

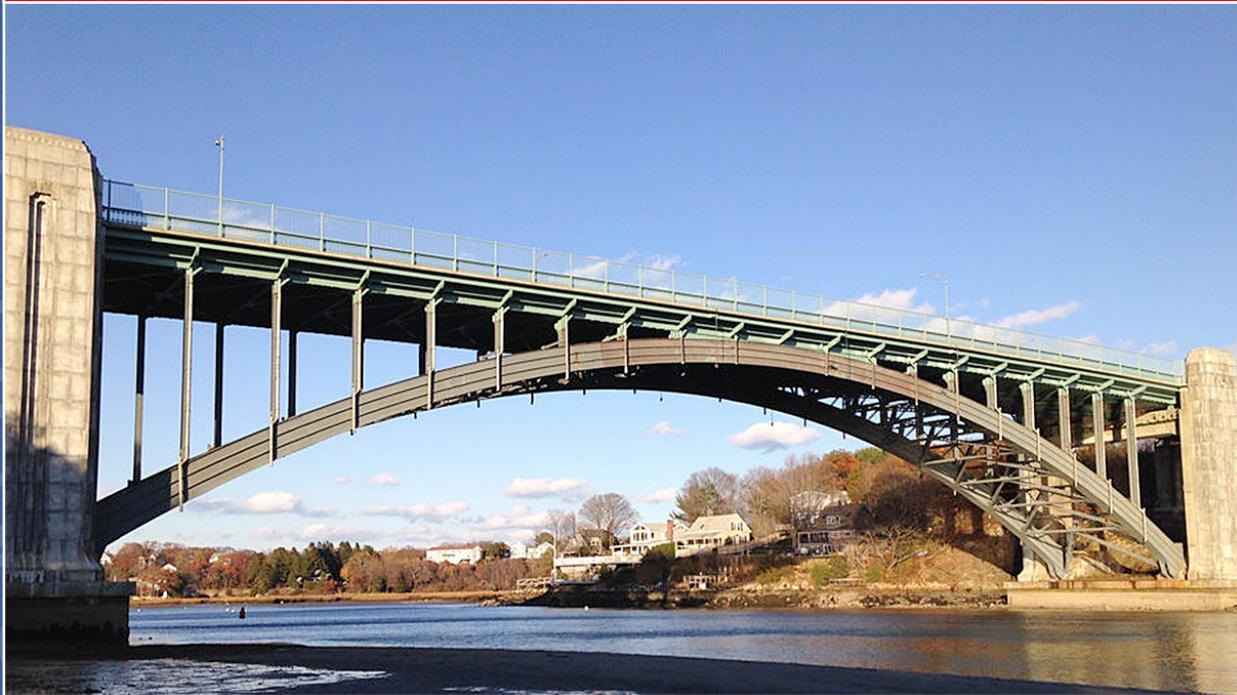
National Institute of Steel Detailing

# Connection

Winter 2020



## On the Job Site Annisquam River Bridge — Gloucester, MA

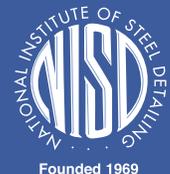


*IN MEMORIAM*  
*David Schulz & Thomas McCulloch*  
page 6

*On the Job Site -*  
*Annisquam River Bridge*  
pages 11-13

*Embracing Technology: The*  
*Balance Point*  
pages 15, 21, 25

*Absolutes? Absolutely!*  
pages 24 - 25



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**CONFERENCE ON STEEL DETAILING**  
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**National Institute of Steel Detailing, Inc.**  
2600 Kitty Hawk Rd., Suite 117  
Livermore, CA 94551  
925.294.9626, Fax 925.294.9621  
email: [nisd@sbcglobal.net](mailto:nisd@sbcglobal.net)

## President

Joel Hicks  
205.879.2036 x107  
[joel.hicks@ferrellengineering.com](mailto:joel.hicks@ferrellengineering.com)

## Vice President

Kerri Olsen  
360.426.4108  
[kerriolsen@steeladvice.com](mailto:kerriolsen@steeladvice.com)

## Secretary-Treasurer

David Merrifield  
214.794.8855  
[merrifield.d@gmail.com](mailto:merrifield.d@gmail.com)

## Board of Directors

John Linn  
925.443.3363  
[jla-jtl@pacbell.net](mailto:jla-jtl@pacbell.net)

Christine McCulloch  
613.969.2410  
[christine.mcculloch@pdcgroup.com](mailto:christine.mcculloch@pdcgroup.com)

Frank Mercurio, Jr.  
412.373.2640  
[frankmercuriojr@johnmetcalfe.net](mailto:frankmercuriojr@johnmetcalfe.net)

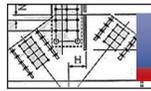
Russell Neal  
516.231.0600  
[russelln@revision-zero.com](mailto:russelln@revision-zero.com)

Michael Pelliccio  
203.272.2482  
[michael.pelliccio@snet.net](mailto:michael.pelliccio@snet.net)

Jim Truitt  
858.324.1903  
[jim@rockypointdetailing.com](mailto:jim@rockypointdetailing.com)

Ryan Wunderle  
330.241.4130  
[rwunderle@americansteeldetailing.com](mailto:rwunderle@americansteeldetailing.com)

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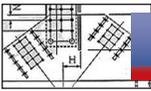
## INSIDE THIS ISSUE

From the Editor .....	4
From the President .....	5 & 9
IN MEMORIAM – David Schulz.....	6
IN MEMORIAM – Thomas McCulloch .....	6
What is the Difference Between 3D Steel Detailing Versus the Traditional 2D Process?.....	7, 20, 23
Individual Detailer Certification Application .....	8
New Members.....	9
Calendar.....	9
NISD Publications Order Form .....	10
On the Job Site	
Annisquam River Bridge – Gloucester, MA .....	11-13
Making a Good Map .....	14 & 17
Embracing Technology: The Balance Point.....	15, 21, 25
NISD Membership Application .....	16
About NISD Certification Programs.....	18
IDC Certification – Valuable to your Clients .....	19 & 22
Absolutes? Absolutely! .....	24 - 25
The Commentary.....	26
<b>Special Announcements</b>	
NISD's Website & Discussion Board.....	27

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**John Linn**  
**Editor**

As I am writing this message, it is now December 10th and we are all pleased and excited about the vaccines coming out against the COVID 19 virus. We pray that these vaccines will effectively rid us of this viral pandemic and let us get back to the good old normal life we used to live (and love?).

As usual we have another excellent president's message in this issue from our leader Joel Hicks who has set the record as the longest serving president in NISD history. (Seven years). Our constitution allows officer terms to be no more than four years. But the president previous to Joel Hicks was Mike Bowers, who unfortunately had suffered a serious car accident and had to resign his office. Joel came to the rescue. He stepped in to complete Mike's term and then some. I have a problem now trying to find a 7-year plaque to award to him, as they are very hard to find (just kidding).

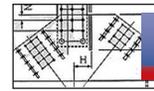
This issue features many interesting articles which were submitted by two regular Connection contributors, namely Vice President Kerri Olsen and the major author of the Industry Standard, Greg Brawley.

We are also very pleased to have a new Connection contributor, Douglas Weaver. He is an NISD member located in Granville, Ohio. He is also an NISD-certified Senior Bridge Detailer.

