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# Planning Guide

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## **Residential Winding Drum Elevators** Built on C Rail

**Series 210 - Custom-Lift**



We are a proud member of the Accessibility Equipment Manufacturers Association. This symbol assures you of our commitment to high quality and accessibility to everyone.



## Waupaca Elevator’s Mission Statement

Our company’s mission is to supply and service products that meet or exceed our customers’ expectations of high quality, value, delivery and longevity. Our success is a direct reflection of our employees’ involvement and commitment to excellence. We strive to continuously improve our products to ensure meeting the future requirements of our customers and facilitate competitive growth.

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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. Waupaca Elevator's products are designed to meet the requirements of ASME A17.1 National Elevator Codes for residential elevators. Manufacturer assumes no liability for equipment not installed in compliance with these codes.

Waupaca Elevator Company, Inc., reserves the right to modify the design, technical specifications and dimensions of the products shown in this document.

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# Planning Steps

1. - Locate local dealer and together determine the following:
  - A - Select drive system, car type and design specifications
  - B - Address national, state and local code requirements
  - C - Hoistway size
  - D - Car size, layout and options
  - E - Machine room location and layout (if required)
  - F - Electrical requirements
2. - Obtain and follow site specific field drawings while building hoistway, doorways and any other construction related to the elevator.
3. - Coordinate with dealer to install elevator.

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## Design Features of :

### C Rail System with Winding Drum Technology

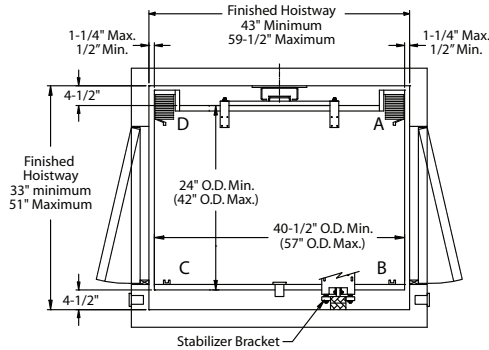
Series: 210

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- 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

# Hoistway Layouts- Series 210

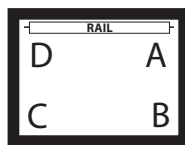
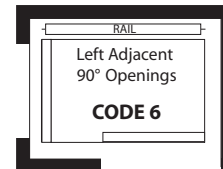
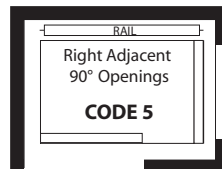
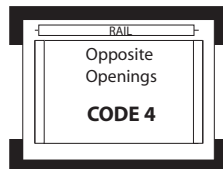
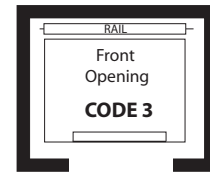
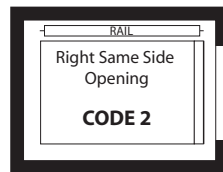
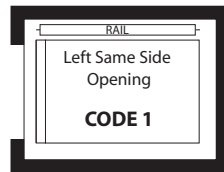
## Minimum and Maximum Dimensions



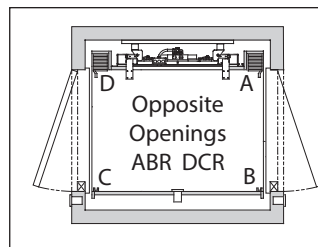
\* Single Opening 36 - 1/4" O.D. (outside dimension) **minimum** (rail is not centered in hoistway)

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

## Car Opening Configurations and Coding



- 1- The D A is the side on which the rail is mounted.
- 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.



