

# Vertical Platform Lift (VPL) DESIGN GUIDE

ASME A18.1

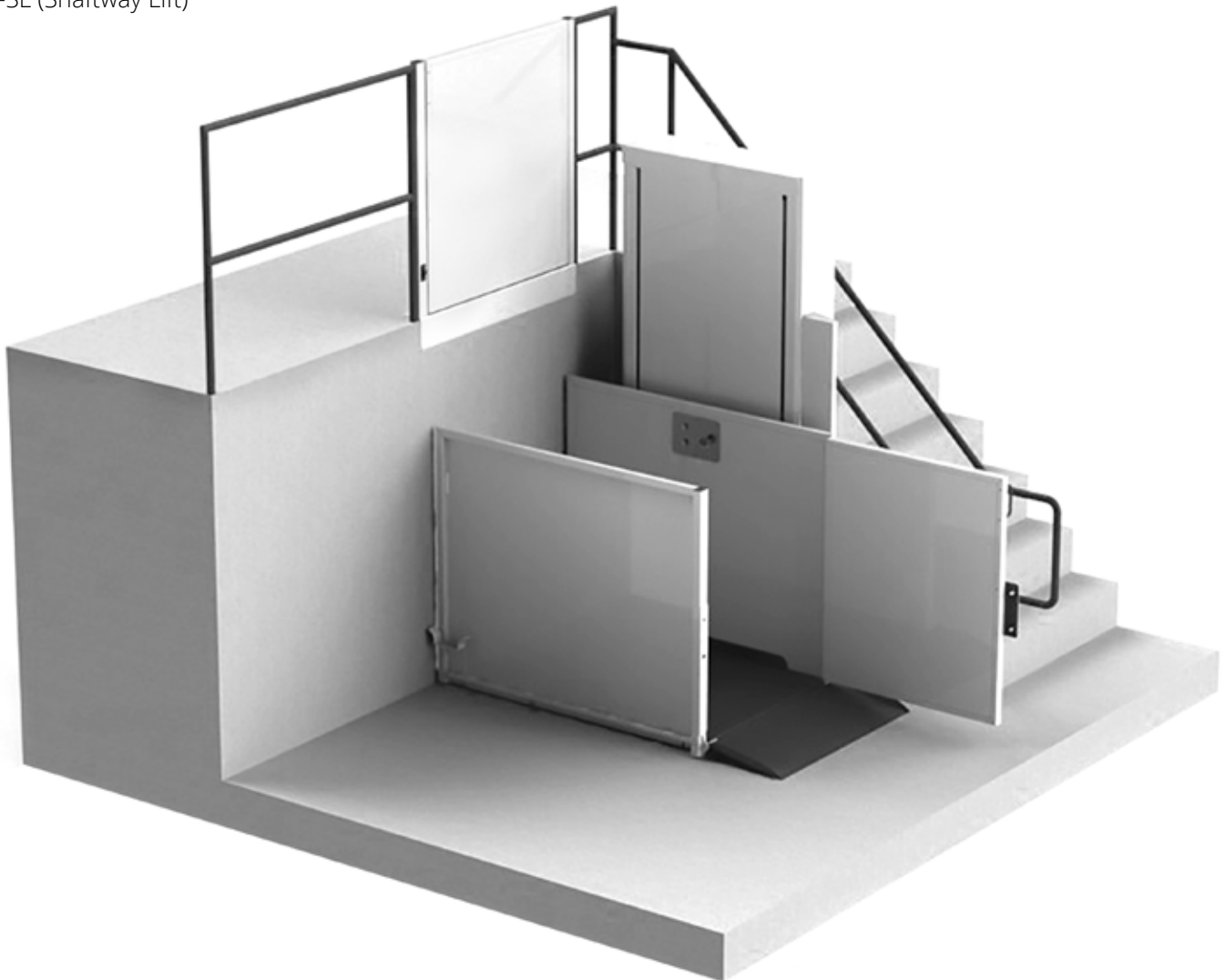
**For Models:**

VPL-UL (Unenclosed Lift)

VPL-EL (Enclosure Lift)

VPL-ELP (Plexiglass Enclosure Lift)

VPL-SL (Shaftway Lift)



# WELCOME

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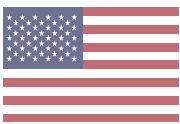
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## ABOUT

## CIBES SYMMETRY

Our company was founded in 2008, by an entrepreneurial group of people, driven by the vision of elevating life across the US. Today, Cibes Symmetry has become a household name for elevators in North America, with high rankings on the Forbes List for Best Home Elevators.

In 2022, we joined forces with global Swedish elevator manufacturer Cibes Lift Group and became Cibes Symmetry. Together, we offer you close to a century of consolidated knowledge, combining Swedish innovation and design with US craftsmanship and expertise. Our wide range of ADA and ASME compliant elevating solutions is manufactured in the US and in Sweden and distributed through our nationwide network of authorized dealers.



We provide beautifully crafted, expertly engineered accessibility related products across America. We market our residential elevators, home and commercial lifts, and low-rise commercial elevators through an exclusive network of carefully chosen Cibes Symmetry Partners.

***Please note that this guide is for planning purposes only, applies exclusively to national code and should not be used for construction. Prior to construction, please contact your local Cibes Symmetry representative and request a job-specific set of plans to ensure that you obtain the accurate dimensions and requirements for your project.***

***Your representative will also assist you to identify resources to ensure that your project plans will comply with the applicable state and local codes and the permitting authorities.***

# TECHNICAL SPECIFICATIONS

## GENERAL RULES FOR VPL APPLICATIONS

These rules have been developed as a guideline and are based on the information supplied in ICC A117.1 and ASME A18.1. Please consult your local authority having jurisdiction regarding local codes and regulations.

Platform Minimum Clear Space	
36" x 48"	Existing buildings for same side or straight through exits
36" x 52"	New buildings for same side or straight through exits
36" x 60"	Existing buildings for adjacent (90 degree) exits
42" x 60"	New buildings for adjacent (90 degree) exits
Doors & Gates	
<ul style="list-style-type: none"> <li>- 32" minimum clear opening for a door or gate accessing the VPL from the end.</li> <li>- 36" minimum narrow, 42" minimum wide in 90° applications.</li> <li>- All doors/gates require a minimum 18" latch side clearance. A greater distance may need to be provided as described in ICC A117.1.</li> <li>- Power-operated doors/gates are required in all applications that are not straight-through, depending on code year and AHJ approval.</li> <li>- Gates must be a minimum 42" tall.</li> <li>- Doors must have 79" clear inside height.</li> <li>- Doors/gates must be installed flush to the interior of the hoistway.</li> <li>- In unenclosed commercial applications, a platform gate and a safety pan are required.</li> </ul>	
Lift Height	
<ul style="list-style-type: none"> <li>- Unenclosed commercial applications cannot exceed 60" in travel height.</li> <li>- Shaftway and enclosure applications are available at travel heights not to exceed 168" or up to 240" on Hydraulic Drive with variance.</li> <li>- Some state and local jurisdictions have additional travel height restrictions.</li> </ul>	
Ramps	
<ul style="list-style-type: none"> <li>- Stationary ramps will project 13" minimum from the outside face of the lower landing door or gate.</li> <li>- Stationary Ramps used in conjunction with a platform gate will project 25" minimum from the edge of the running clearance.</li> <li>- Retractable ramps (flip-up ramps) will project 15" from the edge of the platform on the lower landing side of the lift for Unenclosed lifts. (Not available on tower forward.)</li> </ul>	

