INVISIBLE LIFT

COURTROOM LIFT

T. L. SHIELD AND ASSOC., INC.

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GENERAL INFORMATION

T.L. Shield & Associates has prepared this document for the purpose of providing building owners and owner representatives such as architects, contractors, and installers with information specific to design planning, special provisions, installation considerations, and regulatory compliance responsibility relevant to Invisible Lift-Courtroom Lifts.

Every courtroom project has specific design and integration considerations. The information presented in this document is fairly generic and not intended to address specific detail or special conditions that may be encountered on a project.

PRODUCT OVERVIEW

By way of introduction, Invisible Lift- Courtroom Lifts are comprised of a platform that raises and lowers within the confines of stationary millwork walls and the closed entrance/exit doors. Subsequently, the lift layout is customized for each application.

SUITABLE LIFT APPLICATIONS

Invisible Lifts are specifically designed for use in courtrooms to facilitate mobility-impaired judges, witnesses, clerks, and jurors, but are also well suited for elevated stages and platforms such as church pulpits and meeting chamber podiums.

LIFT EQUIPMENT

Lift Frame: Mounted, stationary style, welded or bolted, roller or formed steel channel construction. Provide steel scissor leg stabilizer assembly of one-piece construction with accurate alignment of all holes. Provide dual roller retainers with grease fittings on cylinder pivot points. Roller and pivot pins shall be minimum 1-inch ground and chrome steel 75,000 lbs. minimum yield. Provide fiber guide bushings with chrome clevis pin pivot points.
Deck: Provide deck unit constructed of minimum ¼-inch steel with straight toe guards on each side.
Finish Floor Covering: Carpet by others. Refer, as required, to Section 09680.
Lift Door Electrical Contact: Arrange so that lift cannot operate unless doors are closed and locked within tolerance allowed by Code.

To further facilitate the architectural design process, contact our office for assistance.

PLATFORM SIZE AND DOOR OPENING LIMITATIONS

Be advised, there are certain limitations to be aware of with respect to minimum and maximum dimensions. The minimum platform size and minimum door opening are contingent upon door orientation, i.e., whether the lift provides straight through access or involves a 90 degree turn for the wheelchair-bound passenger. Further, the maximum platform size is preferably no greater than 32 sq. ft. However, certain applications may be cause for exception and must be evaluated on a case-by case basis. The best method to prevent exceeding the 32 sq. ft. maximum platform size, particularly for courtroom lift applications where the witness stand or clerk bench footprint may be larger than 32 sq. ft., is to contact T.L. Shield early in the design process. Since space in the interior of the witness stand or clerk bench is typically too restrictive for a hinged self-closing door, a fixed or mechanical wheel-stop is a practical alternative.

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INVISIBLE LIFT SPECIFICATIONS

Platform dimensions vary for each application.
Lift capacity (maximum operating load): 500 lbs for platforms less than or equal to 32 sq. ft.
Speed is +/- 10 ft./min. maximum.
Maximum vertical travel is limited to 30 inches (taller lifts can be engineered by special request)
Manual lowering device is included.
Factory paint finish for all steel framework.
Power source requirements are 120 VAC, 15 amp, 3 wire, single-phase service.

COMPONENTS SUPPLIED BY T.L. Shield & Associates

The lift package as delivered includes the following:
Lift Assembly.
Threshold Ramp (if applicable).
Electrical Control Panel with Lockable Disconnect. Operator Control Stations (call buttons).
Electric Strike Latches. (may be provided by contractor, depending on application)
Spring-loaded Latch Bolts.
Roll-up Barrier Module (if applicable). Retractable Step Module (if applicable).
Fixed Riser – (if applicable).
Battery Back-up / UPS (if applicable).
Electromagnetic Door Holder (if applicable)

REGULATORY REQUIREMENTS

Vertical Platform Lift design, construction, installation, operation, inspection, testing, maintenance, and repair is specified in Standards developed and published by The American Society of Mechanical Engineers (ASME), entitled ASME A18.1 Safety Standard For Platform Lifts And Stairway Chairlifts. The ASME Standard is intended to serve as the basis for state, municipal, and other jurisdictional authorities in drafting regulations governing Vertical Platform Lifts. With respect to A18.1 effectivity in each jurisdiction, the edition date in effect established by the local jurisdiction may vary; therefore, the local regulations from the authority having jurisdiction (AHJ) must be reviewed prior to each lift installation.

