

## Back to School with Masonry Construction



THE NEW CONCESSION STAND PAVILION AND GRANDSTAND AT MARY INSTITUTE AND COUNTRY DAY SCHOOL ARE FRONTED BY A 300 FOOT LONG BRICK WALL AT FIELD LEVEL.

### Masonry is the Choice for School Districts on the Move

The Saint Louis metropolitan area has experienced a boom in school construction in the past year. Public school districts and private academies know that masonry construction provides the best workmanship and material choices for schools to grow and adapt to the changing needs of students.

As **Young-Hie Nahm Kromm**, Principal at **KRJ Architecture**, recently commented, “Masonry is a timeless material. School construction often occurs over time and in many phases. No other exterior envelope material out there today comes close to the flexibility of masonry and timelessness of brick.”

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#### INSIDEMASONRY

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IN THE ZONE WITH MASONRY

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Volume 23 Issue 2



THE ARCHITECT TOOK CARE TO BORROW MASONRY DETAILS FROM THE EXISTING CAMPUS IN ORDER TO INTEGRATE THE NEW STRUCTURES. BRICK AND BLOCK EXTERIOR WALLS AS WELL AS LIMESTONE COPING, PANELS, SILLS AND ARCHES WITH KEYSTONES ALL COME INTO PLAY HERE.

## MICDS Athletic Facilities

### Masonry Dominates the Campus at Mary Institute and Country Day School

The MICDS project architect began recent upgrades and additions to the natatorium, new football stadium and track grandstand, with a photographic cataloging of the private school's significant existing masonry features and details.

"There are corbels, arches, keystones and smaller details that influenced how we used block and cut stone on these projects," said **Eric Kocher**, Design Principal at **Hastings + Chivetta**.

Integrating the structures into the fabric of the campus—even the distant stadium—was a top system priority in the design. Behind the beautiful expressions of brick and stone that everyone sees are solid load bearing masonry systems.

"The new Aquatic Center is a moist box. The whole thing has to be buttoned up at every point," said Kocher. "There are many factors involved to make sure we do not have any air or moisture movement from a vapor barrier standpoint."

**John J. Smith Masonry Company's** combination of technical expertise and artistic craftsmanship made them the perfect fit for this project.

The interior of the aquatic center requires an open area, so seismic requirements were met by using arches and seismic lintels instead of steel bracing throughout the building. The building's exterior features a brick veneer to match the existing gymnasium, as well as limestone coping, panels and sills.

"We invested a lot of time coordinating the sequences to construct these buildings and maintain the schedule," said **John Smith, Jr.**, President, John J. Smith Masonry Company. "It was time well spent given the new technologies utilized, including the flashing system, cavity drainage system and seismic and concealed lintels."

The new football stadium is supported by load bearing masonry walls, but the real eye catcher is the masonry wall that runs the length of the field. The grandstand features open stairwell towers at each end. The stadium's main entrance features two-foot deep brick arches with keystones, brick rowlock featuring stone medallions, stone coping, stone bands and stone panels.



THE STADIUM AND PAVILION FEATURE CONCRETE BLOCK INTERIOR WALLS AND BRICK AND BLOCK BEARING EXTERIOR WALLS AS WELL AS LIMESTONE COPING, PANELS AND SILLS.





THIS NEW ATHLETIC FACILITY FEATURES BEAUTIFUL BRICKWORK FROM THE TOP OF THE PRESS BOX TO THE BASE AT THE FIELD.



THE NEW AQUATIC CENTER AT MICDS USES BRICK AND STONE TO INTEGRATE INTO THE EXISTING CAMPUS. HERE IT CONNECTS SEAMLESSLY TO THE EXISTING GYMNASIUM.



THE INTERIOR OF THE AQUATIC CENTER IS A "MOIST BOX". BEHIND THESE BLOCK WALLS IS A CAVITY DRAINAGE SYSTEM FOR POTENTIAL CONDENSATION.

