

GRANGER

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MICHIGAN STATE
UNIVERSITY

COAA Construction Owners
Association of America

JULY 31, 2018

CONSTRUCTION OWNERS ASSOCIATION OF AMERICA

2018 PROJECT LEADERSHIP AWARD

Michigan State University Spartan Stadium South
End Zone Addition Project

SUBMISSION CHECKLIST



Project Leadership Award Submission Checklist

MAILED ITEMS

- | | | |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|
| <input checked="" type="checkbox"/> | <p>Mailed Six (6) Hard Copy Submissions COAA Project Leadership Awards Committee 5000 Austell-Powder Springs Rd., Ste. 217 Austell, GA 30106</p> | <p>Must arrive at COAA HQ by July 31</p> |
| <input checked="" type="checkbox"/> | <p>Letters of Recommendation</p> | |
| <input checked="" type="checkbox"/> | <p>Signed Affirmation and Release</p> | |
| <input checked="" type="checkbox"/> | <p>Photographs - both low resolution and high resolution (300 dpi) project pictures (DVD/CD/Flash Drive)</p> | |
| <input checked="" type="checkbox"/> | <p>Nomination Fee</p> | <p>COAA Member \$350.00 Non-Member \$600.00</p> |
| <input checked="" type="checkbox"/> | <p>Credit Card Authorization Form if paying by Credit Card</p> | |

EMAILED ITEMS

- | | | |
|-------------------------------------|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> | <p>Emailed electronic submission to lcastro@coaa.org</p> | <p>Must be received by July 31. Please do not email high-resolution photographs.</p> |
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NOTIFICATIONS

- | | | |
|-------------------------------------|---------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> | <p>Informed Owner of Nomination and Awards Schedule</p> | <p>The Owner will receive the award at our Fall Owners Leadership Conference</p> |
|-------------------------------------|---------------------------------------------------------|-------------------------------------------------------------------------------------------------------|

SECTION 1 - GENERAL
PROJECT INFORMATION



SECTION I - GENERAL PROJECT INFORMATION:

Name of Project:

MSU Spartan Stadium South End Zone Addition



Location of Project:

East Lansing, Michigan

Name and Address of Owner:

**Michigan State University
1147 Chestnut Road, Room 101
East Lansing, MI 48824**

Name and Address of Design Professional(s):

**Integrated Design Solutions
1441 W. Long Lake, Suite #200
Troy, MI 48098**

Name and Address of Construction Professional(s):

**Granger Construction Company
6267 Aurelius Road
Lansing, MI 48911**

Other Consultants or Professionals:

**Myers Plumbing & Heating Inc
16825 Industrial Pkwy
Lansing, MI 48906**

Type of Project:

(Commercial, Institutional, Industrial, Governmental, Medical, etc.)

Institutional

Delivery Method:

(Design Bid Build, CM Agency, CM at-Risk, Design Build, Multiple Prime, etc.)

Design Build

General Project Description:

(Provide a brief narrative of the project scope of work, not to exceed one (1) page.)

Michigan State University (MSU) identified that the south end of Spartan Stadium in East Lansing, Michigan, was lacking in fan amenities, with limited concessions and no restrooms. Fans were required to use facilities in the east or west sides of the Stadium which was not only inconvenient but it created congestion. In addition, the Department of Homeland Security had recommended changes to the entry gates at the Stadium. The Spartan Stadium South End Zone Addition project remedied all of these concerns.



The \$13 (owner budget) million Spartan Stadium South End Zone Addition project involved a 25,000 square foot, single-story addition with 239 restrooms, four new concession stands and an expanded pavilion with a donor plaza and new ticket gate entrances. The challenge? It needed to be completed in only seven months – the time between college football seasons - on a very busy university campus.

The aggressive schedule necessitated critical decisions and innovative solutions to ensure the facility would be ready for use by the start of the 2017 football season. The project required a highly collaborative approach to accomplish this mission, so MSU made its first foray into design-build delivery.

Within days after Granger was awarded the project in mid-January 2017, the highly motivated design-build team of MSU, Granger Construction and Integrated Design Solutions (IDS) began working together to quickly evaluate value engineering, products/materials and construction techniques to enable the delivery of a High-Quality Product within the aggressive construction window. During this early stage, the team made a unanimous decision to utilize innovative materials and prefabrication to meet the August 21 completion date. They also made some on-the-fly changes in the field to address cost and quality concerns, and handled an 11th hour scope addition to resurface the large parking lot in front of the new Addition.