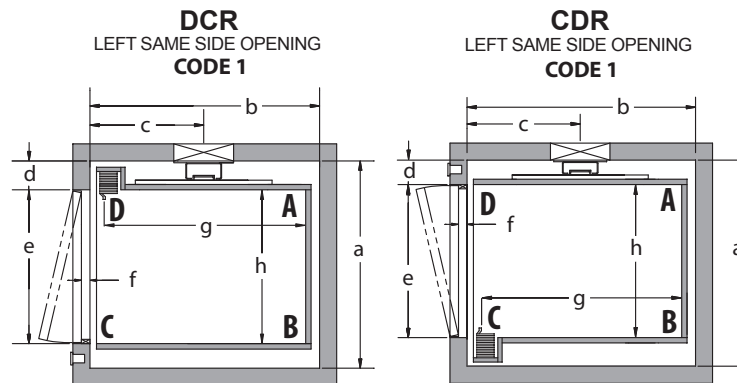
### Example: ABR DCR

- |                     |                     |
|---------------------|---------------------|
| First Gate - ABR    | Second Gate - DCR   |
| A - gate attachment | D - gate attachment |
| B - strike plate    | C - strike plate    |
| R - recessed gate   | R - recessed gate   |

# Hoistway Layout - Series 210

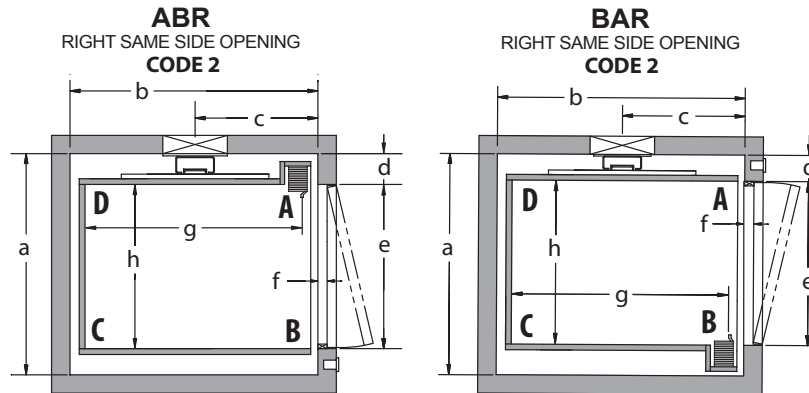
- Use specified rail backing from architect to frame into wall.
- The hoistway illustrations below show finished dimensions. Finished hoistway dimensions include drywall, plaster and paint.
- A maximum of 3" (see "f" below) are allowed between the closed hoistway door and the outer edge of the landing sill.
- Determine height of hall station by local code.
- Rough frame door in place with an extra inch of space on each side of the door to allow for door installation.
- Auxiliary guides required to stabilize car.

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.

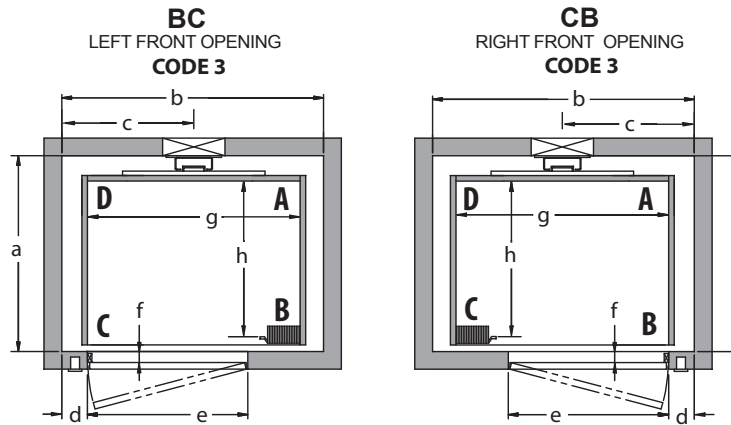


ELEVATOR HOISTWAY LAYOUT		CUSTOM-LIFT ELEVATOR HOISTWAY DIMENSIONS								
		CAR SIZE	FINISHED HOISTWAY DIMENSIONS							
			a	b	c	d	e	f	g	h
<b>CODE 1</b> LEFT SAME SIDE OPENING	DCR	48" x 36"	47"	53.75"	26.5"	5.5"	36"	3"	48"	36"
		54" x 40"	Not Available							
		60" x 36"	Not Available							
<b>CODE 1</b> LEFT SAME SIDE OPENING	CDR	48" x 36"	48"	53.75"	26.5"	5.5"	36"	3"	48"	36"
		54" x 40"	Not Available							
		60" x 36"	Not Available							

