PLANNING GUIDE

FOX VALLEY ELEVATOR™

Residential Winding Drum Elevator

Built on C Rail

Series F210 Custom Lift - 500 lbs.

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Members Of:

Fox Valley Elevator, LLC is a proud member of The American Society of Mechanical Engineers, The National Association Elevator Contractors, The Canadian Elevator Contractor Association, The Accessibility Equipment Manufacturers Association. These symbols assures you of our commitment to high quality and accessibility to everyone.

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Introduction

This Planning Guide is to be used as a reference to determine parameters of installation and steps taken to achieve a proper elevator installation. This guide may be used by the architect, contractor, dealer or home owner. The information in this guide is intended as an overview. Each installation will have job specific specifications that must be followed. Do not attempt to construct a hoistway on this information.

Elevator installation is to be done by an authorized elevator contractor and in accordance with installation instructions provided by the manufacturer. Installation must also be in compliance with requirements of the National Electrical Code, American Society of Mechanical Engineers Safety Code, and state and local building codes. Fox Valley Elevator, LLC products are designed to meet the residential elevator requirements of ASME A17.1 Safety Code for Elevators and Escalators. The manufacturer assumes no liability for equipment not installed in compliance with these codes.

Fox Valley Elevator, LLC reserves the right to modify the design, technical specifications and dimensions of the products shown in this document.

Planning Steps

Locate a local authorized dealer and custom design your elevator together. Congratulations on choosing a winding drum drive system. If you prefer a hydraulic power based elevator please locate and use the Planning Guide for Residential Hydraulic Elevators. Please complete steps below to finish creating your elevator package.

1. Select rail system.
2. Layout machine room, and location.
3. Plan for electrical requirements.
4. Address national, state, and local code requirements
5. Determine hoistway size, car size, layout configuration and available options. Please reference a Fox Valley Elevator Brochure for available design options: cab style, car operating panels, hall stations, phone boxes, handrails, light fixtures, and gates.
6. Obtain and follow site specific field drawings. Forward all necessary documents to contractor/ builder, architect, and structural engineers. Use job specific drawings while building hoistway, doorways, machine room, and any other construction related to the elevator.
7. Coordinate with your authorized dealer to install your elevator, and enjoy your custom designed elevator.

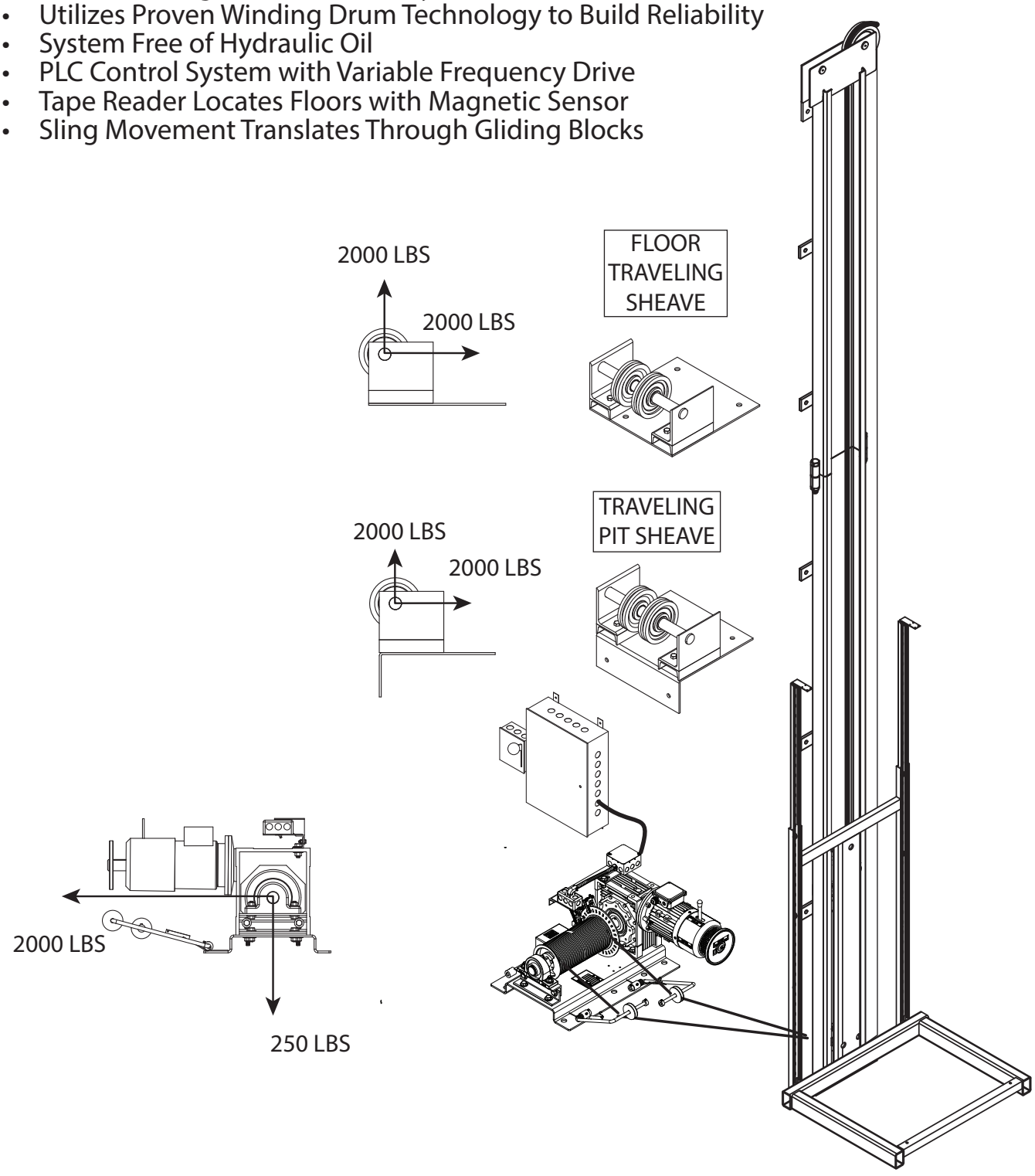
Fox Valley Elevator, LLC will be referred as Fox Valley Elevator or FVE through out the remainder of this document.

