

**FOX VALLEY  
ELEVATOR<sup>TM</sup>**

**Excelevator<sup>TM</sup>  
Chain  
Elevator**

**Built on T-Rail**

**Series F033 - 1,000 lbs.**

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# Members Of

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



Canadian Elevator  
Contractors Association

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# Introduction

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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

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

1. Determine rail system wall location in hoistway.
2. Plan control space and its location in proximity to hoistway.
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: car 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.

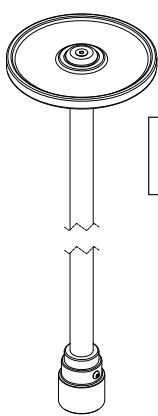
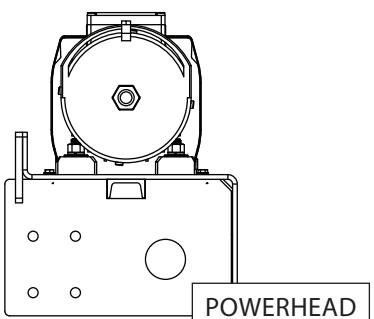
Fox Valley Elevator, LLC will be referred as Fox Valley Elevator or FVE through out the remainder of this document.

# Design Features & Mechanical Illustrations

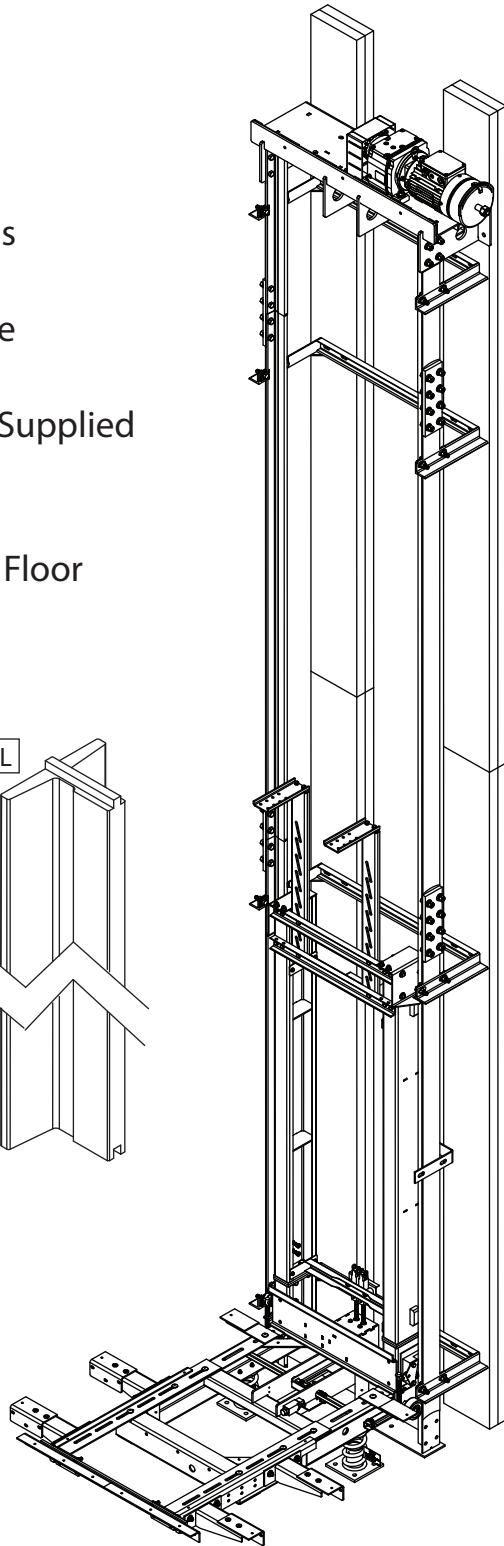
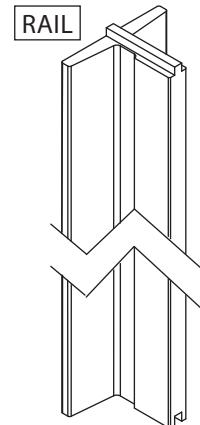
## T-Rail System with Chain Drive Technology

### (Series F033)

- (MRL) Machine Roomless
- Rigid Design Built on 8 lb. T Rail System
- System Free of Hydraulic Oil
- Durable Cantilever Sling Design
- Sling Movement Translates Through Roller Wheels Enhancing Ride Quality
- PLC Control System with Variable Frequency Drive
- Linear Absolute Position Encoder
- Emergency Raising and Lowering Hand Wheel is Supplied
- Access Door Required by Powerhead
- Battery Back Up Lowering System is Standard
- Position Indicator Available in Car and/or at Each Floor Landing

