



SHORING SECTION

SSFI TECHNICAL BULLETIN

Wind loads and Shoring

Often the only loads assumed to be supported by shoring equipment are *vertical* loads that include the weight of the concrete, formwork, and live loads. While these loads are the primary loads that are supported by shoring equipment, *horizontal* loads must also be considered. The primary horizontal load is usually due to the wind. The reason this load, or force, is often neglected is that it is typically not very high and is normally resisted by the weight of the shoring equipment, formwork, and reinforcing steel.

Ignoring this force, however, can lead to disaster. The wind, blowing horizontally, will apply loads against the side of the shoring equipment and the formwork on top of the shoring. In addition, the wind can also apply uplift against the underside of the formwork. The location, width, length, and height of the shoring and formwork will determine if the wind forces will destabilize the entire shoring installation. For example, a single shoring tower, installed at the top of a 50 story building will experience a much higher wind than the same tower erected at the first floor. However, if on the same building multiple towers on the 50th floor are properly braced together, the resistance to the wind will be entirely different; the location and size of the installation dictates the wind resistance design.

The qualified designer will design for the actual anticipated horizontal load due to the wind. One excellent source for information regarding wind load design can be obtained from the American Society of Civil Engineers (ASCE).

As the shoring increases in height and the exposure changes, the pressure will increase, sometimes dramatically; therefore, it is important to have a qualified person properly design the final shoring layout. Keep in mind that tall formwork, such as a beamside for a deep beam, will greatly affect the wind loads.

Wind loads cannot be ignored during the application design of shoring equipment and formwork. Assuming that the shoring is heavy enough and stable enough to resist wind loads is a risky approach to the solution of a manageable situation. If in doubt, consult a qualified designer who can assist you with your particular situation. SSFI members can provide you with the expertise or assist you in finding the expertise for your particular project.

Following are some additional sources for information about shoring:

- ANSI A10.9-Safety Requirements for Masonry and Concrete Work
- American Concrete Institute, SP-4, *Formwork for Concrete*
- ASCE: *Minimum Design Loads for Buildings and Other Structures*, ASCE 7-02, and *Design Loads on Structures During Construction*, ASCE 37-02

This Technical Bulletin was prepared by members of the SSFI Shoring Section.

SSFI is a trade association comprising manufacturers of shoring, scaffolding, forming, and suspended scaffolding. The institute focuses on engineering and safety aspects of scope products.

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