Design Features & Mechanical Illustrations

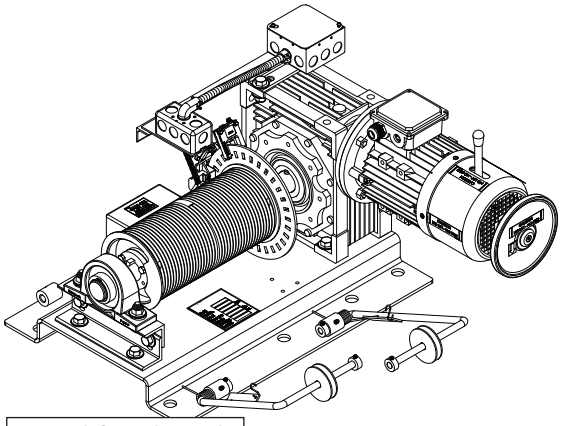
C-Rail System with Winding Drum Technology

(Series F210)

- Modular Design Built on C Rail System
- Utilizes Proven Winding Drum Technology to Build Reliability
- System Free of Hydraulic Oil
- PLC Control System with Variable Frequency Drive
- Tape Reader Locates Floors with Magnetic Sensor
- Sling Movement Translates Through Gliding Blocks



Elevator Equipment - Series F210

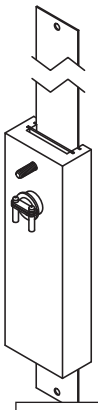


F210 POWERHEAD

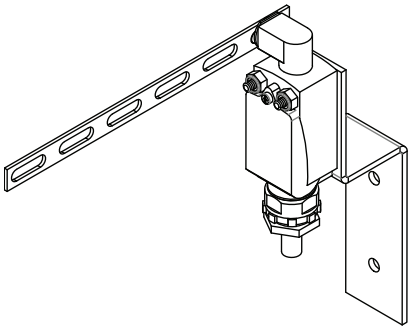
Powerhead
The powerhead is a motor and gearbox that efficiently moves the elevator car by a positive means of wrapping a steel wire rope around a grooved drum.

Gearbox
Single reduction sealed gearbox for reduced maintenance.

Motor
230V 3-phase brake motor for efficiency, higher torque, speed control, and landing accuracy.

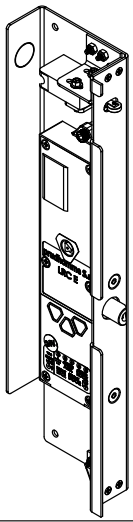


TAPE READER

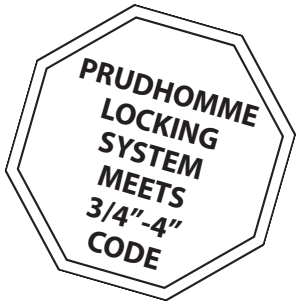


FINAL LIMIT SWITCH

Stopping Devices
Magnetic tape reader for leveling accuracy & final limit switches.



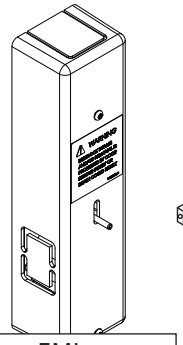
PRUDHOMME



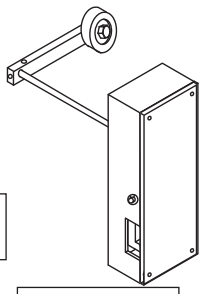
Hoistway Door Interlocks
To prevent the opening of the hoistway door unless the car is within landing zone or stopped at landing.

For any other interlock other than the Prudhomme, a space guard or other means must be purchased to meet 3/4"-4" 2016 code or newer.

REFERENCE ASME A17.1/ CSA B44: 5.3.1.8 & 5.3.1.9 FOR DETAILS.



EMI
(Residential Only)



GAL TYPE "N"

Hoistway Specifications - Series F210

ATTENTION CONSTRUCTION CONTRACTOR:
Job specific documentation for hoistway construction from Fox Valley Elevator will be provided to your local dealer.

Hoistway Construction Requirements to be completed prior to elevator installation by contractor.

1. **Electrical Requirements By Others**:
   - Dedicated 230 VAC 60 Hertz 35 AMP Circuit Single Phase with ground and neutral,
   - A fused lockable disconnect switch with branch 3 pole circuit wire to suit a 30 AMP service, fused for 30 AMP dual element (time delay fuse) with neutral.
   - Dedicated 115 Volt, 15 AMP single phase circuit for car lighting and auxiliary circuits.
   - Electrical wiring to comply with applicable codes.
   - Any VAC other than 230 VAC may require a buck/boost transformer.

NOTE :
Electrical requirements are for general reference only. All job specific electrical requirements must be acquired from job specific drawings provided by Fox Valley Elevator.

2. **Unfinished/Un-installed Door** - Installation company may prefer a minimum of one hoistway door and associated framing be left unfinished/un-installed to accommodate elevator installation equipment and to prevent accidental damage to door and framing (preferably at grade level).

3. **Plumb and Square Hoistway** - Hoistway must be plumb within 1/8 inch per 10 feet of height and square at any point within 1/4 inch based on difference in diagonal measurements.

4. **Supportive Structure** - Structure must be capable of supporting the appropriate loads. Local engineering support is recommended.

5. **Telephone Connection** - Code requires a telephone connection to the elevator car; therefore, a phone line must be installed leading to the controller. It must also be capable of working for 4 hours during a power outage.

6. **ASME A17.1 Section 5.3** - Hoistway to be constructed in accordance with ASME A17.1 section 5.3 and all local codes.

7. **Hoistway Door Security (Interlocks)** - All hoistway doors require interlocks as well as a door handle and a latch set. Interlocks will be installed by the elevator installers. Fox Valley Elevator requires the use of solid core doors and recommends spring door hinges.