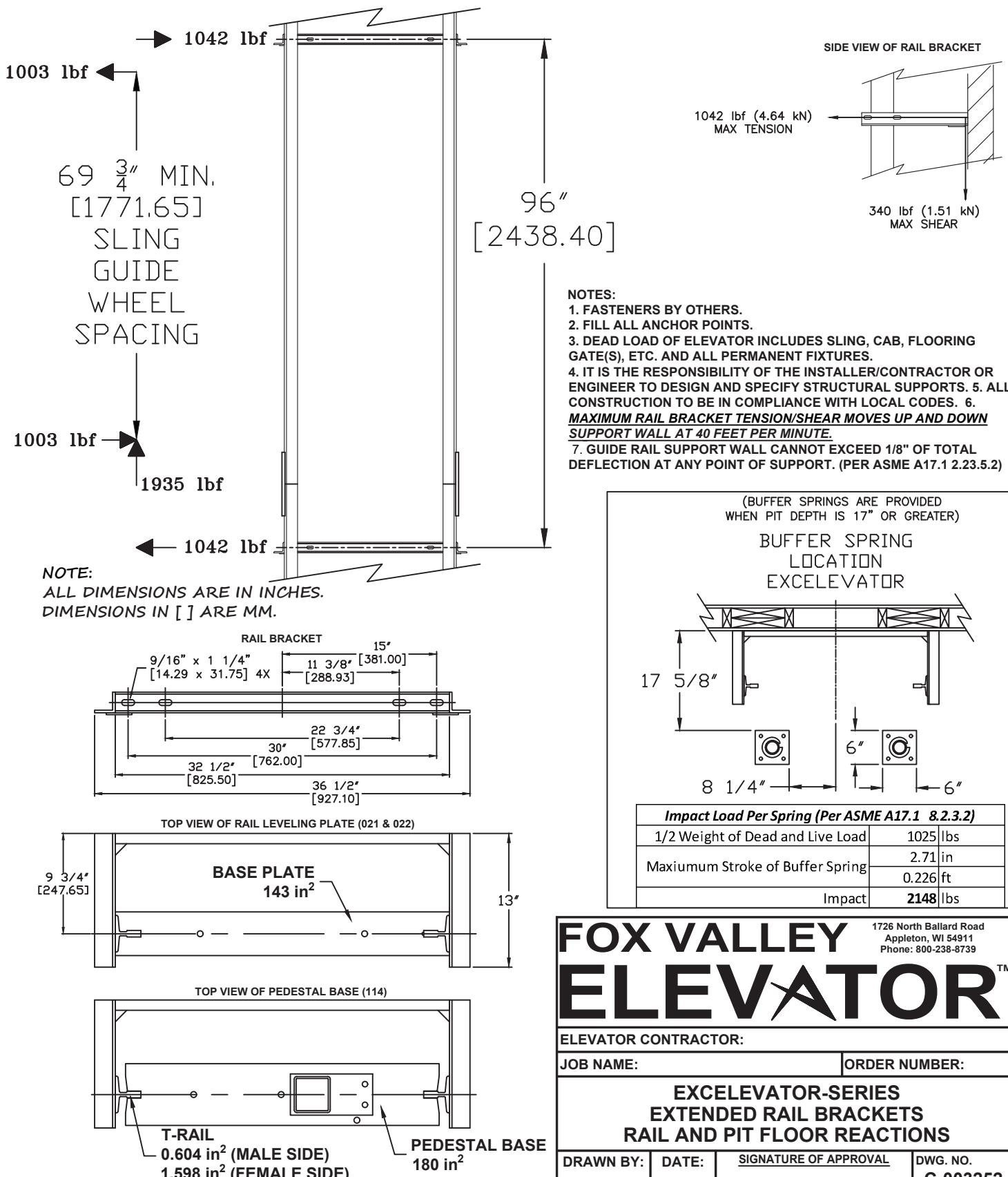


HAND WHEEL IS  
NOT ATTACHED.

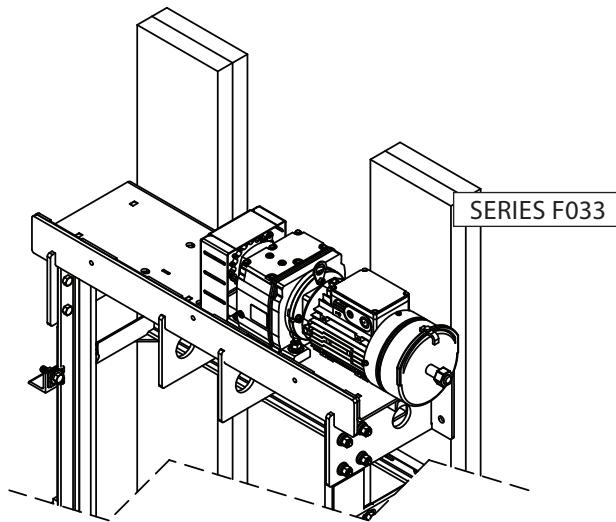


**MAXIMUM LIVE (STATIC) LOAD = 1000 lbf**  
**MAXIMUM DEAD (STATIC) LOAD = 935 lbf (SEE NOTE #3)**  
**MAXIMUM TOTAL (STATIC) LOAD = 1935 lbf**  
**MAXIMUM SHEAR (STATIC) PER BRACKET = 340 lbf (85 lbf PER FASTENER)**  
**MAXIMUM TENSION (STATIC) PER BRACKET = 1042 lbf (260.5 lbf PER FASTENER)**

REV: A



# Elevator Equipment - Series F033



## Powerhead

The powerhead is a motor and gearbox that efficiently moves the elevator car by a positive means of moving chains over sprockets.

## Gearbox

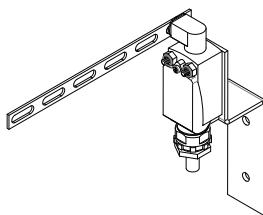
Helical bevel gearbox combination for greater efficiency and reduced maintenance.

## Motor

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



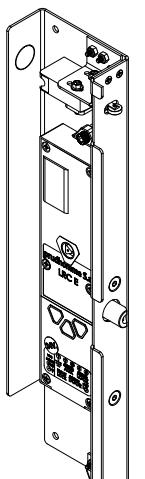
LINEAR ABSOLUTE POSITION ENCODER



FINAL LIMIT SWITCH

## Stopping Devices

Magnetic tape for position accuracy & final limit switches.



PRUDHOMME



EMI  
(Residential Only)

## Hoistway Door Interlocks

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

FVE offers multiple interlocks solutions that meet 3/4 - 4" code directly or with a door recessed kit. Not all interlocks are shown.

Other manufacturer interlocks will work with FVE controls. Mechanical locks are not an option.

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.