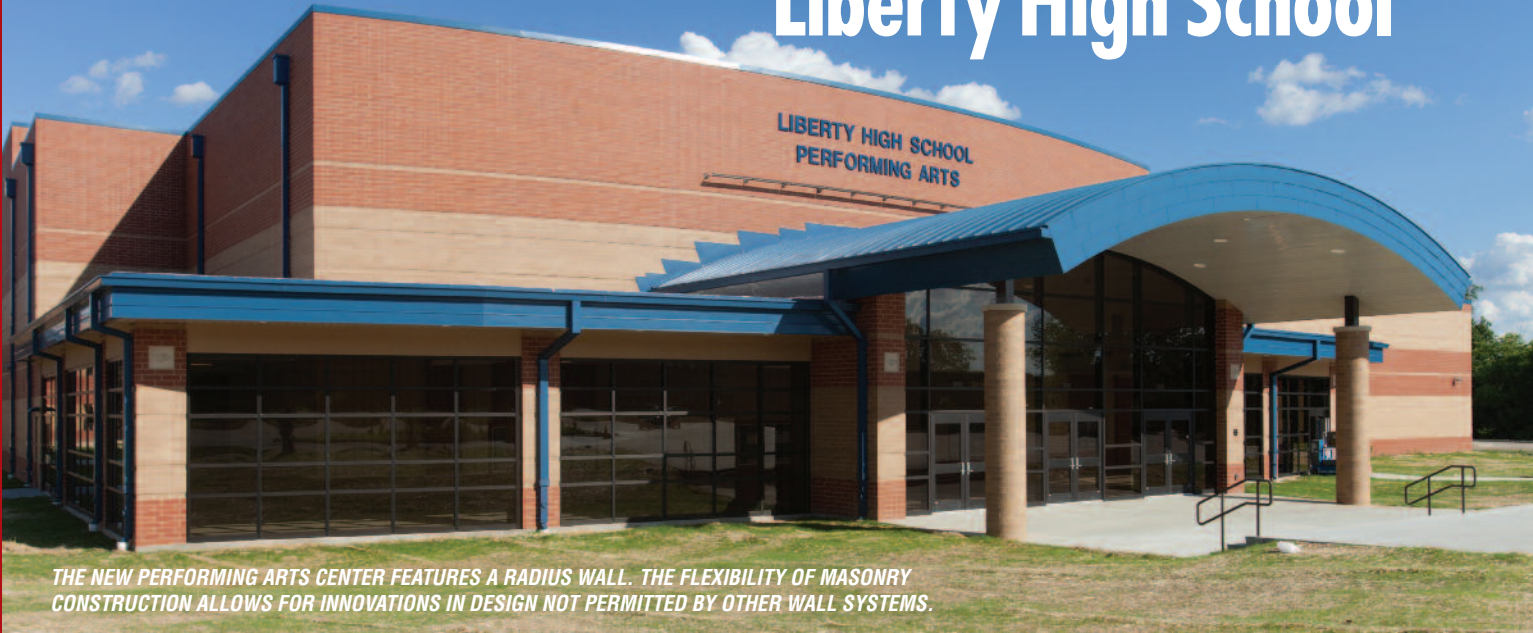


A LIMESTONE PANEL PROUDLY DISPLAYS THE NAME FOR THE NEWEST BUILDING ON THE MICDS CAMPUS.

## At A Glance

**Owner** | Mary Institute and Country Day School  
**Architect** | Hastings+Chivetta  
**Mason Contractor** | John J. Smith Masonry Company  
**General Contractor** | Paric  
**Structural Engineer** | Alper Audi, Inc.  
**Craft Workers** |  
 Bricklayers' Union Local #1 of Missouri  
 Eastern Missouri Laborers' District Council  
**Block, Brick** | Midwest Block & Brick  
**Dry Goods** | Spec Mix  
**Cast Stone** | Caliber Cast Stone

# Liberty High School



*THE NEW PERFORMING ARTS CENTER FEATURES A RADIUS WALL. THE FLEXIBILITY OF MASONRY CONSTRUCTION ALLOWS FOR INNOVATIONS IN DESIGN NOT PERMITTED BY OTHER WALL SYSTEMS.*

**T**he Wentzville School District might be the fastest growing school district in the state of Missouri.

**JDS Masonry** tackled the two phases of recent additions to the relatively new Liberty High School in the Wentzville School District. First, the mason contractor added a new practice gymnasium and classroom wing to the school. Then, they built a new auditorium. Both projects used interior CMU block for corridors and exterior utility brick veneer.

“When doing campus work we want the buildings to last seventy to one hundred years, so we choose materials for their durability,” said **Mark Reuther**, Principal of **Hoener Associates Architects**.

The flexibility of masonry construction was a key factor in the design of the auditorium. “This building contains a radius wall in the auditorium. We used it to define the interior of the house for seating in the theater,” said Reuther.

*THE NEW GYMNASIUM AT LIBERTY HIGH SCHOOL TIES INTO THE EXISTING CAFETERIA. THE BRICK WAS A PERFECT MATCH.*

*A KEY CHALLENGE MET BY THE ARCHITECT, MASON CONTRACTOR AND SUPPLIERS WAS TO MATCH THE COLOR OF BRICK ON THE NEW ADDITION TO THAT OF THE EXISTING SCHOOL.*

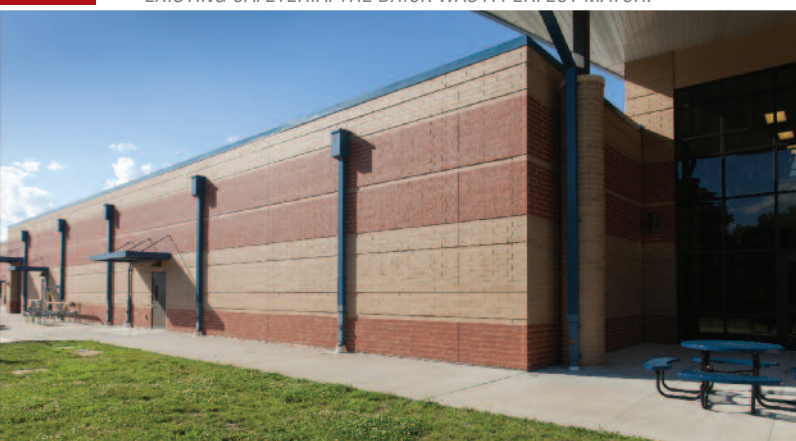


Design elements established in the original school, such as brick column wraps with cast stone caps, cast stone mascot logos and buff and red brick veneer in different elevations and recesses continue in the new additions.

“The key was to match the colors and style of the existing school. This was a testament to the work of the material suppliers and the architect,” said **Jeff Schmidt** of **JDS Masonry**. **M**

## At A Glance

**Owner** | Wentzville R-IV School District  
**Architect** | Hoener Associates, Inc. Architects  
**General Contractors** | ICS (classroom and gym); Wachter (auditorium)  
**Mason Contractor** | JDS Masonry  
**Craft Workers** |  
 Bricklayers' Union Local #1 of Missouri  
 Eastern Missouri Laborers' District Council  
**Block, Brick** | Midwest Block & Brick  
**Mortar** | Raineri Building Products  
**Accessories** | Irwin Products, Inc.  
**Cast Stone** | Caliber Cast Stone



*A VIEW OF THE CLASSROOM WING AND THE NEW AUDITORIUM – PHASES ONE AND TWO.*



# Wentzville Elementary Schools



THE WENTZVILLE SCHOOL DISTRICT SELECTED A BUFF COLORED BRICK AND LIGHT BLOCK AND STONE ACCENTS FOR THEIR TWO NEW ELEMENTARY SCHOOLS – STONE CREEK AND WABASH – IN ORDER TO BEST INTEGRATE INTO THE SURROUNDING COMMUNITIES.

The Wentzville R-IV School District is experiencing such rapid growth that it developed a prototype elementary school to expedite the design and procurement process. Two new schools – **Stone Creek Elementary** in Wentzville

and **Wabash Elementary School** in Foristell represent the sixth and seventh schools to follow this template.

The two new schools feature a steel frame construction covered in a veneer of a variety of masonry materials on the exterior. The interior corridors rely on smooth face

This interplay of brick and block continues around the entire building, with greater ornamentation on the story-and-a-half front than the single-story classroom wings. Quoins are created on the corners of all the one and one-half story buildings by introducing slightly offset courses of the same split-face CMU used around the building's base.