Douglas submitted an article about his experience in taking the IDC test that he recently completed. I was quite impressed by the enthusiastic appreciation he had for the many benefits of taking the test. One of the benefits that Doug found out about his IDC test was that it made it better for his fabricator clients to be able to show that they have an NISD-certified detailer when filling out their AISC audit application.

Thank you to all of our contributors!

- *John Linn*

**Joel Hicks**  
*President*

Hello Everyone,

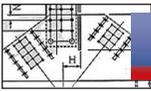
As I write this message, Christmas is only a few days away. Time truly does seemingly speed up as we grow older. It's hard to believe 2020 is almost over. Most of us will be glad to see it go and hope for a reboot for the coming year. This strange year has been so different for all of us than any time before in our lives. I hope that you have been and continue to be safe and well. I think most of our lives have been personally touched by COVID-19, if not by the infection and possibly the loss of a close friend or family member, of at least an acquaintance. With the distribution of a vaccine at hand, hopefully, as someone said, "This may not be the beginning of the end, but at least it's the end of the beginning."

It has been a trying time for all of us, some more than others, but I think if we look hard enough, we can find that we were in some way blessed this year as well. I know that I have been, and I am truly thankful for the opportunities that I have had to be able to work remotely from home. To learn some new things, to learn some new technology and some new ways of doing old things. In some ways that is what steel detailing has been about. Learning new ways to do old things. When I think about all the advances made in my career, it is pretty amazing. So, my hope is that you, through this time, will be able to learn something new, improve your profession, and perhaps help someone else along the way.

We had hoped to have a detailing track at the 2020 AISC's North American Steel Construction Conference in Atlanta, and that having been canceled, in 2021 in Louisville. However, AISC has just decided not to have the in-person conference this coming year, but to once again have a virtual conference. We will be presenting several detailing sessions as a part of the virtual conference this year. At this time, we are not sure exactly how many, but we will probably have somewhere between 5 to 10 sessions. I want to take this time to invite you to take advantage of this educational opportunity. Perhaps you have never been to an NASCC. This is your opportunity to experience a little of it, and more importantly, to improve your knowledge of steel detailing and construction. If it's like 2020 it will be free of charge. If you have employees, let them join the sessions and learn new things and even ask questions of the presenters.

Continued on page 9





## IN MEMORIAM

### David Schulz



We regret to report that our friend David Schulz passed away unexpectedly at his home in Sanford, NC. at the age of 66. David was the founder of Schulz Iron Works in Raleigh, NC, past president of SEAA, and head of their Safety and Golf Tournament Committees. He was an avid safety and certification proponent, and a co-author of the NISD/SEAA Erector Safety Manual. A strong advocate of NISD, he quietly supported many of our activities, was an Associate Member of NISD, and sponsored several of our events. He will be greatly missed in the detailing and erection communities.

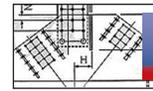
### Thomas McCulloch



Thomas McCulloch passed away peacefully on Sunday January 10, 2021 surrounded virtually by his loving family. It was only in the final months of his life that he suffered from declining health. He was blessed to have lived a full and joyous life enriched by time spent with his family and many friends. He often declared that his life's greatest work was the LOVE of FAMILY.

Thomas was born in Motherwell, Scotland on 25 March 1936 and moved to Canada in 1959. He eventually settled in Trenton, Ontario, his home and community for more than 50 years. He began working at Central Bridge as a structural draftsman and eventually started his own business, Loch & Associates. Tom treated all his employees as an extension of his family and generously provided opportunities for colleagues to learn the skills of his trade.

Our deepest sympathies go out to Tom's daughter Christine, who worked with her father at Loch & Associates for many years until he retired. She is presently a member of the NISD Board of Directors.



# What is the Difference Between 3D Steel Detailing Versus the Traditional 2D Process?

*Re-publishing with permission from DBM Vircon*



Traditionally, steel detailers, fabricators and erectors used 2D drawings during the planning and construction phases of a project. While AutoCAD 2D drawings are able to communicate a vast amount of information, 3D steel detailing has revolutionized the construction modeling process. It enables previously unattainable levels of accuracy, detail and visualization, which are becoming more and more vital as the fabrication industry adopts advanced technology such as automation and other digital solutions.

BrIM and BIM modeling software like Tekla has transformed the way steel is designed, detailed, and fabricated, particularly for large-scale civil, commercial and industrial projects and bridges. With more projects delivered through a design-build construction methodology—particularly large-scale and increasingly complex projects—high-quality fabrication simply would not be possible using 2D fabrication drawings. Delivery of these huge, technically difficult projects is only possible with ever-evolving 3D models and software.

The transition towards 3D steel detailing offers engineers, fabricators and asset owners many benefits. This helps ensure the integrity of structural steel and increases efficiency throughout all stages of the project's lifecycle, from planning and fabrication through to construction and maintenance.

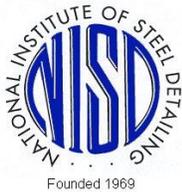
## The Benefits of 3D Steel Detailing

### Interactive Development to Reduce Mistakes

BrIM and BIM modeling help to streamline the design process by checking fit ups and identifying clashes in real time. Additionally, it enables the resolution of design discrepancies, geometry and intent early on in the process. Mistakes are mitigated before fabrication and erection, reducing the need for additional and unnecessary labor and material costs.

Continued on page 20





# National Institute of Steel Detailing

## Application for Individual Detailer Certification

**Classification:**

- Senior Detailer – Class I: Minimum 10 years experience including checking
- Detailer – Class II: Minimum 5 years experience

**Disciplines:**

- Structural/Miscellaneous
- Bridge

**Submit:**

- Experience history, and
  - Either a letter of recommendation from a steel fabricator, a Certified Class I detailer, or a NISD National Director.
- When your application is processed, you will receive a sample test and a list of publications to study for the test.*

**IDC Test Fee Schedule**

At time of application + 10 days prior to test + virtual proctor fee

NISD N. American Members -	\$100.00	+	\$200.00	+	\$15.00
Non-Members in N. America -	\$200.00	+	\$300.00	+	\$15.00
Overseas Members -	\$150.00	+	\$200.00	+	\$15.00
Non-Members Overseas -	\$250.00	+	\$300.00	+	\$15.00

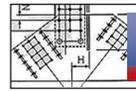
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**Re-certification is required every 3 years**



MEMBERS AT LARGE

IMMEC, INC.
P.O. Box 1066
Social Circle, GA 30025
phone: (770) 464-1001
bill@immecinc.com
www.immec.com
William Thornton

T & S STEEL DETAILING, LLC
1210 Hamblen Rd., Suite 875
Kingwood, TX 77336
phone: (281) 318-7032
randall@t-ssteeldetailing.com
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Randall Brandon

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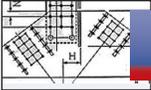
GARY HUTCHINGS
186 Colebrook Road
Gansevoort, NY 12831
phone: (401) 787-2453
garyandsherry99@gmail.com

DAN PERRY
6 Chestnut St.
Amesbury, MA 01913
phone: (978) 361-5986
dperry@draftworksdetailing.com

OVERSEAS

RA-TECH ENGINEERING LLP
402B, Universal Business Park,
Chandivali Farm Rd, Andheri East
Mumbai, Maharashtra 400 072
India
phone: +91-22-46121100
reji@ratechengineering.com
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7No., Mahajati 1st Bye Lane, Nalta,
Dum Dum Cantt.
Kolkata, West Bengal 700028
India
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www.structive.in
Suman Das



CALENDAR

Events are great ways to stay current on trends, and network with others.
Join us for any of these events in 2021!