Every aspect of this project posed challenges, and the willingness of all team members to be flexible in their thinking and approaches led to its remarkable success. This project now serves as a textbook example of what's possible when all team members work together to deliver an owner's vision. Not only

Building an addition with the main purpose of housing additional restrooms may not sound like a high-priority project. But if you ask Michigan State University's Athletic Department and the 70,000+ fans who attend each Spartan home football game, they will tell you otherwise. The true testament to the project's success is the fact that it contributes to a much better MSU Football fan experience while also providing a much safer facility. One of the unique aspects of this fan experience is that restrooms can be isolated from the Stadium during pre-game to allow use by tailgating fans and then converted to Stadium access only as the gates are opened.

This was a high-profile job with a very tight timeframe that made people both nervous and excited. It made for some very long days, but it was a huge success and is now filling the role it was intended, leaving all parties, from MSU to the fans, thrilled with the outcome. Due to the complexity and innovation of this project, it was selected as one of the top five 2018 AGC Innovation Award finalists by AGC of America.

Project Duration:
(Calendar Days)

181 days

Project Start Date:
(Date)

February 18, 2017

Project Completion Date:
(Planned Completion Date, Actual Completion Date)

Planned: August 21, 2017

Actual: August 18, 2017

Changes in Schedule:
(Briefly Describe Reasons for Delay or Acceleration)

Despite the extremely aggressive schedule and added scope only three weeks prior to the scheduled completion date – MSU decided to repave the existing parking lot on the south end of the stadium – the project was still completed three days early.

Initial Construction Cost (\$):
(In Dollars)

\$8,736,000

Final Construction Cost (\$):
(In Dollars)

\$11,442,205

Percent of Change Orders:
(Percentage of Final Construction Cost)

31% (due to owner directed scope enhancements)

SECTION II - OVERALL
PROJECT MANAGEMENT



SECTION II - OVERALL PROJECT MANAGEMENT:

(Entire section should not exceed four (4) pages.)

Project Management:

(Provide two (2) examples which demonstrate project management excellence by the Owner's Project Manager.)

1. Utilizing Design Build Delivery Approach to Meet Fast-Track Schedule

This was the first-ever Design Build project at MSU. It was clear that the traditional delivery method of a CM approach would not provide the schedule efficiencies necessary to meet the strict completion deadline for this project. The University recognized that quick decisions would need to be made throughout the course of the project, and that Design Build delivery would be better suited for this fast-paced project. The result of the selection process was an Owner (MSU) / Design (IDS) / Build (Granger) team having a common goal: Building an addition with much-needed restrooms and concession stands within budget and within the fast-track deadline for occupancy. All members of the team had to work together, and at times make compromises, to meet this two-fold goal.

The Owner's team stayed heavily involved in the project from day one through completion, ensuring that all meetings were well attended and that all information was understood and passed on to the necessary people so that critical decisions could be made in a timely manner. This heavy involvement and hands-on management by the owner's project management team ensured that flow efficiency was not interrupted.

The first-ever Design-Build project on campus was very positive, and this was the result of 1) a knowledgeable owner who was able to make quick, sound decisions, 2) experienced and competent team members in Granger and IDS and 3) a very cohesive team with ALL members fully committed to the overall goals and needs of the client. Not only did the team complete the project within the very aggressive seven-month schedule, despite nearly 30 percent scope growth, but the project also came in within budget.

A combination of leadership, team synergy and the ability and willingness by all parties to come up with "win-win" solutions resulted in a final product that offered the best balance between cost, function, efficiency, maintainability and quality, and gave the owner safe and reliable facility to meet the demands of MSU's Football program.

2. Daily Communication/Trust in the Project Team

On a project like Spartan Stadium where time is of the essence, communication between all team members is particularly important. This highly motivated team worked together, starting only days after project award, to quickly evaluate value engineering, products/materials and construction delivery methods to enable the delivery of a high-quality product within the aggressive construction window. The owner, AE, CM and appropriate subcontractors were involved in many discussions addressing system and material options. Some major points for consideration were functionality, maintainability, operating costs and delivery time. Because these decisions were the building blocks of the design and subsequent construction, they took first priority and were the focus of considerable time and analysis by all parties.

MSU's project management team remained heavily involved in all meetings and had daily communications with the entire project team throughout pre-construction and construction. This was especially important in ensuring that pricing turned around quickly so that all materials, equipment and resources were available on site when needed. Since there were only seven months allowed to

finish the design and construct the project, ordering and delivery of equipment was important to meeting construction deadlines. MSU did an exceptional job in organizing all parties – IDS, Granger and key subs – to stay on schedule and within budget.

