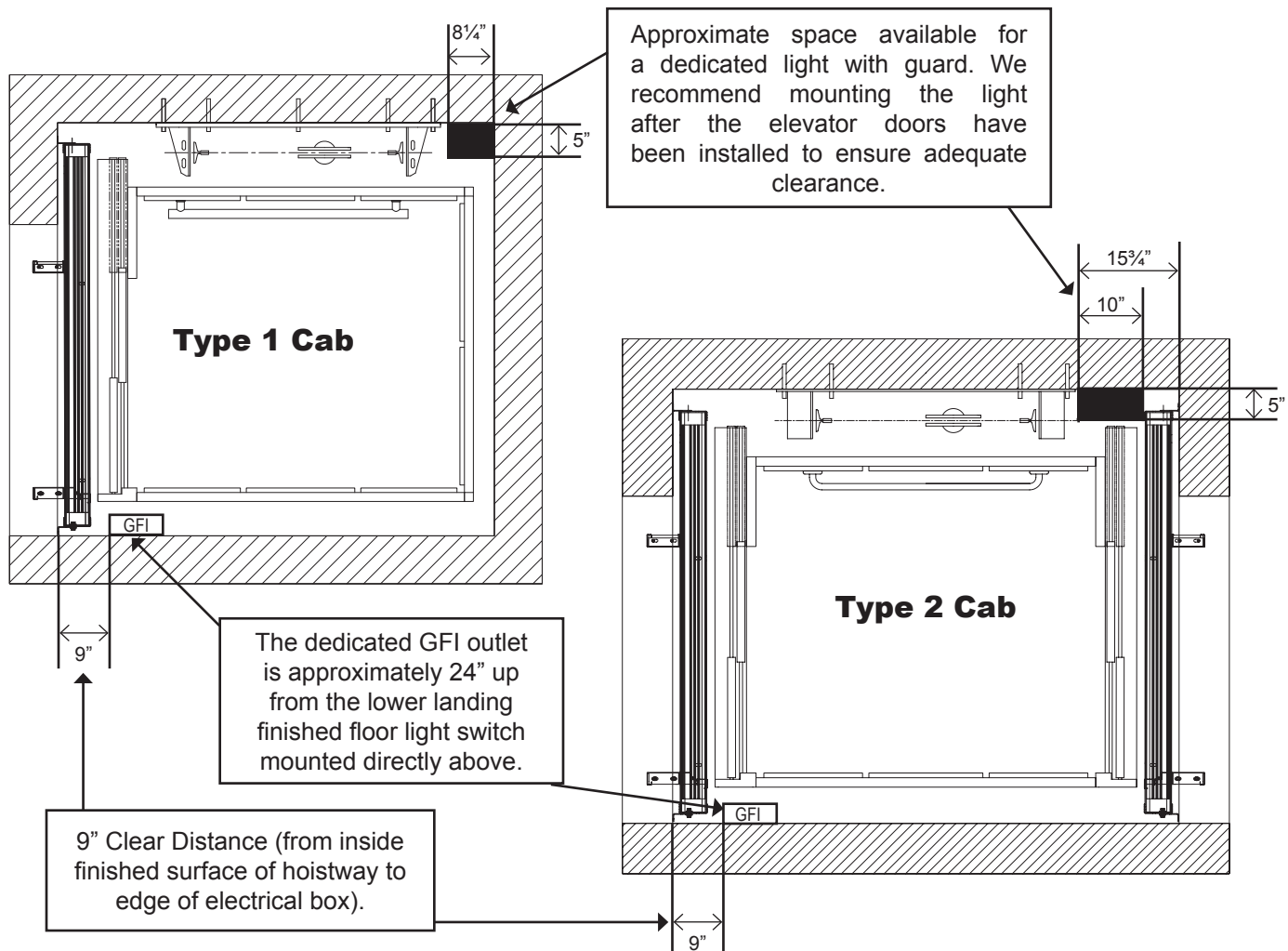


NOTE A:  
POSITION OF DOORS AND COMPONENTS CAN VARY  
AS LONG AS THE MINIMUM DISTANCE IN FRONT OF COMPONENTS IS RESPECTED

NOTE B:  
A RACEWAY BETWEEN THE MACHINE ROOM AND HOISTWAY WILL NEED TO BE PROVIDED.  
CONSULT YOUR INSTALLATION COMPANY FOR SIZE AND LOCATION

# HOISTWAY AND PIT ELECTRICAL NOTES

- o A load bearing wall is required to sustain rail reactions. See page 18 for rail reactions.
- o Suggested hoistway pit floor construction consists of an 8" (203 mm) concrete slab poured on a natural or compacted soil with a minimum allowable bearing pressure of 1.0 KSF.
- o The minimum compressive strength of the concrete at 28 days must be no less than 3000 PSI. #5 reinforcing steel (grade 60) must be placed at the bottom of the slab in 2 traverse directions and at a spacing of 12" (305 mm).
- o Hoistway pit floor to support a load of 10 kips (10,000 lbs)/44.48KN (includes impact).
- o 108" (2743 mm) minimum overhead clearance required above the top landing floor (for existing construction without overspeed governor).
- o 120" (3048 mm) minimum overhead clearance required above the top landing floor (for existing construction with overspeed governor).
- o 134" (3404 mm) minimum overhead clearance required above the top landing floor (for new construction).
- o 14" (356 mm) minimum pit. (A clearance device is provided to attain required 36" (914 mm) refuge space).
- o Hoistway sizes reflect running and access clearances only. Consult your local AHJ to assure compliance with local codes.
- o Hoistway is required to be free of all pipes, wiring and obstructions not related to the operation of the elevator.
- o If a dedicated pit light is required by your local AHJ, please follow the guidelines below for accommodating this in your hoistway

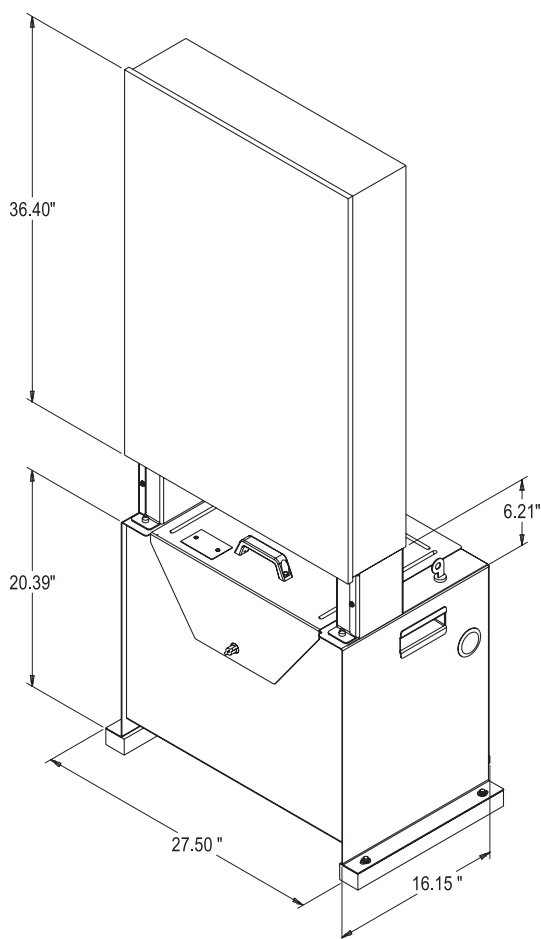


## CONTROLLER TANK SPECIFICATIONS

Dimensions (inches)	H 57" x W 28" x D 17" (approx.)
Minimum Required Clearance in Front (inches)	39"
Valve and Manual Lowering Handle Location	Inside tank
Rupture Valve Test	T-fitting factory installed
Tank to Controller Wiring	Quick connect valve and motor wiring
Controller Layout	PLC
Keyed Lock to Tank	Yes
Machine Room Required	Yes
Tank Capacity (gal/ltr)	15-16.5 gal/57-63 ltr
Max. Dry Weight (lbs/kgs)	147 lbs/55 kg
Max. Filled Weight (lbs/kgs)	312 lbs/117 kg
Operating Environment	50°F - 80°F /10°C - 27°C
Operating Volume	57 dBA

### Controller Tank Features

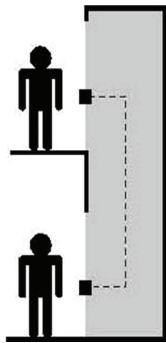
- Hydraulic hose connection ports on either side of the tank
- Built in handles on either side of the tank
- Isolation mounting of pump motor valve assembly minimizes operating noise



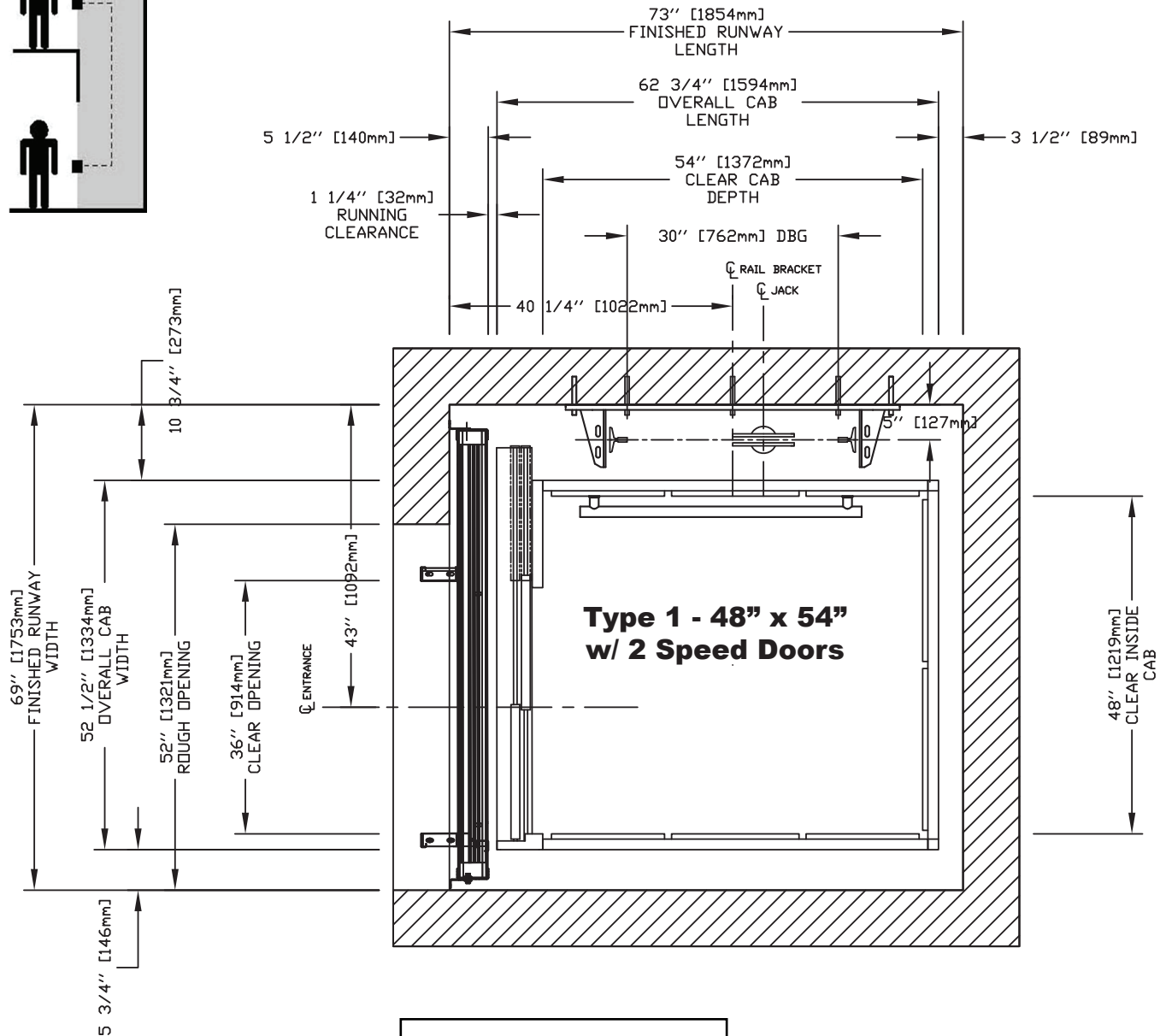
**PLC Controller Tank**

# ORION 48" X 54" TYPE 1 WITH 2 SPEED DOORS

Type 1



Finished hoistway dimensions must include the drywall (where applicable). Determine the fire rating of the hoistway, the type and layers of sheet rock. Build only from shop drawings specific to your project.