8. **Machinery Space, Machine Rooms, Control Spaces, and Control Rooms Layouts & Wiring** - Any operating equipment must meet National Electrical Code and all local codes. Machine space must have a dedicated convenience outlet and light with switch. Temperature must be maintainable between 60° - 110° F and must not be exposed to the elements (with a relative humidity not to exceed 95%).

9. **No Alterations** - Any alterations to the equipment without written authorization by Fox Valley Elevator will void all warranties.

10. **Pit Floor Strength** - A pit floor must be designed to withstand a load of 4,000 lbs. When used, concrete must be a minimum of 4" thick and rated at 3500 PSI.

11. **Rated Load** - Elevator system is rated for maximum capacity from the factory. Flooring, walls, trim, base, and/or permanent decor added to elevator car must be subtracted from car capacity.

12. **Verify Code Requirements** - Verify national, state, and local code requirements are all met before installation.

Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms Layouts & Wiring

(Series F210)

Disconnect Power Before Wiring

- Locate controller enclosure in the machine room as required by code.
- Wire gauge requirements:
  10 gauge wire for power and motor wiring
  12 gauge wire for brake
  18 gauge (minimum) wire for all other
- Refer to unit specific schematics and field drawings to complete wiring.
  Wire per N.E.C. and local codes.

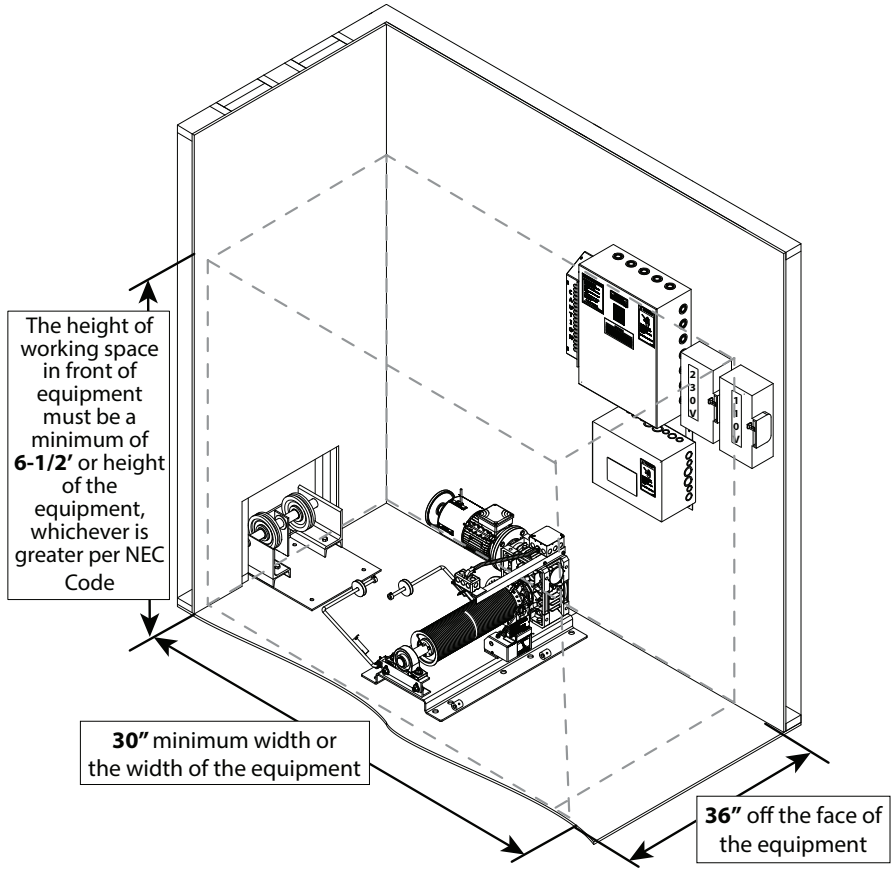
  Note: Not all controller terminals or travel cable wires may be used. High voltage and low voltage wires must run separate and only cross over perpendicular to each other.
- Locate and check for correct fuse sizes.

Per NEC Code 110.26 .....

Clear Working Space. The working space required by this section must be clear at all times. **Therefore, this space isn't permitted for storage.** When normally enclosed live parts are exposed for inspection or servicing, the working space, if in a passageway or general open space, must be suitably guarded.

Working Space. Equipment that may need examination, adjustment, servicing, or maintenance while energized must have working space provided in accordance with (1), (2), and (3):

