



W.J. HIGGINS
& ASSOCIATES, INC.

SPECIALISTS IN EXTERIOR WALL AND ENVELOPE SYSTEMS

Proactively Guiding Design and Performance Since 1994
Consulting – Production Drafting – Project Management – Forensic Services

INTEGRITY MEANS
EVERYTHING

AND IT'S OUR
PROMISE TO YOU



Established in 1994, W.J. Higgins & Associates, Inc. has become a trusted partner by architects, exterior wall subcontractors, contract managers, general contractors, building owners, panel and glass manufacturers.

We take great pride in offering you truly independent, third-party evaluations and recommendations, unclouded by associations with other entities that might be involved in your project.

Based in Weston, Wisconsin, our company is built upon strong, Midwest values that inspire us to treat people fairly. To do more than expected. To dig deeper, work harder, and always do what's right and true. Because we believe that uncompromised integrity—in people and in buildings—always leads to superior outcomes. We finish what we start and we finish strong.



THE RIGHT PARTNER, RIGHT FROM THE START YEARS AHEAD OF THE CURVE

Since our founding, W. J. Higgins & Associates, Inc. (WJH&A) has employed European rainscreen technology to create superior exterior wall and envelope systems for our clients.

One of the first American firms to use these open-joint, back-ventilated application techniques, we have gained a reputation for achieving environmentally-friendly, weather-resistant buildings and structures capable of standing strong for 50-100 years. By the time European principles were embraced here in North America, we were already years ahead of the curve.

Our technical expertise, combined with training from Europe's most renowned window and cladding universities and first-hand experience at job sites in Europe and Canada, makes us uniquely qualified to incorporate all the benefits of rainscreen technology into our clients' glass, metal, terra-cotta, or stone exterior wall assemblies.





HAYDEN FERRY

LOCATION Tempe, AZ

ARCHITECT DAVIS

CLIENT Kovach

DEVELOPER Parkway Properties

SCOPE OF SERVICES

Facilitated design of a custom unitized curtain wall system with the help of insightful input from our client to best accommodate their manufacturing techniques and installation preferences. We also produced all submission drawings and coordinated engineering requirements to support both fabrication and installation of the curtain wall system.



HEALTHY WALL SOLUTIONS

BY W.J. HIGGINS &
ASSOCIATES, INC.

RAINSCREEN
CLADDING, ALONG
WITH PROPERLY
DESIGNED AND
APPLIED WEATHER
RESISTANT BARRIER,
PROVIDES AN
UNINTERRUPTED,
IMPERMEABLE SYSTEM,
ALLOWING WALL
CAVITIES TO REMAIN
DRY AND HEALTHY.



BENEFITS OF RAINSCREEN CONSTRUCTION

RAINSCREEN CONSTRUCTION

OPEN JOINTS:

- No leaching
- Encourages proper drainage
- Wall cavity remains accessible
- Allows for thermal movement
- Yields ventilation in wall cavity

Allows greatest design flexibility without compromising weather tightness because veneer is independent from weather barrier and needs no special provisions for sealants

100% weathertightness because non-permeable air barrier interfaces with window assemblies doors, louvers, etc.

When dew point occurs, it falls within insulation and exterior of the weather barrier and is ventilated to allow for quick evaporation

Saves time and money: Interior and external work can proceed simultaneously

MAINTENANCE-FREE:

- No sealants to replace
- Optimum insulation performance decreases heating and cooling costs
- "Zero" air infiltration

TRADITIONAL CONSTRUCTION

SEALED JOINTS:

- Causes leaching around caulking
- Causes condensation in wall cavity
- Prohibits access to wall cavity
- Can cause joint stress from thermal movement

Restricts design possibilities because veneer must act as the weather barrier

Compromises weathertightness at interfaces (windows, floors, columns, etc.)

