



NOT **How ^ to Install Millwork for Courtroom Lifts.**

Courtroom layouts and their corresponding lift configurations vary greatly from one courtroom to the next because of the specific needs of the court and physical space constraints, especially when upgrading existing and historic courthouses.

The purpose of this resource is to highlight several issues LIFT-U has experienced with contractors who were either not familiar with courtroom lifts or the code requirements associated with the millwork interface, and/or did not pay attention to the details shown on LIFT-U's configuration drawing provided for the project.

This guide has been assembled with photographs and descriptions of what **NOT** to do when installing the millwork. An explanation of the correct method to interface the lift mechanism within the millwork is also included. By reviewing this document and referring to the project specific information provided by LIFT-U (i.e., lift configuration drawing and lift application guidelines), millwork contractors would avoid repeating the same mistakes.

With regards to the applicable code requirements, refer to ASME A18.1-2008 Section 2.1.4 Courtroom Lifts and associated vertical platform lift sections. Local jurisdictions may also have specific building code requirements.

Item 1 – Running Clearance

The lift platform running clearance between stationary millwork walls and closed gates must be no less than 3/8" and no greater than 3/4".



Figure 1

Figure 1 illustrates and excessive gap between the closed lower landing gate and the lift platform. Further, the detailed casework on the interior of the gate facing the lift platform is a feature not permitted by code – the wall and gate surfaces adjacent the lift platform must be smooth. Wall caps that protrude into the lift area above the range of travel is a topic subject to debate and therefore not recommended. Inspectors may or may not allow such protrusions.



Figure 2

Figure 2 also shows an excessive gap between the lower landing gate and the lift platform. Lower gates may be mounted flush to either the inside or outside of the millwork walls. In either case the running clearance shall be no less than 3/8" and no greater than 3/4". If the gate is mounted flush to the outside, LIFT-U will provide the platform with an extended portion at the entrance.



Figure 3

Figure 3 illustrates a closed upper gate that is set back from the lift platform. This particular installation does not comply with code because the dimension from the sill edge is greater than 3". However, to avoid the potential of wheelchairs catching on the sill edge and tipping over when the lift is lowered, LIFT-U recommends that upper landing gates close flush with the sill fascia.



Figure 4

Figure 4 exemplifies a roll-up barrier that was set too far from the adjacent lift platform edge, which created an excessive gap between the extended vertical barrier and the lift platform. The roll-up barrier must be installed within the 3/8" to 3/4" running clearance specified by code.

Item 2 – Openings Necessary for Lift Operation

Sidewalls must be of solid construction with no openings other than those necessary for lift operation. Openings shall reject a ball 1/2" in diameter.



Figure 5



Figure 6

Figures 5 and 6 illustrate two examples of millwork walls with lift carriage bracket slots that were made too wide. These slots must not be greater than 1/2".



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Figure 7

Figure 7 shows the millwork wall with a slot for the hinged riser control pin that was made too wide. The slot should align the control pin into the grooved block below to influence the hinged riser plate to fold under the carriage plate. If the pin were to miss the groove and catch on the block as the lift lowers, the riser plate and possibly the carriage plate and/or bracket would be damaged.

To facilitate slight misalignment of the millwork slot, the grooved block includes a beveled lead-in to help guide the pin into the block.

As stated previously, openings in millwork sidewalls necessary for lift operation shall not exceed 1/2". LIFT-U recommends the slot in millwork panels for hinged riser control pins to be 3/8" wide. The height of the slot will vary with each application - refer to the project's lift configuration drawing for the appropriate slot dimensions.

Item 3 – Gaps Under Doors/Gates

The bottom of gates should not have excessive gaps that would expose a person in a wheelchair or standing nearby to a pinch or shear hazard.



Figure 8

Figure 8 illustrates the bottom edge of an upper landing gate that was cut too high. The result is a large gap. This is not acceptable. LIFT-U recommends the gap under the gate should not exceed 1/2".



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Often courtroom lifts are configured to park at the intermediate Witness or Clerk level, such as 12" or 14" above the lower landing, which then requires a removable step at the lower entrance for ambulatory use. When a removable step is used, the lower gate must still extend to the lower landing, subsequently the gate must stand open while the step is in place. Otherwise, if the gate was made to open and close above the step, when the step is removed and the gate closed to operate the lift, the excessive gap below the gate creates a hazard for persons on or near the lift.



Figure 9



Figure 10

Figures 9 and 10 exemplify two installations that utilized a removable step wherein the lower landing gates were made incorrectly. This will not be allowed.

Item 4 – Countertop or Desk Inside the Lift Area



Figure 11

Figure 11 illustrates a stationary desk surface above the lift platform. This is not allowed. When the lift is rising, a wheelchair passenger's legs or arms could be injured if caught between the desk and the chair.