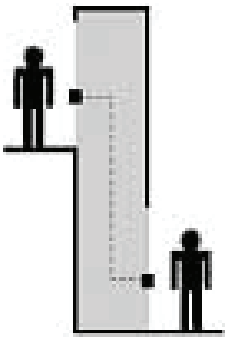
For Masonry or Drywall Entrance Details, refer to drawings on pages 21-24

## NOTE

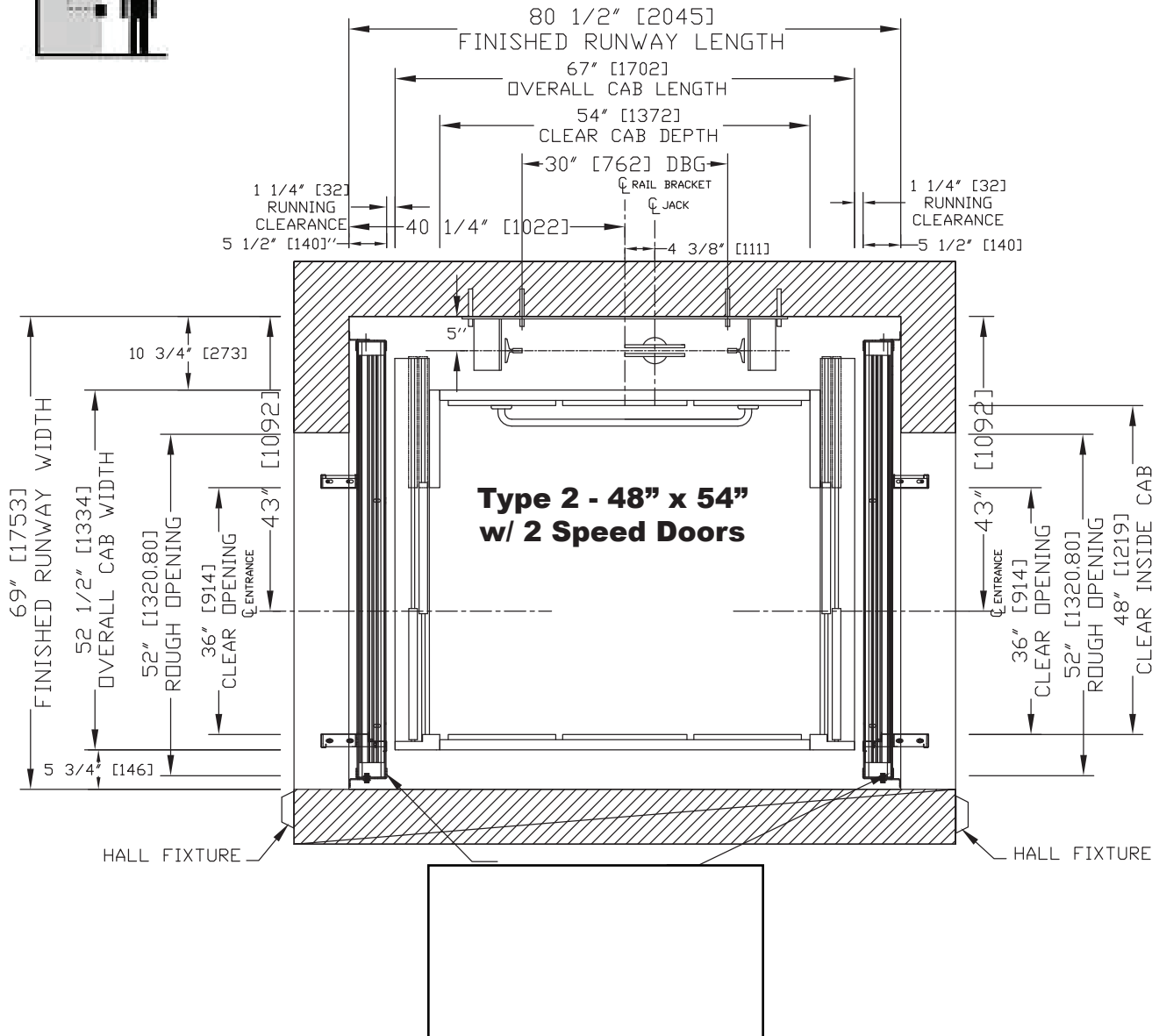
**Plan view drawing can be reversed for Right Hand applications. The cab dimensions provided in this manual are based on a PLAM cab.**

# ORION 48" X 54" TYPE 2 WITH 2 SPEED DOORS

Type 2



Finished hoistway dimensions must include the drywall (where applicable). Determine the fire rating of the hoistway, the type and layers of sheet rock. Build only from shop drawings specific to your project.

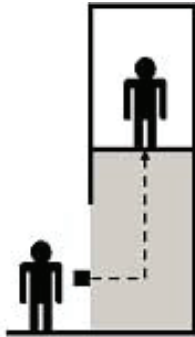


## NOTE

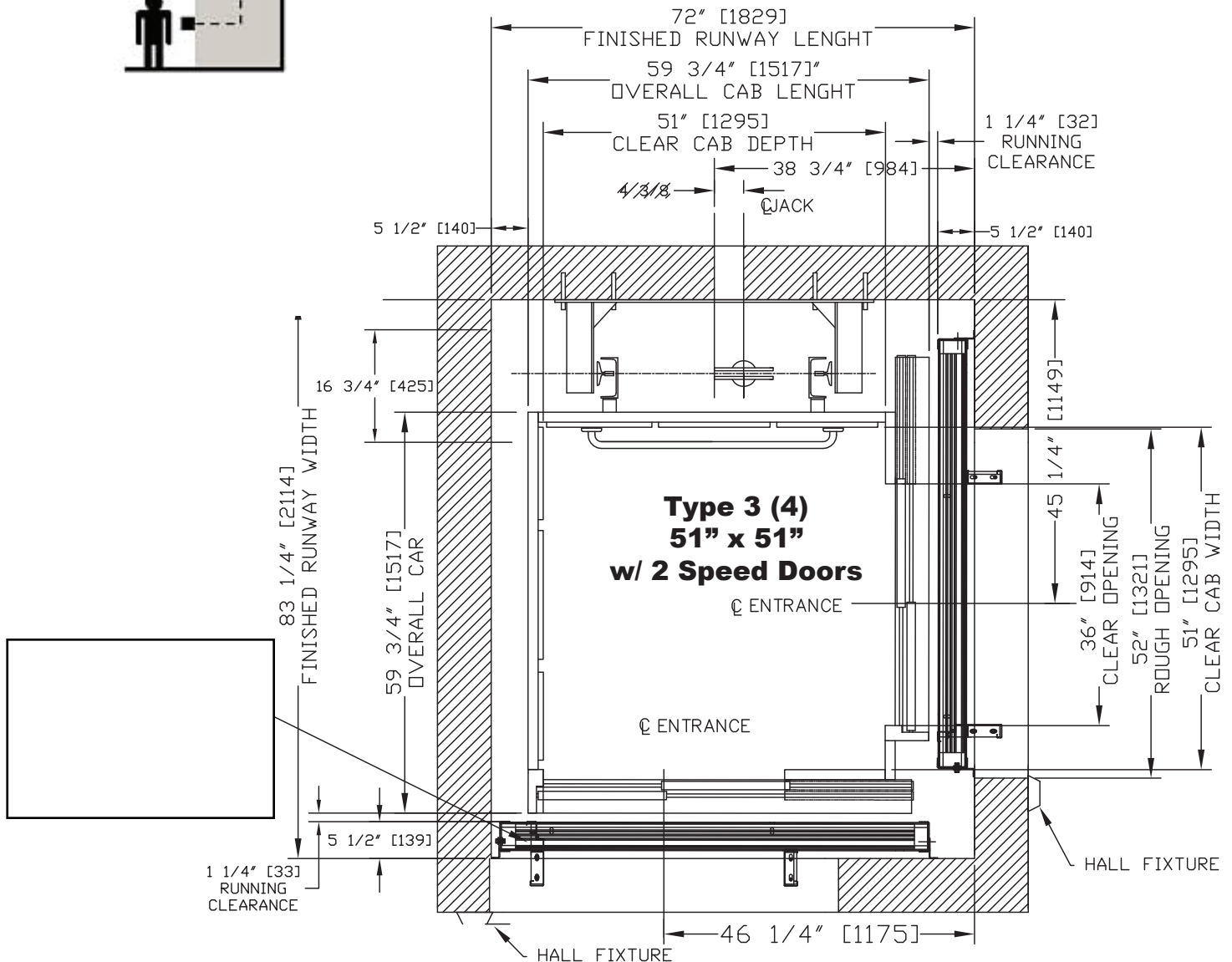
The cab dimensions provided in this manual are based on a PLAM cab.

# ORION 51" X 51" TYPE 3 (4) WITH 2 SPEED DOORS

Type 3 or 4



Finished hoistway dimensions must include the drywall (where applicable). Determine the fire rating of the hoistway, the type and layers of sheet rock. Build only from shop drawings specific to your project.



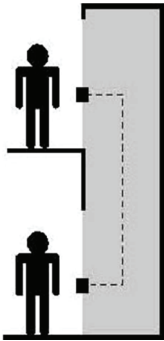
## NOTE

Plan view drawing can be reversed for Type 4 applications.  
The cab dimensions provided in this manual are based on a PLAM cab.

