

# Managing Steel Fabrication In Uncertain Times

A Modern Steel Detailing Practices To Reduce Project Delays & Increase Margins

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## Modern Steel Detailing Boost Steel Fabricator Projects

Steel detailing process improvements and novel methods for project delivery driven by the fast-track delivery, BIM, automation tools and agile project management result in schedule and cost advantages for commercial and institutional construction.

New ways to employ delivery of the steel detailing are also providing advantages to the Building Team.

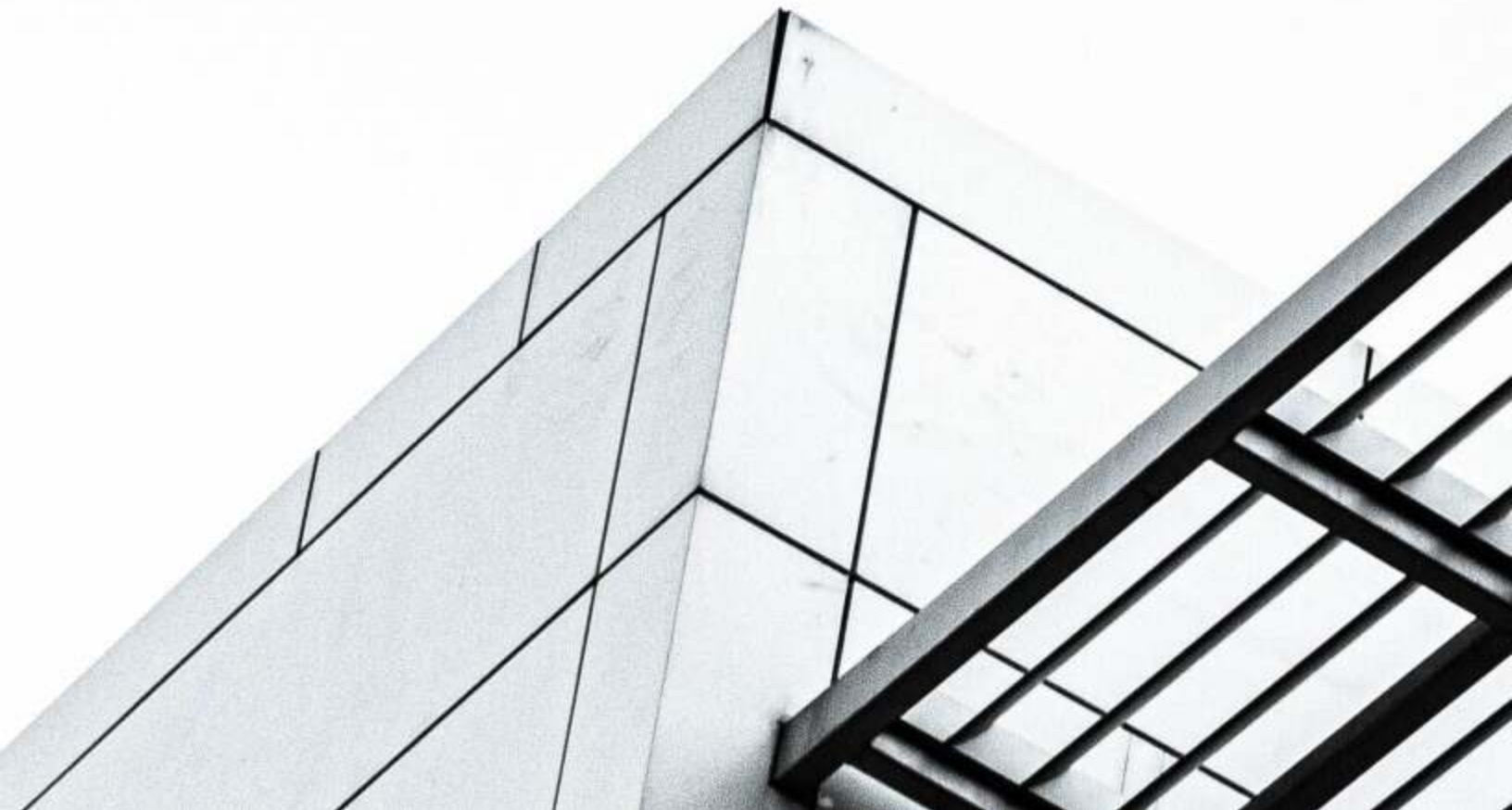
Changes to the organization and administration of the building project are shown to enhance these benefits.