Dew point within batt insulation compromises R-value and deteriorates insulation in unvented cavity

Jobs take longer: Exterior veneer must be completed before interior finish work can safely proceed

INCREASED MAINTENANCE CARE:

- Sealants need replacing approximately every 10 years
- Ineffective insulation increases heating and cooling costs
- Air infiltration as identified in ASHRAE guidelines



BRING US YOUR CHALLENGES

GET CUSTOM SOLUTIONS

Complex designs. Prevailing building codes. Environmental sustainability. The need to work successfully with multiple vendors and stakeholders. We understand the challenges associated with exterior wall assembly design, construction, and performance. We carefully consider all aspects of your project and provide thoughtful, individualized recommendations developed specifically to ensure optimum aesthetics, ease of installation, and long-term performance. From pre-bid guidance to post-construction follow up, we offer a full breadth of capabilities and services to guide and assist you throughout the entire process.



PRODUCTION DRAFTING

There are no “canned” drawings at WJH&A. Our skilled team of drafters creates job-specific, highly detailed production drawings “from scratch” to address the intricacies of each and every project, exterior and interior.

PROJECT MANAGEMENT SERVICES

Assistance with bids and budgets, combined with services such as field reviews and on-site testing, significantly improve cost containment and quality assurance.

CONSULTATION SERVICES

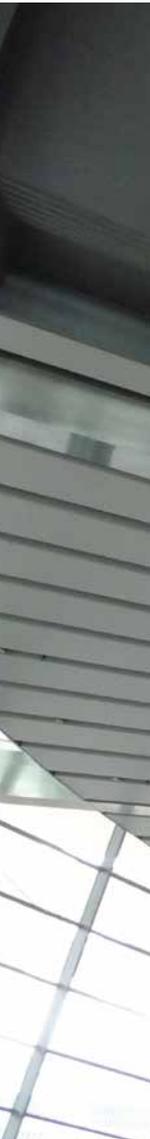
Our extensive knowledge and expertise in all stages of construction and ability to facilitate effective collaborations with vendors and stakeholders have proven invaluable to our clients.

FORENSIC SERVICES

WJH&A provides impartial field investigation, analysis, and expert witness services in cases involving exterior wall failure.

SPECIALTY SERVICES

- | | |
|---------------------------|----------------------|
| Field Measuring | Thermal Modeling |
| 3D CAD Modeling | BECx |
| Extrusion Design | Structural Analysis |
| Certification and Testing | Technical Guides |
| Design Guidelines | Installation Manuals |





CAMPBELL SPORT CENTER

LOCATION New York, NY

ARCHITECT

Steven Holl Architects

CLIENT Steven Holl Architects

OWNER Columbia University

SCOPE OF SERVICES

Provided exterior envelope consulting, from schematic design through construction contract administration.

The Campbell Sports Center, a five-story, 48,000-square-foot facility, houses strength and conditioning spaces, offices for varsity sports, an auditorium, a hospitality suite, and student-athlete study rooms.



WINSPEAR OPERA HOUSE

LOCATION Dallas, TX

ARCHITECT

Foster + Partners

CLIENT Pohl

OWNER

AT&T Performing Arts Center

SCOPE OF SERVICES

System design, submission and fabrication drawings for curved exterior unitized system and curved interior curtain wall systems which allowed easy, cost-effective installation.

The design of this building features a glass facade that wraps about the main building and acoustics specifically engineered for opera and musical performances. It is the focal point of the AT&T Performing Arts Center.



