



Stairways, Landings and Lifts

What is the best way to access the water from steep slopes or bluffs?

Steep slopes and bluffs pose problems for access to lakes or rivers. Besides the practical difficulties for property owners to traverse slippery slopes, the soils on slopes and bluffs are highly susceptible to erosion. Stairways with landings or lift systems can provide safe access to the water in areas with steep topography. If designed and installed properly, they can blend in with the natural surroundings and reduce erosion in highly traveled areas by minimizing soil compaction.



Design Standards

The statewide shoreland rules contain standards for stairways, lifts and landings, that are implemented through local ordinances. Generally, these structures require a permit from your local government and must meet the following standards:

- Stairways and lifts must be no wider than **4 feet** on residential lots. Wider stairways may be used for commercial or public open-space recreational properties and planned unit developments (if allowed by local ordinance).
- Landings for stairways and lifts on residential lots must not exceed **32 square feet** but may be larger for commercial properties, public open-space recreational properties, and planned unit developments (check local ordinances).
- **Canopies or roofs are not allowed** on any stairways, lifts, or landings.

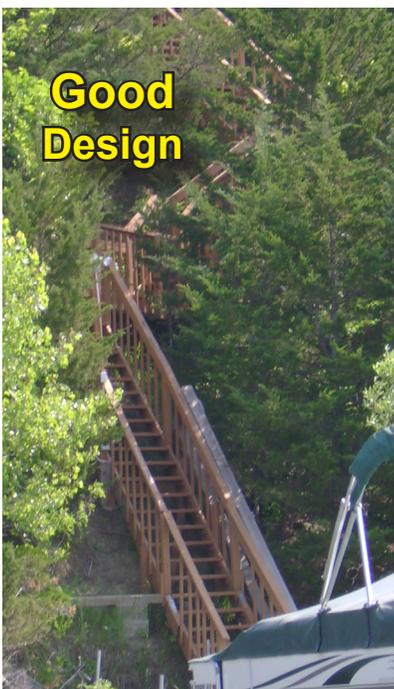
Placement & Installation

Stairways, landings, and lifts should be located where they will require minimal disturbance to existing topography and vegetation, and installed properly as recommended below:

- Place stairways, landings, and lifts in the least conspicuous portion of the lot to mask their view from the water during summer leaf-on conditions.
- Avoid mature trees and native vegetation whenever practicable.
- Follow the natural contours of the land and don't alter the topography.
- Designing stairways that run straight down a slope, or stairways that follow the valley where water flows down the hill may encourage gully erosions. The placing of stairways can shade vegetation making the slope more erodable.
- Install stairways, landings, and lifts on posts or pilings above the ground surface or worked into the slope at grade.
- Take precautions to prevent erosion and runoff before, during, and after construction.



Steep Slopes: Foot traffic on steep slopes can lead to soil compaction and erosion.



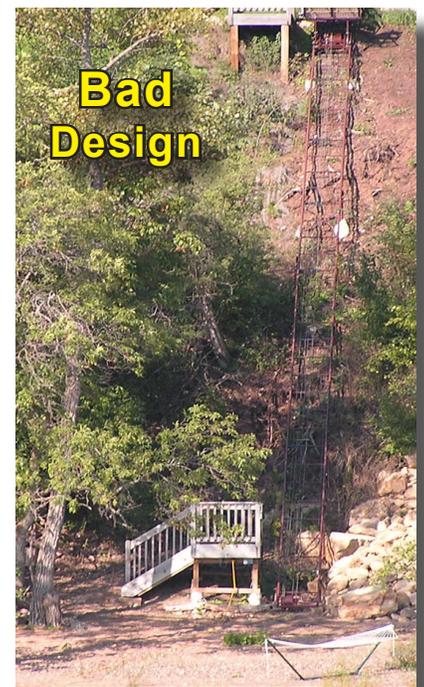
Good Design



Stairway (above) This at-grade stone stairway is surrounded by thick vegetation that minimizes the impact of runoff.

