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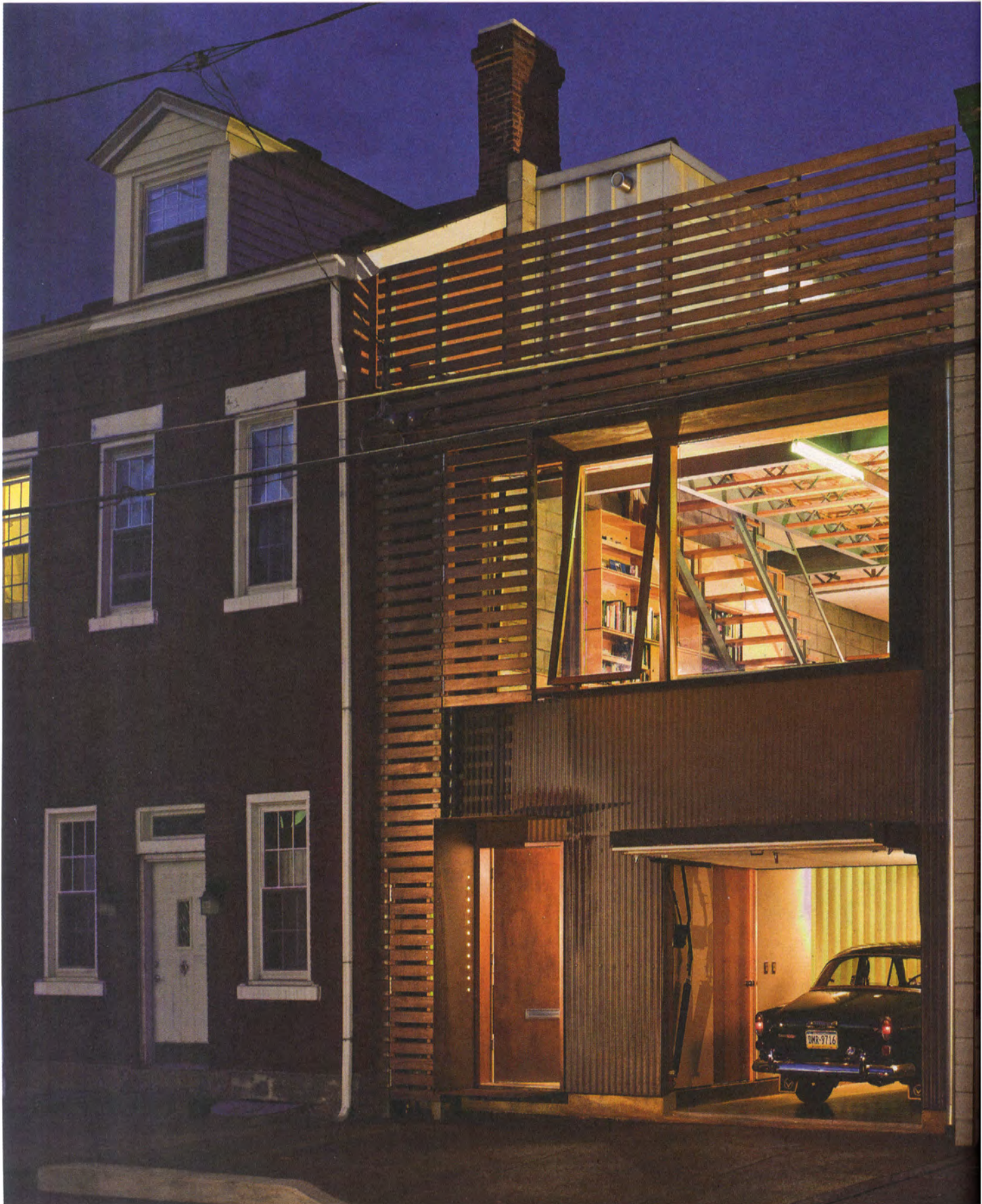
#GNS0013663430/8#
GERARD DAMIAN
GERNEGIE-MELTON UNIV
STUDIO DARC ARCHITECTS
139 S 22ND ST
PITTSBURGH PA 15203-2046

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CONSTRUCTION**

Pittsburgh, Pennsylvania




STEEL GEM IN THE ROUGH

The designers and owners of this infill house and studio use their project to tell the gritty history of the neighborhood, while also proving to clients the viability of a small project in an urban site.



Left The front facade is comprised of Corten steel and sustainably harvested mahogany.