MSU also recognized that Granger and IDS had previous experience with the Design Build delivery method and gave the team the option to bring ideas, materials and processes to the table for consideration. This level of trust between the owner and the team to do what was in the best interest of the project proved extremely beneficial. Several ideas were implemented, including the following:

- Changing the original design from use of steel to prefab planks for the roof made a significant impact to the schedule, allowing the project to complete on time (details below).
- The decision by the team to utilize a combination of a new and innovative material combined with pre-fabrication of the plumbing systems led to increased quality as well as the more tangible benefits of cost and schedule efficiencies and increased safety and sustainability (details below).
- Redesigning the chases that go around the scoreboard columns that the new addition had to be built around, which had to account for up to six inches of movement in any direction and had to be weather tight (more details on this in Section IV). This redesign not only improved the quality of the structure but also saved the University about \$100,000.

Scheduling:

(Provide two (2) examples which demonstrate the Owner’s expertise in managing the schedule; that is, identify some steps taken by the Owner which contributed to the management of the schedule.)

1. Utilizing prefab for the plumbing/piping assemblies

The aggressive schedule for this project necessitated innovative solutions, particularly for the portion of the project that was one of the most labor-intensive – the plumbing. The team chose to use Aquatherm piping systems, a fairly new product in the U.S. Neither Granger nor MSU had ever worked with this product, and while it took a bit of time to get used to, ultimately it proved very beneficial. The light weight allowed for prefabrication of large sections of the piping assemblies to start weeks ahead of actual construction.

The piping assemblies were built in sections, in a controlled environment, and delivered to the jobsite the same morning they were scheduled for installation. Once onsite, crews made all the necessary connections within a matter of hours. The traditional method of building these plumbing systems onsite, in winter conditions, would have taken several days.

By using the Aquatherm material and prefabbing these units, most of the plumbing work was able to take place out of sequence, ahead of the traditional schedule, which allowed subsequent contractors to start their portions of work much sooner. Other contractors did not have to wait for the plumbing systems to be installed in order to start or complete their work.

This was critical in terms of time as it generated the labor and schedule efficiencies that were necessary to complete the project in the duration required. It is estimated that the prefab, combined with Aquatherm’s heat fusion process, slashed the installation time for the water mains and branch piping by 50%.

2. Ability to make decisions/changes on the fly

The MSU representatives were experienced and knowledgeable in construction and were totally focused on meeting the needs of their employer. They worked hard in sticking to the deadlines, were fair in dealing with all team members and were totally involved in the design and construction of the

facility. When design or construction team members had questions on function, materials, etc., they were ready to analyze alternatives and make quick decisions, enabling this project to stay on schedule and proceed successfully.

Some examples include:

- Changing original design from use of steel to prefab planks, recognizing that steel is a long lead item that would seriously jeopardize the ability to meet the schedule of this fast-track project. The original building is structural steel and the original design for the new addition called for the same. However, when the team evaluated alternatives early on, they chose to go with a bearing wall and precast roof for the sake of time.
- During early utility tie-in, it was discovered that the water mains were only 6” as opposed to the 8” shown on the plans. MSU reps quickly consulted with other MSU decisionmakers to change to a 12” water main to ensure that the water pressure would be maintained given the additional capacity of 239 more restrooms being provided in the new addition.
- MSU reps had to ensure that all user needs were being met, and there were multiple end users involved, from the concessions staff to the security staff to the roofing inspectors and more. For example, it was imperative that the security staff had the level of WiFi needed to successfully meet the security requirements for that portion of the stadium, and when changes or alterations had to be made, the MSU reps were right there to communicate those changes to the team.

Cost Management:

(Describe what action the owner took with the project team to manage the project costs.)

- Owner was extremely involved in the project and had daily communication with the project team.
- MSU was very transparent with the team, communicated all cost/budget info., including owner costs – this led to all costs being shared, with an open book policy taking place on both sides of the table.
- Attended critical biweekly reviews of cost logs – any decisions that needed to be made were done in a timely manner so there were no delays in purchasing materials or sequencing of the work.
- Over the Shoulder Drawing Review of documents and initial sign off at the table. Rather than the traditional review of documents and sign off three weeks later, this team met and reviewed documents with an initial sign off by the owner that very same day, allowing the team to begin.
- Effective and Efficient Change Management Process - Changes can be difficult on any project, but with such a fast-paced project like the SEZA project, dealing with changes in a positive and efficient manner was absolutely critical. MSU was always on hand to make decisions in the field effectively and efficiently so that the project would not be impeded.
- MSU representatives verified what was installed to ensure that MSU standards were met - while some deviations were necessary to ensure the schedule was met, MSU reps were always on hand to verify that quality and MSU standards were maintained.

