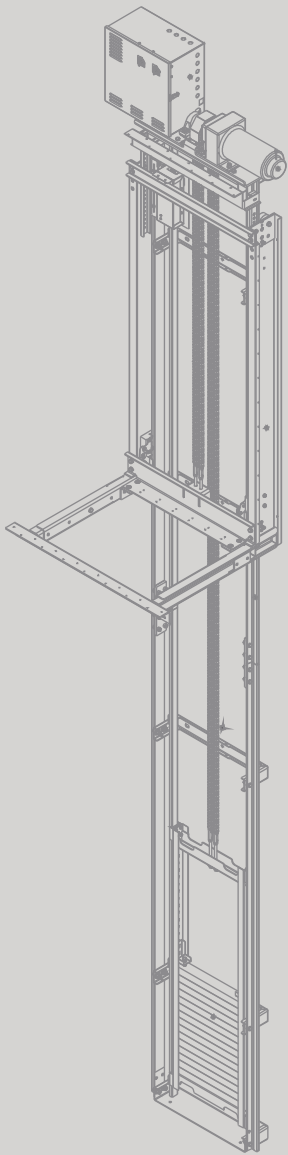




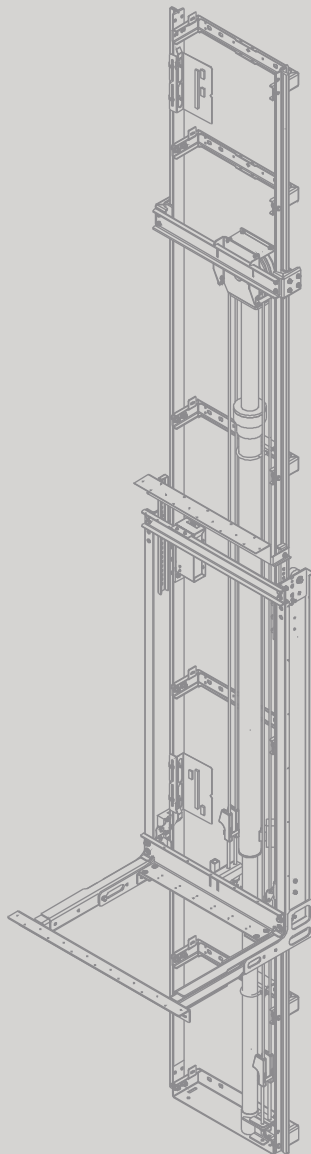
RESIDENTIAL ELEVATORS

Design Guide

ASME A17.1, Part V, Section 5.3



InLine Geared Drive



Hydraulic Drive

www.SymmetryElevator.com

Symmetry Residential

Home Elevator Systems

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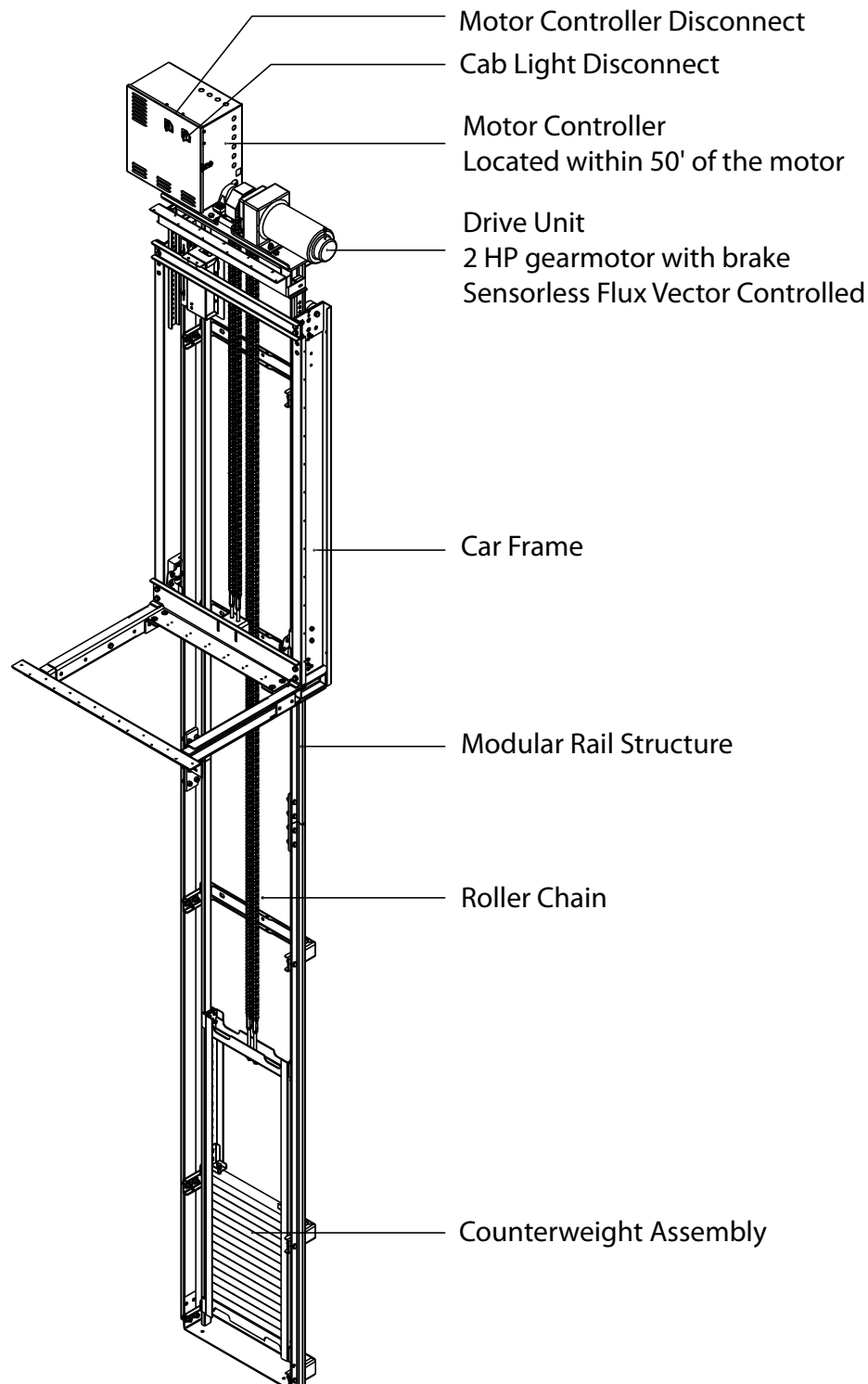
About Symmetry

We've taken decades of customer feedback and turned that knowledge into the Symmetry residential elevator and wheelchair lift. It's a unique mobility product set from people who understand that multiple floors don't have to be an obstacle.

Symmetry's philosophy is "*more space for living.*" That's why we design elevators and platform lifts that take up less room and seamlessly fit into any style of home or office. Even when they blend in, Symmetry elevators and platform lifts stand out with simple operation, reliable function, and options that are virtually limitless.