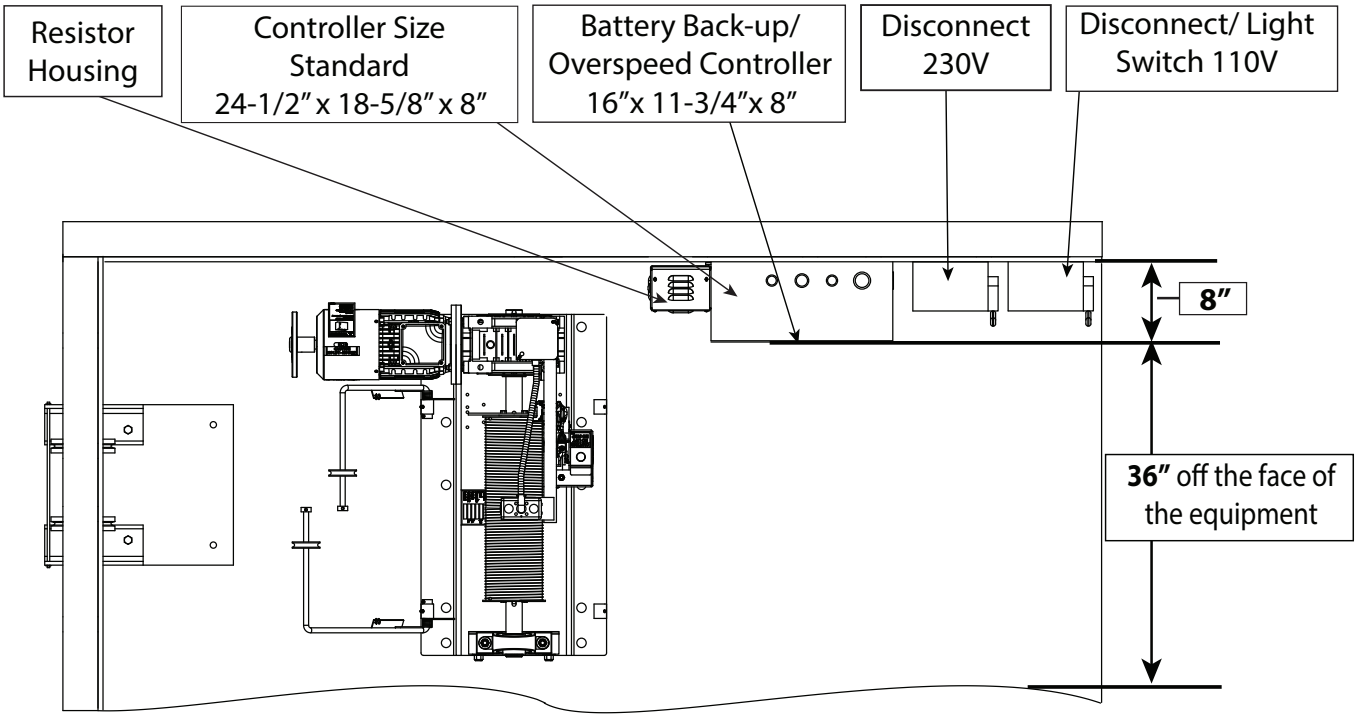
1. Depth of Working Space. The working space, which is measured from the enclosure front, must not be less than the distance of 36".



2. Width of Working Space. The width of the working space must be a minimum of 30", but in no case less than the width of the equipment.

Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms Layouts & Wiring

(Series F210)



Per NEC Code 110.26 Continued .....

3. Height of Working Space (Headroom). The height of the working space in front of equipment must not be less than 6½' or the height of the equipment measured from the floor, grade or platform, whichever is greater.

   Other equipment must not extend more than 6" into the controller working space.

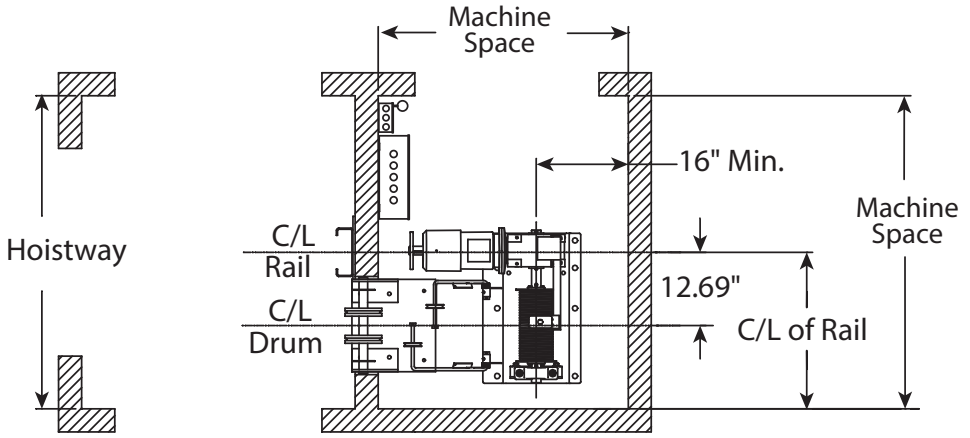
Additional Notes

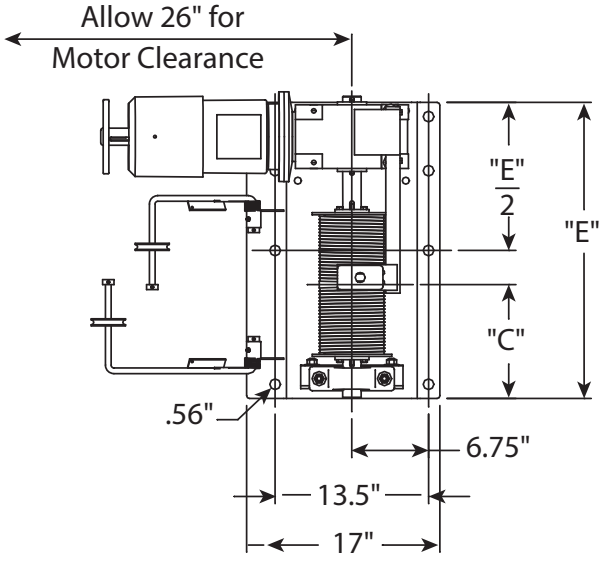
- A lockable service disconnect must be placed within sight of the controller and must be easily accessible in case of an emergency.
- Machine room and controller space must contain a convenience outlet and light with switch.
- The temperatures must be maintained between 60°- 110°F and must not be exposed to the elements (with a relative humidity not to exceed 95%).
- The frequency drive may be heard running for thermal heat dissipation at any time.

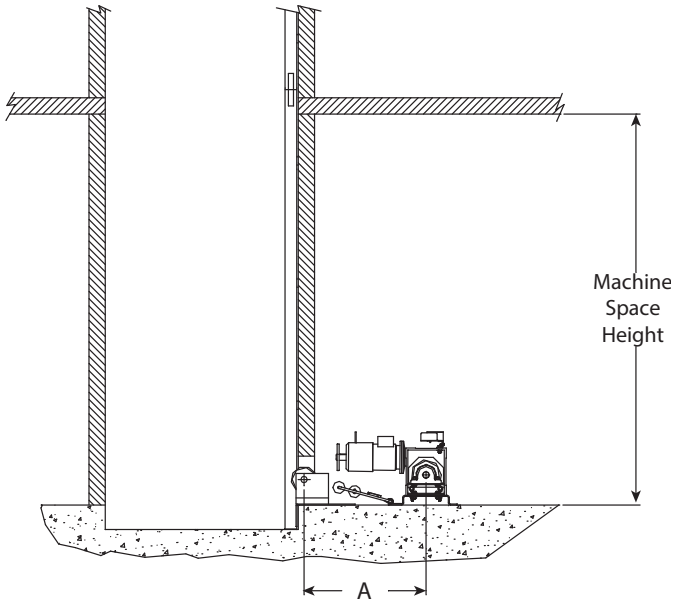
Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms Layouts & Wiring