Quality Management:

(Provide a brief narrative describing the methods of quality control/quality assurance and the Owner's participation in this area.)

The decision by the team to utilize a combination of a new and innovative material combined with pre-fabrication of the plumbing systems led to increased quality as well as the more tangible benefits of cost and schedule efficiencies and increased safety and sustainability.

Pre-Fabrication of Plumbing Systems - Days after the project was awarded, the team (MSU/IDS/Granger) began planning and made a unanimous decision that prefabrication was a necessity if we were going to meet the aggressive completion date. That was in mid-January, and by early February, construction of the plumbing systems for the hundreds of sinks, toilets and urinals had begun at the plumbing contractor's facility weeks before the project ever broke ground. These components were built in sections, in a controlled environment, and delivered to the jobsite the same morning they were scheduled for installation. Once on-site, crews made all the necessary connections within a matter of hours. The combination of prefabricating the piping systems offsite and the shorter installation times once on site during winter conditions helped increase productivity, quality and profitability while also creating a safer working environment for installation crews and the other general contractors on the project team

Use of Aquatherm Piping - The German-manufactured pipe is one of the world's most durable and greenest piping systems since they offer many performance and environmental benefits. Unlike metal piping materials, Aquatherm's piping systems are installed via heat fusion. The heat fusion process bonds both sides of a joint into a single, homogenous material, without the use of flames, chemicals or mechanical connections. Once fused, pipes and fittings have the same physical properties, thus eliminating systematic weaknesses that can be caused by introducing different materials into the joint in other types of piping systems. Essentially, these leak-free connections ensure a high-performance system without risk of failure or delaying operations.

The long-term benefits are pretty significant when you consider that these pipes will often outlast the buildings in which they are installed, without major retrofits or maintenance. The same cannot be said for copper or steel pipes where corrosion, leakage and replacement can be extremely costly and have negative environmental impacts. Quality of life deteriorates quickly when pipes fail, and they can be both difficult and costly to repair or replace. Aquatherm's pipes and fittings are low-impact to produce, extremely long-lived and fully recyclable.

Additional methods used on this project that led to increased Quality include:

- Over the Shoulder Drawing Reviews with the entire team, with initial sign-off at the table by MSU
- Daily communication with the team, on hand for installation of materials and systems to ensure processes were being met
- Resolve detail of issues – MSU involvement helped to ensure modifications were approved as needed with little time wasted

MSU's ability to coordinate the various parties, always be on hand to make quick decisions and their willingness communicate information in a timely and productive manner played a key role in this project's successful completion.

SECTION III - OVERALL
PROJECT SUCCESS



SECTION III - OVERALL PROJECT SUCCESS:

(Identify and briefly explain the factors that contributed to the success of the project such as the selection of the A/E, Prime Contractor and Subcontractors, approach to decision-making, handling end user requests, etc. Entire section should not exceed two (2) pages.)

The MSU Spartan Stadium South End Zone Addition project was a fan amenity project that had previously been put on the shelf pending availability of funding. MSU's Infrastructure Planning and Facilities Department received authorization to proceed with planning by the Board in December 2016, with completion slated for mid-August 2017, prior to the start of the 2017 Spartan Football Season. This fast-track project required MSU to think outside the box. Some of the key factors in the project's success include:

1. Selection of the A/E – MSU's selection of Integrated Design Solutions (IDS) as the Designer for the project proved extremely beneficial to the project as IDS had worked with the University on the 2012 Stadium Master Plan Update. IDS had also created bridging documents for the RFP for a CM selection, leaving some room for the potential of utilizing a Design Build approach. This gave IDS extensive knowledge of the project, allowing the Design team to hit the ground running upon finalization of the project team.

2. Open to New Delivery Approach

MSU realized upon authorization to proceed with this project that the difficult schedule would likely require a fast-track delivery method. The University had never utilized the Design Build approach before, but was open to the idea of trying something new if it would ensure a commitment from the project team of providing a Guaranteed Maximum Price by February 2017 and completing the project within the difficult construction schedule.

The decision to utilize a modified version of the Design Build approach allowed the University to engage IDS directly to move the project's schematic design to a greater level of development, which would then allow them to solicit GMP pricing from multiple design build entities in January 2017. Following this process, MSU paired IDS directly with the selected builder to complete the team that would then work together to complete the design and construction within a short seven-month window.

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A combination of MSU leadership, team synergy and the ability and willingness by all parties to come up with "win-win" solutions resulted in a final product that offered the best balance between cost, function, efficiency, maintainability and quality, and gave the owner safe and reliable facility to meet the demands of MSU's Football program.

