

# STEEL INTERCHANGE

*Steel Interchange* is an open forum for *Modern Steel Construction* readers to exchange useful and practical professional ideas and information on all phases of steel building and bridge construction. Opinions and suggestions are welcome on any subject covered in this magazine. If you have a question or problem that your fellow readers might help you to solve, please forward it to *Modern Steel Construction*. At the same time, feel free to respond to any of the questions that you have read here. Please send them to:

**Steel Interchange**  
**Modern Steel Construction**  
**One East Wacker Dr., Suite 3100**  
**Chicago, IL 60601-2001**

*The following responses from previous Steel Interchange columns have been received:*

**What type of framing is considered bracing the compression flange?**

The answer depends on how the member is loaded. If the member receives lateral load directly into its compression flange, such as a crane beam, it could be capped with a channel or other suitable means. Other examples, in building construction, of directly attached lateral support include formed metal deck, grating (welded in place) and shear connections in composite construction.

If the member receives no significant lateral load, and support is required primarily to keep the member in its intended plane, sub-framing can supply the needed support. The sub-framing need not attach directly to the compression flange. There are many examples of this in reliable service today. However, engineering judgement must be exercised. In the questioners example, the intended support was at mid-depth of a 10-in. deep beam, i.e. 5-in. from the compression flange and may not have provided the necessary lateral support to the flange because the resisting forces needed to travel through a relatively thin beam web. But a 40-in. beam, braced 5-in. from its compression flange might be okay. Everything is relative and must be judged accordingly. I am unaware of any literature that would assist in the judgement.

**David T. Ricker**  
Payson, AZ

**What is the most efficient and cost-effective way to connect a steel wide flange girder to a concrete column?**

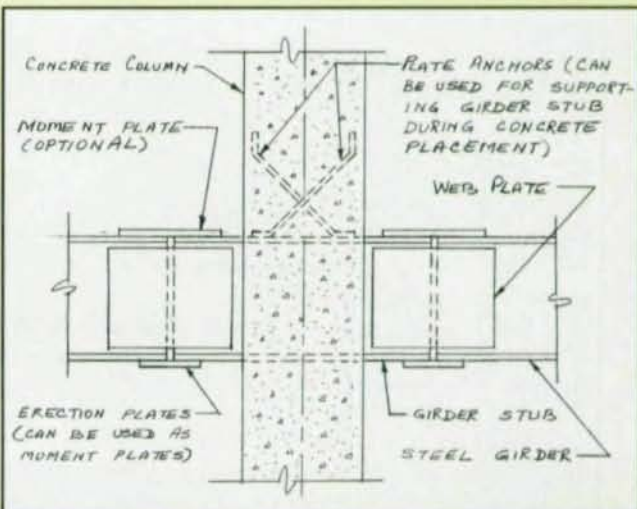
A conceptual scheme to connect a wide flange steel girder to a concrete column is presented in the Figure.

The proposed method of embedding a girder stub in the concrete column will require careful atten-

Answers and/or questions should be typewritten and double-spaced. Submittals that have been prepared by word-processing are appreciated on computer diskette (either as a Wordperfect file or in ASCII format).

The opinions expressed in *Steel Interchange* do not necessarily represent an official position of the American Institute of Steel Construction, Inc. and have not been reviewed. It is recognized that the design of structures is within the scope and expertise of a competent licensed structural engineer, architect or other licensed professional for the application of principals to a particular structure.

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tion during the concrete placement, but it will offer a convenient way of making the desired connection. The length of the girder stub will depend on the type of the connection required.

**Vijay P. Khasat, P.E.**  
Clinton, OH

**Can an existing steel beam and concrete slab be made to work together in composite action by adding studs to the steel through cored holes?**

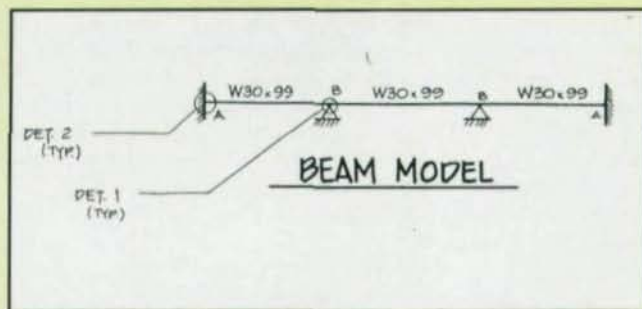
The answer given in the October 1994 *Steel Interchange* presents an alternative solution to composite action; many existing situations will not allow an increase the depth of the member because of interferences with existing ductwork or telephone and electrical conduits. Cutting off HVAC and communications for tenants below can be extremely expensive, if not unacceptable. The idea of making an existing slab and steel beam composite makes a lot of sense. The work would be done from above the beam, in the space being retrofit. Disruption to tenants below would be minimized.

I have considered the possibility of creating a

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composite section out of a non-composite system, although I have never had an opportunity to put it into practice. I would consider all loads presently on the beam to be acting on the bare steel and the proposed live load to be acting on the composite section. The slab should be cored to a diameter such that the stud welding gun will fit into the core. The studs should be tested with a hammer, then grouted in with an expansive grout with at least the strength of the slab. The in-place slab strength should be determined for use in the design.

**Joe DeReuil, P.E.**  
**Baskerville-Donovan, Inc.**  
**Pensacola, FL**



## NEW QUESTIONS

Listed below are questions that we would like the readers to answer or discuss.

If you have an answer or suggestion please send it to the Steel Interchange Editor, Modern Steel Construction, One East Wacker Dr., Suite 3100, Chicago, IL 60601-2001.

Questions and responses will be printed in future editions of Steel Interchange. Also, if you have a question or problem that readers might help solve, send these to the Steel Interchange Editor.

When making a wide flange section out of three plates, can you weld on only one side of the web?

Are there any impact loading requirements for forklifts in industrial applications?

What are the installation requirements for A307 bolts?

In what instances, if any, can the design of the composite beam shown in the figure at right, be treated as a continuous beam at point B and fixed at point A.

**Morgan Clack**  
**Scottsdale, AZ**

