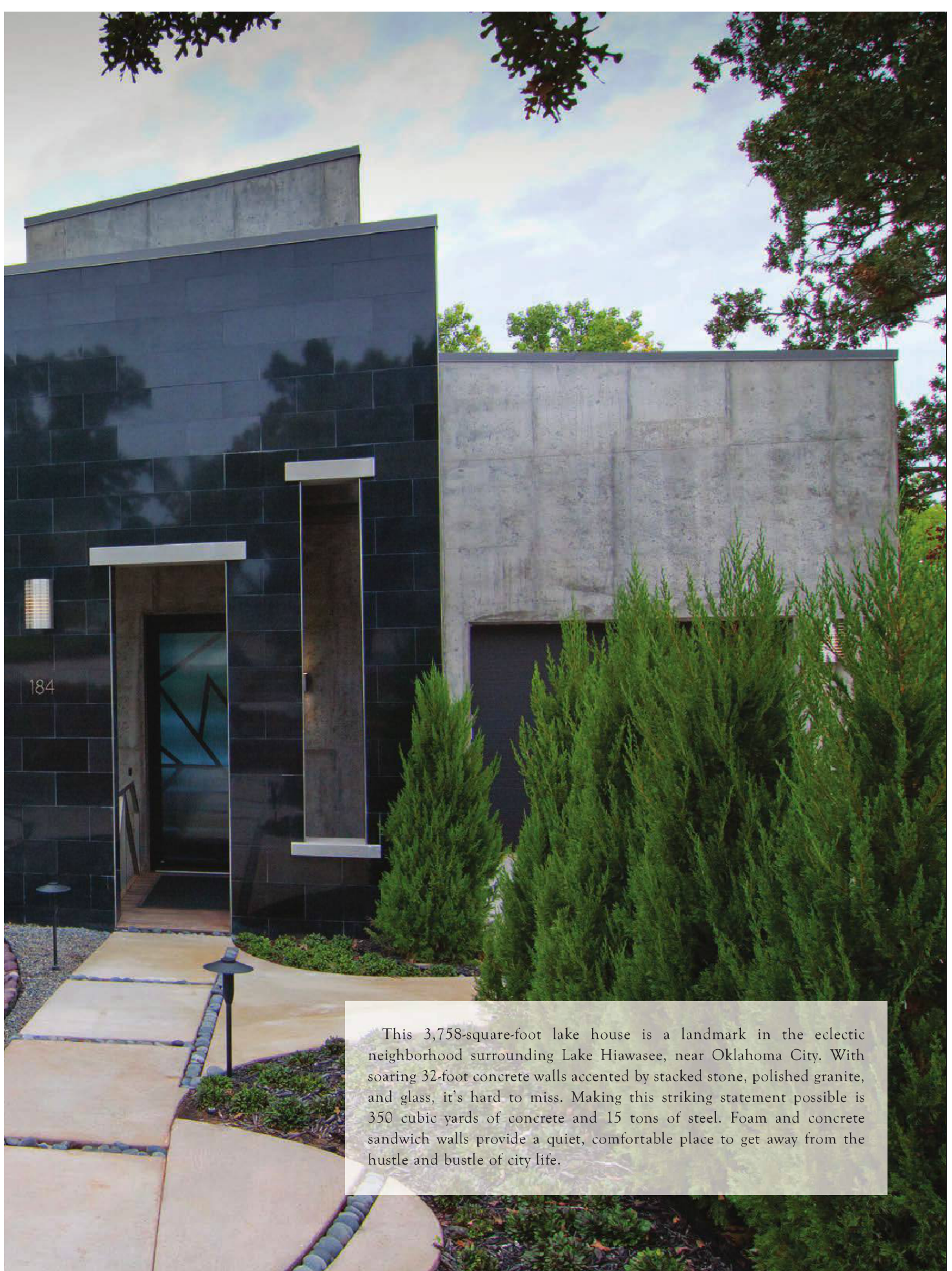


A photograph of a modern architectural courtyard. The background features a wall with a mix of dark grey stone and light grey concrete panels. Two vertical blue panels are mounted on the wall. In the foreground, a circular path made of light-colored concrete and dark grey gravel is visible. A large, bright red sphere sits in the center of the path. A tree is on the left side of the frame.