# Elevator Equipment - Series F033

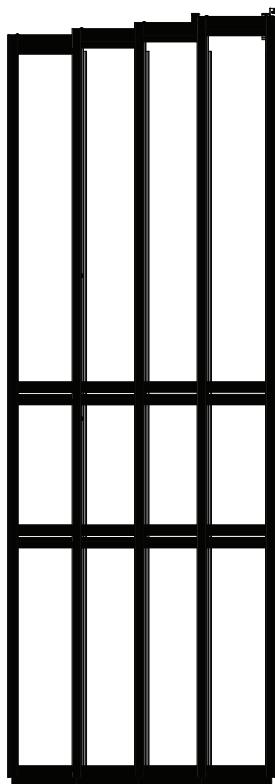
## Accordion Gate

- Variable width door opening
- Stock height: 7' & 7' 10" Panel
- Custom heights available
- Manual or automatic operator



## Good Gate

- 36" wide, 4 panel system
- Standard heights: 7' & 7' 10"
- Custom heights available
- Manual or automatic operator

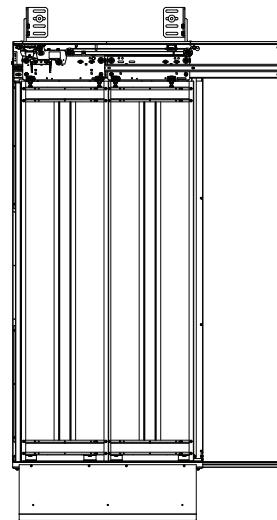


Example Layouts can be found in the back of this planning guide

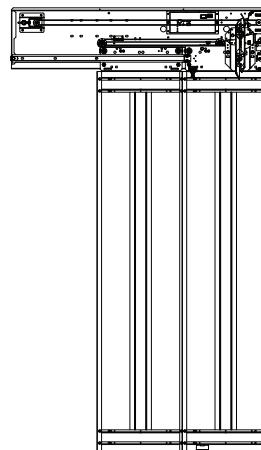
## US Door 4010 2 Speed Doors

- 36" wide door opening
- Height: 80" or 90"
- Commercial style set of car gate and landing doors system

### Hoistway Door



### Elevator Car Side



Example Layouts can be found in the product specific Good Gate planning guide

Example Layouts can be found in the product specific 2 Speed Doors planning guide

# Hoistway Specifications - Series F033

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,
- 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).
- 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** - All operating equipment must meet National Electrical Code and all local codes. Machine space must have a dedicated convenience outlet and light with switch. The temperatures must be maintained between 60°- 110°F (15°C- 43°C) and must not be exposed to the elements with a max relative humidity of 90% (non-condensing).
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, trim, 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 F033)

### 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
  - 14 gauge minimum wire for lighting and aux circuits
  - 18 gauge wire for all low voltage
- **Note:** Copper wire only.
- 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.

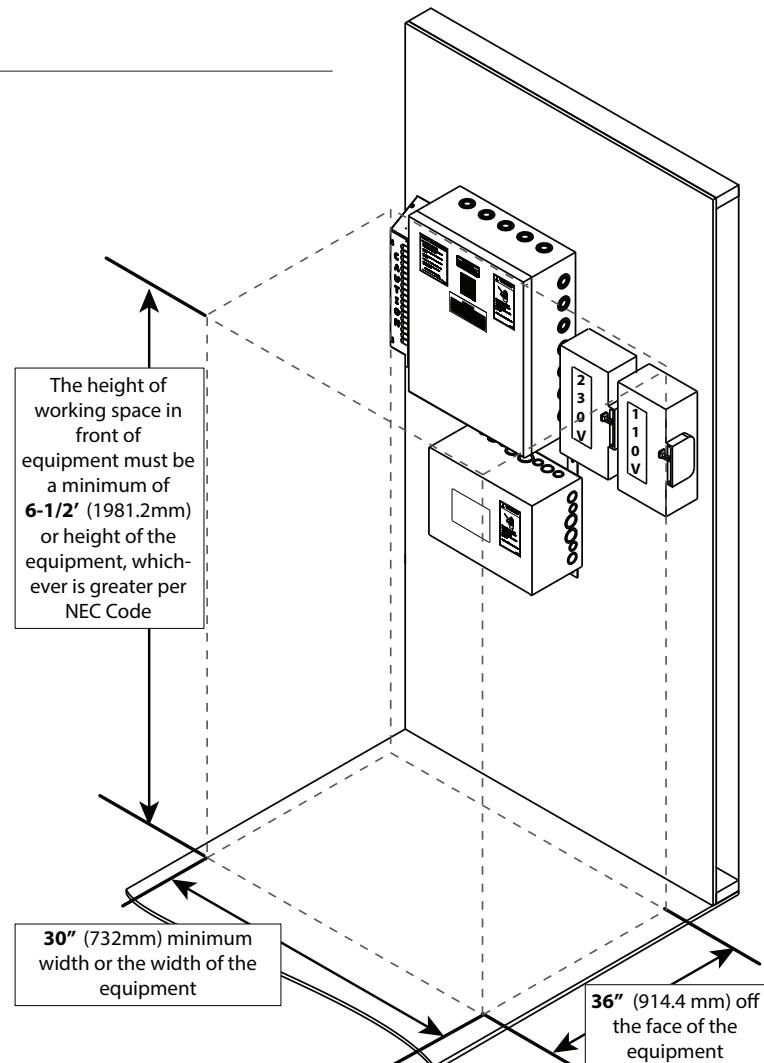
- Locate and check for correct fuse sizes.

