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Firmitas, Utilitas, Venustas—Vitruvius’s trinity of commodity, firmness and delight—can be recited by every architect, student and historian. These are the three elements necessary to create a work of architecture. As designers, we’re often faced with projects that are heavy on the side of utility. Their programs would suggest a form of pure function as a suitable solution.

In this issue, we study a corporate hangar, two elegant transit facilities, a comparison of shelters, a boathouse and a technical education center. Each is a program that became more than an easily banal solution. Instead, the projects take on a common function and perform it uncommonly well, offering a sense of Vitruvian delight to the people who encounter them every day.

I’d like to take a moment to say thank you to AIA Iowa, the Iowa Architect Editorial Board, Measure, Kline Copy Co. and Stonehand Publishing Group. Together, our work helped Measure win a Best of Category for Editorial Design award for Iowa Architect magazine at the 55th annual Art Director’s Association of Iowa Design Exhibition. Our humble magazine was chosen among submissions from several national magazines and publishers. Thank you all for your work and dedication.

Brad Davison-Rippey, AIA
Editor, Iowa Architect
Features

14 Epiphany Enterprise
The University of Iowa has gained another finely composed building for its beautiful world-class campus.

18 Terry Trueblood Boathouse
A functional public boathouse becomes an object of beauty.

20 Cultivating a Future of Continued Growth
John Deere's legacy of quality.

24 Trade Craft
Enhancing education through technological integration.

DARTing About
Substance helps raise mass transit's profile in Des Moines with a clean, well-lit place for buses.

Gimme Shelter
Features 3 projects: Polk County NW Community Center Shelter, Thornberry Dog Park, and University of Iowa Lot 75 Bus Shelter.

Project Credits
Architects and contributors to projects featured in this issue.

Departments

4 On the Boards
Des Moines Municipal Services Center in Des Moines and North Iowa Area Community College; Student Housing in Mason City.

6 Collected
ISU students re-occupy an empty building; City of Des Moines unveils new streetscape; 12 questions with local bike shop owner; and an architect-authored book review.

12 A Complex Decision, Simplified
Iowa's Commercial New Construction (CNC) Program includes early analysis of potential HVAC system options as part of its Custom Plus track.

On the Cover
The Industrial Technology building's material palette is simple, effective, affordable and enjoyable. Trade Craft, p. 24.
The City of Des Moines currently operates its field services from several older and outdated facilities scattered around the city. These services include the departments of Public Works and Parks and Recreation, plus other services such as Engineering, Fleet, Traffic and Transportation, Housing Services maintenance, satellite maintenance facilities, and other service uses. In order to develop interdepartmental teams and cooperation, and to realize all potential organizational efficiencies, these services need to be consolidated and centrally located in a single campus location.

The new 350,000-square-foot facility will create a cohesive campus for the City of Des Moines that can be phased and implemented over a period of many years. Benefits to the city include a realistic long-term facility and space needs, and an improvement in efficiency in delivering City services. The complex will be built using various energy-saving techniques and sustainable materials.

North Iowa Area Community College: Student Housing
Mason City / INVISION

INVISION is designing a new student housing facility at NIACC to replace a 40-year-old structure. Goals for the finished project include serving as a recruitment tool for new students, expanded student life opportunities, contribution to the financial success of the college and an enhanced focus on the efficiency and quality of students' on-campus living experience.

The design encourages development of student communities, takes advantage of adjacent campus lakes, and consists of 12 housing communities in traditional, suite and semi-suite units. The finished project will replace current housing and temporarily relocate food service, all under relatively tight budget constraints.
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For this student work, the directive was to investigate the production of a support system to re-occupy an empty building set within Iowa's industrial landscape. Projects were to focus on the act of making and curating temporary assemblies within the dormant space. This course of study was intended to provide students with the opportunity to make full-scale inquiries that move beyond representation to the construction of a spatial experience space.

With this charge in mind, Chamber Memoriam consists of three elements placed in a defunct seed-drying bin: a shroud, a perch and memoriam. The shroud, a 10-by-18-foot white poplin cloth, provides a more humanistic scale to the empty seed bin by engaging the extents of the spatial enclosure. It is hung from the rafters and draped in front of the entry. A portion of the shroud is held in tension via a cable connected to the other side of the bin. This tension, due to gravity, causes a catenary curvature in the geometry of the shroud. The shroud in turn becomes a volumetric medium whereby light is made present. The perch, a bent 10-gauge-steel plate fastened to the existing concrete masonry unit wall assembly, acts as a seating element for multiple guests. The memoriam consists of a series of candles that have been placed beneath the sloped and perforated metal-grate subfloor. The aggregate of candlelight illuminates the dimensional depth of the bin and makes visible the only space within the bin that retains its original function as void for air movement. Consequently, heat—a critical element in the original drying process—is reintroduced. The entire assembly serves as a type of recall to practices since passed.

Funded in part by the Iowa State University Foundation, the Stewart Research Award and Neumann Monson Architects.
The City of Des Moines and the Downtown Community Alliance have revealed the final streetscape concept for Walnut Street.

