



- 6** MORNING STAR ACADEMY
- 10** SOLID FROM TOP TO BOTTOM
- 17** RESILIENT BUILDING
- 20** BELOW GRADE
- 24** WORLD'S LARGEST TILT-UP BUILDING

departments

- | | |
|--------------------------------|--|
| 5 Events | 20 Below Grade |
| 6 Low-Rise Construction | 23 Product News |
| 10 Custom Home | 24 Concrete Monthly |
| 17 Resilient Building | 30 Builder + Business Directory |



Cover photography by Daniel Park

See page 24



From my perspective

The dramatic home featured on our cover truly is “SOLID FROM TOP TO BOTTOM.” This homeowner takes a dim view of wood and elevated this Arizona residence to a work of art that is highly energy efficient. The homeowner explains the why. How it was achieved is another *resilient building* story told on page 17 from the builder’s point of view.

Thank you to Cameron Ware of FutureStone for telling me about Morning Star Academy, a spectacular ICF school designed by Halff Associates. In addition to providing an inviting, healthy and energy-efficient building, the architect took many steps to reduce its impact on the natural world. The successful linkage of the inside and outside environments makes it a shining example of good design and well-considered materials choices inspired by LEED for schools criteria.

In this issue we also delve *below grade* to take a peek at what it takes to build a multistory parking garage and foundation to support a five-story apartment building. A complex and challenging project!

On a smaller scale, imagine using colorful decorative concrete to improve the experience of the built environment for people who really need it – residents of community shelters. Quality of life meets quality in training at the Concrete Decor Show, explained on page 22.

Surpassing all these remarkable projects, we have included a preview of the “World’s Largest Tilt-up Building,” recently started in Houston, Texas. (See page 24.) That one is sure to be worth a follow-up story after completion.

Concrete Homes + Low-Rise Construction promotes the sustainability and resilience benefits that concrete construction delivers. Read more about those topics in the *Concrete Monthly* supplement.

We are continually on the lookout for great photography and stories about public, commercial and multifamily low-rise buildings, in addition to unique single-family homes. Our readers help us find outstanding projects worth sharing. Please contact me with information and ideas for consideration.

Sherry A. Boyd
Managing Editor
sherryb@pcinews.com

Vol. 18, No. 3

President/Editor In Chief

Gary L. Pittman

Editorial Director

Brona Stockton

Managing Editor

Sherry A. Boyd
sherryb@pcinews.com
(303) 476-1336

Contributing Writers

Sherry A. Boyd Vanessa Salvia
Kelly Stokes

Contributing Photographers

Steven Ochs
Daniel Park
Mark Witte

Art Director

Lisa Gouveia
lisag@pcinews.com

Advertising Executives

Dennis Carter
(512) 637-0371
dennisc@pcinews.com

Gary Pittman, Jr.
(512) 637-0373
garypjr@pcinews.com

Circulation/Accounting Manager

Beth Chorba
(512) 637-0344
bethc@pcinews.com

Web and Network Manager

Joel Nosal
joeln@pcinews.com

PUBLISHED BY

Publications and Communications, Inc.
13552 Highway 183 N, Suite A
Austin, TX 78750
phone (512) 250-9023
fax (512) 331-3950

Concrete Homes + Low-Rise Construction (ISSN 152-5547) is published bimonthly by Publications & Communications, LP., Gary L. Pittman, President. Subscriptions are available for \$22 per year, single copy price \$4.95. Foreign subscriptions are available for \$45 per year. Payment must accompany orders. Copyright 2015 by Publications & Communications, LP. All rights reserved. Reproduction in any form without written consent from the publisher is strictly prohibited. The technical content and opinions in this publication are those of the relevant contributors or advertisers and are not attributable to the publisher, staff, writers, sponsors, sales department or other advertisers.

