



INTERNATIONAL DESIGN SERVICES, INC.

1801 Park 270 Dr., Suite 220
St. Louis, MO 63146

Telephone: (314) 872-1791

Fax: (314) 872-8531

Firm History

For 16 years, International Design Services, Inc. (IDS) has combined connection design engineering and detailing services into one unified team. We provide our customer with value-added solutions for peace of mind and project efficiency. This formula has led to our success in becoming an industry leader.

IDS bring intensive knowledge and capability in modeling to all projects. We take a proactive approach by maintaining good communication with the construction team through BIM, working cohesively and seamlessly with our customer, and actively participating in the design-assist role. Working directly with the design team, IDS manages the project by identifying all critical paths necessary to maintain the construction schedule and resolving any issues on the front end that may affect continuous construction. Our main objective is to assist the fabricator, general contractor, and design team in ensuring on-schedule, in-budget, and uninterrupted construction for our customer.

Our team's expertise and experience allowed us to be successful on a multitude of different types and size of projects, from totally new commercial construction to rehab and retrofit, from massive industrial complexes to stadiums and power plants. From Design Build and Design Assist to Connection Design, Detailing and BIM Virtual Construction, we have a story of success in every single aspect. Small or large we engineered and detailed all, from a 50 Tons platform to a 33,200 tons Power plant, from 3000 tons school building to 18,000 Tons High Rise.

What distinguishes IDS from our competitors is the quality of our employees. Our 640+ worldwide employees have a wide range of expertise in all facets of the construction industry. They are committed to delivering the highest quality of service to our customers. From our detailers and engineers to our attentive support staff, IDS employ a top-notch, highly educated team.

IDS is committed to investing in our staff and operations, which is proven by these credentials and accomplishments:

- Sponsorship of 30+ staff members for NISD certification
- Weekly internal TEKLA and SDS sessions
- Sponsorship for advanced licensing and certification
- IDS had completed over 1000 detailing and connection design projects ranging from small to 30,000 tons.
- IDS uses Comprehensive Quality Assurance procedures that comply with 10CFR50 Appendix B/NQA-1 requirements. Each office has a Quality Assurance Manager dedicated 100% to procedure compliance.

IDS have a commitment to providing the technology required within the industry. With 265 Tekla, 190 SDS/2 licenses, 166 AutoCAD licenses, 65 MathCAD licenses, and 1 Fabsuite license, IDS have the staffing and technical capacity to handle a large volume of projects. Our commitment to internal excellence allows us to provide an exceptional level of service to our customers and their projects.

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Company Information

Our staff of 640+ employees is as follows:

- 74 administrations, doc. control and support staff
- 73 project managers
- 54 connection design engineers
- 298 detailers
- 102 checkers
- 43 software developers

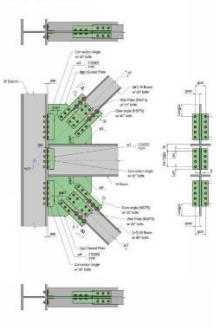
Our software consists of the following:

- 265 Tekla licenses with current maintenance paid
- 166 AutoCAD licenses
- 190 SDS/2 licenses with current maintenance paid
- 65 Mathcad licenses (for connection design)
- 1 Fabsuite for fabrication estimates
- All operating systems and office Suite's

As a long-term commitment to our vision and forward thinking, we developed our own connection design software that works as a standalone or integrating with Tekla Structures (GIZA Steel) (www.gizasteel.com), we are committed to our over 30 IT, Engineers and Software Designers and Developers to maintain and constantly improve on this software package, it is a tool that we use on a daily basis as it improves and guarantees that our steel connections are up to code and per the project's specifications.

 <p>GIZA Steel 1801 Park 270 Drive Suite 220 St. Louis, MO 63146 Tel. No. (314)-656-4615 Email: info@gizasteel.com www.GizaSteel.com</p>	Job Code: PR01-BR52_2
	Job Name: PR01-NAME
	Sheet No.: 2 of 205
	Created By: SBY
	Revision No.: 0 Date: 01/28/2017
Subject: VZF-320B	

CONNECTION SUMMARY



 <p>GIZA Steel 1801 Park 270 Drive Suite 220 St. Louis, MO 63146 Tel. No. (314)-656-4615 Email: info@gizasteel.com www.GizaSteel.com</p>	Job Code: PR01-BR52_2
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Subject: VZF-320B	

VERTICAL BRACE CONNECTION: W-K-BRACE (BOLTED FLANGE CLAW ANGLES AND WEB PLATES TO GUSSET PLATE) WITH DOUBLE ANGLE (WELDED/BOLTED) TWO-WAY GUSSET PLATE CONNECTION TO W BEAM AND W COLUMN FLANGE. SCHEDULE

Mark	Size
C80(7)	W14X211
Bolt Type	
Mark	Size
B20(7)	W24X250
Gusset Plate	
Mark	Size
B20(7)	W12X152
Bolt Type	
Mark	Size
B20(7)	W12X152

 <p>GIZA Steel 1801 Park 270 Drive Suite 220 St. Louis, MO 63146 Tel. No. (314)-656-4615 Email: info@gizasteel.com www.GizaSteel.com</p>	Job Code: PR01-BR52_2
	Job Name: PR01-NAME
	Sheet No.: 26 of 205
	Created By: SBY
	Revision No.: 0 Date: 01/28/2017
Subject: VZF-320B	

II. CALCULATION

A. BRACE 1 CHECK

1. Tension Rupture Capacity of Brace:
 (AISC 14th Ed. Specifications Chapter D, Section D2, pages 16.1-26 to 16.1-27)
 Net Tension Area,
 $A_{nt} = A_{g1} - f_{c1}w_1 - 2 \cdot t_{fl}r_1$ $A_{nt} = 37.7 \text{ in}^2$
 Shear Lag Reduction Factor,
 $U = 1.0$
 Effective Net Area,
 $A_{nt} = U \cdot A_{nt}$
 Tensile Rupture Capacity
 $\phi R_{nt} = \phi \cdot F_u \cdot A_{nt}$ $\phi R_{nt} = 37.7 \text{ kip}$
 $\phi R_{nt} = 1225.25 \text{ kips}$
 RESULT - Tensile Rupture Capacity > Applied Force, LCR = 0.449, OK

2. Brace Axial Load Distribution

Area of each flange,
 $A_{fl} = t_{fl} \cdot W_{fl}$ $A_{fl} = 17.5 \text{ in}^2$
 Forces at Flanges,
 $P_{fl1} = A_{fl} \cdot F_{fl1}$ $P_{fl1} = 215.324 \text{ kips}$
 $P_{fl2} = 215.324 \text{ kips}$
 Forces at Web,
 $P_{w1} = P_{fl1} - 2 \cdot P_{fl1}$
 $P_{w1} = 159.351 \text{ kips}$