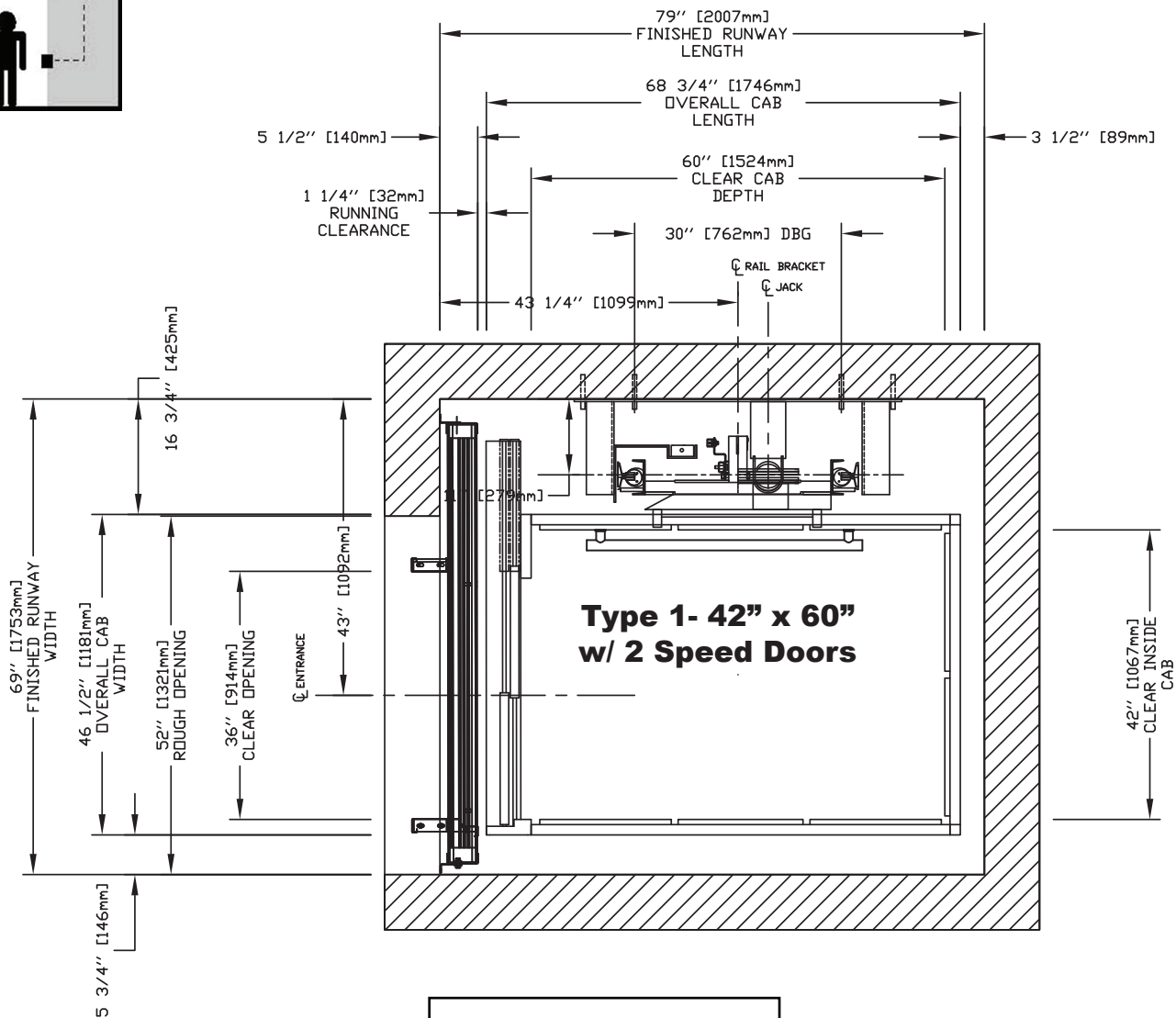


# ORION 42" X 60" TYPE 1 WITH 2 SPEED DOORS

Type 1



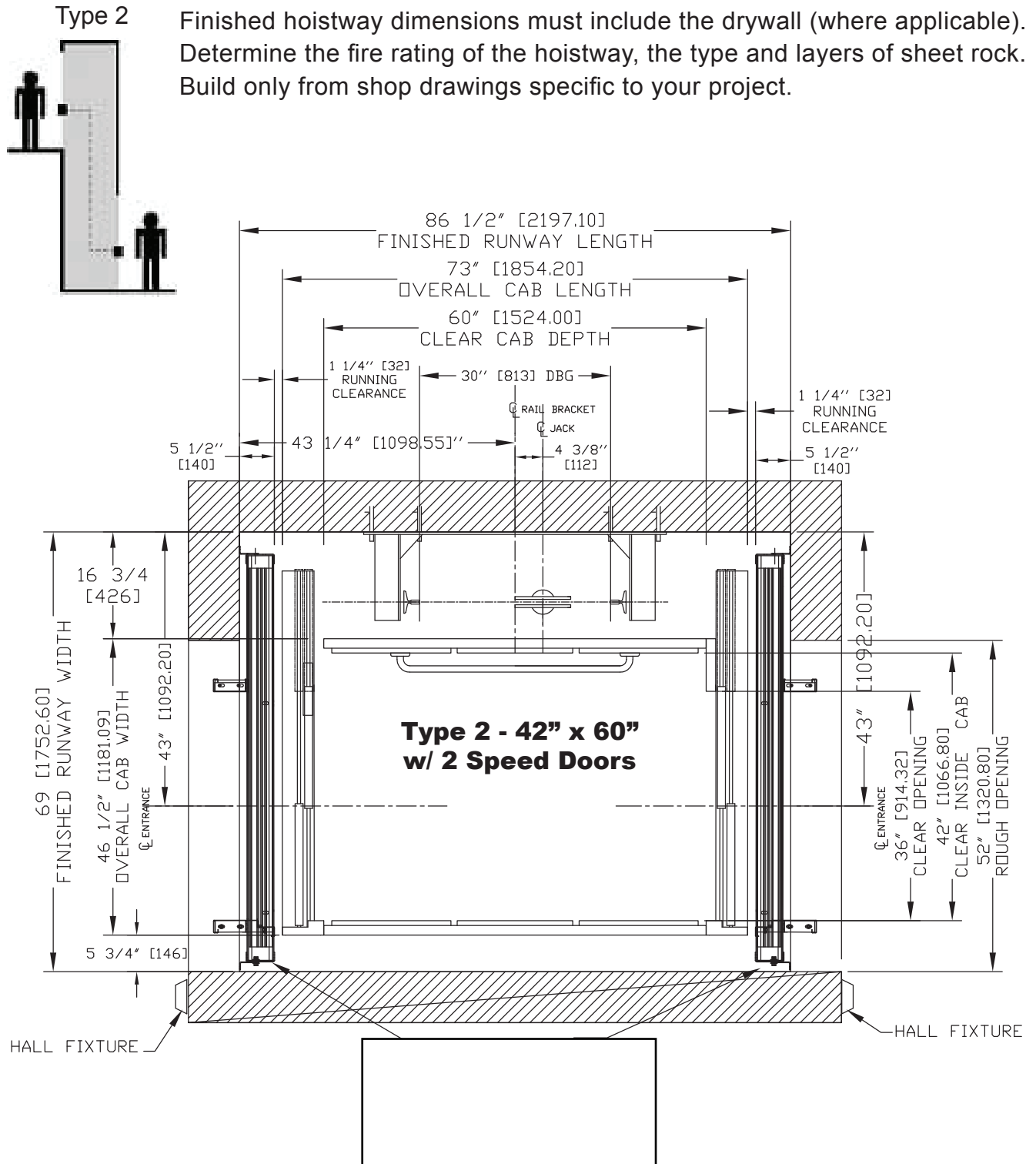
Finished hoistway dimensions must include the drywall (where applicable). Determine the fire rating of the hoistway, the type and layers of sheet rock. Build only from shop drawings specific to your project.



## NOTE

Plan view drawing can be reversed for Right Hand applications.  
The cab dimensions provided in this manual are based on a PLAM cab.

# ORION 42" X 60" TYPE 2 WITH 2 SPEED DOORS

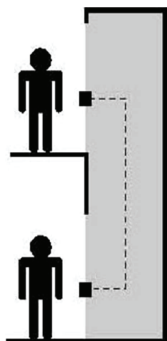


## NOTE

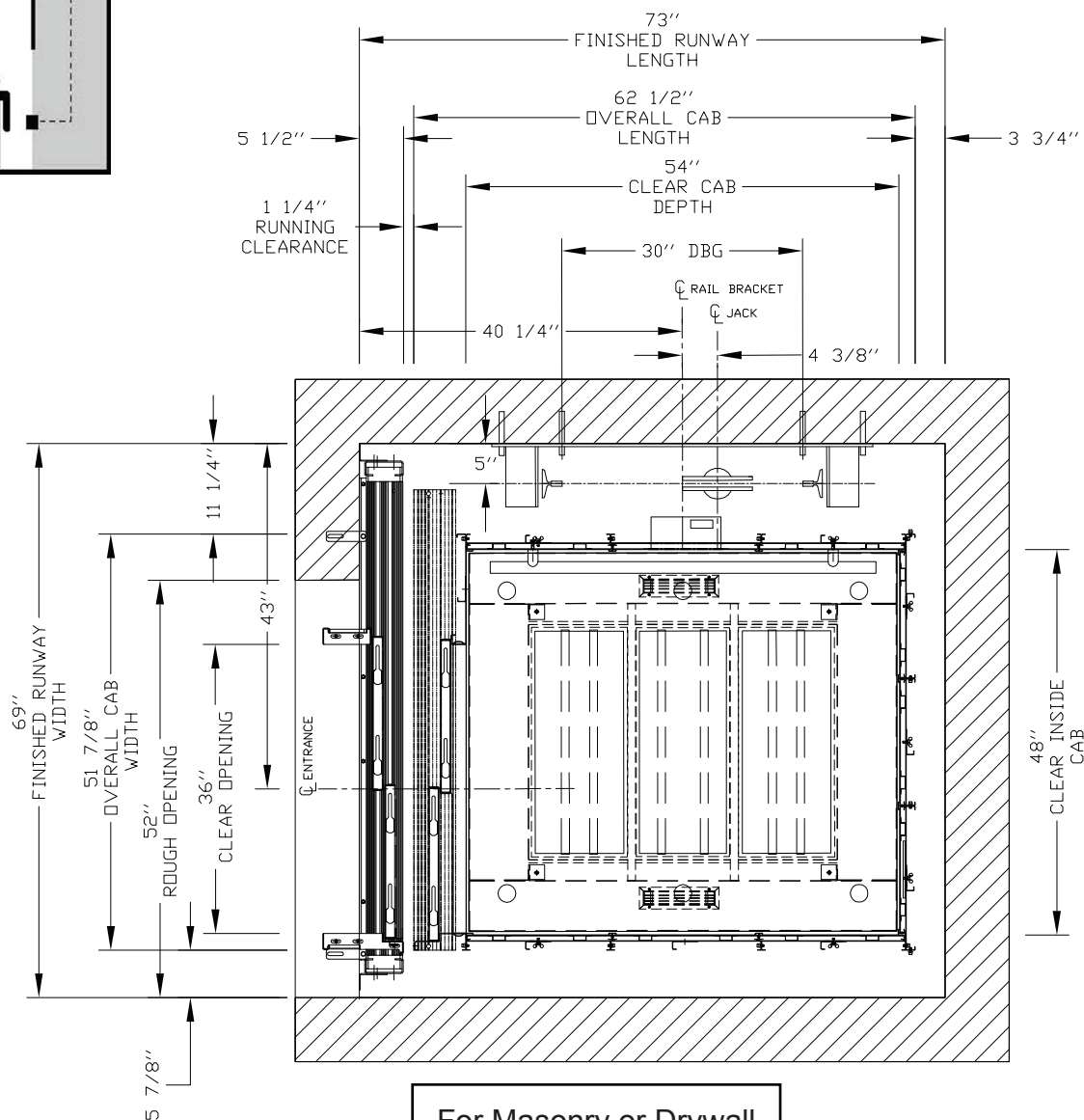
The cab dimensions provided in this manual are based on a PLAM cab.

# ORION17 48" X 54" TYPE 1 WITH 2 SPEED DOORS

Type 1



Finished hoistway dimensions must include the drywall (where applicable). Determine the fire rating of the hoistway, the type and layers of sheet rock. Build only from shop drawings specific to your project.

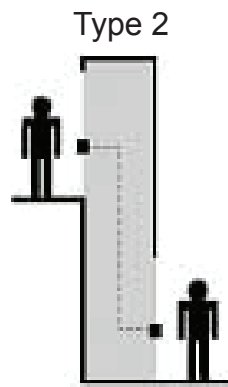


For Masonry or Drywall Entrance Details, refer to drawings on pages 21-24

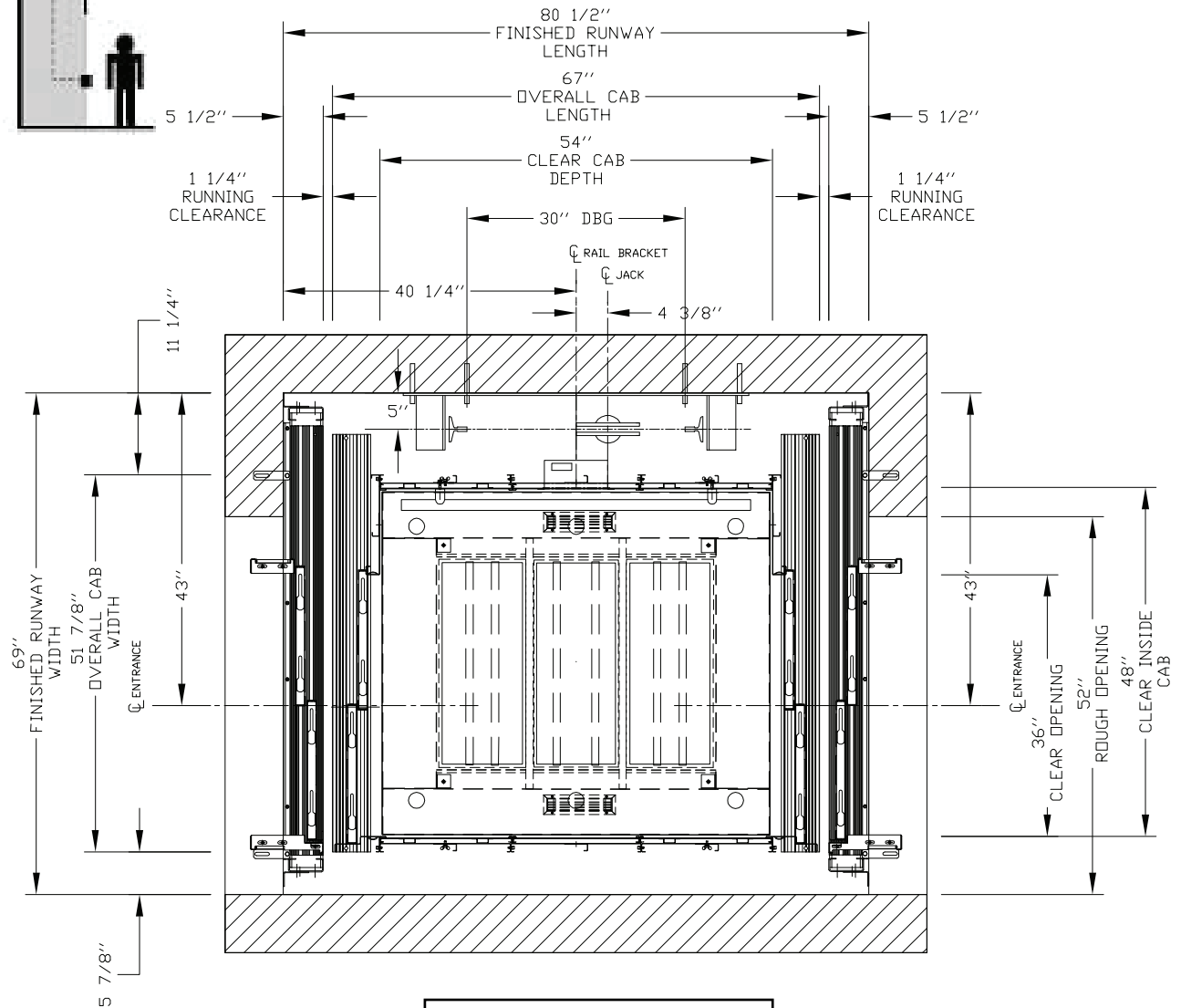
## NOTE

**Plan view drawing can be reversed for Right Hand applications. The cab dimensions provided in this manual are based on a PLAM cab.**

# ORION17 48" X 54" TYPE 2 WITH 2 SPEED DOORS



Finished hoistway dimensions must include the drywall (where applicable). Determine the fire rating of the hoistway, the type and layers of sheet rock. Build only from shop drawings specific to your project.