(Series F210)

TYPICAL TRAVELING SHEAVE ARRANGEMENT					
TRAVEL	<14'	<24'	<32'	<40'	<50'
DRUM LENGTH	8"	12"	15"	18"	22"
DRUM C/L DIST. "C"	8.25"	10"	12.25"	14.5"	14.5
MACH. BASE "E"	22"	26"	29"	34"	34"
MINIMUM FOR "A"	30"	30"	30"	43"	72"





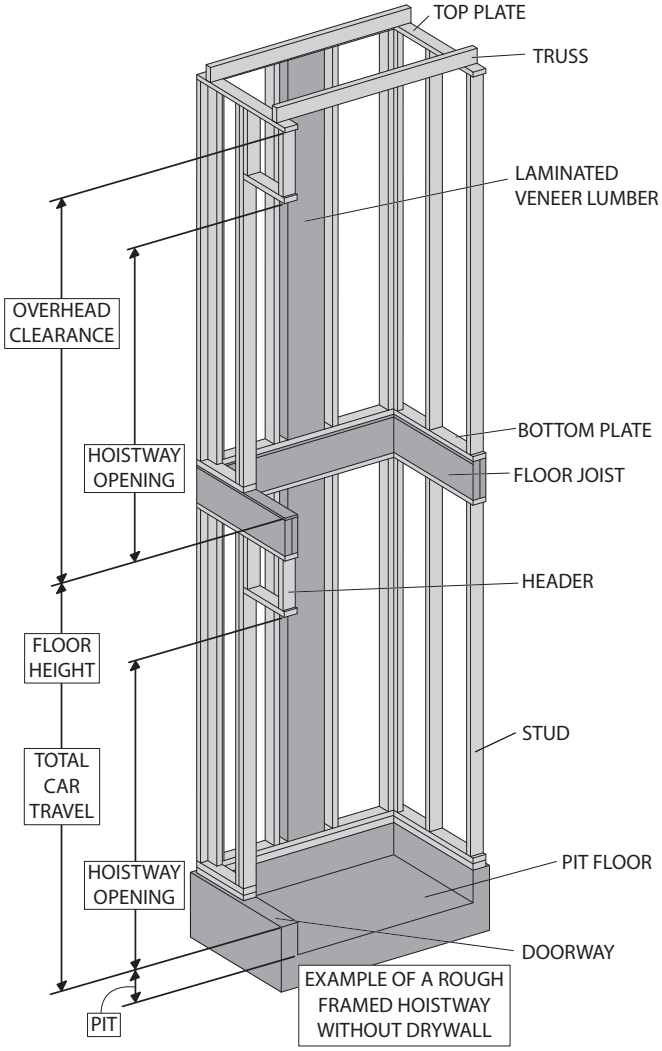


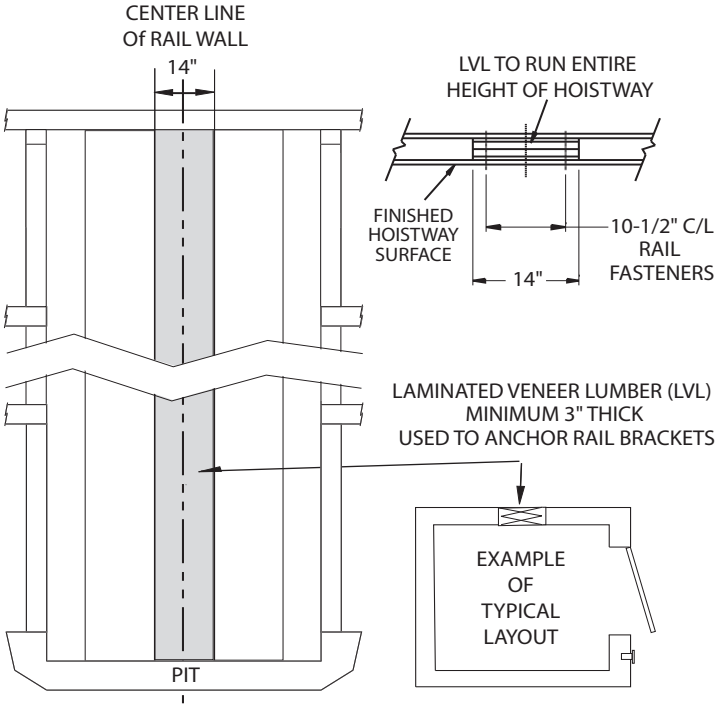
Hoistway Illustrations - Series F210

Typical layouts shown here may vary from your actual hoistway.

The purpose of these layouts is for a general understanding.