Pits
<ul style="list-style-type: none"> <li>- The minimum depth of a pit for a VPL will be 1 ½" deep, however a 3" pit is recommended. If an unenclosed lift is provided without a ramp, the minimum pit depth is 3".</li> <li>- When a VPL is installed in a pit and in an outdoor application, the pit must have means to prevent the collection of water</li> </ul>
Anchoring
<ul style="list-style-type: none"> <li>- The machine base must be anchored to the floor. Floor to be smooth and level with 4" minimum concrete thickness and capable of withstanding a 3,200 psi compressive load.</li> <li>- If travel height is 60" or less, wall fastening is not required except in 90° applications. (See Page 6 for details)</li> <li>- Doors and gates are not free-standing and must be anchored vertically and horizontally.</li> </ul>
Clearances
<ul style="list-style-type: none"> <li>- The running clearance on a side of the lift that will be used to enter/exit the lift must be ¾" minimum to ¾" maximum.</li> <li>- The running clearance on a non-opening side of the platform must be 2" minimum.</li> <li>- 79" minimum head clearance is required throughout the travel of the conveyance.</li> </ul>
Electrical/Lighting
<ul style="list-style-type: none"> <li>- Hoistway lighting of 5 ftc is required on the platform surface throughout travel.</li> <li>- An auxiliary light is required consisting of no fewer than two lamps producing 0.2 ftc on the floor and controls for not less than 4 hours and is activated automatically in the event of a power outage.</li> <li>- A disconnect (provided by others) shall be a listed device conforming to NFPA 70/NEC 620.51 and shall be installed within sight of the motor controller. The disconnecting means shall be externally operable, have permanent means of locking the device in the open position and be labeled with the location of the supply side overcurrent protection means.</li> </ul>

# TECHNICAL SPECIFICATIONS

## COMMON SPECIFICATIONS

Standard Features	
<b>Rated Capacity</b>	750 lbs.
<b>Lifting Height</b>	Up to 168" (not available on VPL-UL) (Hydraulic units may exceed 168" with variance)
<b>System</b>	A.W.A.R.E. system (Active Wiring, Accessories, Relay and Electronics Diagnosis)*
<ul style="list-style-type: none"> <li>- Hold-to-run up/down control switch installed on the platform</li> <li>- Hold-to-run control station provided at each landing</li> <li>- Manual lowering device</li> </ul>	
<b>Warranty</b>	Three-year limited parts
Safety Features	
<ul style="list-style-type: none"> <li>- Grab rail</li> <li>- Non-skid platform surface (Black)</li> <li>- Obstruction safety panel under platform (when not installed within a runway enclosure)</li> <li>- Alarm</li> <li>- Emergency stop switch</li> <li>- Landing interlocks keep doors closed/locked when the platform is at another landing</li> <li>- Upper final limit switch (optional on Hydraulic Drive)</li> <li>- Safety lift nut for Acme Screw Drive</li> <li>- Broken chain safeties for Hydraulic Drive</li> </ul>	
Optional Features	
<ul style="list-style-type: none"> <li>- Low Profile Carriage: 1 ½" pit depth (not available on VPL-UL)</li> <li>- Remote mounted controller</li> <li>- 230 VAC power supply</li> <li>- ADA phone for indoor or outdoor applications</li> <li>- Emergency platform lighting</li> <li>- Full-speed battery backup</li> <li>- 5 ftc LED lights with or without battery backup</li> <li>- Power gate/door operators</li> <li>- Flip-up ramp (VPL-UL only)</li> <li>- Single, Flat or double slope roof (VPL-EL and VPL-ELP only)</li> <li>- Extreme weather package</li> <li>- Elevator style controls</li> <li>- Custom color available</li> </ul>	

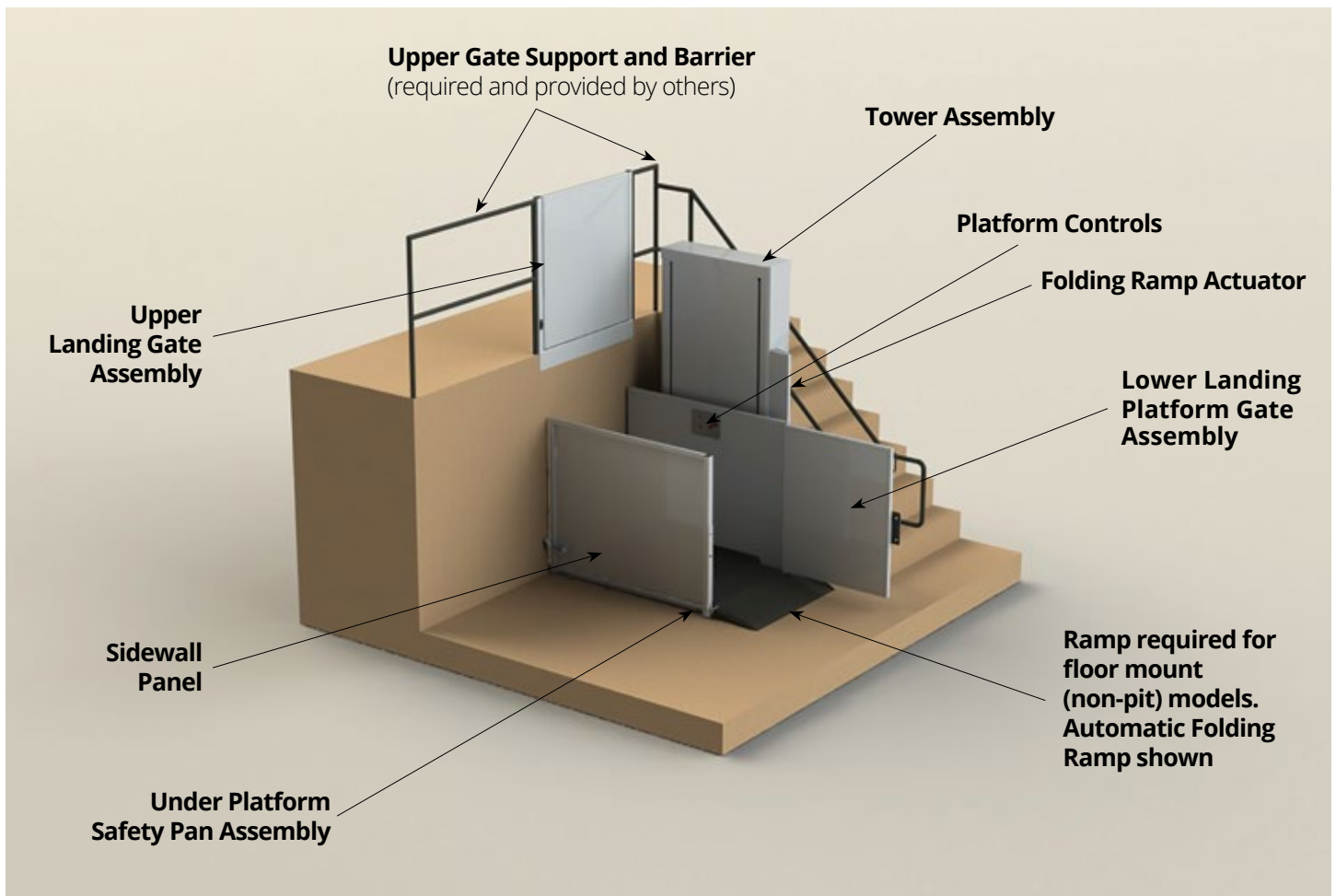
Clear Platform Sizes (Custom sizes and designs available)
<ul style="list-style-type: none"> <li>- 36" W x 54" L</li> <li>- 36" W x 60" L</li> <li>- 36" W x 48" L</li> <li>- 42" W x 60" L</li> </ul>
Enter/Exit Configurations
<ul style="list-style-type: none"> <li>- Straight-Through</li> <li>- 90°</li> <li>- 3 Openings</li> <li>- Same Side (not available on VPL-UL)</li> </ul>
Gate/Door Options
<ul style="list-style-type: none"> <li>- 42" platform gate** (not available for VPL-SL)</li> <li>- 42" landing gate**</li> <li>- 80" landing gate**</li> <li>- 1 ½ hour Fire-rated steel door (B Label)</li> <li>- Non Fire-rated Red Oak Week Door</li> </ul>
Drive Options
<ul style="list-style-type: none"> <li>- Acme Screw Drive: 10 fpm, 1.5 HP, 115 VAC</li> <li>- Accelerated Acme Screw Drive: 20 fpm, 1.5 HP, 115 VAC</li> <li>- Chain Hydraulic Drive: 17-20 fpm, 3 HP, 115 VAC</li> </ul>