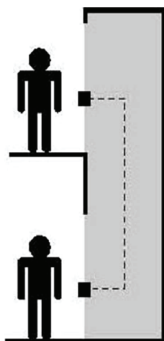


## NOTE

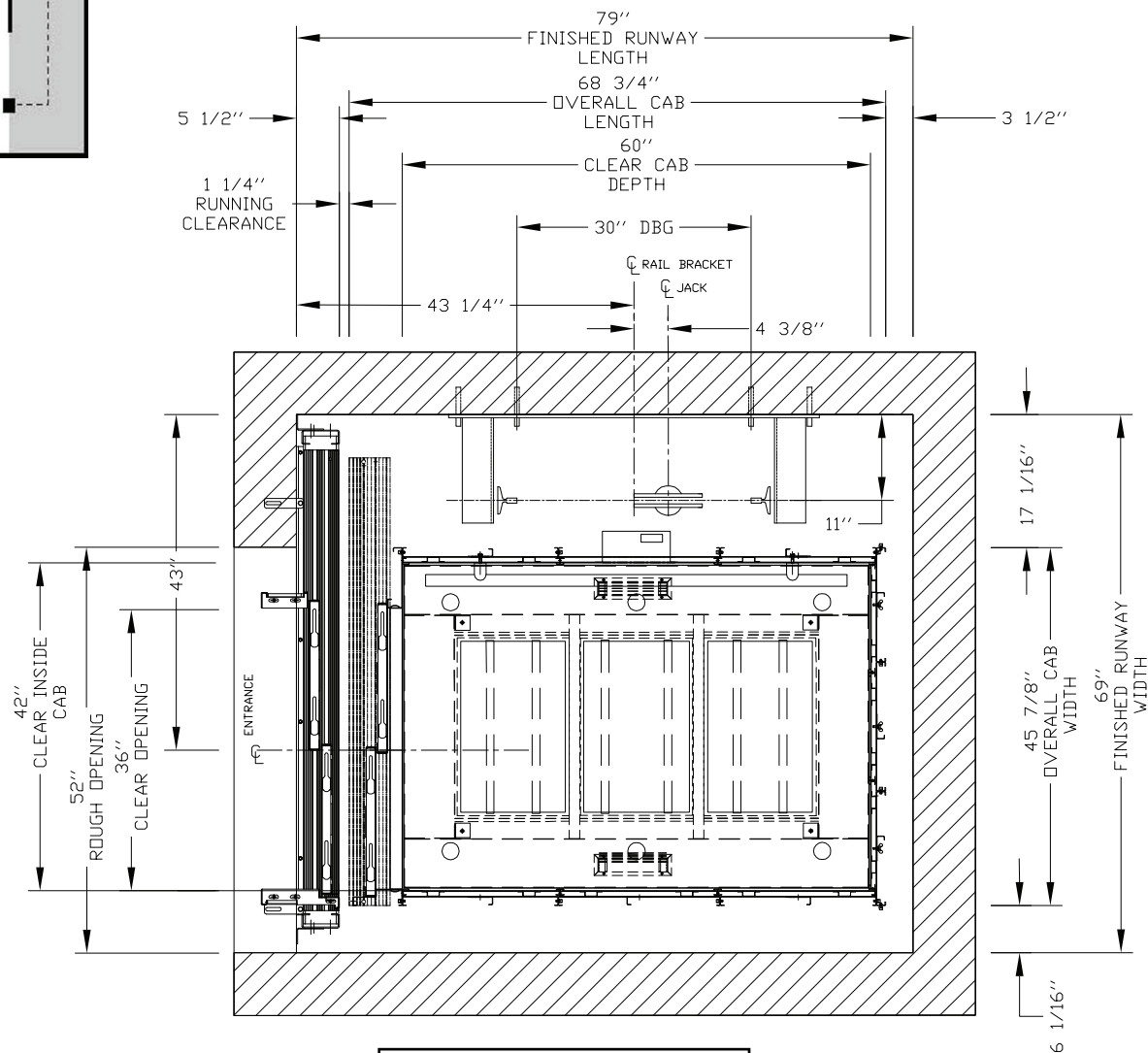
The cab dimensions provided in this manual are based on a PLAM cab.

# ORION17 42" X 60" TYPE 1 WITH 2 SPEED DOORS

Type 1



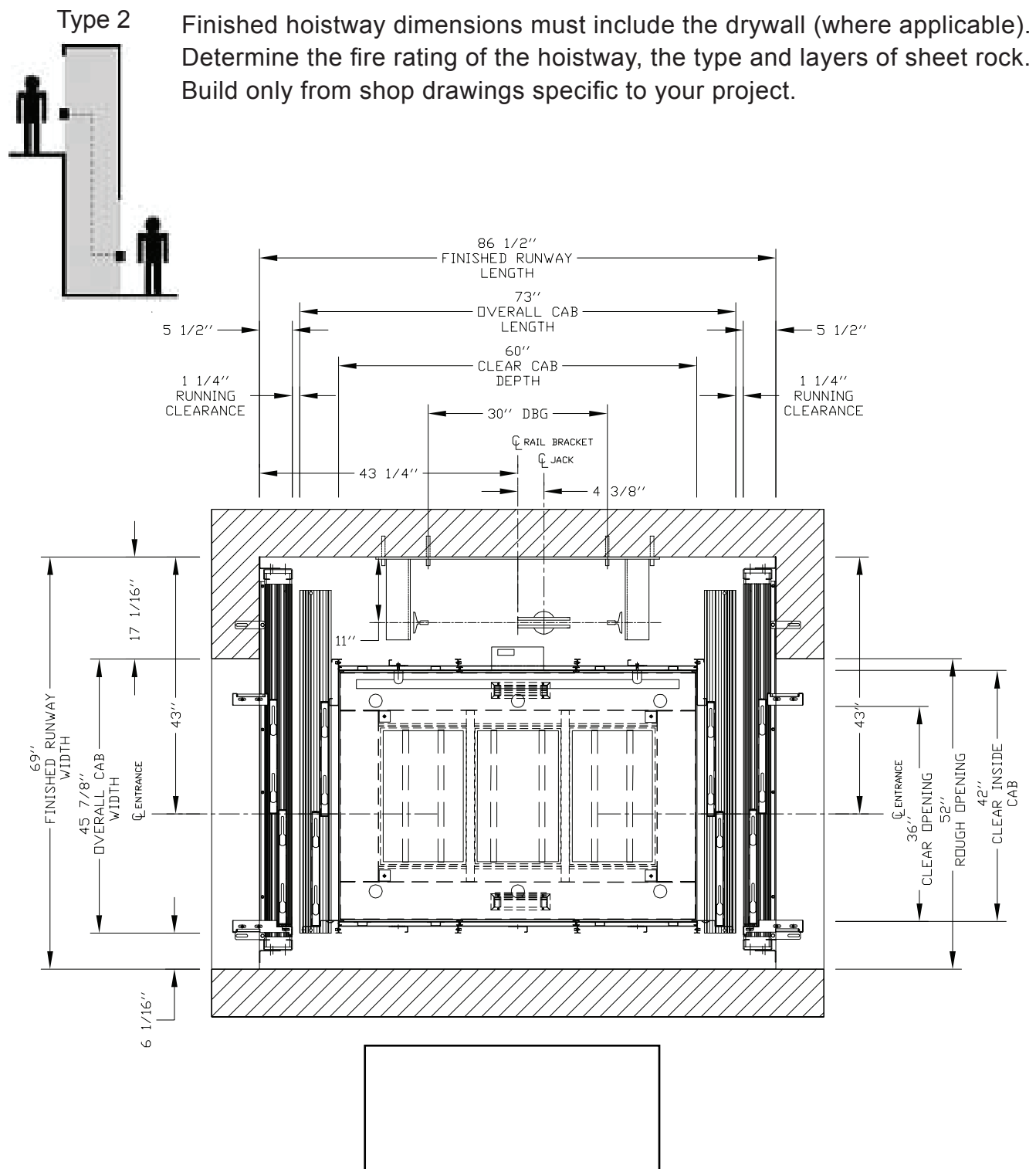
Finished hoistway dimensions must include the drywall (where applicable). Determine the fire rating of the hoistway, the type and layers of sheet rock. Build only from shop drawings specific to your project.



## NOTE

**Plan view drawing can be reversed for Right Hand applications.  
The cab dimensions provided in this manual are based on a PLAM cab.**

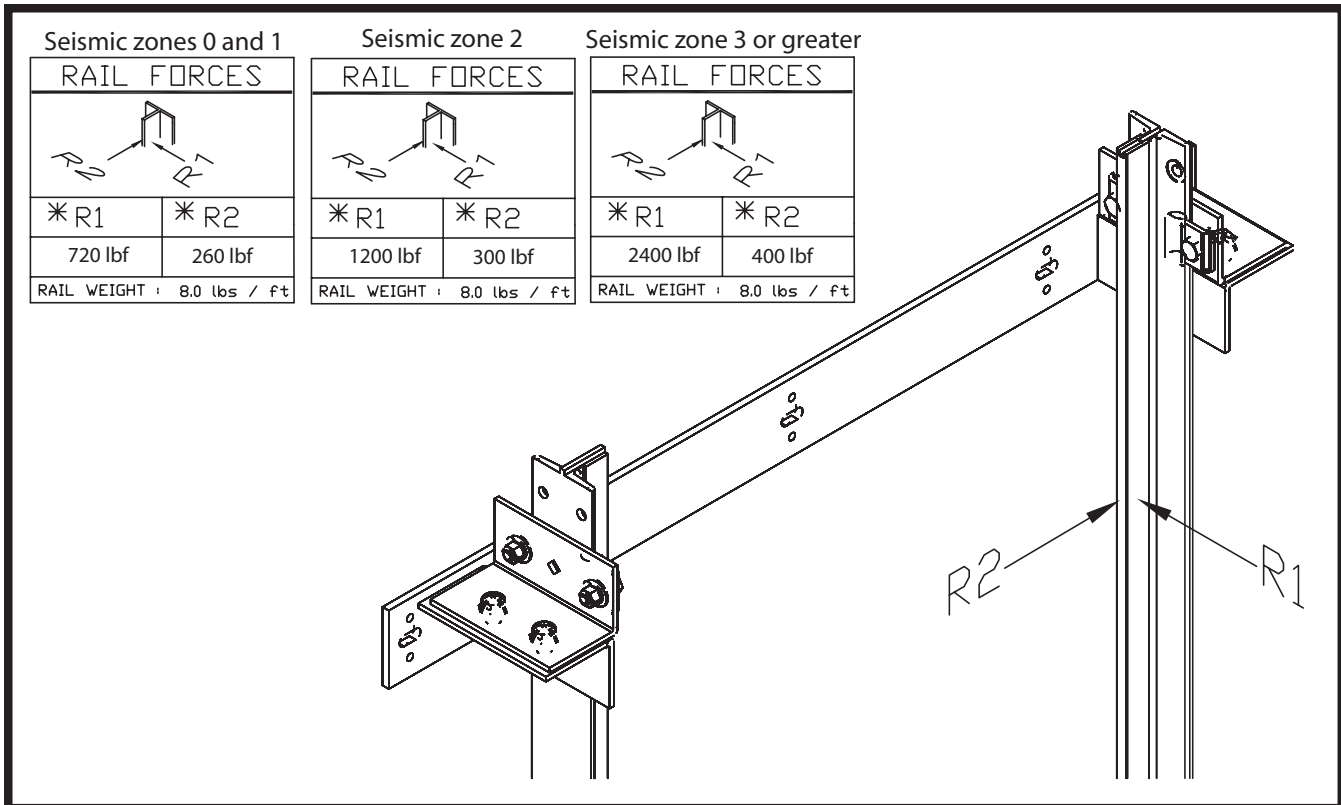
# ORION17 42" X 60" TYPE 2 WITH 2 SPEED DOORS



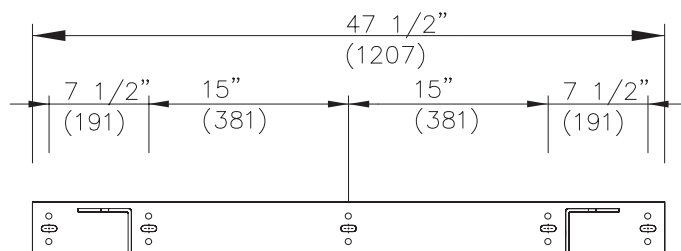
## NOTE

The cab dimensions provided in this manual are based on a PLAM cab.

