

GENERAL SHORING SAFETY RULES *As Recommended by* SCAFFOLDING, SHORING AND FORMING INSTITUTE

It shall be the responsibility of all employers and users to read and comply with the following common sense guidelines which are designed to promote safety in the erection, dismantling and use of the shoring systems. These guidelines are not all inclusive nor do they supplant or replace other additional safety and precautionary measures to cover usual or unusual conditions. If these guidelines conflict in any way with any state, provincial, local or federal statute or governmental regulation, said statute or regulation shall supersede these guidelines and it shall be the responsibility of each employee and user to comply therewith and also to be knowledgeable and understand all state, local or federal statutes or governmental regulations. This pertains to Frame Shoring, Flying Deck Forms, Single post shoring, and Independent Post Shore systems.

GENERAL GUIDELINES

- POST THESE SHORING SAFETY GUIDELINES in a conspicuous place and be sure that all persons who erect, dismantle or use shoring are aware of them.
- FOLLOW ALL STATE, PROVINCIAL, LOCAL AND FEDERAL CODES, ORDINANCES AND REGULATIONS pertaining to shoring.
- SURVEY THE JOB SITE: A survey by a qualified person shall be made of the job site for hazards, such as un-tamped earth fills, ditches, debris, high tension wires, unguarded openings and other hazardous conditions. These conditions should be corrected or avoided as noted in the following sections.
- PLAN SHORING ERECTION SEQUENCE in advance and obtain necessary access equipment to accomplish the work safely.
- INSPECT ALL EQUIPMENT BEFORE USING. Never use any equipment that is structurally defective in any way. Mark it or tag it as defective, then remove it from the jobsite.
- A SHORING DRAWING prepared by a person qualified to analyze the loading intended and consistent with the manufacturer's recommended safe working loads, shall be used on the job at all times.
- ERECT, DISMANTLE OR ALTER SHORING only under the supervision of a qualified person.
- DO NOT ABUSE OR MISUSE THE SHORING EQUIPMENT.
- INSPECT ERECTED SHORING: (a) immediately prior to concrete placement; (b) during concrete placement and while vibrating concrete; and (c) after concrete placement until concrete is set.
- NEVER TAKE CHANCES! IF IN DOUBT REGARDING THE SAFETY OR USE OF THE SHORING, CONSULT YOUR SHORING SUPPLIER.
- USE SHORING EQUIPMENT only for the purposes or in ways for which it was intended. Use proper tools when installing equipment
- ERECTING AND DISMANTLING OF SHORING requires good physical condition. Do not work on shoring if you feel dizzy, unsteady in any way or are impaired in any way by drugs or any other substances.
- DO NOT USE SHORING SYSTEMS for fall protection.
- USE SUPPLIER / MANUFACTURER'S RECOMMENDED SAFE WORKING LOADS consistent with the deck panel configurations and height of posts used.
- DO NOT MAKE UNAUTHORIZED CHANGES TO THE LAYOUT.
- Always consult the designer prior to making changes.
- IF MOTORIZED CONCRETE EQUIPMENT is to be used, be sure that the shoring layout has been designed for use with this equipment and to ensure that lateral loads, vibration and other forces have been considered and adequate precautions have been taken to assure stability and such fact is noted on the layout.
- USE SPECIAL PRECAUTIONS when shoring from or to sloped surfaces.
- SAFE ACCESS SHALL BE PROVIDED TO ALL FORMWORK as required by applicable code.
- PANELS EXPOSED TO UPLIFTING WIND FORCES SHALL BE LOCKED OR TIED DOWN to prevent panel uplift.
- PROVIDE AND MAINTAIN A SOLID FOOTING to distribute maximum loads properly.
- WINDLOAD: Erector must analyze the forming / shoring system for additional loads imposed from wind loading and provide adequate anchorage to resist these forces, including uplifting wind forces.
- RESHORING is one of the most critical operations in formwork; consequently, the reshoring procedure shall be designed by a qualified person and should be approved by the architect / engineer of record.
- DO NOT RELEASE FORMS until proper authority is given.