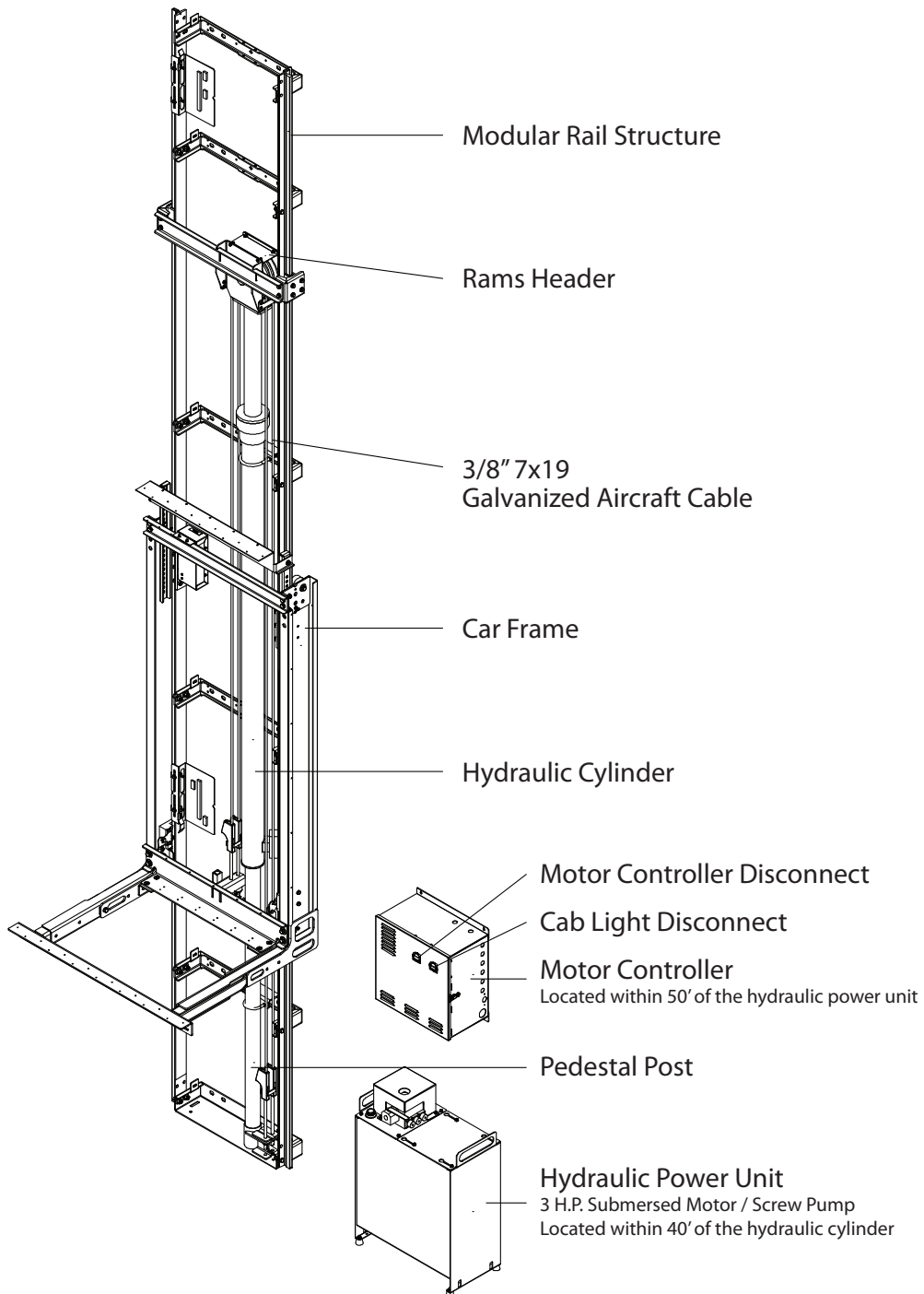
COMPONENT IDENTIFICATION

In-Drive Geared Drive Overview



COMPONENT IDENTIFICATION

Hydraulic Drive System Overview



Equipment for Symmetry Residential Elevator

In-Drive Geared Drive

General:

- Travel: Maximum of 50' (minimum 12" between stops)
- Speed: 40 FPM
- Load Capacity: 950#
- Overhead Minimum of 8' (96") with remote controller
- Pit depth: 8" minimum
- Two stops
- Single opening
- Three year limited parts warranty

Mechanical Equipment:

- Modular 6 1/4# T-rail structure
- Car frame assembly
- 230VAC, 60Hz, 20 amp single phase power supply for motor controller
- 120 VAC, 60Hz, 10 amp single phase power supply for lighting
- [2] #60 roller chains
- Inverter controlled variable speed in-line geared assembly with counterweighted chain drive and 2HP motor

**Code compliant electrical disconnects included*

Safety Devices:

- Slack chain safety device
- Motor controller supply (located in controller)
- Car light supply (located in controller)
- Upper and lower final limits
- Pit stop switch
- Car top stop switch
- In-car emergency stop switch and alarm
- Safety switch for car gate(s)
- Battery back up emergency car lights and alarm
- Electromechanical hoistway door interlocks (doors by others)

Controls:

- Programmable Logic Controller (PLC)
- Non-selective collective automatic operation Self Diagnostic System with digital display
- Car Operating Panel (COP) available in brushed stainless steel or brushed brass with LED floor position indicator
- Hall stations available in brushed stainless steel or brushed brass with call button and car arrival indicator
- Recessed phone box in brushed stainless steel or brushed brass (phone jack included)
- Automatic car lighting
- Single floor designated car homing

**Uninterruptible Power Supply (UPS) for car lowering and automatic gate operation (if provided) in the event of power failure*

- Manual lowering device

Car Features:

- Cab size up to 15 ft²
 - 7'0" interior car height
 - *Birch, Oak, or Maple flat veneer interior walls with matching ceiling*
 - Matching wood handrail
 - * Matching wood car sill*
 - Unfinished plywood floor with sill set for .75" (flooring by others)
 - *2 energy saving recessed LED lights with black trim rings*
 - 7'0" vinyl accordion gate (light oak, dark oak, white, or antique white)
- All accordion gates except white have bronze hardware. White gates have aluminum hardware.*

Optional Features:

- Up to Six stops
- Single automatic push button operation
- Custom car size up to 18 ft²
- Custom car heights
- Recessed panel car with flush ceiling
- Recessed panel car with matching ceiling
- Raised panel car with matching ceiling
- *4 recessed LED lights with black trim rings*
- Factory finished car
- Polished stainless steel, polished brass, brushed nickel, and oil rubbed brass fixtures (including COP, phone box, hall calls, and handrail)
- *COP with integrated phone box*
- Custom wood interiors
- *Custom factory finishes (antiqued, distressed, & crackle)*
- *Green material alternatives and finishes for car interiors*
- *Scissor gate*
- Hardwood veneer accordion gate
- Clear panel accordion gate
- Autogate operator (available for use with accordion gate only)
- .75" finished or unfinished factory installed hardwood car flooring
- Factory flooring insert for 1/4" flooring by others
- Buffer springs (requires minimum of 10" pit depth)
- Key switch for COP and hall stations
- 750# car capacity

*** This symbol denotes exclusive features.**

Equipment for Symmetry Residential Elevator

Hydraulic Drive System

General:

- Travel: Maximum of 50' (minimum 12" between stops)
- Speed: 40 FPM
- Load Capacity: 950#
- Overhead Minimum of 8' (96") with remote controller
- Pit depth: 8" minimum
- Two stops
- Single opening
- Three year limited parts warranty

Mechanical Equipment:

- Modular 6 1/4# T-rail structure
- Car frame assembly
- 230VAC, 60Hz, 20 amp single phase power supply for motor controller
- 120 VAC, 60Hz, 10 amp single phase power supply for lighting
- [2] #60 roller chains
- Inverter controlled variable speed in-line geared assembly with counterweighted chain drive and 2HP motor

**Code compliant electrical disconnects included*

Safety Devices:

- Slack chain safety device
- Motor controller supply (located in controller)
- Car light supply (located in controller)
- Rupture Valve (Type "C" Safety)
- Pit stop switch
- Car top stop switch
- In-car emergency stop switch and alarm
- Safety switch for car gate(s)
- Battery back up emergency car lights and alarm
- Electromechanical hoistway door interlocks (doors by others)

Controls:

- Programmable Logic Controller (PLC)
 - Non-selective collective automatic operation
- *Self Diagnostic System with digital display*
- Car Operating Panel (COP) available in brushed stainless steel or brushed brass with LED floor position indicator
 - Hall stations available in brushed stainless steel or brushed brass with call button and car arrival indicator
 - Recessed phone box in brushed stainless steel or brushed brass (phone jack included)
 - Automatic car lighting
 - Single floor designated car homing

**Uninterruptible Power Supply (UPS) for car lowering and automatic gate operation (if provided) in the event of power failure*

Car Features:

- Cab size up to 15 ft²
 - 7'0" interior car height
 - *Birch, Oak, or Maple flat veneer interior walls with matching ceiling*
 - Matching wood handrail
 - * Matching wood car sill*
 - Unfinished plywood floor with sill set for .75" (flooring by others)
 - *2 energy saving recessed LED lights with black trim rings*
 - 7'0" vinyl accordion gate (light oak, dark oak, white, or antique white)
- All accordion gates except white have bronze hardware. White gates have aluminum hardware.*

Optional Features:

- Up to Six stops
- Single automatic push button operation
- Custom car size up to 18 ft²
- Custom car heights
- Recessed panel car with flush ceiling
- Recessed panel car with matching ceiling
- Raised panel car with matching ceiling
- *4 recessed LED lights with black trim rings*
- Factory finished car
- Polished stainless steel, polished brass, brushed nickel, and oil rubbed brass fixtures (including COP, phone box, hall calls, and handrail)
- *COP with integrated phone box*
- Custom wood interiors
- *Custom factory finishes (antiqued, distressed, & crackle)*
- *Green material alternatives and finishes for car interiors*
- *Scissor gate*
- Hardwood veneer accordion gate
- Clear panel accordion gate
- Autogate operator (available for use with accordion gate only)
- .75" finished or unfinished factory installed hardwood car flooring
- Factory flooring insert for 1/4" flooring by others
- Buffer springs (requires minimum of 10" pit depth)
- Key switch for COP and hall stations
- 750# car capacity

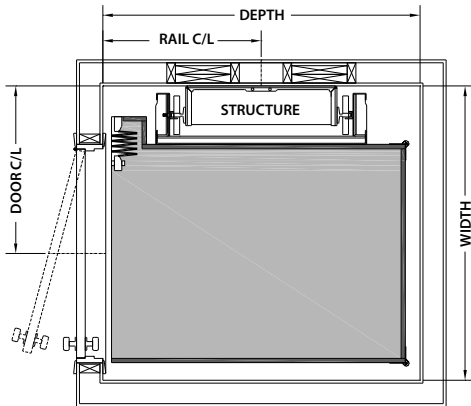
*** This symbol denotes exclusive features.**

Contractor Notes:

- FURNISH APPROPRIATE RAIL BACKING FOR T-RAIL
- CONSULT DEALER FOR SPAN OF GREATER THAN 10' BETWEEN FLOOR JOISTS
- MAINTAIN BELOW 1/8" TOLERANCES THROUGHOUT HOISTWAY
- RAIL BACKING WALL MUST BE A LOAD BEARING WALL
- PIT FLOOR MUST BE A MINIMUM OF 8" BELOW THE FINISHED FLOOR OF THE LOWEST LANDING
- CONSTRUCTION OF PIT FLOOR MUST WITHSTAND AN IMPACT LOAD OF 6500#
- 8'0" MINIMUM HOISTWAY OVERHEAD ABOVE THE FINISHED FLOOR AT THE TOP LANDING IS REQUIRED FOR 7'0" CAR WITH REMOTE CONTROLLER.
- 9'0" MINIMUM HOISTWAY OVERHEAD ABOVE THE FINISHED FLOOR AT THE TOP LANDING IS REQUIRED FOR 7'0" CAR WITH CONTROLLER LOCATED IN THE HOISTWAY
- PROVIDE AN ACCESS HATCH FOR SERVICING THE CONTROLLER/DRIVE UNIT
- HOISTWAY DOORS PROVIDED BY OTHERS. MINIMUM 3'0" X 6'8" SOLID CORE DOORS ARE RECOMMENDED
- HOISTWAY MUST BE FREE OF ANY OBSTRUCTIONS UNRELATED TO THE ELEVATOR OPERATION (I.E. SPRINKLERS, PIPES, DUCTS, ETC.)
- THE STRUCTURE OF THE HOISTWAY MUST ALLOW FOR INSTALLATION OF A CHAIN HOIST TO TRANSFER MATERIALS TO THE UPPER LANDINGS DURING ELEVATOR INSTALLATION

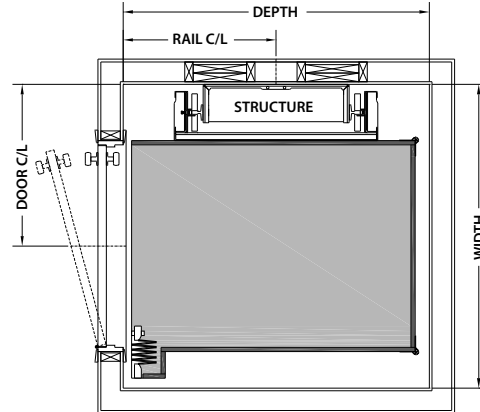
Typical Hoistway Options

All Hoistway Dimensions Reference Finished Wall to Finished Wall



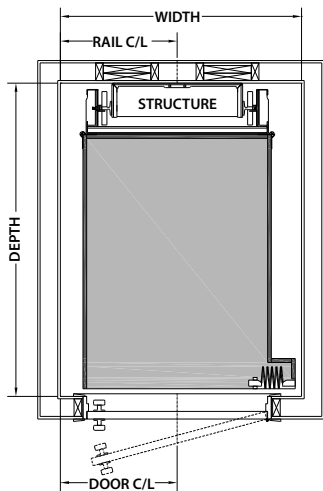
SINGLE OPENING, RAIL LEFT, RIGHT HAND DOOR OR RAIL RIGHT/LEFT HAND DOOR

Car Size	Width	Depth	Rail C/L	Door C/L	Clear Opening
36 x 48	50½"	54½"	27¼"	28¾"	32¼"
36 x 60	50½"	66½"	33¼"	28¾"	32¼"
40 x 54	54½"	60½"	30¼"	32¾"	33½"