### 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):

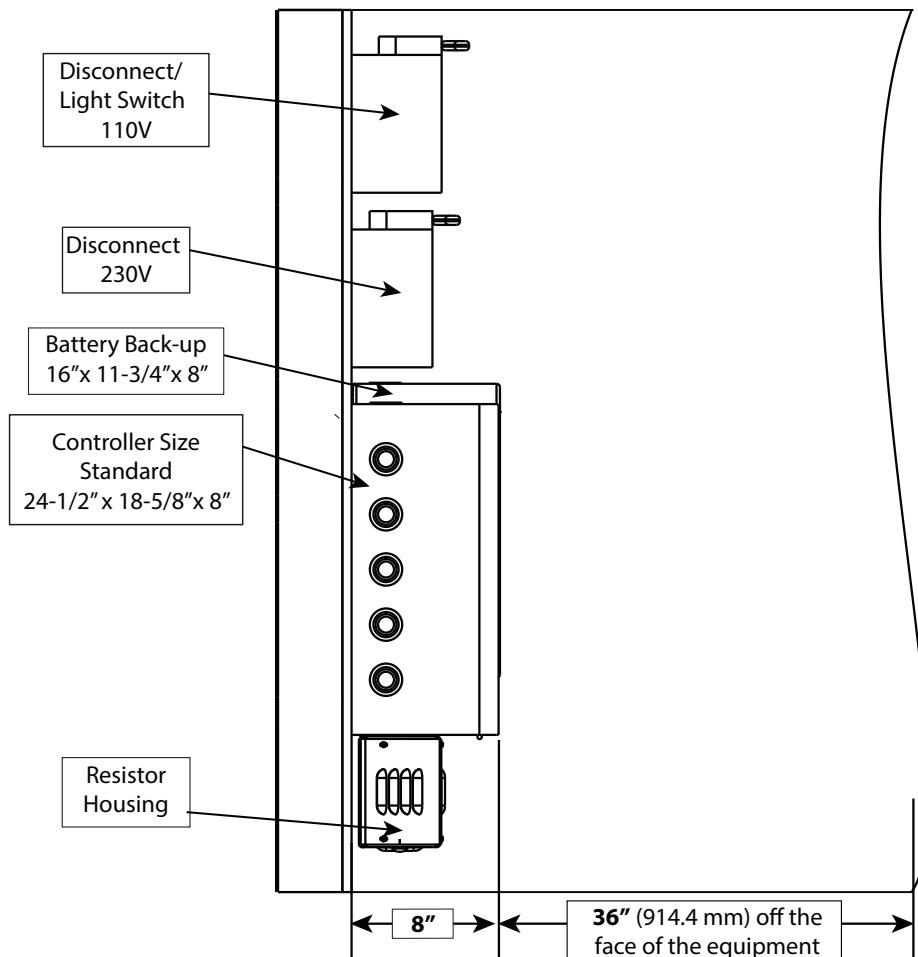
1. **Depth of Working Space.** The working space, which is measured from the enclosure front, must not be less than the distance of 36".
2. **Width of Working Space.** The width of the working space must be a minimum of 30", but in no case less than the width of the equipment.



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

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## (Series F033)



Per NEC Code 110.26 Continued .....

- 1 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

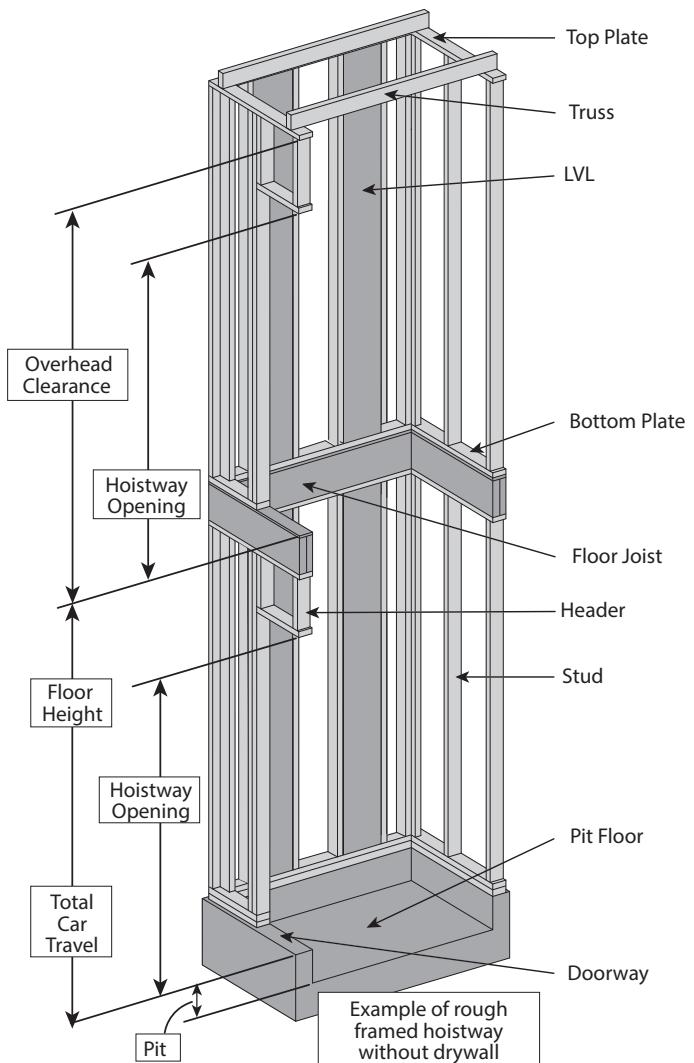
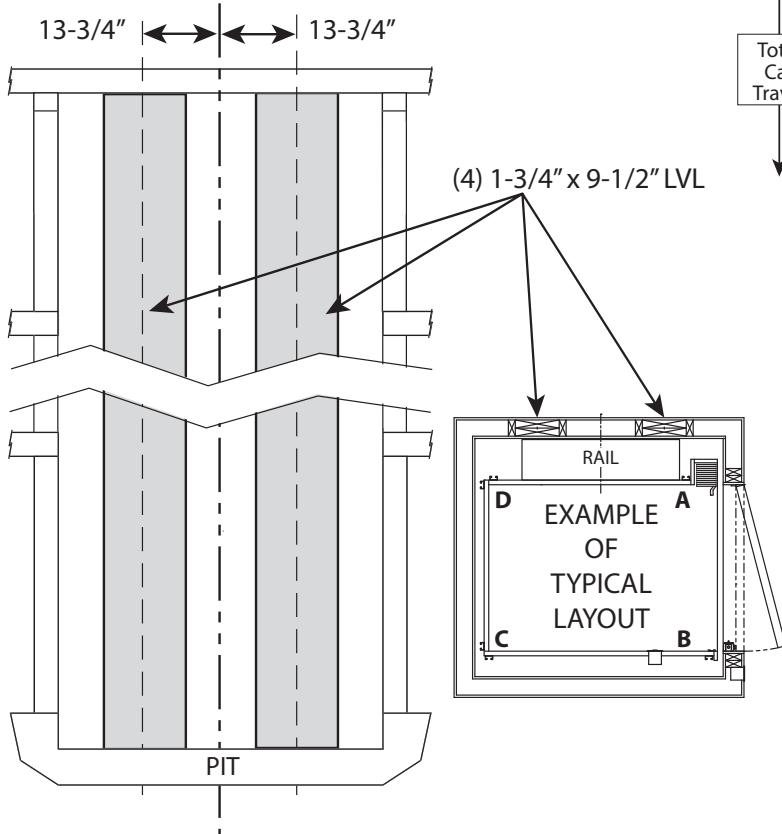
- A lockable service disconnect must be placed within sight of the controller and must be easily accessible in case of an emergency.
- Machine room and controller space must contain a convenience outlet and light with switch.
- The temperatures must be maintained between 60°- 110°F (15°C- 43°C) and must not be exposed to the elements with a max relative humidity of 90% (non-condensing).
- The frequency drive may be heard running for thermal heat dissipation at any time.