# Hoistway Layout - Series 210

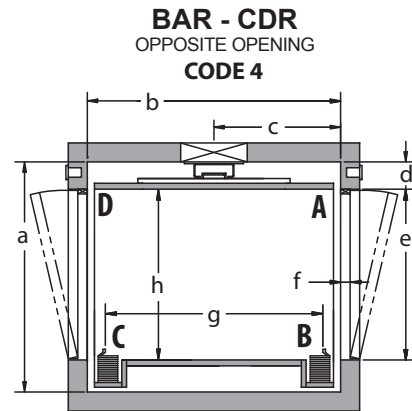
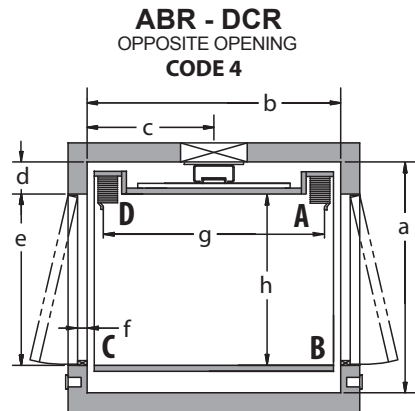


ELEVATOR HOISTWAY LAYOUT	CAR SIZE	CUSTOM-LIFT ELEVATOR HOISTWAY DIMENSIONS								
		FINISHED HOISTWAY DIMENSIONS								
		a	b	c	d	e	f	g	h	
<b>CODE 2</b> RIGHT SAME SIDE OPENING	ABR	48" x 36"	47"	53.75"	26.5"	5.5"	36"	3"	48"	36"
		54" x 40"	Not Available							
		60" x 36"	Not Available							
<b>CODE 2</b> RIGHT SAME SIDE OPENING	BAR	48" x 36"	48"	53.75"	26.5"	5.5"	36"	3"	48"	36"
		54" x 40"	Not Available							
		60" x 36"	Not Available							

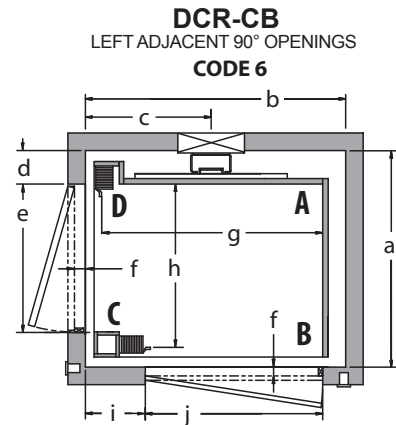
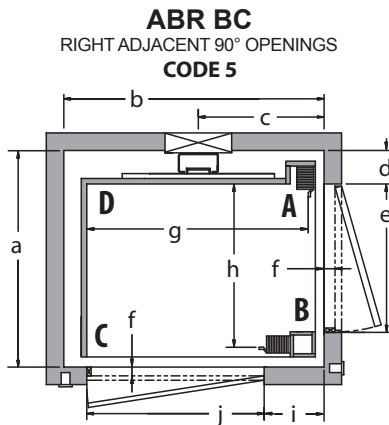


ELEVATOR HOISTWAY LAYOUT	CAR SIZE	CUSTOM-LIFT ELEVATOR HOISTWAY DIMENSIONS								
		FINISHED HOISTWAY DIMENSIONS								
		a	b	c	d	e	f	g	h	
<b>CODE 3</b> LEFT FRONT OPENING	BC	48" x 36"	44.25"	56.5"	29.5"	5.5"	36"	3"	48"	36"
		54" x 40"	Not Available							
		60" x 36"	Not Available							
<b>CODE 3</b> RIGHT FRONT OPENING	CB	48" x 36"	44.25"	56.5"	29.5"	5.5"	36"	3"	48"	36"
		54" x 40"	Not Available							
		60" x 36"	Not Available							

