

Ecospan: General Information & Considerations

NBS is proud to offer the Ecospan Composite Floor System by Vulcraft as an option to traditional mezzanines.* This system is an innovative, simple, effective and economical method of providing all steel, open web structural components for elevated floor construction. Ecospan incorporates the benefit of open web configuration along with 48" to 72" joist spacing. This allows for maximum design and installation flexibility of HVAC and Electrical systems.

Here are a few considerations to make when requesting an Ecospan mezzanine in eQuote:

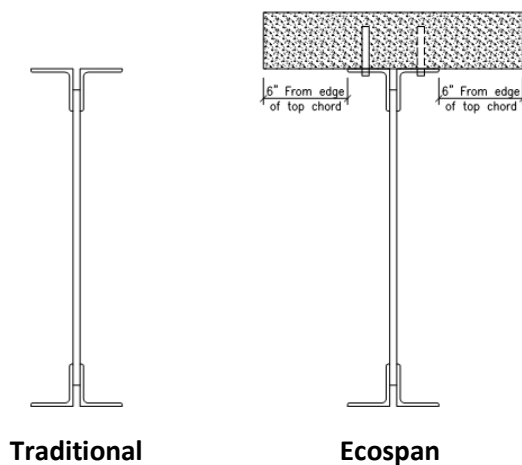
Traditional Mezzanine:

In a traditional mezzanine, the concrete directly loads the joists. The joists do not rely on the concrete at all for support.

Ecospan Mezzanine:

In an Ecospan mezzanine, the concrete directly loads the joists. The shear flex fastener press against the concrete. The joists rely on the concrete and Shear Flex fasteners to stiffen the system. This leads to a shallower, lighter, stronger system that is not as prone to deflection.

The cut sections below show the amount of material considered when designing the strength of the joist. Structural cut sections:



Shear Flex fasteners:

The key to Vulcraft's composite section design is the shear flex fastener. They grip the concrete, and allow the joist to use some of the concrete's strength to hold the joist in place. If some of the Shear Flex fasteners are not installed, the joist loses the strength of the concrete, and could become overstressed.

The fasteners need to be staggered along the top chord so that there are Shear Flex fasteners in each angle.

As you can see above, there is quite a bit of concrete considered in the design of the joist in an Ecospan mezzanine. There will need to be some consideration for the grade of concrete used. Unless specified, Nucor will assume 3500 psi for the concrete compressive strength.

FRAMED OPENINGS

Large, factory located openings:

Large openings are best communicated before the design of the project. If they do not fall between



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joists, Nucor can provide additional framing for these openings. If they do fall between joists, but do not meet the required side clear between the edge of the joist and the edge of concrete, Vulcraft can design the joist for this condition. If the opening puts special loads on the framing (i.e. a stairway), Nucor can design the supporting members for these loads.

Small, field located openings:

A small opening would be considered a core taken out of the slab for pipe work. (6" diameter)

For small openings, a few guidelines need to be followed:

1. The edge of the opening needs to be located a minimum 6" from the edge of the top chord of the joist.

If loads are applied to the mezzanine, then the following restrictions apply:

1. The framed opening cannot apply loading that exceeds the dead, collateral, and live load for that area of the mezzanine.
2. The framed opening cannot apply a concentrated load unless at a panel point.

**Ecospan Composite Floor System must be requested in eQuote.*