

REBRANDING MASONRY AWARD WINNERS

SMART

VOL 3 NO 2 2017 \$10 USD

dynamicfeatures

ENERGY MODELING COMPLIANCE PATH

for Cost Effective Energy Efficient
Single Wythe Masonry

EFFECTIVE MORTAR SPECIFICATIONS

Drives Productivity and Best Results

distinguisheddesign

Inaugural ReBranding Masonry
Award Winners
Designing Masonry for ALL It's Worth

Celebrate Unparalleled
HIGH PERFORMANCE
INNOVATIVE AESTHETICS

masonryculture

BIM-M | New Wall Systems Library
Simplify and Standardize

INDUSTRY TEACHES
Oodles of Career Opportunities

ICYMI
What a Wall System



AIA/CES-HSW Credit

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MASONRY
Institute of Michigan
AND IT'S MEMBERS

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INAUGURAL AWARDS

Designing Masonry for ALL Its Worth

In ReBranding Masonry as HIGH PERFORMANCE & INNOVATIVE AESTHETICS

It is with great pleasure that we announce winners in 6 categories

- Structural Engineering Design
- Optimizing Energy Performance
- Acoustic Design
- Innovative Aesthetics
- Outdoor Gathering Spaces Defined by Masonry
- Designing Masonry for ALL Its Worth

Selected by a Panel of Distinguished Judges

One Unparalleled Building Enclosure Wall System
Rises to the Occasion in Using the Added Value of
Masonry for ALL Its Worth

- See it as the newest, freshest building enclosure
- See it as an essential for every commercial building
- Optimizing energy performance with the bonus of thermal mass
- Optimize acoustic performance and noise isolation
- Optimize interior aesthetics with thin natural veneers or single wythe
- Optimize outdoor gathering spaces defined by masonry

No other material can do all this | NOT ONE!

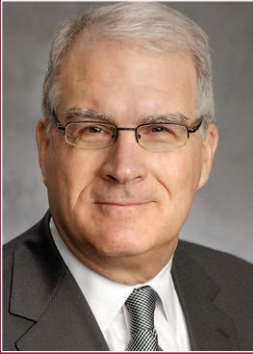
Look where the masonry industry is headed
Enjoy & be Inspired...



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JUDGES



BELDEN



BIGGS



GUMBERICH



KETCHAM



O'NEIL-MANION

For this first-of-its-kind competition, we have gathered some of the most outstanding masonry-friendly architects and structural engineers to be among the savvy judges to determine winners of presenting masonry as fresh for the 21st century. They share passions about this industry and know its opportunities for incredible development. May we introduce to you...

DISTINGUISHED

BOB BELDEN | President and CEO of The Belden Brick Company in Canton OH, Belden represents the 4th generation of Belden family leadership in the company, the brick industry and in philanthropic interests. His leadership has led Belden to be the frontrunner in environmental practices and standards in healthy and quality manufacturing, to invest in new technologies such as robotics and building information modeling software for masonry. Brick brings beauty, resilience and functionality that affects daily lives of millions of people with positive impact to our environment. He is a GREAT MIND of the Editorial Advisory Board for **SMART|dynamics of masonry**.

DAVID BIGGS, PE, SE | Principal, Biggs Consulting Engineering, Saratoga Springs NY, Project Coordinator for BIM-M initiative, global masonry historian and lecturer, new product researcher and developer, Biggs sees centuries of empirically designed masonry resilience as unparalleled. Working with creative people in masonry with great ideas has inspired him. He loves the collaboration and innovation that the industry has embraced. With all its intrinsic attributes, structural engineered masonry design is emerging as it efficiently replaces empirically designed buildings. Advancements and efficiencies are plentiful. He is a GREAT MIND of the Editorial Advisory Board for **SMART|dynamics of masonry**.

PRESTON GUMBERICH, AIA | Partner with Robert AM Stern Architects in NYC, Throughout his illustrious career Gumberich has prolifically designed beautiful, resilient, sustainable, high performance university buildings as landmarks to live for centuries. As a teenager strolling through Forest Hills Gardens in NY, he marveled at the rich and varied colors and textures of the turn-of-the-century brick and stone facades. He knew then that he would be an architect who would embrace traditional design principles and build with the materials that speak so eloquently to this day.

WILLIAM KETCHAM, AIA, LEED AP | Principal at Stantec Architecture in Chicago, Ketcham has embraced challenges of architecture for over 40 years. An accredited LEED AP, he brings a strong commitment to sustainability.

Masonry is a material of choice due to its intrinsic beauty and timeless versatility. It is both historically contextual and able to be reinterpreted through evolving technologies. Masonry is the singular architectural material functioning as structure or envelope; aesthetically malleable and enriched with detail.