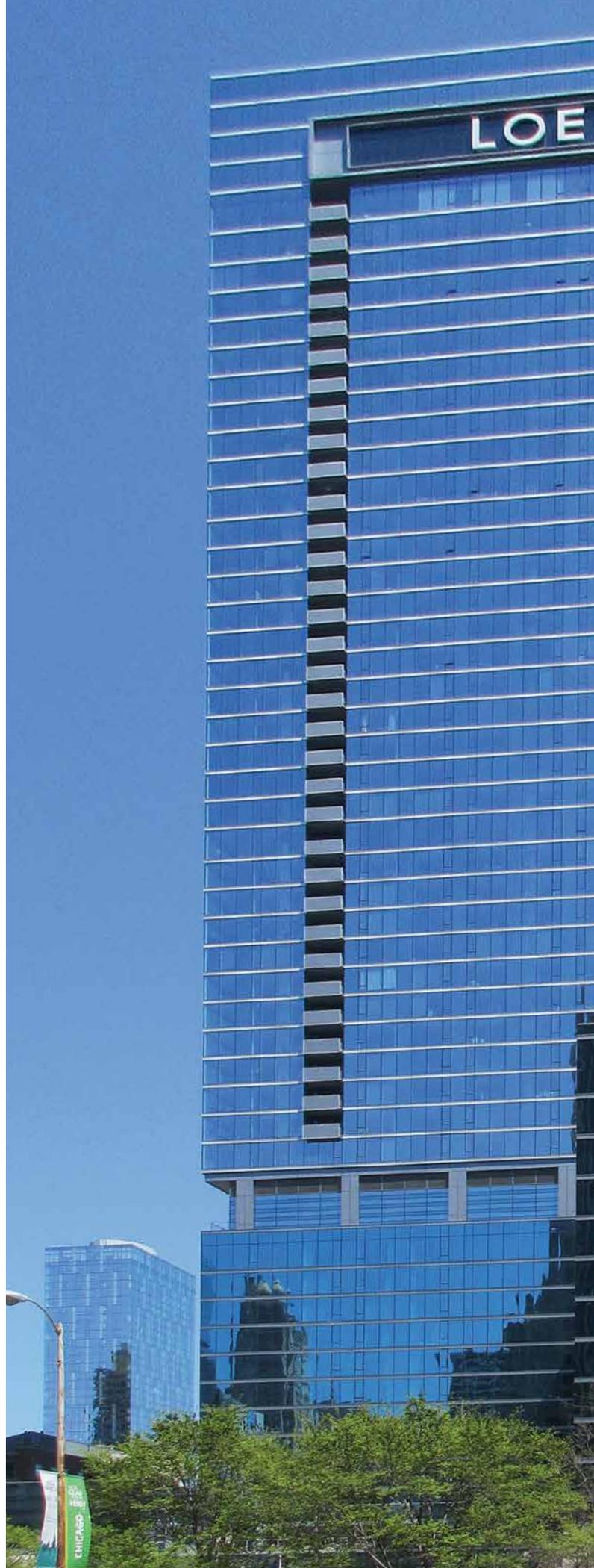
CREATIVE FREEDOM FOR ARCHITECTS

YOUR VISION, OUR EXPERTISE

WJH&A expertly utilizes European rainscreen principles to bring world-class architectural designs to fruition. With decades of experience, we are adept at uniting aesthetic purity with structural integrity and functionality, ensuring the viability and success of your vision. So dare to take your design to new heights. We'll make sure it all comes together.

ARCHITECTURAL AND CONSULTATION SERVICES INCLUDE:

- Advanced insight and technology to support your design
- Value engineering to cost-effectively achieve desired results
- Assistance with material selection
- Highly-detailed 2D and 3D drawings, including interfaces, to evaluate structural integrity before construction begins
- Schematic designs
- Proposal drawings and mock-ups
- Field testing
- Technical performance review
- Collaboration with manufacturers to assure efficient and accurate fabrication of all parts and components





455 NORTH PARK

LOCATION Chicago, IL

ARCHITECT

Solomon Cordwell Buenz

CLIENT

Solomon Cordwell Buenz

OWNER

New Water Park LLC

SCOPE OF SERVICES

Provided exterior envelope consulting, from schematic design through construction contract administration.

The 51 story tower consisted of various façade elements which included engineered unitized curtain wall interfaced with a custom window wall at the balcony areas. The systems were glazed with high performance glass and thermally improved framing to meet the stringent thermal performance required in Chicago.

