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# Properties

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## Progress Preserved

Historic restoration project prepares ASM International Headquarters for the future



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## Historic restoration project prepares ASM International Headquarters for the future

By Mark Watt | Photos by Scott Pease

**A**s a six-year-old boy, Michael Chesler was obsessed with the strange building in the wooded hills of Russell Township, convinced it was built by spacemen. He still remembers riding shotgun in his dad's car along Route 87 and pleading with his father to take him down to the domed structure where he was certain he'd find "space guys walking around in white suits." It wasn't until years later that he discovered that the extraordinary building was one of the most important examples of Modernist architecture in Ohio: ASM World Headquarters at Materials Park.

This summer, Chesler's infatuation with the building and his years of experience restoring historic structures throughout Ohio have coalesced as his company, The Chesler Group, completes an exhaustive historic restoration project at ASM's headquarters, situated on a 45-acre campus 20 miles east of Cleveland. The \$6.5 million undertaking, two years in the making, has updated the facility for the future while maintaining historical details in respect to the original architecture of the building, recently added to the National Register of Historic Places.

Designed by famed Northeast Ohio architect John Terence Kelly, the futuristic steel, aluminum, concrete and glass structure was built in 1959 to house ASM International (then known as American Society for Metals), a not-for-profit organization for materials scientists and engineers who work with metals. Reflecting the innovative metal work of ASM's members, Materials Park incorporates a massive, open lattice-work geodesic dome engineered and created by inventor and mathematician R. Buckminster Fuller. The honeycomb-like structure, still the largest of its

kind in the world at 103 feet high and 250 feet in diameter, arches over a three-story, semi-circular office building outfitted with meeting rooms, private offices, laboratories and classrooms.

Conceived to match the vision of early ASM Secretary William Hunt Eisenman who personally donated portions of his family's farmland to house the facility, the building's design is intended as a statement on humanity's potential for ingenuity. At the center of the circular park is a central garden featuring samples of raw minerals and ores as they are found in nature, while the geodesic

**OUTSIDE IN** Office spaces on the building's second floor now provide open views to the landscaped garden outside, as originally intended. "You can see out of the building from virtually any space within the building," says ASM Managing Director Stanley Theobald. Original Architect John Terence Kelly "really wanted colors to come from the landscape outside, so that the beauty of nature would blend with this modernist architecture," he says.

dome encircling and towering above the garden is a profound example of what mankind can achieve by manipulating and mastering those materials with breathtaking feats in metal work.

"They spent \$2.9 million then, which today is about \$30 million," Chesler says. "To erect such an extraordinarily complex building was a bold move. Every cutting edge technology of its day was put into this building."

As a result of the Chesler Group's historic preservation project, ASM's headquarters is once again prepared for the future, now transparently equipped with modern technologies while meticulously restored to match the original design intent.

### **Pursuit of a prized project**

For more than 20 years, the Chesler Group has specialized in the preservation and adaptive re-use of historic buildings in Northeast Ohio, acting as owner, developer and design/build contractor. "Through the course of my different business ventures over the years, I got involved in restoring 20-some historic, 19th century brick buildings," Chesler says. "This was different."

As Chesler notes, he had kept his eye on ASM Headquarters over the years as he knew that once a building is 50 years old, it becomes eligible for historic preservation tax credits through the U.S. Department of Interiors, administered by National Park Service and the Internal Revenue Service. The credits provide favorable tax incentives for projects that preserve buildings considered to have historical value within the U.S. In 2008, Chesler contacted ASM Managing Director Stanley Theobald, who at the time wasn't aware of the building's impending eligibility.

"Coincidentally, the ASM board been discussing options for the building





**METALS IN MIND** The building includes a variety of metallic details inspired by ASM's role as a society for materials scientists and engineers. This includes brass handrails and copper doors, as well as stainless steel floating staircases supported by steel rods. Wall art, as seen in the first-floor entrance lobby, includes seven stainless steel murals hand-etched by Greek metal artist Nikos Bel-Jon in the 1950s.

and we had even considered moving to another site," Theobald says. "We also had talked about staying and updating the building. The tax credits made that option more attractive."

He eventually invited the Chesler Group to present its ideas in front of ASM's board, populated by top engineers from around the country. After a vote, the board gave its approval and the project took off.

Chesler's team began the process of getting the building included on the National Register of Historic Places at the state and federal levels, required for tax credit eligibility, by writing and submitting a nomination for the project. In late 2009, ASM Headquarters became the first Modern architecture project to apply for and receive Federal and State Historic Preservation Tax Credits in the State of Ohio. The \$6.5 million restora-

tion project was awarded a total of \$2 million in state and federal tax credits.

"Historic tax credit deals are fairly complex," says Lee Chilcote, managing partner of The Chilcote Law Firm, which served as legal counsel to The Chesler Group. "Through a close working relationship among The Chesler Group, ASM and our firm, we were able to create a unique structure for purposes of undertaking and completing the tax credit transaction."

The Chesler Group hired Dimit Architects LLC as project architect and in April of 2010 commenced renovation work.