Stairways: (left) The stairway angling back and forth on the slope, with landings, as well as ample vegetation, reduces erosion from runoff. Landings and two railings on the angled stairway make it more accessible.

Lifts: (right) Note how the lack of adequate vegetation to the side and below the base of the lift leads to severe erosion.

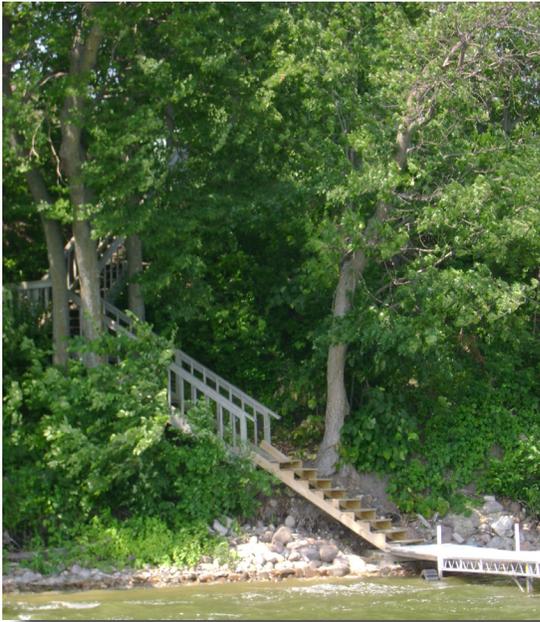


Bad Design

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Vegetation for Screening & Slope Protection

Native trees, shrubs, and groundcover serves many important functions. Along the shoreline, it acts as a buffer to protect water quality, preserve habitat for fish and wildlife, enhance property values, and contributes to the scenic beauty of riparian home sites. On steep slopes and bluffs, vegetation is the first line of defense for stabilizing fragile soils; minimizing erosion; and slowing storm water runoff near rivers, lakes, and wetlands.



Vegetation surrounding a stairway: Mature vegetation above and around this zig-zag stairway protects the slope from erosion.

If a stairway with landings or a lift system is needed, it usually means the slope is steep enough that it requires deep-rooted vegetation to prevent erosion. Trying to maintain turf grass on steep slopes by mowing is difficult at best, and grass will not adequately control erosion or filter and absorb storm water runoff. Where vegetation is lacking or must be removed for construction, native trees, shrubs, and groundcover should be planted to protect the soils around the structure and screen the structures from the water to restore the natural appearance of the property. Native vegetation is ideal because it is adapted to local soil and water conditions, generally has deep roots to stabilize the slope, and requires little maintenance once established.

Planting and maintaining native vegetation is less expensive and easier than restoring an eroded slope and replacing unstable stairways, landings, or lift systems. Staff from your local DNR or county soil and water conservation district can help you select plants suitable for your site conditions.

Mature vegetation: The planting sketch (right) for a slope near water displays woody species with long roots that stabilize the slope. The sketch includes cottonwoods, a boxelder, a sycamore, and three types of willows. Mature trees and grasses are aesthetically pleasing and the deep root systems stabilize the slope against erosion better than turf grass.



A good source for additional information on erosion control is Minnesota PCA's BMP manuals (www.pca.state.mn.us)

DNR Contact Information



DNR Ecological and Water Resources
website and a listing of Area Hydrologists:
<http://mndnr.gov/waters>

DNR Ecological and Water Resources
500 Lafayette Road, Box 32
St. Paul, MN 55155
(651) 259-5100

For information about aquatic plant management permits:
www.mndnr.gov/eco

DNR Information Center

Twin Cities: (651) 296-6157
Minnesota toll free: 1-888-646-6367
Telecommunication device for the deaf (TDD): (651) 296-5484
TDD toll free: 1-800-657-3929

This information is available in an alternative format on request.

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