SINGLE AND INDEPENDENT POST SHORE SYSTEM SAFETY RULES *As Recommended by* SCAFFOLDING, SHORING AND FORMING INSTITUTE

- ALL INDEPENDENT POST SHORE SYSTEM DECKS SHALL BE LATERALLY STABILIZED by the existing building structure and/or longitudinal transverse, and diagonal bracing. Bracing shall be installed as the shores are being erected.
- FOLLOW SUPPLIER/MANUFACTURER'S RECOMMENDED DIRECTION if applicable for:
 - Location and selection of deck panel type and stringers.
 - Type and height of vertical shoring components.
 - Starting points of deck layouts.
- PRIOR TO WORKING ON DECKS
 - All posts shall be plumb and adjusted evenly to ensure proper bearing contact.
 - Check plumb of post shores just prior to pour.
 - Deck shall be laterally stabilized.
- FALL PROTECTIONS SHALL BE PROVIDED ON ALL OPEN SIDES AND OPENINGS in framework and slabs as required by applicable code.
- PLAN DECK PANEL LAYOUT TO ENSURE AGAINST INSTABILITY AND UNSUPPORTED CANTILEVERS. Take all necessary precautions to avoid uplift of cantilevered panels during and after construction. Make certain that form panels intended to be cantilevered are tied down to prevent tipping.
- PANELS EXPOSED TO UPLIFTING WIND FORCES SHALL BE LOCKED OR TIED DOWN TO PREVENT PANEL UPLIFT.
- PLAN CONCRETE PLACEMENT METHODS AND SEQUENCES TO ENSURE BALANCED LOADING of shoring equipment and panels, including cantilevered panels.
- BRACING SHALL BE FASTENED SECURELY. Check to see that clamps, screws, pins and all other components are in a closed or engaged position.

SAFE PRACTICES FOR ERECTING & DISMANTLING OF FRAME SHORING *As Recommended by* SCAFFOLDING, SHORING AND FORMING INSTITUTE, INC.

I. GUIDELINES FOR ERECTION AND USE OF FRAME SHORING

- PROVIDE AND MAINTAIN A SOLID FOOTING. The silts or cribbing for shoring shall be sound, rigid and capable of carrying the maximum design load without settling or moving.
- ALWAYS USE BASE PLATES. When silts or cribbing are used, base plates must be centered on them.
- ADJUSTING SCREWS SHALL BE USED to adjust to uneven grade conditions. Maintain all screw adjustments within the recommended height for the design load.
- PLUMB AND LEVEL ALL SHORING FRAMES as the erection proceeds. DO NOT force braces on frames - level the shoring towers until proper fit can be made. Maintain all shoring towers plumb and level.
- MAINTAIN THE SHORE FRAME SPACINGS OR TOWER HEIGHTS as shown on the shoring drawing. Where job site conditions require deviations from the shoring drawing, consult a qualified person.
- USE CAUTION WHEN ERECTING FREE-STANDING TOWERS. Prevent tipping by guying or bracing when height exceeds 4 times the minimum base dimension.
- GIVE SPECIAL CONSIDERATION TO TEMPORARY LOADING. Areas where re-bar, material or equipment is to be stored temporarily may need to be strengthened to meet those loads.
- DO NOT CLIMB CROSS BRACES. Use proper access equipment.
- USE ADJUSTMENT DEVICE ON TOP OF LEG to position the falsework - not the bottom adjusting screw.
- SHORING LOADS ARE INTENDED TO BE CARRIED BY VERTICAL LEGS. Horizontal loading may require special consideration. Consult your shoring supplier for allowable loads on horizontal members.
- AVOID ECCENTRIC LOADS on U-headers, top plates and similar members by centering stringer loads on those members.

II. GUIDELINES FOR DISMANTLING SHORING

- DO NOT REMOVE BRACES OR BACK OFF ON ADJUSTMENT SCREWS until proper authority is given.
- DISMANTLED EQUIPMENT should be stockpiled in a planned manner and distributed to avoid concentrated loads on the partially cured concrete.
- USE PROPER ACCESS EQUIPMENT in the dismantling process.
- LOWER SHORING COMPONENTS in a safe manner. Do not drop or throw components as this could result in injury to personnel or damage to equipment.

These safety guidelines set forth some common sense procedures for safely erecting, dismantling and using frame Shoring equipment. Since equipment and shoring systems differ, reference must always be made to the instructions and procedures of the supplier and/or manufacturer of the equipment. Since field conditions vary, and are beyond the control of the Scaffolding, Shoring & Forming Institute and the Scaffold Industry Association, safe and proper use of equipment is the sole responsibility of the employer and user.

High productivity depends on Safety; an accident, no matter how minor, causes job delays and inefficiency, running up costs. That's why Dayton Superior, in the design of its systems and products, makes, as one of its primary concerns, the safety of those people who will be working with and near the equipment. Every product is designed with safety in mind, and is subjected to testing to be certain that it will perform as intended with appropriate safety allowances. Factory-built systems, such as these, provide predictable strengths, thereby minimizing the uncertainty that often surrounds "hand-made", "job-shop" and "job-built" equipment. As a result, when used properly, Dayton Superior products are your best assurance of a safe operation. To insure proper use, we have published this safety sheet. We recommend that all construction personnel who will be involved, directly or indirectly, with the use of these products, be familiar with the contents of this sheet.

As a concerned participant in the construction industry, Dayton Superior also recommends that regular safety meetings be held, prior to starting the forming operation, and regularly throughout the concrete placement and form stripping and erection operations.

FLYING DECK FORM SAFETY RULES *As Recommended by* THE SCAFFOLDING, SHORING AND FORMING INSTITUTE

ALL FLYING DECK FORMS SHALL BE assembled, moved and maintained in accordance with the supplier's recommended procedures.