LAKESIDE MASTERPIECE

PRIVACY AND PRACTICALITY MERGE IN Poured-IN-PLACE
CONCRETE RETREAT

Photography by **Brian Denton**. Photos courtesy **3 Level Design**.
Text by **Kelly Stokes**



This 3,758-square-foot lake house is a landmark in the eclectic neighborhood surrounding Lake Hiawasee, near Oklahoma City. With soaring 32-foot concrete walls accented by stacked stone, polished granite, and glass, it's hard to miss. Making this striking statement possible is 350 cubic yards of concrete and 15 tons of steel. Foam and concrete sandwich walls provide a quiet, comfortable place to get away from the hustle and bustle of city life.



A sunken patio accommodates the sloping lot and affords unobstructed lake views.

PROJECT TEAM

Architecture and Interior Design

Bobby Newman,
Principal Architect and
Bernard Adderley,
Project Architect
3 Level Design

Structural Engineering

Mike Hancock, P.E.,
Basement Contractors

Contractor

Rob Lewis

Project manager / Superintendent

Burk Lucas



A cantilevered steel stairway and metal sculpture create a dramatic interior.



The large expanse of windows affords lake views from the rear of the house.

The Lewises approached Bobby Newman of 3 Level Design with very specific ideas about what they wanted for their getaway, but the result is more than they'd planned for. During construction, the Lewises stayed onsite in their RV on weekends. They enjoyed being at the lake so much that they altered the plans to add spaces that would allow them to spend more time at their new getaway.

The office space was added above the kitchen and included window treatments and a sleeper sofa so it could be used as an extra bedroom. The Lewises had planned to stay in their RV when they visited the lake, but as the project progressed they decided to add a master bedroom. "It kept evolving," says Newman. "We ended up with about 1000 square feet more than we'd planned as they added all the rooms they wanted." And the additions paid off for the Lewises, who now spend half of every week at the lake house they'd once intended to use just for occasional entertaining.

CHOOSING CONCRETE

Newman and the Lewises considered many options before deciding on concrete. "The owners wanted something unique and we just kind of gravitated toward concrete," says Newman. "They liked the raw, exposed nature of the concrete, contrasted by more refined finishes, and wanted to see it both inside and outside."

The home's exterior walls, which slope from 24 to 32 feet, are poured-in-place concrete surrounding a core of foam, produced by Thermomass. The foam provides extra insulation but also extra complexity. Every plug, pipe, and outlet was mapped out in advance and embedded into the foam to provide a clean, modern look for the interior walls. Placing the forms was no small feat, especially as most of it was done during an extremely hot summer. "They were up there hoisting these aluminum forms thirty feet in the air in a very precise manner," says Newman, "along with coordinating placement of the electrical conduit, rebar, and foam."

Careful handling of the forms was critical to achieving the aesthetic goals. The Lewises had seen a house with poured concrete walls that were destined to be covered by brick and worried that their finish would look the same. When the forms on their walls came off, they were surprised by how great it looked and everyone breathed a sigh of relief. "We took quite a bit of care making sure the forms were clean and the placement of them made logical sense," says Newman. "I'm so pleased with how it came out."

This is Newman's second project working with Mike Hancock, P.E. of Basement Contractors using Thermomass concrete insulation systems. "One of the best things about this house is how quiet it is," he boasts. "Once you step through the front door, you step into a different world. You don't hear any noise from cars or people going by."



Glass walls above baffle noise when the lower level is used for entertaining.

CONSTRUCTION CHALLENGES

The Lewis home presented a number of design and construction challenges, starting with a site that slopes steeply from the road down to the lake. “The old house had water running down the hill into the front door,” says Newman. “I was out there one day after demolition and the amount of rain pouring onto the site was just staggering.” He addressed this challenge by grading the property to create a flume that channels the water from the hill directly into the lake.

The steep site presented challenges for the home’s design as well. The homeowners wanted to eliminate steps to accommodate family members with limited mobility. The steep slope made this impossible – the home’s main floor is eight feet below the street – but Newman turned the site’s disadvantage into a feature of the home. “We carefully worked out the grading and spread the height transitions throughout the design,” he says. “I think that this creates a unique experience because it helps to drop the patio down so it doesn’t block the views from the house.”

The home’s one stairway also presented challenges. The steel steps are cantilevered out from the wall using an embedded steel plate with nelson studs welded to the back. Bent plates in the shape of c-channel were welded to the ¾ inch steel plate for the treads. Hancock explains: “We had to place it in the concrete wall at a perfect elevation and slope to match the stairs.” Newman admits it was a chore to get the plate attached to the forms, but ultimately “it was

a good combined effort between the design team and the construction team.” Once the plate was in place and the wall was poured, the challenge fell to the welder to get all the stairs plumb and lined up. All the stair railings were custom made by a steel fabricator.

