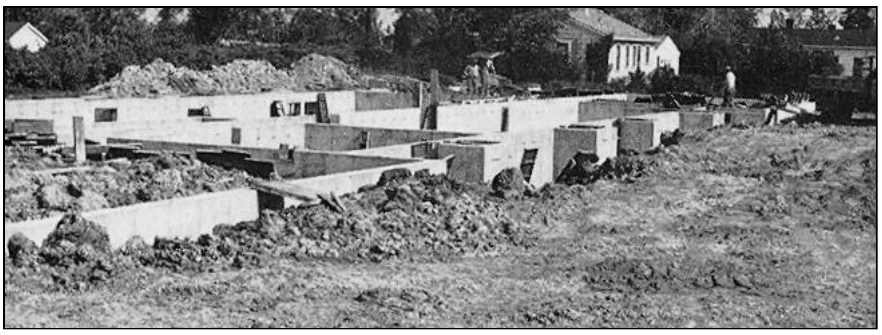


Often a contractor can use a small job to best evaluate the worth of prefabricated formwork. A small job can provide the contractor with the opportunity to train his men in the fast, efficient use of such systems.

PREFABRICATED FORMING SYSTEMS

Concrete formwork is becoming more versatile, enabling architects and designers to restudy the use of cast-in-place concrete—not only for structural purposes, but also for architectural effect.

This versatility has, to some extent, been tied to the development of prefabricated forming systems. Today, prefabricated forming systems offer the contractor: (1) the ability to assemble components for almost any size or shape form; (2) the need for very little on-site skilled labor; (3) the ability to reuse forms either as a large section or as individual units.

Still only three out of every five contractors have used a prefabricated forming system. Some contractors feel apprehensive about using factory-built forms, but let's take a moment to examine their basic objections point by point:

Prefab forms cost too much

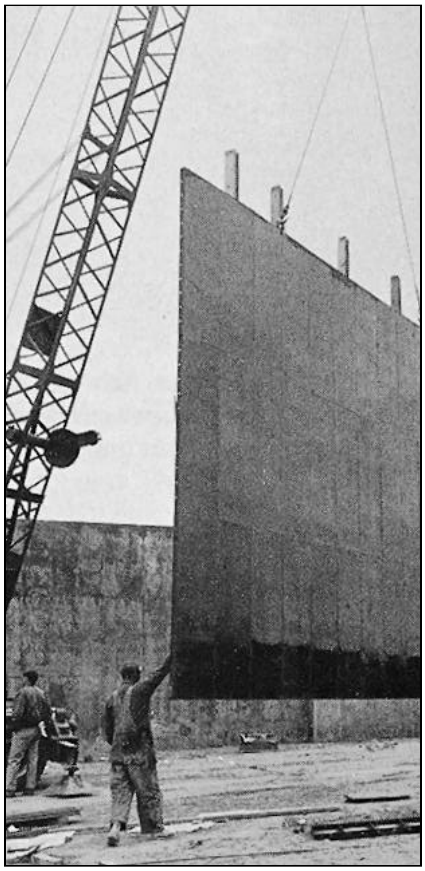
Cost is of major interest to everyone. Most manufacturers offer several methods of obtaining forming equipment (usually either outright purchase or rental) and the chosen method depends on individual circumstances.

Forming equipment has to be profitable to the contractor or it won't be profitable to the manufacturer. Most manufacturers prepare cost quotations and bills of material on all jobs. Therefore, the actual form cost for equipment is known or established. The contractor then knows what his cost will be and can figure his labor and reuses accordingly. Since the cost of formwork for certain projects can be 40 percent to 60 percent of the total cost, it is to the contractor's advantage to have the job engineered and to have a cost quotation. Through experience on hundreds of jobs, the manufacturer can recommend concrete placing schedules and forming sequences, besides offering solutions to problems which are not normally part of the forming operation.

In conclusion, the saving offered by prefabricated formwork is derived from: (1) the need for less on-site skilled labor; (2) the fact that materials need not be purchased separately to build formwork; and (3) the reuse value offered by prefabricated formwork.

Freight is too expensive and takes too long

Freight is something to consider, but in evaluating prefabricated formwork versus job-built forms, the total cost of a job should determine which tech-



Gang forms may be altered in size at will depending on job use and means of handling.

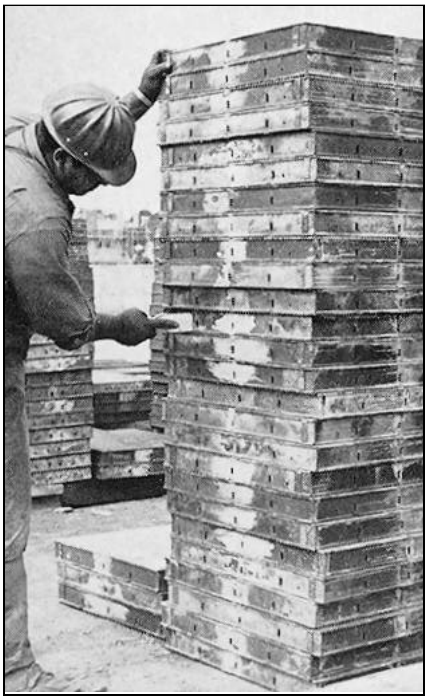
nique is the best for a particular application. No matter what system is used, freight or transportation is always present. The saving on any job comes from materials and labor.