Table with 2 columns: Date and Event Name. Rows include: April 12-13, 2021 - NISD 53rd Annual Conference; April 14-16, 2021 - NASCC: The Virtual Steel Conference; April 28-30, 2021 - SEAA Convention & Trade Show - Orlando, FL

From the President

Continued from page 5

We at the NISD are still working to improve our programs and educational materials. We are working with new technology to allow detailers to be able to take the IDC (Individual Detailer Certification) test remotely. This should open the opportunity for IDC to many more detailers. If you do not currently hold an IDC, then I would urge you to check with NISD head office now. We are also working on detailer training materials and lots of other things.

As I always do, I also want to ask you to get involved. We would love to have you become a committee member, contributor or officer on the board.

Merry Christmas & Happy New Year to all, and may God bless you!

Sincerely,
Joel Hicks



# National Institute of Steel Detailing, Inc. Publications Order Form

PRODUCT		QTY	Amount
<b>Guidelines for Successful Presentation of Steel Design Documents</b> ...the Steel Detailer's Point of View	No charge		
<b>Certification Programs for Detailing Companies &amp; Individual Detailers</b>	No charge		

[Member-At-Large, Associate & Overseas **new** members receive 1 copy free of the following manuals & CD]

PRODUCT	Member Price	Non-member Price	QTY	Amount
<b>NISD Industry Standard Manual</b>	\$30.00	\$45.00		
<b>Beam Cards [CD only]</b>	\$15.00	\$20.00		
<b>Hot Dip Galvanizing</b> "What We Need To Know"	\$20.00	\$25.00		
<b>Painting And Fireproofing</b> "From a Detailer's Perspective"	\$20.00	\$25.00		
<b>Detailing Guide for Erector's Safety &amp; Efficiency</b> [Third Edition 2019]	\$50.00	\$75.00		
<b>Shipping &amp; Handling Canada - Central or South America</b>		\$40.00		
<b>Shipping &amp; Handling Overseas</b>		\$75.00		
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Rev. 2-2020

# On the Job Site — Annisquam River Bridge — Gloucester, MA

WEAVER BRIDGE CORPORATION



## Annisquam River Bridge

by Douglas Weaver

I like to consider myself a “generational thinker.” I want to believe the things I do, the decisions I make, and the philosophy I embrace, are ones that take into consideration the future well-being of my kids, grandchildren, and all other family members I will never know. I want my actions today to play a part in the possibility of them having a better future than what I have experienced. There may be a lack of that in the world today, and I am probably in the minority, but it is who I am. It is probably one of the reasons I have such a passion for my work. To be involved in creating a bridge, or any other structure that will be in service to our society long after I am dead and gone, is a great pleasure and truly one of my passions.

However, there are also times when it is equally rewarding to look the other way; to look down the “timeline” in the other direction. Being involved in bridge “rehab” projects gives me the opportunity to look backwards, and to see how things were done by a society, and family members, again, who I will never know. Such a project was a bridge rehab that we worked on in Gloucester, Massachusetts a few years back.

The A. Piatt Andrew Bridge located over the Annisquam River (also known as the Annisquam River Bridge) serves as the primary gateway from Gloucester and Rockport to the mainland. Originally completed in 1950, it had seen its fair share of wear and tear, but mostly climate damage, and upon inspection by the Massachusetts Department of Transportation (MassDOT) it was determined that the majority of the steel bracing needed to be replaced. It is important to point out that the rehab work was not simply “replace in kind,” but rather a different type of bracing, but still utilizing existing hole patterns and work points.

Cianbro out of Pittsfield, Maine was given the contract and utilized their Baltimore fabrication facility to fabricate the replacement members. Cianbro hired Weaver Bridge Corporation (Granville, OH) to provide the shop drawings and supplied us with a complete set of pre-1950 shop drawings to work with. To say this was a complicated project would be an understatement, but when I sat down to review the existing shop drawings, I realized that the challenge ahead of us would also represent one of the most rewarding projects in our repertoire. The creation of our *strategy and overall plan* was next, and this is my forte. The braces being replaced were geometrically a nightmare right from the start. The arch of this bridge was essentially a non-defined, parabolic curve. This meant that I could not do much with “calculations,” and that everything we needed dimensionally would have to come from an accurate model. So that was

Continued on page 12

# On the Job Site — Annisquam River Bridge — Gloucester, MA

WEAVER BRIDGE CORPORATION

## Annisquam River Bridge

Continued from page 11

strike 1. The vertical bracing (a modified “chevron” type bracing system) that came from the bridge deck down to this parabolic arch box truss on either side of the bridge was also laying over, as if radially, and changing to a different bevel at each vertical. Strike 2. The compound skewed connections at the parabolic box trusses at the bottom and existing bridge deck at the deck topped it off. Almost strike 3, but we checked our swing. We were not striking out on this one; we were going to hit it out of the park.

Our methodology was to take the existing shop drawings and re-create a 3D model using Autodesk Advance Steel. The existing shop drawings were actually VERY complete and allowed us to develop this model to near 100% completion. The next challenge was to identify if, after 65 years of life, the actual bridge was close to what the original shop drawings indicated. Cianbro hired a firm, Sebago Technics, to go onsite and create a 3D point cloud of the existing structure, which we could compare to our Advance Steel model. The amount of processing time to “stitch” and process this model on our computers was beyond our limits (point clouds are not only huge in data size, but the amount of time required to process the model was limiting), so we ended up sending our model to Sebago Technics and determined a set of “controls” that they would compare from our model to their point cloud. These controls included: work line lengths along brace members (taken from something tangible that both models could measure to), existing gusset plate dimensions, bend and skew angles, etc. Many times, we ended up using “bolt heads” as measuring points. This would give us the actual comparison (apples to apples) to determine if we were good to proceed with shop drawings using our model.

After a few weeks, they supplied reports back to us that all our “control” points in our model were within 1/8” to 1/4” of the point cloud, telling us we were good to use our model to create the details. This told me 2 things, 1) that our model was accurate to the shop drawings (phew), and 2) how impressed I was that after 65 years of weather and use in the Northeast, this bridge was still this accurate to the original designs!!

Shop drawings, as well as all NC files, were started after this process, and soon after fabrication began. I flew to Baltimore and we had a meeting with the shop personnel before any fab work started indicating all of the critical “hold points” and set up a system of checks along the way so as to not get too far down the rabbit hole if



Hoisting LB truss section into place

anything seemed out of sorts. I think the painting ended up being the most difficult part of the fabrication for this project. 3-coat systems make just about everyone cringe! Shop assemblies and loading considerations were also taken into account, as most of the steel was going to be lifted from a barge on the river, and we needed to create as little conflict as possible for the contractor and iron workers. It is critical for detailers to think about the iron workers, hanging 90 or 100 feet over a river. Our smallest details and decisions have a huge impact on their safety.

After all fabrication was complete, and steel had begun shipping, I remember calling at least once a week to find out if the field was having any issues. I was continuously told, “no news is good news” and to quit calling or karma would begin to take over and we WOULD have some issues!

Cut to end of story: all the steel was erected and there was not a single issue that the field encountered regarding fit, delivery, or execution. It was a complicated project, but one that ended up as one of our most rewarding. It was a testament to the time we took up front: planning the action, determining the players and most important, the execution.