B. VERTICAL BRACE 1 TO FLANGE CHECK

1. Bolt Bearing Capacity of Brace Flange:
 (AISC 14th Ed. Specifications, Chapter J, Section J3.10, pages 16.1-127 to 16.1-128)
 Bearing Area,
 $A_{br1} = d_b \cdot t_{fl1}$ $A_{br1} = 1.575 \text{ in}^2$

VERTICAL BRACE CONNECTION: W-K-BRACE (BOLT GUSSET PLATE) WITH DOUBLE ANGLE (WELDED/BOLTED) TO W BEAM AND W

Mark	Size
B20(7)	W12X152

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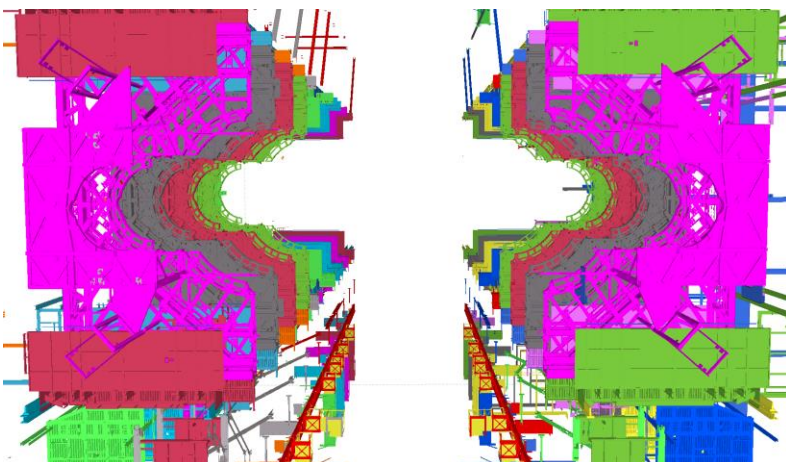
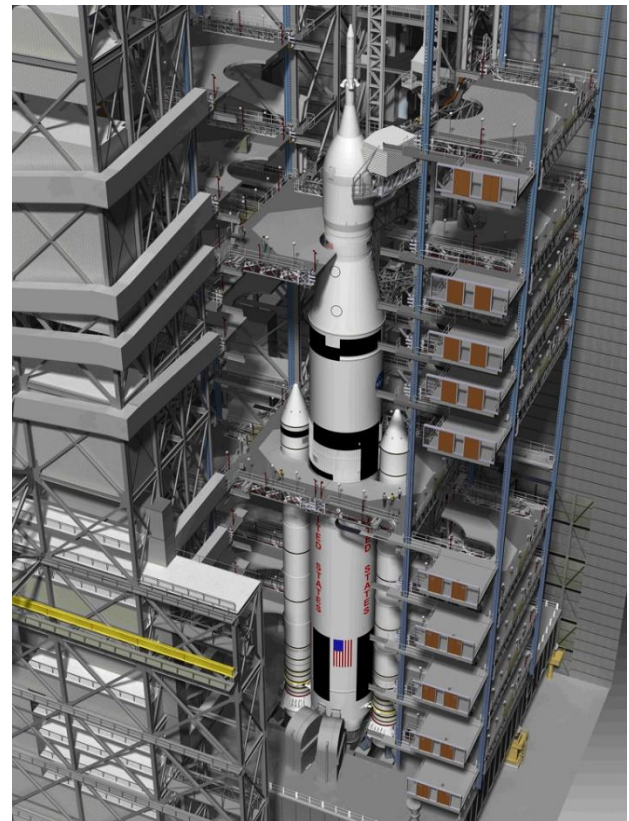
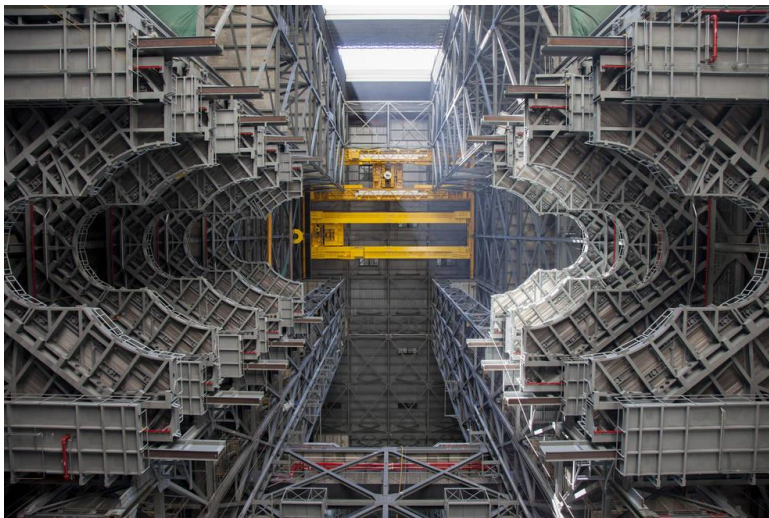


Project Description • High Bay 3 for the New Space Launch System.

Project Location: Cape Canaveral, Florida
Customer: Steel, LLC.
Contact Info: Rob Williams • (404) 704-1604

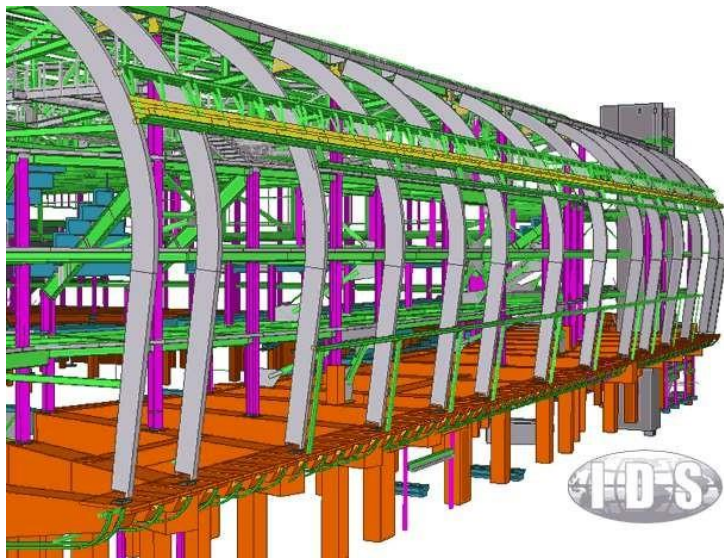
This project consisted of 3 simultaneous phases that lasted the entire duration of the project. Phase 1 included reinforcing columns, beams and bracing in the existing 500 plus foot VAB structure to accommodate additional loads from the new large moving maintenance platforms. IDS coordinated extensive field measurements of the existing connections to produce engineering calculations for the required reinforcing as well as detailing the reinforcing material. Phase 2 involved detailing dozens of additional support platforms for electrical and mechanical work, moving ramps and drawbridges for accessing multiple levels of the structure. Phase 3 was for detailing the main maintenance platforms that fit snug around the rocket and boosters at 10 levels to allow workers to assemble, process and test the rocket components. Each platform level consists of two halves designed to be relocated within the structure when needed, with the interior shaped to fit the portion of the rocket it was adjacent to.