Below The couple often uses the rooftop for barbeques, taking advantage of the downtown view of Pittsburgh.

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No stimulus package is needed here; in recent years, the thriving city of Pittsburgh has made one of the most impressive economic recoveries in United States history, precisely why President Obama chose it for the G-20 Summit meeting held late last year. After the steel industry imploded in the 1980s, mill closings and layoffs ensued. The city bounced back impressively over the next decades; multiple headquarters now operate out of Pittsburgh and in 2009, *The Economist* named it the most livable city in the United States.

Gerard D. Damiani, AIA, and Debbie Battistone of Studio d'ARC chose the historical South Side of "Steel City" for the Live/Work Studio II; they designed, live in, and operate their practice from the 2,400-square-foot one-bedroom infill house with workspace incorporated into a second floor studio.

Though no longer industrial-based, the South Side evokes memories of times past. Quaint, hundred-year-old rowhouses that offered inexpensive housing to mill workers congregate in cookie-cutter fashion around old steel mills, glass foundries, and industrial structures, now shells of the massive producers they once were. Historical echoes and the vibrant nightlife of nearby East Carson Street make the area a current hotspot for homeowners.

Damiani and Battistone were charmed by the neighborhood and in 1999 purchased a 20-by-70-foot infill lot nestled between two almost identical brick homes. The couple initially believed that the original house burned down over 50 years ago, but neighborhood



>KEY PARAMETERS

Location Pittsburgh, PA (south shore of the Monongahela River)

Gross area 1,620 ft² (150 m²)

Cost \$350,000

Completed June 2008

Annual purchased energy (based on utility bills) 54 kBtu/ft² (615 MJ/m²)

Annual carbon footprint 14 lbs. CO₂/ft² (66 kg CO₂/m²)

Program Residence, architect's studio

>TEAM

Owner Gerard Damiani, AIA, & Debbie Battistone

Architect Studio d'ARC architects

Landscape LaQuatra Bonci Associates

Engineers Kachele Group (structural); James Fath (MEP)

General contractor Smith Construction



Above A motorized central skylight above the two-story dining space helps to negate the need for artificial light during the day.

Opposite top The small, Asian-inspired garden features a Sweetbay magnolia tree and a recycled railroad trestle bridge stone bench.

Opposite below In the bedroom and elsewhere, the wall panels are made from recycled drywall, and a local craftsman constructed most of the furniture.

gossip holds that the owner went mad and gradually tore the entire structure to the ground in the 1950s. If the latter is true, the building process mirrored this incremental method, creating, instead of destroying, this time around.

“The infill was chosen as a case study to show potential clients how to build affordably and sustainably in an urban context,” Damiani explains. Battistone acted as project manager while Damiani was the designer and construction manager. The surrounding buildings, including a former brewery and shipping dock, served as an inspiration for the designers, who wanted the home to represent the “gritty little scene between the industrial and residential,” according to Damiani.

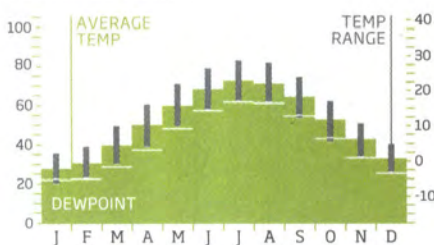
“The weathered steel has a visible dialogue with the surroundings; the horizontal pattern of mahogany and steel unites and mediates with the brick of the

neighbors,” Damiani says. The material choices of the project all reflect the vernacular of the neighborhood.

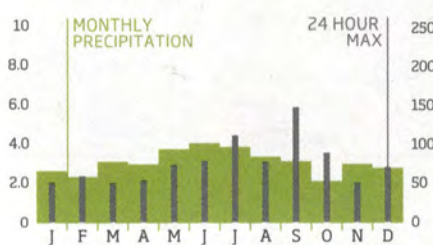
“The privacy fence and front entry wall made very inventive uses of steel—including a cantilevered steel plate front stoop,” adds Joseph Meier, structural engineer.