Confluence leads a multidisciplinary team in preparing a streetscape improvement plan, along with a retail strategy and merchandising plan for the Walnut Street Corridor in downtown Des Moines. The team won the highly competitive commission with a mix of local design talent bolstered by urban media and a retail strategy consultant.

Historically, Walnut Street used to bustle with pedestrians, shopping and vehicle traffic, which in recent years has been replaced by vacant storefronts and noisy bus traffic. The goal of the project, which stretches from 2nd to 10th streets, is to re-introduce Walnut Street as a memorable connection and destination to draw visitors and residents back to downtown while maximizing the City's dollars in infrastructure improvements. The Confluence team has held a series of focus groups and public meetings to generate ideas for attracting visitors and encouraging after-hour shopping and dining. The Retail Market Analysis conducted by the team identified a need for 225,000 square feet of retail and restaurant space downtown.

The resulting plan proposed a number of improvements to the district, including urban gardens, illuminated public art, on-street parking, interactive kiosks and a streetscape framework that provides space for outdoor dining, pop-ups and vendors. Landscaping is focused at intersections in an effort to maximize views to storefronts. Construction is proposed for spring 2014.

For more information, please contact Matt Carlile at mcarlile@thinkconfluence.com.
Koenig is the proprietor of Ichi Bike. The following are excerpts from our conversation at his store:

1. Tell us a little about yourself.
   I was born and raised in Des Moines. I moved to San Francisco in 1987 and lived and worked my first year there as a silk screener, a painter, a bike messenger.

   In 1988, I moved to Maui and was a full-time silk screener at a t-shirt company. Then I moved back to San Francisco and worked at an organic health food store.

   In 1991, I worked on a film called “Blood In Blood Out,” helping the crew apply temporary tattoos to the actors, including Billy Bob Thornton and Danny Traijo, who were two of the bigger names, and I hung out on location with them for a month in the San Quentin prison.

   After the film, I went to work with world-renowned tattoo artists Ed Hardy and Freddy Corbin, and also travelled extensively in Europe and Japan, honing my tattooing skills. I later went to City College and studied photography and art, then moved to Amsterdam to keep learning how to tattoo, and returned to Iowa in summer of 1995 to be closer to family and figure out what came next. I am married to an artist, Amy Putney Koenig, and have two children.

4. What inspired you for this venture?
   Just wanting to work with my hands and build things that roll; to be able to use art and creativity in a way other than tattooing. 

   Ichi—the number one in Japanese—was the name of one of my friends in Japan, and it just sounded right for a cool bike store.

5. Why the East Village location for the store?
   When I started in Beaverdale, I liked that location because it was small and cheap and it’s where I grew up, but the place was too small for my needs.

   So when my friends who own Subsect Skateshop asked me to be their neighbor, I jumped on the opportunity.

6. Why sell bicycles?
   Because bikes kick ass!

7. What separates you from your competition?
   Nobody who has a bike shop is really doing what I am trying to do here. There are people who do some amazing restoration and custom bike-building in this town, but they don’t have a shop and aren’t willing to take the risks I do. I take old bikes and turn them into something fresh and different.

8. Your business is unique for Des Moines. What makes you want to take such business risks?
   I’m pretty spontaneous and follow my passions. I had no idea things would be like this, but it is evolving and lots of new ideas are coming to me. When I started three years ago, I had no idea what an “e” (electric) bike was or that I would be making banana seats out of broken skateboards, etc., and now I am totally fascinated by them.

9. How do your views on life influence what you do?
   I don’t know exactly how to answer this one, but I would say having an electric cargo bike that I can take both my kids to school on makes every day a real adventure, and it’s fun to commute that way in the city.

10. What impact does your business make?
   The impact is that people who think outside the box have a place to go dream and see cool things and push their own boundaries of how they travel and experience Des Moines.

11. What inspires you to do what you do?
   Art and cleaning up our planet to a degree, by being more conscious about how we live and not always having the need to drive everywhere.

   I think by driving electric bikes, we could really strengthen our ability to live a more sustainable life. That goes for any kind of bike, really.

   I love living in a small city like Des Moines. It works well for me.

12. Anything else you would like to add?
   I would like to be able to continue to manufacture some of the most amazing and fun-to-ride bikes in the world, right here in Iowa.
Many people have thought about being an architect at some time in their lives, and relatively few follow that thought into an architecture career. This book examines the evolution of a small building in three ways: the design process by an architect; the client experience by the eventual user, who is a writer; and the construction experience by the same client, assisted by a handyman/carpenter.

The building is a kind of tree house on the ground, in a New England forest, on a stony hill behind the main house. The purpose of this “tiny house” is to be the writer’s studio for work and for daydreaming. The author describes his book as “the biography of a building” and “... how dreams get turned into drawings that then get turned into wood and stone and glass. ...”

Having found through experience that design and construction are processes both mysterious and wonderful—Pollan decides, in an unusual fit of bravery—the experience would not be complete without building it with his own inexperienced hands ... and a little help from his friends.

This book is a good choice for architects who want to witness the design experience through a client’s eyes, and for clients who want to know more about what goes through an architect’s mind as he or she struggles to please both. It’s also good for builders who wonder why those architects’ drawings don’t match up with their view of the world.