\*Cibes Symmetry Exclusive

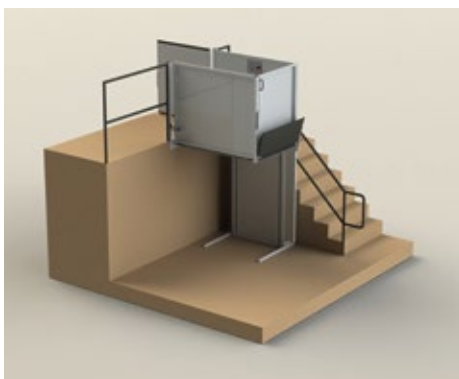
\*\*Available with optional acrylic insert

# FEATURES AND OPTIONS

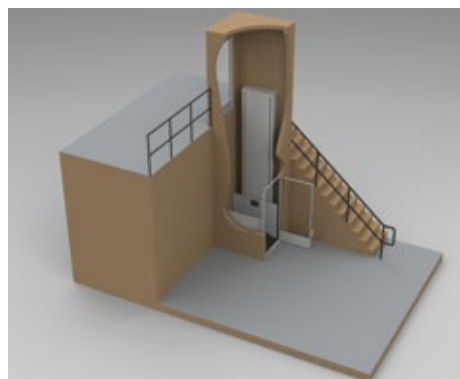
## DOORS AND GATES



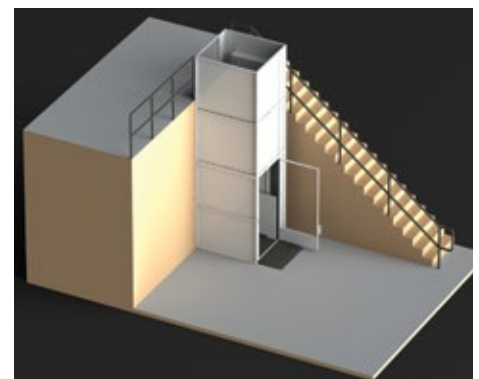
**VPL-UL**  
(Unenclosed Lift) with Folding Ramp



**VPL-UL**  
(Unenclosed Lift)  
with Folding Ramp



**VPL-SL**  
(Shaftway Lift)  
with Pit



**VPL-EL**  
(Enclosure Lift)  
with Stationary Ramp

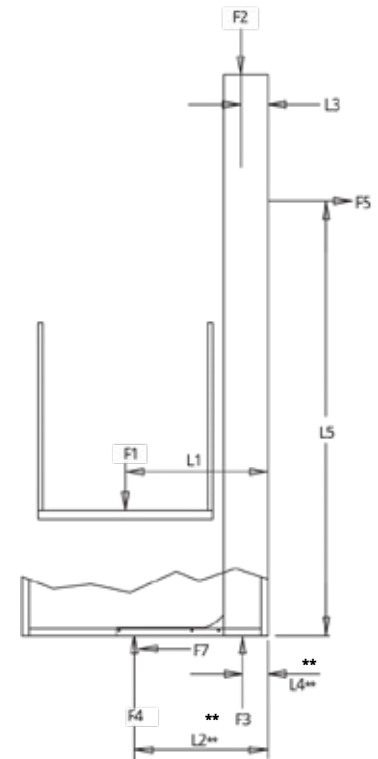
# HOISTWAY PREPARATION

## REACTION FORCES

Symbol	Description	Value (Max)
<b>F1=1090 lb.</b>	Payload (Max)	750 lb.
	Car (Platform) Wt. Max	340 lb.
<b>F2</b>	Tower Weight	See Chart
<b>F3</b>	Floor Reaction (Inboard)	See Chart
<b>F4</b>	Floor Reaction (Outboard)	See Chart
<b>F5</b>	Wall Anchoring Reaction	See Chart
<b>F6</b>	Enclosure Weight*	See Chart
<b>F7</b>	Floor Shear Reaction	See Chart

Layout Geometry			
L1	L2**	L3	L4**
33.156	33.75	5.25	5.0

Model	Maximum Lifting Height	Tower Height	Approximate Anchor Height (L5)
<b>42</b>	45"	67"	43.88"
<b>60</b>	63"	85 1/8"	61.68"
<b>72</b>	75"	97"	75.5"
<b>96</b>	99"	121"	101.44"
<b>120</b>	123"	145"	123.44"
<b>144</b>	147"	169"	147.7"
<b>168</b>	171"	193"	168.7"



### NOTE:

These are the reaction forces based on the gravity loads and operation of the lift. These calculations do not include external loading due to such things as wind, snow, rain, seismic activity, etc. Adhere to local building codes, regulations and safety factors for the supporting structures. Maximum lifting height will be decreased if a low profile platform is provided.

### Static Equilibrium:

(Sum of forces and sum of moments = 0)

$$F1 + F2 = F3 + F4$$

$$F7 = F5$$

$$F5 * L5 + F4 * L2 + F3 * L4 = F2 * L3 + F1 * L1$$

Values below are totals-divide by the number of bolts for individual bolt loads

Model	Max Tower lbs. F2	Inboard Floor Reaction lbs. F3**	Outboard Floor Reaction lbs. F4**	Wall Reaction lbs. F5**	Max Enclosure lbs. F6\$		Floor Shear Reaction lbs. F7**
					Steel	Plexi	
<b>42</b>	446	1536	0	702	497	437	702
<b>60</b>	505	1595	0	500	573	498	500
<b>72</b>	544	1634	0	408	650	568	408
<b>96</b>	667	1757	0	304	765	666	304
<b>120</b>	743	1833	0	250	867	754	250
<b>144</b>	804	1894	0	209	978	848	209
<b>168</b>	899	1989	0	183	1079	935	183

\*The enclosure weight is transferred directly to the floor along its perimeter through pads (two to a side) except for the back side where the wing walls bolt up directly to the tower.

\*\*The reaction force values are based upon using an approximate horizontal mid-point location on the base as the single point of action for the floor reaction. In reality there is a load distribution across the base plate versus a single point load. This distribution will vary by unit size, platform size and position, etc. The assumption of a point load based on the centroid of a distributed load, however, does appear to provide reasonable results. We have chosen locations of the lines of action of reaction forces based upon the applicable geometry of the components and also based on multiple FEA structural analysis runs which provide support for those choices. We also assume the outboard floor bolt reaction forces go to zero, and this assumption provides a conservative approach and is supported by multiple FEA runs.

\$On enclosures, add 175 lbs. for a roof option and add 161 lbs. for a 6'8" or above option.

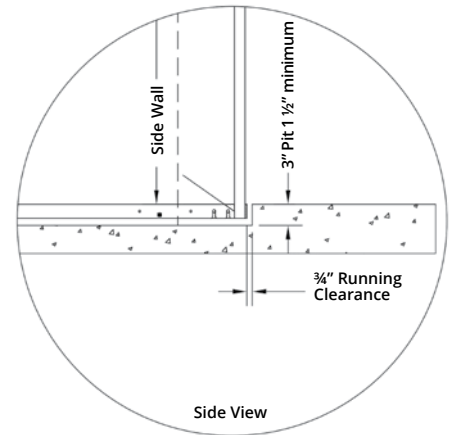
# HOISTWAY PREPARATION

## PIT AND RAMPS

Applications will be installed in one of the following manners.

