

# Shear Studs and COMPOSITE DECK

Composite deck and composite beams are natural partners in steel construction. Some of the frequently asked questions about the combination of shear studs and composite deck are the subject of this data sheet.

## Do shear studs affect fire ratings?

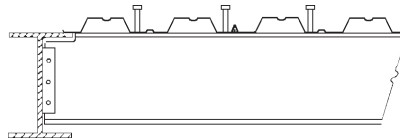
Most UL floor assembly fire ratings accept studs as an option.

## What is the size of the shear stud?

A 3/4" diameter stud is the maximum allowed by the AISC specifications - smaller sizes are rarely, if ever used. The stud must be at least 1 1/2" longer than the depth of the deck rib.

## Is the location of the stud within the deck rib important?

Yes - for the beams, but no for the deck. For best construction of composite beams place studs in the portion of the deck closest to the beam ends. The stud shear strength is affected by deck profile and stud location in the corrugation.



## Do shear studs act to fasten the deck?

Yes - shear studs can replace the welds used to attach the deck to the beams; however, if the studs are spaced greater than 12" o.c., welds (5/8" min.) should be used where the studs are missing. Studs are installed after floors are decked. Safety requires the SDI minimum of 5/8" welds to stabilize deck during the interim.

## Are shear studs required?

Shear studs are used to make steel beams composite. They are not necessary to make the deck composite but they enhance the load capacity of the composite slab - as an example 3" 20 gage Lok Floor (40 ksi yield) with a 5.5" 3 ksi normal weight concrete slab has the following factored LRFD nominal moments:

Stud Spacing on Beams	$\phi M_n$ , in.k.
1'	74.7
2'	71.2
3'	65.3
No studs	53.5

At times shear studs are not used to make beams composite but are present to transfer diaphragm shear loads into the frame. In this case the AISC spacing rules (for composite construction) do not apply.

## Does Canam sell studs?

No - we sell the deck that studs go through as they are welded to the structural steel.

## Can studs be welded through galvanizing?

Yes - G90 is the maximum recommended. Welding is also possible through cellular deck. Gage combinations greater than 18/18 require special care.



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