### Revived look

The scope of the project entailed restorative work and improvements to the office building's interior and exterior in compliance with the Secretary of

Interiors Standards for Rehabilitation of Historic Buildings.

"Every aspect of the project had to be discussed with and approved by the National Park Service," Chesler says, noting that the Historic Landmark designation demands returning the building as closely as possible to its original design.

Work included a full restoration of the building's exterior surfaces, including a stainless steel sunshield wrapping the perimeter of the building's top floor. The unique shield – 13 feet tall, nearly 400 feet long and outfitted with 4,000 louvers – was removed, restored and reattached. The entire building was painted a stark white to match John Terence Kelly's original intention, Theobald says. The dome required no renovation work as it has been continually maintained with yearly "tuning" by a firm specializing in such work.

Dramatic updates were made inside the 50,000-square-foot, 179-degree “C”-shaped office building, including remodeled and updated meeting rooms, open workstation areas and private offices on the building’s first and second levels.

“We made the decision early on to take the building back to its original state, which was more of an open environment,” Theobald says, noting that many areas of the building had been populated by tall workstations that obstructed views of the outside. “All furniture is now low profile so that you can see out of the building from virtually any space within the building. [Original Architect John Terence] Kelly really wanted colors to come from the landscape outside, so that the beauty of nature would blend with this modernist architecture.”

At the garden level, which is below grade but accessible from a western entrance carved into a hillside, an existing cafeteria was replaced with an updated café space and meeting area served by a newly installed kitchenette. In corridors surrounding an adjacent garden-level courtyard, carpeting was removed to expose structural slab concrete that was painstakingly ground down to create a terrazzo floor effect. Private offices have been updated and a space previously used for storage has been restored as an open office area. Classrooms, dedicated IT space and laboratories are all situated nearby.

Connecting all three floors is a fully restored floating stairway, built of stainless steel with brass rails and hung by stainless steel rods extending the height of the three-story stairwell. Nearby is the original elevator, framed by sheets of copper. The stainless steel-plated elevator cab has been refurbished with all new siding.

“There is so much stainless steel and brass throughout the building,” says Scott Dimit, principal with Dimit Architects. “It was a real joy to restore those details and rehang doors that hadn’t been used for years, bringing the overall experience back to what John Terence Kelly intended.”



**SHAPING THE FUTURE** Engineered by R. Buckminster Fuller, the honeycomb-like geodesic dome at ASM International’s World Headquarters is constructed from aluminum alloy tubing and rods in tension, and is supported by five pylons. Still the largest open-work geodesic dome in the world, it stands 103 feet high and 250 feet in diameter, weighing 80 tons.

Such metallic design details abound. Copper doors and brass handrails have been restored. Stainless steel tiles are used in bathrooms and kitchenettes. Wall art includes seven distinctive stainless steel murals that were commissioned by ASM and hand-etched by Greek metal artist Nikos Bel-Jon in the 1950s, only to be forgotten for years before being rediscovered in a storeroom early in the project.

Supporting the metallic details and the building’s striking overall architecture, the new interior design approach by Analia Dimit, of Dimit Architects, replaces an institutional existing color scheme with warmer color tones and simple, sleek furniture choices.

“The idea with the interior is to keep it minimal in the choices for

carpeting patterns, furniture and color choices,” Chesler says. “You want them to be simple. You let the building speak for itself.”

New furniture pieces underscore the Modernist design with low-set couches and cleanly designed workstations keeping the focus on the architecture of the building itself. Some existing furniture remains, including 33 original Steelcase chairs that were reupholstered and a restored custom conference table with steel ASM medallions.

“Everything about the architecture is radial and that drove choices for the interior design,” says Analia Dimit. “We had to find the perfect carpet pattern that would work in such a space, as a grid pattern common in carpet design just wouldn’t work.”



**ROOM IN THE ROUND** At the garden level, an existing cafeteria was replaced with an updated café space and meeting area. Here and elsewhere, the building's semi-circular shape is referenced by design details, including radial carpet patterns, disc lights and round tables.

Nearly all of the building's 14 restrooms were updated to meet ADA requirements and enlarged.

### Behind walls, beneath floors

While the more visible portions of the renovation project are dramatic improvements, a major portion of the project work entailed complete updates to the building's electrical, mechanical and plumbing systems.

To update the electrical system, the team installed all new electrical gear, power and distribution and ran close to 40,000 feet of Cat-6 wire throughout the building, while cutting in over 100 electrical boxes into the building's concrete floors. "Every single wire, every electrical panel is new," Chesler says. Complicating matters, radiant heat is used throughout the second floor, which required the team to dodge the radiant heat pipes embedded in the concrete while drilling into the floor, according to Benjamin Davis, construction manager with The Chesler Group.

New technology includes 13 wireless Internet nodes, a new access control system and HD security cameras. Over 350 canned light fixtures are now equipped with the latest LED lights capable of providing the look of incandescent lights, operated at a fraction of the cost. About 100 fluorescent dome lights in the building feature updated dimmable ballasts with sensors to dim according to the amount of natural light in a room.