# Example Hoistway Construction - Series F033

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.

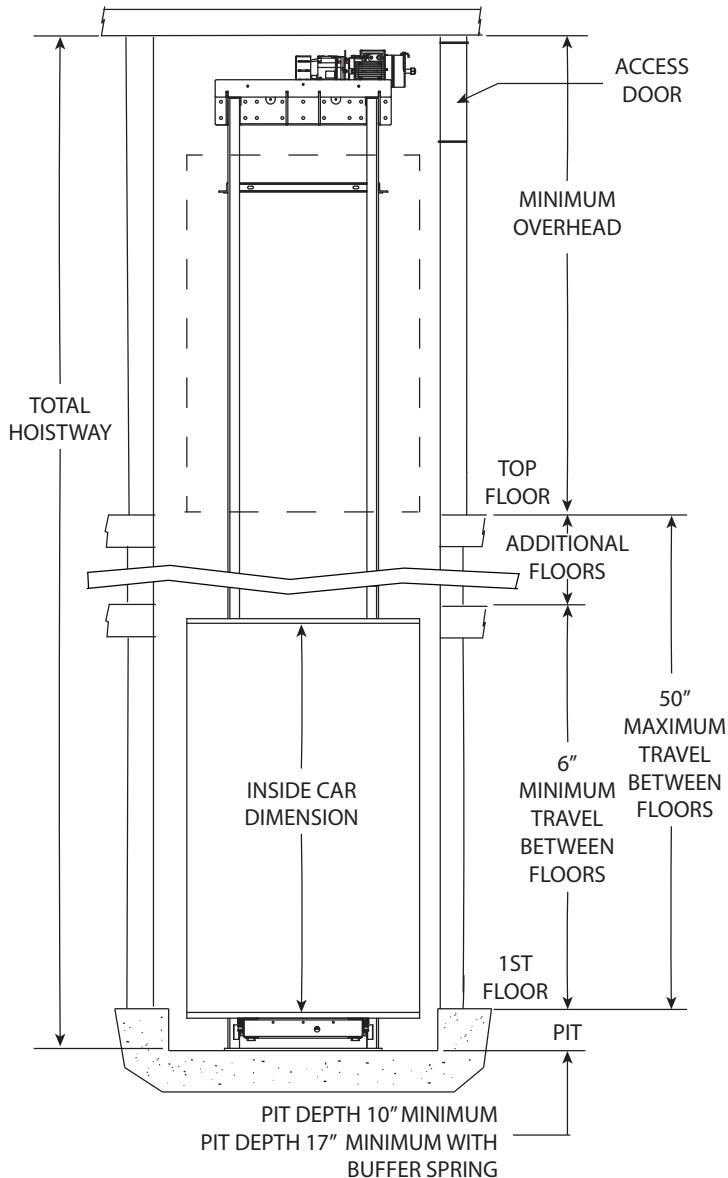


**These drawings depict sample construction only. It is the responsibility of the installer/contractor or engineer to design and specify structural supports. All construction to be in compliance with local codes.**

# Hoistway Elevation View with T-Rail - Series F033

- Structure is required to support lifting device for powerhead installation. Locate near center of shaft (by others) minimum rating for 1,000 lbs. Additional space may be required for hoisting and maneuvering equipment into place.
- Access Door required by motor side of powerhead.
- Additional disconnect required at top of elevator hoistway by motor of the powerhead per NEC Code 430.102 (B) (1).
- Fox Valley Elevator's Excelevator Series offers a total of six stops and a total travel of 50 feet.

