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FACILITY PLANNING BY DARIO DIMARE

Is it time to table, or reel time?

It's about time we table the discussion on tabletop press structures. To table, or not to table, that is the reel question.

There is a lot of hype about tabletop press structures. "First time," "all new," "super technology," "innovative new design," — this is actually all old news. Tabletop supports for single- and double-width presses have been around for more than 50 years. They have been in the United States for more than 35 years.

Newspapers such as The Dispatch in Moline, Ill., are currently printing on a tabletop-supported Heidelberg Harris 1650 double-width press. This tabletop press structure was installed in 1973. I was personally involved with the design of four tabletop press structures approximately eight to 10 years ago.

What's really new is the shaftless technology and how components can be purchased and installed separately. This naturally lends itself to a more flexible building and press support structure such as a tabletop. There are many ways to support double-width presses, including the two conventional methods of reel-stand supported and tabletop. Let's look at some of them.

Reel-stand supported presses are very common in the United States. This system consists of an entire press resting upon the reel stands of the press, where the reels transfer the loads of the press directly to the foundations via the "Y-columns," "box-columns," or "H-columns." These reel room press structures often double as the supports for the rolls of newsprint. The press foundation that supports these reels is typically isolated from the building structure to minimize vibration transfer and reduce the negative effect of differential settlement (See illustration).

Tabletop press structures, as we now speak of them, are very common in Europe and other foreign countries. This system consists of a concrete structure that supports the reel stands on the lower level and the press units on a second level. In other words, there is a support slab under the printing units (like a tabletop), supported by columns (like the legs of a table), which, in turn, rest upon the reel room press foundation (like the floor of a house). The reel room press foundation supports the reel stands as well as the columns that support the tabletop (See illustration). This system also separates the press structure from the facility structure on both levels.

Steel tabletop press structures are similar to the traditional tabletop structure mentioned above, except the columns and second level are constructed of steel instead of concrete. The steel tabletop and columns will still rest upon the reel room foundation, keeping the press structure isolated from the building structure. This system is usually quicker to install than the concrete tabletop. The Tulsa (Okla.) World has this type of structure.

Facility-supported press structures are also being used today. This is a system where the press is actually supported on a level other than the lowest level of a facility. Basement supported presses are common, however, this is also where all of the water goes when there is a flood. Therefore, presses have been installed in facilities on levels higher than the lowest level. This is most common in dense urban areas.

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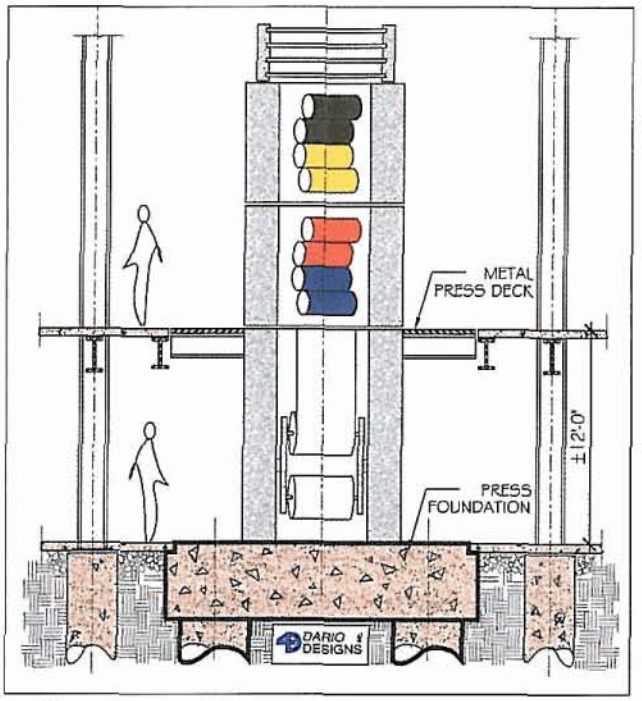
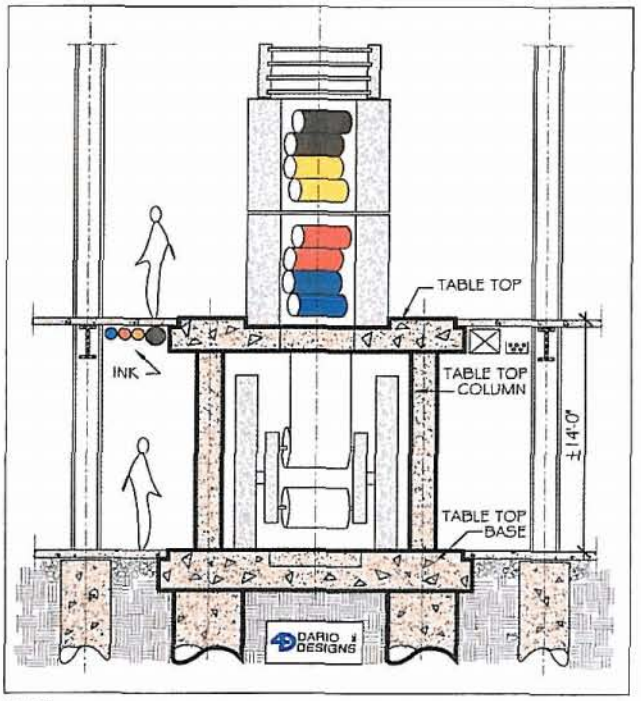


Reel-stand supported press.