- METHOD OF ADJUSTMENT should be provided on all flying deck form supporting members, for form leveling, vertical positioning, ease of stripping, and to adjust to uneven grade conditions where applicable.
- MAKE CERTAIN THAT ALL SUPPORTING MEMBERS are in firm contact with the flying form stringer/ledger and that supports are located in positions as shown on the shoring layout.
- USE DECK FORM MATERIALS WITH PROPERTIES as stated on the shoring layout drawing. Do not splice joists or ledgers between supports unless details are given on the shoring layout.
- FIELD OPERATIONS SHALL BE, at all times, under the direct supervision of a supervisor who is qualified and familiar with the procedures for assembly, erection, flying, and horizontal movement of the flying deck form system being used.
- MAKE CERTAIN that a positively controlled method of tieback or braking is used when moving the deck form. The system must never be allowed to have free or uncontrolled horizontal movement.
- LEDGERS/STRINGERS AND JOISTS MUST BE stabilized and laterally braced to assure that the deck form system is stable against any foreseeable lateral loads.
- THE CRANE USED TO FLY the deck form must not pull the deck form out of the building bay. A controlled and independent device or force must provide for horizontal movement of the deck form.
- SLINGS AND RIGGING used in flying the deck form system must comply with all safe practices and applicable governmental regulations governing their use.
- AVOID SHOCK OR IMPACT LOADS.
- SAFETY MEASURES shall be taken for all personnel involved in the rigging of the flying deck form for flying. No personal shall be allowed to "ride" the deck form or rigging during flying.
- DURING CONCRETE PLACEMENT AND DECK FORM RIGGING, THE FREE END CANTILEVER OF A DECK FORM shall not exceed the amount as recommended by the supplier. Follow the recommended flying procedure as given by the supplier.
- ANY AND ALL LOOSE COMPONENTS OF THE deck form system (i.e., bulkheads, beam sides, filler strips, etc.), if flown with the form, must be securely fastened to the deck form prior to moving.
- CONSULT YOUR SUPPLIER if weatherproof covering, etc., is to be attached to the flying system.
- ALL PERSONNEL IN THE AREA shall be advised and protected during all flying operations. Do not stand under the deck form during the flying operation.
- ALL ATTACHED PERIMETER GUARDRAILS, MIDRAILS AND TOEBOARDS shall conform to applicable codes and regulations.
- THE WEIGHT OF THE PLYING DECK FORM SHALL NOT exceed the capacity of the crane for each application.

A WORD ABOUT SAFETY

Dayton Superior personnel will be happy to assist in these meetings, with discussions of safe use of the equipment, and slide presentations and other formal safety information provided by such organizations as the Scaffolding, Shoring and Forming institute.

In addition to the above meetings, all persons involved with the construction should be familiar, and in compliance, with applicable governmental regulations, codes and ordinances, as well as the industry safety standards developed and published by each of the following:

American Concrete Institute, American National Standards Institute, The Occupational Safety and Health Administration, The Scaffold, Shoring and Forming Institute

Since field conditions vary, and are beyond the knowledge and control of Dayton Superior, safe and proper use of these products is, and must be, the responsibility of the user.

These safety rules are a taken from safety rules prepared by the SSFI. They have been condensed for clarity but contain all relevant information.

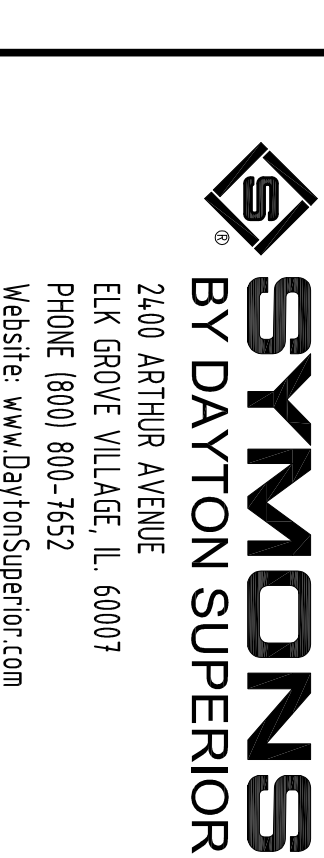
Reprinting of these Safety Rules does not imply approval of product by the Institute or indicate membership in the institute.

Permission to reproduce Safety Rules in their entirety can be obtained from: Scaffolding, Shoring and Forming Institute, Inc., 1230 Keith Bldg. Cleveland, Ohio 44115.

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NOTE - THIS REPLACES THE SYMONS DOCUMENT "HORIZONTAL SHORING SAFETY SHEET" DATED 3/1988

IMPORTANT: SEE SYMONS APPLICATION DRAWINGS, APPLICATION GUIDES AND SAFETY SHEETS FOR ADDITIONAL IMPORTANT INFORMATION, INCLUDING GENERAL NOTES AND LOCAL BRANCH CONTACT INFORMATION.



SHORING SAFETY RULES

FOR	DRAWING NO.	SHEET NO.
JOB	REF.	
LOCATION		
DATE		