The experience of many fabricators using this approach results shows, including cost savings, reduced conflicts and corrections at the jobsite, improved project coordination and shorter schedules for similar work.



# A Modern Steel Detailing Roadmap

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## White Paper Overview

For commercial and institutional building projects, the critical path of the steel detailing is vital to the successful management of the construction process. What may initially be minor issues in overall steel construction projects, the errors caused in design or detailing can produce cascading effects that ultimately impact the project broadly.

This paper demonstrates through the first-hand experience of how modern steel detailing practices along with variety of process improvements can provide significant advantages to building team, benefiting projects and developers.

The white paper also shows how common building practices with respect to the steel detailing and estimation can play a significant role in overall cost reduction and improving delivery.

## The Case for Adopting to Modern Steel Detailing

Steel detailing has been in practice ever since steel structures came in place. But over the last decade as the industry is evolving the steel detailing is also evolved and today modern steel detailing involves many aspects.

Using modern steel detailing practices in the construction industry means, the businesses able to benefit in terms of



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- 1. Reduce costs**
- 2. Improved scheduling**
- 3. Minimization of errors and conflicts**
- 4. Enhanced safety and work quality**
- 5. Overall increasing competitiveness of the business**

The main benefits of adopting to modern steel detailing today come from cost savings associated with how to take tonnage out of a project — and how to use this opportunity to reduce costs downstream in the construction process.

This chain-reaction of any cost savings addressed at the time of design and modelling by using modern steel detailing can help fabricators realize, overall:

- 1. Less transportation and material costs**
- 2. Reduced labour costs**
- 3. Improved scheduling of the overall projects**

Now that we know the benefits of modern steel details, in the next few sections we will explore further areas in detail.

The key elements that are part of modern steel detailing are

- 1. Estimodeling**
- 2. Making steel detailing precise**
- 3. Improving co-ordination b/w suppliers using Integrated Project Delivery**
- 4. Use of advanced technology such as BIM**
- 5. Combining process improvements and agile project management**

# Early Involvement and Coordination of the Structural Steel Supplier

With looming supply chain issues across industries, experts in construction and steel fabrication and detailing point out that one of the keys to accomplishing cost savings for steel fabricators is involving the various suppliers such as structural steel, estimators and detailers early on in the project.

That is because, the supplier can provide pre-project planning and schematic phase guidance as well estimations regarding steel schedules and details.

Earlier involvement of the steel detailer, particularly by using estimodeling for projects is shown to reduce overall costs for the projects.

Estimodeling is the process of quickly creating a model for the purposes of generating highly accurate material quantities as well as detailed labor and cost data for use in project estimating. Source: Tekla

Doing the estimodeling provides a data-rich 3D model that enables robust information and constructible information as part of a bid package.

From bidding to erection, estimodeling enables fabricators to extract the highest level of accurate quantities. These can be used with Tekla software that provides detailed labor and cost information

Having the estimodeling is shown to improve the overall design reviews, schedule improvements, reduced conflicts and errors on the job site, and more efficient warehousing, transportation, and logistics.

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Accurately determining the amount of steel needed, how long each phase of the project will take and the cost per project are nearly impossible to accomplish without the right information on hand and estimators & detailers can help in this.

From a project-management perspective,

“Bringing the steel supplier in earlier can help steer the decision-making process during design and enable the engineer to understand the processes and preferences of the steel detailer and fabricator,”

explains Andrea K. Reynolds, S.E., P.E., LEED AP, an expert in steel structures for commercial facilities and a principal and director of structural engineering with Smith Group, Detroit.

Perhaps the biggest benefit, however, is the specialized expertise that estimators can bring to the table.

The valuable input can help,

1. 3D Model helps estimation accuracy increases your chances of winning bid
2. Better streamlined project workflow
3. Accurate designs and faster delivery

# Making steel detailing precise & error free

When it comes to construction of steel structures, the key aspect is the collaboration, communication and seamless flow of information required b/w various stakeholders such as engineers, architects and fabricators.