These platforms weighed over 300,000 pounds each including the aluminum planking that provided most of the walking surface, guardrails, heavy hinges and many intricate parts required to make them as functional as possible.

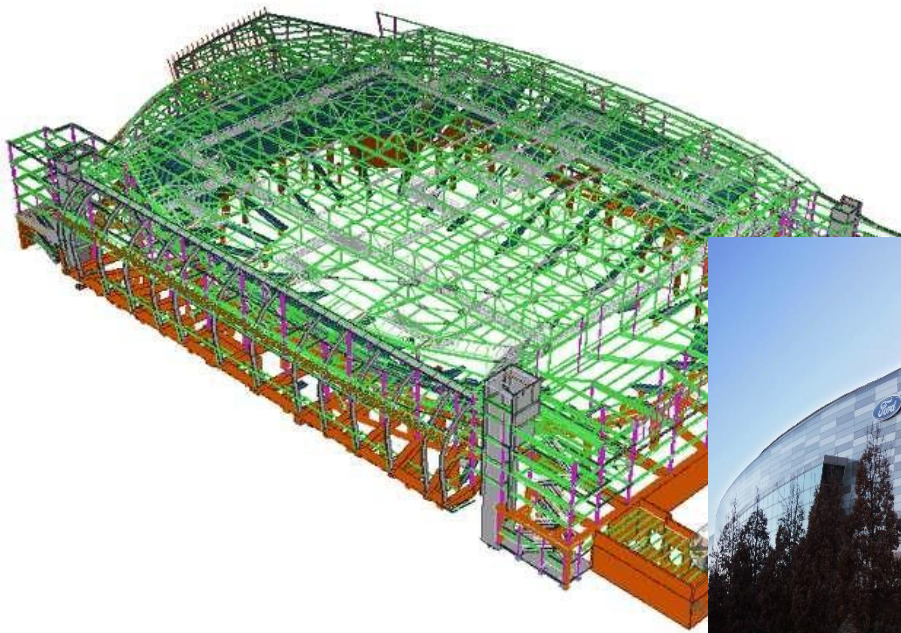


Project Description • Evansville Downtown Arena (Ford Center)

Project Location: Evansville, Indiana
Customer: Kansas City Structural Steel
Contact Info: Mike Bennett • (816) 924-0977

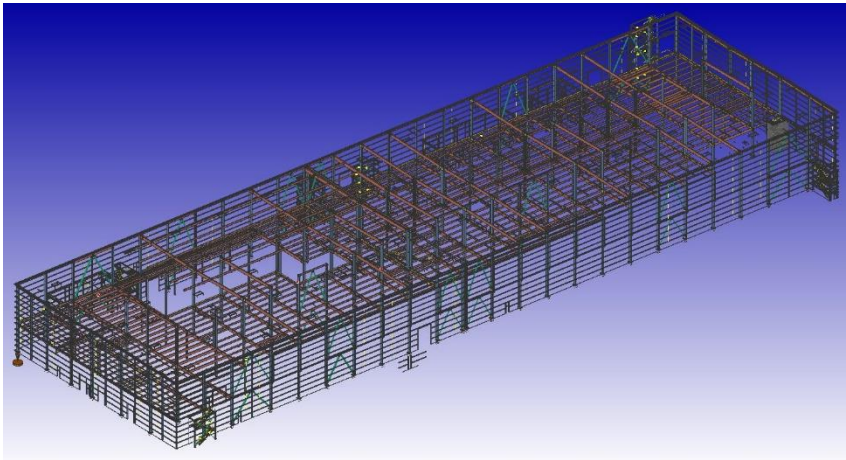


The project is a 6-level arena with an approximate area of 200,000 sq. ft. The arena design will allow it to be used for multiple events and venues. The design is flexible enough to allow several seating configurations such as for Hockey, Basketball, End Stage Concert and Center Stage Concert Events. The location has a Seismic Design Category D, thus lateral resisting system was required and is composed of Special Resisting Concrete Shear walls and Special Concentrically Braced Frames. IDS' scope included connection design as well as BIM coordination.

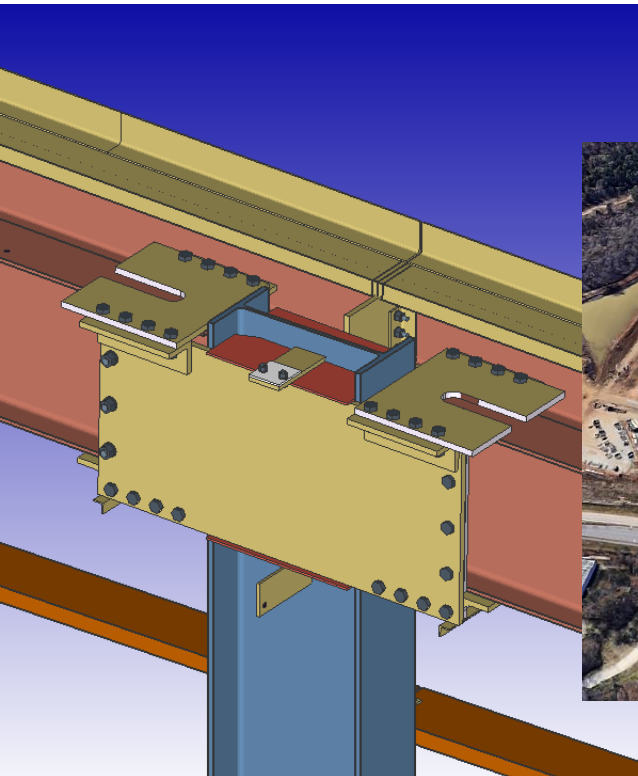


Project Description • Mercedes Benz Plant – Assembly & Paint shop

Project Location: Ladson, South Carolina
Customer: Sippel Steel Fab.
Contact Info: Nick Gann • (724) 934-4800

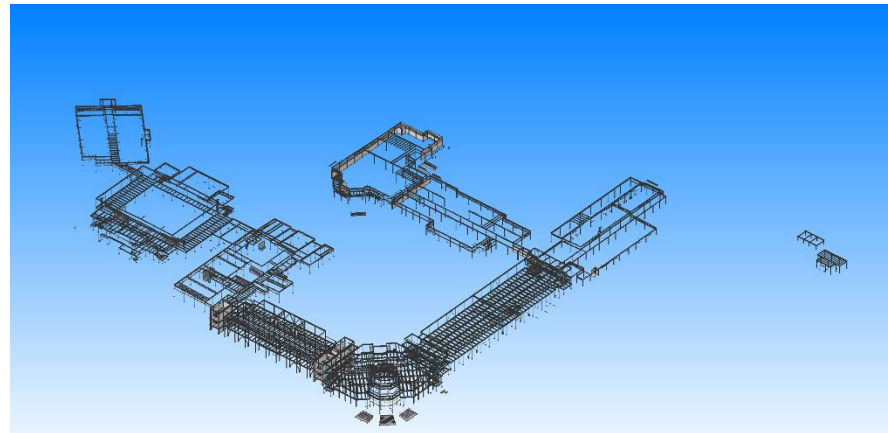


This is a 500 Million Dollars Mercedes Benz Vans new facility that builds the Sprinter Vans in Ladson South Carolina. The assembly facility, as well as the Paint shop, were both detailed by IDS. The framing consisted of large roof trusses supported by perimeter columns with Core brace. The beam connections were made from a combination of regular shear connections with the larger portion connected with Side plates. IDS' scope included connection design as well as providing of BIM Models.