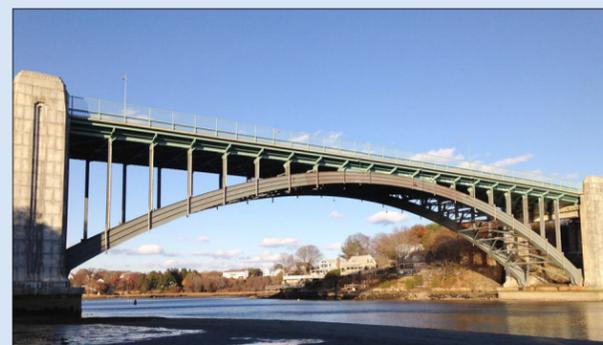
My family history gave me the opportunity to be involved in this industry, and I have the fortune of being able to use the high tech tools of point clouds and 3D modeling today, but still remember (by hands-on experience) the process of taping a blank 24 x 36 sheet of vellum to my drawing board, getting my lead holders and box of lead ready, and to start creating my masterpiece for the day. I think that is why I genuinely enjoyed being able to use the 1950 shop drawings - because I knew what it was like to create them. (However, it was not in the ‘50s that I did MY work, but still...).

So as much as I enjoy working on the new stuff and thinking about the impact and quality of life it will bring to generations after I am gone, I also love working on the projects that let me look back in time. It makes me almost feel like I am working *with* the engineers and detailers from 70 to 80 years ago.

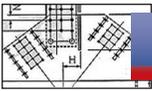
And on this project, I truly had the opportunity to do both.



PP5 with Pin Braces



Annisquam River Bridge



# Making a Good Map

by Kerri Olsen



Today my work consists of assisting steel fabricators in a project manager role. I review the shop detail and erection drawings, track the approval submittals and returns, generate and manage RFIs and Change Orders, and provide weekly updates on our progress. I help the steel fabricator with getting the detailing work done as timely as possible.

As the shop detail and erection drawings come across my desk, I perform a general review. During this review I gently check that the submittal drawing has all that is needed. I am not spending my time doing a formal check; this service is part of the steel detailer's deliverables.

More often than not I am stunned by the missing and incorrect information on the shop detail and erection drawings being provided. I always notice when what is considered basic elements of good detailing practice is missed, both by certified and uncertified steel detailers with which I work. Often, approval submittal drawings have many clouded requests for dimension and elevation verifications. Questions on the shop detail drawings for fastener types and locations. General stuff that RFIs are supposed to be made of.

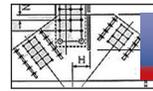
Pet peeves of mine are the lack of title block information - no E drawing reference on the shops, no revision number or the wrong revision number provided. These simple missed things will prevent approval submittals or shop release, but more disturbing is that this shows a blatant lack of checking.

I have had several very sad detailing experiences this past year. In a way, I am a bit glad for it despite the consequences because I have learned so much more of what the steel fabricators experience, but are unable to explain.

A stunner for me was to learn that placing contract drawing references on the shop detail and erection drawings is a seldom utilized practice - unless specifically requested by the fabricator. This lack of reference was explained to me by the responsible detailer as unnecessary due to the increasing use of BIM modeling. I must have missed the memo on this one, I thought. I accepted this argument and proceeded to submit the approval, despite my reservations.

My client had missed the memo too, as their complaint to me upon submittal was one of inadequate detailing practice, stating that our shop detail and erection drawings were unworkable for anyone in the team. Further, my client refused to send any approval submittals to the design team until the drawings were corrected. I was then left to argue with my detailer, who tried to refuse to do the work and threatened to back charge me as this was 'extra.' In the end I did win, but my submittal was late. Now I was in trouble twice!

Continued on page 17



# EMBRACING TECHNOLOGY: THE BALANCE POINT

by Greg Brawley



***Disclaimer: Greg Brawley is a long-time member, supporter and advocate of the NISD.***

***The opinions, observations and views in this article are solely his own and do not reflect any policy, view or opinion of his employer DBM Vircon.***

For some years, I have looked back in wonderment at all the changes and innovations that have driven our industry and sometimes I am amazed by the current technological progress, and awed by the ingenious and creative business models that have evolved from the ever emergent steel detailing industry. I take this opportunity to reflect on where we started, and consider some of the lessons learned that brought us to where we are today. Because I am an old guy, I may indeed begin with a little reminiscing. Bear with me please, because there is a point!

Since the beginning of my “time,” there has been a steady flow of technological “leaps,” or comparatively speaking, mere stumbling, in the development of tools applied to the production of shop and erection drawings. Some of these tools, rather than being developed for our craft, were actually appropriated by us to be configured for our uses. When I began my career in 1967, in the drafting room of a large fabricator, the “state of the art” for geometry, was either Smoley’s Four Combined Tables (Logarithms in Imperial Measurement) or a fearsome electro-mechanical device called a computator. There was also a desktop electro-mechanical adding machine that could add and subtract in Imperial measurement. Ten Key desktop adding machines required conversion of everything into decimals before being of any use. However, along about that time, electronic calculators appeared on the scene. They were expensive and somewhat fragile, yet, for a little more than a senior detailer’s week of pay, the computing power was magnified many times over with a single battery powered device! And this was just the beginning. Very soon we were in the midst of a developing computer industry with programmable hand-held and “real” computers. How our industry embraced these innovations and applied them to our work became increasingly important as the whole construction industry pressed to overhaul the project delivery systems and accelerate productivity.

But how far should we go? How fast should we embrace this new technology? How much should we invest? For the most part, the steel detailing industry barely existed as we stumbled along for a couple of decades until applications, internet line speeds and hardware became readily accessible for the traditional bootstrap finances of the average firm. With respect to these tools, we were adapting them to our service, not inventing them.

Continued on page 21



# National Institute of Steel Detailing

## Membership Application

The annual membership cycle runs from June 1<sup>st</sup> through May 31<sup>st</sup>

**Member-At-Large Membership** is open to any company that conducts its office in the Americas, and is regularly engaged in, the business of steel detailing. Such office shall have been conducted for a minimum period of one year. A member in this category has all privileges and benefits of membership including voting and holding office.

**Fee Schedule:** **\$290** for companies with a gross annual income of less than \$250,000 [June-September]  
Prorated dues when joining October-February **\$200** March to May 31 of the following year (15 months) **\$290**  
**\$450** for companies with a gross annual income greater than \$250,000 [June-September]  
Prorated dues when joining October-February **\$305** March to May 31 of the following year (15 months) **\$450**

**Associate Membership** is open to any company, national or regional trade or professional association interested in enhancing the detailing profession or the activities of the NISD, whose primary business is not in structural steel detailing. This category includes all privileges and benefits of membership except those of voting and holding office.

**Fee Schedule:** Annual membership fee is **\$360** [June-September]  
Prorated dues when joining October-February **\$245** March to May 31 of the following year (15 months) **\$360**

**Individual Associate Membership** is open to a person employed as a steel detailer or other person interested in the future of the steel detailing industry but who does not fall in the category of Regular or Associate membership. This category has limited privileges and benefits of membership, which precludes them from voting and holding office.