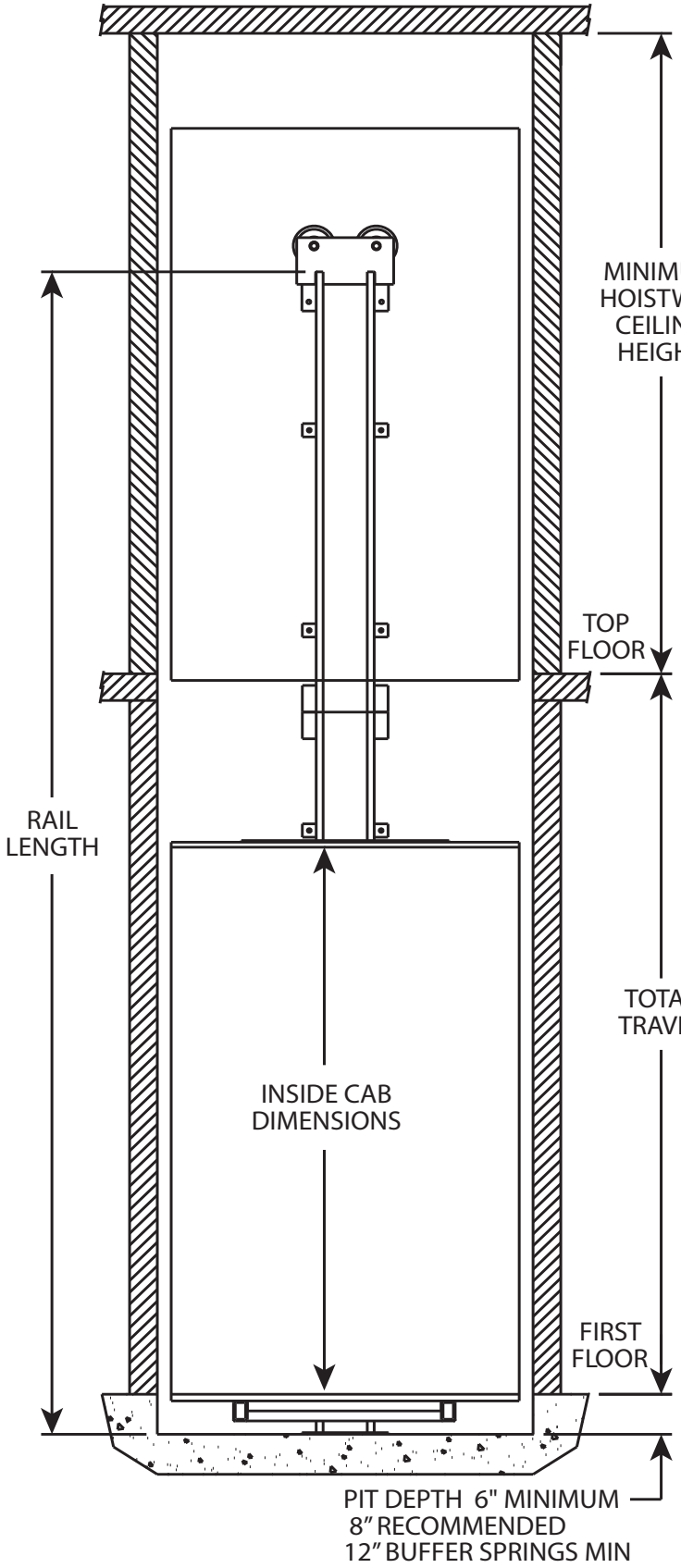
Please refer to the Fox Valley Elevator drawings and specifications that will be provided by your local dealer.





These drawings depict sample construction only. It is the responsibility of the installer/ contractor or engineer to design and specify structural supports. All construction to be in compliance with local codes.

Hoistway Elevation View with C Rail- Series F210



Required Overhead Heights

Inside Cab Dimension	6' 10"	7' 0"	7' 4"	8' 0"
Minimum Hoistway Overhead Height	7'10"	8'0"	8' 4"	9'0"

* Custom sized cabs will alter these dimensions. Fox Valley Elevator will provide you with the appropriate dimensions. Please contact your local dealer to acquire alternate layouts.

This is a graphical representation of Fox Valley Elevator Custom Lift Series which offers up to 6 stops and up to a travel distance of 50 feet.

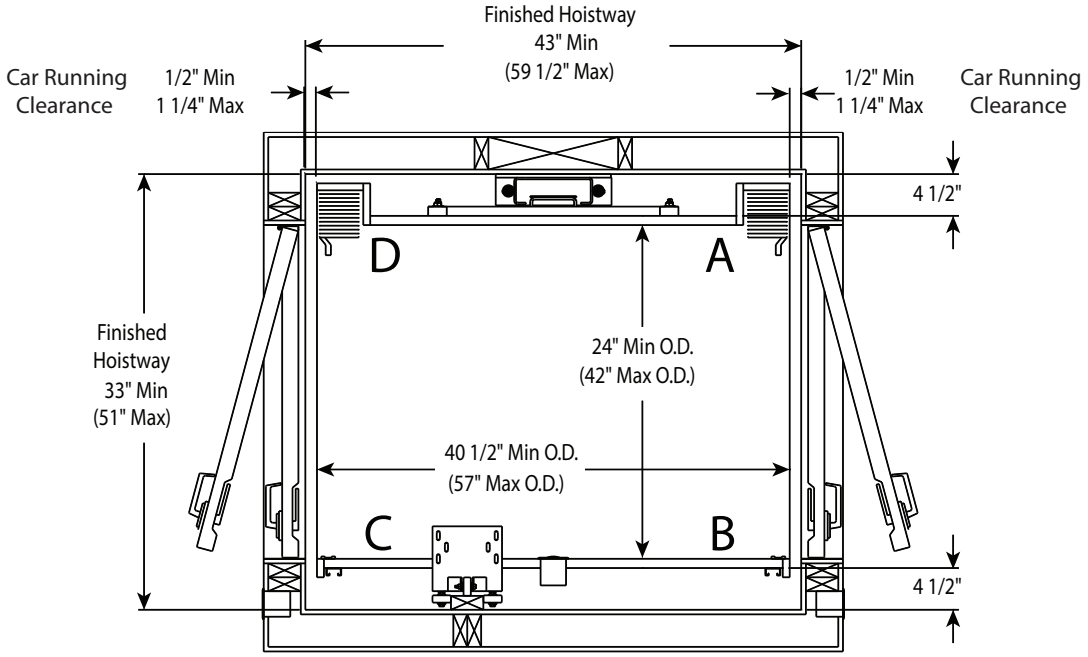
Additional space may be required for hoisting and maneuvering equipment into place with overhead mounted units.