## Elevation



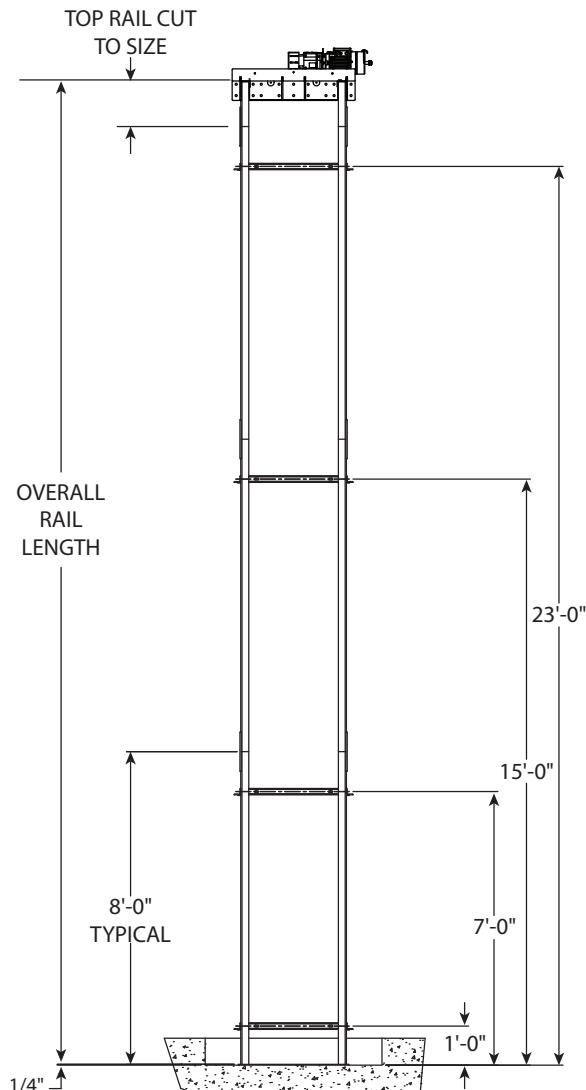
## Required Overhead Heights

Inside Car Dimension	7' 0"	7' 10"
Minimum Hoistway Overhead Height	8' 0"	8' 10"

Car Height - 6' min.

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

## Rail Layout

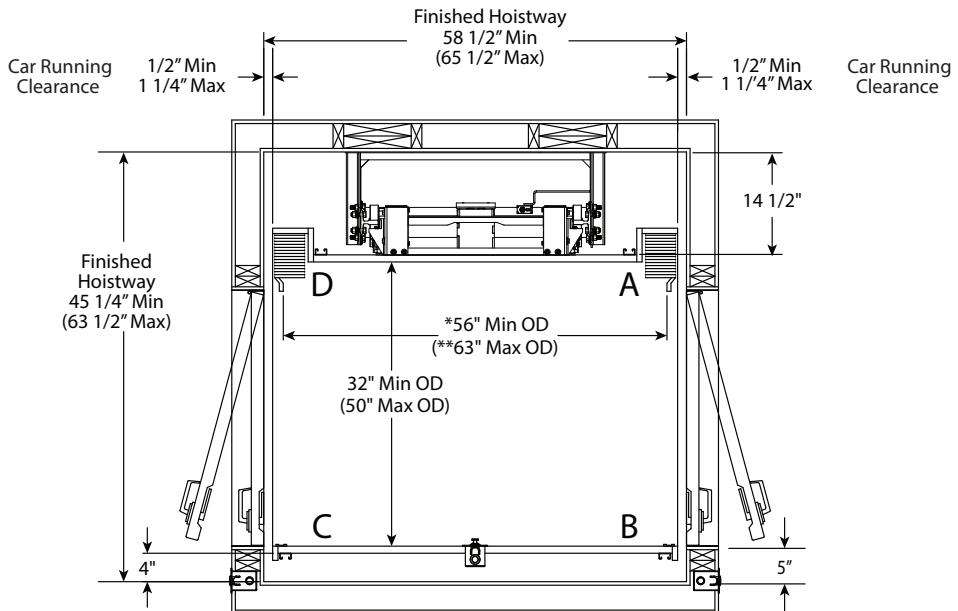


### Rail Calculations

Rail Length =  
Total Hoistway Height - 14"

# Car Opening Configurations - Series F033

## Minimum and Maximum Dimensions



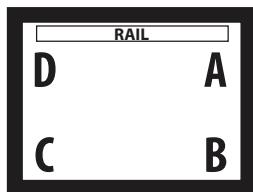
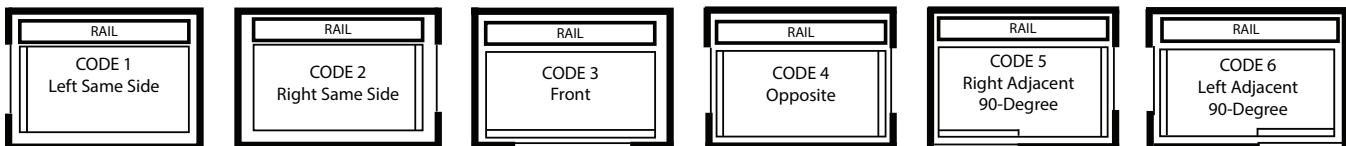
\* Single Opening - 50" OD (Outside dimension) **minimum** (Rail may not be centered in hoistway)

\*\* Single Opening - 62 - 1/2" OD (Outside dimensions) **maximum**

### Note:

1. Minimum DA dimensions reflect rail centered in hoistway.
2. Minimum DA dimension for car without a gate recess is 37" OD (outside dimension)  
Car ID (inside dimensions) can not exceed 15 sq. ft. for 1,000 lb.