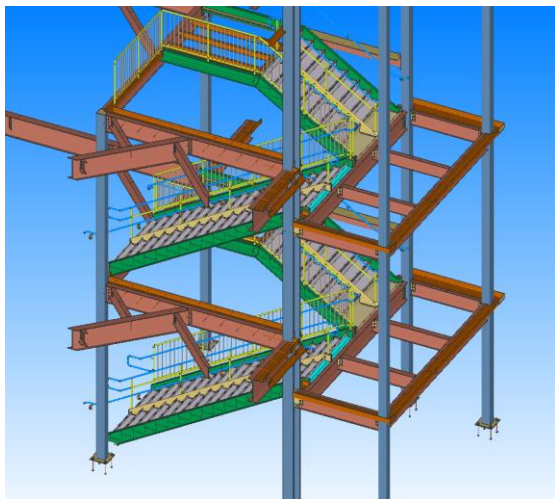
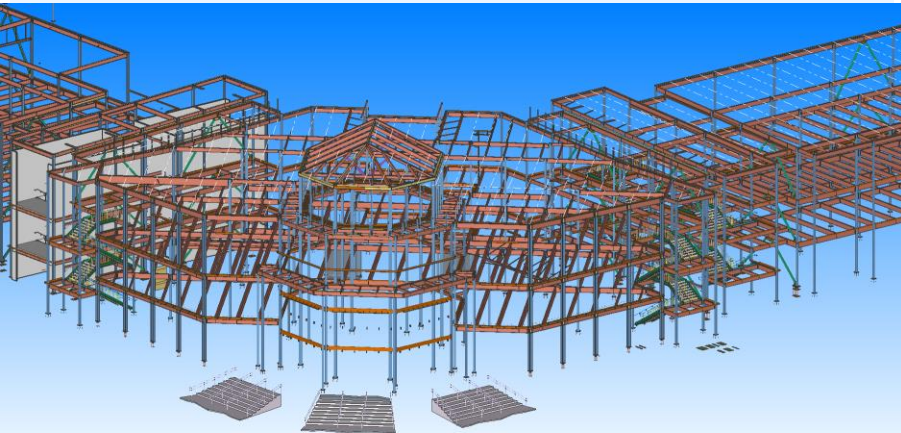
Project Description • Valdosta High School

Project Location: Valdosta, Georgia
Customer: Trinity Steel Fabricators
Contact Info: Damon Westfall • (904) 284-9657



This project is the largest High School in the state of Georgia at 500,000 square feet and over 4,000 tons of design-build steel. This new school ranged from one story to three, with the focal point being an imposing, three-story administration dome. The dome contains a large open space walled in by glass, giving all three stories a view of the dome's center. The buildings, which include a fine arts facility, wrap around a central courtyard of sidewalks, covered canopies, and an outdoor eating area. Due to the required project delivery requirements, there were 3 separate teams working in different areas of the facility to ensure a successful project schedule.

IDS' scope included connection design, structural and miscellaneous detailing as well as BIM coordination.

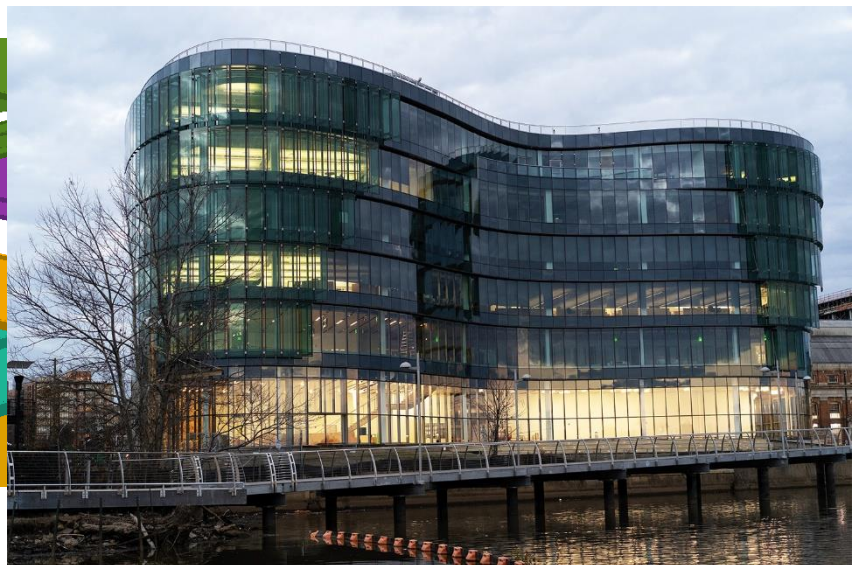
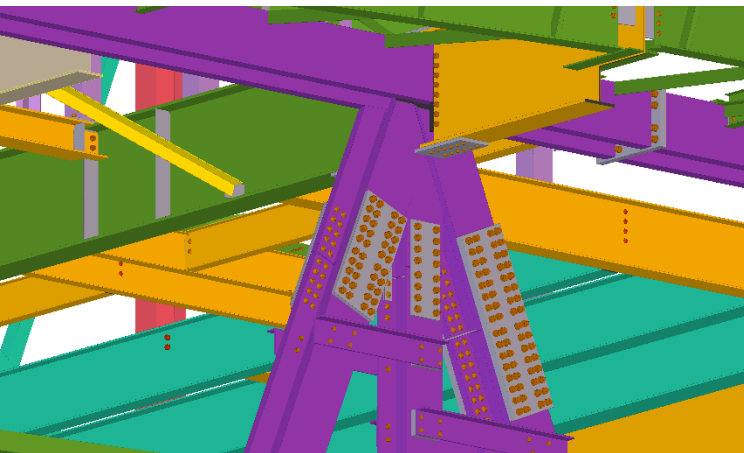
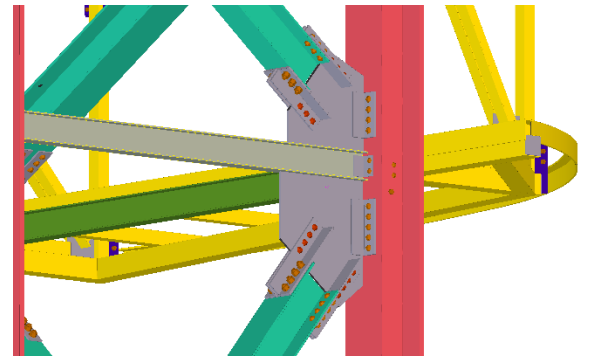
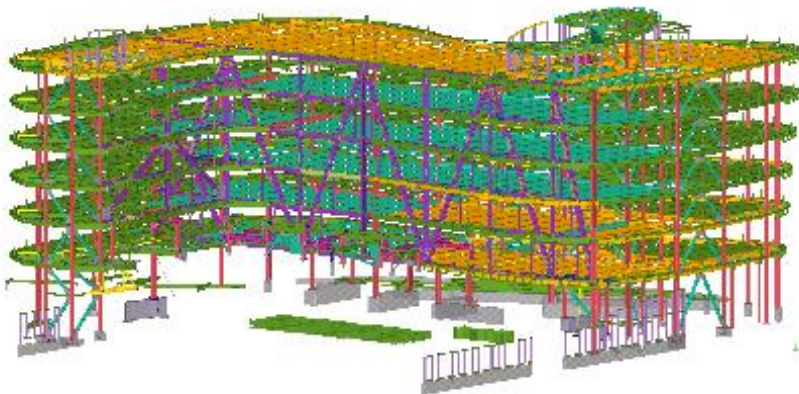