The ornamentation tapers off in the single story classroom wings, which feature the same split face CMU base, single course of 8-inch ground face block trim and solid walls of buff brick.

“The school board selected this color of masonry for these schools because they wanted to blend in with the residential style of the surrounding neighborhood,” said Reuther.

**JDS Masonry, Inc.**, was the mason contractor on Stone Creek Elementary School, while **Leonard Masonry** built Wabash Elementary.

“School construction is always done under a tight schedule, but masonry solves any scheduling issues,” said **Jeff Schmidt**, President of JDS Masonry. “Working with **Lawlor Corporation** was a pleasure.”

## At A Glance

### STONE CREEK ELEMENTARY

- Owner** | Wentzville R-IV School District
- Architect** | Hoener Associates, Inc. Architects
- General Contractor** | Lawlor Corporation
- Mason Contractor** | JDS Masonry
- Craft Workers** |
  - Bricklayers’ Union Local #1 of Missouri
  - Eastern Missouri Laborers’ District Council
- Block, Brick, Grout, Mortar** | Midwest Block and Brick
- Accessories** | Irwin Products, Inc.
- Cast Stone** | Caliber Cast Stone



THE DOUBLE WINGED CANOPY AND COLONNADE UNDER CONSTRUCTION SHOWS THE USE OF SPLIT FACE AND GROUND FACE BLOCK AS WELL AS UTILITY BRICK ON THE COLUMNS.

CMU for durability and ease of maintenance.

The main entrances of these 100,000 square foot elementary schools use design elements and masonry treatments on par with those used on universities.

“A double winged canopy and colonnade of brick and block piers at the entrance of the school creates a very academic feel,” said **Mark Reuther**, Principal, of **Hoener Associates**.

EACH SCHOOL FEATURES TWO SINGLE STORY CLASSROOM WINGS.



## At A Glance

### WABASH ELEMENTARY SCHOOL

- Owner** | Wentzville R-IV School District
- Architect** | Hoener Associates, Inc. Architects
- General Contractor** | ICS Construction Services
- Mason Contractor** | Leonard Masonry
- Craft Workers** |
  - Bricklayers’ Union Local #1 of Missouri
  - Eastern Missouri Laborers’ District Council
- Block, Brick** | Midwest Block & Brick
- Dry Goods** | SpecMix
- Accessories** | Irwin Products, Inc.

# Jefferson County R-VII

BY USING HI-R SPLIT FACE BLOCK ON THE REAR WALL OF THE NEW ADDITION, THE ARCHITECT WAS ABLE TO EASILY MEET THE BUILDING'S ENERGY REQUIREMENTS.

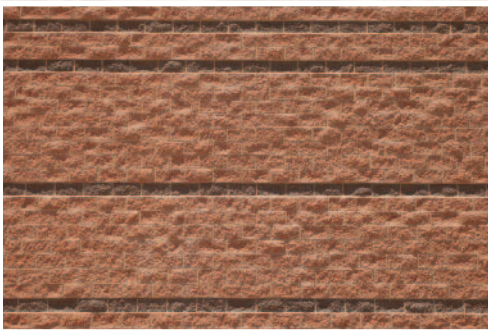


**C**onstruction professionals know that masonry is a sound choice for many reasons. One feature that is often overlooked is the superior acoustical properties of masonry materials.

When Project Architect **Melissa Cox of Ebersoldt + Associates Architecture** was designing a new auditorium for the Jefferson County R-VII High School addition, she had to consider many factors. Masonry met the criteria of matching the existing school's exterior and providing a durable interior surface, but there was another factor to consider.



THESE TEST WALLS SHOW THE DIFFERENT TREATMENTS OF BRICK AND BLOCK USED ON THE NEW ADDITION.



SINGLE COURSES OF CHOCOLATE BRICK BREAK UP THE SPLIT FACE CMU ON THE SIDE WALL OF THE NEW ADDITION.

"Our acoustical consultant had given us a Sound Transmission Co-Efficient (STC) of 60 for all walls surrounding the auditorium space," said Cox. "We used nearly fully grouted 12" CMU to achieve a STC of 60 without having to do anything extra to it."

Some of the CMU is exposed split-face block, which serves as a natural sound baffle.

Support areas for the auditorium, classrooms and a wood shop complete the 20,000 square-foot addition. Masonry provided cost-saving solutions in these areas as well.

"The very back wall of the addition is a Hi-R split-face block that allowed us to meet the energy code while using a single wythe wall that is aesthetically pleasing," said Cox. **M**

## At A Glance

**Owner** | Jefferson County R-VII School District  
**Architect** | Ebersoldt + Associates Architecture  
**Structural Engineer** | KPF Consulting Engineers  
**Mason Contractor** | Leonard Masonry  
**General Contractor** | Pinnacle Contracting, Inc.  
**Craft Workers** | Bricklayers' Union Local #1 of Missouri  
 Eastern Missouri Laborers' District Council  
**Brick** | Midwest Block & Brick  
**Mortar, Grout** | Spec Mix  
**Accessories** | Irwin Products, Inc.

SELECTION OF MASONRY AS THE MATERIAL OF CHOICE FOR THE NEW AUDITORIUM ADDITION WAS DETERMINED IN PART BY THE EXISTING SCHOOL BUT ALSO FOR ITS ACOUSTICAL QUALITY.



# 2017 2018 SEMINAR SCHEDULE

## MASONRY INSTITUTE OF ST. LOUIS

In 1971, a trust fund was established to promote the use of masonry materials. Through this trust fund, the Masonry Institute of St. Louis was created to serve as the promotional and technical arm in the Missouri counties of the Greater St. Louis area masonry industry.

### REGISTERED PROVIDER

The Masonry Institute of St. Louis is a Registered Provider with the AIA Continuing Education System. Participants in all workshops presented by MISL earn Continuing Education Credits. A certificate showing credit earned is mailed annually in December. Unless otherwise indicated, seminars provide 1.0 hours of AIA HSW credits and satisfy state professional development hours (PDH) requirements for Architectural and Engineering licensure.