Design features included out-swing terrace doors and tall multi-lock project-out awning vents that were required to comply with ADA requirements. The base of the building featured precast panels, granite, and tall curtain wall at the podium area, which was surrounded by wide painted metal accent trim.

The hotel entrance consists of a unique overhead metal canopy with a revolving door and a slide pocket door below. The 3rd floor amenity level provided a 43' wide folding door system. Along with glazed curtain wall at this level, aluminum composite panels with large bull nose accent trim enclosed the entertainment area. The end result was spectacular.



CRITICAL SUPPORT FOR BUILDING CONTRACTORS SO EVERY JOB GOES SMOOTHLY FROM START TO FINISH

From the moment WJH&A is brought in to assist with a project, we are planning for success at the job site. In the architectural design phase, we put into place all the necessary elements to achieve code compliance and to streamline installation. But, we don't stop there. WJH&A excels at providing critical support throughout the construction phase so installation meets code and is finished on time and within budget.



Froedtert Cancer Pavilion, located in Milwaukee, WI. WJH&A provided consulting services and successful completion which led to their selection on the adjoining Froedtert campus building, pictured on the next page.

PROJECT MANAGEMENT AND CONSULTATION SERVICES INCLUDE:

- Pre-bid budgets and bid review to avoid costly oversights
- Value engineering to cost-effectively achieve desired results
- Post-bid analysis to ensure that prospective bids are in compliance with contract documents and that building owners get what they are paying for
- Structural analysis to proactively identify and eliminate potential problems
- On-site installation support
- On-site testing and documentation
- Periodic field reviews
- Detailed, easy to follow drawings, including interfaces
- On-time collaborative construction scheduling eliminates delays
- "As-built" documentation



FROEDTERT CENTER FOR ADVANCED CARE

LOCATION Milwaukee, WI

ARCHITECT Canon Design

CLIENT

M.A. Mortenson
Construction Company

OWNER

Froedtert & Medical
College of Wisconsin

SCOPE OF SERVICES

WJH&A provided services for design development and construction documents, bidding and negotiation, construction administration, and remediation services.

- Reviewed construction documents with written commentary, reviewed applicable construction design sketches, and collaborated with the design and construction team.
- Reviewed building component submittals associated with envelope assemblies.
- Attended envelope subcontractor selection meetings and provided evaluation.
- Attended installation and testing of off site laboratory mock-ups; provided documentation and assisted with evaluation of test results.
- Provided periodic field observation visits and prepared field reports documenting findings.
- Provided proactive technical support as required.
- Witnessed designated field testing and prepared field test reports with findings and evaluation.
- Participated in final "punch list" review of building envelope assemblies and construction.



PEACE OF MIND FOR BUILDING OWNERS

EXPECTATIONS DELIVERED

When you hire W.J. Higgins & Associates, Inc. to oversee the design and construction of your exterior wall envelope, you get a partner whose sole goal is seeing that all of your expectations are met. That the façade you envision is the façade that gets built—and that it gets built right the first time. That it's not only aesthetically pleasing, but also code compliant. Not only environmentally sound, but built to last in the environment in which it is constructed. Our rainscreen application technology and attention to detail ensure all of these things. So the end result is a building you can be proud of.