Project Description • DC Water and Sewer Authority

Project Location: Washington, DC
Customer: Berlin Steel, MD
Contact Info: Richard Trump • (443) 749-5500

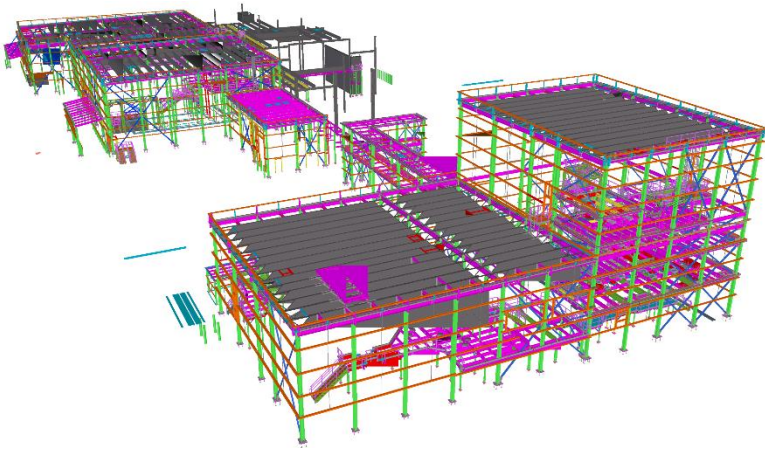
This project made the cover and was the feature project of the March 2018 Modern Steel Construction publication. It is six stories high and encompasses 150,000 square feet of building space. The building footprint is fluid in nature which required extensive coordination with the curtain wall and various overlays to make sure transitions between floors were accurate and coordinated amongst the various trades. The structure is home to a large braced frame, which acts as the “backbone” of the structure.

IDS' scope was the structural steel detailing as well as the BIM coordination.

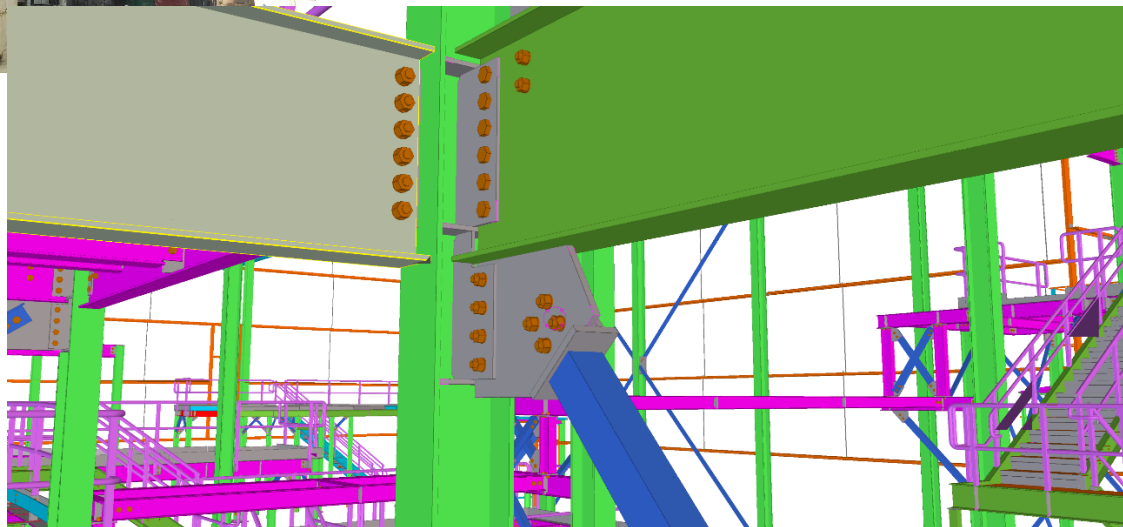
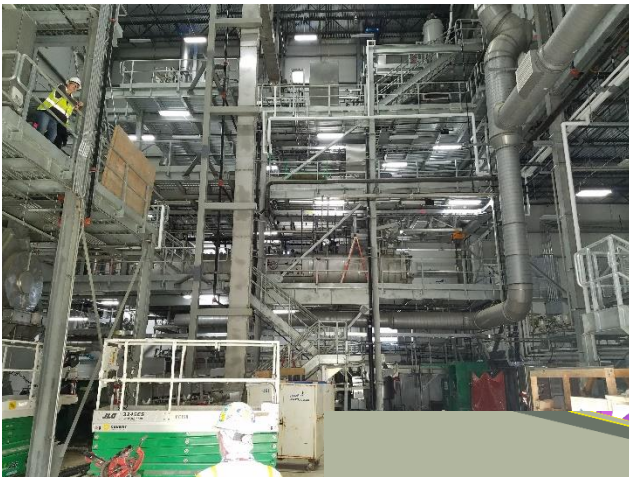


Project Description • San-J International

Project Location: Richmond, Virginia
Customer: SteelFab, Inc.
Contact Info: Rob Griffin • (770) 248-0075