3. Selection of the right Builder

Selecting Granger Construction for this fast-paced, complex project was another key decision that led to the success of this project. The GMP was not an issue as the initial pricing fell well within the anticipated budget. The real challenge was meeting the University's schedule expectations of less than seven full months for construction. Factor in the short schedule duration with the fact that

construction would need to start in the dead of winter – in Michigan – resulted in the need for a very innovative, detail-oriented and versatile construction firm.

MSU had worked with Granger on previous fast-paced, difficult projects on campus and knew that their team would provide the innovative mindset, attention to detail and willingness to go above and beyond that was required to give the SEZA project its best shot at success. Granger's ability to look at new and innovative materials, provide design input and their ability to self-perform all of the concrete on the project proved extremely beneficial to all aspects of the project, including quality, cost and schedule.

MSU's positive, long-term relationship with both IDS and Granger Construction also played a key role in the project's success, allowing the team to hit the ground running, with no learning curve required. These teams had such a great relationship that it was easy for MSU to put its trust in the Design Build team to provide new ideas and solutions that would put the project on a positive, no surprises path to success.

4. MSU's Ability to "Get Out of the Way" AND Provide Daily Involvement was Critical

On one hand, MSU reps "got out of the way" and let the experts (IDS, Granger and other subject matter experts) do their job by providing innovative ideas and solutions. On the other hand, this fast-paced project required almost constant contact and communication between the owner, AE and Constructor. MSU's project management team remained heavily involved in all meetings and had daily communications with the entire project team throughout pre-construction and construction. This was especially important in ensuring that pricing turned around quickly so that all materials, equipment and resources were available on site when needed. Their availability also played a key role in managing changes on the fly as construction was underway. MSU reps were always right there and made sure that other key people and decision makers were available when immediate decisions needed to be made. Not only did this help to ensure that the budget and schedule were met, but it also led to increased quality and safety and minimized the potential for conflict amongst team members.

This project demonstrably proves what happens when team members remain focused on delivering a project of exceptional value and remarkable quality. And, doing so while remaining flexible to changing course(s) when it's in the best interest of the customer. There were numerous challenges, but every one of them was met with a positive CAN-DO attitude. A team attitude that led to delivering this project three days early, despite added scope at the 11th hour to an already extremely aggressive schedule. It was also delivered on-budget and to the complete satisfaction of the client and all end users.

SECTION IV - PROJECT
COMPLEXITY



SECTION IV – PROJECT COMPLEXITY:

(Provide a brief narrative (i) in bullet form and (ii) maximum of one page; describing the complexity of the project including challenges, constraints and the solutions.)

Extremely Aggressive Schedule - The biggest challenge of this project was by far the timeline given to complete the design and construction - only 7 months from the time of award. Typically, a project of this size (\$13 million project budget) and scope would require several additional months to complete.

“The public will not understand how challenging this project timeline was to accomplish, but they will certainly appreciate their new gates, restrooms and concessions.” Dan Bollman, Associate V.P. for Strategic Infrastructure Planning and Facilities, MSU

First Design-Build Project by Owner – The aggressive schedule forced MSU and the team to utilize methods/approaches and materials never before used at MSU. This project signifies MSU’s first-ever Design-Build delivery project on campus. Granger and IDS worked on other projects together and had successfully practiced the Design Build method. This experience gave our team the edge in anticipating problems, working through challenges and seeking team solutions. Each team member was familiar with the procedures, techniques and personalities of other team associates. This factor worked to our advantage in negotiating the day-to-day decisions necessary for this fast-track project.

Utilizing an Unfamiliar Product – During the final stages of design, it became apparent that innovative solutions needed to be considered to successfully complete the project in the timeframe required. Focusing on the most labor-intensive portion of the project, which involved plumbing for the new restrooms, the team made the decision to use a piping material never before used by MSU, and one only recently being marketed and used in the United States (Aquatherm’s PP-R pipe) in place of the traditional copper and CPVC pipe – a bold yet risky move considering most teams would prefer to use products they are already familiar with rather than deal with learning curves on such a critical time-sensitive project. However, the team agreed early on that a combination of this innovative product, coupled with an off-site, pre-fabrication approach, would meet all the criteria of the design, help expedite project delivery and meet the quality and sustainability goals of the University. Some of the challenges involved 1) Training for plumbing contractor’s staff prior to prefabrication: this squeezed the window of available time to complete prefab, 2) Aquatherm piping is only available in metric pipe sizes, posing additional challenges with compatible insulation and changes to traditional pipe hanger sizes, and 3) Starting prefabrication while early construction field processes and layouts were ongoing meant that whenever a design or layout change was required, it could require a change with the prefabrication. The overall benefits far outweighed any of these challenges. The installation time for the water mains and branch piping was slashed by approximately 50%, saving both time and labor costs.