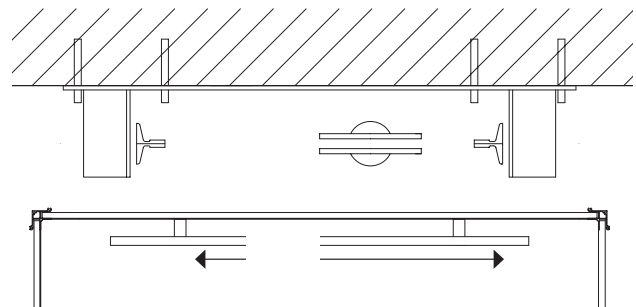
# LOADS ON BUILDING AND PIT LOADING



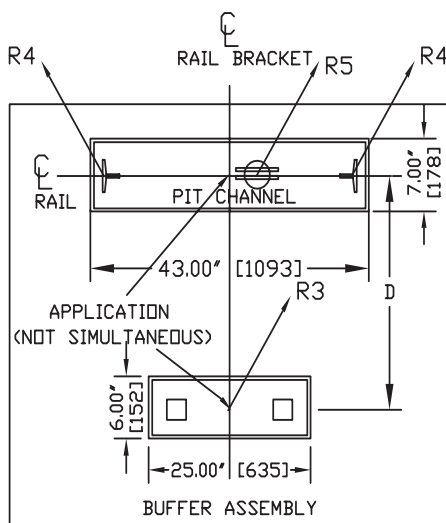
Rail reactions do not include safety factors. Applicable safety factors must be considered in hoistway design.



**Rail Bracket Dimensions**



**Support Wall Orientation**

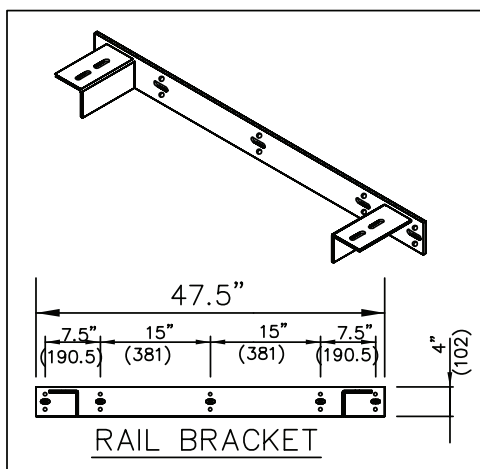
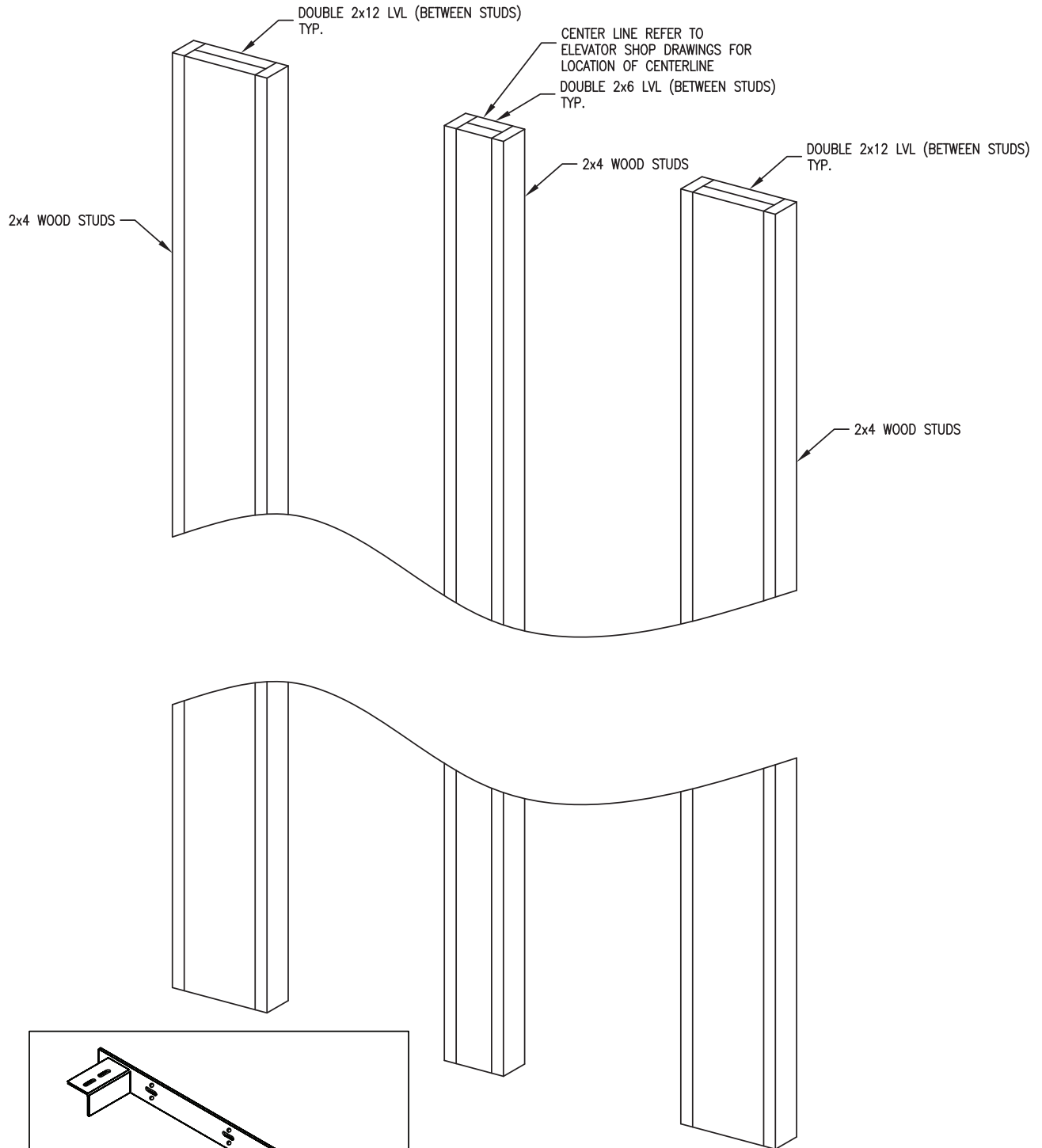


CAB WIDTH	DIST (D)
42'	31.625'
48'	31.625'
51'	31.625'
54'	31.625'

PIT PRE-ACTION FORCE	
R3	8000 LBS
R4	3000 LBS
R5	9000 LBS

R3 - Condition I: when fully loaded car hits buffer (bumper)  
 R4 - Condition II: when safeties engage on rails with 110% loaded car at governor tripping speed  
 R5 - Condition III: normal running with 1.2 times impact for starting and stopping jerks

# RAIL SUPPORT WALL STRUCTURE



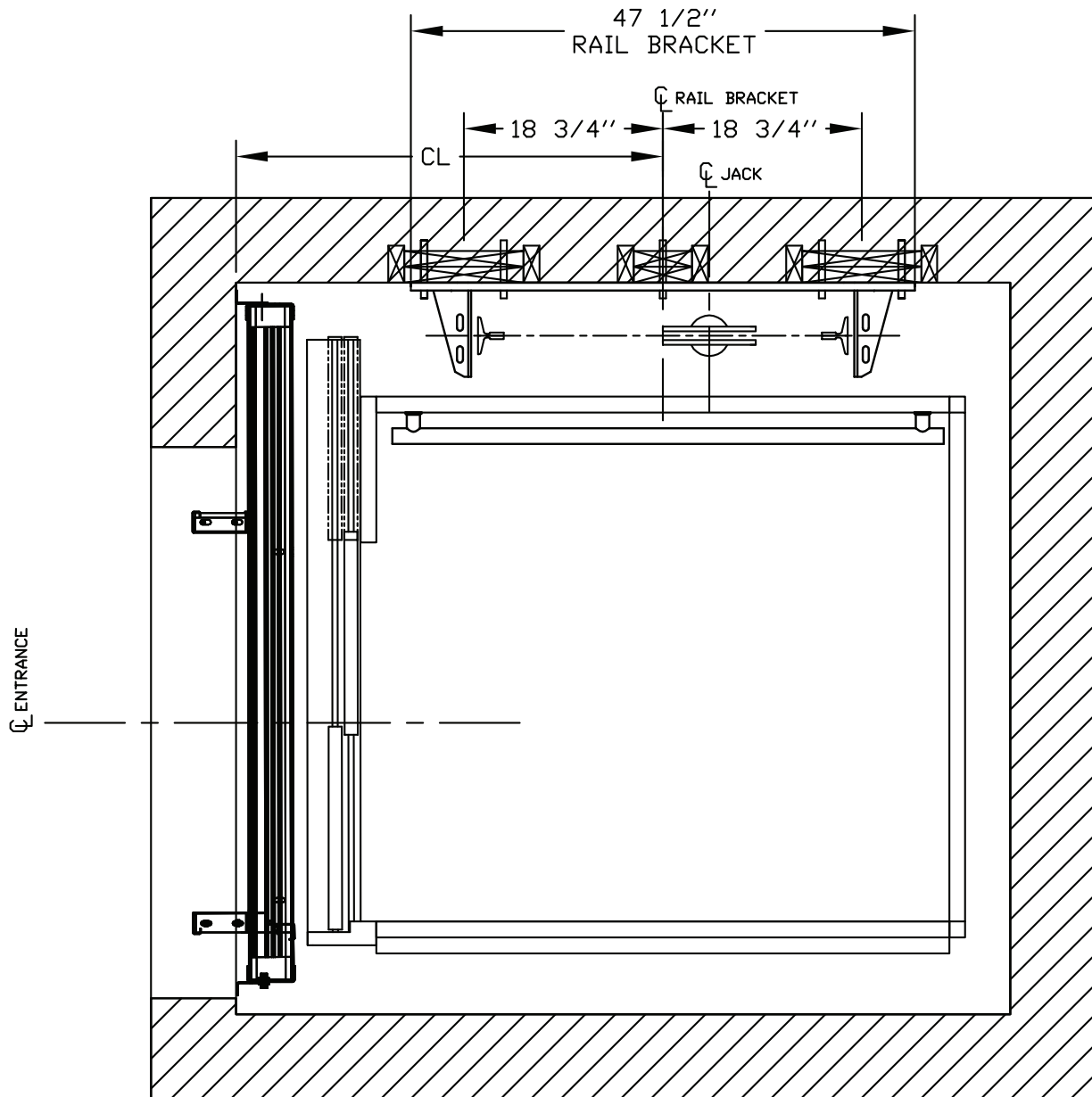
\* FIRE RATING OF HOISTWAY IS  
SUBJECT TO LOCAL BLDG CODES.

**NOTES:**  
BUILDING STRUCTURAL ENGINEER TO  
ASSURE THAT BUILDING AND SHAFT  
WILL SAFELY SUPPORT ALL LOADS  
IMPOSED BY THE ELEVATOR EQUIPMENT.

NOTE: Check Seismic Zone to see if the structure is allowed by your Local Building Code.