MICHAEL R PATRICK | Senior Architect, California Department of Parks and Recreation Northern Service Center, Sacramento CA, Patrick is intrigued by the emotional content of masonry. He thinks scaling of content deserves more exploration. He muses about masonry units having a yet unrealized potential to serve as a textile

DAN ZECHMEISTER, PE, FASTM | AIA-Detroit and AIA-MI Honorary Affiliate Member, Executive Director of the Masonry Institute of Michigan, Zechmeister is member of ASTM committees C12 and C15 and the TMS 402/602 Committee. He sits on the executive committee for the national BIM-M initiative and is a GREAT MIND of the

FACILITATOR



PAINTER



PATRICK



PINDYCK



SUBASIC



ZECHMEISTER



STUBBS

SARA O'NEIL-MANION, AIA | Principal of O'Neil & Manion Architects, Bethesda MD, O'Neil-Manion insists on protecting building occupants with high performance masonry cavity walls for exterior skins and interior masonry demising partitions. For life safety from fire, optimized energy performance, water resistance, durability, longevity. And masonry is an aesthetically-pleasing, natural material.

JERRY PAINTER, FASTM | President of Painter Masonry, Gainesville FL and President of The Masonry Society, Painter has dedicated more than 50 years to adding value to masonry through knowledge provided by education and training. He is a certified State of Florida Structural Masonry Contractor and General Contactor as well as Florida State vice-president and technical committee co-chair for Mason Contractors Association of America. He, his company and their projects have received numerous awards and recognitions.

for the building, becoming self-shading and even a host/habitat for flora and fauna. Among his building designs is a giraffe barn for the Sacramento Zoo.

JENNIFER PINDYCK, AIA, RA | Partner at dsnrk in Atlanta, formerly with Mack Scoggin Merrill Elam Architects and landscape architecture firm Michael Van Valkenburgh Associates, Pindyck has also been a visiting critic at many universities including Georgia Tech College of Architecture where she is teaching an advanced design studio. Pindyck co-authored a paper for the North American Masonry Conference 2011 entitled *Brick Beyond Boundaries*, for which she received an Outstanding Paper Award. Pindyck is a GREAT MIND of the Editorial Advisory Board for **SMART|dynamics of masonry**.

CHRISTINE SUBASIC, PE, LEED AP | Consulting Architectural Engineer C Calista Subasic, Raleigh NC, specializes in masonry and sustainable design providing technical support services and presentations on inherent capabilities and added value of redundant structural design of loadbearing masonry which is also energy efficient, acoustically superior and sustainable for Southeast Concrete Masonry Association. Subasic is editor of The Masonry Society Sustainability e-News, author, and active member of ASTM E60, C12 and C15.

Editorial Advisory Board for **SMART|dynamics of masonry**. He served on the Building Enclosure Council board, partnered in the Michigan Masonry Coalition to promote masonry as a structural system. His thrust is to bridge the knowledge gap in educating and promoting masonry advancements and efficiencies.

DAVID STUBBS, B ENG, P ENG | Director of the Canada Masonry Design Centre in Mississauga ON, Stubbs provides technical support and services to mason contractors and designers. He is an author, presenter and is involved with masonry research and education programs. Stubbs is a member of several engineering organizations and Construction Specifications Canada. He also serves on Canadian Standards Association Technical Committees of Masonry Construction for Buildings, Fired Masonry Brick Made from Clay or Shale, Connectors for Masonry and as vice chair of CSA Standards on Concrete Masonry Units and Design of Masonry Structures. Stubbs is a GREAT MIND of the Editorial Advisory Board for **SMART|dynamics of masonry** and was facilitator for this inaugural **ReBranding Masonry** competition ■■



WINNER: Structural Engineering Design

MARKET DISTRICT

BY GIANT EAGLE AT GRANDVIEW YARD

Columbus OH

Submitted by Ed Gebauer, Oberfields LLC

DLA+ Architecture & Interior Design was commissioned by **Giant Eagle** to design a new prototype for its Market District stores.

The result is a **simple, streamlined massive building envelope of 92,480 sf constructed in just 3 1/2 weeks** that features single wythe loadbearing masonry. With few windows and doors in this building enclosure, this wall system is most efficient.

Structural Masonry Engineering Design with such Added Value

Half-high nominal size architectural CMU have the impressive aesthetics of clay brick fired in a kiln with the economy of concrete block. Pre-consumer recycled content architectural CMU is 37.6% and content of grey CMU is 42.2%, contributing to the project earning LEED Silver certification.

Masonry structure provides redundancy of both gravity and shear load resistance. The building envelope constructed of 95,688 architectural

concrete brick proved to be a good choice for the building scale and pedestrian scale.

Simplicity of the architectural design is reflected in the structural engineering design. Vertical grout and reinforcement varies, some at 32" oc, some at 48" oc. Loadbearing masonry walls meant there was no need for a structural steel frame, saving on budget, fabrication time and adding to useable square footage. Horizontal bond beams are located at structural bearing elevations (at mezzanine/second floor bearing elevation and roof bearing elevation). Truss type horizontal reinforcing is spaced at 16" oc. Compressive strength of this CMU is 2000 psi, which meets the Ohio Building Code live load design requirement for 90 mph winds.