Building Around Large, Moving Scoreboard Columns & Ensuring the Chases Around Them

Remained Water Tight MSU’s Spartan Stadium South End Zone Addition was built around numerous columns that support a 567 square foot scoreboard – the fifth largest video scoreboard in the country. It’s one thing to build around existing elements, but when those elements can shift up to six inches in any direction when the wind blows, things can get a little tricky. With the help of the roofing company, the team was able to create a rubber enclosure around the score board columns, making sure to have a weather tight building so the roof would not leak and yet still allow for the movement of the column as originally designed.

Added Scope At The 11th Hour – Two weeks prior to completion, MSU decided to remove and replace the entire south parking lot in front of the new Addition. Despite the fact that the construction team was already working 7 days a week to ensure completion, the team quickly coordinated the work and was still able to finish the project three days ahead of the original schedule. The parking lot work proved to be the icing on the cake that refined the new look of the South End Zone Addition.

SECTION V -
SUSTAINABILITY
ELEMENTS/EFFORTS



SECTION V – SUSTAINABILITY ELEMENTS/EFFORTS:

(Provide a brief narrative (i) in bullet form and (ii) maximum of one page; describing sustainability elements/efforts, if any.)

- **Be Spartan Green** - MSU is a world-class teaching institution and, from the start, wanted to do something different on this project to reflect the University's passion for sustainability and innovation. "Be Spartan Green" isn't just a catchphrase, it's a way of life on a campus with nearly 50,000 students. From the onset, University leadership wanted this project to embody the institution's commitment to sustainability and environmentally-friendly practices. The need for sustainable innovation was an expectation.
- **Utilizing Sustainable Products** - The University wanted this project to embody their passion for sustainability, and the Aquatherm pipe they chose for the most labor-intensive portion of this project -the plumbing - fit that bill well for the following reasons:
 - All of its PP-R piping systems offer exceptional chemical purity and a flexible physical strength that differs from other piping systems - they are non-corroding, so they won't break down, weaken, or scale like metallic piping systems.
 - It is a uniquely stable material since it won't react with water, is highly resistant to most chemicals and doesn't require chemical maintenance.
 - The piping systems' 10-year, multimillion-dollar warranty and third-party-certified environmental product declaration (EPD) means they can directly contribute to LEED v4 credits.
 - Piping systems that leach chemicals into drinking water affect both people and the local water table over time. Pipes that corrode or scale reduce energy efficiency and eventually need to be replaced, shortening the life of other building components that must be removed for the retrofit. Pipes that leak waste water and cause mold, reducing indoor air quality. The use of Aquatherm pipes in Spartan Stadium's new Addition will help avoid all these issues and help contribute to the University's overall green building culture.
 - Aquatherm has natural insulation properties. For sound, PP-R absorbs vibrations, allowing the pipe to run at 8 ft/s while generating the same noise as copper pipe at 3.5 ft/s. That means this piping doesn't require vibration isolators, provided there is some limited mobility of the pipe on either side of the pump. For thermal insulation, Aquatherm's fiber-composite pipes have a low thermal conductivity: 0.70 btu*in/ft²*h*°F. This amounts to an R-value of about 1.4 per inch of pipe wall. The system's natural R-value also improves uninsulated energy performance in areas where insulation is difficult to install.

On this particular project, some insulation was left off domestic cold water piping in the mechanical room to observe if condensation or other negative results would occur with significant weather changes. The bathroom area in the new addition is more "exposed to outside temperature" condition than the vast majority of buildings on campus, so this project will serve as a good test for the piping system's response to inclement weather, which may help MSU dictate the future designs and usage for utilizing this pipe.

SECTION VI - CONFLICT
RESOLUTION



SECTION VI – CONFLICT RESOLUTION:

(Provide a brief narrative (i) in bullet form and (ii) maximum of one page, describing the owner's role in minimizing and resolving conflicts.)