**Fee Schedule:** Annual membership fee is **\$65** Annual dues of \$65 are renewable on June 1<sup>st</sup>

**Overseas Membership** is open to any company that conducts a regular office for, and is regularly engaged in, the business of steel detailing outside the Americas. Such office shall have been conducted for a minimum period of one year. Members in this category may vote (no proxy votes), but they may not hold national office.

**Fee Schedule:** Annual membership fee is **\$450** [June-September]  
Prorated dues when joining October-February **\$305** March to May 31 of the following year (15 months) **\$450**

**Member Emeritus Membership** is open to any individual who was a former regular member of the NISD and has retired from the competitive field, but wishes to remain active in the NISD. Members in this category may not hold office.

**Fee Schedule:** Annual membership fee is **\$100** Annual dues of \$100 are renewable on June 1<sup>st</sup>

The undersigned hereby applies for membership in the National Institute of Steel Detailing, Inc.

Name \_\_\_\_\_ Title \_\_\_\_\_  
Company Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State/Province \_\_\_\_\_ Zip/Postal Code \_\_\_\_\_  
Country \_\_\_\_\_  
Telephone \_\_\_\_\_ Fax \_\_\_\_\_  
E-mail \_\_\_\_\_ Web site \_\_\_\_\_

For more information: Visit our website at [www.nisd.org](http://www.nisd.org) or send us an email at [nisd@sbcglobal.net](mailto:nisd@sbcglobal.net)

### Payment in US Dollars

### Method of Payment

Membership Fee: US\$ \_\_\_\_\_

Postage/handling, add:  
\$40 for Canada \$ \_\_\_\_\_  
Central & South America

\$75 for International \$ \_\_\_\_\_

**TOTAL ENCLOSED US\$ \_\_\_\_\_**

Check, payable to: **NISD, Inc.**  
2600 Kitty Hawk Rd. Ste. 117  
Livermore, CA 94551

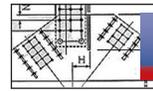


MasterCard  Visa  AmEx

Number: \_\_\_\_\_ Expiration Date: \_\_\_\_\_

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Rev. 11-2019



# Making a Good Map

*Continued from page 14*

Another case was one for incorrectly detailed header opening channels. The contract drawing detail showed holes for expansion anchors needed at 1'-0", staggered, and the detail was cut to only show the channel end. These parts were detailed with two holes at one end, staggered, and no other holes at the length of the piece. A serious lack of detailing experience was exposed here.

I had to argue for three days and used 18 emails with a detailer who refused to put the weld symbols on the shop detail drawing. They thought that welding could be a 'typical weld note' (citing the AISC code of Standard Practice) on the shop drawing and the fabricator could figure it out from there. I finally won by explaining that payment would only be provided if shop drawings met the fabricator's standard.

I also had occasion to explain to my detailer that, when doing stairs and rail, the pitch of the railing had to match the stair. This revelation required several emails and an online meeting to get squared away.

There have been many other occurrences of E drawings with incomplete placement plans and lack of section cuts, shop drawings with incorrect quantities or without needed fasteners listed in the bill of materials.

There is more to these stories, but I am more interested in preventing these issues than dwelling on them. Many of you reading this know exactly the root of these problems. My list of good detailers is growing very short.

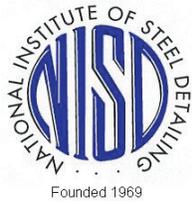
Add to this comedy of errors what happens when an inexperienced steel fabricator project manager allows problems like these to go uncorrected. Maybe the design team or the client might catch and correct the issues. Time is still lost, the schedule impacted. In the odd occurrence, bad drawings make it to the shop, and incorrect steel gets delivered to the job.

Some steel fabricators have become complacent – just part of the job, they say. If I was heading up a firm that made these mistakes and tried to justify them, I would not get a second job, nor a good reference from anyone I had worked for.

"It's all about making a good map for the client." Offered as an explanation for why we provide the references to the contract drawings on our shop detail and erection drawings, these are the most remembered words spoken to me by my detailing mentor of so very many years ago. This simple yet profound statement helped guide me through those learning years and continues to do so today.

Both disturbing and enlightening, I have now come to a level of understanding as to why design teams are reluctant to invite steel detailing into their realm. The issues described here are commonplace. Failure to manage and correct these issues is more than problematic as it infiltrates the very goal of the Industry Standard, the IDC and QP programs, which are designed to promote and maintain excellence in steel detailing and steel detailing business management.

I find myself, now more than ever before, driven to correcting this problem! We will see what the new year brings as I do still have hope for the future! Merry Christmas and Happy New Year to ALL!



# National Institute of Steel Detailing

## About NISD Certification Programs

### Certificate of Development in BIM

Building Information Modeling (BIM):

The Certificate of Development-Building Information Modeling is an assessment-based certificate credential that establishes the knowledge and understanding of concepts to BIM and detailing practices that is important for all BIM teams to know. CD-BIM has been designed to prepare entry level technicians as well as highly experienced construction professionals in BIM with a common understanding of core concepts. Some of these topics include who the stake holders are in the process, what the BIM Execution Plan is, how coordination meetings function, and many other key concepts.

### Individual Detailer Certification Program

The National Institute of Steel Detailing created the Individual Detailer Certification Program (IDC) in response to the steel industry's need to determine the skill level of individuals performing steel detailing services. Industry professionals are in search of talented detailers who have the knowledge and capability to produce quality shop drawings within the framework of various codes, specifications and contract documents.

The IDC program examines and evaluates an individual's detailing knowledge and issues a certificate attesting to that level of knowledge. NISD has established this program as an industry-wide professional standard of practice in conjunction with its Quality Procedures Certification Program.

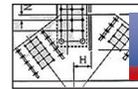
### Quality Procedures Program

The NISD Quality Procedures Program is aimed at helping companies define their commitment to quality through management planning. The program provides a guide and a checklist to help your team define such aspects as management goals and responsibilities, office procedures, training and corrective actions. This program, while targeting detailing firms, has its roots in solid business planning that any company providing similar services could find to be beneficial. Whether you're providing structural steel, miscellaneous metals, bridges or design services, you will find it helpful in guiding your company to a successful and profitable project.

**Because NISD fosters a professional approach to business and advocates improved quality through member networking, education, and certification, our members are highly regarded by fabricators, architects, engineers and contractors.**

**For more information about these programs:**

Visit our website at [www.nisd.org](http://www.nisd.org) or send us an e-mail at [nisd@sbcglobal.net](mailto:nisd@sbcglobal.net)



# IDC Certification - Valuable to your Clients

by Douglas Weaver



Looking back on when I finally decided to take the NISD certification, it was with some trepidation. I knew it would be good for my business as well as a nice line through one of the many items on my personal bucket list. I was nervous, as I knew it would be a tough test, and I wondered if I had what it took. I asked myself, "Doug, you're a smart guy, you've been doing this since you were a kid, so what's with the nerves??"

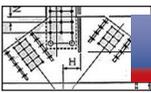
After a while of meditating on this, I think I figured out what was contributing to at least a portion of the nerves. Multiple generations of my family have history in the steel industry. Everything from production, transportation, fabrication and engineering/detailing, with deep roots in Western PA. "What if I let them down? It feels like they are watching." Deep inside, I think I worried most about that.