Climate Zone 5 energy compliance is achieved by use of factory-installed rigid thermal foam inserts, including in the grouted cells, enhancing both structural and thermal energy performance. CMU is also recognized for its thermal mass. This single wythe wall system of 125 pcf density units has an assembly **U-factor** of **0.17**.

Architecture is reminiscent of early 20th century produce distribution buildings, with a few enhancements - an exterior café balcony and a ground-level outdoor café with firepit and water feature. The featured single wythe masonry pigmented as dark red Wesleyan Blend takes

Single wythe half-high CMU structure provides both gravity and shear load resistance, a streamlined building envelope recognized for its thermal mass with thermal foam inserts and grouted cells enhancing performance and providing moisture management.

PROJECT PARTICIPANTS

OWNER

Giant Eagle Pittsburgh PA

ARCHITECT

DLA+ Architecture & Interior Design Pittsburgh PA

STRUCTURAL ENGINEER

Taylor Structural Engineering Pittsburgh PA

CONSTRUCTION MANAGER

Continental Building Systems Columbus OH

ENERGY ENGINEER

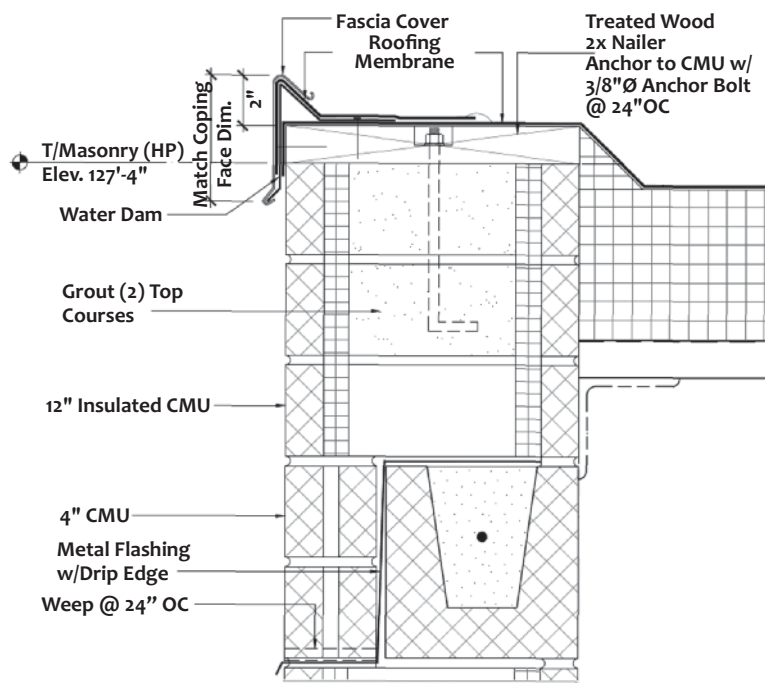
McHenry & Associates Warren Heights OH

MASON CONTRACTOR

Karst & Sons Masonry Reynoldsburg OH

MASONRY SUPPLIERS

Buckeye Ready-Mix
CBIS Korfil® | Quikrete
Hohmann & Barnard
Oberfields LLC, member of
Concrete Products Group



JURY COMMENTS

Great use of single wythe loadbearing CMU for redundant structural, thermal and acoustic performance, contributing to LEED silver certification and engineering for 90 mph winds

CMU with consistent vertical cores was a unique solution demonstrating flexibility making reinforcement easier and consistent | Fantastic CMU solution to acoustics with insulation inserts | Thermal and acoustic performance achieved through insulation and grouting cores | Mock up was great idea

Moisture management detail providing water resistant wall via special units and integral water repellant is noteworthy

Big Box architecture is hard to get right – design is clean, simple and well done | Handsomely proportioned half high masonry units and coursing are well executed and provide sense of human scale | Masonry selection is very successful

advantage of the finished product on both exterior and interior. Exposed on the interior, it perfectly mates with the owner's décor and merchandising plans, providing clean visual interest without distracting from the merchandise.

The beauty of brick, yet with modest cost, quick erection and attributes of block offering the whole package of structure, fire ratings, thermal performance and acoustic properties as well as resilience and sustainability contributions to LEED credits. A perfect package **Designing Masonry for ALL Its Worth**. Enhancing the shopping experience are numerous interior and exterior areas allow gathering space for respite with nourishment purchased from the bakery, deli or wine department.

The timeless elegance of the refined big box 24/7 retail has allowed **Giant Eagle** to successfully replicate their design in other markets. Truly high performance aesthetic masonry. ■



Don't feast your eyes on the cow. It's the magnificent and massive smooth concrete brick single wythe wall system that becomes efficient eye candy tasted on both exterior and interior



Proprietary water control technology (WCT) system providing sloped cross-webs were specified to resist moisture penetration by diverting any water downward into the wall's drainage system of H-B flashing with stainless steel drip edge and weeps providing moisture management for the half high 12" Spec-Brik® wall system



The experience of shopping at this purveyor of fine foods includes numerous interior and outdoor gathering spaces for wine tasting or lunch with family or friends. The single wythe concrete brick wall system defines myriad areas





WINNER: Optimizing Energy Performance



Morgantown Marriott

Morgantown WV

Submitted by Joe Bonifate, Arch Masonry & Restoration

New C90 energy efficient CMU design reduces thermal bridging to optimize energy performance along with its thermal mass reducing about 35% consumption for the life of this building.