For ASME A18.1 references sited in this document, the latest 2017 edition is used. Regarding ASME A18.1, Section 2 categories: 1) Refer to Section 2.1.4 for courtroom lift applications; and 2) For non-courtroom lift applications the Invisible Lift can be characterized, in part, as having a "Runway Enclosure Provided", reference para. 2.1.1. Due to architecturally desired features, certain applications may not comply "to the letter" with all the requirements specified in the A18.1 Standard. In those cases, a variance must be requested for certain specification deviations from the authority having jurisdiction. Typically a variance application for the Invisible Lift will address items such as platform size, stationary millwork walls, millwork wall height and door height, and intermediate landing guard (if applicable). T.L. Shield will assist with the variance process; however, Owner is the signer. Also, no equipment will be ordered until variance is granted. Variance may take up to 6 months or longer.

The basis for a variance request is expressly permitted by A18.1 para. 1.2, which states: "The purpose of this Standard is to provide for the safety of life and limb, and to promote the public welfare. The provisions of this Standard are not intended to prevent the use of systems, methods, or devices of equivalent or superior quality, strength, fire resistance, effectiveness, durability, and safety to those prescribed by this Standard provided that there is technical documentation to demonstrate the equivalency of the system, method, or device.

The specific requirements of this Standard shall be permitted to be modified by the authority having jurisdiction based upon technical documentation or physical performance verification to allow alternative arrangements that will assure safety equivalent to that which would be provided by conformance to the corresponding requirements of this Standard." For A18.1 regulations applicable to the other trades involved with lift installation, refer to the section entitled, Regulatory Compliance by Others, in this document.

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RESPONSIBILITY OF OTHERS SCOPE OF WORK BY OTHERS

The design, materials, construction, and installation of the following items are the responsibility of others.

1. Lift support structure/foundation.
2. Site preparations, including main electrical power connection to controller and disconnect(s).
3. Conduit runs from controller to pump unit, locks, call stations, and to pit (with pull strings).
4. Prior to installation, placement of lift must be defined. Chalk lines may be used to outline exact lift location.
5. Building elements and millwork that encase the lift mechanism adjacent to and surrounding the lift platform, including but not limited to structural framing and veneered panel finishes.
6. Doors, including self-closing spring hinges, loaded latch bolt and door handles.
7. Installation of lift control panels.
8. Installation of door strike latches and related door prep.
9. Illumination of lift area.
10. Platform floor covering material.
11. Removable step (if applicable).
12. Accepting delivery and off-loading of lifts.
13. Distribution and placement of lifts adjacent to pits.
14. All permits and approvals.
15. This lift requires a pit/depression of 5 (five) inches.

REGULATORY COMPLIANCE BY OTHERS

The ASME A18.1 specifies requirements for the design, construction, installation, operation, inspection, testing, maintenance, and repair for Vertical Platform Lifts. With respect to Invisible Lift installation, while TLS is required to certify that the lift complies with the A18.1 Standard and any variance decisions granted by the AHJ, there are certain requirements associated with elements necessary for the installation of a complete lift system that are not provided by TLS, and therefore require the cooperation of other trades contracted by the building owner. Subsequently, these other trades are responsible for compliance with the A18.1 requirements related to their respective work. These elements are itemized in the Scope of Work by Others noted on page 7 of this document. T.L. Shield & Associates hereby advises the building owner, or owner's designated representative, of the owner's responsibility to communicate the applicable A18.1 requirements to the appropriate trades. To facilitate this effort, TLS has summarized below the A18.1 requirements that other trades involved with the lift installation must comply with - refer to the A18.1 Standard for complete text.

Applicable to Courtroom Lift Installations

2.1.4.1 Upper Landing Entrance

- A door/gate measuring at least 36 inches high shall guard the entrance. Refer to the Lift Configuration drawing and variance decision for allowable door/guard height deviation.
- Door/gate shall be unperforated and the door/gate shall be self-closing.
- Door/gate shall be capable of withstanding 125 lbf applied on any 4" by 4" area without deformation.
- Door/gate shall be located not more than 3 inches from the platform sill. TLS recommends locating the door flush with the upper landing fascia.