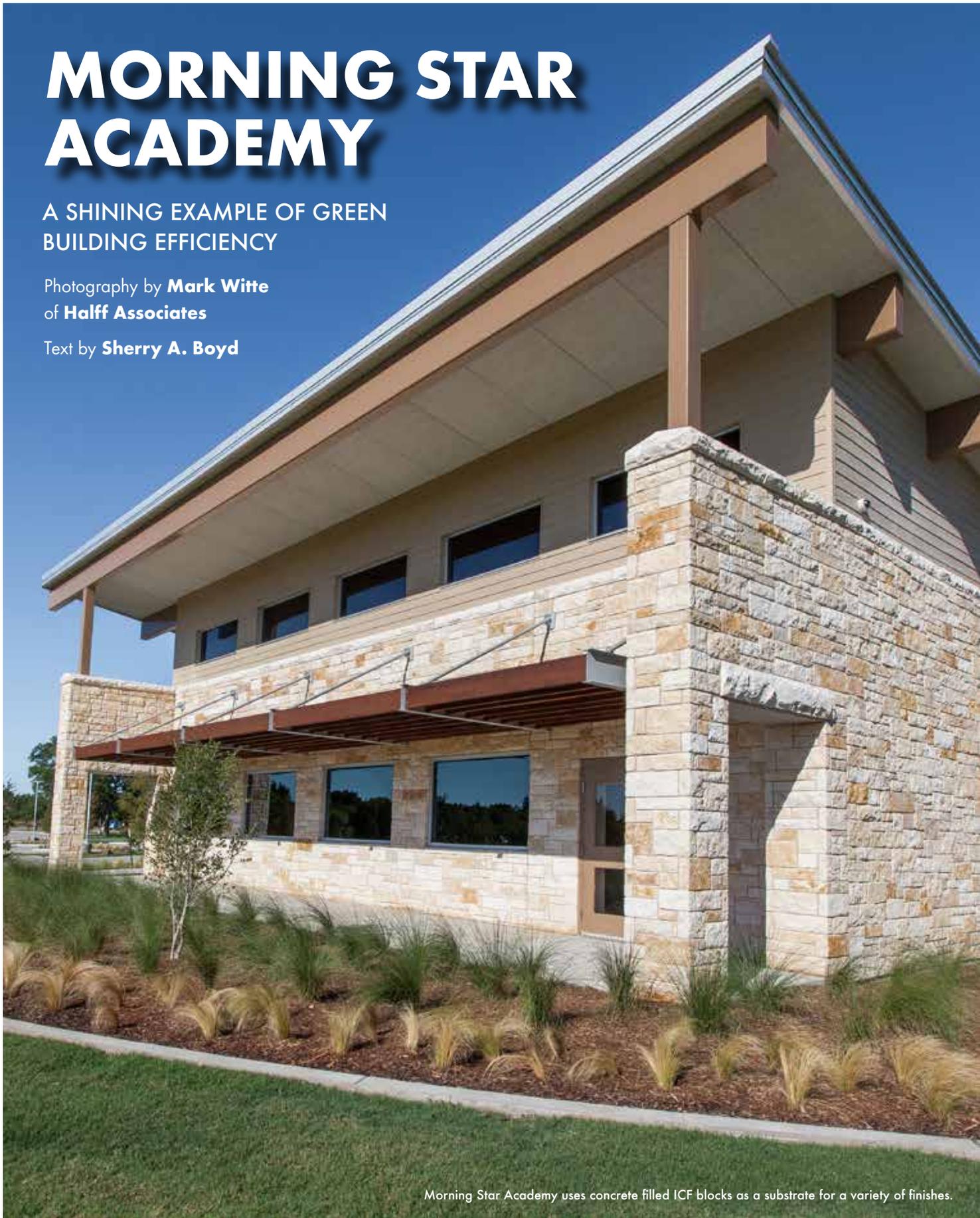
Postmaster: Send change of address to Circulation Dept., 13552 Highway 183 N, Suite A, Austin, TX 78750 (512) 250-9023.

MORNING STAR ACADEMY

A SHINING EXAMPLE OF GREEN
BUILDING EFFICIENCY

Photography by **Mark Witte**
of **Halff Associates**

Text by **Sherry A. Boyd**



Morning Star Academy uses concrete filled ICF blocks as a substrate for a variety of finishes.

Spaces designed to engage students in outdoor activities are an important part of the vision.



MORNING STAR ACADEMY IS AN AWARD-WINNING PRIVATE SCHOOL IN BONHAM, TEXAS, DESIGNED BY HALFF ASSOCIATES. SITUATED IN A PASTORAL SETTING ON THE EDGE OF A GRASSY PASTURELAND, IT PROVIDES FAITH-BASED CARE AND EDUCATION FOR FANNIN COUNTY CHILDREN. USING LEED FOR SCHOOL GUIDELINES, THE PROJECT WAS DESIGNED TO HAVE A REDUCED IMPACT ON THE NATURAL WORLD.