I suggested we use the new modified A-Block because I know that it was developed to optimize energy performance. I recommend it on every job where the architect wants to enhance energy performance. Today with the 2020 Net Zero Energy Performance initiative, they are all eager to know more about this new block. This new CMU enhances energy performance with savings appreciated for the entire lifetime of the building.

This Courtyard by Marriott hotel, catering to visitors of West Virginia University and its surrounding business community, was built with an energy-efficient open-end 8" concrete masonry unit envelope. With the fairly recent modification allowances made to ASTM C90, CMU design development has been renewed. An open-end unit is engineered to reduce thermal bridging by 1/3, as one web is removed. The two remaining webs are now smaller as well. This new design can reduce the thermal bridging by up to 264%.

CMU cavity wall and single wythe building enclosures have always been most economical to construct and the highest performance. Thermal mass is recognized by ComCheck software in modeling performance. And now, we can get an extra 33% in efficiency. What's not to love about that!

In addition, use of lightweight aggregate increases this particular unit's R-value, contributing to a more thermally-efficient wall system. Lighter weight CMU also decreased the overall weight of the 5-story building and allowed for reduced footing and foundation size. The client acknowledged that they sometimes face unfavorable soil conditions and expressed interest in using this block as a solution in future applicable situations.



JURY COMMENTS

Besides optimizing energy savings this structure is loadbearing masonry, addresses fire resistance and the block partitions also provide for sound resistance. | Excellent narrative showing how simple decisions can impact positively a buildings carbon footprint. | Web reduction reduces thermal bridging. | Use of light weight aggregate improves energy performance and fire resistance. Thermal mass ability to store heat and slowly release it back over time contributes to occupant's comfort. Recognized by Comcheck

Bonus Added Value

The carbon footprint related to construction was minimized by completing the structure/ enclosure in less time than scheduled. Masons saved one day per floor, resulting in a week of schedule savings, due to the productivity gains from sliding the open-end CMU around reinforcing bars rather than lifting up and over the bars. The 62,00 sf envelope was erected in just 55 days.

Produced within 75 miles of the building site, the carbon footprint of transporting the concrete masonry units is also reduced, along with the associated costs and wear and tear on the roads. Brick is also manufactured within 165 miles contributing to sustainability.

Combined with hollowcore precast plank concrete flooring, the hotel is providing safe and quiet accommodations to its guests. The

Masonry provides the structure, durability, acoustic performance and fire-resistance the hotel required and brick veneer at the pedestrian level provides a familiar, welcoming aesthetic.

The 62,500 sf structure was erected in about 55 days. Increased productivity is a result of laying open-ended CMU.

loadbearing CMU enclosure is rated to withstand 115 mph winds for 3-second gust and has a 1-hour fire rating. 12" units in the stairwells have a 2-hour rating. Anchored brick veneer at the ground floor provides durability and a welcoming residential aesthetic. ■■



PROJECT PARTICIPANTS

OWNER
West Place Blue Bell PA

ARCHITECT
Mills Group Morgantown

STRUCTURAL ENGINEER
Allegheny Design Services
Morgantown

GENERAL CONTRACTOR
Waller Corp Pittsburgh PA

MASON CONTRACTOR
Arch Masonry
Pittsburgh PA

MASONRY SUPPLIERS
AR Chambers
The Belden Brick Company
PF Cook Brick Company
Cooper Trading
Custom Cast Stone
Essroc Cement (now Lehigh Hanson)
HOY Solid Rock Concrete
RI Lampus
Morelli Bros Block & Brick
Otto Brick
ProBlock