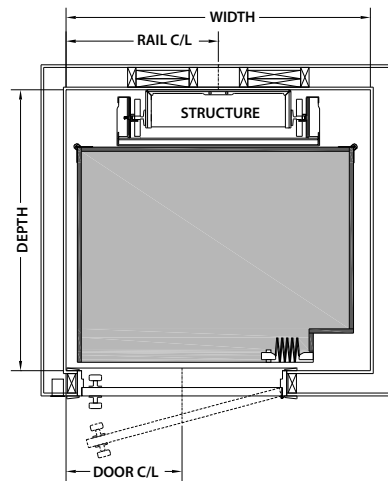
SINGLE OPENING, RAIL LEFT, LEFT HAND DOOR OR RAIL RIGHT/RIGHT HAND DOOR

Car Size	Width	Depth	Rail C/L	Door C/L	Clear Opening
36 x 48	54"	54½"	27¼"	28¾"	32¼"
36 x 60	54"	66½"	33¼"	28¾"	32¼"
40 x 54	55"	60½"	30¼"	28¾"	33½"



SINGLE OPENING, RAIL FRONT, LEFT HAND DOOR OR RAIL FRONT/RIGHT HAND DOOR

Car Size	Width	Depth	Rail C/L	Door C/L	Clear Opening
36 x 48	48"	62½"	23¼"	23¼"	32¼"
36 x 60	48"	74½"	23¼"	23¼"	32¼"
40 x 54	48"	68½"	24"	21¾"	33½"



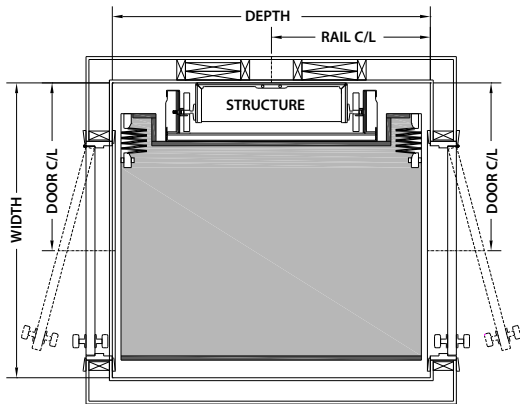
SINGLE OPENING, RAIL FRONT, LEFT HAND DOOR OR RAIL FRONT/RIGHT HAND DOOR

Car Size	Width	Depth	Rail C/L	Door C/L	Clear Opening
48 x 36	54½"	50½"	27¼"	20¾"	32¼"
60 x 36	66½"	50½"	33¼"	20¾"	32¼"
54 x 40	60½"	54½"	30¼"	20¾"	32¼"

DOOR CENTERLINES ARE SHOWN WITH 3'0" DOORS. PLEASE CONSULT MANUFACTURER FOR ALTERNATE DOOR WIDTHS

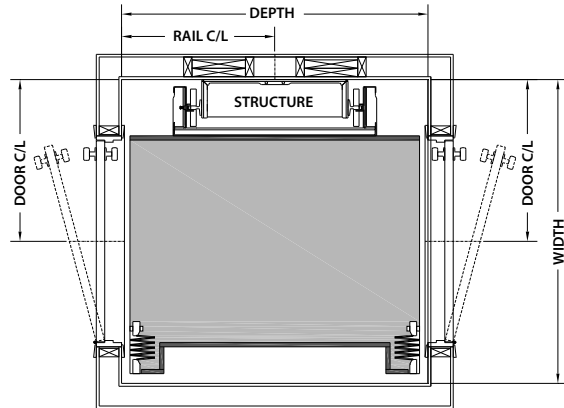
Typical Hoistway Options

All Hoistway Dimensions Reference Finished Wall to Finished Wall



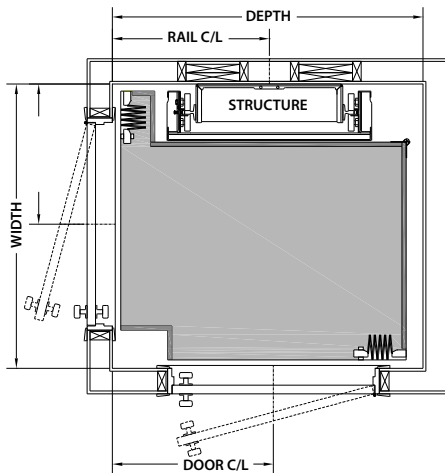
SINGLE OPENING, RAIL LEFT, RIGHT HAND DOOR OR RAIL RIGHT/LEFT HAND DOOR

Car Size	Width	Depth	Rail C/L	Door C/L	Clear Opening
36 x 48	50½"	54½"	27¼"	28¾"	32¼"
36 x 60	50½"	66½"	33¼"	28¾"	32¼"
40 x 54	54½"	60½"	30¼"	32¾"	33½"



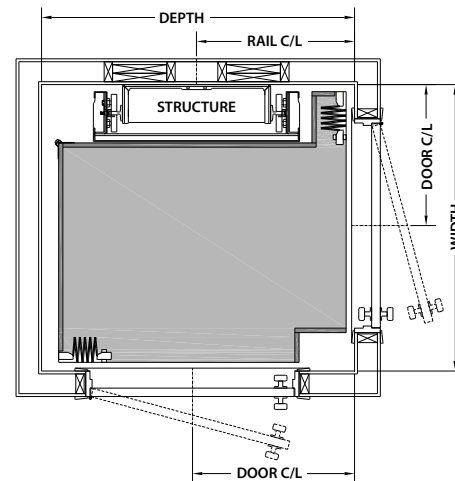
SINGLE OPENING, RAIL LEFT, LEFT HAND DOOR OR RAIL RIGHT/RIGHT HAND DOOR

Car Size	Width	Depth	Rail C/L	Door C/L	Clear Opening
36 x 48	54"	54½"	27¼"	28¾"	32¼"
36 x 60	54"	66½"	33¼"	28¾"	32¼"
40 x 54	55"	60½"	30¼"	28¾"	33½"



SINGLE OPENING, RAIL FRONT, LEFT HAND DOOR OR RAIL FRONT/RIGHT HAND DOOR

Car Size	Width	Depth	Rail C/L	Door C/L	Clear Opening
36 x 48	50½"	55"	27¾"	25"/28½"	32¼"
36 x 60	50½"	67"	33¾"	25"/40½"	32¼"
40 x 54	54½"	61"	30¾"	29"/34½"	32¼"



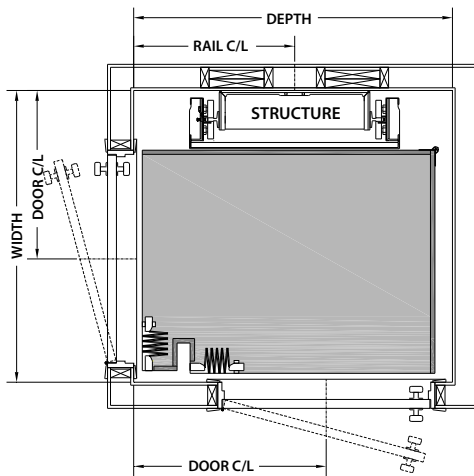
SINGLE OPENING, RAIL FRONT, LEFT HAND DOOR OR RAIL FRONT/RIGHT HAND DOOR

Car Size	Width	Depth	Rail C/L	Door C/L	Clear Opening
36 x 48	50½"	55"	27¾"	25"/28½"	32¼"
36 x 60	50½"	67"	33¾"	25"/40½"	32¼"
40 x 54	54½"	61"	30¾"	29"/34½"	32¼"

