

SPECIALTY HINGES AND THE SOLUTIONS THEY PROVIDE

by Brian Clarke, AHC, CDT, CSI

Hollow metal door frames are generally ordered to be installed after walls go up in a structure. The wood doors, however, have longer lead times in most cases and are not installed until very close to the end of the project. This time lapse can produce compatibility issues.

Often, when a new commercial or residential building is being constructed, materials and hardware are ordered at varying times and from different suppliers. With the many different types and sizes of materials that are being specified for a new construction project, oversights can easily happen.

The complexity associated with the variety of materials available, combined with multiple parties handling the orders and installations at different times during the project, make for a common issue: one material is not always compatible with another. Specifically, doors and their door frame counterparts do not always turn out to be the perfect fit when an installer begins his or her work.

For example, a door is specified for 5-inch hinges. However, at a different time, someone may have ordered door frames that are manufactured with a 4½-inch hinge prep. Both materials have been delivered to the job site, and now it is the job of the installer to find a solution. Neither a standard 4½ nor a 5-inch hinge will do the job in this situation.

Additionally, it will cost the company a significant amount of money and time to re-order either the doors or the door frames so that they are compatible with one another. This is one example of when a miscommunication or an oversight regarding doors and door frames can require a cost-efficient solution. In this kind of

situation and others that are similar, a specialty hinge is the answer.

Mark Carmody, who has been with Hager Companies for 37 years, says, “For years, specialty hinges were something that hardware manufacturers could supply but did not necessarily keep in stock. More recently, due to fast-track construction schedules and the number of individuals and sub-contractors involved in the ordering process, the kinds of situations where specialty hinges are needed are becoming more prevalent.”

There are four main types of specialty hinges available:

- unequal leaf
- short leaf
- drop leaf
- store front

All of these different specialty hinges were engineered for very specific situations. It is important to understand what these situations are so the correct hinge can be purchased to act as an optimal solution.

Unequal Leaf

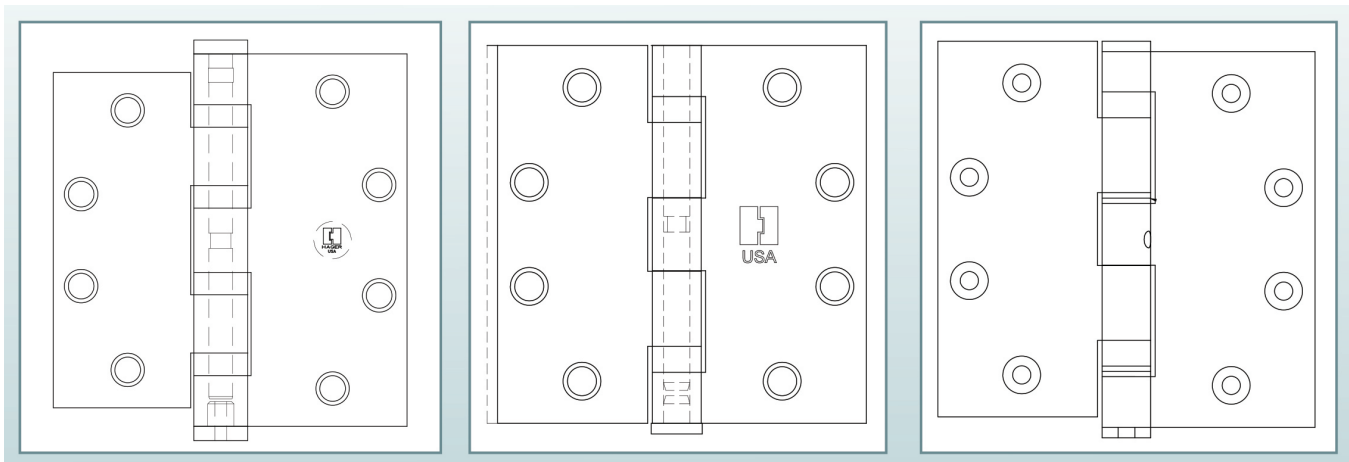
The unequal leaf can be an effective solution in a situation where an oversight has occurred between the manufacture of the frame and door. Much like the situation described above, an unequal leaf specialty hinge is the ideal solution for doors and door frames that have different hinge prep cut-outs.

In a situation where the door and frame have a 4½ and 5-inch cutouts, respectively, an unequal leaf hinge can solve the problem by having an equal amount of material trimmed from the top and bottom of one leaf to create the 4½-inch leaf hinge. Instead of reordering the door, a specialty unequal leaf hinge will ensure the construction schedule sees minimal disruption.

Short Leaf

In a different kind of situation, a short leaf specialty hinge could provide a helpful and cost-saving solution if the hinge backset is incorrect between the door and frame. The hinge backset is the distance between the edge of the hinge and the face of the un-notched door. For a standard 1-3/4-inch door, the typical hinge backset is a quarter of an inch. This means that if a manufacturer has machined the backset of the door prep to 3/8-inch, for example, the door is going to protrude too close to the frame stop and create what is known as hinge bind.

Installing a short leaf specialty hinge will line the door up exactly where it is supposed to be, as it will move the door 1/8-inch further away from the stop. Additionally, the reverse movement is accomplished by applying the short leaf specialty hinge to the frame which would move the door 1/8-inch closer to the stop.



Unequal Leaf

Short Leaf

Drop Leaf

Drop Leaf

A drop leaf specialty hinge is a good solution when both the door and the door frame have the same hinge size but the door needs to be lowered. There are instances where the door's height will reach the top of the frame, and to avoid any door and frame conflict, the door needs to be lowered by 1/8 of an inch. It can be costly to re-order the frame or the door so that the hinge cutouts are placed at the appropriate locations. Thus, by installing a drop leaf specialty hinge, the door can be lowered by the required distance to easily clear the top of the frame.

This situation is one that is not always caused by a miscommunication or an oversight. Often, after a building has been constructed and in use for more than 15 years, there can be a noticeable amount of settling. This settling can prohibit doors closing properly in the frames they were set in years ago. Instead of reinstalling doors or frames, it can be a wise economic choice to simply replace the hinges with a specialty drop leaf hinge to lower the door by 1/8 inch.

Storefront Hinges

Finally, storefront hinges are typically either steel or stainless, standard weight, ball bearing, 4.5 x 4 with 5/32-inch radius corners. Depending on the storefront

manufacturer, these will either have the industry standard 1/16-inch swage, or the non-standard, zero swage (or clearance). If zero clearance or swage is called for, use of the 1/16-inch swage will cause the door to hit on the lock side. A second type, but not often used, is the slip-in hinge, where the hinge leaves slip into the pockets in the door and frame. Standard swage on this type of hinge is 5/16 inch, and the standard sizes are typically 4.5 x 4 or 4.5 x 3¼ inch.

Knowledge of the various types of specialty hinges available has great benefits regarding both cost of materials and time management. If there are specific challenges associated with properly installing doors and door frames that are not immediately compatible with one another, for various reasons, specialty hinges can be a perfect solution.

BRIAN CLARKE, AHC, CDT, CSI, is Director of Architectural Specifications and Technical Support for Hager Companies. He can be reached at bclarke@hagerco.com.