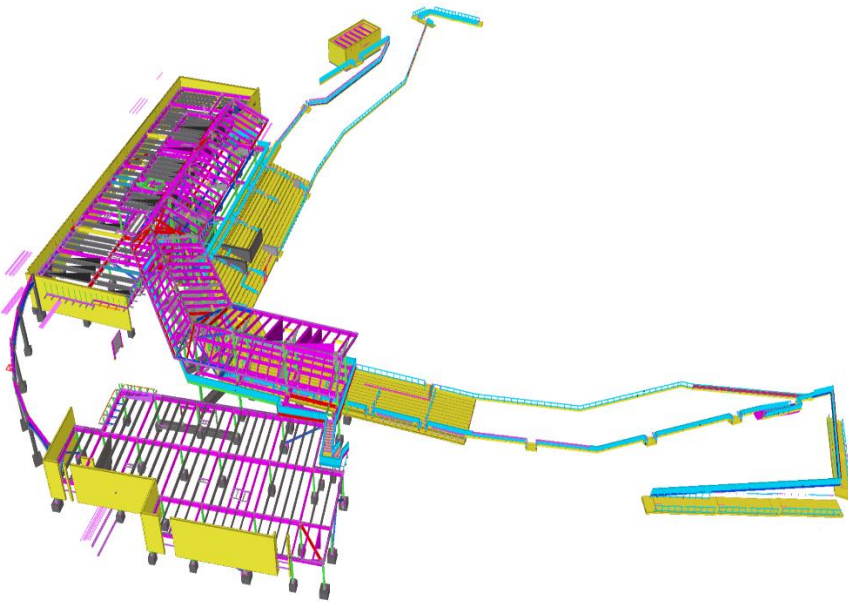


This project is a light industrial food processing facility. The outer shell structure houses many different platforms. IDS detailed all the structural materials along with ladders, stairs, and rails. IDS' scope included connection design as well as BIM coordination.

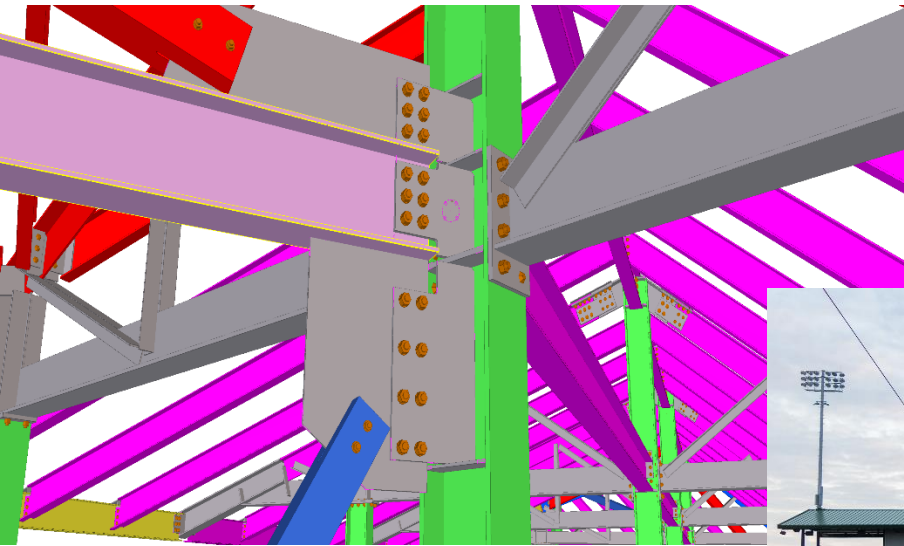


Project Description • Cleburne Station Stadium

Project Location: Cleburne, Texas
Customer: SteelFab, Texas
Contact Info: Jackson Bush • (972) 562-7720

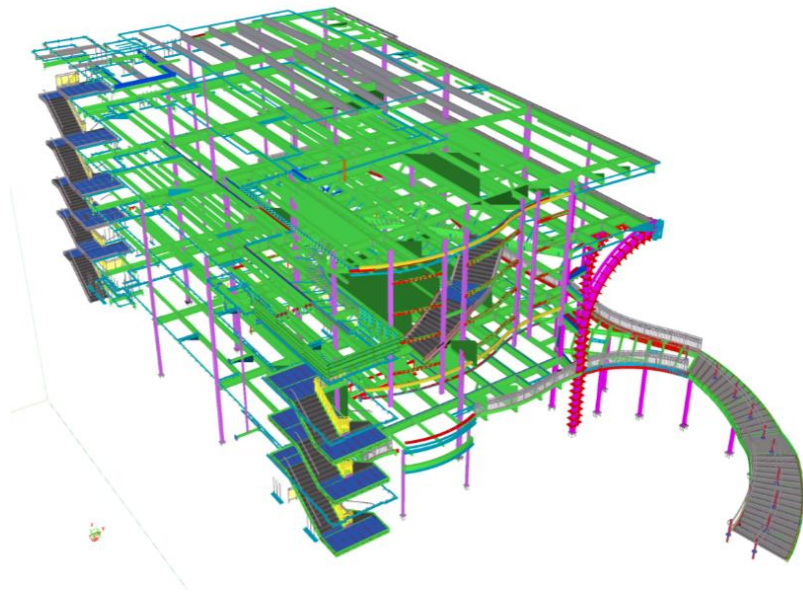


This project is a two-story baseball park, it was divided into three parts. The middle concourse around home plate and then the two wings along the two outfield sides. The trusses were unique in nature due to their paint requirements given they were exposed in different parts of the concourse. Some of the trusses had special paint since they simultaneously extended inside and outside some of the higher end box seats. IDS completed the structural steel detailing as well as the miscellaneous detailing for the various rails, stairs, and other miscellaneous items on site.

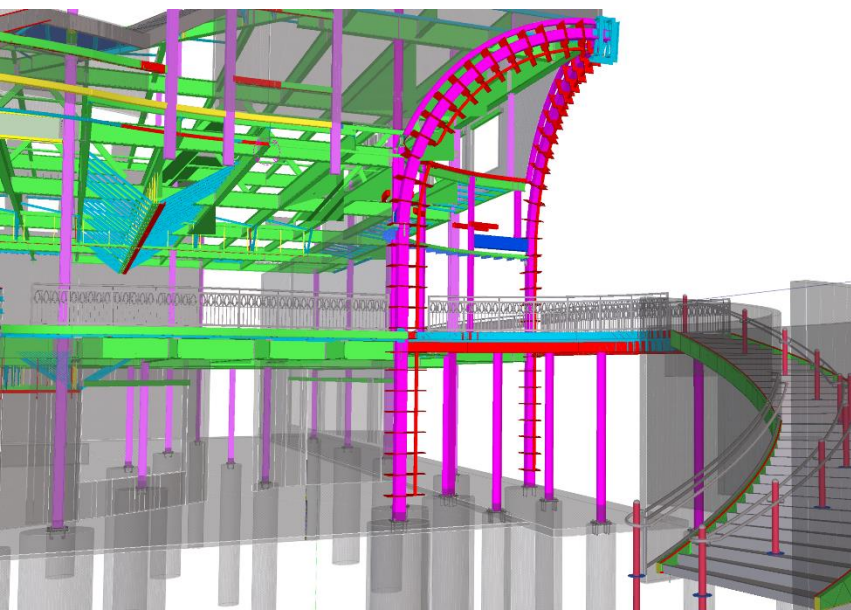


Project Description • Cathedral Square Conference Center & Offices

Project Location: Tucson, Arizona
Customer: Cutting Edge Fabrication
Contact Info: Kyle Clark • (520) 791-3394

