

Learning the Art & Science of Steel Detailing

BY RON CUTHBERT

The next best thing to years of experience is a solid course that covers the fundamentals.

THINGS HAVE CHANGED in the steel detailing business, both technologically and economically; the information age has overtaken us. We now have people newly employed or people who want to enter the steel industry but find themselves in a conundrum between learning the trade and learning the technology. Many new to the industry seem to confuse the phrase “information technology is king” with the phrase “information is king.” Unfortunately, today’s new professionals’ depth of knowledge can often be somewhat limited, and further training should be considered.

In 2006, the AISC Committee on Steel Detailing began considering how this lack of expertise could be addressed effectively with regard to would-be and junior detailers. This resulted in the launch of the web-based, self-paced Structural Detailer Training course in 2008. The course focuses on the fundamentals of detailing and provides the specialized training that the industry lacked.

Nowhere can an aspiring steel detailer invest in a more comprehensive course. Upon completion, the student will have the knowledge equivalent to someone with years on the job and will lack only the corresponding practical experience.

Students who complete this course are able to contribute to their jobs with more understanding and interact much more effectively with coworkers and clients. Through the course’s association with AISC and the National Institute of Steel Detailing (NISD), the student is encouraged to become a member to facilitate professional affiliations within the industry. Participation in this course will serve as the first step toward empowering employees, making them trade savvy contributors and problem solvers and most of all, valuable contributors to their organizations.

Enrolling a student in this course relieves you, the employer, from the direct responsibility of training and passes on the learning responsibility to the learner. Whether you are running a business or are new to the steel industry and looking for detailing expertise, this course will ensure that learning happens. A linear model of training is presented via a combination of online material, texts, videos and animated presentations. Testing incorporated at reg-

ular intervals ensures mastery of all materials before the student is allowed to advance, while the instructor is only ever an email away. At the end of the course, the outcome is a well-prepared steel detailer.

For employers, it is better to train competent people already working within your company, rather than hire a new unknown. Use your own formula to amortize and justify the cost of training over a three-year period, considering hiring, software, training on that software and even desk space, and weigh that against the cost of the course. The return on investment becomes clear. Train them well, pay them well, treat them well, and this will bring rewards for all involved.

Read on to learn how three students rate the course. Stacey Bell Hill is a detailer and special projects coordinator with the Bell Steel Company, Pensacola, Fla. Stephen Ross Nichols, II works in the prefabrication department of Southeastern Construction and Maintenance, Lakeland, Fla. Rupal Shah is a structural steel detailer with Skanska Koch Inc., Carteret, N.J.

The screenshot shows a web browser window displaying a lesson titled "3 - Welding Positions". The page content includes a paragraph explaining the importance of welding position and a list of four basic positions: Flat, Horizontal, Vertical, and Overhead. Below the text are diagrams illustrating Groove Welds and Fillet Welds in two positions: (1) Flat Position and (2) Horizontal Position. The interface includes navigation buttons like Home, Com, Help, and Logout, and a footer indicating "Activity 1 of 1".

Annotations are used to highlight key elements of the graphical examples much like an instructor would in a live session.

What motivated you to take the Steel Detailer Training course?

Shah: I wanted to gain more knowledge about steel detailing and to advance my career. My company offered me incentives upon completing the course with a minimum grade.

Why did you choose to take this course as opposed to others, for example those offered at community colleges?

Hill: I liked the fact that it was a self-paced course and that the material covered was exceptionally detailed.

Nichols: The colleges I looked at offered detailing courses, none of which were strictly steel based, or even covered steel-related detailing.

What material did the course cover?

Nichols: The course covered an immense amount of material—contract documents, detailing processes, common connection details, basic detailing conventions, project set-up and control, erection drawings, shop drawings, and quality control.

Was the coursework difficult?

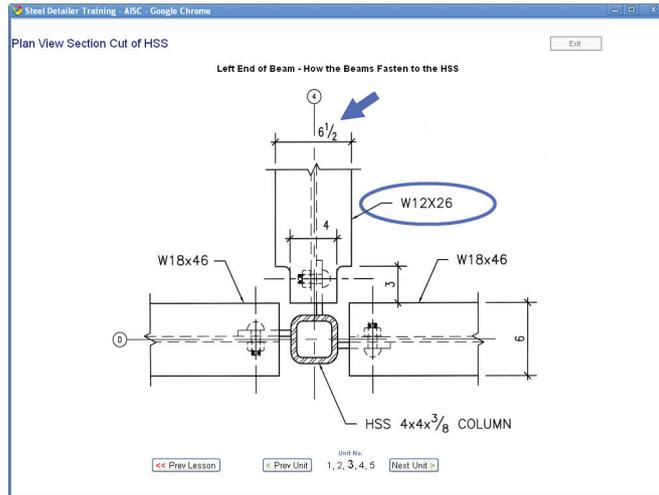
Hill: I would not say this course is necessarily difficult. It is vast amount of material that requires time and concentration and can become difficult if you do not fully read and understand the material before moving on to the next chapter.

Nichols: As long as you thoroughly read the *Detailing for Steel Construction* book no one should have trouble learning the basics of steel detailing. For the related math sections, taking notes is the key to comprehending the calculations involved.

What course content was particularly helpful?

Nichols: The video clips covering many aspects of steel detailing. Being able to actually see certain connections and column details was extremely helpful. The course book also included many examples of erection and design drawings, which proved helpful.

Shah: I found the whole course content helpful for a beginner to understand and learn more about steel detailing.