### MISSION STATEMENT

The purpose of the Masonry Institute of St. Louis is to promote the use of quality masonry materials and union masonry construction by serving as an educational and promotional resource for the use of brick, stone, glass and concrete masonry products in the commercial and residential markets.

**Beginning this seminar series and moving forward, reminder notifications will ONLY BE SENT VIA EMAIL.**

Your attendance is very important – so to receive notifications, please provide MISL with an email address.

You may provide an email address via phone, fax, email or visit our website: [www.masonrystl.org](http://www.masonrystl.org) and click the "Contact Us" page.

*Masonry Institute of St. Louis seminars are profession-specific. However, everyone is welcome to attend all programs.*



## 2017 Masonry Industry Contributors

### PLATINUM LEVEL

Irwin Products, Inc.  
Midwest Block & Brick  
Raineri Building Materials  
Spec Mix

### SILVER LEVEL

Earthworks, Inc.  
Goedecke Co., Inc.

### BRONZE LEVEL

Acme Brick Company  
Advanced Building Products, Inc.  
Brentwood Building Supply  
Building Products Corporation  
Caliber Cast Stone  
Enloe Enterprise  
General Material Co.  
Illinois Products Corporation  
Lemay Concrete Block  
Midwest Cast Stone

Mortar Net Solutions  
Nu Way Concrete Forms, Inc.  
PROSOCO, Inc.  
RGR Equipment, Inc.  
Richards Brick Company  
Solomon Colors, Inc.  
TNEMEC  
Wire Bond  
York Manufacturing Company



Certified Mason  
Contractor Credits



AIA Continuing  
Education Credits  
(HSW)



MISL Professional  
Development  
Hours



Bricklayers'  
Local #1  
of Missouri



International  
Masonry  
Institute

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(314) 645-5888 OR [masonrystl.org](http://masonrystl.org)**

# 2017 2018 ARCHITECTURAL SEMINARS

## COMMON SENSE APPROACH TO MASONRY QUALITY ASSURANCE

Wednesday, September 27, 2017

Speaker: Phillip J. Samblanet  
The Masonry Society (TMS)

In the United States, quality assurance programs have become commonplace to help ensure that construction complies with the design intent. In this presentation, Phillip Samblanet, Executive Director of The Masonry Society, will discuss the minimum quality assurance requirements in TMS 402/602 noting limitations in these requirements while providing tips to achieve reasonable, cost effective, and appropriate quality assurance on your masonry projects.

Sponsor: Irwin Products, Inc.  
[www.irwinproducts.com](http://www.irwinproducts.com)

## CONCRETE MASONRY STORM SHELTERS

Wednesday, October 25, 2017

Speaker: David A. Gillick  
Masonry Structural Coalition

Due to its inherent strength and aesthetic potential, concrete masonry is a prime system of choice for meeting the 2015 International Building Code (IBC) storm shelter requirement. This presentation discusses reinforced concrete masonry storm shelter design including storm shelter loading, potential wall widths and heights, expected reinforcement and anchorage levels, and tips for collaborating with mason contractors during design development through the use of 3D modeling and preliminary budgeting.

Sponsor: Midwest Block & Brick  
[www.midwestblock.com](http://www.midwestblock.com)

## INNOVATIVE BRICK BUILDING DESIGN

Wednesday, November 29, 2017

Speaker: Robert E. Campbell  
International Masonry Institute

By understanding masonry's modular design, architects are able to open the door to great innovation. Through the use of numerous creative design examples, this seminar will review innovative ways to use brick masonry to create new aesthetics. Standards and methods for upholding industry requirements for structural integrity, moisture and thermal control will also be integrated in the discussion of material detailing.

Sponsor: 3DiQ  
[www.3DiQinc.com](http://www.3DiQinc.com)

## 3D VISUALIZATION TOOLS FOR DOCUMENTING MASONRY

Wednesday, January 17, 2018

Speaker: Michael Schuller  
Atkinson-Noland & Associates

Photogrammetry and laser scanning can capture surface conditions of existing construction in great detail and current computing power is leading to their mainstream usage. Resulting surface models are used for documenting and visualizing conditions, modeling software input, and to provide models for stone fabricators tasked with carving replacement pieces. This presentation provides an overview of photogrammetry and laser scanning illustrated by project examples, along with data capturing recommendations for developing accurate models.

Sponsor: Earthworks  
[www.earthworksstone.com](http://www.earthworksstone.com)

## ENERGY IMPACTS OF CONCRETE MASONRY WALLS

Wednesday, February 28, 2018

Speaker: Thomas Young  
Northwest Concrete Masonry Association

Energy codes typically require additional insulation for single-wythe concrete masonry walls to prescriptively comply. This increases first cost and reduces intended durability and impact resistance. Tom Young presents results of a recent study evaluating the impacts of high thermal mass walls in ASHRAE climate zone 4C (Pacific Northwest) as it relates to design performance, prescriptive and nonprescriptive energy code compliance, and optimizing overall energy savings.

Sponsor: Midwest Block & Brick  
[www.midwestblock.com](http://www.midwestblock.com)

## SUSTAINABLE CLADDING: COMPARISON OF MASONRY AND OTHER MATERIALS

Wednesday, March 28, 2018

Speaker: J. Patrick Rand  
North Carolina State University

In this presentation, results from a study of cladding material choices on a large university campus will be reviewed. More than 100 buildings, with various exterior materials, were analyzed to determine anticipated service life, maintenance requirements, and the associated embodied energy and carbon dioxide (CO<sub>2</sub>) 'cost' for each cladding type. Comparisons were then made, including the prorating of each cladding type's environmental 'cost' over its anticipated service life.

Sponsor: Goedecke Co., Inc.  
[www.goedeckeonline.com](http://www.goedeckeonline.com)

## MODEL DRIVEN DESIGN AND CONSTRUCTION FOR MASONRY

Wednesday, April 25, 2018

Speaker: Tom Cuneio  
CAD BLOX

From early conceptual stages to detailed field coordination, models are improving traditional work flows. This program presents current 3D modeling being used to produce better masonry designs and improve construction efficiency. Discussion includes case studies of unit based masonry models with rebar, latest point cloud models, and clash detection. A new Revit plugin that supports custom bond patterns, accurate modular layout, and automatic section generation will also be demonstrated.