The chapters evolve from the “why” and “what” that the author has in mind, to selecting his architect and college friend, Charlie Myer, and on to site consideration and design sketches. The story then shifts to the ever-challenging construction process: the footings, framing, roof, windows and finish work. Each new step is both daunting and rewarding, as well as a revelation.

Along the way, Pollan shares interesting facts about the design process, architectural history, the “natural nature” of materials and details of construction with insight and humor. In retrospect, perhaps the most important lesson the author as builder learned is that you had better get all the parts “level and plumb” early on, or each next step will make you regret the day you failed to do so.

The delight of this book lies in the fact that the author/builder set about to capture firsthand the evolutionary and eye-opening experiences of both design and construction. A further delight is that the result is truly charming. And well-designed. And (mostly) well-built!
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There’s a connectedness to a building that most users find nearly impossible to detect. Site, materials, square footage, occupancy and hours of use are just a few factors that play into a building’s life cycle and efficiency.

And of course, there are heating and cooling systems, which play a crucial role in comfort and performance. Iowa’s Commercial New Construction (CNC) Program includes early analysis of potential HVAC system options as part of its Track IV (Custom Plus). This analysis is helpful for owners and design professionals alike. The CNC Program is funded through the energy-efficiency programs of Alliant Energy, Black Hills Energy and MidAmerican Energy Company, and is available to utility customers. “Many times owners initially believe that one system has a higher cost than another. Early HVAC analysis can help shift their thinking,” says Jason Steinbock, The Weidt Group, a CNC Program administrator.

**BENEFITS OF COMPARATIVE ANALYSIS**

The free early HVAC analysis reviews up to four different HVAC systems: one that the owner might be considering, one that might not be as likely, one they might have thought about for the future and one with an educational component. Although these four are a suggested approach, the study may be customized according to the team’s interests. “The HVAC study is a comparative analysis that can look at different heating and cooling systems for different parts of the building and consider many variables. This information assists the design team in determining the optimal system,” says Steinbock. “Even if the end decision is to install the original system they were considering, the team has the comparative data and incentive information to support their direction.”

It isn’t just the initial cost of the HVAC system that the CNC Program evaluates. It also looks at the maintenance and replacement part costs as well as expected utility bills; all of those results help to answer different questions by different people with an interest in a building’s performance, says Steinbock.

What the CNC Program does first is a comparative analysis that provides objective information. “It really does allow people to look at systems they might not have otherwise considered,” says Steinbock. “They may not have had the time or resources to do the analysis, and this allows for a more open discussion. It’s helpful for the design team and building owners to have more information.”
Build long-term but adapt to short-term needs: That’s the conundrum in which institutions of higher learning often find themselves. In the near future, they may find certain degree programs or classes washed out. Decades out, they may have to respond to population shifts or new technologies. Even so, pressing needs such as sustainability and building utility costs, including HVAC operation, are very much on the minds of these cost-conscious facilities.

To address those multiple and sometimes competing needs head-on, Kirkwood Community College utilized the CNC Program from the beginning of its plans for the new Academic Building, later renamed Cedar Hall. “Our main goal is always to build long-term, sustainable facilities and use technologies that generally pay off in 10 years or less,” says Tom Kaldenberg, associate VP, Facilities and Security with the college. “All of our buildings are designed with a 40-year-plus life expectancy, and we understand that we need to manage utility costs well into the future.”

Cedar Hall, built in 2008 and 2009 on the east side of the main campus in Cedar Rapids, replaced several temporary buildings and helped alleviate overcrowding from student population growth and as well as provided updated educational facilities. While the college was familiar with the benefits of advanced technologies such as geothermal energy and occupancy sensors, the CNC analysis allowed them to better understand insulation, curtain wall and other architectural options that would impact building performance.

Even with its familiarity with the process, two aspects of the CNC analysis pleasantly surprised the college: the large utility rebate for its efforts and the relatively short payback for the systems installed—about six years. For higher education in particular—with buildings in use sometimes 100 years after their construction—the CNC Program helps to thoroughly contemplate the full impact of construction. “Understanding the long-term operational costs for our buildings is a critical piece to managing the budget for the college,” says Kaldenberg.

The CNC Program is a source of familiarity to the university: It has been involved with the program since 2000 and all new buildings and major renovations use the program. When the university set a goal of achieving the minimum target of 40 percent savings required for Track IV (Custom Plus)—but it would not be without its difficulties. The football project was also unique because where it was being built did not have steam distribution from the campus utilities close-by; this location required exploring different HVAC systems. The university examined various heating systems but decided upon use of heat recovery chillers that employ the heat produced by the condensing process to produce hot water for a radiant floor system. The chilled water is used for cooling of the building, and excess could go into the nearby university chilled water distribution system.

The project was actually the first time The University of Iowa utilized Track IV (Custom Plus)—and it has since been used in a number of new buildings. “To build an energy-efficient and sustainable building, it is important that the design team and owner have detailed energy-efficiency goals,” says Christiansen. “When a college or university builds a building, it will be operating for a long time, and therefore energy efficiency and sustainability should be an important element in design decisions. The University of Iowa’s energy-efficiency goals are very clear, and initiatives like the CNC Program greatly assist the university and our design professionals in achieving these goals.”