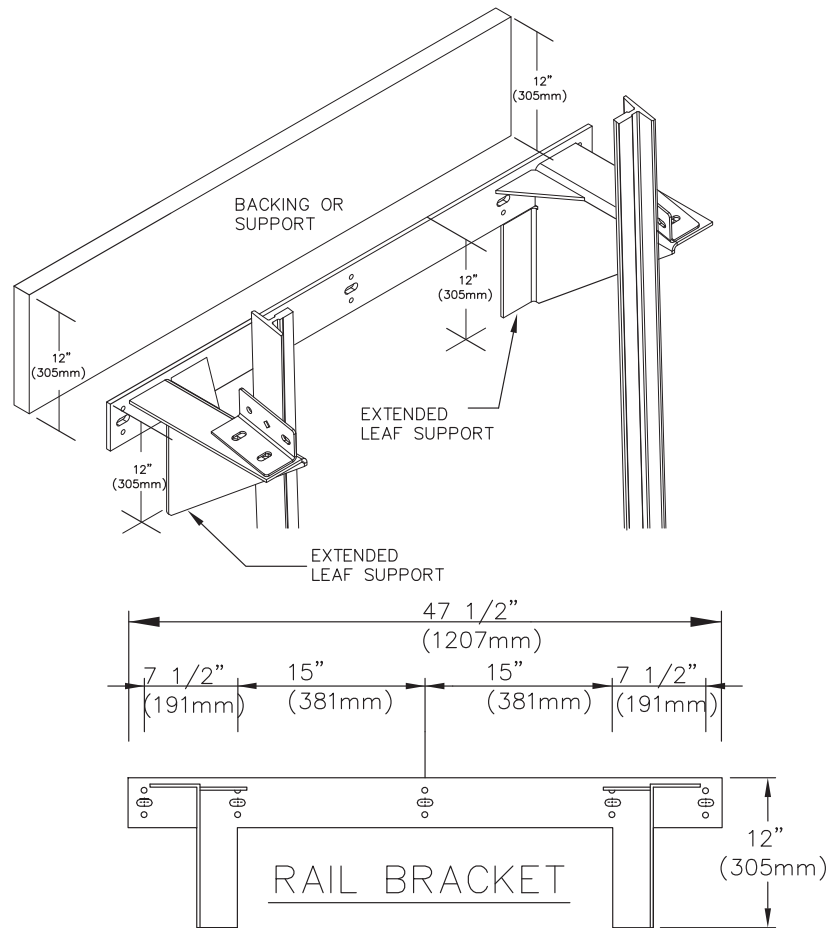


# RAIL SUPPORT WALL TOP VIEW



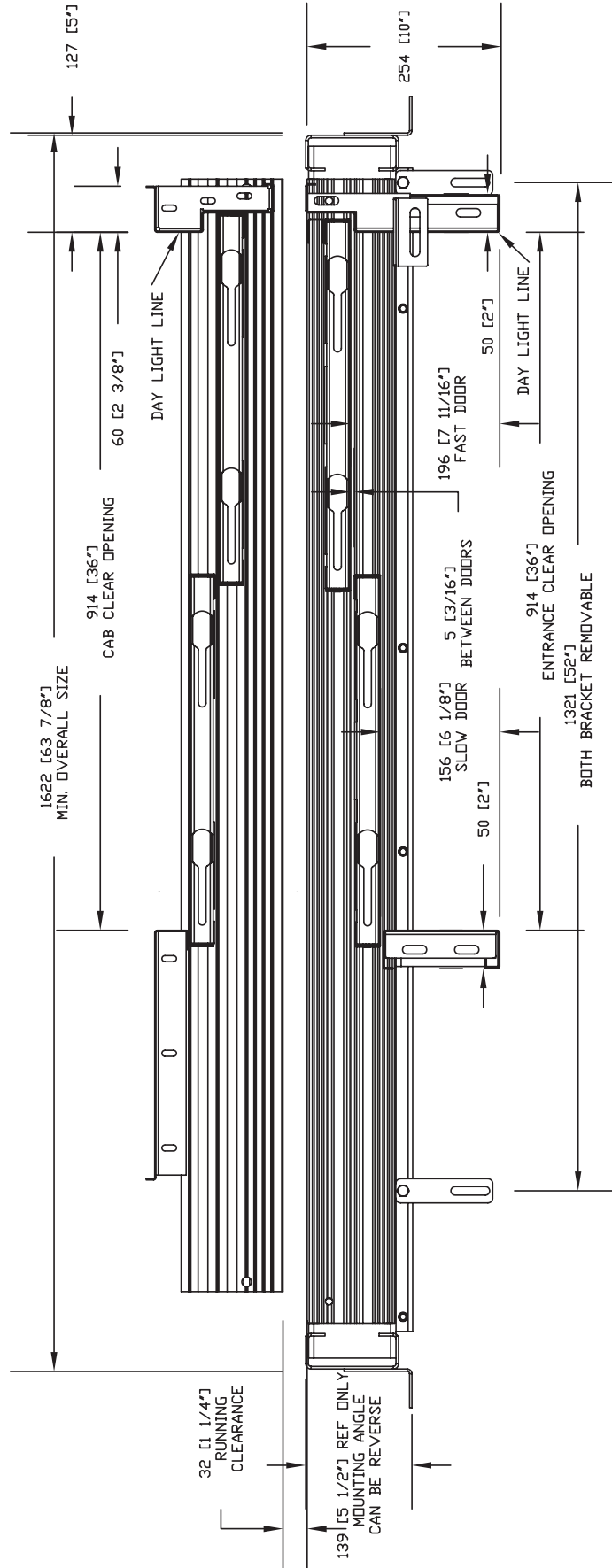
NOTE: Follow the centerline matching your job drawing. Type 1L shown above for reference only.

# BIG RAIL BRACKET BACKING

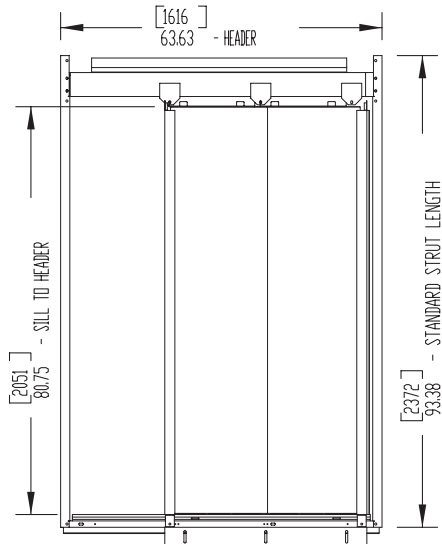
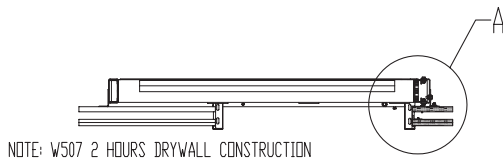


NOTE: IF THE INSTALLATION CALLS FOR HORIZONTAL BRACING OR THE EXTENDED RAIL BRACKETS, MAKE SURE THERE IS SUFFICIENT SUPPORT THAT EXTENDS THE FULL HEIGHT OF THE RAIL BRACKET BACK PLATE INCLUDING THE EXTENDED LEAF SUPPORTS.

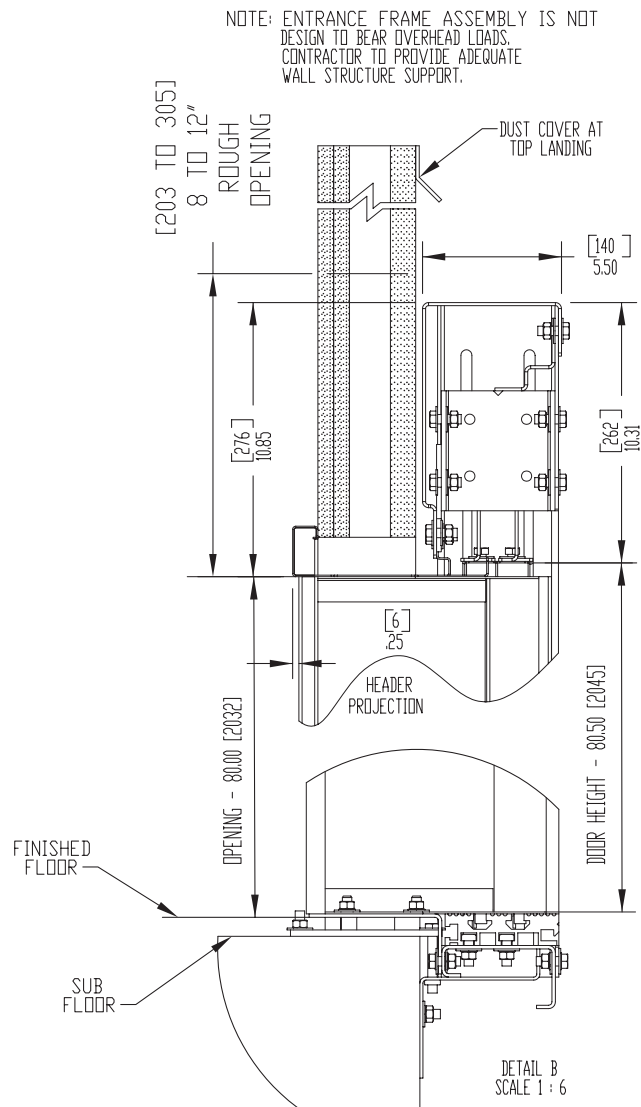
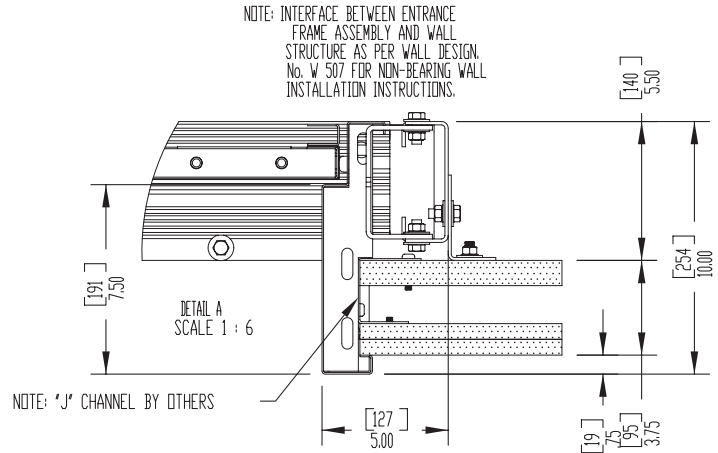
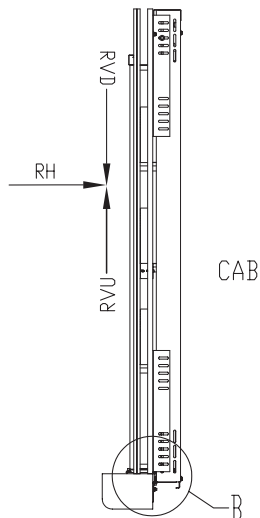
# ENTRANCE MOUNTING DETAILS FOR 2 SPEED DOORS WITH DRYWALL CONSTRUCTION



# ENTRANCE MOUNTING DETAILS FOR 2 SPEED DOORS WITH DRYWALL CONSTRUCTION

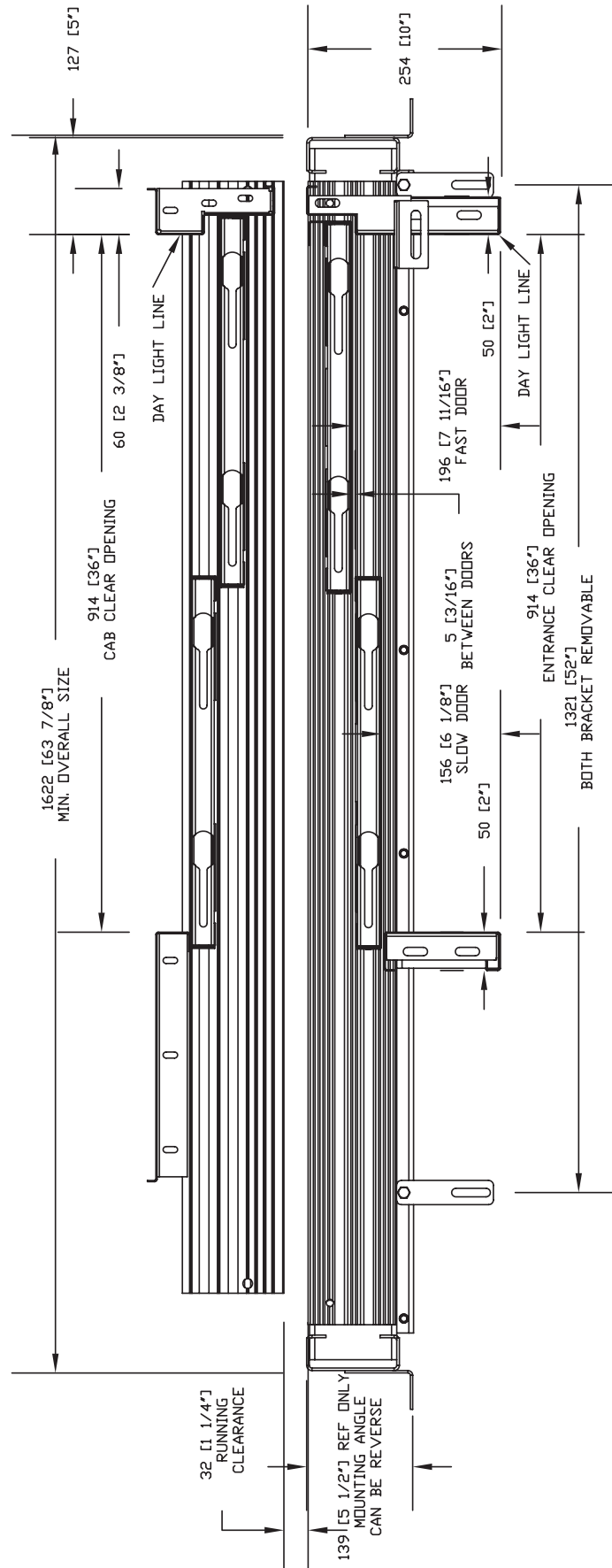


ENTRANCE LOADS ON BUILDING  
 RH = 5000 N (1125 lbf)  
 RVD = 1550 N (350 lbf)  
 RVU = 1000 N (225 lbf)  
 PER SECTION 2.11.11.8.