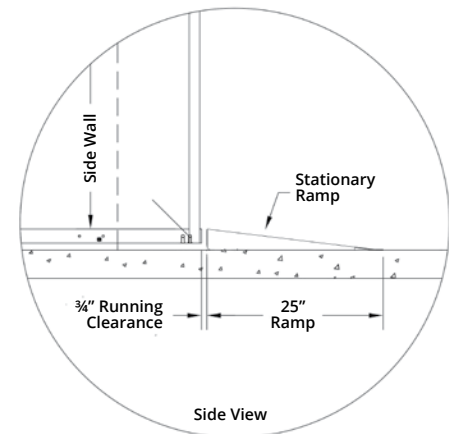
### PIT

The minimum depth of a pit for a VPL will be 1 ½" deep, however a 3" pit is recommended. If an unenclosed lift is provided without a ramp, the minimum pit depth is 3". When a VPL is installed in a pit and in an outdoor application, the pit must have means to prevent the collection of water



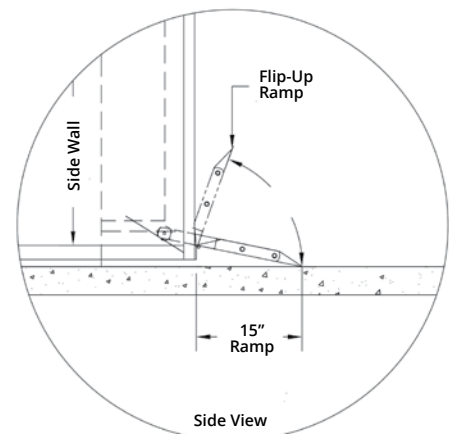
### STATIONARY RAMP

In locations where a pit is not a feasible option, a stationary ramp may be utilized. The stationary ramp is located at the lowest landing and provides access to the lift platform by transitioning from the finished floor of the lowest landing to the platform surface of the vertical platform lift. A door/gate operator will be required.



### FLIP-UP RAMP

As an alternative to the pit and stationary ramp, a flip-up ramp can be used. The flip-up ramp is mounted to the edge of the platform on the side of the lift accessing the lowest landing. A flip-up ramp cannot be used in a shaftway or enclosure application, nor can it be mounted on the side of the lift that is opposite the main tower. When a flip-up ramp is used, the unit must also have a safety pan. In commercial application a platform gate and gate operator will be required.



# FEATURES AND OPTIONS

## DOORS AND OPERATOR

### DOOR/GATE SWING

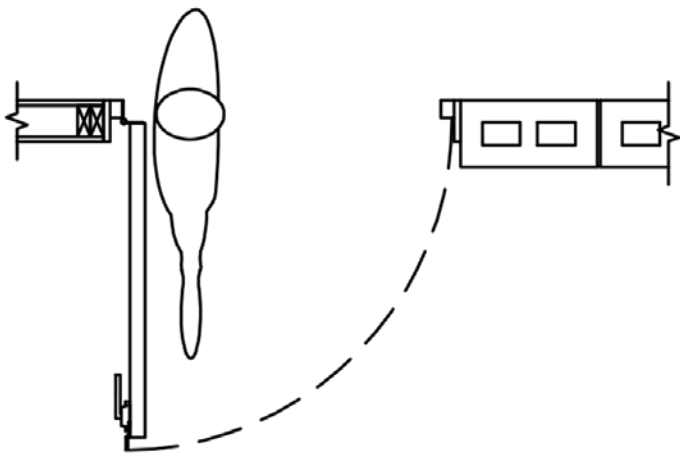
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To determine a door or gate swing:

With the door open, stand in the doorway with your back against the hinges, and move your arm in the direction of the open door. If you use your right arm, it is a right-hand swing. If you use your left arm, it is a left-hand swing.

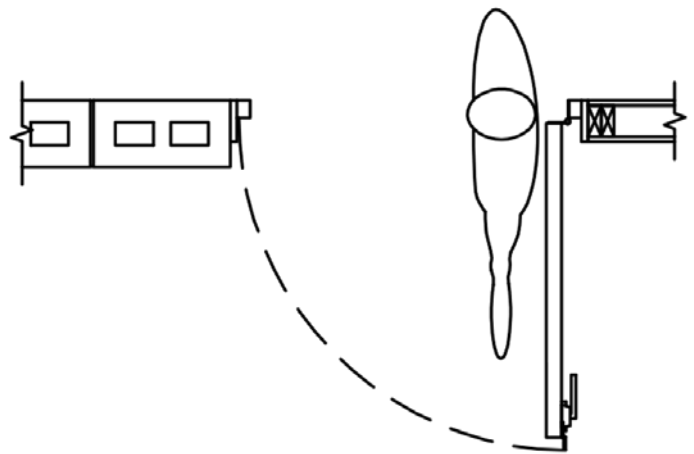
An interlock prevents the gate/door from being opened when the platform is not at the landing and prevents the vertical platform lift from moving away from a landing if the gate/door is not closed and locked.

Hoistway Side



Door Swing Is Right Hand

Hoistway Side



Door Swing Is Left Hand

**NOTE:**

*Call station operating locations must be clear of door swings*

# FEATURES AND OPTIONS

## OPERATORS

### MID-MOUNT POWER OPERATOR



#### Standard Features

- Low profile "Smart Operation" \*
- 2 speed operation
- Automatic reset upon contact with an obstruction
- Opening/Closing Time: Approximately 8 sec
- Adjustable hold open time
- Battery backup standard with commercial applications
- Capable of manual operation

#### Optional Features

- Battery backup for residential applications

\*Allows operator to open, stop at obstruction, close and remain in normal operation mode.

# FEATURES AND OPTIONS

## OPERATORS

### OVERHEAD POWER OPERATOR



Power door operator with rain cover



#### Standard Features

- Indoor and outdoor use with cover
- Low energy operator
- Opening/Closing Time: Approximately 8 seconds
- Adjustable hold open time
- Capable of manual operation

# FEATURES AND OPTIONS

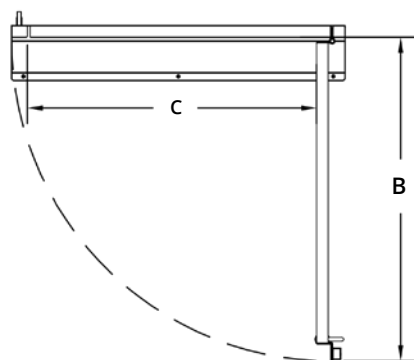
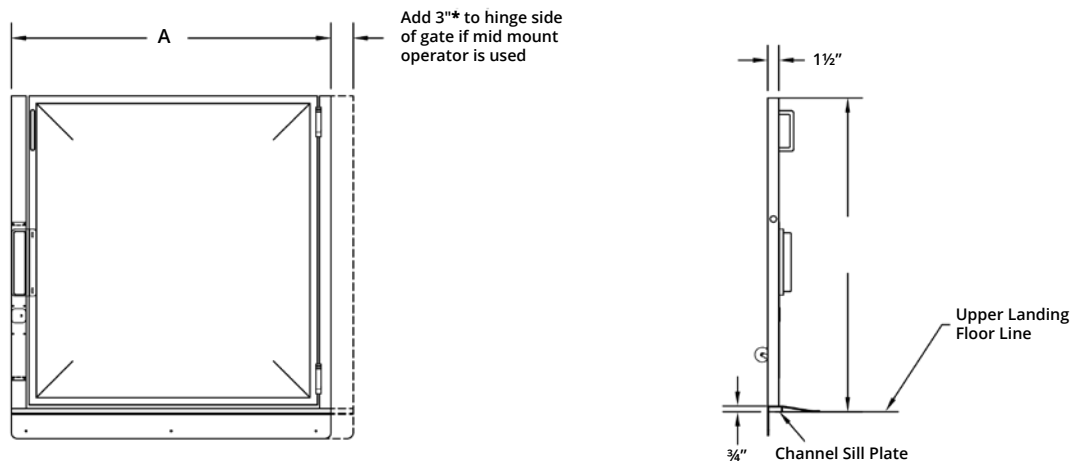
## GATES

### UPPER LANDING GATE

Upper landings are required to have a gate or door at a minimum of 42" tall for commercial applications and interlocked to the vertical platform lift.