It's no surprise to anyone in this industry that conflicts on the construction site are a common occurrence. Any time you have multiple parties such as general contractors, owners, architects, subcontractors working together to complete a project, disagreements will arise. Some of the key things MSU did on this project to minimize and resolve conflicts include the following:

- 1. Selected a Design Build Team with previous successful experience with the University and with each other.** MSU selected experienced and competent team members in Granger and IDS - a team that has worked together on previous complex projects on campus and who MSU had excellent working relationships with. All members of the team had to work together, and at times make compromises, so this initial decision was a key factor in minimizing any potential conflicts among the team. MSU was confident in selecting this team for such a fast-paced project because it was a very cohesive team, with ALL members fully committed to the overall goals and needs of the client.
- 2. Successfully Utilizing a RightStart Project Kick-Off Meeting.** The goal of any construction project is to see successful completion of the job on time and within budget. When conflicts arise, it can seriously threaten achieving that goal. One of the best ways to minimize conflicts is to make sure all team members are on the same page from the start of the project. - stakeholders have different opinions and interpretations on how things are supposed to be done. Those differing opinions often lead to conflicts.
- 3. Clear and Constant Communication.** Poor communication on the jobsite is one of the leading causes of conflict. MSU made sure that expectations were always clearly communicated to everyone on the project. There were many times when decisions were required, and not everyone agreed on what the best solutions were to a problem. Once a resolution had been decided upon, MSU made sure everyone involved understood the decision and was clear on what was expected moving forward. They kept everyone on the same page and up to date with any changes or alterations being made to the project or schedule. There were no surprises, and therefore, conflict among team members was not an issue.
- 4. Presented a Culture of Cooperation and Collaboration.** MSU set the standard early on by making their expectations clear and by leading by example to ensure the team was willing to compromise and work together to solve problems and make decisions that were in the best interest of the project. Construction is all about cooperation and collaboration, and this team was an excellent example of that from day one through completion.
- 5. Daily Involvement.** MSU was on site, attended all meetings and was readily available so that when issues arose, they could help mitigate them in a timely manner before they became detrimental to the project. Their heavy involvement and ability to make immediate decisions were key factors in alleviating most of the issues that came up on this project. For example, when the exterior precast panels arrived on site and it was discovered some of them were cracked, MSU's availability to inspect the panels and quickly make a decision allowed the team to re-sequence the installation of those panels from east to west using the good panels instead of west to east, giving the manufacturer time to reproduce the cracked pieces.

SECTION VII-CUSTOMER
SATISFACTION



SECTION VII - CUSTOMER SATISFACTION:

Please attach to the Nomination Form the following letters of recommendation:

1. A letter from the Design Professional describing how they found the Owner contributed to the project success. – See attached
2. A letter from the Construction Professional describing how they found the Owner contributed to the project success. See attached
3. A letter from the customer or end user of the facility describing their overall satisfaction with the building/facility. See attached

AFFIRMATION AND RELEASE:

| | |
|----------------------------------------|-----------------------------------------------|
| Nomination is submitted by: | <u>On Behalf of Michigan State University</u> |
| Name: | <u>Suzie Cherney</u> |
| Company: | <u>Granger Construction Company</u> |
| Street Address: | <u>6267 Aurelius Road,</u> |
| City, State/Province, Zip/Postal Code: | <u>Lansing, MI 48911</u> |
| Phone Number: | <u>517-393-1670</u> |
| Email Address: | <u>scherney@grangerconstruction.com</u> |

In submitting this application, I affirm to the best of my knowledge, that the information contained herein is accurate and correct. I also agree to grant permission for COAA® to use the nomination materials in their entirety (including photographs) for promotional purposes which may include, but not be limited to, the COAA® website and the *Owners Perspective* magazine.

SIGNATURE  DATE 7-30-2018
TITLE : Project Manager

MICHIGAN STATE UNIVERSITY

July 30, 2018

Project Leadership Awards Committee
Construction Owners Association of America (COAA)
2859 Paces Ferry Road
Overlook III, Suite 420
Atlanta, GA 30339

I'm very happy to recommend the Spartan Stadium South End Zone Addition for the COAA project leadership award. The project is a testament to teamwork, collaboration, and frankly, an owner 'getting out of the way.'

We were faced with a challenge to deliver this project in 10 months. This was non-negotiable, as football was scheduled for the following Labor Day Weekend. We knew we had a good concept, and straightforward requirements, but our typical approach would take several months to get complete, leaving little time for construction, particularly with a difficult labor market.

The Owner's response was to do less. . We used the existing concept as design build bridging documents, and looked to the successful team as a partner to complete design and execute the project. This calculated risk taking was the most important decision we made as an owner.

Design Build teams loved the challenge. As one said, "It's nice to take the shackles off." Granger won the project through innovation, including a different roof system that took weeks off the schedule. They used extensive prefabrication, and alternative materials. MSU, Granger, and IDS worked together to finalize the design. Alternatives, including deviations from our standards, were discussed enthusiastically, and were balanced with actual costs to make more informed decisions.