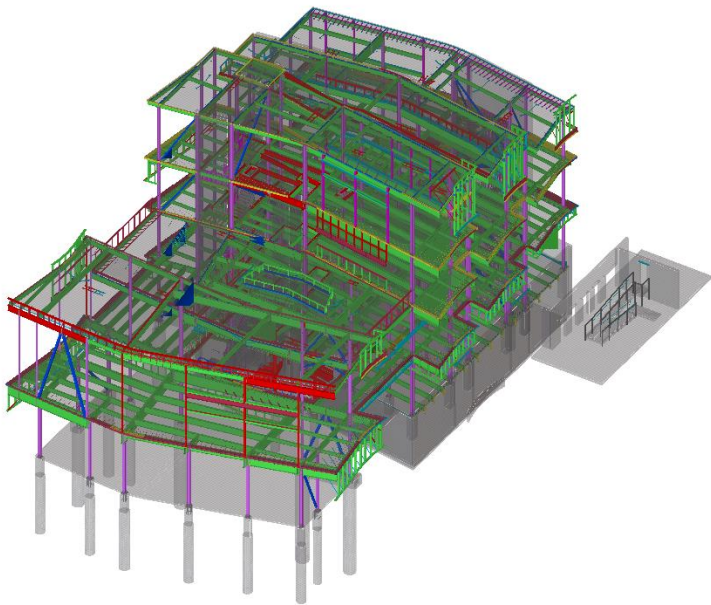


The project is a 4-story administration building for the Archdiocese of Tucson. The design of this building included 400 linear feet of curved and rolled custom decorative rail in addition to 2 curved stairs. The exterior stair included the same custom decorative rail as depicted in the below snapshot. In addition to the actual rail modeling, IDS had to create a special data file to allow the fabricator to burn the decorative pieces from a single plate. The curved building's exterior profile included three 36 feet tall curved frames that flowed into the three stories tall arched entry.

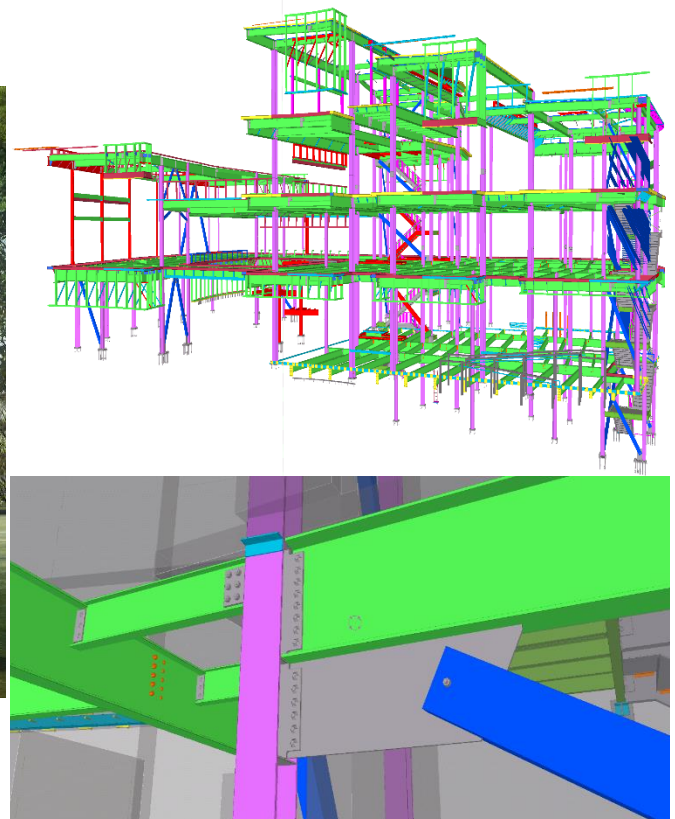


Project Description • SHSMO Center for Missouri Studies

Project Location: Columbia, Missouri
Customer: Doing Steel
Contact Info: Kelly Hequembourg • (573) 657-7380



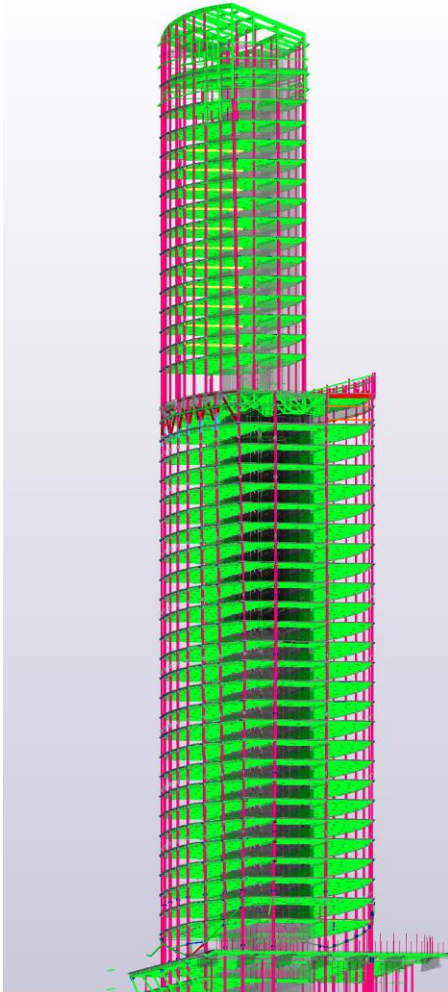
This state of the art building is more than 76,000 square feet with accessible floor plans that comply with the ADA. It contains a Gallery, a multipurpose room as well as classrooms & boardrooms in addition to storage and state of the art conservation laboratory. The contemporary design of the building proved to produce a challenging geometrical shape with open floors supported by vertical bracing. IDS' scope included connection design, structural & miscellaneous detailing as well as BIM coordination.