2.1.4.4 Vertical Fascia

- A vertical fascia shall be provided from the upper landing sill and any intermediate landing sill to the lower landing and shall guard the full width of the platform.
- If openings are necessary in the fascia for operation, they shall reject a ball 0.5 inch in diameter.
- Fascia shall be capable of withstanding 125 lbf applied on any 4" by 4" area w/o permanent deformation.
- Clearance between the fascia and platform edge shall not be less than 0.50 inch nor more than 0.75".

2.1.4.5 Lower Landing Entrance

- A door/gate measuring at least 36 inches high shall guard the entrance. Refer to the Lift Configuration drawing and variance decision for allowable door/guard height deviation.
- Door/gate shall be unperforated and the door/gate shall be self-closing.

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REGULATORY COMPLIANCE BY OTHERS – Cont.

- Door/gate shall be capable of withstanding 125 lbf applied on any 4 inch by 4 inch area without perma nent deformation.
- Clearance between the door and platform edge shall not be less than 0.50 inch nor more than 0.75".

2.1.4.6 Stationary Runway Guards [millwork sidewalls]

- Sides of the platform not used for entrance or exit shall be guarded by stationary millwork walls that extend to a height of at least 36 inches above the lower landing. Refer to the Lift Configuration drawing and variance decision for allowable wall height deviation.
- Millwork walls shall be unperforated.
- Openings necessary for lift operation shall reject a ball 0.5 inch in diameter.
- Clearance between stationary millwork walls and the platform edge shall not be less than 0.50" nor more than 0.75".

2.1.4.7 Doors / Guards

Doors/gates shall be provided with a combination mechanical lock and electric contact. TLS generally furnishes the electric strike latches and associated wiring to interface with the lift control system, which are incorporated by other trades. Refer to the Lift Configuration drawing for conformation.

Applicable to Non-Courtroom Lift Installations

2.1.1.1 Runway Guards

- Millwork wall height shall extend from the lower landing to at least 42" above the uppermost landing. Refer to the Lift Configuration drawing and variance decision for allowable wall height deviations.
- Millwork walls shall be capable of withstanding 125 lbf applied on any 4" by 4" area w/o deformation.
- Millwork wall interior surfaces on all sides facing the lift platform shall be smooth.

2.1.1.2 Upper Landing Entrance

- A door/gate measuring at least 42 inches high shall guard the entrance. Refer to the Lift Configuration drawing and variance decision for allowable door/guard height deviation.
- Door/gate shall be unperforated and shall be self-closing.
- Door/gate surface facing the lift platform shall be smooth.
- Door/gate shall be located not more than 3 inches from the platform sill.
- TLS recommends locating the door flush with the upper landing fascia.

2.1.1.3 Lower and Intermediate Landing Entrance

- The entrance (if full height door) opening shall be at least 79" high. A door shall guard the entire opening except for space necessary for operation. Space necessary for operation shall reject a 0.5" diameter ball. Refer to the Lift Configuration drawing and variance decision for allowable door/guard height deviation.
- Door/gate shall be unperforated.
- Door/gate shall be self-closing.
- Door/gate surface facing the lift platform shall be smooth.
- Door/gate shall be located 0.50 inch to 0.75 inch from the edge of the platform floor.

2.1.1.4 Doors

Doors shall be provided with a combination mechanical lock and electric contact. TLS generally furnishes the electric strike latches and associated wiring to interface with the lift control system, which are incorpo rated by other trades. Refer to the Lift Configuration drawing for conformation.

- Doors shall be capable of withstanding 125 lbf applied on any 4" by 4" area without deformation.

Applicable to Both Courtroom and Non-Courtroom Lift Installations

2.1.1.5 Protrusions

No hardware shall project beyond the vertical line of travel of the platform. For witness stands that may include a desk or counter top positioned within the vertical line of travel of the platform, TLS recommends desk and counter tops be hinge mounted to the millwork or removable to prevent a potential hazard to the passenger.

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Applicable to Both Courtroom and Non-Courtroom Lift Installations (cont.)

2.1.1.6 Platform Running Clearance

The running clearance between the entrance and exit sides of the platform floor and the interior of the runway enclosure [millwork walls] shall not be less than 0.50 inch nor more than 0.75 inch.