WINNER: Acoustic Design

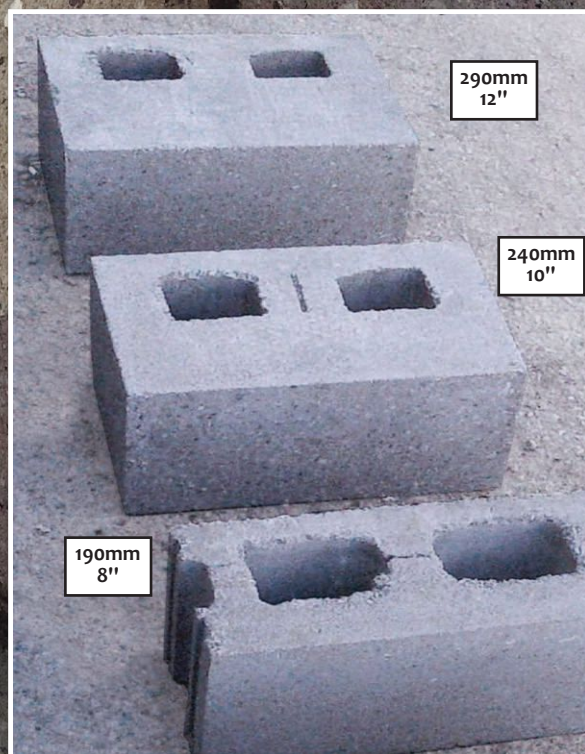
FirstOntario Performing Arts Centre

St Catharines ON

Submitted by Bill George, George & Asmussen, Mason

FirstOntario Performing Arts Centre incorporates masonry in a variety of unique ways. In total, nearly 110,000 CMU and 60,000 brick were used in the construction, including the walls surrounding the recital and concert halls. In addition to serving as structural backup, these walls were designed specifically to enhance acoustic performance in the performance halls.

Varying CMU depths met acoustic performance reflections, diffusion and sound isolation as well as structure, thermal mass and aesthetics.





CMU easily met the goals of sound isolation and reflectance. Clever unit design and placement met the diffusion goal in a cost-efficient manner.

Designed by the acoustic consultant, custom CMU of varying widths for even sound diffusion were specified and locally produced. While unit placement appears to have a random arrangement, the wall was designed and laid out in advance for optimal acoustic performance. Masons worked from drawings to determine where to place each 190mm, 240mm or 290mm wide unit. Each of the three sizes maintained a consistent, continuous cell column to accommodate the vertically-spanning steel reinforcement. The two wider units were produced with smaller, offset cells to line up with those of the 190mm units.

Designed for Isolation | Reflection | Diffusion

The use of variable width CMU walls of varying thicknesses serves three purposes. First, CMU walls provide mass to help isolate the space from outside noise as well as the adjacent theatre. Next, the density and smooth surfaces allow sound to be reflected, not absorbed. Finally, the arrangement of the varying widths ensures that sound is diffused or evenly spread around the theatre in such a way that there are no *hot* or *dead* areas.

CMU Systems More Cost Effective and Efficient than Acoustic Panel

Regular CMU backup walls with added pre-manufactured acoustic panels were alternatively considered. The cost of the system combined with the fact that the CMU walls alone already accomplished two of the three acoustic goals led the design team to find a way to use CMU to also meet the third goal. Varying the widths provided the solution and added a playful flair to the overall aesthetic. ■■

JURY COMMENTS

Novel use of structural cmu taking advantages of masonry's superior acoustical properties.

Nicely executed, reaching an aesthetic and functional goal simultaneously.

The common cell location with the varying block widths enhance acoustic, the fact that the CMU is structural and simultaneously aesthetic, and that the use of the CMU is technically informed make this one of the hardest working CMU jobs I have ever seen.

Ground face units are beautiful.