Most form manufacturers have warehouses or outlets scattered around the country and this helps to keep shipping to a minimum.

Too many pieces are involved in prefab forms

A simple solution to this objection is a comparison of the number of pieces used in your present method versus those used in a prefab system. In a prefab system, most form connections are made with one basic type of hardware. Most systems are designed around the hardware and both forms and accessories can be erected using the same piece of hardware. The use of attached hardware can also minimize hardware loss. Since less hardware is usually used in prefab forms there are fewer pieces to remove when stripping and hardware loss is reduced.

A matter not often thought about is that of safety. Fewer pieces of hardware are used in prefab forms, there are fewer people handling form materials and, consequently, the accident rate is reduced. There is also a minimum of nailing required and fewer rusty, protruding nails to cause injury. Most systems have steel scaffold brackets which can be attached easily to the forms.



Maintenance of forms can be a tiresome task, but well-maintained forms mean more reuses.

Prefab systems leave poor finishes

Much concern has been expressed over the joints or fin marks left by prefab systems, although a majority of the concrete is backfilled or covered over by some material. Since ties are located at the joints, any finishing necessary would be about the same as if the tie holes were through the middle of 4-foot by 8-foot plywood sheets.

A pattern or uniform effect can be had by preplanning where the form joints will be located vertically and horizontally. Ties can also be located at predetermined points to reduce finishing time. Form liners can also be used to eliminate joints or fin marks. And rustication strips are used for architectural purposes where the fins or tie marks are not a problem.

Prefab forms sometimes deflect during placing

The first cause of deflection is the rate of placing, which is usually too fast. It is still more economical to observe normal placing rates than to use additional materials for waling and bracing of job-built forms to increase their strength.

Deflection can also be caused by poor formwork. The plywood may be worn out and need replacing. Forms require maintenance and care like all good construction equipment.

If recommended placing rates are followed and there is good supervision of placement and vibrating, the problem of deflection can be controlled. With many prefab systems, panels can be removed at different locations and used as casting pockets. This procedure avoids dropping the concrete a great distance and helps to maintain a more constant rate of placement.

Prefab forms are not versatile

This is a dubious statement. Almost all prefabricated systems are designed for light as well as heavy construction. Contractors can bid almost any type of work; straight, battered, curved or cut-up. Prefab forms may be set in any combination, horizontally and vertically, to any wall height. On high walls, one side of forms can be erected and ties placed; then the close-out side can be erected during placement, minimizing concrete drop and assuring effective vibration.

In a prefab system the contractor can remove and replace forms at any point. This simplifies erection and stripping, which can be started at any location. To allow for a casting pocket, a panel is simply removed and replaced

as the placing progresses.

A big advance in prefab forming has been the development of gang forming, which is simply defined as the grouping together and moving of a number of forms as a single unit. The success of gang forming is due to the development of easy-to-use hardware and ties, made especially for this forming technique.

Forms may be assembled on the ground in gangs or erected individually in place and stripped as a gang section. They may also be altered in size at will, depending on job use and means of handling.

Prefabricated formwork is too complicated

When a contractor rents or buys prefabricated forms, all necessary hardware, corners, fillers, pilaster forms and accessories are included in the shipment, making it a complete package.

Erection is very easy, even for unskilled workmen. Normally, prepared layouts are furnished for each job and, by following these, the forms are set according to the sizes indicated, including small fillers and odd dimensions. All measuring has been figured and there is very little nailing or drilling, except for such things as box-outs or reinforcing bars.

Although there appear to be many different pieces, each one serves a purpose. Many contractors have requested that certain items be developed and made available in order to further mechanize their forming. For example, one manufacturer developed a haunch bracket, which is particularly useful in forming haunches or corbels. It uses 3/4-inch plywood and connects with standard hardware to the prefab forms. Some manufacturers rent steel haunch, fillet and pilaster forms for tough forming conditions.

My job is too small

This is a common objection, but a small job is an ideal time to try prefab forms. Whether it is just a small job or a small contractor doing house foundations, cost reduction is just as important. In doing house foundations or small jobs, the multiple reuse value is a real benefit.

Since prefabricated forms are pre-engineered and precision made, they offer the best materials available and work equally well on all jobs, resulting in lower cost per use.

Although prefabricated forms work well on any size job, the small job is a good way to introduce the system to the workmen. With a minimum investment in the rental of equipment, the small job will serve to train the workmen.

Maintenance is a problem

All types of forms or systems require maintenance. Good maintenance will extend form life considerably, and protect the concrete finish. Forms can be cleaned and oiled easily by using a wire brush or putty knife on the side and end rails. The face should also be cleaned to avoid any concrete build-up. After cleaning, oiling is easily accomplished by broom, roller or sprayer.

Form condition can also have some influence on erection and stripping. Form connections and alignment are easier and faster to make if no dirt or concrete exists on the side rails.

The weight of any form is an important consideration to everyone. Here again maintenance is a factor, since the accumulation of dirt or concrete can increase the weight of any form.

Publication #C660303