Rail Calculations

Rail Length =
Pit Depth + Travel + 66"

Hoistway Layouts - Series F210

Minimum and Maximum Dimensions

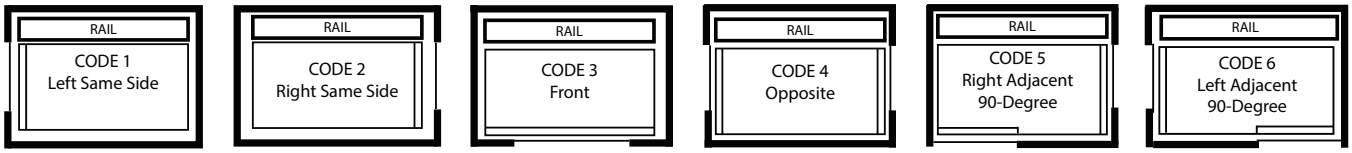


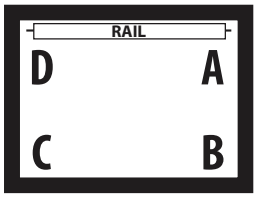
* Single Opening - 36-1/4" O.D. (Outside dimension) **minimum** (Rail may not centered in hoistway)

Note:

1. Minimum **DA** dimensions reflect rail centered in hoistway.
2. Minimum **DA** dimension for car without a gate recess is 24" O.D. (outside dimension) Car I.D. (inside dimensions) can not exceed 12sq ft.

Car Opening Configurations and Coding



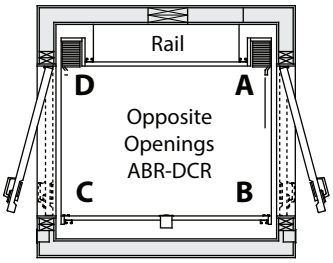


1. The DA is the side on which the rail is attached.
2. The first letter refers to the attachment location of the gate.
3. The second letter refers to the location of the strike plate.
4. If present, the third letter "R" denotes a recessed gate.

Example

First Gate - ABR

A- gate attachment
B - strike plate
R - recessed gate



Second Gate - DCR

D - gate attachment
C - strike plate
R - recessed gate

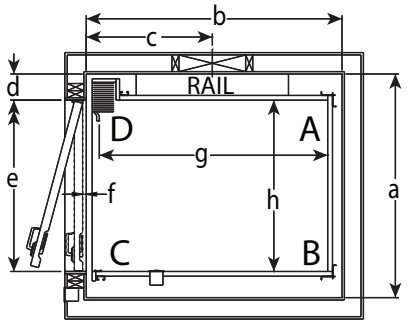
Example Hoistway Layouts - Series F210

Construction Notes:

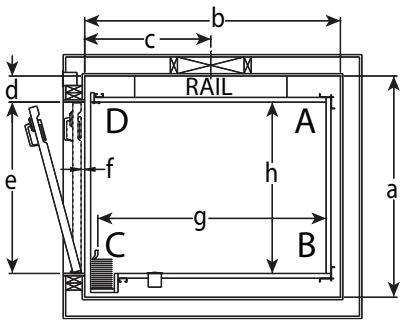
- Use specified rail backing from architect to frame into wall.
- The hoistay illustrations below show finished dimensions. Finished hoistway dimensions include drywall, plaster and paint.
- A maximum of 3/4" (see "f" below) are allowed between the closed hoistway door and the outer edge of the landing sill.
- Determine height of hall station by local code.
- Rough frame door in place with extra space as needed for door interlock system reference national and local codes.

The following examples are of units up to 500 lbs. Elevators are illustrated with accordion gates.
The following layouts were designed for travel up to 50 feet.

DCR CODE 1



CDR CODE 1

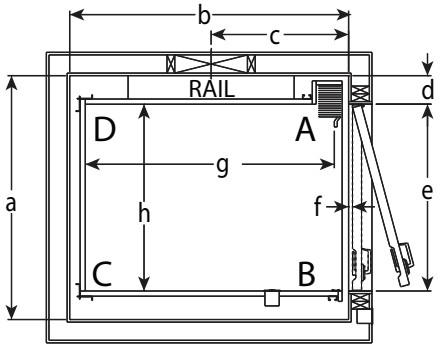


Hoistway Layout	Sq Ft	Car Size	a	b	c	d	e	f	g	h
DCR Code 1	12 sq ft	48" X 36"	47"	53.75"	26.5"	5.5"	36"	.75"	48"	36"
	15 sq ft	54" X 40"	NOT AVAILABLE							
	15 sq ft	60" X 36"	NOT AVAILABLE							
CDR Code 1	12 sq ft	48" X 36"	48"	53.75"	26.5"	5.5"	36"	0.75"	48"	36"
	15 sq ft	54" X 40"	NOT AVAILABLE							
	15 sq ft	60" X 36"	NOT AVAILABLE							

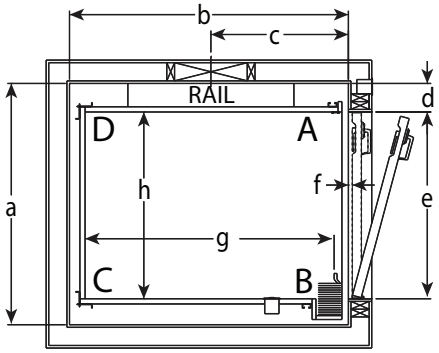
*All dimensions are finished hoistway dimensions