2.1.5 Pipes in Runway Vicinity

No piping is permitted in the runway [lift footprint].

2.1.8 Structural Support

The structure on which the equipment is installed shall be capable of safely supporting the loads imposed. TLS provides the building owner, or owner's representative, with the appropriate load data.

2.1.9 Headroom Clearance

Headroom clearance throughout the range of travel shall be not less than 79 inches as measured vertically from the platform floor. Refer to the Lift Configuration drawing for lift operational envelope dimensions.

2.2.4.2 Brackets, Fastenings, and Supports

The guide-rail brackets, their fastenings and supports, such as building beams and walls, shall be capable of resisting the horizontal forces imposed by rated load with a total deflection to the point of support not in excess of 0.125 inch (if applicable).

2.3.6 Guiding Member Enclosures

The guiding members shall be guarded to prevent accidental contact. Any openings necessary in guards for operation, they shall reject a ball 0.75 inch in diameter.

2.5.8 Guarding

All suspension means shall be guarded against accidental contact. Suspension means, which operate within a guide or track and travel at the same speed and in the same direction as the platform shall be considered suitably guarded.

2.6.6 Illumination

- 2.6.6.1 At the threshold of the floor, with landing door open, the min. illumination shall be not less than 10 ftc.
- 2.6.6.2 During operation, the min. illumination on the floor and controls shall be not less than 10 ftc.
- 2.6.6.3 An auxiliary illumination source to provide general illumination of not less then 0.2 ftc (2.2 lx) on the floor and controls shall be provided. The aux system shall be automatically activated when normal illumination power fails and shall be capable of maintaining the above illumination intensity for a period of not less than 4 hr and shall use no fewer than two lamps of approximately equal wattage.

2.10.1 Operator Control Stations

Controls shall be located between 48 inches maximum and 15 inches minimum above the platform floor or facility floor or ground level.

INTERFACE REQUIREMENTS

Space and structural provisions shall be provided in building elements and millwork to accommodate the lift assembly, motor, and electronics. As non-limiting examples, the following features shall be included:

1. Adequate clear space is required under the upper landing (or location approved by TLS) for the lift drive mechanism, motor, and electronics.
2. A service hatch is required in the upper landing floor approximate to the motor and electronics. The size of the service hatch shall be sufficient for access to the main power disconnect and to facilitate maintenance.
3. Cutout reliefs in the millwork may be required for lift frame clearance and operational lift elements.
4. Interior millwork panels adjacent to the lift platform shall be smooth.
5. Running clearance between platform edges and adjacent millwork surfaces shall be no less than 0.50 inch nor more than 0.75 inch.

Refer to applicable Lift Configuration drawing for layout, orientation, and controlling dimensions for each project.