PROJECT PARTICIPANTS

ARCHITECT
Diamond Schmitt Architects
Toronto

STRUCTURAL ENGINEER
Blackwell Toronto

ACOUSTIC ENGINEER/CONSULTANT
Jaffe Holden Norwalk CT

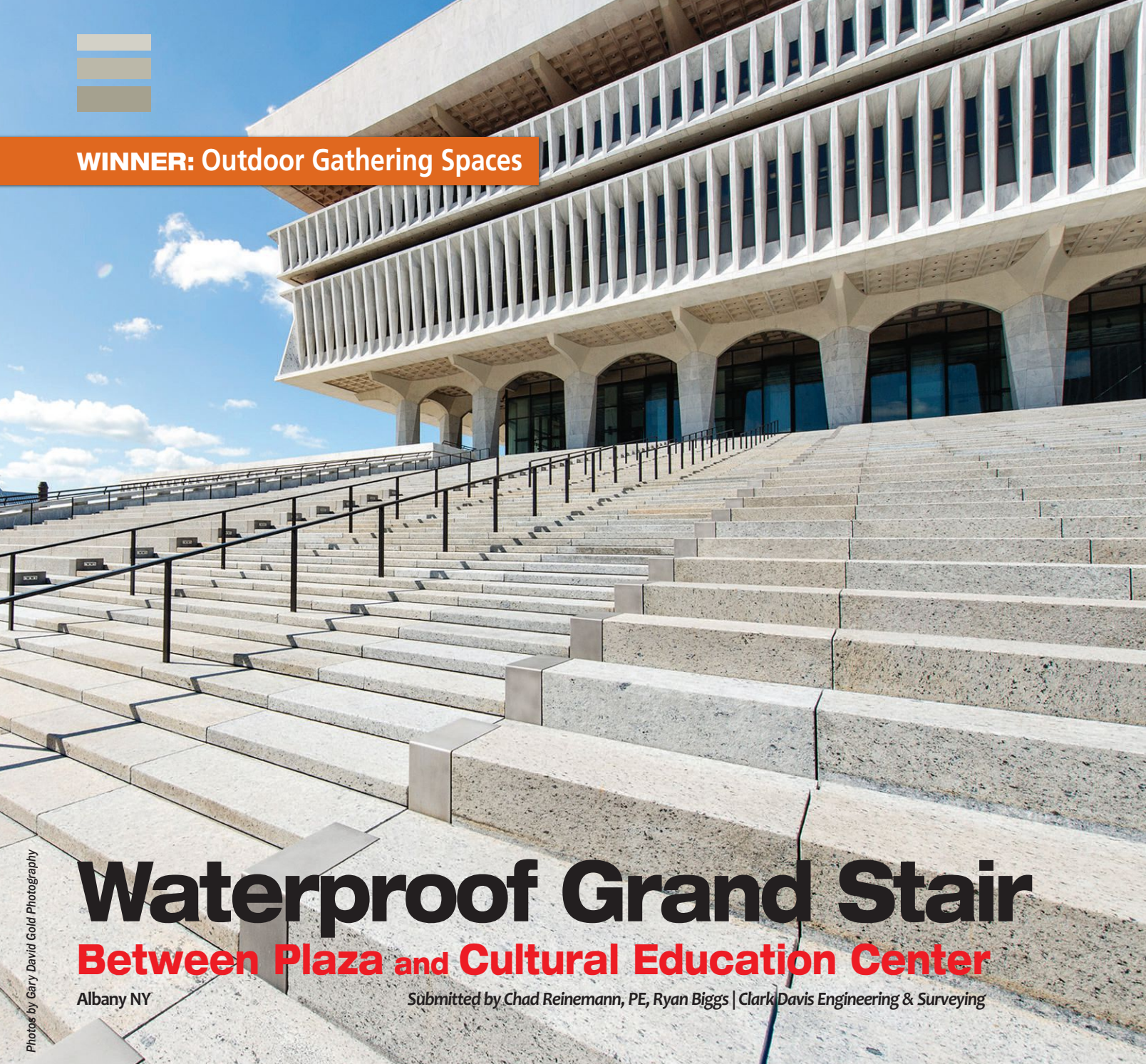
CONSTRUCTION MANAGER
Bird Construction Group
Mississauga

MASON CONTRACTOR
George & Asmussen Breslau

MASONRY SUPPLIERS
The Belden Brick Company
Blok Lok | Boehmers Block
Dow | Fero
Ferrell Builders' Supply
Maxi-Mix | Niagara Commercial
Coatings & Insulations
Patene Building Supply
Richvale York Block
Roxul | 3M



WINNER: Outdoor Gathering Spaces



Waterproof Grand Stair

Between Plaza and Cultural Education Center

Albany NY

Submitted by Chad Reinemann, PE, Ryan Biggs | Clark Davis Engineering & Surveying

The Grand Stair at the Empire State Plaza extends over Madison Avenue at the south end of a plaza complex, connecting the Main Platform to New York State Museum. The public structure has been in continuous service since the mid-1970s, providing pedestrian access and outdoor seating for concerts, cultural events and 4th of July fireworks.

Water leaking through the Grand Stair had resulted in water damage of the ceiling at the south end of the Main Platform concourse and adjacent maintenance offices and TV studio, as well as wintertime icicle accumulation over public sidewalks and pedestrian areas along the avenue. Testing and investigations performed by the New York State Office of General Services identified deficiencies with the existing subsurface waterproofing system, including deficient drainage details and significant amounts of trapped moisture and excessive weathering within the mortar bed and concrete fill above the waterproofing membrane.

Unique Gathering Space for community events restoration identified deficiency of subsurface waterproofing which required full replacement. 2300 granite stones for stairs and benches were removed and replaced for reuse with little wear over 40 years.

The \$7M rehabilitation included full replacement of the subsurface waterproofing system, utilizing a multi-tier approach to minimize moisture infiltration, extend the life of the subsurface components,



Existing stone was reset as a rainscreen using customized pedestals and hidden anchor components to improve drainage performance and reduce maintenance.

reduce maintenance efforts. It also included removal and reinstallation of more than 2,300 individual granite stones that make up the stairs and benches. This hard, durable stone was in excellent condition after 40 years in service. Fewer than 2% of granite pieces required repair or replacement. Granite treads are a minimum of 2 1/2" thick and are set on a custom-sized pedestal support system to isolate stone cladding from movements in the structure and minimize flexural stress in existing stones while resisting lateral forces and maintaining consistent joint widths. An assumed flexural strength of 1200 psi was used in designing the pedestal support layout.

Multi-tier waterproofing system is designed as a rainscreen. Existing granite stones are set on raised pedestal supports that stand the stone wearing surface off of a sealed lightweight concrete fill below, pitched to drain. A secondary drainage layer is provided by installing drainage board directly above the waterproofing membrane below the concrete fill, also preventing moisture from becoming

trapped within the concrete substrate. Each distinct layer of the waterproofing system is fully integrated into the drain fixtures. Multiple layers of moisture control establish a predictable moisture path and increase the longevity of the structure. Open joints between stones allow water to flow below the stone units where it can be collected by a drainage system. Surface water cannot pool and collect behind benches and there are no joints to seal or maintain. ■

JURY COMMENTS

This is a technically excellent and well-built, thoughtful project. In terms of an understanding of drainage systems it shows a comprehensive understanding. This project re-uses about 98% of the existing stone material. This is a testimony to the integrity of the initial designer's selection. The Owner's expectation for a weather-tight restoration that maintains the initial design integrity is well executed. The principal innovation is in re-imagining of the cladding system. The [current design team] are to be applauded for maintaining the integrity of the original aesthetic.