Project Description • FMC Tower at Walnut Street

Project Location: Philadelphia, Pennsylvania
Customer: Samuel Grossi & Sons
Contact Info: Ed Thompson • (215) 638-4470

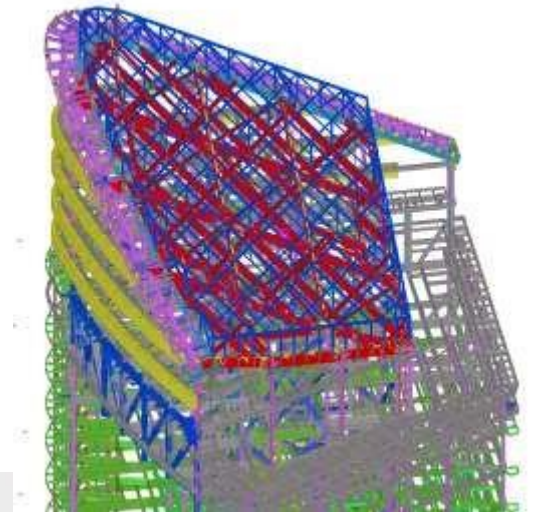
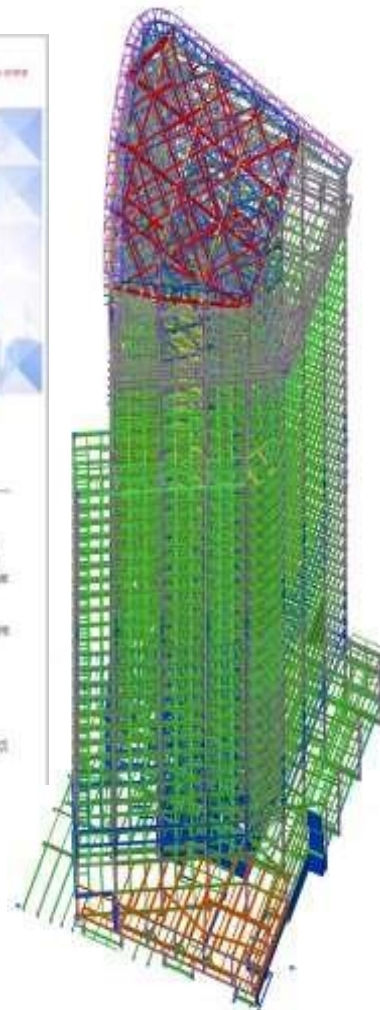
This 52 story high-rise tower in the heart of the city of Philadelphia has a concrete stair and elevator core surrounded by a steel shell. Due to its size and weight, this project was subjected to a varying column shrinking process that varied by column line and elevation. This high-rise has it all, from leaning exterior columns to a non-traditional façade support system. The roof level is constructed of a multitude of heavy trusses, some were partially embedded in concrete.



Project Description • PNC Tower (Above the 34th level)

Project Location: Pittsburgh, Pennsylvania
Customer: Sippel Steel Fab
Contact Info: Nick Gann • (724) 934-4800

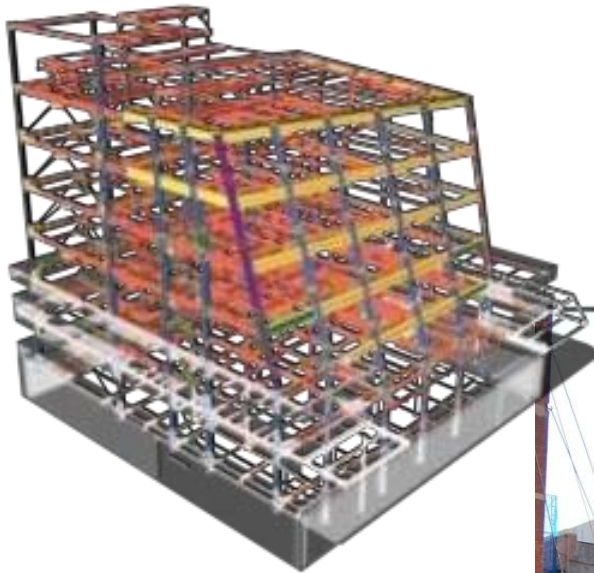
This complex structure won the Tekla North America BIM Awards for 2015. It included a state of the art skylight framing system that is sloping and skewed, where all members were moment connected. Some of the columns had to support more than six members connecting to a single point with varying angles and slopes. An extremely difficult task where our team of Engineers, Detailers, and Modelers were credited for turning this phase into a success.



Project Description • 837 Washington Street

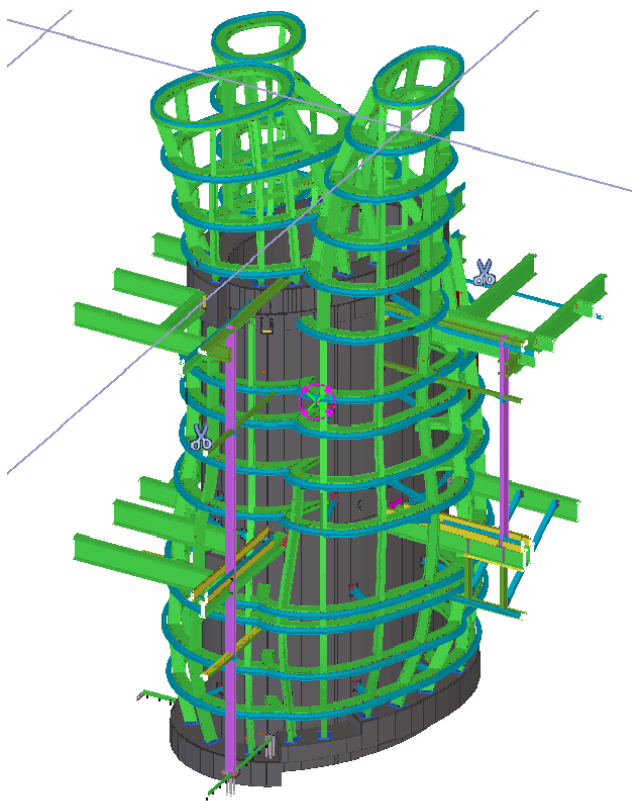
Project Location: New York, New York
Customer: Weir Welding
Contact Info: Anthony Liparini • (610) 974-8140

This modern office building was part of a high-profile renovation in New York City. The building takes shape by twisting as it progresses up the floors. The exterior design of the building is made up of exposed 3 plate beams that match the twisting columns. This complicated design coupled with the existing lower structure required an enormous level of coordination with all involved parties that included the EOR, GC, and Fabricator as well as a multitude of vendors. Due to the complex twisting members, IDS was in constant coordination mode with the shop and field to ensure the members were fabricated and installed seamlessly.



Project Description • A Gathering Place For Tulsa

Project Location: Tulsa, Oklahoma
Customer: Unique Metal Fabrication, Inc
Contact Info: David Masterson • (620) 232-3060



The Gathering Place Lodge contains a complex steel structure fireplace that is a focal point of the building. The fireplace was modeled using the centerline model from the architect and was coordinated throughout the project to make changes and match exactly what the architect wanted. This fireplace is made up of built-up members to create HSS and W-Shapes out of plates due to the complex geometry of the fireplace. This structure required special plate burning files for scribing, assembly drawings, and coordination with the shop because nothing was on a perfect radius. This project included a stair enclosure at a separate Boathouse which was made up of similar members and coordinated in the same manner. Overall the 3D modeling environment enabled IDS to provide the drawings and data files required for our customer to produce this complex structure.