No longer are living spaces for college students simply bedrooms and shared baths. Today there are shared spaces that encourage communal living and provide for a more comfortable daily environment. At Upper Iowa University (UIU), the UIU Student Residence Hall had a similar goal: to create suite-style housing units that encourage a sense of community for the students, and to provide a space that students would value as a part of their educational experience, says Bryan Jolley, UIU executive director of facilities management and services. “Each of the buildings has a distinct feel that is unique to the building,” he says.

The university used the CNC Program with several other buildings in the recent past, and knew it held benefits. “We were certainly looking to find energy savings and the value that it brings to an institution like ours,” says Jolley. “Our goal, as with all of our projects, is to reduce our energy consumption as inexpensively as possible.”

The CNC analysis for UIU held some surprises, says Jolley. “After South Village #1, we learned that we captured more value than what was expected, so we maintained the same general designs for #2 and #3,” he says. The CNC Program provided services for designs #2 and #3, through the Volume Build track option available for identical designs.

While the national debate on rising tuition costs continues, analyses like those from the CNC Program play an important role. “With any institution of higher learning, we want to provide a competitive education with value,” says Jolley. “This type of economical and energy-efficient design is a real way that we are able to reduce costs, not just during construction, but for the future, allowing us to keep our cost at a value students want and need.”
EPHINANY ENTERPRISE MODERN MULTIMODAL

WORDS: MARK BLUNCK
The University of Iowa has gained another finely composed building for its beautiful world-class campus. Neumann Monson Architects, a firm with a reputation for sustainable, energy-efficient architecture, has applied R. Buckminster Fuller’s expansive worldview into the design of the West Campus Transportation Center.

The programmatic requirement was to consolidate previously separated Parking and Transportation, Fleet Services and Cambus Operations into a unified operations center near the hospital and clinic buildings. Project architect Channing Swanson noted that the initial design concept was for two individual structures: bus interchange transit hub and an office building. The primary issue with this configuration was the excessive amount of land needed to incorporate all functions on the ground floors.

In a rare and wonderfully creative moment, an epiphany occurred among the project team to enclose all necessary functions into a singular structure. This was brilliantly achieved by designing an elongated office building placed on two equally sized rectangular boxes—one for maintenance operations and one as the passenger hub. As Swanson says, “The simplest idea turned out to be the most logical and effective.” David Ricketts, university director of parking and transportation, says, “We struggled over how much to put into this. But when it was decided to float the office component above two identical boxes, all the issues we were worrying about suddenly became unimportant.”

The transit facility exemplifies the modern principles of form and function, as instantly identifiable architecture implies a comforting sense of place. Midwestern topography has always been an ideal physical setting for subtle, low-slung, graceful buildings. There is a reason that the design looks the way it does. It is instantly perceived as logical. “The aesthetic is always derived from the problems and issues at hand. The restrictions determined much of the formal moves from where we could put structural support to the need for cantilevers to support the offices, to the stretching of the southeast corner of the building to reach out and grab the angle of the skywalk as it intersects with the building,” says Swanson.

**ARCHITECTS:** Neumann Monson Architects  
**IMAGES:** © Farshid Assassi  
SEE P. 38 FOR FULL PROJECT CREDITS

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The transparent passenger hub (above) provides seating and elevators, along with a staircase to the angled, glazed skywalk, complementing a similar slant at the other end of the office section. These three elements enliven the architecture by expressing movement through space.

The skywalk (right) connects the transit facility to University of Iowa Hospitals and Clinics. The 14-foot-wide, 660-foot-long connector is built of 100-foot beams.
A pleasing modern design (top) utilizes line, material and form to impart speed and efficiency in a high-traffic university region. Solidity and transparency enhance the architecture and the whole is greater than the sum of its parts.

The three-section building (bottom) is an exercise in clearly delineated functions. The maintenance, segment and passenger hub each measure 30 by 110 feet, with the 60-by-215-foot office structure floating above. Supported and supporting elements are visibly expressed.
Designers and architects work within numerous constraints in nearly every project. These factors strongly influenced the transit facility, as existing above- and below-grade infrastructure determined the placement, design and engineering of the building and skywalk. The site includes a 100,000-gallon chilled water tank with two water mains coursing below grade. This limited the depth that engineers could anchor the structure to a mere 20-foot-wide zone between the mains. This rigorous constraint elicited a design solution that is the most dramatic architectural feature, as the upper-level offices are cantilevered 20 feet to the north and south from the central structural spine. The site limitations informed and determined this impressive solution.

The inclusion of all operational functions into a single structure informed a nicely composed form and resulted in less actual building. This interesting and fortunate consequence enabled the expenditure of newly available dollars per square foot, further achieving the sustainable and long-life, low-maintenance objectives set forth by the university and architectural firm.