DOOR CENTERLINES ARE SHOWN WITH 3'0" DOORS. PLEASE CONSULT MANUFACTURER FOR ALTERNATE DOOR WIDTHS

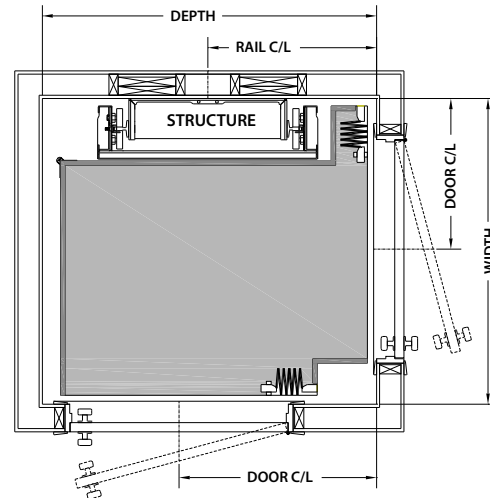
Typical Hoistway Options

All Hoistway Dimensions Reference Finished Wall to Finished Wall



90 DEGREE OPENING, RAIL LEFT, LEFT HAND DOOR / RIGHT HAND DOOR

Car Size	Width	Depth	Rail C/L	Door C/L	Clear Opening
36 x 48	50½"	55"	27¾"	29¼"/33¼"	28½"/32¼"
36 x 60	50½"	67"	33¾"	29¼"/45¼"	28½"/32¼"
40 x 54	54½"	61"	30¾"	29¼"/39¼"	32¼"



90 DEGREE OPENING, RAIL RIGHT, LEFT HAND DOOR / LEFT HAND DOOR

Car Size	Width	Depth	Rail C/L	Door C/L	Clear Opening
36 x 48	50½"	55"	27¾"	25"/33¼"	32¼"
36 x 60	50½"	67"	33¾"	25"/45¼"	32¼"
40 x 54	54½"	61"	30¾"	29"/39¼"	32¼"

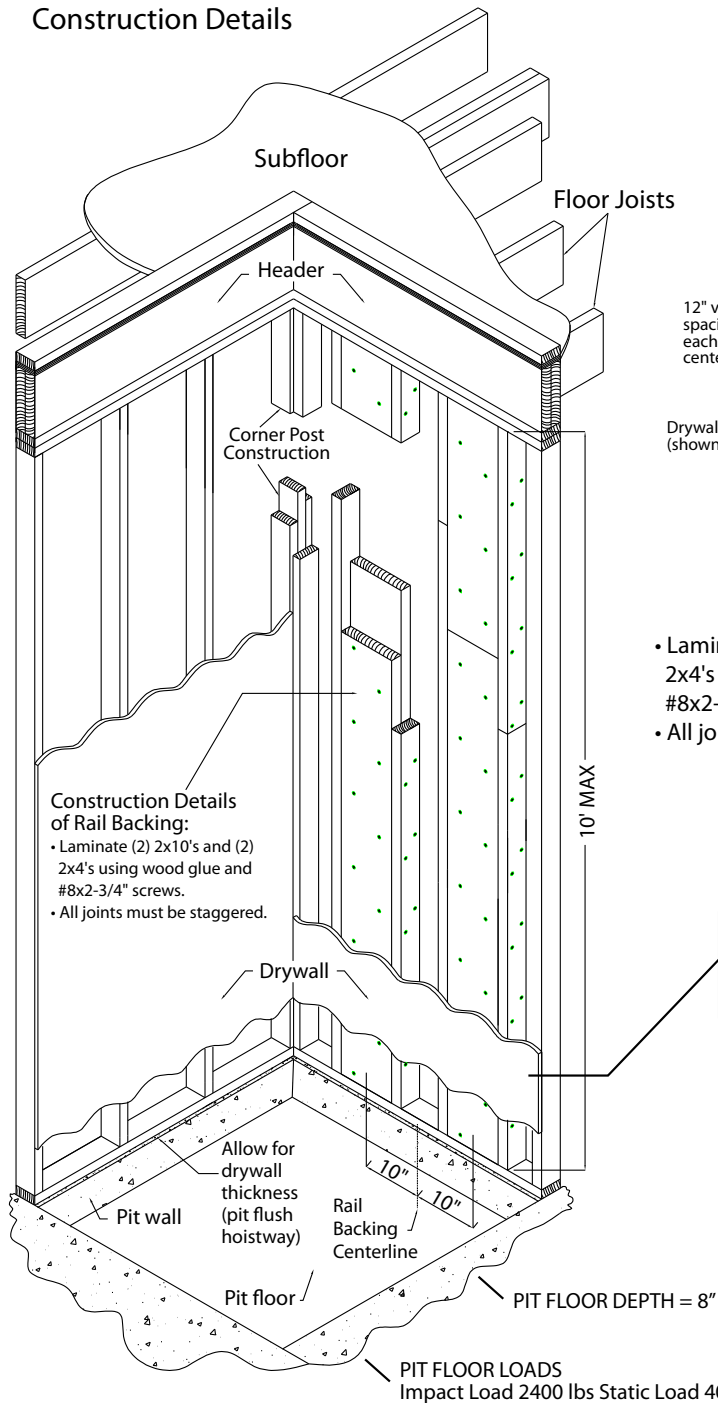
ALL HOISTWAY DIMENSIONS REFERENCE FINISHED WALL TO FINISHED WALL

DOOR CENTERLINES ARE SHOWN WITH 3'0" DOORS. PLEASE CONSULT MANUFACTURER FOR ALTERNATE DOOR WIDTHS

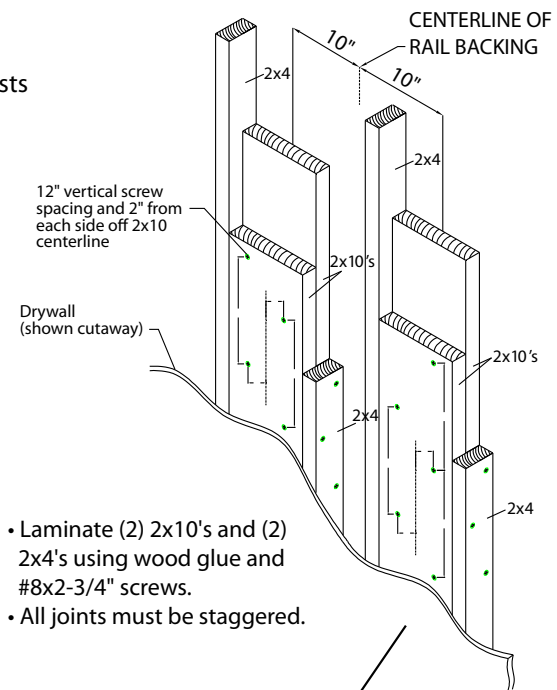
Typical Hoistway Construction

Construction & Rail Backing Details

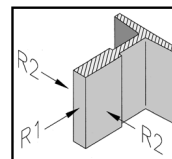
Typical Hoistway
Construction Details



Typical Rail Backing
Construction



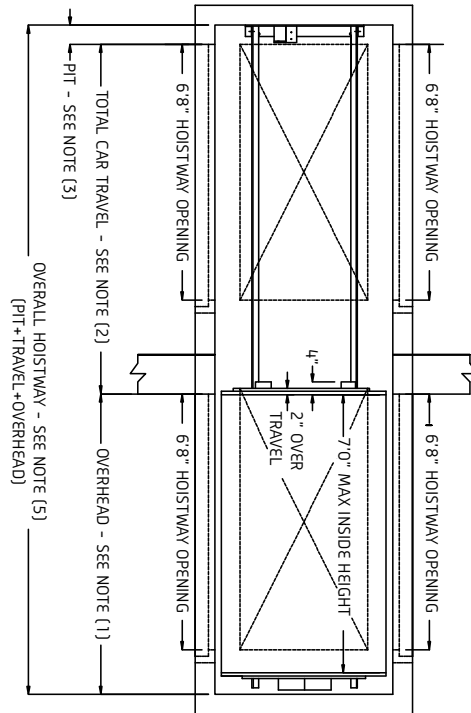
NOTE:
THE DRYWALL ON THE RAIL WALL SHOULD BE GLUED AND SCREWED.