# Hoistway Layout - Series 210



ELEVATOR HOISTWAY LAYOUT		CUSTOM-LIFT ELEVATOR HOISTWAY DIMENSIONS								
		CAR SIZE	FINISHED HOISTWAY DIMENSIONS							
			a	b	c	d	e	f	g	h
<b>CODE 4</b> OPPOSITE OPENING	ABR-DCR	48" x 36"	47"	53.5"	26.75"	5.5"	36"	3"	48"	36"
		54" x 40"	Not Available							
		60" x 36"	Not Available							
<b>CODE 4</b> OPPOSITE OPENING	BAR-CDR	48" x 36"	48"	53.5"	26.75"	5.5"	36"	3"	48"	36"
		54" x 40"	Not Available							
		60" x 36"	Not Available							

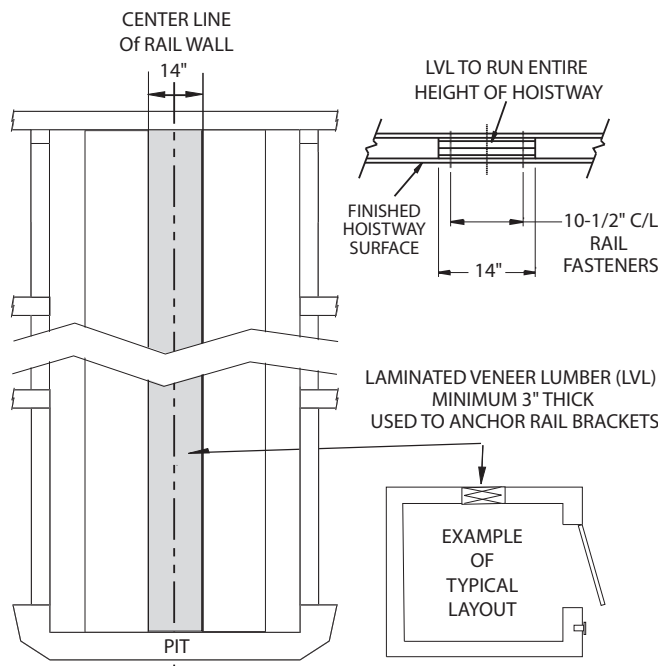
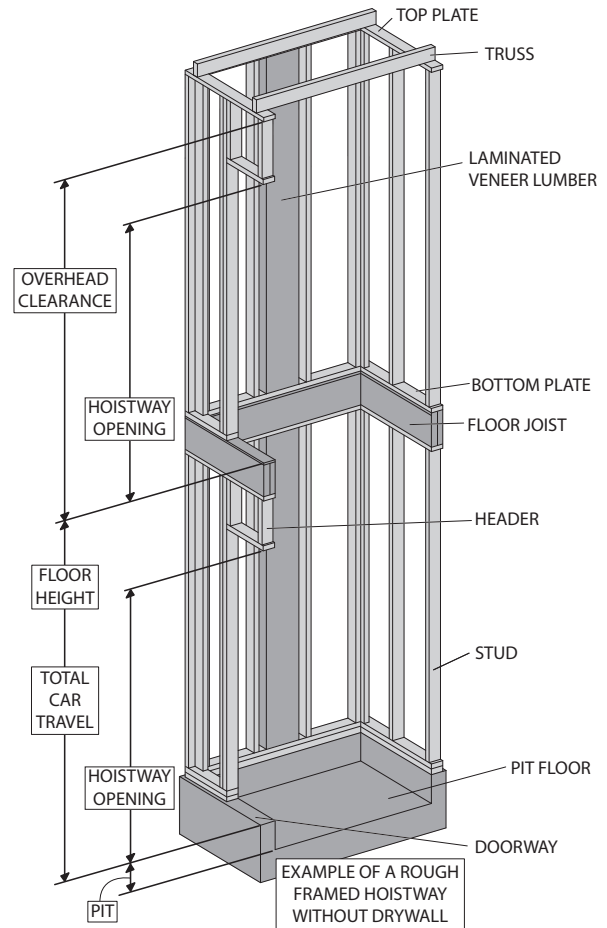