The maintenance section is clad in Ipe—the toughest wood species available for construction. Its hardness is often compared to concrete and steel, and requires special tools to work the material. This durable and sustainable South American hardwood resembles mahogany in color and tight grain. “The U.S. Forest Service rates the species for a 100-year lifespan in a vertical application when used in a rain screen application,” says Swanson. The architects additionally specified a UV inhibitor stain, which should prevent the wood from turning gray over time, maintaining its lush, dark reddish hue.

The upper-level office section is clad in a long-lasting building material known as SWISSPEARL. The product is an integrally colored composite cement panel tested to the highest standards. “The color combination was an attempt at controlled randomness. There are three colors and three patterns repeated down the length of the project. I’ve been to the factory in Switzerland, and it’s just amazing the lengths they go to for the sake of ecology,” says Swanson.

The three building sections display degrees of solidity and transparency in a manner that clearly shows the separate function of each component, from the absolute solidity of the Ipe-clad maintenance facility to the fully glazed passenger hub and skywalk to the elevated office building featuring both aspects.

The project utilizes advanced high-performance building systems, including rainscreen open-point installation, factory-fabricated curtain walls, external Venetian blinds on the south elevation, and durable and sustainable materials, all coalescing into a planned 100-year building.

The skywalk supports are placed at just seven locations, as the infrastructure determined their placement and skywalk course.
A boathouse is a gateway to that perfect summer moment—one where sky and water merge, and the smell of the grill wafts across a lush landscape. It’s a simple structure, celebrating the particular pleasure of putting a paddle in motion, the launching point for an afternoon afloat.

The Terry Trueblood Boathouse in Iowa City is a utilitarian building; a functional part of a public park that also brings natural beauty to the task. “If you look at it from a distance, it looks like the roof is floating,” says Mike Moran, the Iowa City Parks and Recreation director who liaised with the design team on the project. “It creates an illusion that it’s not a permanent feature on the landscape.”

Situated on the southwest corner of a 95-acre lake, it was a second-phase project in the site’s evolution from one-time sand and gravel quarry to recreation area along the Iowa River. The first phase wound a two-mile trail around the 200-acre park, a picnic shelter was part of the second phase and the third involves a lodge that is set to open in August 2013. Snyder & Associates developed the master plan for the area, and Des Moines-based ASK Studio designed the boathouse and other structures.

“Part of the push was distilling [the boathouse] down to its main pieces,” says Michael Kastner, the ASK Studio principal who collaborated with architect Amber VonArb on the $300,000 boathouse. “What does the building absolutely need to be? Because of the utilitarian nature of storage, we can’t put in a bunch of glass and cover it with life vests and such.”

The boathouse’s limestone and wood materials reference Roosevelt-era Civilian Conservation Corps park buildings, although its sharp, angular lines and use of recycled plastic shingles—not to mention the sleek fiberglass kayaks it was built to house—are decidedly low-maintenance and contemporary. Because the boathouse preceded what would eventually be seen as the main building on site, the architects strived for a scalable design. “This involved figuring out what the essence of ‘lodge-like’ meant and pushing it,” VonArb says.

In addition to boat, bike and fishing rentals, the building also serves as a concession area, houses the park’s only restrooms and isn’t air-conditioned—constraints that inspired its organization. All of the utility spaces are on the shorter side of the shed roof, and the storage takes up the higher side, so summer heat can rise into the empty ceiling area and ventilate out. They also needed a smart way to showcase the boathouse inventory.

Fourteen-foot hinged doors swing open on each side, transforming storage space into display, with an open door oriented out toward the dock, where a perfect summer moment awaits.

Architect: ASK Studio
Images: Cameron Campbell, Integrated Studio
See p. 70 for full project credits

Strategic organization (opposite top) of concession, restroom and rental storage space doesn’t sacrifice style in this public boathouse structure, where thoughtful architecture and summertime functionality merge.

The boathouse’s broad, angled roof (opposite bottom) was designed with ventilation and shade-creation in mind. Its windows provide natural light to the concessions area.

A limestone and wood (above) material palette celebrates the natural landscape and the linear application keeps the conservationist vibe current.

Swinging 14-foot-wide doors (left) orient to the lake and act as a staging area for the park’s recreational rental items.
CULTIVATING A FUTURE OF CONTINUED GROWTH
JOHN DEERE’S LEGACY OF QUALITY
Farmers and their work are inextricably linked to the land, and John Deere saw a way to facilitate their labor with a highly polished steel plow. Economic necessity and an entrepreneurial spirit likely motivated Deere to move west to the heartland and eventually settle his company in Moline, Ill. His signature products are synonymous with all things agrarian and cutting-edge quality since the company's beginning in 1837.

Excellence and Deere & Company are one and the same, and for more than 175 years and as one of the region's largest employers, it has continued to provide customers and employees with the tools they need to meet the goals they set. In 2011, the John Deere Corporate Aviation Facility opened at the Quad Cities International Airport near Milan, Ill.

At the project's outset, the charge to stakeholders from the chairman of the board was that the end result be state of the art and provide technicians, pilots and staff an environment to perpetuate the company's effort to conduct business globally, according to OPN Architects.

The essential scope of the project was a house for the fleet of planes and aviation support, according to Brian Lane, Assoc. AIA and project manager. The 70,500-square-foot expanse encompasses a large hangar, which can accommodate up to six corporate jets, a wedge-shaped waiting area and ample space for pilots and administrative support.