## Car Opening Configurations and Coding

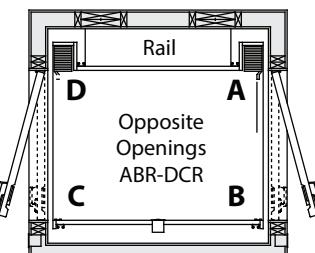


1. The DA is the side on which the rail is attached.
2. The first letter refers to the attachment location of the gate.
3. The second letter refers to the location of the strike plate.
4. If present, the third letter "R" denotes a recessed gate.

### 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 Accordion Gate Hoistway Layouts

## Construction Notes:

- Use specified rail backing from architect to frame into wall. Fox Valley Elevator recommends LVLs.
- The hoistway 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 1,000 lbs. Elevators are illustrated with accordion gates.

The following layouts were designed for travel up to 50 feet.

These symbols are listed beside the car size Fox Valley Elevator believes to be best suited for use by wheelchair passengers and their accompanying attendant.

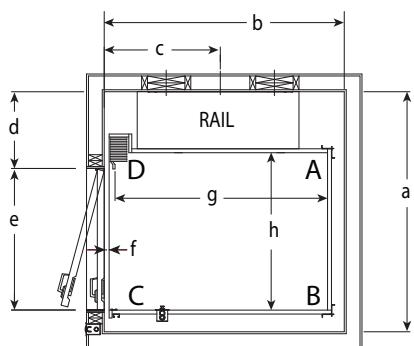


Recommended size for wheelchair passenger

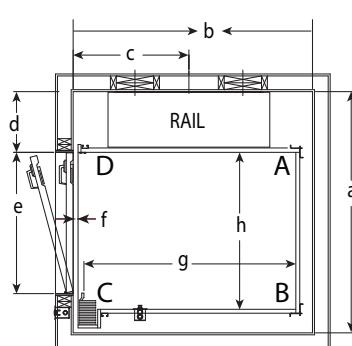


Recommended size for both wheelchair and attendant passengers

**DCR CODE 1**



**CDR CODE 1**

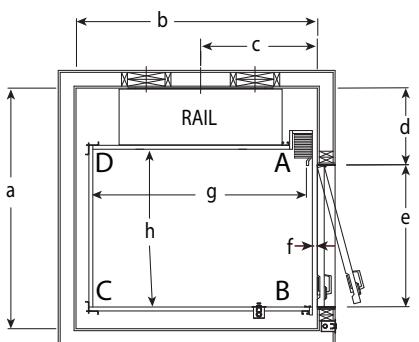


Hoistway Layout	Platform Area ID	Car Size	a	b	c	d	e	f	g	h
DCR Code 1	12 sq ft	48" X 36"	57.5"	54.75"	28.5"	15.5"	36"	0.75"	48"	36"
	15 sq ft	54" X 40" 	61"	61"	29.5"	19.5"	36"	0.75"	54"	40"
	15 sq ft	60" X 36" 	52.5"	67"	32.5"	15.5"	36"	0.75"	60"	36"
CDR Code 1	12 sq ft	48" X 36"	60.5"	55"	32.5"	15.5"	36"	0.75"	48"	36"
	15 sq ft	54" X 40" 	61.5"	61"	29.5"	15.5"	36"	0.75"	54"	40"
	15 sq ft	60" X 36" 	60.5"	66.75"	32.5"	15.5"	36"	0.75"	60"	36"

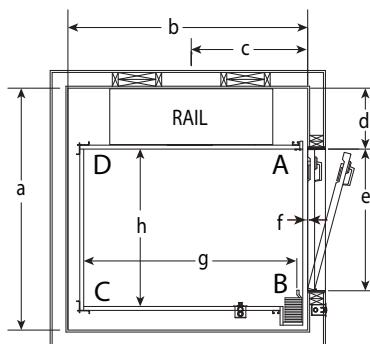
\*All dimensions are finished hoistway dimensions

# Example Accordion Gate Hoistway Layouts

**ABR CODE 2**



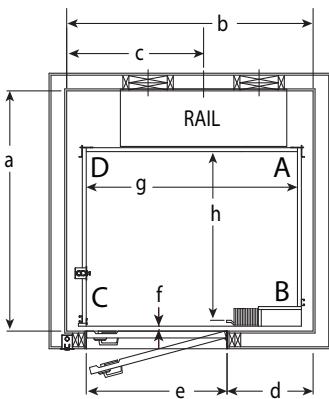
**BAR CODE 2**



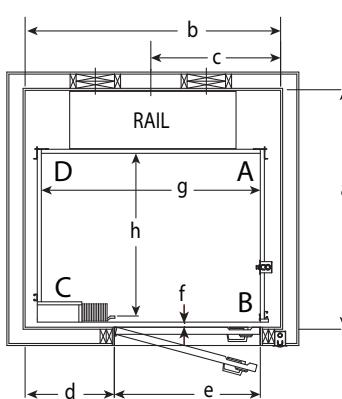
<b>Hoistway Layout</b>	<b>Platform Area ID</b>	<b>Car Size</b>	<b>a</b>	<b>b</b>	<b>c</b>	<b>d</b>	<b>e</b>	<b>f</b>	<b>g</b>	<b>h</b>
ABR Code 2	12 sq ft	48" X 36"	56.5"	54.75"	28.5"	15.5"	36"	0.75"	48"	36"
	15 sq ft	54" X 40"	60.5"	60.75"	29.5"	19.5"	36"	0.75"	54"	40"
	15 sq ft	60" X 36"	56.5"	66.75"	32.5"	15.5"	36"	0.75"	60"	36"
BAR Code 2	12 sq ft	48" X 36"	60.5"	54.75"	26.5"	15.5"	36"	0.75"	48"	36"
	15 sq ft	54" X 40"	61.5"	60.75"	29.5"	15.5"	36"	0.75"	54"	40"
	15 sq ft	60" X 36"	60.5"	66.75"	32.5"	15.5"	36"	0.75"	60"	36"