PROJECT PARTICIPANTS

OWNER
New York State Office of
General Services Albany

ARCHITECT
Architecture + Troy

STRUCTURAL ENGINEER
Ryan Biggs | Clark Davis
Engineering & Surveying
Clifton Park

CONSTRUCTION MANAGER |
MASON CONTRACTOR
Louis C Allegrone
Pittsfield MA

MATERIALS SUPPLIER
Keicher Metal Arts



WINNER: Innovative Aesthetics

Photos Courtesy of Macanoo Architecten

Original 1895 design blended with new facade of iron spot brick in smooth | velour | artisan finishes in running | stack | soldier | bonds to show off masonry craftsmanship. Elements in relief cast intricate shadows across one another in playful jazzy rhythm.

Bruce C Bolling Municipal Building

Roxbury MA

Submitted by Scott Parechanian, Spaulding Brick

Standard size Ironspot brick in three finishes were laid in three bond patterns to create a great visual effect. Soldier brick became dramatic as they were laid on a 30° angle to the face of the wall. The top row was centered on the brick row below. Challenging. But the skilled craftsmen soon determined a system to make it work seamlessly. Laying brick in this fashion required a bit less mortar. After laying a couple brick, they had a feel for it. The size of the mortar joint had to be uniform. This feat is now a source of pride for the skilled bricklayers. Bragging rights.

A contemporary interpretation of classical layering manifests itself in the brickwork encompassing three bond patterns: running, stack and soldier. Vitreous properties of the iron spot brick in smooth, velour and artisan finishes reflect light in different ways depending on the weather conditions and position of the sun. The oldest cities in the US have a rich tradition using brick. The design team wanted to use it on the Bruce C Bolling Municipal Building to show of the craftsmanship of bricklaying, while simultaneously unifying the existing historic portions of the façade with the new. Brick allow for a contextual, sinuous, modern response, which speaks to craftsmanship, context and timelessness, while providing a durable, sculpted response to the existing historic district.

Elements in relief cast intricate shadows across one another in a playful, jazzy rhythm.

The development of the project at Dudley Square in Roxbury, Boston's geographic center, is a critical piece in the City's efforts to revitalize a neighborhood with a rich history. The design team worked with the local community to conceive of a building that was suited to the character of the neighborhood and helped restore its vitality. Subsequently, historic facades of three existing derelict buildings on the site have been comprehensively restored and stitched together into a bright new building. The design unites and re-engages these frontages,



Soldier coursing was laid at 30° angle to face of wall for unique and distinctive appeal.

thereby reaching back to all sides of the city. Referencing the historic buildings, the central volume of the new municipal center embodies a time-honored approach to craftsmanship in construction.

The first is the Ferdinand Building a five-story structure dating back to 1895, constructed of limestone terra cotta, brick and granite with six large oval windows at the corners and ends of the building, as well as a large copper ornamental cornice with cast lion's heads. From the start, this building was to be integrated into the new project. Also included are neighboring Curtis Building (1888) in Queen Anne-style red brick and the Waterman Building (1890) in Boston Granite style. This allowed a design inclusive of the three corners of the triangular plot. The design concept was to unite the three old facades into one new building. The historic exteriors are linked together by the new volume, which is discreet both in massing and material expression, using a combination of brick and glass. Bringing a large city department tenant right into the heart of the neighborhood anchors the redevelopment. ■■

Highly prized for its durability and visual effects, iron spot brick, known for its unique architectural dimension, contains mineral deposits in the clay which forms interest in the brick

JURY COMMENTS

This is an excellent blending of old and new.
The use of multiple bonds and textures is exceptional.

The strength of the project lives and dies on the detailing.

The highly textured and eroded brick of the 'piers' is also wonderful and acts as a slightly more organic foil to the hard edge of the other brick.

The kind of clay used to make the brick, ironspot, an all natural material which inherently changes its nature depending on the angle of the sun.

The intricate use of brick for both skin and ornament is to be commended. As an urban building, the massing and color is restrained and respectful of its historic neighbors. | The building combines the existing with the new in a surprisingly fluid manner with no competition between the components.