The aircraft and beyond are visible from the pilot's room, where flights are planned. The waiting area furniture is mid-century modern; the building's design is a nod to the same with the openness and abundance of windows that succeed in bringing the outside in and flooding the space with natural light.

According to Lane, the use of daylight is an important aspect of the project, which helps to reduce energy consumption. Clerestory windows were utilized around the perimeter and windows in the hangar doors overlook the tarmac. Custom sunscreens and large overhangs reduce direct sun. Office support areas are mechanically heated and air-conditioned using fan-powered variable air volume boxes to minimize energy consumption.

Requisite in the plan was a solid ventilation system. When the need arises, carbon monoxide, nitrogen dioxide or temperature sensors can automatically enable exhaust fans and motor-operated dampers to cross-ventilate the hangar if natural ventilation is not sufficient, according to Lane.
I will never put my name on a product that does not have in it the best that is in me.

—John Deere
A number of parties had seats at the table as the design and planning commenced. Representatives from John Deere, aviation and security executives, pilots, office managers, airport officials, Federal Aviation Administration officials, code officials and insurance company representatives, among others, added many facets and items to consider, as well as challenges.

"Overall, the project took about four years from concept to completion," says Robert G. Miller, facilities engineer, Deere & Company World Headquarters. "Once construction started, it took about two years to complete, and was delayed about six months due to the economic downturn in 2009."

In addition to departures and arrivals, other activities take place here, too. There is a world-class maintenance facility and a corporate boardroom for national and international guests and visitors. Additionally, there is a space for flight planning, pilot offices and pilot maintenance training rooms. As air travel and the technology surrounding it is ever-expanding and changing, this facility can accommodate the need for new developments and modification.

"From the tarmac to the hangar to the passenger waiting area, and even to the parking lot, the quality of the construction and finishes shines through," says Miller. "It's very functional as a facility, is very typical of the quality that exists in the machines we produce, and is well positioned to grow and adapt as may be needed in the future."

There are conferencing areas for incoming executives and areas for pilot and general meeting areas. A luxurious lobby and waiting space offer passengers a view of the runway. Added gestures offer a sleep room for pilots and a lactation room for mothers. Every detail was studied and tended to for the best possible result. Like John Deere's vision for a plow that would ease the farmer's labor, this aviation facility will enhance the ability of everyone involved to carry out the corporate mission.

The roots of Deere & Company are firmly planted in mid-America, but this $16 million facility is truly an international portal, linking Illinois with the world to further cultivate relationships with business partners.

Deere & Company is committed to quality in its products and business, and it adhered to those principles for this project. With the selection of a good architect and construction manager, the project held very closely to the construction standards written by the engineering staff at Deere & Company, according to Miller.

As John Deere vowed, "I will never put my name on a product that does not have in it the best that is in me." Of the state-of-the-art aviation facility that enhances the company's ability to conduct business and compete worldwide, it is likely that John Deere would approve.
The design for the Industrial Technology building at the Northeast Iowa Community College, by INVISION Architects, demonstrates how two design-central considerations can be addressed synergistically. Like the production environments they simulate, industrial education buildings require a high level of practicality and efficiency in the spatial design of classrooms while maintaining certain experiential qualities that enhance the efficacy of the learning. These design priorities are manifested throughout the building's planning, formal expression and material articulation, ultimately serving as an example for how the artful integration of industrial technology can enhance the educational qualities of the space and reinforce an educational identity.

Throughout the design, there is a regular repeating order of materials and components that are intentionally revealed in order to enhance the industrial nature of the project. Project team leader Michael Bechtel describes this central aspect of the design as a necessary functional and aesthetic choice. "There was going to be a lot of randomness in the spaces, but applying a visible architectural rigor and order to what we can control seemed like the right approach," he says.

Many of the artfully composed learning spaces (top) are sunken into the hillside, hidden behind the concrete wall, and oriented toward outdoor learning spaces and landscapes beyond. The concrete construction (opposite) and walls in the light-filled, large volume stairway space show the design team's commitment to creating simple compositional strategies that are enhanced by basic materials, and fine detailing.
The building's material palette is simple, effective, affordable and enjoyable. Public spaces feature custom wood ceilings, walls and benches, while the industrial classroom spaces feature traditional materials, such as concrete.
The building's design wastes no time in establishing the importance of an industrially inspired, elegantly composed and highly resolved level of functional, formal and material clarity. The pedestrian entrance to the campus is defined by two iconic elements: a large glass-box classroom setting atop a long concrete planting wall that seemingly emerges from the lowering hillside. Each element intentionally reveals its means of construction and operation. The classroom spaces incorporate exposed lighting and HVAC systems alongside the structural support and bracing elements, and the concrete wall integrates the form lines, tie holes and texture of the consolidated concrete. Interestingly, instead of hiding potentially unsightly "industrial" things behind this glass box and wall, the building cleverly defies these expectations by continuing this level of commitment to order, craft and experience throughout the building.