I think fear keeps a lot of us from pursuing things that could be such a milestone in our lives. I did not want to get caught up in that, and be one that let fear keep me away, so I signed up, and away I went. (To start studying like mad!!!). NISD does a genuinely thorough job of helping you get prepared for this certification. They provide study materials, sample questions, and allow you to have resources available during the test. Albeit limited resources. The local library (Village of Granville, OH) acted as my proctor, and they absolutely treated me like royalty. After settling into the area where I would be planted for the next 3 to 4 hours, there were some special needs kids who came in and set up camp right beside me, with some of the most beautiful, curious faces I can remember. "What is that man working on?" I heard one say, as one by one, they would come up behind me to see me working on my computer and calculator. The librarian was amazing and was politely re-directing these kids, as she gave me a little small office for a few minutes (much needed) break. But I loved the experience. And I loved the curiosity of these kids. But I had a test to take!

I ended up passing the test, which was an amazing sense of relief and accomplishment. I opted to go for the Senior Level Bridge Certification. This is the top-notch test which requires 10 years of experience, a letter of recommendation from an AISC fabricator, and it holds you to a higher percentage score to pass. Immediately, upon finding out I passed the test, I went right down to the library, bought the staff a dozen donuts and some coffees, and made a financial contribution to their facility. They needed to be a part of this victory.

I never realized how valuable this would be until my clients started requesting copies of my certification for their own AISC audits. I knew that the "detailing component" played an important role in their AISC audits, and me having this certification made this part of their audit a bit easier for them. I was even more proud of myself at that point for being able to provide this added value to them. To this day, it has allowed me to truly be considered a SME (Subject Matter Expert), and I can't tell you the number of times larger Highway General Contractors and Highway Engineers have called and asked me for advice, or "to take a look at something for me." I love the feeling of being able to contribute beyond just the final shop drawings.

Continued on page 22



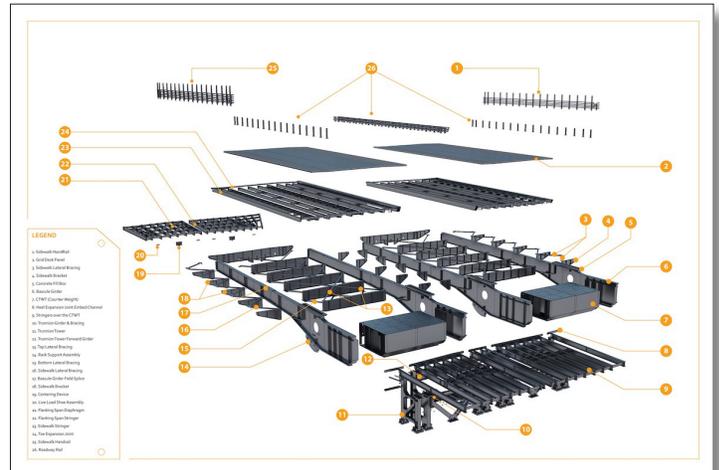
# What is the Difference Between 3D Steel Detailing Versus the Traditional 2D Process?

Continued from page 7

## Information Management to Track and Manipulate Elements

3D detailing leverages a data-centric, intelligent model that enables the management of a wide range of information. For example, it is able to efficiently track weld data for high security projects, such as ID numbers, weld links, types of welds, specific notes and more.

Additionally, 3D detailing is able to identify, track, manipulate and extract any steel member, bolt, weld or any other element within the model.



## Visual Productivity to Streamline Reporting

While a 2D process is unable to visually track productivity, 3D models can help to streamline reporting. For example, DBM Vircon is able to extract color coded progress updates via access to the model, or snapshots of the model. These are clear and concise and demonstrate progress within the model, as well as any associated deliverables.

## Barcode and Tracking to Increase Planning Accuracy

3D models enable increased accuracy and are able to find planning efficiency through detailed material tracking, from ordering and fabrication, through to transportation and erection. This means that timeframes are able to be accurately predicted and strictly adhered to.

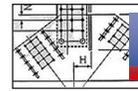
## In-Model Approvals to Save Time and Costs

By reviewing and accepting members in model before creating shop drawings, 3D modeling helps to save time and costs as well as minimizing miscommunications. Additionally, in-model approvals improve efficiency and productivity; shop drawings are not produced until all details in the model have been signed and approved.

## 4D Planning for Efficient Scheduling

BRIM and BIM coordination enables efficiency when scheduling complex builds while managing different sequences. This efficient scheduling allows for increased timeline accuracy, which is incredibly important for gaining the confidence of stakeholders.

Continued on page 23



# EMBRACING TECHNOLOGY: THE BALANCE POINT

*Continued from page 15*

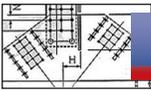
In that drafting room, I had a colleague, friend and fellow detailer-in-training, Terry Vachon. Terry and I would become friends and colleagues for many years, as our careers somewhat mirrored one another for literally decades! Terry had a long productive and brilliant career as a firm owner, innovator and entrepreneur. Over all those years, often at some NISD social hour, Terry and I would laugh about the trials and tribulations of our industry, as he would compare himself to a character in an old Cowboys and Indians Western movie. He would accept the role of the scout who was sent ahead of the wagon train to search out the risks of adversity. He would joke about being the guy who would return to camp with his body riddled with arrows! It's a simple analogy... and a simple point. Pioneering has a price!

Prior to, or concurrent with, the onslaught of the digital era, detailing firms learned to enhance their throughput by adapting some of the major business and technical developments of the times. With fax machines, large format xerography, "cut and paste," and raster image modification, eventually, we worked our way to the front of the line with 2-D CAD, and subsequently 3-D modeling, as the digital era took us by full force. Note, however, that the adaptation of these tools often resulted in simply allowing us to pedal faster!!! While the detailing firm's productive capacity was, and remains, elemental to the execution of the constructed project, these innovations merely resulted in being absorbed by the expectations of the client, rather than being addressed as value-added services. While the cost to detailing firms to capitalize the ever growing costs of implementation of these tools has risen, in many cases the labor intensive service business models of steel detailing have not supported these costs.

The path through this growing wilderness of options is littered with traps and pitfalls. There is a huge and precipitous information gap that may be exploited between a knowledgeable and carefully schooled sales representative, and the trusting end-user. Maintaining a balanced view of the pros and cons may allow a firm to progress, as well as prosper. Some understandings that may help hold that balance follow:

- The notion that the latest "whiz-bang" is going to revolutionize the staff knowledge and expertise required to generate high-quality accurate product, is the field of dreams for the technology sales representative. The notion that head-knowledge and decision-making required to be an expert steel detailer can be "canned" in a software package remains beyond the capabilities of presently available technological products.
- Tools remain tools. They are not a substitution for training, experience and ongoing development of the user. They do not replace skill and knowledge, they simply enhance them.
- The not so hidden cost impacts of technological advancement is the development of staff. It is NOT one-size-fits-all. Taking an effective and profitable producer and introducing them to doing something in a different way, reduces productivity significantly. Cost impacts are not just in productivity, but capital outlay for learning and development and lost earnings.

Continued on page 25



# IDC Certification - Valuable to your Clients

Continued from page 19

Recently, I was required to re-take the certification. I have to say, the second time was much less stressful, and once again, I was able to pass with a high percentage. This second, or re-certification allowed me to take the test from my own computer at my own office. The test covered the same material, but with fewer questions, so it did not take me as long to complete. However it still required me to prepare with similar study materials.