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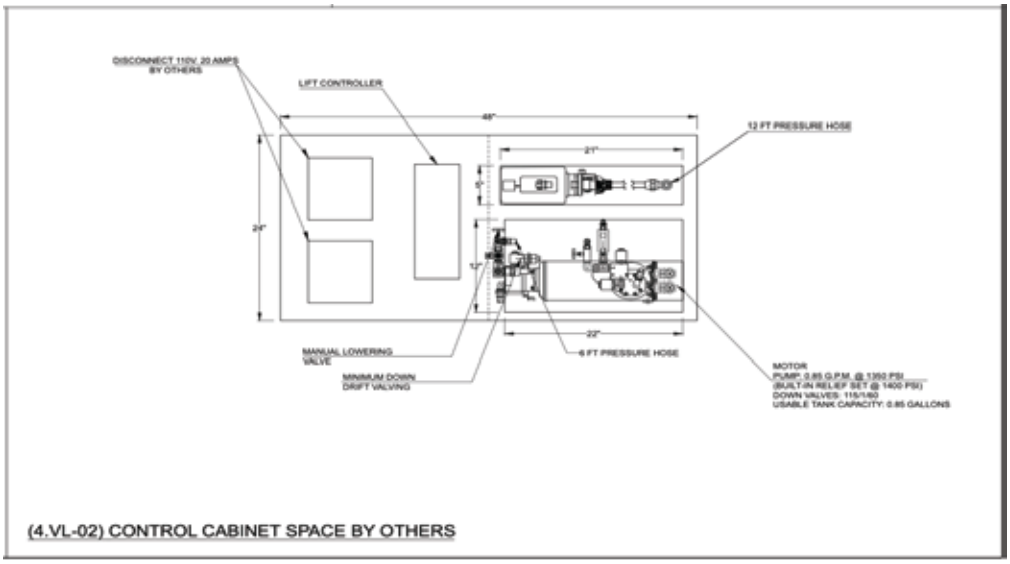
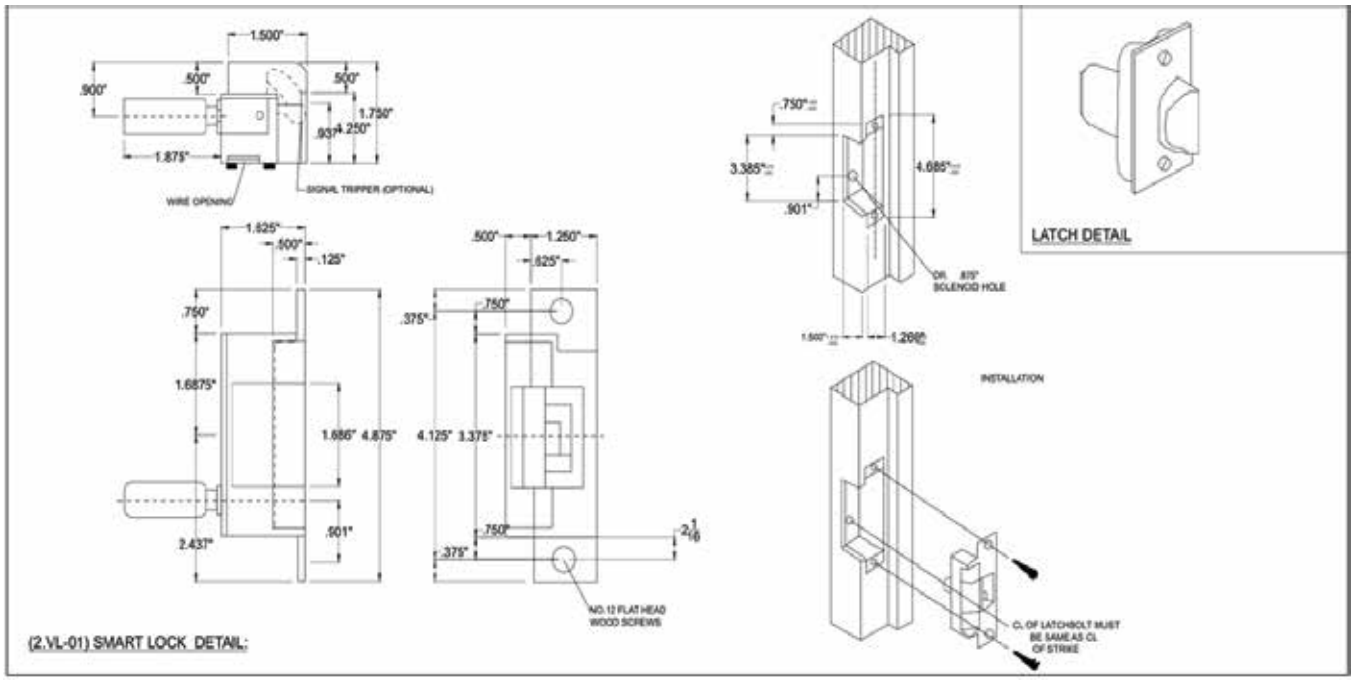
INTERFACE REQUIREMENTS DRAWINGS



(4.VL-02) CONTROL CABINET SPACE BY OTHERS



(2.VL-01) SMART LOCK DETAIL:

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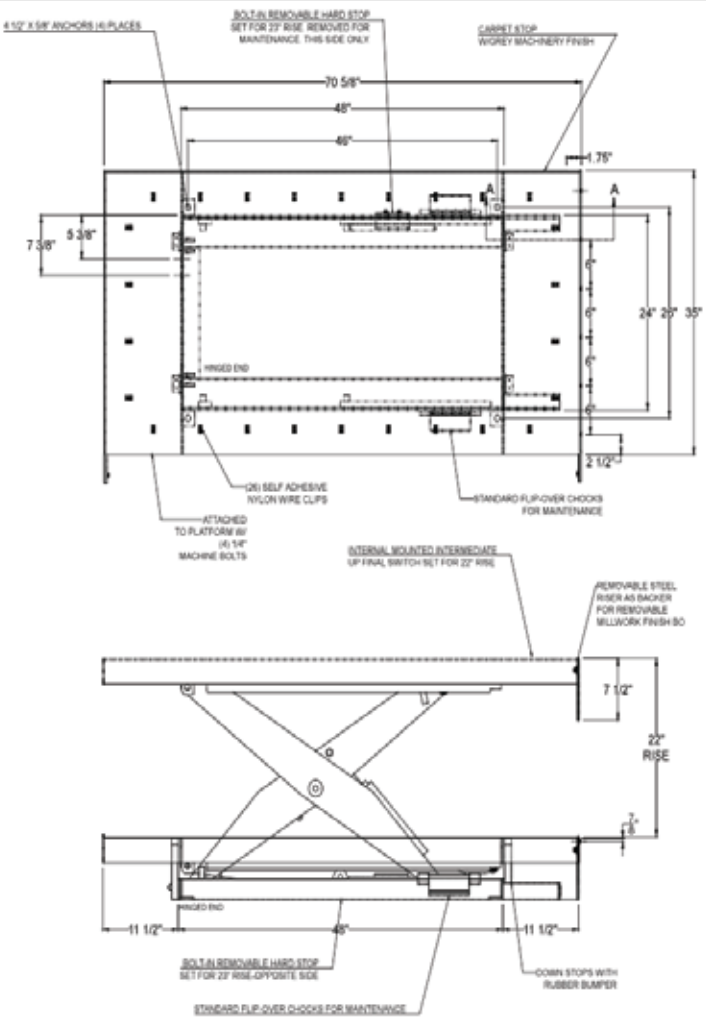
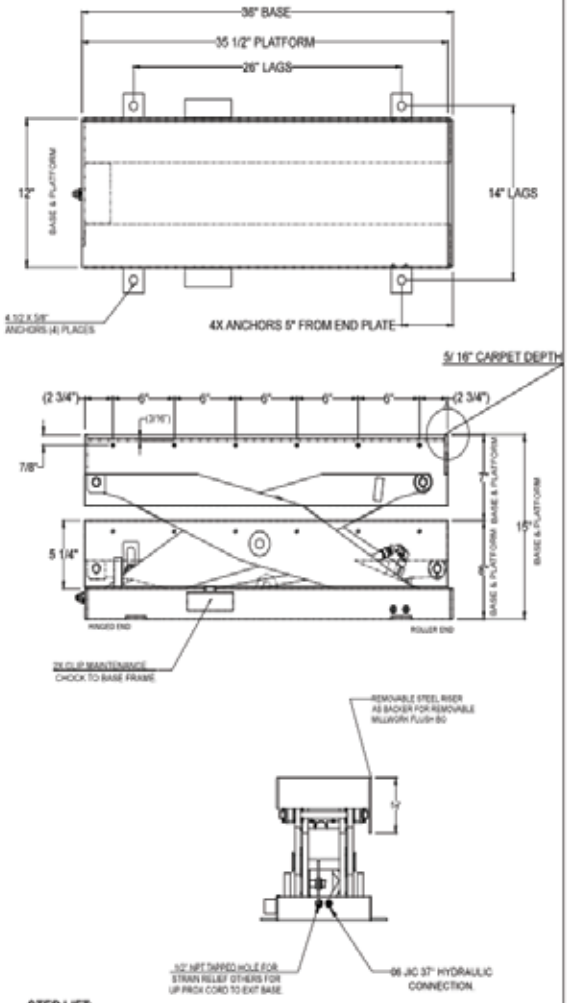
TYPICAL PLATFORM LIFT DETAIL



PLATFORM LIFT:

- CAPACITY: 750 LBS. UNIFORM LOAD - DERATED FOR APPLICATION.
- WEIGHT OF LIFT: 543 LBS
- PLATFORM: 35" X 71" W/RAISED CARPET EDGE.
- PLATFORM FEATURE: BOLT ON REMOVABLE SKIRT ON ONE 35" END W/4" OFFSET TO COVER WHEELSTOP
- BASE FRAME: 24" X 48" W/MAINTENANCE CHOCKS.
- BASE FRAME FEATURE: REMOVABLE HARD UP STOP AT 23" VERTICAL TRAVEL.
- LOWERED HEIGHT: 8" W/DOWN STOPS.
- VERTICAL TRAVEL: 22" W/INTERNAL UP PROXIMITY LIMIT SWITCH.
- RAISED HEIGHT: 30" APPROX.
- LOWERING TIME: FIXED PRESSURE COMPENSATED FLOW CONTROL.
- POWER UNIT: EXTERNAL 1.0 HP 0.85 GPM W/MIN-DRIFT VALVING AND 6 FT HOSE.
- PRIMARY VOLTAGE: 277V.
- CONTROL VOLTAGE: 115/1/60.
- HYDRAULIC FEATURE: EXCESS FLOW PROTECTORS AT BASE OF CYLINDERS.
- HYDRAULIC FEATURE: MANUAL LOWERING VALVE AT POWER UNIT.
- FINISH: GREY MACHINERY ENAMEL RAL 7035.

(1.VL-02) PLATFORM LIFT DETAIL :



STEP LIFT:

- CAPACITY: 750 LBS. UNIFORM LOAD
- WEIGHT OF LIFT: 444 LBS
- PLATFORM: 12" X 35.5" STRAIGHT SKIRT.
- PLATFORM FEATURE: MOUNTING HOLES ON ONE 35.5" SIDE FOR REMOVABLE SKIRT
- BASE FRAME: 12" X 36" W/LAG PLATES & DROP-IN STYLE MAINTENANCE DEVICE.
- BASE FRAME FEATURE: REMOVABLE HARD UPSTOPS.
- LOWERED HEIGHT: 8" W/ HARD DOWN STOPS.
- VERTICAL TRAVEL: 7".
- RAISED HEIGHT: 15" W/ UPPER PROX SWITCH & REMOVABLE UPSTOPS.
- ELEVATING TIME: 7" IN @ 4 SECONDS.
- LOWERING TIME: ADJUSTABLE W/ PRESSURE COMPENSATED FLOW CONTROL.
- POWER UNIT: EXTERNAL 1/2 HP 0.4 GPM.
- PRIMARY VOLTAGE: 277/1/60.
- CONTROL VOLTAGE: 115/1/60.
- HYDRAULIC FEATURE : MINIMUM DOWNDRIFT & NO COAST VALVING.
- FINISH: TWO (2) COATS GREY MACHINERY ENAMEL RAL 7035.

(2.VL-02) PLATFORM LIFT DETAIL :