In the end, the team was up for other challenges, including adding a requirement for reversible access to the restrooms (from the tailgate lots pregame, and the stadium once the gates opened.) We also opted to resurface the entire adjoining lot at the 11th hour without adding drama to the schedule.

In short, this project was a challenge, but you wouldn't know it by the result. The project was on time, within budget, and added scope and value to the campus community. This was only possible because an owner knew to do less, and work with great partners.



Office of the
Vice President
for Strategic
Infrastructure
Planning and
Facilities

Daniel J. Bollman
Associate Vice President

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A handwritten signature in black ink, appearing to read "Jack Mumma".

Jack Mumma

July 23, 2018

Project Leadership Awards Committee
Construction Owners Association of America
2859 Paces Ferry Road
Overlook III, Suite 420
Atlanta, Georgia 30339

To Whom it May Concern:

I am pleased to share my personal insights regarding the Michigan State University (MSU) Spartan Stadium South End Zone Addition with the Project Leadership Awards Committee reviewing submissions for the COAA Leadership Awards.

The South End Zone Addition Project is a fan amenity project that would increase toilet room and concession facilities at the Stadium with its roots dating back to a 2012 Stadium Master Plan Update that developed the project to a schematic design phase. In 2012, the North End Zone Addition component of the Master Plan Update proceeded through implementation which addressed Locker Room and Media Room deficiencies, as well as toilet room deficiencies in the North End Zone area of the Stadium. The South End Zone Project went on the shelf pending availability of funding. In December of 2016, the University's Board of Trustees authorized their Facilities and Athletics Departments to proceed with planning for the project and to come back to the Board in February 2017 with a committed guaranteed maximum price for the project along with commitment to a July 2017 completion of the project!

With the extremely aggressive schedule proposed by the MSU Administration, the Infrastructure Planning and Facilities Department recommended a modified design-build delivery method approach. Their plan was to engage IDS directly to move the project's schematic design to a greater level of development that would allow them to solicit GMP pricing from multiple design build entities in January 2017. Following this process, they paired IDS directly with the selected builder, Granger Construction Company, to complete the team that would execute the finishing of the design and construction of the project between February and July 2017 upon the Board of Trustee's approval for the project to move into construction.

While the initial GMP pricing fell well within the anticipated budget for the project, meeting the schedule expectations was the real challenge of the project. Coupled with the short duration for construction was the fact that the start of construction was in the dead of a Michigan Winter. Scheduling drove the need to consider the change of structural system from steel to a masonry bearing wall with precast concrete roof planks and a prefabricated piping system for plumbing that was outside the University's published standards for materials. These items were all vetted through weekly team meetings that included representatives from Granger, IDS, IPF, Athletics and the subcontractor trades. The collaborative effort to settle early design decisions along with a little weather luck got the project out of the ground and enclosed by mid-April. Timely clarifications of Requests for Information (RFIs) and the processing of shop drawing submittals kept the project moving. The collaborative nature of the team also allowed design refinement and enhancement within this difficult schedule. The project opened to the great appreciation of the fans for the first game of the 2017 Football Season!

Sincerely,

Integrated Design Solutions, LLC

A handwritten signature in black ink that reads "Paul Stachowiak". The signature is written in a cursive, flowing style.

Paul Stachowiak, AIA
President

July 25, 2018

COAA Project Leadership Awards Committee
5000 Austell-Powder Springs Rd., Ste. 217
Austell, GA 30106

RE: 2018 Project Leadership Award

To Whom It May Concern:

It is a pleasure to write you in regard to the exceptional Team member cooperation and vision that led to the complete success of Michigan State University's Spartan Stadium South End Zone Addition Project.

This project posed numerous challenges, and each and every one of them was met with a positive CAN-DO attitude. A team attitude that led to delivering this project three days ahead of schedule despite added scope at the 11th hour to an already extremely aggressive schedule. It was also delivered on-budget and to the complete satisfaction of MSU, and equally important to those now using the structure.

Our partners, MSU, Integrated Design Solutions, Myer's Plumbing and all of the trades involved in this project demonstrably proved what happens when team members remain focused on delivering a project of exceptional value and remarkable quality. And, doing so while remaining flexible to changing course(s) when it's in the best interest of the customer.

Success means a lot of different things to a lot of different people. To us, success means delivering an exceptional project, on a predictable course, to an extremely satisfied customer. By that measure, this project literally set the standard for excellence in cooperation/teamwork and ultimately in successfully delivering a fast-paced project without losing the quality and functionality MSU expects.

A standard we're going to use as a guide to success for many years to come.

Sincerely,



Glenn D. Granger, LEED AP
President/CEO



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