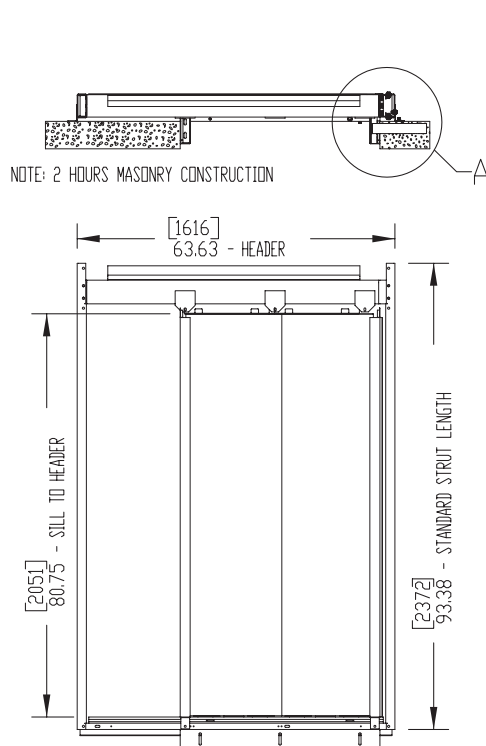


**Contractor please note:**  
**Grouting at the sill may be required after the door frames are set.**

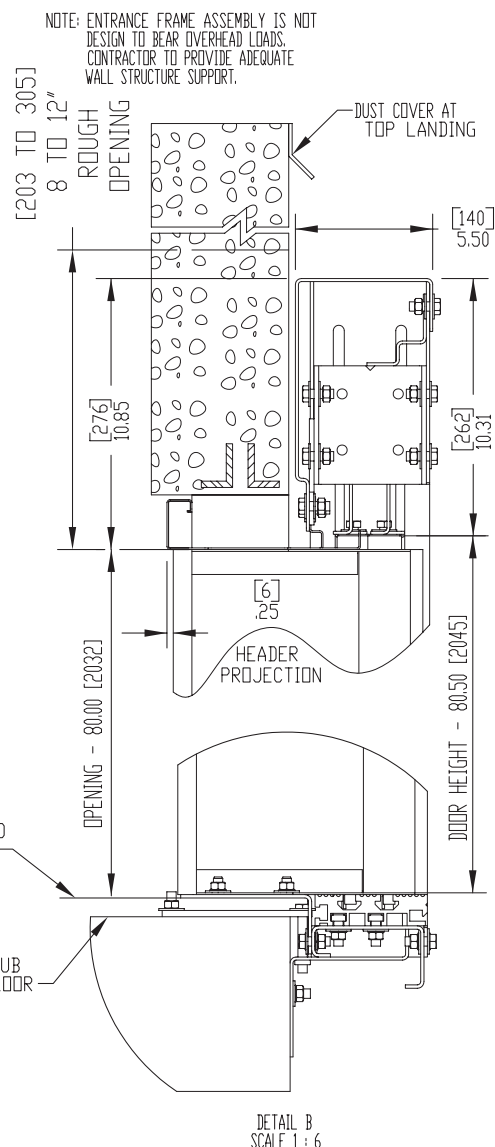
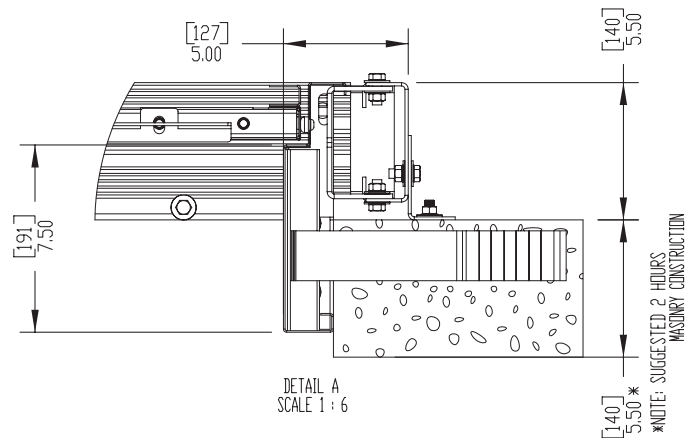
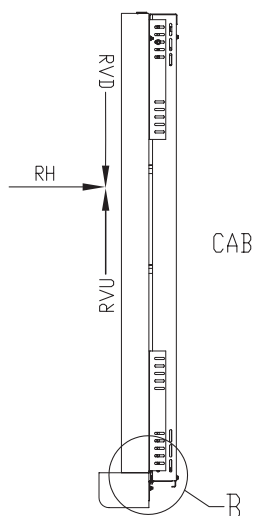
# ENTRANCE MOUNTING DETAILS FOR 2 SPEED DOORS WITH MASONRY CONSTRUCTION



# ENTRANCE MOUNTING DETAILS FOR 2 SPEED DOORS WITH MASONRY CONSTRUCTION

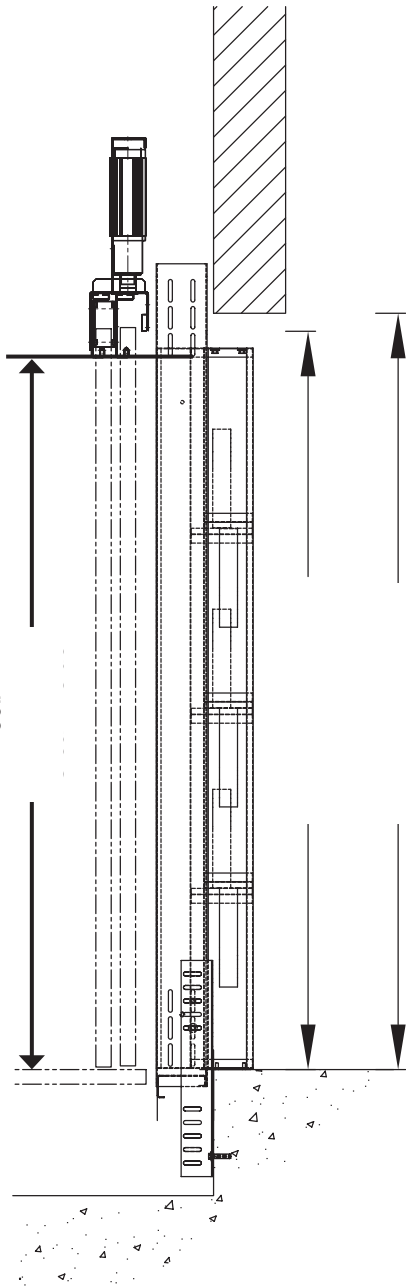


ENTRANCE LOADS ON BUILDING  
 RH = 5000 N (1125 lbf)  
 RVD = 1550 N (350 lbf)  
 RVU = 1000 N (225 lbf)  
 PER SECTION 2.11.11.8.