The concrete wall retains the changing grade of the hillside to the north and allows for the two-story building massing to be partial sunken below grade, hidden from the initial view upon entry. This wall continues around the building, becoming a compositional and structural plinth upon which other classroom spaces are set atop or contained within. Upper-level spaces are clad with metal panels and glass storefronts to simultaneously reflect the materials of the campus context and reveal views to the diverse ecosystems in the learning labs surrounding the building.
Unlike other classroom buildings that favor flexibility in space planning and use, this building needed spaces specifically designed for the practical application of these skill sets. Bechtel described how the design team used an industrial manner of efficiency assessment to better understand how the spaces would be used. “We didn’t want the space to get in the way of learning. We thought of the spaces as an environment that needed to be designed for efficient learning and production.” As a result, the building was functionally and formally split into quadrants of use, each designed to reflect the manner of learning and production anticipated within.

The upper floor near the building entry features bright and functionally flexible traditional classrooms and a student lounge—each space articulated by the exposed building service and support elements. A light-filled, centrally located vertical circulation and service space acts as point of access to the other quadrants. Passing through this space on the upper floor, one can access three larger-scale laboratory environments in which students use hands-on learning opportunities such as HVAC design, welding and CNC fabrication.

On the partially sunken lower level, encased behind the concrete wall and the hillside, are two large working garage spaces that are fully equipped for automobile service training. These spaces have direct access to the sunken outdoor parking and service areas through a series of light-filled glass overhead doors.

The building’s material palette is simple, effective, affordable and enjoyable. Public spaces feature custom wood ceilings, walls and benches, while the industrial classroom spaces feature traditional materials, such as concrete. The regular arrangement of the building systems adds a level of honesty and refinement to the building’s expression—in some unexpected places. Even a seemingly innocuous concrete wall becomes part of the building’s interior composition thanks to an innovative and unique method developed by the project team to site-cast a thermal break within the wall. Appropriately, this achievement in technical refinement also serves as the foundation for the building design.

Ultimately, the building’s final design is an apt and artful reflection of how the spaces would be functionally operated and technically constructed. The design reflects the intent of the school and reveals the potential beauty found in the craft of industrial refinement.
Substance helps to raise mass transit’s profile in Des Moines with a clean, well-lighted place for buses.

WORDS: TOM LESLIE
Mass transit is a key component in reconfiguring energy-wasting lifestyle patterns, particularly in cities like Des Moines—it has a compact, accessible downtown but remains locked in automobile-based habits. The establishment of a new, highly visible transit hub to replace the blighted Walnut Street transit mall offered urban and architectural opportunities to make taking the bus an easier, more attractive proposition.

Riding the bus is cool again. For the better part of a century, Des Moines followed every other city in North America by foreclosing one transit opportunity after another in favor of more automotive development. Highways, parking garages and lots, and street widening all took the place of trolleys and light rail—which, believe it or not, allowed Fort Dodge residents to shop and work in downtown Des Moines—even as gasoline prices rose and the limits of one-car-per-person lifestyles became clearer. Mass transit became a second-class affair, and DART, the Des Moines Area Regional Transit Authority, became synonymous with the increasingly unpopular, decaying Walnut Street transit mall. With no indoor facilities or central hub, the service had no easy way of reaching out to customers—or, more important, to potential customers whose lack of familiarity posed a real barrier. More pressing, several well-publicized pedestrian accidents highlighted the need for a better-organized central hub.

At the same time, DART's operations were stuck in a windowless, remote "bus barn" several blocks south of downtown. Its general manager, Elizabeth Presutti, saw the potential to relocate to a site on Sixth and Cherry streets, within walking distance of downtown, Principal Park and Court Avenue, and also at a key point of entry to downtown from the south. Des Moines's attention has for decades been focused on the eastern and western gateways, and this site presented an opportunity to place mass transit at the center of a default southern gateway as well. Substance was initially hired to prepare concepts that would help to raise funds, and the project gradually gained momentum as DART's needs, the city's desire to transform Walnut Street and its southern edge and new impetus for sustainable development combined.

**Architect:** Open Architects, Inc.

**Images:** Cameron Campbell, Integrated Studio

DART's new station (top) explicitly addresses two scales: the low rise, industrial buildings toward the river, and the towers of Des Moines's downtown. Interior finishes (bottom) and planning stress open circulation, highly visible waiting areas and daylight, all key elements in making spaces that blend safety and comfort.
The station's Cherry Street elevation (top left) is intentionally graphic, forming a billboard that emphasizes the central circulation while adding an iconic image to the city's transit program.

By folding the exterior wall, (bottom) Substance acknowledged a subtle asymmetry in the surrounding blocks, and gave DART a recognizable 'move' that sets it apart from its neighbors.

The station's central spine (opposite) subtly encourages riders to avoid interfering with bus movements at the site's perimeter.
Project architect Matt Rodekamp recalls that, as the project became viable, several key design issues emerged. The station’s location meant that it had to mediate between low-rise, more-or-less industrial buildings to the south and the taller skyline buildings of downtown proper to the north. This worked with a solar approach that spread the building along its east-west axis, providing shaded daylighting to interior waiting areas, offices and ticketing spaces. DART stressed safety as a key element, in terms of both bus movements and security. As a result, the planning grew from a single pedestrian axis at the center of the site that replaced accident-prone sidewalks with dear sightlines and open spaces that allow staff to unobtrusively monitor the station’s public areas. This simple circulation scheme made boarding patterns intuitively obvious, an improvement over the more haphazard boarding conditions on Walnut Street.