PROJECT PARTICIPANTS

ARCHITECTS
Mecanoo Architecten
Delft, The Netherlands
Sasaki Associates Watertown

STRUCTURAL ENGINEER
Arup Cambridge

OWNERS PROJECT MANAGER
PMA Construction Services
Braintree

CONSTRUCTION MANAGER
Shawmut Design and Construction
Boston

MASON CONTRACTOR
Grande Masonry
Providence RI

MASONRY SUPPLIER
Carlisle Coatings & Waterproofing
Endicott Clay Products
Hohmann & Barnard
Jolley Concrete Products
Owens Corning
Quikrete
Spaulding Brick

WINNER: *Designing Masonry for All It's Worth*

Mesa Community College Performing Arts Center

Mesa AZ

Submitted by Brian Farling, AIA, Jones Studio

Photos Courtesy, Jones Studio

In addition to meeting cost and sustainability goals, CMU was used for ALL Its Worth, contributing to the innovative exterior aesthetic, interior structure, visually-rich interior aesthetic and acoustic performance. The cost effective nature and considerable possibilities of the interior strategy inspired a similar material application for the exterior wall design, establishing locally-produced CMU with recycled content as an important design element.

The ability for CMU to geometrically shape walls into large convex curved forms allows optimized early sound reflection patterns, providing a sense of acoustical intimacy between performer and audience. Fine-grain articulation of CMU coursing in & out provides additional diffusion contributing to a sense of envelopment of sound and helps avoid harsh echoes from the rear wall. – William Chu

Respect the Block

The interior acoustic shell of the performance hall has many jobs to accomplish: sound distribution, interior structure, durable finish and visually-rich aesthetic. The hard and dense nature of solid-grouted masonry provides an excellent surface for sound reflection. According to senior acoustic consultant and project manager at McKay Conant Hoover, William Chu noted “CMU provides the mass and stiffness required to achieve the warmth of sound associated with low frequency reverberation time.” Side walls are scalloped by a series of convex curves designed to spray sound waves evenly across the space. Contrasting with the exterior detailing, interior walls feature a stacked bond – also with an offset coursing detail of 5/8" from the unit below. Surface variation allows for creation of bumps that aid in even sound distribution. Closest to the stage, bumps are largest for stronger early sound reflection improving clarity. Along side walls, they change from a module of five CMU wide by five CMU tall, down to a single 8x8x16 offset unit for small bumps in the rear for more diffuse reflections to enhance sound envelopment. Adjustable heavy curtains provide additional acoustical variation.

Using musical structure was conceptual inspiration for the architecture. North and east walls of the new performance hall are arranged in running bond and sloped 2° of the horizon. This is achieved by cutting the stem courses of masonry at the footing. This marquee wall is also folded by an offset coursing detail that slopes each block a maximum of 5/8" off center from the one below. Line of the fold ascends diagonally across the north elevation and has no

JURY COMMENTS

Great use of CMU. It embodies the visual, acoustical and sustainability. I appreciate so many of the goals set for this project, strived for with design excellence. The simple use of the pixilation, the two colors of CMU and attention to the color of the mortar make the large façade of one material, playful, scaled down and interesting. Folding the masonry wall and leaning the form take away from the monolithic and heavy feel of the CMU, allowing it to feel playful and light. Masonry unit allows for these types of folded geometries to be achieved. The project goes on to use the CMU as an interior finish in a highly sensitive acoustic area with a lot of figuring and as a surface to accept patterning. This material is used in a variety of manners showcasing its possibilities.

offset. As the wall splays out in either direction, the offset goes from 0 to 5/8", creating the fold. Inspiration for this expressive masonry composition is derived from the opening clarinet glissando of George Gershwin's *Rhapsody in Blue*. Image of a spectrogram display plotting frequency against time, with sound pressure as brightness was abstracted into the formal resolution of this wall. Grey 8x8x16 CMU changes to a charcoal colored unit at this diagonal and as the two tones blend together, the ascending line culminates with the marquee sign.

Mesa County Community College liked the prominent piece of land occupied by an empty movie theater located at the SE corner of campus, visible and easily accessible from the 12-lane freeway for the new home of its music department and performing arts center. Incorporating the existing concrete masonry unit (CMU) building was an important

piece to meeting the College's environmentally-sustainable directive.

While not large enough to accommodate all of the programmatic space needs, the 24,500 sf of existing building houses performance classrooms, back-of-the-house program spaces and the entry courtyard area. Additional 19,500 sf is new construction. The general contractor was added to the team early in the process so that materials, systems and ideas could be tested against cost for feasibility. The idea of utilizing intrinsic material characteristics of CMU for the main performance hall's interior proved valuable as a local mason contractor embraced the unusual geometries proposed.

Mesa Community College's PAC provides the department's faculty and staff with an architecture that physically embodies their inspiration and passions. ■

George Gershwin's *Rhapsody in Blue* was inspiration for the masonry design. An offset coursing detail slopes the wall, as if it were swaying to the music.



Creative use of CMU allowed use of a modern cost-effective single material to reimagine and achieve the acoustical design principles of time-honored traditional concert halls of the past, with a twist.

– William Chu

PROJECT PARTICIPANTS

OWNER

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ARCHITECT

Jones Studio Tempe

LANDSCAPE ARCHITECT

Chris Winters & Associates + ARC Studios Phoenix

STRUCTURAL ENGINEER

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GENERAL CONTRACTOR

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