Noticing that a required gap between the houses led to tremendous energy loss, the couple creatively insulated the small space between each of the bordering homes using foam noodles (children’s pool toys) cut in half and water-based log cabin chinking; neighbors were thrilled about the resulting energy savings. This seemingly small step, combined with the high-efficiency HVAC

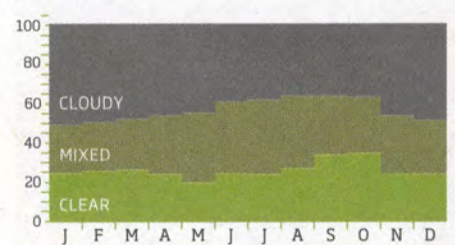
TEMPERATURES & DEW POINTS
FAHRENHEIT/CELSIUS

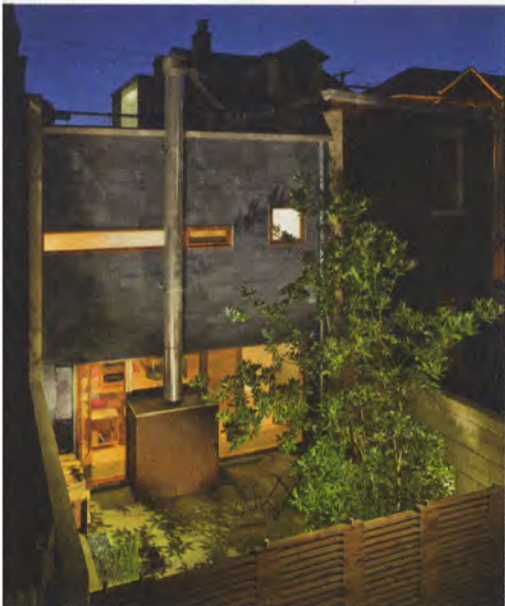


PRECIPITATION
INCHES/MILLIMETERS



SKY CONDITIONS
PERCENT





system, programmable thermostat, compact domestic hot-water system, and high-efficiency heater, keeps the gas and electric bill at about 20 percent less than the national average. Keeping in mind that this is both their home and work space and that undocumented savings have since resulted from a green roof installed in 2008, this is an impressive feat.

Moving inside to the open floor plan on the first level, the bright light of the sun hitting the locally harvested maple furniture contrasts starkly with the cold metal exterior. “When we show clients the Live/Work Studio II, what they are most impressed with is the daylighting,” Battistone says. “The interior is offset with this warmth; daylight bounces off the drywall and maple to form a glow.” In concert with the operable windows, a skylight doubles as a thermal chimney for natural ventilation, cooling the home through the stack effect.

The first floor acts as the combined area for cooking, eating, and relaxing. “Our goal was to make clients rethink how much space they really need,” Battistone says. “We

consolidated our expenses logically; the house is not just super efficient as far as energy use, but with integrated spaces also.” Since some of the walls do not touch or reach the ceiling, the scale and sense of depth are exaggerated to give the illusion of a greater size.

Large windows line the back wall, offering a view of the small, Asian-inspired garden with a Sweetbay magnolia tree and a recycled railroad trestle bridge stone bench. Black asphalt shingle siding lines the back of the house. “Obviously not sustainable,” Damiani conceded. “But its life cycle will last much longer as a vertical application.”

“We really utilized the labor of our city,” Battistone explains. Locally made concrete blocks comprise the north and south parallel load-bearing walls. Friends thought they were crazy to leave the high fly ash content blocks exposed, but the couple felt it fit with the industrial aesthetic.

Located directly above the kitchen, a glass and steel bridge separates the second floor studio from the bedroom, defining the public and private spaces. Continuing upstairs to the roof, the view of the bustling downtown across the Monongahela River is what Damiani calls the “reward of the sequence of the house.”

After years of research on the topic, a no-maintenance, extensive green roof was installed in mid-2008 as the final piece to this decade-long project. “We had the luxury of phasing the work and taking time to rethink every detail,” Battistone says. The incremental progression gave the couple an opportunity to really craft the Live/Work Studio II to their vision of a small, efficient space—and they couldn’t be happier with the result. 65

>SOURCES

- Structural system** Angelo Lane CMU blocks, locally made with fly ash
- Wood facade** Mars Lumber FSC-certified mahogany
- Custom wood windows** Duratherm
- Motorized ventilating skylight** O’Keeffe’s
- Interior paint** Sherwin-Williams
- Paneling** Allegheny Plywood, FSC-certified maple veneer
- Hardwood flooring** Mullican FSC-certified maple
- Carpet** InterfaceFLOR tiles
- Fixed seating** Continental Office Environments; Maharam upholstery
- Roof insulation** Johns Manville formaldehyde-free batt
- Green roof system** Green Living Technologies
- HVAC system** Trane
- Hot water system** A.O. Smith
- Refrigerator** GE Monogram
- Dishwasher** Miele