From the inception of the project, the vision of the project team was to link the inside and outside environments through large windows that help students stay in tune with the changing seasons and landscape of the natural world surrounding the school. Students and teachers never feel separate from their surroundings.

“When children and teachers can take 150 steps into fields and woods with wildflowers, butterflies, quail and mourning doves for play or lessons, they gain a congruent understanding of the natural world,” says architect Paul Woodard, AIA, of Halff Associates. “This ties directly to the vision and mission of the school.”

In the first phase of building scheme a multi-function area and two classrooms, comprising 23,358 square feet, were completed. Completed in 2014 the second phase, comprising 12,717 square feet, included an extension added four classrooms, supplementary restrooms and a 9,000 square foot spacious gymnasium with 30-foot high walls suited to competitive sports as the school grows.

Kevin Peterson acted as general contractor and ICF installer. When Kevin explained the benefits of ICF, the benefactor and building team behind the project were enthusiastic. After a thorough evaluation, the whole building team of trustees, architect and engineers worked together to realize the vision for a new school that would be green and efficient.

Although it was the first time that Woodard had worked with ICF, he found it easy to incorporate the sound robust walls into the overall design. “It all worked together in a complementary way,” said Woodard, “and I would use ICF blocks again. One innovation was using fluid-applied waterproofing from ProsoCo on the substrate of the ICF block walls to achieve a watertight and airtight building envelope.”

The plan included features selected for storm water management and reducing heat island effect. A water use reduction of 30% was achieved. Incorporating efficient computer-controlled high efficiency HVAC systems along with the additional insulated ICF building envelope, the energy use was reduced by 28% as compared to traditional construction methods.





Opposite page, top: The reception area is inviting and affords a wide view of the approach and parking area.

Bottom left: Roof overhangs and shade features function to control solar gain.

Bottom right: NUDURA ICF was used during construction of the new gymnasium.

This page, above: The multi-function room can be used in a variety of ways and was built with a flexible modular design.

Maximizing day-lighting use, including room occupancy controls and putting manual controls in the hands of teachers contributed to reducing energy consumption. Generous, well-lit classrooms and a spacious multi-purpose room are appointed to exacting standards with top of the line educational media. The impact resistant glazing and framing meet the stringent Miami Dade County building codes. Indoor air quality (IAQ) was a high priority in the plan with low-emitting materials throughout. Energy recovery ventilators precondition the outside fresh air that is brought into the building for the best possible learning environment.

Woodard believes the high performance comes from all three of the building systems used together. On top of the cast-in-place concrete building foundation, a hollow core concrete plank floor from Gate Precast was placed and topped with a concrete topping. The exterior walls were constructed with stay-in-place insulating concrete forms that were steel reinforced and filled with ready-mix concrete. The modular and repetitive system allowed fast track construction and minimized jobsite waste. The roof system is a layered system with Tectum board forming the interior roof and structural support, XPS insulation as a second layer and third layer of nailable wood panels above.

Woodard observed that the Tectum and XPS combination also affords excellent acoustic properties that dampen outside

noise, including vibration from the roof HVAC system and ducts. This provided a very quiet classroom conducive to learning.

In addition to the beautiful building, all students enjoy outdoor play in areas that include play apparatus, a sensory garden, active vegetable and flower gardening and a spray ground – ideal for the North Texas climate. Preschool classrooms are connected to secure outdoor play spaces.

Upon completion of the innovative green built school has been used as a showcase to educate architects and engineers throughout construction and on an ongoing basis. It is a remarkable example of what can be accomplished in a short time within a reasonable budget with a building team and trustees working toward the agreed plan and goals that benefit the community. Most important it offers the superb and safe learning environment shaped by the trustees and director of the school.

The mission of the school includes this statement:

We are committed to fostering an environment where students can grow in the knowledge that they have been fearfully and wonderfully made with a divine purpose and blessing in mind. Each day provides multiple opportunities for students to develop God given talents academically, physically and artistically so that they may use these talents to glorify God in their homes and communities. [ch.](#)

PROJECT TEAM

Trustees: Morning Star Academy

Architecture and Structural Engineering, MEP:
Halff Associates

General Contractor + ICF Installer:
Kevin Peterson, LLC

Form Distributor: FutureStone

MATERIALS

Concrete plank subfloor: Gate Precast

Exterior panels: James Hardie fiber-cement.

Glazing: Viracon

ICF system: NUDURA

Roof deck: Tectum SIPs

Waterproofing: Prosoco

Window assemblies: Oldcastle