ELEVATOR HOISTWAY LAYOUT		CUSTOM-LIFT ELEVATOR HOISTWAY DIMENSIONS										
		CAR SIZE	FINISHED HOISTWAY DIMENSIONS									
			a	b	c	d	e	f	g	h	i	j
<b>CODE 5</b> RIGHT ADJACENT 90° OPENING	ABR-BC	48" x 36"	44.25"	55.75"	26.5"	5.25"	32"	3"	48"	36"	14.75"	36"
		54" x 40"	Not Available									
		60" x 36"	Not Available									
<b>CODE 6</b> LEFT ADJACENT 90° OPENING	DCR-CB	48" x 36"	44.25"	55.75"	26.5"	5.25"	32"	3"	48"	36"	14.75"	36"
		54" x 40"	Not Available									
		60" x 36"	Not Available									



# Hoistway Illustrations - Series 210

Typical layouts shown here may vary from your actual hoistway. The purpose of these layouts are for a general understanding. Please refer to the Waupaca 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 Specifications - Series 210

## ATTENTION CONSTRUCTION CONTRACTOR:

This is an example of a hoistway. Job specific documentation will be provided by Waupaca Elevator from which to construct the hoistway.

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

1. **Electrical Requirements:**

- Dedicated 230 VAC 35 AMP Circuit Single Phase. Fuse should be a time delay 30 AMP.
- Power supply to be installed in a lockable fused disconnect.
- 120 VAC 15 Amp Circuit Single Phase with manual disconnect & 15 AMP fuse.
- Electrical wiring to comply with applicable codes.

**NOTE :**

Electrical requirements are for general reference only. All job specific electrical requirements must be acquired from job specific drawings provided by Waupaca Elevator Company, Inc.

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 ft. 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.
6. **ASME 17.1 Section 5.3** - Hoistway to be constructed in accordance with ASME 17.1 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. Waupaca Elevator recommends the use of solid core doors.
8. **Hoistway Requirements** - Any operating equipment must meet N.E.C. code and all local codes. Machine space must have a light switch and a convenience outlet. Temperature must be maintainable between 60° - 110° F and must not be exposed to the elements (with a relative humidity not to exceed 95%).
- NOTE:**  
The frequency drive fan may be heard running for thermal heat dissipation at any time.
9. **No Alterations** - Any alterations to the equipment without written authorization by Waupaca Elevator will void all warranties.
10. **Pit Floor Strength** - A pit floor must be designed to withstand an impact of 1050 lbs. per sq. ft. When used, concrete must be a minimum of 4" thick rated at 3500PSI.
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.

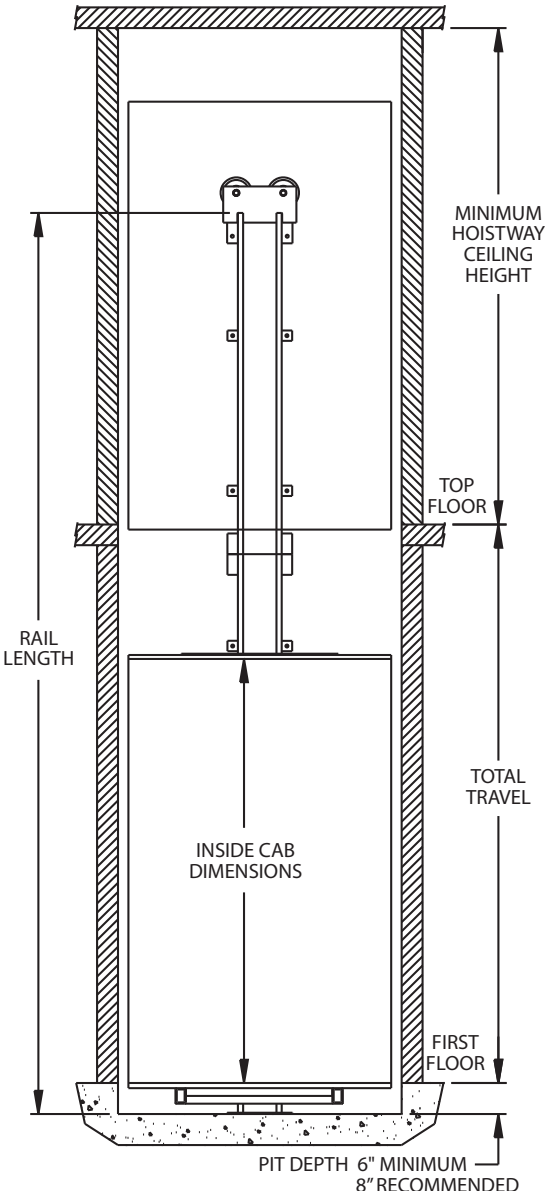
# Hoistway Elevation View and Rail Layout - Series 210