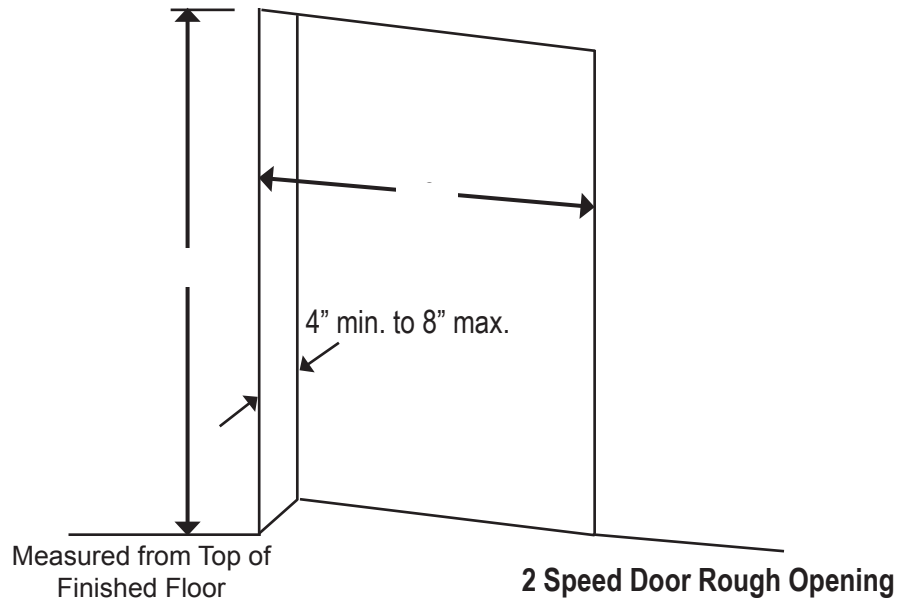


**Contractor please note:**  
**Grouting at the sill may be required after the door frames are set.**

# 2 SPEED AUTOMATIC DOOR AND GUIDE RAIL INFORMATION



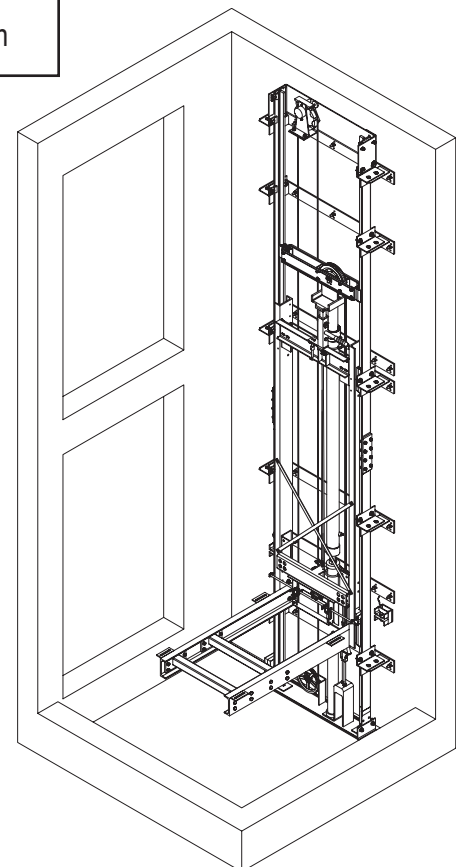
**Door Frame Elevation**



**2 Speed Door Rough Opening**

**For Metric Equivalents**  
Multiply inches times 25.4 for mm

**Example:**  
 $40.25" \times 25.4 = 1022.35 \text{ mm}$

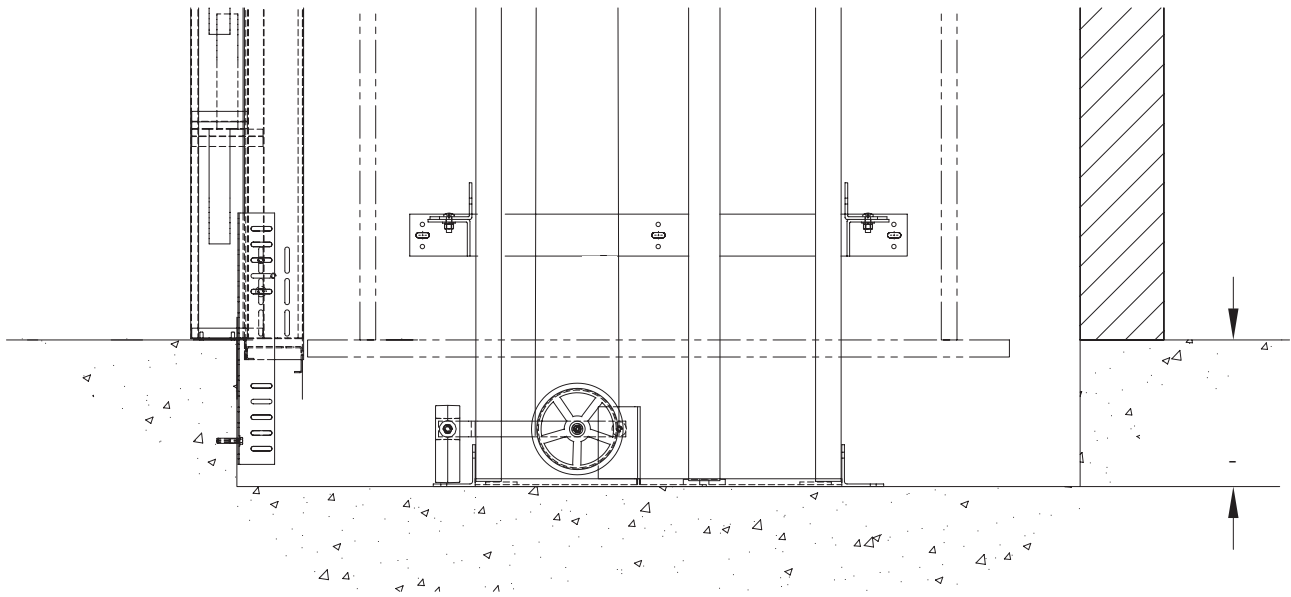


**Rails and Sling in Hoistway**

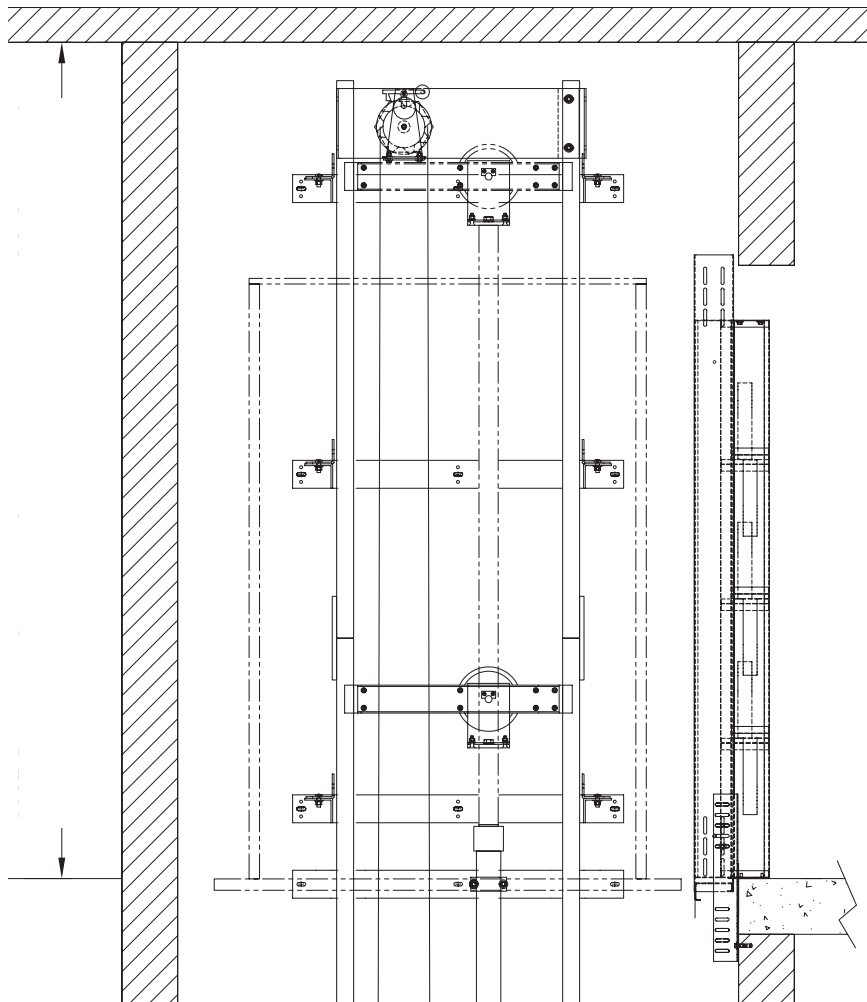
## Notes:

1. See hoistway requirements for the location of the door centerline.
2. Door panels and frame are primed for painting.

## PIT AND OVERHEAD CLEARANCE DETAILS



A minimum pit depth of 14" is required.





# ORION STANDARD NOTES

## HOISTWAY

- The hoistway must be designed and built in accordance with the “Safety Code for Elevators and Escalators” (ASME A17.1) and all state and local codes.
- Due to close running clearances, the owner/agent must ensure that the hoistway and pit (where provided) are level, plumb and square and are in accordance with the dimensions on these drawings.

## MINIMUM OVERHEAD CLEARANCE

- Owner/agent must ensure the minimum overhead clearance is in compliance with codes.

## CONSTRUCTION SITE

- Owner/agent to provide all masonry, carpentry and drywall work as required and shall patch and make good (including finish painting) all areas where walls/floors may need to be cut, drilled or altered in any way to permit the proper installation of the lift.

## DIMENSIONS

- Contractor/customer to verify all dimensions and report any discrepancies to our office immediately.

## STRUCTURAL

- Structural engineer to assure that the building and shaft will safely support all loads imposed by the lift equipment. Refer to the tables on the installation drawings for loads imposed by the equipment.
- Suitable lintels must be provided by the owner/agent. Door frames are not designed to support overhead wall loads.

## ELECTRICAL

- Power supply with a lockable fused disconnect and auxiliary contact to brake the battery feed, or circuit breakers with a 3-pole breaker for battery feed required in compliance with electrical code (contact your Savaria dealer or refer to the table below for OEM part numbers).

1 PHASE 5 H.P. Pump Unit			
2 Pole Solid Neutral 240V 1 PH	1HD222N	1622SN	ID322
Required Auxiliary Contact	DS16CP	E1K-1AEV-W94	MSSAK 116
Required Type “D” Fuse (Buss type “FRN” or equal)	2@40 amp	2@40 amp	2@40 amp
3 PHASE 5 H.P. Pump Unit			
3 Pole Solid Neutral 208V 3 PH	1HD321N	1332SN	ID321
Required Auxiliary Contact	DS16CP	E1K-1AEV-W94	MSSAK 116
Required Type “D” Fuse (Buss type “FRN” or equal)	3@30 amp	3@30 amp	3@30 amp
Cab Lighting			
1 Pole Solid Neutral 120V 1 PH	GP 111N	86211	CFN 211
Required Type “D” Fuse (Buss type “T” or equal)	1@15 amp	1@15 amp	1@15 amp

- Permanent power of 240V single-phase 40 Amp or 208V three-phase 30 Amp must be supplied by others before installation.
- Remote hall call (when supplied) to be installed by the owner/agent at 42” from the landing floor.

## ENTRANCES

- Entrance assemblies must be adjusted to align with the platform and interlock equipment. Others to allow an adequate rough opening.
- Entrance assembly must be securely fastened to walls by the elevator contractor.

## SAVARIA LINK OPTION

- If you have the Savaria Link Ethernet remote monitoring option, ensure that you have an Ethernet connection with Internet capability in the vicinity of the unit’s controller.
- If you have the Savaria Link Wireless remote monitoring option, ensure that you have a wireless signal with Internet capability in the vicinity of the unit’s controller.

## PART 1 GENERAL

### 1.01 SUMMARY

- A. The product described herein, manufactured by Savaria is an elevator designed and dimensioned to provide Limited Use/Limited Application (LULA) elevator to suit individual building requirements for use by persons with disabilities.

### 1.2 REFERENCES

- A. Elevator shall be designed, manufactured and installed in accordance with the following standards:
1. American National Standards Institute (ANSI).
  2. American Society of Mechanical Engineers (ASME).
  3. National Electrical Code (NEC)  
Canadian Electrical Code (CEC)
  4. American Society for Testing Materials (ASTM).
  5. American Welding Society (AWS).  
Canadian Welding Bureau (CWB)

### 1.3 SYSTEM DESCRIPTION

- A. 5 hp submersed motor and pump with electronic proportional valve assembly; Programmable logic controller with collective operation; 1:2 roped hydraulic single stage cylinder with line rupture valve.
- B. Number of Stops: (specify:) Two to Four.
- C. Car Configuration: (specify:) straight-thru, 90° side exit or enter/exit same side.
- D. Maximum Travel: (specify:) Up to 25' (7.62 m)
- E. Rated Load: (specify:) 1400 lbs. (635 kg)
- F. Rated Speed: 30 fpm (.15m/s)
- G. Car Size:
1. 48" x 54" (1219 mm x 1372 mm) platform (standard)
  2. 84" (2134 mm) high ceiling
- H. Car Walls: (specify:) Steel panels (black or architectural white) with (optional) raised plastic laminate panels (contact Savaria for colors).
- I. Car Ceiling: White panel.
- J. Car Lighting: Four recessed lights.
- K. Operating Features:
1. Car Operating Panel: (specify:) Brushed stainless steel or brushed brass panel with illuminated automatic controls, keyed light switch, emergency stop switch and alarm button
  2. Hall Stations: (specify:) Brushed stainless steel or brushed brass panel with illuminated button and (specify option:) key lock provided at each landing.
  3. Car Door(s): Fully automatic, side opening, sliding car door with electromechanical interlocks, obstruction sensor, and automatic re-open system.
  4. Hoistway Doors: 1 ½ hour fire rated fully automatic side opening, sliding hoistway doors with two side opening panels in steel frame with electromechanical interlocks.
  5. Handrail: (specify:) Stainless steel or brass.
  6. Pit Switch

7. Car top inspection station with UP and DOWN test switches, emergency stop, light outlet
8. Automatic homing to the lowest floor (optional)
9. Slack rope safety.
10. Anti-creep device.
11. Overspeed governor (may not be required) – consult AHJ
12. Dual direction leveling.
  - Upper and lower terminal limit.
  - Pump run timer.
  - Pit clearance device (where required)
  - Automatic battery powered and manual emergency lowering control devices.
  - Minimum pressure switch.
  - Maintenance stop blocks.
  - (specify option:) Fire Fighters Service (available).
  - (specify option:) Hall lanterns with chime.
  - (specify option:) Recessed telephone cabinet (brushed stainless steel or brushed brass).
  - (specify option:) Buffer springs (requires 24" pit).

### 1.4 QUALITY ASSURANCE

- A. Manufacturer: Provide elevator manufactured by a firm with a minimum of 10 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 requirements of AWS D1.1 or CWB shall perform all welding of all parts.
- F. Substitutions: No substitutions permitted.

### 1.5 WARRANTY

- A. Warranty: Manufacturer shall warrant component parts of the Orion elevator for a period of 36 months from shipping date. This warranty only applies to products installed and maintained by a Savaria Authorized Dealer in conformance with all applicable local and national codes. The warranty is void if regular inspection and maintenance of product is not being carried out by an Authorized Savaria Dealer in accordance with the recommendations contained in the Owner's Manual. It is the Owner's responsibility to keep records of all such service.

## **PART 2 PRODUCT**

### **2.1 MANUFACTURER**

Provide the Orion Commercial LU/LA Elevator manufactured by Savaria.  
Toll Free Number (800) 661-5112  
Phone (905) 791-5555  
Fax (905) 791-2222  
Web site: <http://www.savaria.com>

### **2.2 MATERIAL**

- Guide Rail: Dual 8 lbs./ft. machined steel T-rail system.
- Wire Rope: Two 3/8" diameter 7 x 19 ga. IWRC aircraft cables with rope wedge sockets.
- Sling: Structural and formed steel plates with guide shoes.
- Platform Floor: Unfinished plywood flooring.

### **2.3 FINISHES**

- A. Components shall be prepared with
- 1) pre-treatment,
  - 2) alkaline detergent wash,
  - 3) clear water rinse,
  - 4) iron phosphate coating,
  - 5) clear water rinse and finished with electrostatically applied and baked thermostatic powder coat finish. Standard color is architectural white.

### **2.4 ELECTRICAL SYSTEMS**

- A. The electrical contractors shall provide:
1. 208V three phase 30 AMP 60 Hz or 230 V single phase 40 AMP 60 Hz source in the machine area with manually operated fused line disconnect.
  2. 120 VAC, single phase, 15 amp, 60 Hz, single phase power source with manually operated fused line disconnect for car lighting and a light outlet inside the hoistway.
  3. Telephone circuit in the machine area.

## **PART 3 EXECUTION**

### **3.1 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.

### **3.2 EXAMINATION**

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

### **3.3 INSTALLATION**

- A. The Orion elevator shall be installed in accordance with manufacturer's instructions and as specified and approved by architect.

### **3.4 DEMONSTRATION**

- A. The elevator contractor shall make a final check of the elevator's operation 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.

### **END OF SECTION**

Intent of specification is to broadly outline equipment required but does not cover details of design and construction. Dimensions and specifications are subject to constant change and continually evolving codes and product applications. For additional technical information, contact Savaria at (800) 661-5112 or [www.savaria.com](http://www.savaria.com).





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Sales: 800-661-5112  
[www.savaria.com](http://www.savaria.com)