T-RAIL
REACTIONS
950#
R1=190
R2=350

Typical Hoistway Overview

Construction & Rail Backing Details



Notes:

1) 8'0" Overhead required for 7'0" Interior Cab Height for Hydraulic and Remote Controller In-Line Geared.

9'0" Overhead required for 7'0" Interior Cab Height for In-Line Geared with Controller in the Hoistway. (Includes 9" of Cartop Clearance.)

2) Minimum Floor to Floor Travel is 12" between Floors (If Travel is Less than 12" ConSult Factory).

Maximum Floor to Floor Travel:
950lb Unit = 50'0"

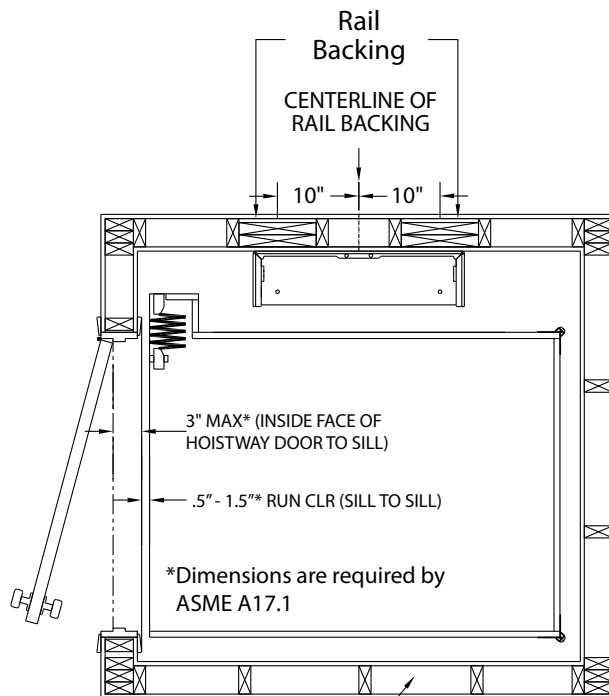
3) Minimum Pit Depth is 8"
Impact Load @ Pit
6500lbs (950lb Capacity)
Static Load @ Pit
3800lbs (950lb Capacity)
Buffer Springs require 9" Pit Depth Minimum.

4) Consult Local Authority to Ensure Compliance with State and Local Codes.

5) The Hoistway is required to be Free of all Pipes, Wiring, and Obstructions not related to the Operation of the Elevator.

OVERHEAD CLEARANCE REQUIREMENTS

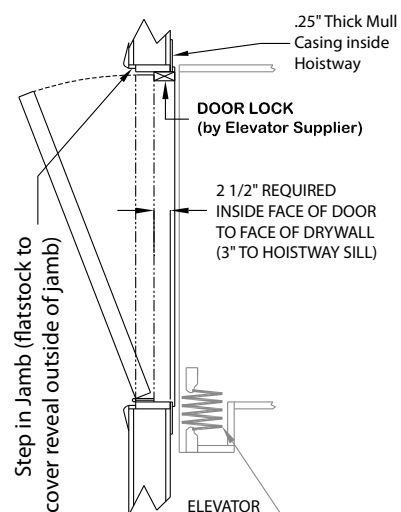
Car Height (Hydraulic & IGD)	Remote Controller (Hydraulic & IGD)	Controller in Hoistway (IGD Only)
7'0"	8'0" (96")	9'0" (108")
7'11"	8'11" (107")	9'11" (119")



Typical Framework with Drywall Construction

TYPICAL DOOR LOCATION DETAIL

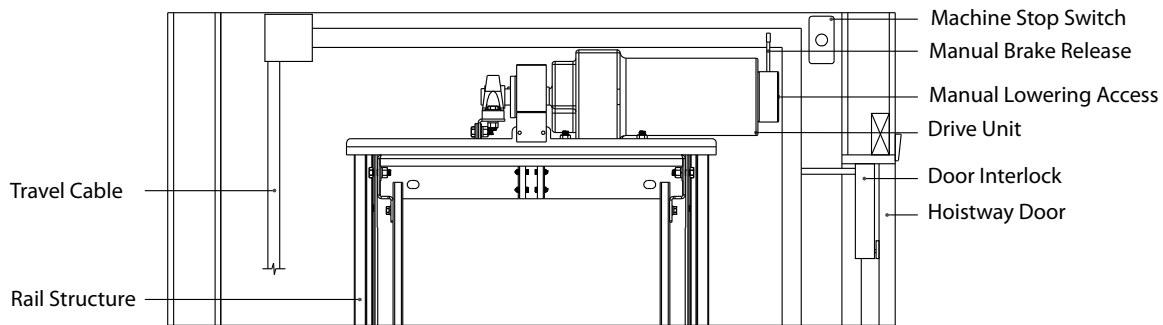
** HORIZONTAL RUNNING CLEARANCES AS REQUIRED BY ASME A17.1, SECTION 5.3 (LEFT HAND DOOR SHOWN)