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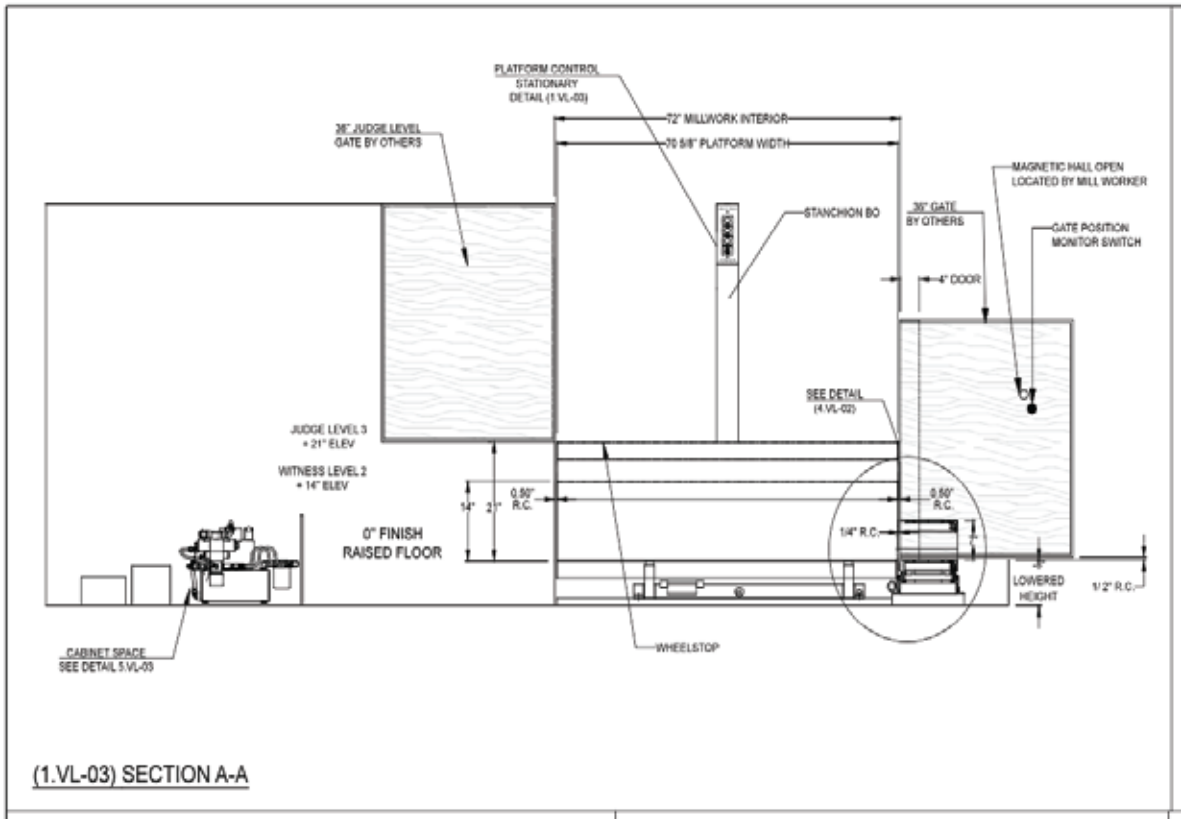
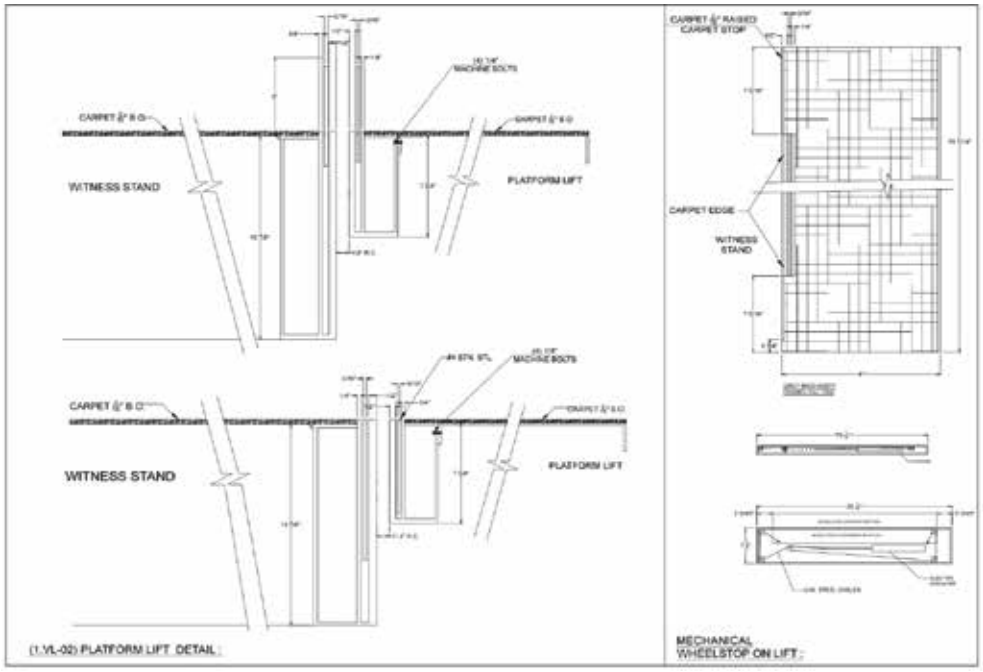
TYPICAL LIFT ARANGEMENT



TYPICAL WHEELSTOP DETAIL



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COURTROOM LIFT

Thank you for your interest in the
INVISIBLE LIFT COURTROOM LIFT SYSTEM

Please contact us for any questions or needed details.

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