An interlock prevents the gate/door from being opened when the platform is not at the landing and prevents the vertical platform lift from moving away from a landing if the gate/door is not closed and locked.

In 90° or enter/exit same side applications, the upper landing gate is typically required to have an automatic gate/door operator. Gate and platform share a common centerline except for 90° or tower forward applications.



UPPER LANDING			
Width A*	Height B	Clear Opening C	Projection D
43"	42 3/4"	37 5/16"	41 3/4"
47"	42 3/4"	41 5/16"	45 3/4"
48"	42 3/4"	42 5/16"	46 3/4"
The gates listed in this chart are not self supporting			

\*Add 3" width if gate has mid-mount operator

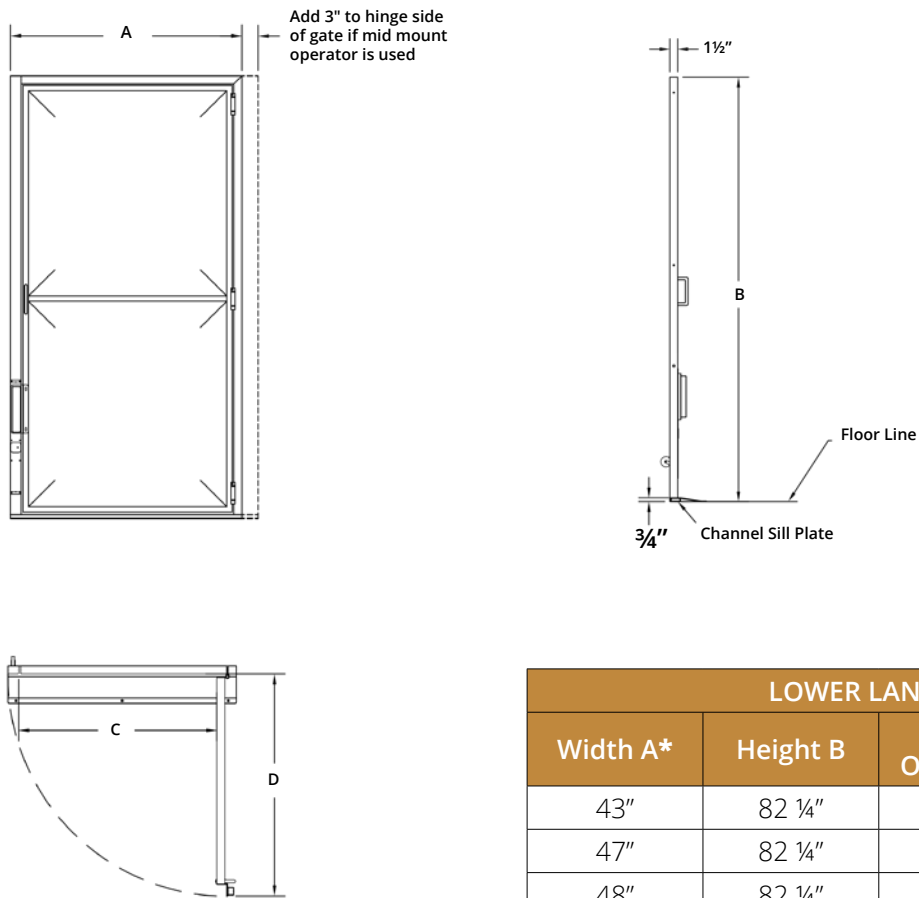
# LOWER LANDING GATE GATES

## LOWER LANDING GATE

Lower landings are required to have either a platform gate, lower landing gate or door interlocked to the vertical platform lift. A platform gate is mounted to the platform side walls and rides up and down with the platform. A platform gate is required on commercial unenclosed VPLs.

An interlock prevents the gate/door from being opened when the platform is not at the landing and prevents the vertical platform lift from moving away from a landing if the gate/door is not closed and locked.

In 90° or enter/exit same side applications, the lower landing gate is typically required to have an automatic gate/door operator. In unenclosed applications, a platform gate is not available on the wide side of the platform.



LOWER LANDING			
Width A*	Height B	Clear Opening C	Projection D
43"	82 1/4"	37 5/16"	41 3/4"
47"	82 1/4"	41 5/16"	45 3/4"
48"	82 1/4"	42 5/16"	46 3/4"
The gates listed in this chart are not self supporting			

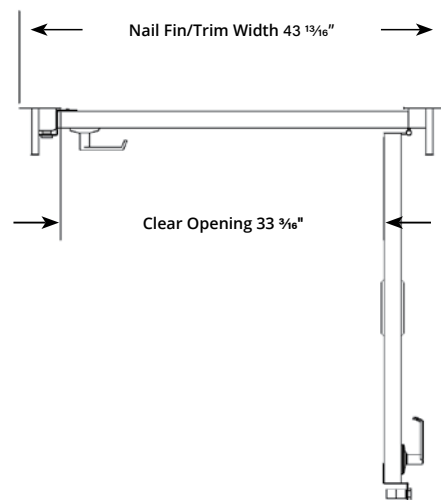
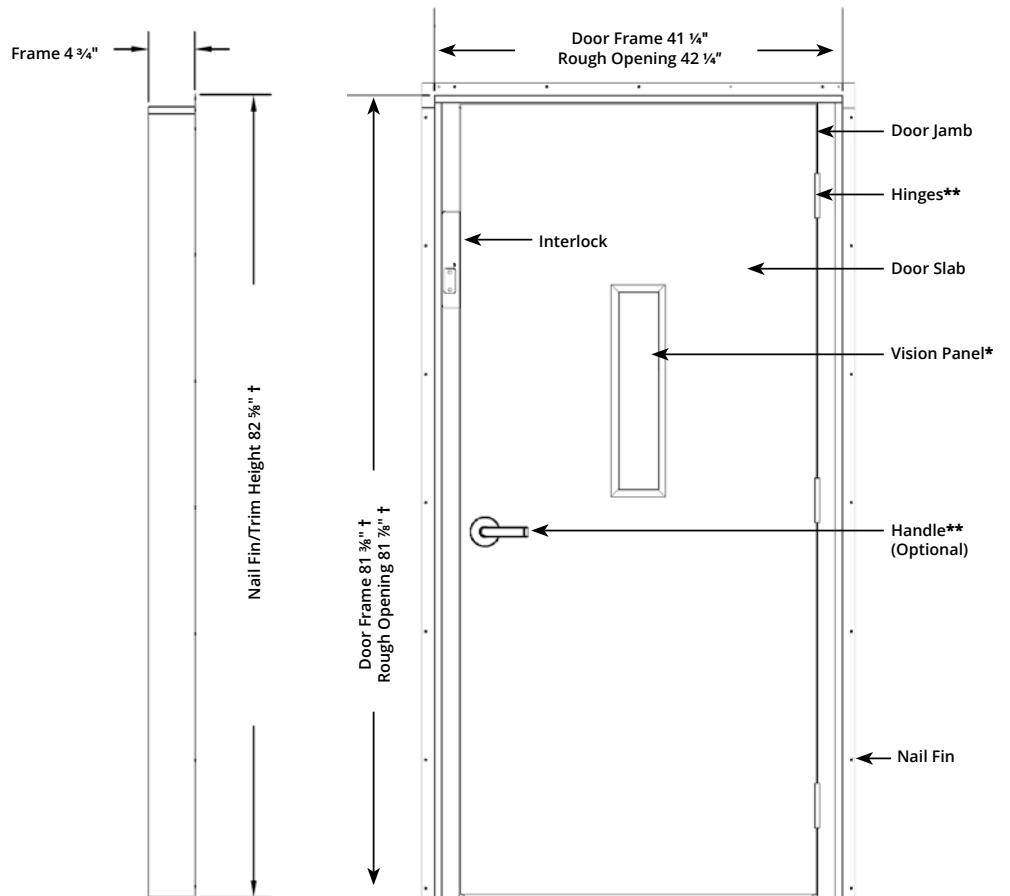
\*Add 3" width if gate has mid-mount operator