Sponsor: Illinois Products Corporation  
[www.illinoisproducts.com](http://www.illinoisproducts.com)

## THOMAS F. WALSH MEMORIAL LECTURE – HISTORIC MASTERPIECES: CHURCHES, CASTLES, COLOSSEUMS

Wednesday, May 23, 2018

Speaker: David T. Biggs  
Biggs Consulting Engineering

Many countries have outstanding masonry structures that have existed long before there was a United States. With that heritage comes a duty to conserve and restore these structures. Following up on last year's program on *Conserving Sites from the Empire of Alexander the Great*, join David Biggs for first-hand accounts of the masonry conservation challenges encountered while protecting various sites throughout Europe, Egypt and Turkey.

Sponsor: Spencer Brickwork  
[www.spencerbrickwork.com](http://www.spencerbrickwork.com)

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Lunch is provided. Vegetarian meals are available upon prior request.

REGISTER FOR SEMINARS AT (314) 645-5888 OR [masonrystl.org](http://masonrystl.org)



# 2017 2018 ENGINEERING SEMINARS

## **DEVELOPMENT OF STRUCTURAL MASONRY STANDARDS IN THE U.S.**

TUESDAY, September 26, 2017

**Speaker:** Phillip J. Samblanet  
The Masonry Society (TMS)

Coinciding with TMS's 40th anniversary, Phillip Samblanet, TMS Executive Director, joins us to look back at the development of structural standards in the United States, from TMS 401, to ACI 530, to the MSJC, to now the TMS 402. He'll also provide guidance on the major changes in recent years and how those changes can help you design masonry effectively and more competitively.

**Sponsor:** Lemay Concrete Block  
[www.lemayblock.com](http://www.lemayblock.com)

## **CONCRETE MASONRY STORM SHELTERS**

TUESDAY, October 24, 2017

**Speaker:** David A. Gillick  
Masonry Structural Coalition

Due to its inherent strength and aesthetic potential, concrete masonry is a prime system of choice for meeting the 2015 International Building Code (IBC) storm shelter requirement. This presentation discusses reinforced concrete masonry storm shelter design including storm shelter loading, potential wall widths and heights, expected reinforcement and anchorage levels, and tips for collaborating with mason contractors during design development through the use of 3D modeling and preliminary budgeting.

**Sponsor:** Midwest Block & Brick  
[www.midwestblock.com](http://www.midwestblock.com)

## **STRUCTURAL MASONRY DETAILING: TMS 602 SPECIFICATION TOLERANCES**

Wednesday, November 15, 2017

**Speaker:** Darrell W. McMillian  
Masonry Institute of St. Louis

Variations always exist between specified dimensions, and locations, and their as-built counterparts. *TMS 602, Specification for Masonry Structures*, gives tolerances for these variations intended to maintain life safety and assure structural performance. Join Darrell McMillian as he discusses TMS 602 tolerances including: receiving foundations, unit and mortar assemblies, steel reinforcement placement, and relationship of tolerances to the project quality assurance plan.

**Sponsor:** Caliber Cast Stone  
[www.calibercaststone.com](http://www.calibercaststone.com)

## **3D VISUALIZATION TOOLS FOR DOCUMENTING MASONRY**

TUESDAY, January 16, 2018

**Speaker:** Michael Schuller  
Atkinson-Noland & Associates

Photogrammetry and laser scanning can capture surface conditions of existing construction in great detail and current computing power is leading to their mainstream usage. Resulting surface models are used for documenting and visualizing conditions, modeling software input, and to provide models for stone fabricators tasked with carving replacement pieces. This presentation provides an overview of photogrammetry and laser scanning illustrated by project examples, along with data capturing recommendations for developing accurate models.

**Sponsor:** Earthworks  
[www.earthworkstone.com](http://www.earthworkstone.com)

## **STRUCTURAL MASONRY DETAILING: CONCENTRATED LOADS AND LINTEL OPTIONS**

Wednesday, February 21, 2018

**Speaker:** Darrell W. McMillian  
Masonry Institute of St. Louis

The structural masonry detailing series continues as Darrell McMillian discusses the application of concentrated loads to concrete masonry walls from other support systems such as steel girders. Next, Darrell looks at lintel options for supporting concrete masonry over door and/or window openings. Example detailing related to pertinent TMS 402/602 Code and Specification provisions will be offered for both topics.

**Sponsor:** Continental Cast Stone  
[www.continentalcaststone.com](http://www.continentalcaststone.com)

## **DIRECT DESIGN OF MASONRY WITH SOFTWARE**

Wednesday, March 21, 2018

**Speaker:** Russ Peterson  
Ensoltech

In recent years masonry design has been simplified with the introduction of the Direct Design standard (TMS 403), and further by the development of companion software to implement that standard. This session explores the next generation of these initiatives highlighting enhancements made to further improve masonry design and downstream construction information. The ability of the TMS 403 related software to quickly design a fully code-compliant masonry building will also be demonstrated.

**Sponsor:** Irwin Products, Inc.  
[www.irwinproducts.com](http://www.irwinproducts.com)

## **STRUCTURAL LIGHTWEIGHT GROUT MIXTURE DESIGN**

Wednesday, April 18, 2018

**Speaker:** Fernando S. Fonseca  
Brigham Young University

Recent BYU research focused on the design of lightweight grout mixtures that achieve a minimum 28-day compressive strength of 2000 psi, as currently required by ASTM C476 for normal-weight grout. Join Fernando Fonseca as he presents research results related to the effects of aggregate proportion, slump, and aggregate soaking on compressive strength. The need for additional research and possible future lightweight grout standardization will also be discussed.

**Sponsor:** Spec Mix  
[www.specmix.com](http://www.specmix.com)

## **STRUCTURAL DESIGN OF PRE-INSULATED CONCRETE MASONRY**

TUESDAY, May 22, 2018

**Speaker:** David T. Biggs  
Biggs Consulting Engineering

While many architects select pre-insulated concrete masonry units (CMU) for their thermal characteristics, the structural design of these systems can present challenges whenever the vertical reinforcement is not symmetrical in the wall. This presentation will identify some of the pre-insulated systems currently available and address the structural design characteristics of each. The design emphasis will be on singlewythe pre-insulated CMU walls, beams and lintels.