## 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. Waupaca Elevator will provide you with the appropriate dimensions. Please contact your local dealer to acquire alternate layouts.

This is a graphical representation of Waupaca Elevator's Custom Lift Series which offers a total of six stops and a total travel distance of 50 feet.

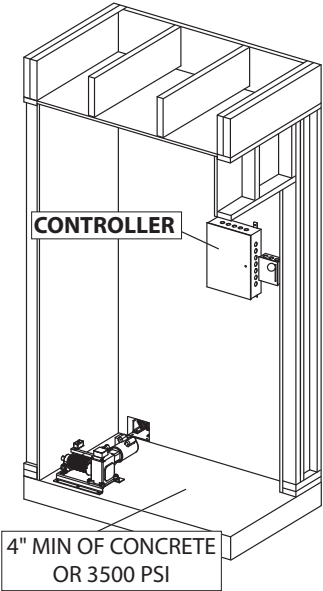


Additional space may be required for hoisting and maneuvering equipment into place with overhead mounted units.

**Rail Calculations**  
 Rail Length =  
 Pit Depth + Travel + 66"

# Machine Room - Series 210

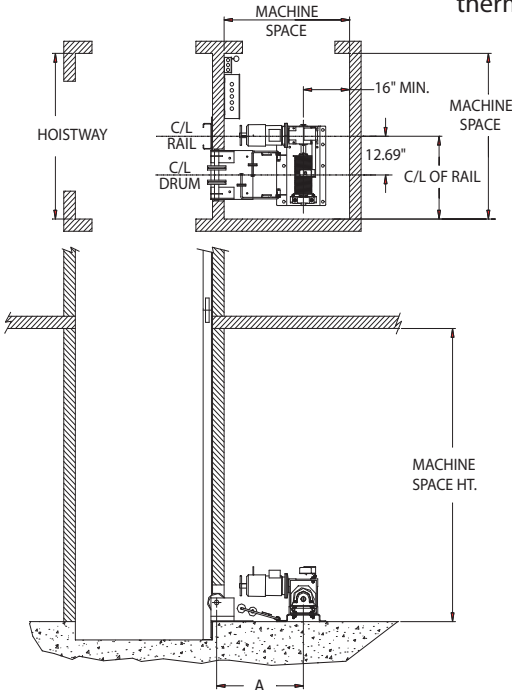
## Typical 1<sup>ST</sup> Floor Machine Room Layout



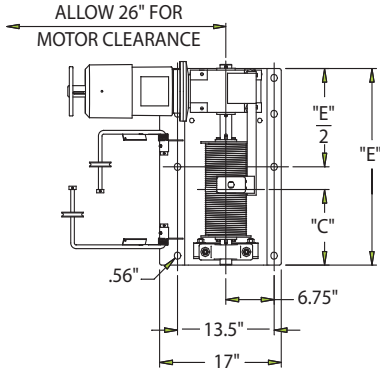
1. Fleet angle distance and drum size will change per job (refer to table below).
2. Concrete floor must be a minimum of 4" thick rated at 3500 psi. If a floating slab is used, it must be tied to the structure.
3. The controller requires minimum clear space of 36" X 30" located directly in front of the controller (refer to illustration)
3. A lockable service disconnect must be placed within sight of the controller and must be easily accessible from the latch side of the doorway.
4. A machine room or enclosure must be provided that meets national electrical code clear space requirements and all local codes. The machine room must contain a convenience outlet and light with switch. Temperatures in the machine room must be maintained between 60° - 110° F and must not be exposed to the elements (with a relative humidity not to exceed 95%).