Typical Machine Room Layouts

In-Drive Geared Drive

IN-LINE GEARED DRIVE WITH REMOTE CONTROLLER

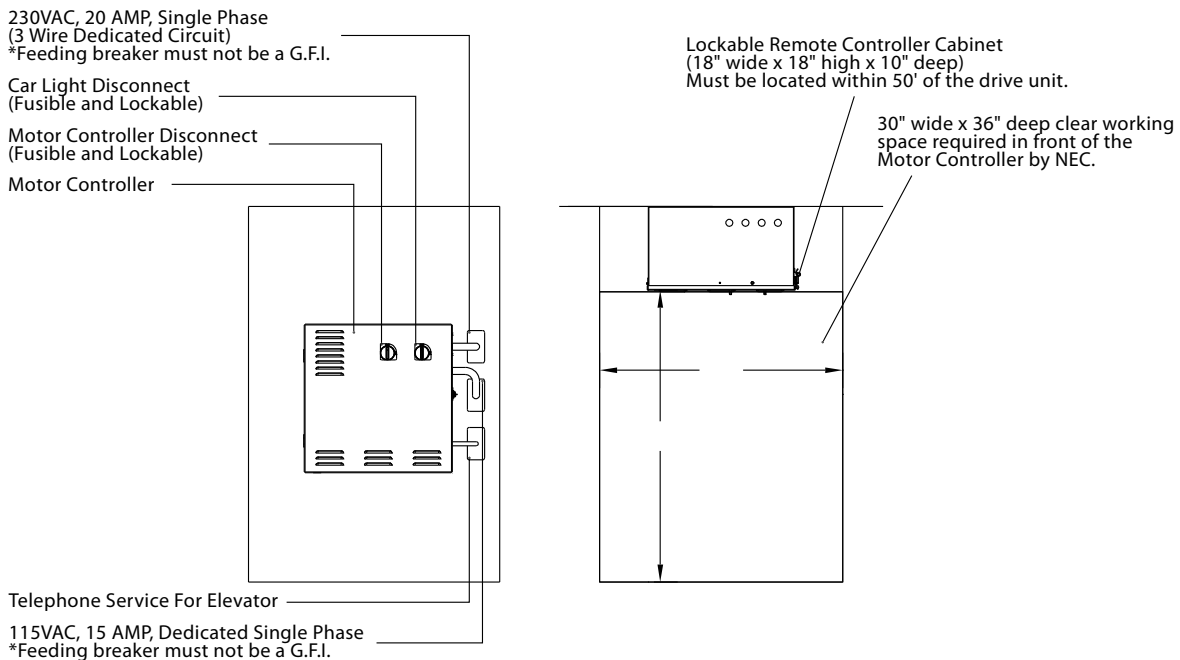


Please note that this layout is shown for manual lowering access at the top right of the view. The drive unit can be mounted opposite to accommodate access.

Notes:

- Minimum overhead clearance as measured from the top of the upper most landing sill to the bottom of the shaft ceiling is 8' - 0" for a standard 7' - 0" car.

REMOTE CONTROLLER MACHINE ROOM LAYOUT

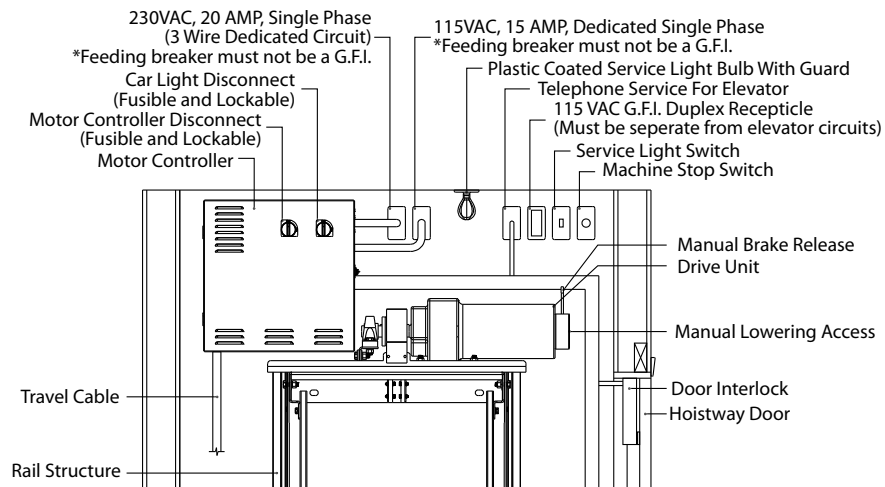


CONSTRUCTION OF MACHINE ROOMS MUST ADHERE TO LOCAL, STATE, AND NATIONAL CODES.

Typical Machine Room Layouts

In-Drive Geared Drive

IN-LINE GEARED DRIVE WITH CONTROLLER IN HOISTWAY

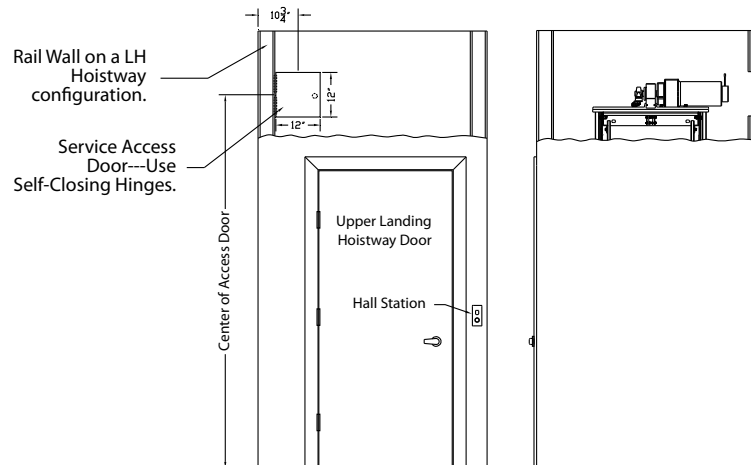


Please note that this layout is shown for manual lowering access at the top right of the view. The drive unit can be mounted opposite to accommodate access.

Notes:

- Minimum overhead clearance as measured from the top of the upper most landing sill to the bottom of the shaft ceiling is 8' - 0" for a standard 7' - 0" car.

MANUAL LOWERING ACCESS HATCH DETAIL



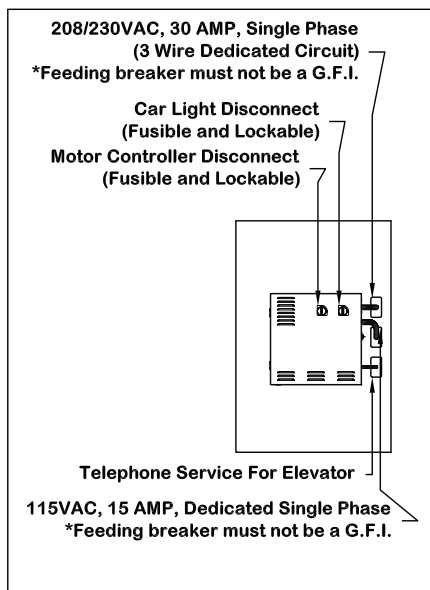
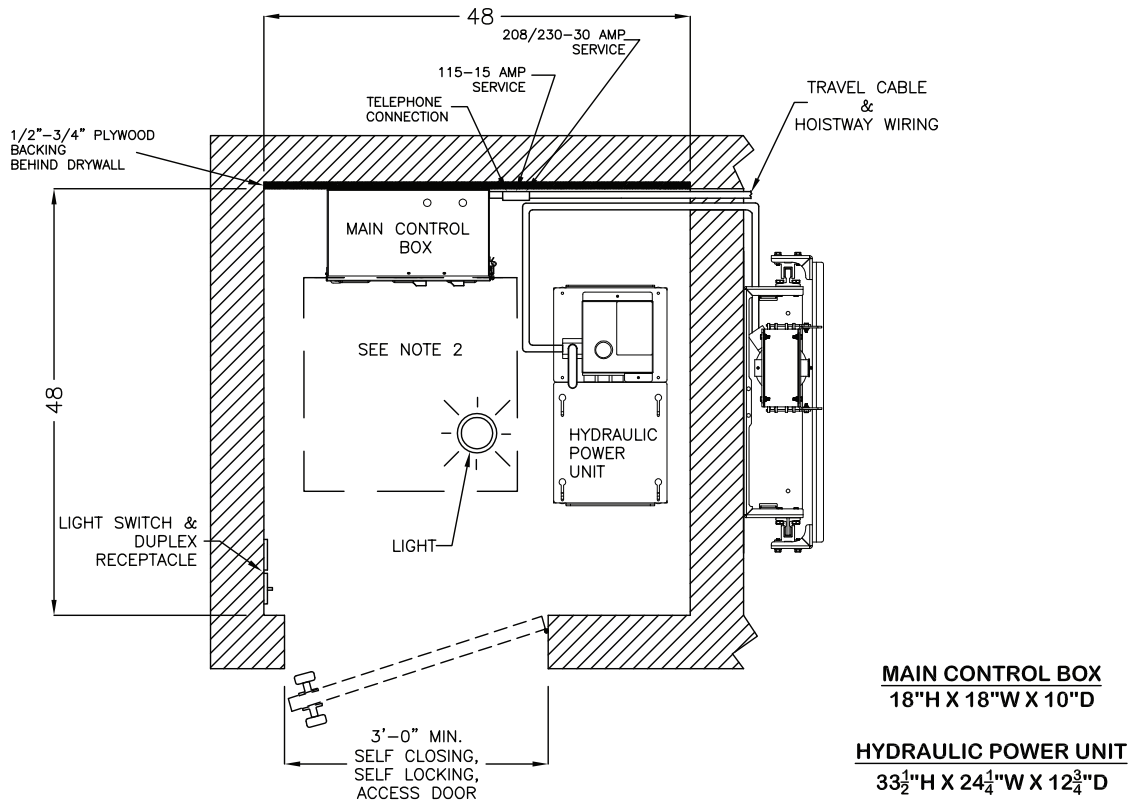
CENTERLINE OF ACCESS DOOR