**Sponsor:** Midwest Block & Brick  
[www.midwestblock.com](http://www.midwestblock.com)

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# 2017 2018 CODE OFFICIALS

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Sponsor: **Earthworks**  
[www.earthworksstone.com](http://www.earthworksstone.com)

## RESIDENTIAL CONCRETE MASONRY FOUNDATIONS

Wednesday, April 11, 2018

Speaker: Darrell W. McMillian

Masonry Institute of St. Louis

Concrete masonry is well suited for basement and foundation wall construction due to its inherent durability, compressive strength, and modular flexibility. Darrell McMillian explores these and other advantages and then focuses on the related 2015 International Residential Code (IRC) detailing and construction requirements. Discussion to include foundation materials, minimum footing and wall dimensions, wall reinforcement schedules, foundation drainage, and moisture resistance.

Sponsor: **Raineri Building Materials, Inc.**  
[www.raineri-materials.com](http://www.raineri-materials.com)



*All code officials seminars are at the St. Louis Masonry Center, 1429 South Big Bend Blvd., from Noon to 1:00 p.m. unless otherwise noted.*

*Lunch is provided. Vegetarian meals are available upon prior request.*



## DeSoto High School

A tornado demolished DeSoto High School in 2002. The school board embarked on a bond issue which would permit a multi-phase rebuilding program that allowed the community to rebuild over time without an onerous tax burden.

The latest phase of that rebuilding campaign includes a new auditorium and cafeteria. Masonry was the material of choice for this long-range plan for many reasons, particularly its affordability, beauty, flexibility and timelessness.

“Because this is a multi-phase building project, we had to work within the confines of the pre-existing building. The exterior walls of the pre-existing phase became the interior walls of the current phase,” says **Young-Hie Nahm Kromm**, Principal at **KRJ Architecture**. “This is another advantage of masonry.”

Load bearing masonry construction allowed for the flexibility of working on a terrain with changing elevations in a tight site. The designer borrowed colors and design elements from Desoto’s City Hall to reflect the pride of community and cultural heritage.

“We used a lot of different types of material in this building, but when you look at the proportion of the entire envelope, it is small,” said Kromm. “**Leonard Masonry** did a beautiful job. Pilasters were achieved with a lot of indentations and modulations of the brick face and multiple colors of brick and cast stone.”

M

**THE NEW CAFETERIA AT DESOTO HIGH SCHOOL INCORPORATES STYLES AND COLORS OF MASONRY ESTABLISHED IN EARLIER PHASES OF THE BUILDING’S ADDITIONS.**

*THE SINGLE GREEN SQUARE PYRAMID IS GLAZED CONCRETE BRICK. THE GREEN IS THE SCHOOL’S MASCOT COLOR. IT PROVIDES AN ACCENT AT EACH CORNER OF THE PILASTERS ON THE NEW THEATER ADDITION’S WALL.*



*THE NEW THEATER, ON THE LEFT, USES THE EXISTING WALL OF THE BUILDING ON ITS RIGHT AS ITS INTERIOR WALL. THIS IS A BENEFIT OF USING LOAD BEARING MASONRY IN MULTI-PHASE CONSTRUCTION.*

### At A Glance

**Owner** | DeSoto School District  
**Architect** | KRJ Architecture  
**Structural Engineer** | SSE, Inc.  
**Mason Contractor** | Leonard Masonry  
**General Contractor** | Lawlor Corporation  
**Craft Workers** | Bricklayers’ Union Local #1 of Missouri  
 Eastern Missouri Laborers’ District Council  
**Block, Brick** | Midwest Block & Brick  
**Brick** | Richards Brick  
**Dry Goods** | Spec Mix  
**Accessories** | Irwin Products, Inc.



THE USE OF STONE VENEER CONTINUES AROUND THE EXTERIOR OF THE POOL HOUSE, CREATING A WELCOMING ENVIRONMENT FOR GUESTS TO RELAX OUTSIDE OF THEIR ROOMS.

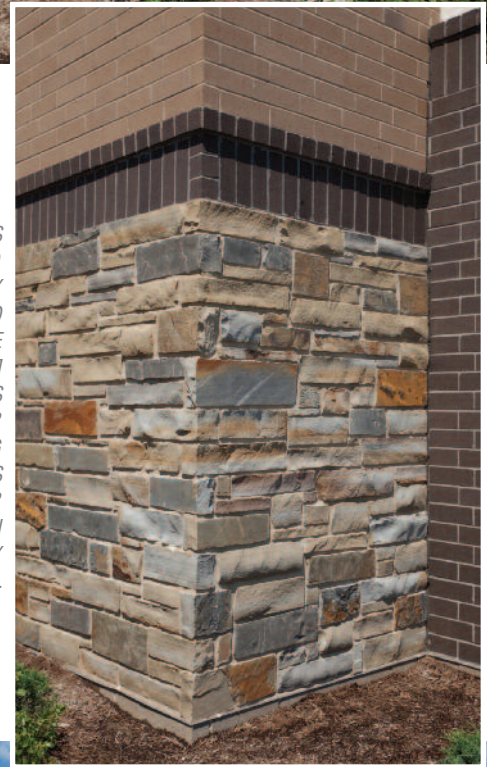
# Overnight Sensation

## There is Always Room for Masonry in Hotel Construction

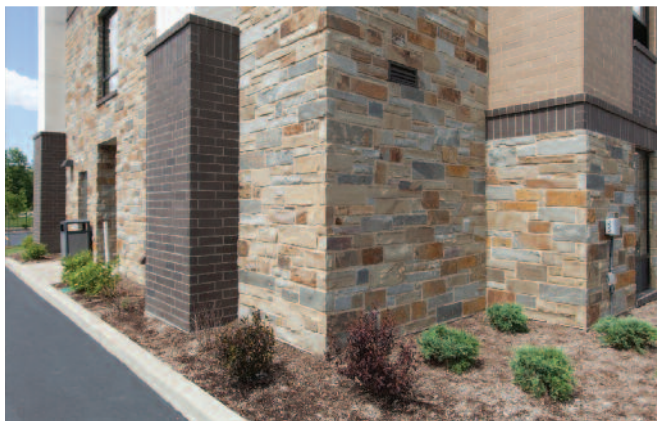
The versatility of masonry is perfect for the requirements of hotel construction. On the one hand, walls, stairwells and elevator shafts benefit from the structural integrity and durability of block construction. On the other hand, a brick and stone veneer adds a welcoming touch of upscale beauty that greets guests at every entrance and around the clock.