If anyone is sitting on the fence regarding whether to take this certification, my advice would be to absolutely put it on your bucket list. Make sure you are ready and rested, and go for it. A favorite saying of mine is:

"There are lots of ways to get into a swimming pool, but the ladder ain't one of them!" So, sign up, and take the plunge. An investment, such as this, in yourself, and the value it adds to your clients, will make it all worth the energy and effort. And if you use your local library as your proctor, do not forget the donuts!

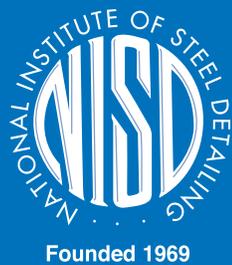


## Individual Detailer Certification Program

Industry professionals are in search of talented detailers who have the knowledge and capability to produce quality shop drawings within the framework of various codes, specifications and contract documents.

NISD created the Individual Detailer Certification Program in response to the steel industry's need to measure the skill level of individuals performing steel detailing services.

This is not a test of memory but a test of ability. The exam's emphasis is based on a candidate's knowledge of the various techniques, codes, and specifications involved in detailing.

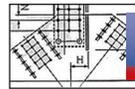


The Iron Messenger:  
An IMPACT Publication,  
August 2014 Issue

## Training, Safety, Leadership – Training Spotlight AISC and IMPACT Introduce Steel Detailer Training Series

Originally developed by AISC and the National Institute of Steel Detailing, the AISC Detailer Training Series is being made available as a free web-based service thanks to funding from IMPACT.

The DTS program provides an introduction and overview of the roles and responsibilities of the steel detailer. This program consists of 10 Modules – most with multiple parts. Each of these parts consists of a series of videos, followed by a quiz pertaining to the concepts covered in that section. Click on a module listing on the DTS page to begin. At the end of the (entire) course is a final exam. A certificate of completion is earned upon passing this exam. Each exam can be repeated until a passing score is achieved.



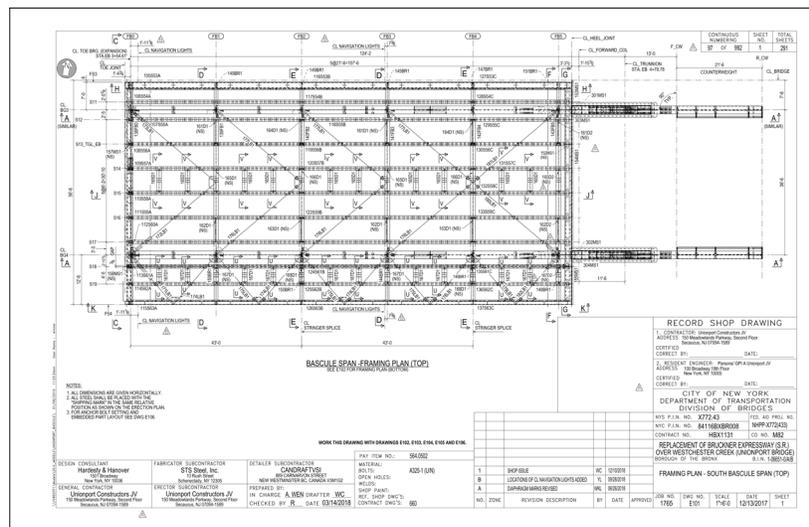
# What is the Difference Between 3D Steel Detailing Versus the Traditional 2D Process?

Continued from page 20

## Laser Scanning for Accurate Back Modeling

With 3D modeling, the ease of exporting data files (CNC, DFX, 3D IFC) for the owner, contractor or fabricator means that downstream savings can be achieved.

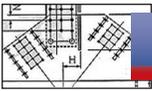
Additionally, 3D modeling is able to use laser scanning and drones to scan an existing structure and then use the point cloud to back model the structure. This is particularly helpful when it comes to as-built structures that are undergoing rehabilitation or scenarios in which steel is being retrofitted to structures for which only 2D drawings are available. This scanning also helps to confirm 3D theoretical models.



## Conclusion

While traditional 2D drawings are useful in the planning and construction parts of a project, advanced 3D modeling from DBM Vircon offers defined detailing for engineers, asset owners and fabricators. Our advanced software, like BrIM and BIM programs like Tekla, create highly accurate and constructible 3D models for all materials. By utilizing this state-of-the-art 3D technology, our project stakeholders gain a holistic understanding of how their project will come together, and brings an extra layer of accuracy and efficiency.

In addition, our collaborative approach to steel detailing means that our 3D visualizations are shared with other project partners in a clear and prompt manner. Our two-way, interactive communication provides support across the design-build-manage lifecycle, and can be tailored towards your needs to reduce extra expenditure and meet tight project deadlines.



# Absolutes? Absolutely!

by Kerri Olsen



It is difficult to deal in absolutes when every job is custom. Or is it?

Talking to a friend of mine on the other side of the globe about steel detailing, I am inspired to write about how one might devise ways to overcome issues presented from our clients and the industry as a whole. We face many detailing challenges for various reasons, the roots of which often lay in the contract documents. Ambiguous in nature, the designers (seemingly) provide for us whatever they are able to sell to their client, the owner. Ambiguities are often used because the absolutes are not known or understood. Very apparent to us, the absolutes are what is needed to detail any job.

Give us dimensions and elevations. We can get it detailed. I would add that material shapes and sizes are needed also. It is the missing dimensions and elevations that we first notice, and most of our RFIs are requests for them.

Often, we are our own enemies as we succumb to the lack of dimensions and elevations and submit for approval the shop detail and erection drawings without them. Pushed by our clients to maintain schedule to get those submittals complete, we give up our first line of defense and do what is asked of us, sending out drawings full of clouds and requests to verify. Unless we have a savvy fabricator project manager, approval returns that include a glossed over lack of information are sent back to us, leaving us to manage the work and put ourselves then in position for taking the blame for schedule delays.

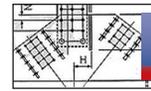
It is in our Industry Standard to send RFIs and then incorporate the answers into our submittals. It is often in the fabricator's detailing standards as well. The first rule ignored; the rest of the problems follow, over, and over, and over again.

Some detailers have explained that their resolution is to become part of the fabricator's project management team. This behavior may be workable for firms with few clients, though often results in added work, worry and responsibility they don't get paid for. This much babysitting for a client is a huge deterrent to managing your detailing company if growth and expansion are planned. Not to mention that it could be destructive to your own sanity.

The purpose of the Industry Standard is to assist with managing your detailing company through absolutes. Good business practice encourages a client response to behave in kind.

Please do not be too quick to disregard your own power as a service. Nothing gets built without our work. Nothing. It is everyone's goal to get the steel detailing work done right at the first pass. It is our job to reinforce that premise at every turn, and to remain steadfast. To not do so is a disservice to ourselves and our clients, and of that they need to be often reminded.

Continued on page 25



# EMBRACING TECHNOLOGY: THE BALANCE POINT

*Continued from page 21*

- The learning curve can be devastating when the quest for technological implementation overreaches the capacity for growth in a firm.
- Through implementation, quality of the product and resulting increased liabilities may generate added indirect impacts to the bottom line of an otherwise fully functioning firm.

None of these concerns need deter us from fully embracing the broadest implementation of emerging technology that our firms can tolerate. We need to understand that the “real” costs of a new tool are not just the cost of the tool, but the cost of effective implementation. We are in love with our technological advancements. We have grand plans and beautiful visions of how we can thrive and prosper in the power of what “can be.” We are even willing to reach out and take a few arrows in the interest of growing our vision.