Example Hoistway Layouts - Series F210

ABR CODE 2



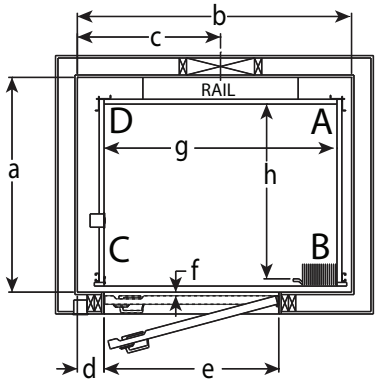
BAR CODE 2



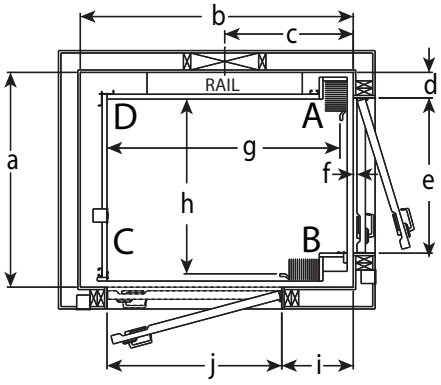
Hoistway Layout	Sq Ft	Car Size	a	b	c	d	e	f	g	h
ABR Code 2	12 sq ft	48″ X 36″	47″	53.75″	26.5″	5.5″	36″	0.75″	48″	36″
	15 sq ft	54″ X 40″	NOT AVAILABLE							
	15 sq ft	60″ X 36″	NOT AVAILABLE							
BAR Code 2	12 sq ft	48″ X 36″	48″	53.75″	26.5″	5.5″	36″	0.75″	48″	36″
	15 sq ft	54″ X 40″	NOT AVAILABLE							
	15 sq ft	60″ X 36″	NOT AVAILABLE							

*All dimensions are finished hoistway dimensions

BC CODE 3



CB CODE 3

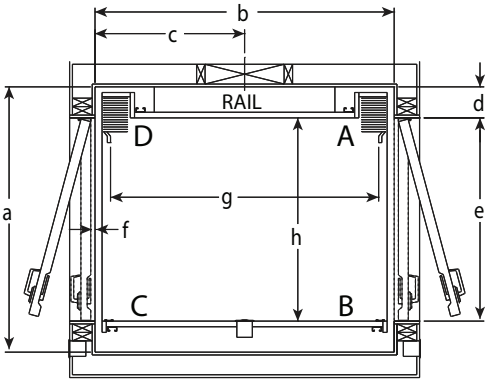


Hoistway Layout	Sq Ft	Car Size	a	b	c	d	e	f	g	h
BC Code 3	12 sq ft	48″ X 36″	44.25″	56.5″	29.5″	5.5″	36″	0.75″	48″	36″
	15 sq ft	54″ X 40″	NOT AVAILABLE							
	15 sq ft	60″ X 36″	NOT AVAILABLE							
CB Code 3	12 sq ft	48″ X 36″	44.25″	56.25″	29.5″	5.5″	36″	0.75″	48″	36″
	15 sq ft	54″ X 40″	NOT AVAILABLE							
	15 sq ft	60″ X 36″	NOT AVAILABLE							

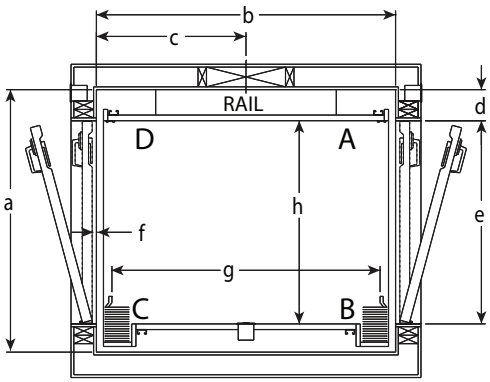
*All dimensions are finished hoistway dimensions

Example Hoistway Layouts - Series F210

ABR - DCR CODE 4



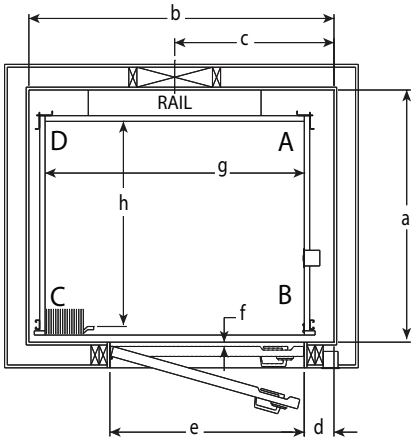
BAR - DCR CODE 4



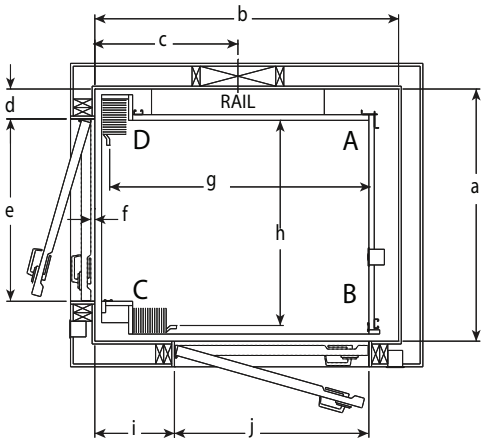
Hoistway Layout	Sq Ft	Car Size	a	b	c	d	e	f	g	h
ABR- DCR Code 4	12 sq ft	48″ X 36″	47″	53.5″	26.75″	5.5″	36″	0.75″	48″	36″
	15 sq ft	54″ X 40″	NOT AVAILABLE							
	15 sq ft	60″ X 36″	NOT AVAILABLE							
BAR - CDR Code 4	12 sq ft	48″ X 36″	48″	53.5″	26.75″	5.5″	36″	0.75″	48″	36″
	15 sq ft	54″ X 40″	NOT AVAILABLE							
	15 sq ft	60″ X 36″	NOT AVAILABLE							

*All dimensions are finished hoistway dimensions

ABR - BC CODE 5



DCR - CB CODE 6



Hoistway Layout	Sq Ft	Car Size	a	b	c	d	e	f	g	h	i	j
ABR-BC Code 5	12 sq ft	48″ X 36″	44.25″	55.75″	26.5″	5.25″	32″	0.75″	48″	36″	14.75″	36″
	15 sq ft	54″ X 40″	NOT AVAILABLE									
	15 sq ft	60″ X 36″	NOT AVAILABLE									
DCR-CB Code 6	12 sq ft	48″ X 36″	44.25″	55.75″	26.5″	5.25″	32″	0.75″	48″	36″	14.75″	36″
	15 sq ft	54″ X 40″	NOT AVAILABLE									
	15 sq ft	60″ X 36″	NOT AVAILABLE									

*All dimensions are finished hoistway dimensions

Notes

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