**Swanson Masonry, Inc.**, has been working around the clock as well, building three new hotels to serve the St. Louis hospitality market. The 211-room **Marriott Residence Inn and Courtyard Hotel** is in early stages of construction at the Des Peres Quarry site at Manchester and Des Peres Road. The dual branded **Residence Inn/Fairfield Inn & Suites by Marriott** on Westline Drive in the Westport area is further along in its construction. The new **Hampton Inn** at Wentzville Bluffs is complete and operational.

THE BUILDING'S OWNER CITED THE DURABILITY OF MASONRY TO HANDLE THE ABUSE FROM WEED EATERS AND OTHER LANDSCAPING EQUIPMENT AS A REASON FOR ITS SELECTION OF MASONRY VENEER.



MASONRY NOT ONLY REINFORCES THE HAMPTON INN BRAND, BUT ALSO THE BRAND OF THE WENTZVILLE BLUFFS DEVELOPMENT.



*THE SELECTION OF MASONRY MATERIALS FOR THIS HOTEL WAS INFLUENCED IN PART BY THE SITE'S NATURAL STONE FEATURES AND THE STONE RETAINING WALLS ON THE BLUFF.*

The owner of the Hampton Inn at Wentzville Bluffs decided early on in the planning process to use a combination of different masonry products in order to make the building warm and welcoming for their customers.

“Masonry was exactly what we were looking for to give our guests that strong first impression when they pull up to the hotel,” said **David Robert**, CEO of **Midas Hospitality**.

The 65,000 square-foot, 109 guest-room inn, caps a mixed-use development built on and around a rock bluff off I-70 at Highway Z. Masonry integrates the new hotel into both the natural and built environments of the area. “We wanted to carry the image of the rock bluff into our building,” said Robert. “Every façade is a front entrance.” “Worldwide, Hampton Inns are built from virtually every material imaginable,” said architect **Toby Heddinghaus**, Principal of **Gray Design Group**. “We selected the exterior materials for the Hampton Inn at Wentzville Bluffs development to respond to the context of the overall development, which is predominantly brick and stone.”

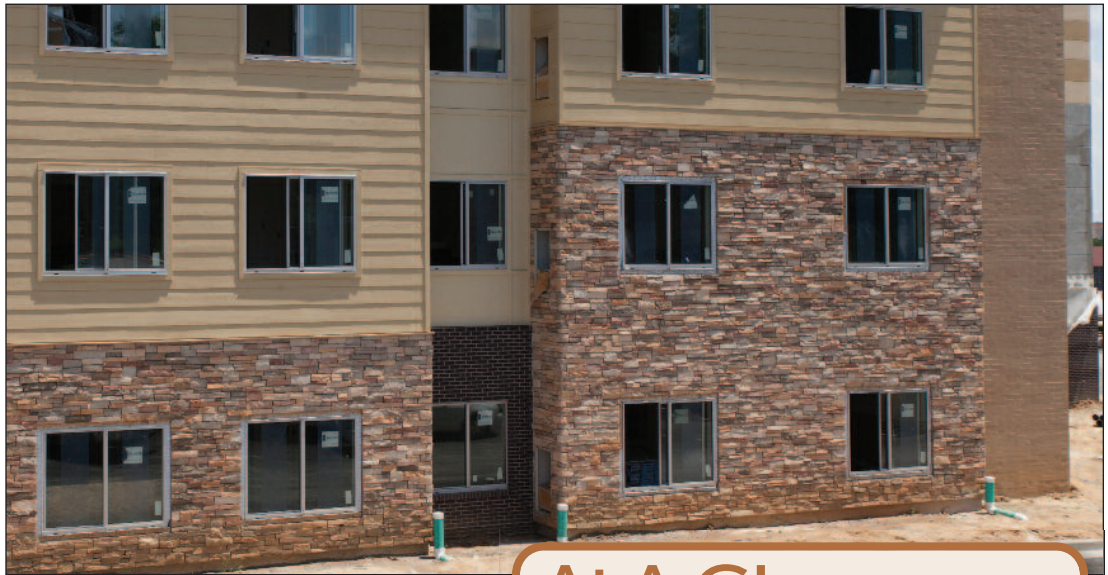
A hotel has large expanses of walls that are viewable both from a distance and at a pedestrian level. Masonry provides many choices from a vast palette of colors and textures, giving freedom to articulate the design. Such varieties assisted Gray Design Group to achieve an attractive and inviting aesthetic.



MASONRY GIVES HAMPTON INN'S GUESTS A STRONG FIRST IMPRESSION WHEN THEY ENTER THE HOTEL.

CONTINUED ON PAGE 10

*THE DUAL BRANDED RESIDENCE INN/FAIRFIELD INN & SUITES BY MARRIOTT ON WESTLINE DRIVE IN THE WESTPORT AREA FEATURES A MASONRY VENEER ON THE FIRST FLOOR THAT COMBINES ALTERNATING SECTIONS OF DRY STACK STONE AND BRICK.*



#### OVERNIGHT SENSATION CONTINUED FROM PAGE 9

“I think, in this case, masonry is more importantly reinforcing the brand or image of the Wentzville Bluffs development, as well as the City of Wentzville in general,” adds Heddinghaus. “The end result was a beautiful installation.”

Swanson Masonry, Inc., worked on the project from October 2016 until February 2017. The craft workers exhibited expert workmanship under the supervision of foreman **Josh Jones**.

Concerning hotel construction overall, “Masonry has the best quality design for elevators and stair towers, and masonry really takes the abuse caused by heavy use around the entrances in a building like this,” said **Rick Swanson**, President, Swanson Masonry, Inc.

