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AZ Sheet Pile: A Brief History

The origin of sheet piling dates back more than one hundred years. Sheet piles first took shape as a straight web section. Flat sheets were used for cellular membrane gravity structures. Over time, these sections evolved into corrugated profiles, transitioning the essential pile characteristics from tension to a bending element. Thus, the U-pile was born for retaining wall applications.

The Evolution

The U-pile was a great innovation for steel producers and engineers. Piling applications expanded throughout the civil works industry as designers recognized the benefits. As with any new technology, however, new concerns emerged. Over decades of use, experts began to recognize a potential structural concern for the interlock connection being located about the centroid of the axis. This was thought to compromise the section physical properties. This proved valid through research and testing. Today, U-piles are still produced and in use, but crimping and or welding of the interlocks is required to assure the section properties are achieved.

The Next Generation

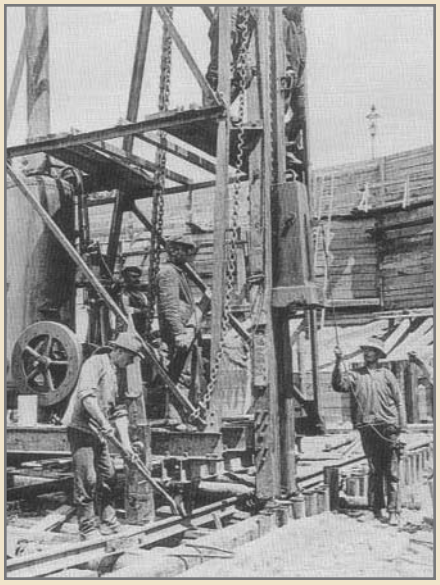
As industry experts refined the U-pile design, steel mills were striving to improve the sheet pile product market. Thus, the next generation of sheet piling, the Z-pile, was born. The essential differences between U-pile and Z-pile are in the transition of the interlocks and the continuous form of the web. By moving the interlocks symmetrically on both sides of the neutral axis, rotational issues of the U-pile were addressed. This and the continuous web design have had a positive influence on the calculation of the section modulus. The Z-pile design has other benefits as well:

- Excellent strength-to-weight ratio (section modulus/mass)
- Increased inertia to reduce deflection
- Larger width of section for higher installation performance

The Right Connection

The interlock connection is a crucial component of the sheet pile design. AZ sheet piles are engineered with a Larssen interlock, a four-point connection that offers superior performance and shear load transfer. For water retention applications, the Larssen interlock is unmatched. No other sheet pile connection can offer a theoretical watertight wall system. In addition, AZ sheet piles for permanent wall applications in below-grade parking garages offer the drivability, efficiency, and impermeability that no other material can. A standard non-structural seal weld is specified down the exposed length of the interlock. This serves as a “belts and suspenders” measure for the design life of the structure.

In addition to supplying AZ sheet pile, Skyline Steel’s engineering group can calculate conductivity and permeability values for your application.



One of the first recorded hot-rolled piling installations

AZ sheet piles from Skyline Steel have a unique interlock design for superior performance

The Larssen four-point connection on AZ sheet pile is the tightest interlock design available today