The wall of windows looking out to the lake also presented special challenges for the concrete construction. A concrete beam holds up the windows but also supports a concrete deck over the patio. “Extensive reinforcement was designed to carry the weight in a very tight area,” explains Hancock. Roof drains had to be incorporated in the concrete columns. “This was a pretty difficult project, especially for a residence,” says Newman. “The drawings look more like a commercial building than a set of house plans, and we used mostly commercial contractors.”

DESIGN FEATURES

The home’s many design challenges also inspired its most unique features. From the street, the Lewis home presents a towering wall of stone, granite, and glass, visible in spite of the sloping lot. “One of the reasons we went with vertical elements on the front was so it would make a statement from the street,” explains Newman. “The idea was to have finishes that are different in how refined they are. Black granite and glass are highly polished, creating quite a bit of contrast with the stacked stone.”

For the facade, the concrete walls are covered inside and out by a product made to look like stacked stone. “The homeowners found an image they liked that showed black stacked stone against a white plaster wall,” says Newman. “So we looked and looked for a black stone, but it’s pretty difficult to find. We finally found this product, which is manufactured in Australia and comes from Vietnam. It comes in 8-inch x 18-inch panels and mimics the look of stacked stone.”

The stacked stone is contrasted with polished black granite and blue glass, which the homeowner chose to mirror the color of the lake. Minimizing windows on the front of the house provides privacy and noise reduction from passing traffic and creates a dramatic transition from the world outside to the experience inside the lake house. “The main concept for this house is that it’s a lake house, a getaway,” says Newman. “The front wall becomes a barrier between the everyday bustle of our work lives and the relaxing, slow pace of lake life. It’s a transitional point; once you step through it, you are in a different world.”

Another unique feature that provided the team with sourcing challenges was the bar surrounded by salt blocks. The homeowners specifically wanted a u-shaped bar so they could entertain guests and serve from the center. The Lewises had seen salt blocks in Arizona and envisioned them surrounding the bar, lit from inside. Finding the

salt blocks to complete this vision proved more difficult, but they were finally tracked down in Pakistan. Newman wondered if they'd show up, but they ultimately did and the dramatic bar serves as a testament to the team's persistence.

SPECIALIZED SOLUTIONS

One of the remarkable aspects of this project for Newman was the complexity of design. "It really was a challenge," he says. "It's amazing how much time we spent on this for a house, from coordination meetings to sitting down with subcontractors to see what was possible. The amount of time and effort it took in design and coordination make it unique as a residential project."

One such challenge was the roof system. A wooden truss system was originally considered, but the span was too long so they ended up using a bar joist system and metal deck. "We wanted to leave it exposed but didn't want to see the screws coming through from the standing seam metal roof," says Newman. The solution was a layer of foam glued to the roof deck and then a layer of OSB glued to the foam. "The standing seam system required something to attach it to," Newman explains. "I think it turned out great."

The garage also used the standing seam roof, but with Structural Insulated Panels (SIPs) instead of the metal deck, which was chosen primarily for its aesthetic value. The garage is heated in the wintertime," says Newman, "and the SIPs were a simple, easy to use system that gave us a lot of r value."

SUSTAINABILITY


Energy efficiency and long-term maintenance were carefully considered for every system and element in the house. Rob Lewis researched each component, considering payback time, long term benefits, and maintenance. Government incentive programs helped purchase a geothermal heat pump system and hot water heat exchanger, which provides free hot water in the summer, when the lake house is used the most. A low-E commercial window system was used for the home's feature windows. All exterior materials are low to no maintenance, from the concrete walls to the standing seam metal roof system.

A small tornado shelter was added as an afterthought. Newman realized that the stair landing had thick concrete walls and space underneath, so he designed folding plate steel stairs to allow access. "A shelter wasn't envisioned as part of the original scope," says Newman, "but it turned out to be a nice feature."

The neighbors were a bit skeptical during construction, but everyone who has experienced the house has fallen in love with this concrete masterpiece. The Concrete Foundations Association agrees; they awarded it the 2014 Project of the Year. Newman credits the success of his latest work of art to the collaboration between the homeowners,



The dramatic front entryway permits privacy and practicality.

designers, and construction teams. "We were fortunate to have really great clients that trusted us - that's one of the reasons we ended up with a great result," he says. "The project wouldn't have been as successful without any members of the team." 



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