Cab Height:	6-8	7-0	7-2	7-11	8-0
Dim. To door:	88"	90"	92"	101"	102"

CONSTRUCTION OF MACHINE ROOMS MUST ADHERE TO LOCAL, STATE, AND NATIONAL CODES.

Typical Machine Room Layouts

Hydraulic Drive - Standard Machine Room

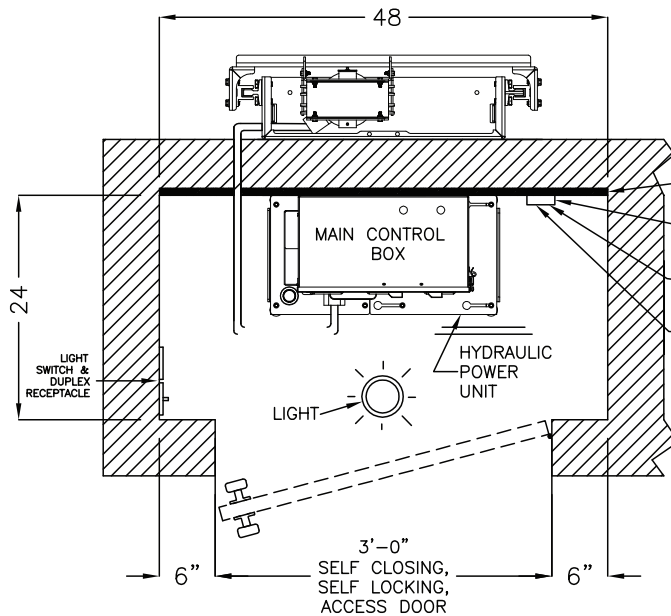


NOTES:

- 1) THE ELEVATOR MACHINE ROOM LOCATION AND LAYOUT MUST MEET CODE REQUIREMENTS DEFINED BY THE LOCAL AUTHORITY HAVING JURISDICTION.
- 2) 30" WIDE x 36" DEEP CLEAR WORKING SPACE REQUIRED IN FRONT OF THE MAIN CONTROL BOX BY NEC.
- 3) LIGHT SWITCH TO BE LOCATED ON THE STRIKE SIDE OF THE MACHINE ROOM DOOR.
- 4) THE HYDRAULIC POWER UNIT SHOULD BE LOCATED WITHIN 40' FROM THE CYLINDER.

Typical Machine Room Layouts

Hydraulic Drive - Compact Machine Room

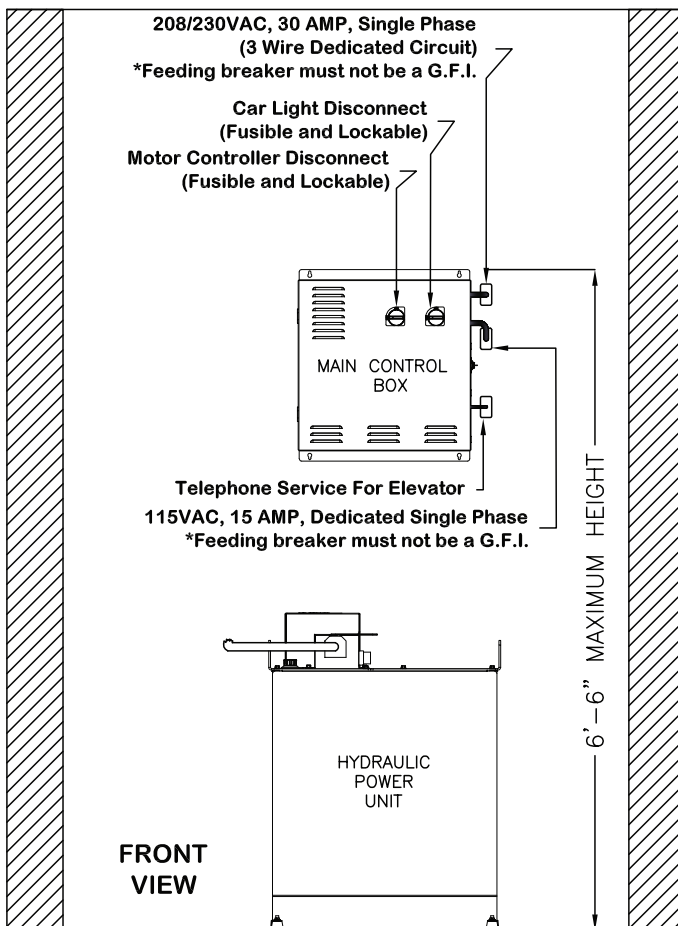


OVERHEAD VIEW

- 1/2"–3/4" PLYWOOD BACKING BEHIND DRYWALL
- TELEPHONE CONNECTION
- 115–15 AMP SERVICE
- 208/230–30 AMP SERVICE

MAIN CONTROL BOX
18"H X 18"W X 10"D

HYDRAULIC POWER UNIT
33 $\frac{1}{2}$ "H X 24 $\frac{1}{4}$ "W X 12 $\frac{3}{4}$ "D



NOTES:

- 1) THE ELEVATOR MACHINE ROOM LOCATION AND LAYOUT MUST MEET CODE REQUIREMENTS DEFINED BY THE LOCAL AUTHORITY HAVING JURISDICTION.
- 2) 30" WIDE x 36" DEEP CLEAR WORKING SPACE REQUIRED IN FRONT OF THE MAIN CONTROL BOX BY NEC.
- 3) LIGHT SWITCH TO BE LOCATED ON THE STRIKE SIDE OF THE MACHINE ROOM DOOR.
- 4) THE HYDRAULIC POWER UNIT SHOULD BE LOCATED WITHIN 40' FROM THE CYLINDER.
- 5) MACHINE SPACE SHALL BE FREE OF ANY EQUIPMENT OR APPURTENANCES NOT RELATED TO THE ELEVATOR.



RESIDENTIAL ELEVATORS

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2011-2.0