Since most courts require a countertop or desk surface in Witness and Clerk areas, if the countertop protrudes into the space above the lift platform, LIFT-U recommends the countertop either be hinged or removable.



Item 5 – Access Hatch for Lift Motor and Controls



Figure 12



Figure 13

LIFT-U recommends the contractor provide a 30" x 36" access hatch in the upper landing above the lift drive motor and electrical control panel to facilitate service. The access opening shown in Figure 12 is obstructed and does not provide enough space to adequately service or replace the electrical control panel. In addition to the minimum opening size for the access hatch, LIFT-U suggests using a removable joist loosely mounted in joist hangers to help support the hatch cover. Figure 13 illustrates an acceptable access opening with the hatch cover removed.



Figure 14



Figure 15

Another acceptable option that works very well to provide access to the lift equipment is shown in Figures 14 and 15. A metal-framed roof or floor hatch is a modular package that is very strong and does not require extra reinforcement to support the floor load.



Item 6 – Strike Latch and Spring Bolt

LIFT-U typically recommends lift gates to be 2” thick. This works best with the strike latches and spring bolts that LIFT-U provides. Thicker gates may be used, but require special attention to jam clearances and are much heavier for the mobility impaired lift user to operate.

Millwork sidewall and closed gate running clearances with the lift platform were described in item 1. Mounting of gates to close either flush to the interior of millwork walls or flush to the exterior of millwork walls were likewise discussed in item 1. The latter requires LIFT-U to provide the lift platform with an extended portion at the lower entrance.

The millwork contractor must incorporate the strike latch in the jam and the corresponding spring bolt in each gate. If the gate closes flush to the interior of millwork walls a jam plate or channel in the casing should be used to allow clearance for the spring bolt to pass by before engaging the strike latch.



Figure 16



Figure 17

In both Figures 16 and 17 the contractors mounted the gates to set in from the exterior millwork wall. In Figure 16 the contractor failed to configure the jam correctly and then cut an unsightly oversized notch to provide clearance for the gate spring bolt. In Figure 17 the contractor cut a channel in the casing.



Figure 18

Figure 18 illustrates the preferred installation of the strike latch using a jam plate and doorstop block. This configuration was for a standard 2” thick gate.



Figure 19

Figure 19 exemplifies a gate the same thickness as the millwork walls. Observe that the jam and the opposing gate edge had to be cut at an angle to allow the gate to swing and yet maintain a minimum gap to assure that the spring bolt indicated properly inside the electric strike latch.



Figure 20

One of the more common problems encountered with millwork construction is excessive gap between the jam and the opposing strike edge of the gate. If the spring bolt does not indicate properly inside the electric strike latch the lift will not operate.

Figure 20 shows the gap between the gate and the jam to be about 5/16". This is unacceptable. LIFT-U recommends a 1/8" gap to provide reliable spring bolt / strike latch engagement.

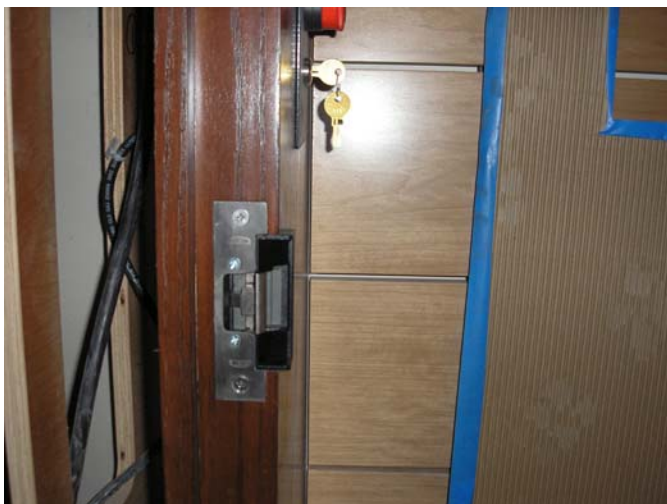


Figure 21

The strike latch indicator tab is located just inside the strike – refer to Figure 21. Do not attempt to bend or modify the neutral position of the indicator tab. Doing so will cause permanent damage to the strike latch. Broken or bent indicator tabs are not covered under LIFT-U's warranty.



Figure 22

Figure 22 is an excellent example of a millwork / lift interface that is configured correctly and works well. Note the gate is held in the open position with a vertically mounted slide-pin. The contractor used another pair slide-pins to secure the step in place. Observe in the picture that the interior millwork panels are made to be removable for service. Also, the wall top caps do not protrude inside the lift area.