Multimedia examples, such as this video, are offered throughout the course work to help students link concepts with their real-world applications.

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Rupal Shah



Stacey Beth Hill



Stephen Ross Nichols, II

How were your skills tested?

Hill: After reading the detailing and math modules and watching videos on the material covered, there were tests with multiple choice, true/false, fill-in the blank and matching type questions. One supervised and timed final exam covering all the material was administered at the end of the course.

How long did it take to complete the course? What was it like to work in the self-paced environment?

Hill: I completed the course in about six months. Because I was working 40 hours a week and going to night school at the time I started, the self-paced environment worked well with my schedule. I never felt rushed and could take my time on each section making sure I understood the material before moving on.

Nichols: The course took me close to a year to complete. I worked hard to maintain a regular after work schedule, taking 30 minutes to an hour each weekday. Working in a self-paced environment was excellent. The instructors make it so by readily providing help when needed.

Shah: It took me almost one year to complete the course. Since it was a self-paced environment, I was able to immediately apply my new knowledge and experience at my job.

How did this detailer training compare to other training you have had?

Hill: This was the first detailer training I have taken. However, I can say the course was very thorough and what I learned has been extremely useful in my job.

Shah: I feel that the course as it was developed and structured provided me with a sound understanding of structural detailing basics in a more progressive means, as opposed to trying to develop skills through a “on the job” training.

Was the course a worthwhile investment of your time and money?

Hill: Yes. It was extremely beneficial to be able to go at my own pace because I could still work and go to school. Also, I feel I would have had to take three or four different courses to equal the amount of material I learned in just this one, thus saving time and money.

Nichols: Spending the time and money to understand the complete scope of my job was definitely worth it.

Shah: Yes. I gained knowledge about steel detailing. I used to work from other detailers’ sketches but now I am able to start detailing from scratch.

What elements were effective or ineffective about the web-based format? Was the technology easy to navigate?

Shah: I found the web-based format very effective. The overall presentation of this course was easy to navigate.

How has this course been beneficial to your career? How did your career or job function change during or after completing it?

Hill: This course taught me things that I would probably not have known without 5+ years of experience in steel detailing. I am more comfortable and confident with my daily work; therefore, I am not asking as many questions.

Has completing the course made you more productive in your daily work?

Hill: Yes, I spend a lot less time asking questions or having something explained to me, which in turn allows me to focus more on my work.

Nichols: With the knowledge I’ve gained from completing the course I’ve become much more industrious in my work. I take more pride in knowing that I can contribute more to my company with the knowledge and skills I have learned.

Shah: After taking this course I have a better understanding of what is required of me. It also has given me confidence in my drawing presentation, which has also resulted in fewer errors in my drawings.

How did this course improve your understanding of your day-to-day work?

Hill: I am able to read and comprehend documents and drawings better every day.

Nichols: Right from the beginning this course began to improve my understanding of my day-to-day work. I currently work in the prefabrication department analyzing prints for CAD programming. This course gave me the ability to actually understand exactly what I was looking at on each print, making it easier for me to complete my assignments.

Shah: This course improved my understanding of the different processes a shop drawing needs to take, from design, to approval and then all the processes of fabrication. The course will help me apply my knowledge toward completing projects accurately and on time.

If you are working as a detailer now, how much knowledge from the course were you able to immediately apply to your job?

Hill: I was able to apply about 70% of what I learned to detailing and the remaining 30% to everyday business in the steel industry.

Shah: I was able to apply knowledge from this course immediately on daily work.

How has your company benefited from you taking this course?

Hill: I am more knowledgeable about all the aspects of steel now and can use what I learned to help others. My manager feels comfortable giving me more responsibility.

What would you say in response to those who say it costs too much?

Hill: It is worth the cost because you would have to take three or four separate classes to cover all the material this one course covers. Also, the course goes into great detail about many subjects which are a must for a detailer.

How would you briefly summarize this course?

Hill: I have gained knowledge that would have taken me five years to learn as a detailer without training if I had not taken this course. I now feel comfortable navigating the AISC *Steel Construction Manual* since my understanding of the material has doubled.

Nichols: This course was a great way to learn the fundamentals of steel detailing. The depth of the material covered is immense.

Shah: I am pleased with the knowledge gained from taking this course. This material helped me be more complete on dealing with steel detailing in daily work-related issues. This course was a helpful means of learning basic skills that will benefit my employer and myself for years to come.

The Structural Detailer Training Course addresses the critical need of making true steel detailers. This course challenges students to think critically and leaves them a fundamental understanding of steel detailing principles. The motivated student will flourish and as an employer you’ll quickly know who your rising stars in your company will be.

The Structural Detailer Training course was developed and is administered by Dowco Educational Services Ltd., Surrey, British Columbia, Canada. To learn more about this course, the Connection Design or Beginner Tekla Training courses offered by Dowco, visit www.structuraldetailertraining.com. **MSC**

A New Detailing Reference Portal

A new channel on the AISC website offers a wealth of information specifically relevant to steel detailing. Brought online in June, the Steel Detailer Central was assembled by the AISC Committee on Steel Detailing.

Resources include:

- Links to key areas in the AISC Knowledge Base: FAQs of specific interest to detailers, as well as links to relevant NASCC session proceedings and articles in *MSC* and *EJ*.
- Links to the detailing community on SteelTools (www.steeltools.org).
- A growing list of other relevant industry links.

All materials currently presented on the channel are freely accessible to AISC members. Some items, such as a few specific article downloads, require a fee for non-members. To explore this resource, go to www.aisc.org and select the Steel Detailer Central channel.