Midas Hospitality enjoys the elegance and distinction masonry is able to provide. **M**

## At A Glance

#### Owners |

**HAMPTON INN and RESIDENCE INN/FAIRFIELD INN & SUITES BY MARRIOTT**

Midas Hospitality

**MARRIOTT RESIDENCE INN & COURTYARD HOTEL**

Commercial Development Company, Inc

**Architect |** Gray Design Group

**General Contractor |** MC Hotels Construction

**Mason Contractor |** Swanson Masonry, Inc.

**Structural Engineer |** KPFF Consulting Engineers

**Craft Workers |** Bricklayers' Union Local #1 of Missouri

Eastern Missouri Laborers' District Council

**Block, Brick, Stone |** Midwest Block & Brick

**Cast Stone |** Midwest Cast Stone

**Dry Goods |** Raineri Building Materials

**Accessories |** Irwin Products, Inc.

*THE MARRIOTT RESIDENCE INN AND COURTYARD HOTEL IS IN THE EARLY STAGES OF CONSTRUCTION AT THE DES PERES QUARRY SITE. SMOOTH FACE CMU BLOCK IS THE PERFECT CHOICE FOR SAFE AND DURABLE STAIRWELLS AND ELEVATOR SHAFTS.*



# IN THE ZONE WITH MASONRY

THE DISTINCTIVE AUTO ZONE BRAND IS FRAMED BY A BEAUTIFUL MASONRY EXTERIOR.



THIS DETAIL DEMONSTRATES THE FINE CRAFTSMANSHIP OF BRICKLAYERS' LOCAL #1.

National retailers continue to expand their presence in the Saint Louis metropolitan area. Many of them make the informed choice by selecting load bearing masonry to construct their newest stores.

**Martin C. Heck Brick Contracting Company** recently completed construction of load bearing masonry stores for two prominent companies—**AutoZone** and **Family Dollar Store**. Both projects benefit from the economy and ease of construction that masonry affords, as well as the long-term values of security and minimal maintenance that solid block and brick structure provides.

The new AutoZone in Chesterfield Valley is built to last. While the store stocks and sells auto parts, it also showcases masonry products and construction through its diverse use of material.

“Everything is encased in masonry,” said **Martin C. Heck**, President of Martin C. Heck Brick Contracting Company. “We started with a twelve-inch block foundation, which is more economical than forming the foundation walls from concrete. Solid masonry is a quicker way to build. We were ready to place the structure under roof in two weeks, even in inclement weather.”

The load bearing masonry walls are wrapped in a veneer of utility brick. The building's in-house designer used a red and buff mix of brick to create an upscale atmosphere associated with Chesterfield Valley. Insets of buff



THE CMU WASTE RECEPTACLE ENCLOSURE PROVIDES EXTRA DURABILITY NEEDED FOR THE EXPECTED HEAVY USE.

brick in the four brick piers on the building's facade created an eye-grabbing statement that tastefully frames and reinforces the building's signage.

While masonry is prominent in the building's construction and presentation, it also subtly provides utilitarian functions yet creates a high-end feel. A brick pedestal supports the store's street-level sign, tying the brand to the building. The durability of CMU is an added benefit in the stock storage spaces with masonry able to take abuse caused by heavy use in and around the area. Even the waste receptacle is surrounded by a painted CMU block enclosure with a slat-wood gate, creating a stylish presentation.



INSETS OF BUFF BRICK MASONRY HIGHLIGHT THE OFFSET PILASTERS ORNAMENTS THE BUILDING'S EXTERIOR.

CONTINUED ON PAGE 12

## At A Glance

**Owner** | AutoZone  
**General Contractor** | Van Tassel-Proctor Construction  
**Mason Contractor** | Martin C. Heck Brick Contracting Company  
**Craft Workers** | Bricklayers' Union Local #1 of Missouri Eastern Missouri Laborers' District Council  
**Architect** | AutoZone In-house  
**Engineer** | Elrod Engineering  
**Brick, Mortar, Grout** | Midwest Block & Brick  
**Blocks** | Lemay Concrete Block  
**Steel and Incidentals** | Irwin Products, Inc.  
**Mortar** | Brentwood Building Supply  
**Ready Mix Grout for Block Foundation** | Raineri Building Materials



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**MASONRY** is a publication of the Masonry Institute of St. Louis.

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**CORRECTION:** The last issue, Masonry 23.1, page 11, misidentified the engineers in the "Shelter from the Storm" At A Glance box. **Toth & Associates, Inc. of Springfield, MO** was both the civil and structural engineers for that project. We regret the error.



THE USE OF LOAD BEARING MASONRY ON THE FAMILY DOLLAR STORE IN OLD NORTH ST. LOUIS PROVIDES A STRONG AND DURABLE STRUCTURE WITH A PLEASING PRESENTATION.

serves to accent the building's branding signage.

Masonry construction provides the same remarkable benefits for this 'Family' and for all commercial and residential families alike; community character and safety, environmentally friendly, first cost/life cycle cost and design flexibility. **M**

#### IN THE ZONE CONTINUED FROM PAGE 11

Simultaneous to their construction of the AutoZone, the craftsmen of Martin C. Heck Brick Contracting Company were also building a new Family Dollar Store in the Old North neighborhood of the City of St. Louis.

The store features 8-inch split-face block construction with steel bar joists for roof support on a concrete foundation. The buff-colored, split-face block provides a solid, low maintenance and aesthetically pleasing exterior with minimal expense. A double course of smooth faced CMU, painted red, runs along each wall like a red ribbon, which

## At A Glance

**Owner** | Atwater Development Group  
**General Contractor** | Bradford Building  
**Architect** | pb2 Architecture and Engineering  
**Mason Contractor** | Martin C. Heck Brick Contracting Company  
**Craft Workers** | Bricklayers' Union Local #1 of Missouri  
Eastern Missouri Laborers' District Council  
**Blocks, Mortar and Grout** | Midwest Block & Brick  
**Blocks** | Lemay Concrete Block  
**Accessories** | Irwin Products, Inc.  
**Mortar, Accessories** | Brentwood Building Supply  
**Cast Stone** | Caliber Cast Stone

## MASONRY INDUSTRY PLATINUM SPONSORS