# FEATURES AND OPTIONS

## FLUSH DOOR AND/OR FRAME



Flush Door shown in Red Oak



### NOTE:

1. LH shown RH opposite
2. The door/frame is suitable for installation in masonry or wood frame construction
3. The door/frame is installed with the door flush to the inside of the hoistway
4. Distance between the door sill and the platform must be between 3/8" - 3/4"
5. The interior hoistway wall should be finished up to the rough opening
6. This can be furnished as a frame only or complete door with frame
7. Delay action door closer or power door operator required for code compliance
8. Indoor use only, non-fire-rated
9. Standard Red Oak, other species available

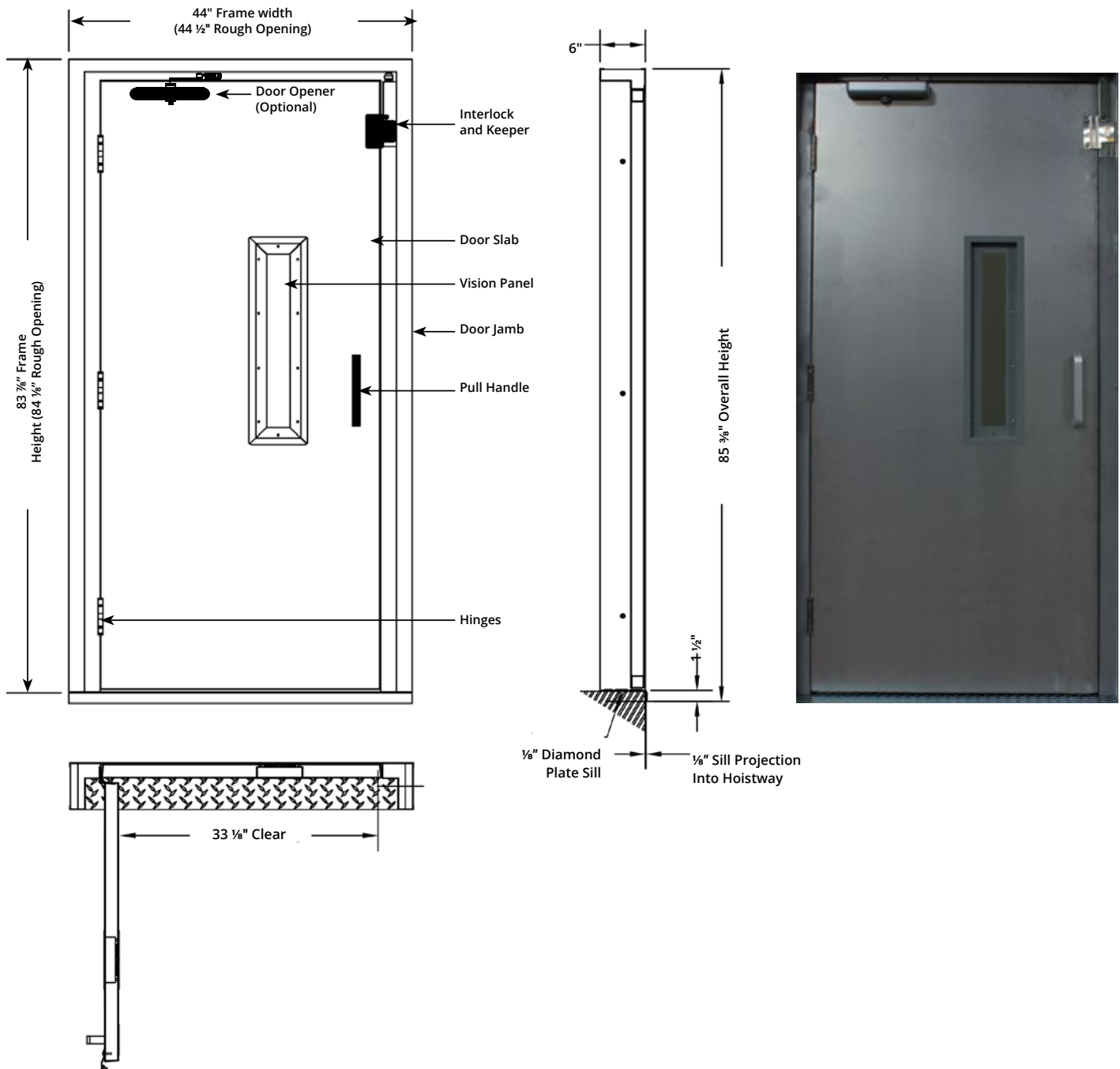
\*Vision panel provided only with complete door package

\*\*Handle and hinges optional with frame, but included with complete door package