DART initially wanted a canopy that could cover the entire site, allowing shelter from snow and rain for pedestrians and drivers throughout the bus areas, but this proved too expensive. Rodekamp notes, however, that the design makes the most of this budget constraint. “We were forced to eliminate the inessentials,” he said. “It means all of the platforms have daylight, and the single canopy shows people where it’s safe to walk.” Breaking a single large canopy down also permits rainfall to wash bus lanes, and the open spaces eliminate the need to artificially ventilate the area.

Such an approach, of course, also allows a more articulate formal approach, and Rodekamp is forthcoming about the building’s imagery. The folded zinc plane that turns from roof to wall on the north elevation offers a billboard-like announcement to downtown drivers and pedestrians coming from Court Avenue. “It’s a ‘move,’ we acknowledge that,” he says. “But those folds were the first time DART thought it would get something unique, something iconic.” Call it the Bilbao Effect scaled for central Iowa, but the appearance of a clean, crisp building that offers a comfortable, safe place to wait, readily accessible route and schedule information and real people who can answer questions is having a transformational effect on the agency’s appeal to Des Moines commuters.

More important, the project shows how architecture can play a significant role in broader urban strategies for energy use. “We used the word ‘sustainable’ throughout fundraising,” says Rodekamp. The project received six LEED credits simply for being a mass transit station, but DART carries the ethic of responsible resource usage through passive daylighting, stormwater retention and a geothermal system that takes full advantage of the site’s broad footprint. The result is a hub that connects the mission of transit efficiency with building performance and—at every level—an improved rider experience.

Part of the project’s commitment to transforming the system is its parking—or lack thereof. “The general manager decided there wouldn’t be any staff parking on site,” says Rodekamp, still impressed by the decision. “It was a controversial issue for employees, but she remained firm: ‘We’re transit, that’s what we’re going to be.’” Staff members, who receive free bus passes, were told they could still park at the old bus barn and take the bus from there if they wanted. But ridership among DART workers has increased 40% since the new structure opened, making the organization a model for the city that is as visible and convincing as its new hub.

Thomas Leslie is the Pickard Chilton Professor of Architecture at Iowa State University. His book, Chicago Skyscrapers: 1871-1934, has just been published by University of Illinois Press.
In the treasure trove that is Webster’s Dictionary, “shelter” can mean a number of things: Refuge. Sanctuary. Protection from an unpleasant thing. It can be permanent or ephemeral, a physical state or an emotional sensation.

Shelter as it relates to architecture would seem to imply a permanent surrounding that offers both physical and, eventually, emotional protection—a home, for example. But as demonstrated by these three projects, shelter architecture is, like that amorphous definition, fluid in both intent and execution.
Take those shelters that are provisional—a way to escape a torrent of rain or a cloudless day.

That was the purpose of the Polk County Northwest Community Center Shelter by Architects Smith Metzger. Supported cantilever-like from a brick base, a long roof provides a respite for people taking a break from admiring or working in the nearby garden space and seated on benches underneath. Its success is evident in its simplicity: Elegant materials, classic forms combined in a transitory space.

PROJECT: POLK COUNTY NORTHWEST COMMUNITY CENTER SHELTER
ARCHITECT: ARCHITECTS SMITH METZGER
IMAGES: DARYL METZGER
SEE P. 36 FOR FULL PROJECT CREDITS
While the Polk County Shelter was rigorous in its execution, the Thornberry Dog Park in Iowa City had a different aesthetic—and a different audience—to please. Designed by Rohrbach Associates, which donated its services, and constructed with volunteer labor out of ordinary, everyday materials, the buildings consist of an entrance pavilion and two shelters for dog play areas. These spaces, too, are transitory in nature, but also serve as focal point and identity for a new park. The look is less refined than Polk County, but very much in keeping with the nature of its use—playful and casual with whimsical details, such as a canine profile on roof joists, and a carefree sensibility that befits its use.

Open trusswork (above) and traditional roof forms as well as canine-inspired iconography distinguish the more casual approach to the design and construction of the Thornberry Dog Park.
Both shelters stand in contrast to the Lot 75 Bus Shelter at the University of Iowa, designed by Shive-Hattery Architecture-Engineering. Fully enclosed and intended to promote commuter culture adjacent to Carver Hawkeye Arena, the shelter relies on wide overhangs and a 360-degree view from expansive banks of windows. Within its walls is the promise and delivery of escape from Mother Nature. But unlike the dog park and garden areas, this shelter must provide more traditional amenities—protection from heat and cold, for example—so a large concrete thermal mass stores solar gain from southern windows, which is then augmented by a small boiler-fed heat loop contained within the mass.

Although the enclosures very much shield inhabitants (above) of the University of Iowa bus shelter, the large expanses of glass keep the building firmly rooted in its surroundings.
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