\*All dimensions are finished hoistway dimensions

**BC CODE 3**



**CB CODE 3**

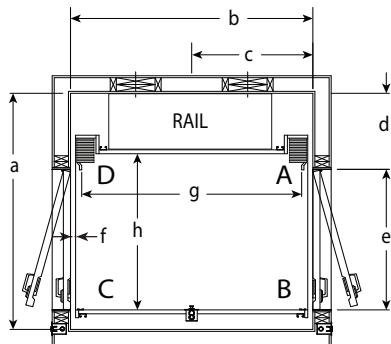


<b>Hoistway Layout</b>	<b>Platform Area ID</b>	<b>Car Size</b>	<b>a</b>	<b>b</b>	<b>c</b>	<b>d</b>	<b>e</b>	<b>f</b>	<b>g</b>	<b>h</b>
BC Code 3	12 sq ft	48" X 36"	54.25"	57"	29"	16"	36"	0.75"	48"	36"
	15 sq ft	54" X 40"	58.25"	63"	32"	22"	36"	0.75"	54"	40"
	15 sq ft	60" X 36"	54.25"	69"	35"	28"	36"	0.75"	60"	36"
CB Code 3	12 sq ft	48" X 36"	54.25"	57"	29"	16"	36"	0.75"	48"	36"
	15 sq ft	54" X 40"	58.25"	63"	32"	22"	36"	0.75"	54"	40"
	15 sq ft	60" X 36"	54.25"	69"	35"	28"	36"	0.75"	60"	36"

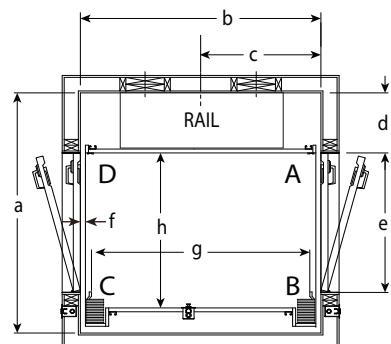
\*All dimensions are finished hoistway dimensions

# Example Accordion Gate Hoistway Layouts

**ABR - DCR CODE 4**



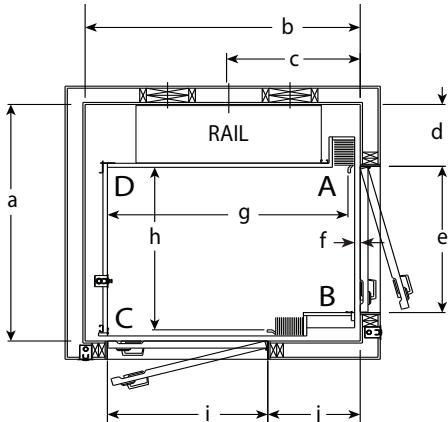
**BAR - DCR CODE 4**



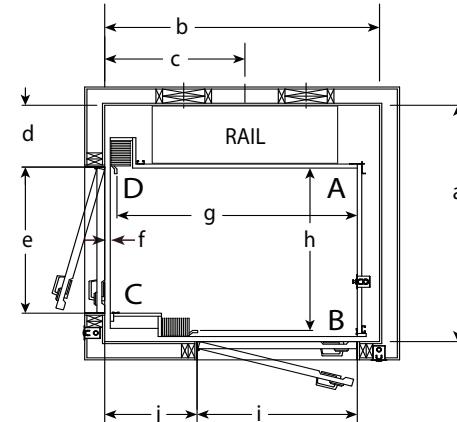
Hoistway Layout	Platform Area ID	Car Size	a	b	c	d	e	f	g	h
ABR- DCR Code 4	12 sq ft	48" X 36"	-	-	-	-	-	-	-	-
	15 sq ft	54" X 40"	60.5"	59.5"	29.75"	19.5"	36"	0.75"	54"	40"
	15 sq ft	60" X 36"	56.5"	65.5"	32.75"	15.5"	36"	0.75"	60"	36"
BAR - CDR Code 4	12 sq ft	48" X 36"	60.5"	53.5"	26.75"	15.5"	36"	0.75"	48"	36"
	15 sq ft	54" X 40"	62"	59.5"	29.75"	15.5"	36"	0.75"	54"	40"
	15 sq ft	60" X 36"	60.5"	65.5"	32.75"	15.5"	36"	0.75"	60"	36"

\*All dimensions are finished hoistway dimensions

**ABR - BC CODE 5**



**DCR - CB CODE 6**



Hoistway Layout	Platform Area ID	Car Size	a	b	c	d	e	f	g	h	i	j
ABR-BC Code 5	12 sq ft	48" X 36"	54.25"	58.75"	29.5"	15.25"	32"	0.75"	48"	36"	36"	17.75"
	15 sq ft	54" X 40"	58.25"	61.75"	29.5"	15.25"	36"	0.75"	54"	40"	36"	20.75"
	15 sq ft	60" X 36"	54.25"	67.75"	32"	15.25"	32"	0.75"	60"	36"	36"	26.75"
DCR-CB Code 6	12 sq ft	48" X 36"	54.25"	58.75"	29.5"	15.25"	32"	0.75"	48"	36"	36"	17.75"
	15 sq ft	54" X 40"	58.25"	61.75"	29.5"	15.25"	36"	0.75"	54"	40"	36"	20.75"
	15 sq ft	60" X 36"	54.25"	67.75"	32.5"	15.25"	32"	0.75"	60"	36"	36"	26.75"

\*All dimensions are finished hoistway dimensions

## Notes



# FOX VALLEY ELEVATOR<sup>TM</sup>

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