† Dimensions increase by 1 7/8" when delay action door closer is used

## FEATURES AND OPTIONS

# 1 ½ Hour Fire-Rated Flush Door (B Label)

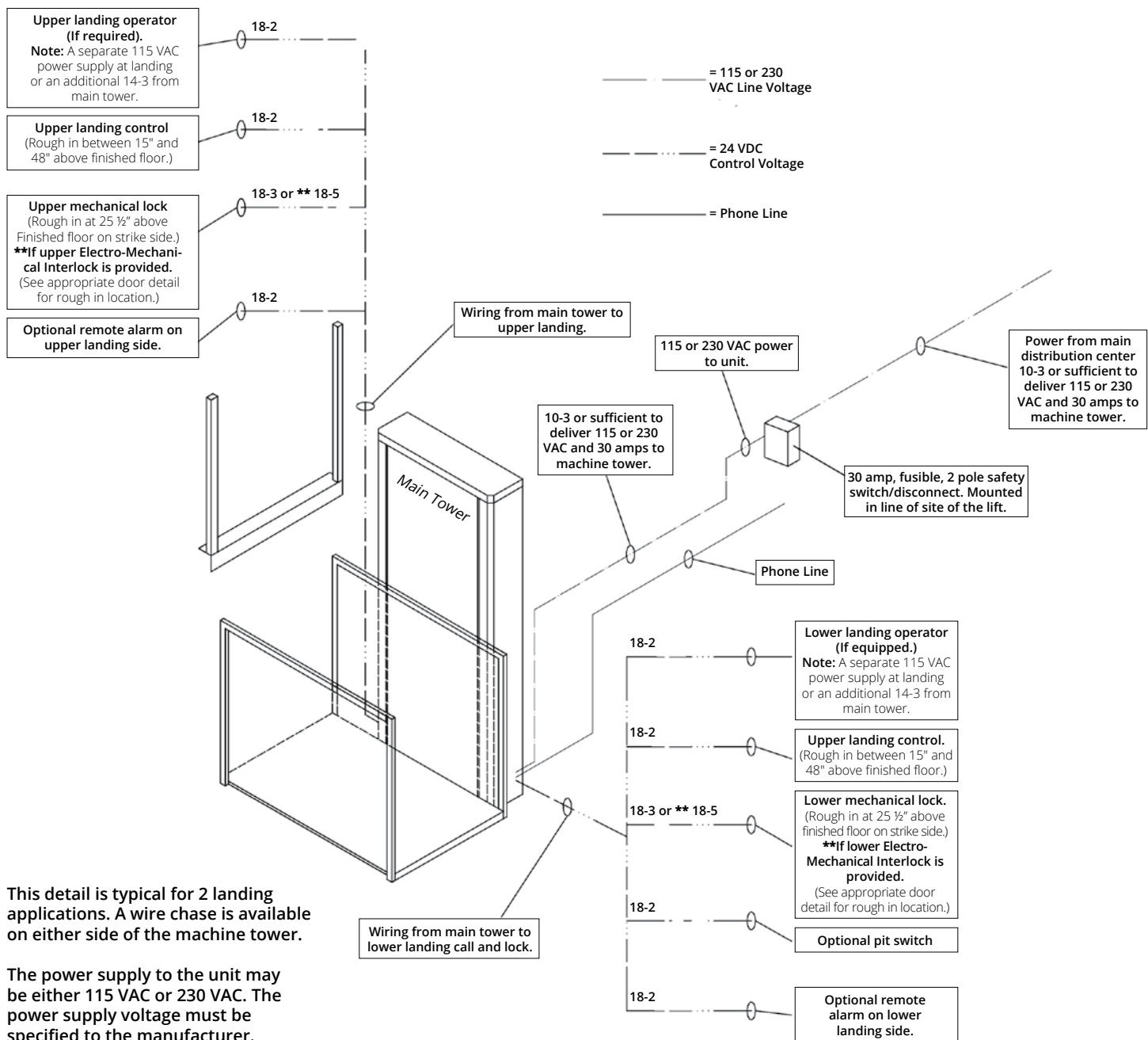


### NOTE:

1. RH shown LH opposite
2. Door suitable for installation masonry or wood frame construction
3. Install door frame body flush with the inside of the hoistway
4. Distance between the door sill and the platform must be between ⅜" - ¾"
5. Delay action door closer or power door operator required for code compliance
6. For wood frame construction, drywall is to be finished up to the door frame

# FEATURES AND OPTIONS

## TYPICAL CONDUIT LAYOUT



This detail is typical for 2 landing applications. A wire chase is available on either side of the machine tower.

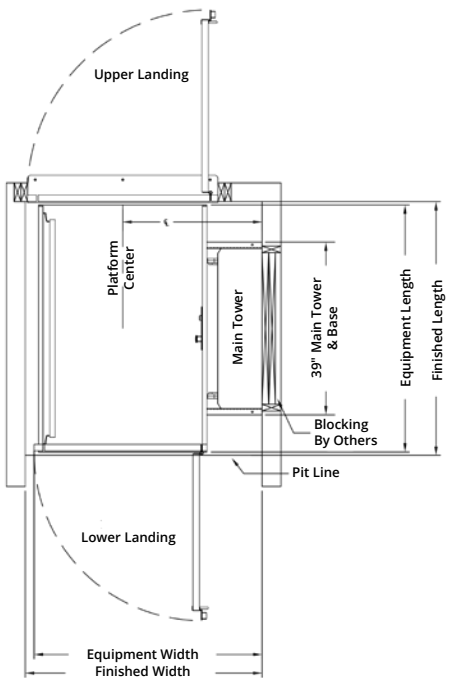
The power supply to the unit may be either 115 VAC or 230 VAC. The power supply voltage must be specified to the manufacturer.

Consult with the elevator/accessibility contractor prior to hoistway construction to coordinate the location of electrical boxes.

*Please note that this guide is for planning purposes only, applies exclusively to national code and should not be used for construction.*

*Prior to construction, please contact your local Cibes Symmetry representative and request a job-specific set of plans to ensure that you obtain the accurate dimensions and requirements for your project. Your representative will also assist you to identify resources to ensure that your project plans will comply with the applicable state and local codes and the permitting authorities.*

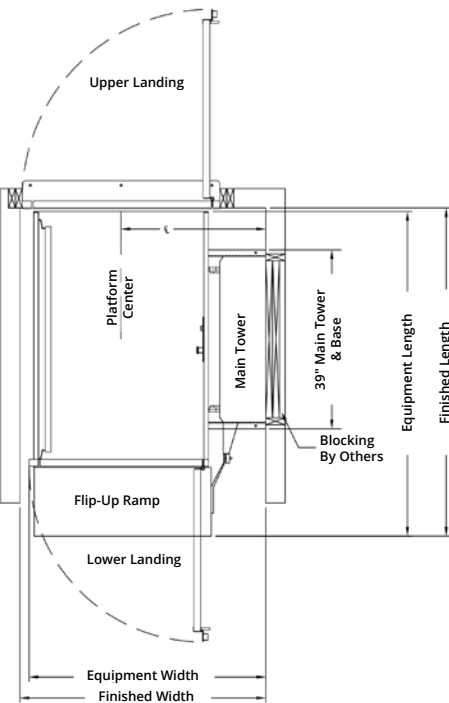
# SIZE AND DIMENSIONS UNENCLOSED DESIGNS



## STRAIGHT-THROUGH WITH PIT

Clear Platform (W" x L")	Equipment Width	Equipment Length	Finished Width*	Finished Length	Upper Gate C/L
36" x 48"	51 3/4"	49 3/4"	53 3/4"	51 1/4 "	31 3/4"
36" x 54"	51 3/4"	55 3/4"	53 3/4"	57 1/4"	31 3/4"
36" x 60"	51 3/4"	61 3/4"	53 3/4"	63 1/4"	31 3/4"
42" x 60"	57 3/4"	61 3/4"	59 3/4"	63 1/4"	34 3/4"

\*If platform gate is hinged opposite the main tower and a mid mount gate operator is used, add 1/2" to this dimension



## STRAIGHT-THROUGH WITH FLIP-UP RAMP

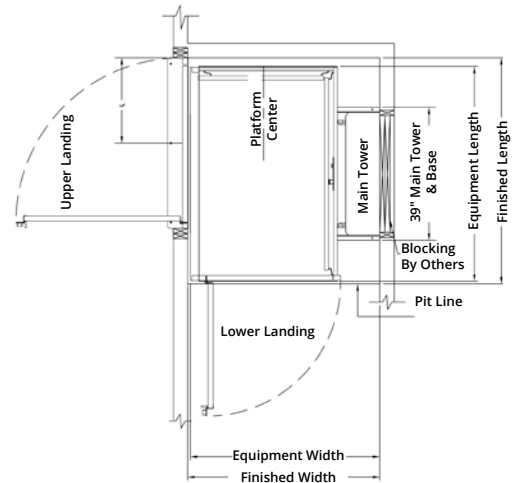
Clear Platform (W" x L")	Equipment Width	Equipment Length	Finished Width*	Finished Length	Upper Gate C/L
36" x 48"	51 3/4"	64 3/4"	53 3/4"	65 1/2"	31 3/4"
36" x 54"	51 3/4"	70 3/4"	53 3/4"	71 1/2"	31 3/4"
36" x 60"	51 3/4"	76 3/4"	53 3/4"	77 1/2"	31 3/4"
42" x 60"	57 3/4"	76 3/4"	59 3/4"	77 1/2"	34 3/4"

\*If platform gate is hinged opposite the main tower and a mid mount gate operator is used, add 1/2" to this dimension