**Note:**

The frequency drive may be heard running for thermal heat dissipation at any time.



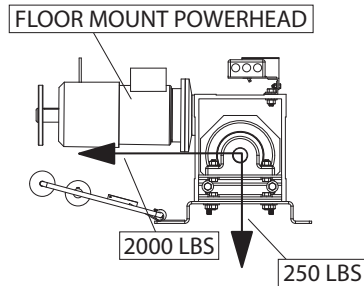
TYPICAL TRAVELING SHEAVE ARRANGEMENT					
TRAVEL	<14'	<24'	<32'	<40'	<50'
DRUM LENGTH	8"	12"	15"	18"	22"
DRUM C/L DIST. "C"	8.25"	10"	12.25"	14.5"	14.5"
MACH. BASE "E"	22"	26"	29"	34"	34"
MINIMUM FOR "A"	30"	30"	30"	43"	72"



# Elevator Equipment - Series 210

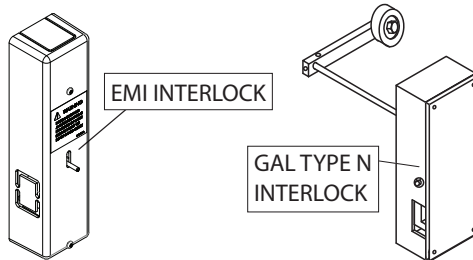
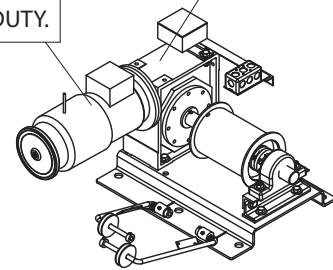
## Typical

- Powerhead
- Main Rail
- Gear Box
- Sheaves
- Interlocks
- Motor
- Drum



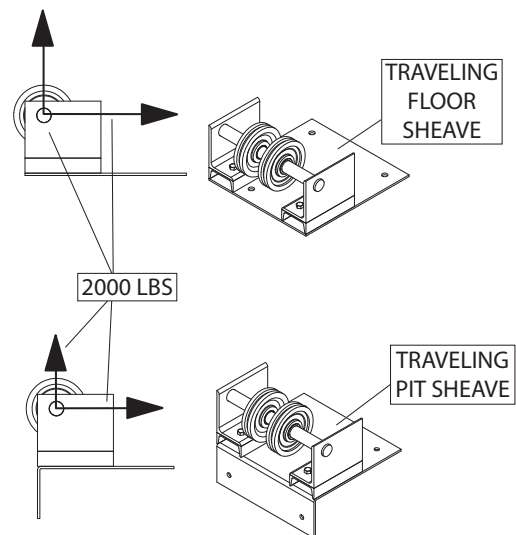
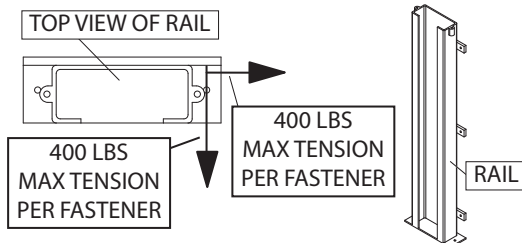
**MOTOR** -  
III PHASE,  
2 HORSEPOWER  
INVERTER DUTY.