Two-hundred and forty-four expansive, original glass windows, considered as "historic fabric" by the National Park Service, were restored and newly glazed.

"The building is entirely a glass box using quarter-inch plate glass and we originally had a \$1 million budget to replace all of it with insulated glass, but since it was deemed historic fabric, we had to keep it," Chesler says. "So energy efficiency was an issue."

ASM's board had charged that the project would lean the fuel burn out of

the building by 30%. Solar window film was not an option, as it potentially could have been baked onto the historic glass. Because of the inefficiency of the original glass wall system, the construction team compensated by investing in two ultra-efficiency boilers which trade the load – one on standby and one online at all times – to exercise one another, Chesler says. A new air-cooled, 180-ton chiller was installed as well.

"The problem with this building was that even on a 60-degree, spring day, the temperature might get to 90 degrees inside so that you'd need air conditioning," Davis says.

The new mechanical system, designed and installed by Precision Mechanical, Inc., is highly efficient with an automated system that can be controlled remotely through a Web-based software package.

"We had to be creative but we were able to bring the building into the 21st Century," says Glenn Bridges, president/owner of Precision Mechanical.



**STYLED SETTING** New furniture pieces underscore the Modernist design with low-set couches and cleanly designed workstations keeping the focus on the architecture of the building itself.

“Everybody is comfortable now and utility costs have been greatly reduced.”

### Breaking through barriers

A significant challenge for the project team was the inclusion of major repair work on a vegetative roof along the southwestern perimeter of the office building, covering the garden level below. With the assistance of Paul Gaudette, associate principal of Wiss, Janney, Elstner Associates, Inc. who served as a concrete consultant, it was discovered that flashings at the bottom of the wall had been breached and water had leaked through.

“The bottom several feet of the wall had severely deteriorated so Brad Shotwell, a petrographer with our Cleveland office, did laboratory analysis of the concrete and helped to diagnose the problem,” Gaudette says. “Water had leaked through and continuous freezing and thawing of the moisture of the years had led to the failure.”

To fix the problem, the top portion of the wall was removed and replaced with painstaking efforts to match the color, texture and profile of the existing concrete. Much of this work happened through four cold months in the winter

and spring, beneath a tent made with tarp over a wooden frame and a heater placed at both ends.

Although it was not included in the original plans for the project, ASM’s board and The Chesler Group elected to remove the existing green roof and install a modern Hydrotech 7 ply waterproofing/drainage system to ensure a long life for the vegetative roof.

Another major challenge was an abatement process for the entire 35,000 square feet of ceilings in the building, as they were filled with asbestos. The ceiling material was not a usual plaster, Davis says, and finding a bonding agent that worked with the material was a challenge.

“Fixing the ceilings was a major effort with a dozen men working for four weeks, 12 hours a day remudding the ceilings using paint scrapers,” he says. “We used over 120 gallons of plaster weld that had to be sprayed on this material to allow us to bond, to even out and then spray the new ceiling by hand.”

### Back Into the building

This July, with work on the project drawing to a close, ASM moved back

into the building with 85 employees situated primarily on the building’s second floor. The first floor is now being leased to outside tenants with classroom spaces available for rent for interested parties.

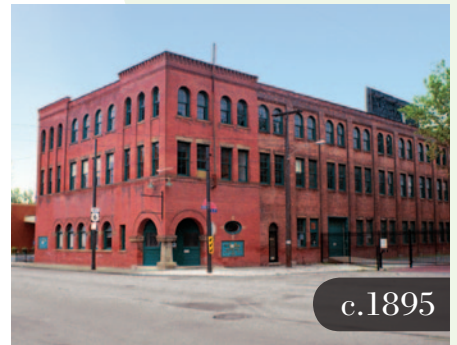
Analia Dimit, of Dimit Architects, says that spending so much time exploring the innovative architecture of the building throughout the project was gratifying.

“When you have a historic building like this that was designed by an architect so clearly passionate about his work, you can’t help but to be drawn in,” Analia says. “It was a great, rewarding experience to be part of the project.”

Theobald says ASM staff and visiting members are thrilled with the results of the project.

“This project was successful in bringing the building from being a drab and dated structure with huge potential back to its original modernist approach,” Theobald says. “It’s minimalist in a modernist way – and still feels modern 52 years after it was built. When you come here and see it, you have to be a little blown away. It’s a beautiful complex. We’re very proud.” **P**

# We Make History One Building at a Time



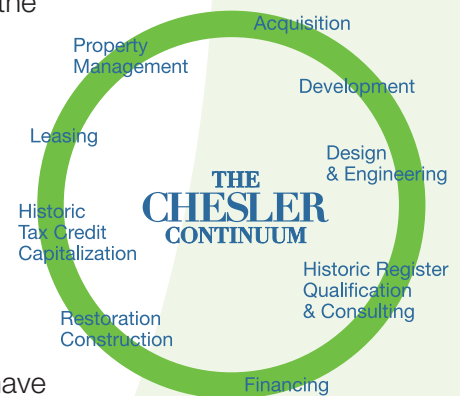
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