# SIZE AND DIMENSIONS UNENCLOSED DESIGNS

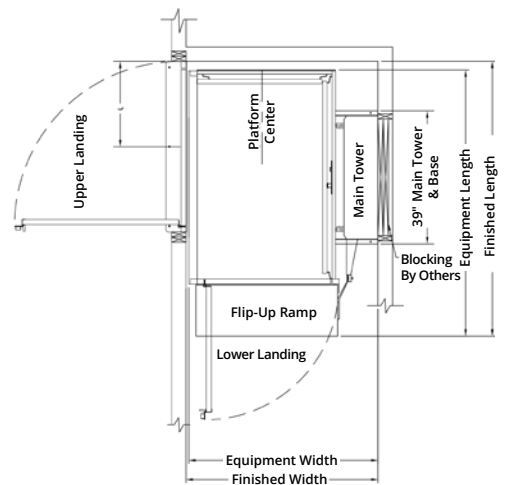
## 90° WITH PIT

Clear Platform (W" x L")	Equipment Width	Equipment Length	Finished Width*	Finished Length	Upper Gate C/L
42" x 60"	55 ¾"	63"	57"	66 ¼"	25"



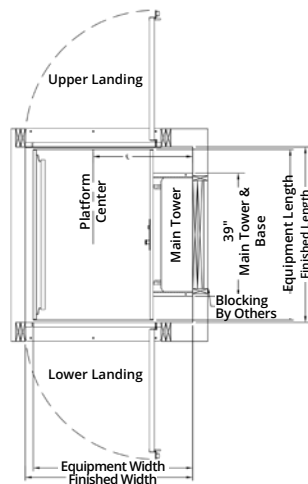
## 90° WITH FLIP-UP RAMP

Clear Platform (W" x L")	Equipment Width	Equipment Length	Finished Width*	Finished Length	Upper Gate C/L
42" x 60"	55 ¾"	78"	57"	80 ½"	25"



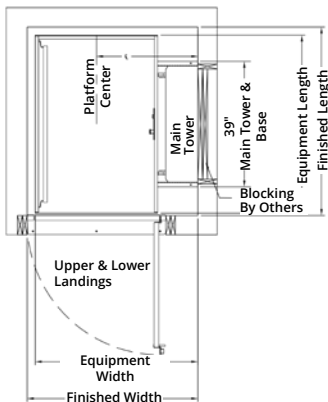
# SIZE AND DIMENSIONS

## SHAFTWAY DESIGNS



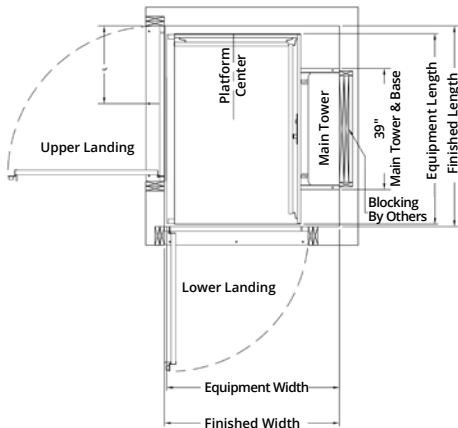
### STRAIGHT-THROUGH

Clear Platform (W" x L")	Equipment Width	Equipment Length	Finished Width*	Finished Length	Upper Gate C/L
36" x 48"	50 ¾"	48"	53 ¼"	49 ½"	31 ¾"
36" x 54"	50 ¾"	54"	53 ¼"	55 ½"	31 ¾"
36" x 60"	50 ¾"	60"	53 ¼"	61 ½"	31 ¾"
42" x 60"	56 ¾"	60"	59 ¼"	61 ½"	34 ¾"



### ENTER/EXIT SAME SIDE

Clear Platform (W" x L")	Equipment Width	Equipment Length	Finished Width*	Finished Length	Upper Gate C/L
36" x 48"	50 ¾"	49 ¼"	53 ¼"	52 ½"	31 ¾"
36" x 54"	50 ¾"	55 ¼"	53 ¼"	58 ½"	31 ¾"
36" x 60"	50 ¾"	61 ¼"	53 ¼"	64 ½"	31 ¾"
42" x 60"	54 ¾"	61 ¼"	59 ¼"	64 ½"	34 ¾"



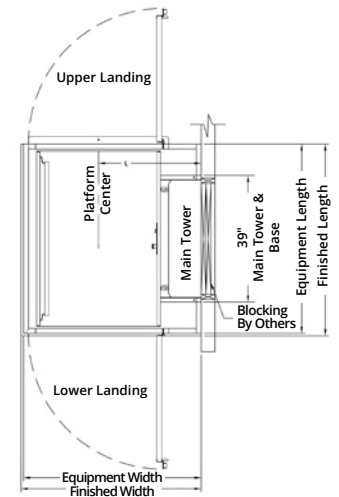
### SHAFTWAY DESIGN 90°

Clear Platform (W" x L")	Equipment Width	Equipment Length	Finished Width*	Finished Length	Upper Gate C/L
42" x 60"	55 ¾"	61 ¼"	57"	64 ½"	25"
					Lower Gate C/L
					33 ⅞"

# SIZE AND DIMENSIONS ENCLOSED DESIGNS

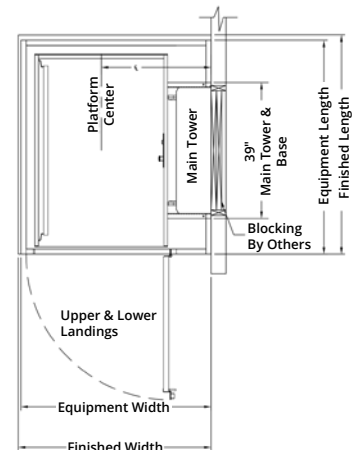
## STRAIGHT-THROUGH

Clear Platform (W" x L")	Equipment Width	Equipment Length	Finished Width*	Finished Length	Upper Gate C/L
36" x 48"	54 ½"	52 ¼"	55 ½"	53 ¼"	31 ½"
36" x 54"	54 ½"	58 ¼"	55 ½"	59 ¼"	31 ½"
36" x 60"	54 ½"	64 ¼"	55 ½"	65 ¼"	31 ½"
42" x 60"	60 ½"	64 ¼"	61 ½"	65 ¼"	34 ½"



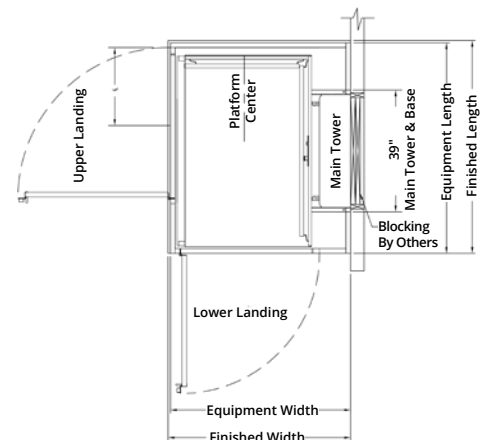
## ENTER/EXIT SAME SIDE

Clear Platform (W" x L")	Equipment Width	Equipment Length	Finished Width*	Finished Length	Upper Gate C/L
36" x 48"	54 ½"	55 ¾"	55 ½"	56 ¾"	31 ½"
36" x 54"	54 ½"	61 ¾"	55 ½"	62 ¾"	31 ½"
36" x 60"	54 ½"	67 ¾"	55 ½"	68 ¾"	31 ½"
42" x 60"	60 ½"	67 ¾"	61 ½"	68 ¾"	34 ½"



## SHAFTWAY DESIGN 90°

Clear Platform (W" x L")	Equipment Width	Equipment Length	Finished Width*	Finished Length	Upper Gate C/L
42" x 60"	57 ⅝"	67 ¾"	58 ⅝"	68 ¾"	33 ¼"



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