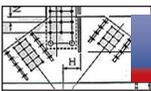
We are in an era of unparalleled technological growth. The kinds of leaps that our industry will have to make in coming years, will greatly overshadow where we have come from. BIM and Virtual Construction are growing the potential of our industry. After all, as they say, the devil is in the details, and who has a better and more extensive grasp of the details, than knowledgeable steel detailers? Knowledge, experience, discernment, and judgement, are essential skills that we must continue to develop if we are to take fullest advantage of the technological developments that have brought us here.

## Absolutes? Absolutely!

*Continued from page 24*

The steel detailer’s proposal provides the ‘rules of engagement.’ The proposal should have a specific list of inclusions, exclusions and qualifications. Payment terms, including change order requirements are important as well. A detailing schedule may be submitted with timeline contingencies tied to approval returns and changes. Remember that you are not obligated to comply with any terms and conditions to which the fabricator has elected to comply, unless you choose to do so.

Extremely important to our company management is the use of RFIs for information gathering prior to approval submittals. Produce a weekly progress report, focus on any delays, and update your delivery schedule accordingly. Be sure to put a cost and timeline to all extra activities as you go along. Your clients may use this information to support their own schedule updates and activity to their customer. See how good work gets pushed forward? Managing your work on your own behalf using the Industry Standard absolutes instead of being prostrate to the fabricator project management team maintains a successful position. That position is lost the second any element of your standards is dropped.



# THE COMMENTARY

by Kerri Olsen



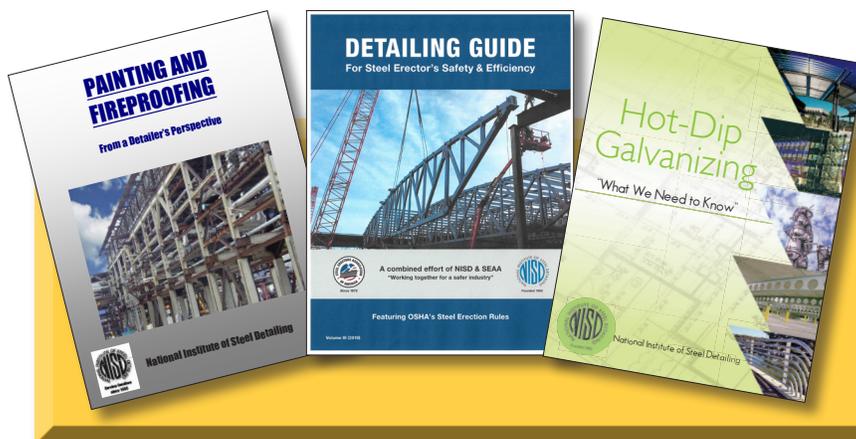
Not new but very notable information is the AISC’s Commentary in Section 1.8, Control of Management System Documents and Project Documents in the AISC Certification Standard for Steel Fabrication and Erection and Manufacturing of Metal Components, added here as a heads up to those unaware and a reminder to all:

Sect. 1.8.]	<b>CONTROL OF MANAGEMENT SYSTEM DOCUMENTS AND PROJECT DOCUMENTS</b>	9
<p><b>Commentary:</b> Detailers and checkers should be assigned on the basis of qualification, evidenced by experience, training and education. Qualification standards and certifications granted by recognized industry organizations, such as the National Institute of Steel Detailing, Inc. (NISD), can be used as a basis for qualification.</p>		

The sincerest gratitude and appreciation from the entire detailing community are due to the AISC for including this recommendation in their commentary! This mention speaks volumes of our worth to the AISC and the steel industry as a whole, meaning to me that what the NISD does as an organization should not be minimized or overlooked.

As a very proud member of the NISD and AISC, I promote both to the steel detailers, steel fabricators and general contractors with whom I work. Not enough may be said about the certification programs and the standard of excellence promoted by both.

We do ourselves proud to be active members who execute our work to the best of our ability for the steel industry! We all share in supporting and making these programs work. Here’s hoping that we are able to have an in-person NISD Annual meeting and NASCC Steel Conference in Louisville, Kentucky in April 2021, and that we see attendance as the best ever!



## NISD Publications...

These reference guides are available.  
Order them online at [www.nisd.org](http://www.nisd.org)

# Benefits For NISD Members!

Visit *Your* NISD Website...

Engage - Find us on Facebook...

## We Are Your Voice...

The NISD Board of Directors was pleased with the feedback it has had from membership regarding new ways that NISD can help expand the scope of services for the benefit of members and the steel detailing industry!

*Our web site is contemporary, easy to navigate, and represents our members as a professional and knowledgeable organization. Check it out!*

Visit [NISD.org](http://NISD.org)



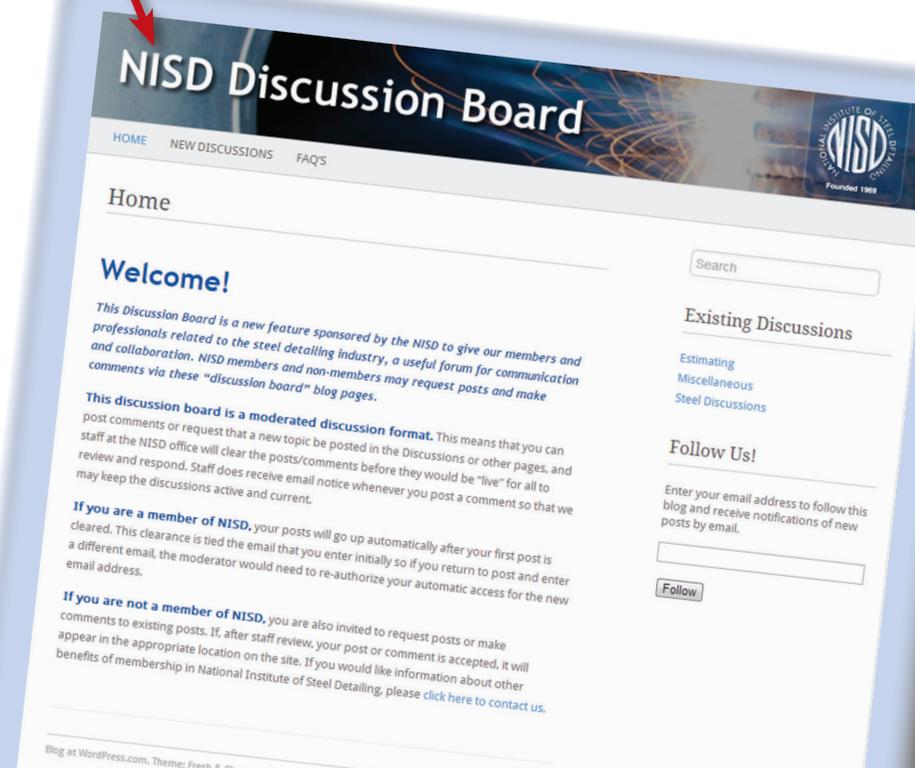
## Networking Knowledge!

*Our Discussion Board is a tool to allow sharing of knowledge and resources. Post your industry-related questions or comments. Receive responses from other professionals. Utilize your NISD membership network today!*  
[nisdorg.wordpress.com](http://nisdorg.wordpress.com)

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Because NISD fosters a professional approach to business and advocates improved quality through member networking, education, and certification, our members are highly regarded by fabricators, architects, engineers and contractors.