Tabletop press structure.

From front

Tension cable supported press structures are also an option in high seismic areas. I thought they were crazy when they asked us to do a study on this type of a structure, but it turned out to be a reasonable option.

In Mexico, where the facility cost was far outweighed by the press cost, and the center of gravity of the press was too high to resist the seismic conditions, it actually made sense to support the press with cables suspended from massive concrete arches. This allowed a short area of the floor around the press to break away during an earthquake, resulting in a free-swinging press. Sounds scary to me, too! Today the most common decision is whether to use a reel-stand supported press or a tabletop supported press. Please keep in mind that each and every facility, press and press support decision is unique. The priorities of cost, time, flexibility, quality, technology, expandability, durability, maintenance and operational preferences vary from newspaper to newspaper and should be considered on an individual basis. Following are lists of advantages and disadvantages inherent in each scenario, which should help you in making your decision.

REEL-STAND SUPPORTED PRESS

Advantages

• Since this is the most traditional method of installing a press in the United States, it is also the simplest and well understood.

• Only having to construct the foundation pad results in quicker facility construction time. (However, this does not mean the total project time will be shorter because it will take longer to install the press since it must be installed in sequential order from the reel stands on up.)

• Less expensive facility cost because there is only one foundation pad and no second floor pad or concrete columns from the press deck to the reel room.

• Easier access for maintenance and press service since the steel deck plates can be removed.

• A less sophisticated press support system means less liability for the owner or newspaper. The newspaper is only responsible for the reel room foundation instead of the entire tabletop assembly.

• Less opportunity for movement or press misalignment due to the fact the press is one complete assembly. With a tabletop structure the press is more susceptible to movement due to shrinkage or settlement of the concrete press deck.

• Slightly shorter web leads due to lower floor-to-floor height and unlimited floor penetration locations.

• The facility is more flexible for future expansion since the only structural accommodations to be met are at the reel room level.

• The press foundation weighs less than the concrete tabletop and reel room to press deck columns.

• The press is easy to align and install in comparison to the dynamic and plastic properties of concrete inherent in a tabletop structure. This can have an affect on the printing quality in the future if the concrete bends or shrinks too much in time. All concrete shrinks with time.

• Any future work on the press deck is with steel, thereby eliminating the potential for airborne concrete dust, as would be the case with a tabletop. Concrete dust is bad for printing because it can solidify on the cylinders, rollers, and ink train as well as possibly clogging the ink, water or air lines.

• Web lead floor penetrations are more flexible with steel than with concrete.

• Steel does not spall, shrink or crack with time. Concrete may do all of these in time.

• Any new reel stands or units can be brought in through a single opening at the reel room level. A tabletop structure would require openings at both levels if an interior two-story space were not provided.

• Future changes can be complicated if the concrete needs to be cut. The structural integrity may be sacrificed if the reinforcing bars are cut.

• The lower reel-room height of a reel-supported press means less facility materials and less space to cool, heat and maintain.

• There are no large concrete columns in the reel room. This allows for maximum flexibility with roll handling equipment, waste and reel stand maintenance.

• Routing of piping, electrical, and other support systems can be more easily changed in the future.

TABLETOP SUPPORTED PRESS

Advantages

• Tabletop structures allow for a quicker press installation since the press units can be installed while the reel stands are being installed. (However, it will take longer to construct the second level so that the overall project schedule may not actually be shorter.)

• There is maximum flexibility with regard to the location of reel stands and press units. This is especially true with shaftless presses.

• Different manufacturers are possible for the press units and reel stands. This may decrease the cost of the entire press acquisition due to added competition.

• Future units and reel stands can be added at will and independent of each other. Please keep in mind that this is only true if the tabletop is designed and built for this up front.

• Sound attenuation between the pressroom and reel room is much improved as a result of the massive concrete press deck.

• The weight of the tabletop structure helps to dampen the vibration of the press, thereby reducing the sound and possibly increasing the printing quality by a slight margin.

• Higher reel room heights allow for more building and press systems to be supported on the reel room ceiling. This simplifies installation and maintenance and keeps these systems out of the dirtier areas, such as the press hall.

• The fact that you can determine the reel room height allows you to match the press deck level with a traditional second floor office space. This greatly simplifies the connection between the pressroom and all of the support areas on the second level. Special ceiling systems and construction techniques can be eliminated.

• A concrete tabletop is a natural fire retardant material. This may eliminate fireproofing the steel in other scenarios.

• The connection between the press deck and the facility can be simpler due to the use of concrete in both areas.

• Since the press is supported at both levels, adjustments for aligning the press can be made at both levels. (Some people claim this is actually a negative because a reel-stand supported press is completely aligned by the fact that it is actually one piece of equipment supported at the bottom.)

As you can see there are many issues to consider when tabling the debate as to which press support system is tops. Cost, flexibility, maintenance and your timetable are all considerations.

Generally speaking, I believe the tabletop press structure will win out. Even though it is more difficult, will take more time and will be more costly to install, it should ultimately provide you with the most flexibility with regard to your facility layout and future options with press units and reel stands. I also believe there are ways to increase the flexibility of the support systems between the reel room and press deck level with a properly designed tabletop structure.▲

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