Steel detailers play an essential role in this construction cycle by collaborating with all. Be it building bridge, commercial or industrial projects the structural steel detailing plays significant role and having zero errors should be goal.

Zero error or precise structural steel detailing confirms that a structure is not only geometrically correct, but that it is constructible and erectable, and that fabrication is practical.

Project delays and costly reworks are biggest issues for fabricators. Reducing the errors in steel detailing is what going to avoid this. Small errors unnoticed earlier can make overall projects not feasible at times.

Towards making error free steel detailing, the fabricators can focus on following areas,

- **Visualize a design concept, helps improves communication and cooperation between all project stakeholders.**
- **Make sure the fabrication is practical and implementable on site**
- **Adopting BIM or Integrated design process helps arrive at cost and schedule certainty which in turn reduces any errors**



With the help of precise structural steel detailing, the erectability and constructibility of structural steel can be confirmed long before the steelwork is delivered on-site.

## Use of Technology As BIM

While several factors are currently adding value to the steel fabrication and overall project delivery process, perhaps the biggest impact has come about through building-information modelling (BIM).

BIM Modelling and coordination is one of the greatest advancements that automation has provided the steel industry with.

BIM system is used from the start of the design process, right up until the structure is completed to superimpose different vendor's models to ensure accuracy, reduce on-field delays and also prevent any mistakes before they even occur.

While BIM coordination tends to save a lot of money and improve the over-all quality of the project, the steel industry has been slow in embracing it as it requires a high level of dedication and puts a lot of imperative on accuracy.

BIM success is depended “collaboration based on the building model. The BIM model is a central component of the planning and is constantly updated with the expertise of the individual involved in the construction.”

With multiple streams working simultaneously on a 3-D model of the building, significant efficiencies are

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realized with teams focusing more on the actual design and much less on things like change orders and requests for information (RFI's)

The benefits of BIM include:

- Easier visualization and building system coordination.
- The ability to communicate more information, resulting in tighter bids.
- Shorter lead times and construction schedule compression, enabling cost savings and added value.

On the structural side, BIM enables structural designers to better benefit from steel detailer expertise.

For example, the structural engineer can enlist the help of structural steel detailers to help model and add detail to the design for easier fabrication and erection.

Similarly, product vendors can provide parametric objects, cost and scheduling data, and product specifications to the model.

In addition, design, detailing, and fabrication can be performed concurrently with the design model and

shop drawings created in tandem.

# A Modern Roadmap To Increase Margins

Another area where steel fabricators can benefit is from integrated project delivery and project management efficiency.

Maestro pioneers in adopting to latest project delivery improvements and agile project management and Maestro expertise in SDS/2 and Tekla helped fabricators achieve highest (99%) operations efficiency. The areas where Maestro extensively focuses are as below,



# A Suppliers Guide to Fabricator

Maestro steel detailing has been in business of steel detailing & estimation for over 15+ years and served 100's of clients across USA & Canada.

Our work shows that fabricators can achieve better margins, faster delivery by focusing on following few areas when it comes steel detailing,

- 1. Involving steel detailer and leveraging the expertise of estimodeling**
- 2. Shifting to advanced technologies such as BIM that helps in planning and project delivery**
- 3. Having expert steel detailer partner who can provide end-to-end solution**
- 4. Having dedicated project co-ordinators to ease communication**
- 5. Achieving high operational efficiency using the expertise of SDS/2 and Tekla**

# About Maestro Steel Detailing

**Maestro Steel Detailing is a pioneer in Steel Detailing Industry. Our company is located in the USA, Canada, and Indian regions to serve fabricators worldwide. With a blend of combined experience and state-of-the-art technology, we offer unsurpassed structural steel detailing services.**

**We invented the Quality Assurance Team(QAT) to ensure error-free project delivery within the agreed time-frame. We are the one-stop destination for all your needs, deliver shop and erection drawings, and much more based on your priority.**

**Our Continuous Schedule Monitoring and salient system of RFI work round the clock and provides hands-on control over the projects. We work together with a unified vision to deliver projects on-time with excellence and accuracy. Customer success is our utmost priority, and our committed customer success management team facilitates us to accomplish the greater success rate.**

**[Learn More](#)**

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