**GEARBOX** -  
HIGH RATIO,  
DIRECT MOUNTED  
AND COUPLED.

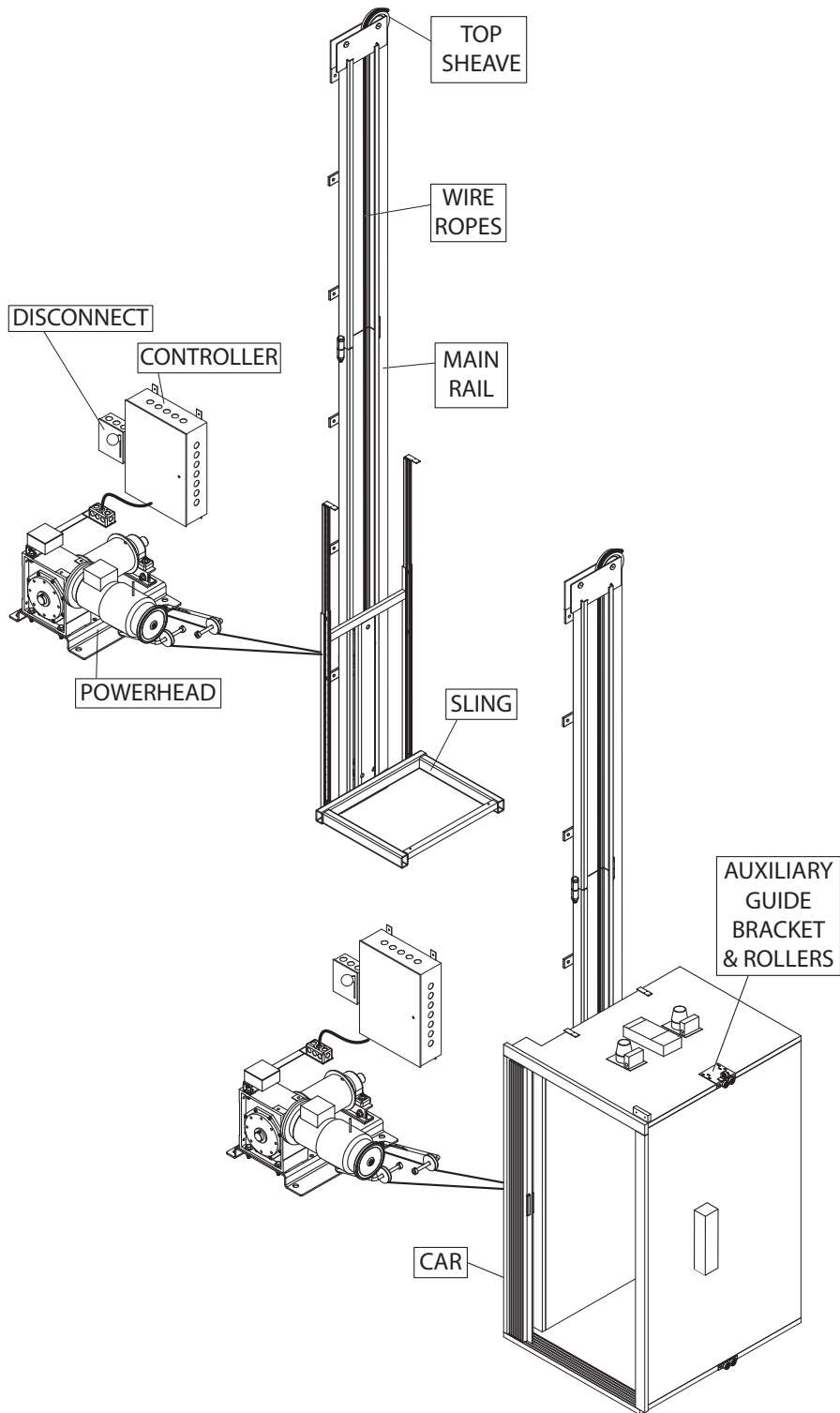


**HOISTWAY DOOR INTERLOCKS**  
**EMI or GAL TYPE "N"**  
REQUIRED AT EACH OPENING TO PREVENT  
HOISTWAY OR ELEVATOR ACCESS AT ANY DOOR  
OTHER THAN WHERE THE CAR IS LOCATED.

**MAIN RAIL** - 3/16" THICK x 8" WIDE PRECISION  
FORMED STEEL CHANNEL WITH MOUNTING BRACKET  
SUPPORTS AT 30" INTERVALS. HEAVY DUTY SPLICE  
BOLTS ARE USED AT ALL MATCHED, GROUND, AND  
NUMBERED RAIL SPLICES FOR INSTALLATION.



# Series 210 Mechanical Illustrations





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