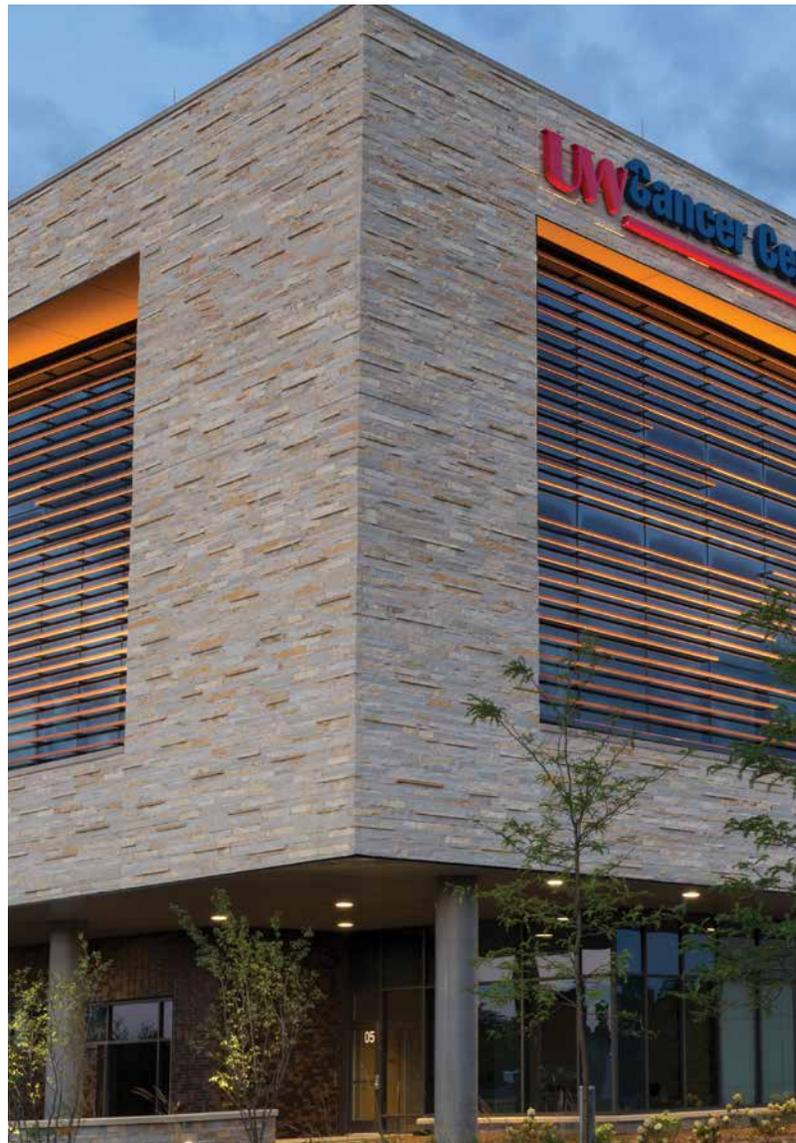
WITH W.J. HIGGINS & ASSOCIATES, INC. YOU HAVE THE BEST OPPORTUNITIES TO:

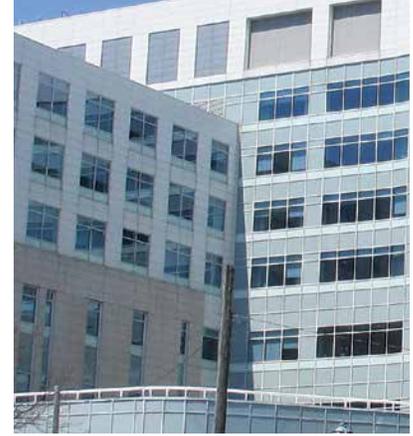
- Achieve code compliance
- Reduce construction costs
- Achieve a “healthy wall” that reduces moisture intrusion, mold and mildew
- Reduce maintenance costs
- Optimize energy efficiency
- Reduce heating and cooling costs
- Reduce exterior and interior maintenance
- Minimize disruption to building occupants during construction



ARIZONA STATE UNIV. CENTER FOR LAW AND SOCIETY

LOCATION Phoenix, AZ
ARCHITECT
 Ennead Architects, LLP
CLIENT Kovach
OWNER Arizona State University
SCOPE OF SERVICES
 Worked with client to adapt and enable their custom unitized curtain wall system to carry stone in varying “saw tooth” patterns as dictated by the architect. WJH&A also produced all submission drawings and coordinated engineering requirements to support both fabrication and installation of the curtain wall system.





COLUMBIA ST. MARY'S HOSPITAL

LOCATION Milwaukee, WI

ARCHITECT HOK

CLIENT

CG Schmidt Barton Malow

OWNER

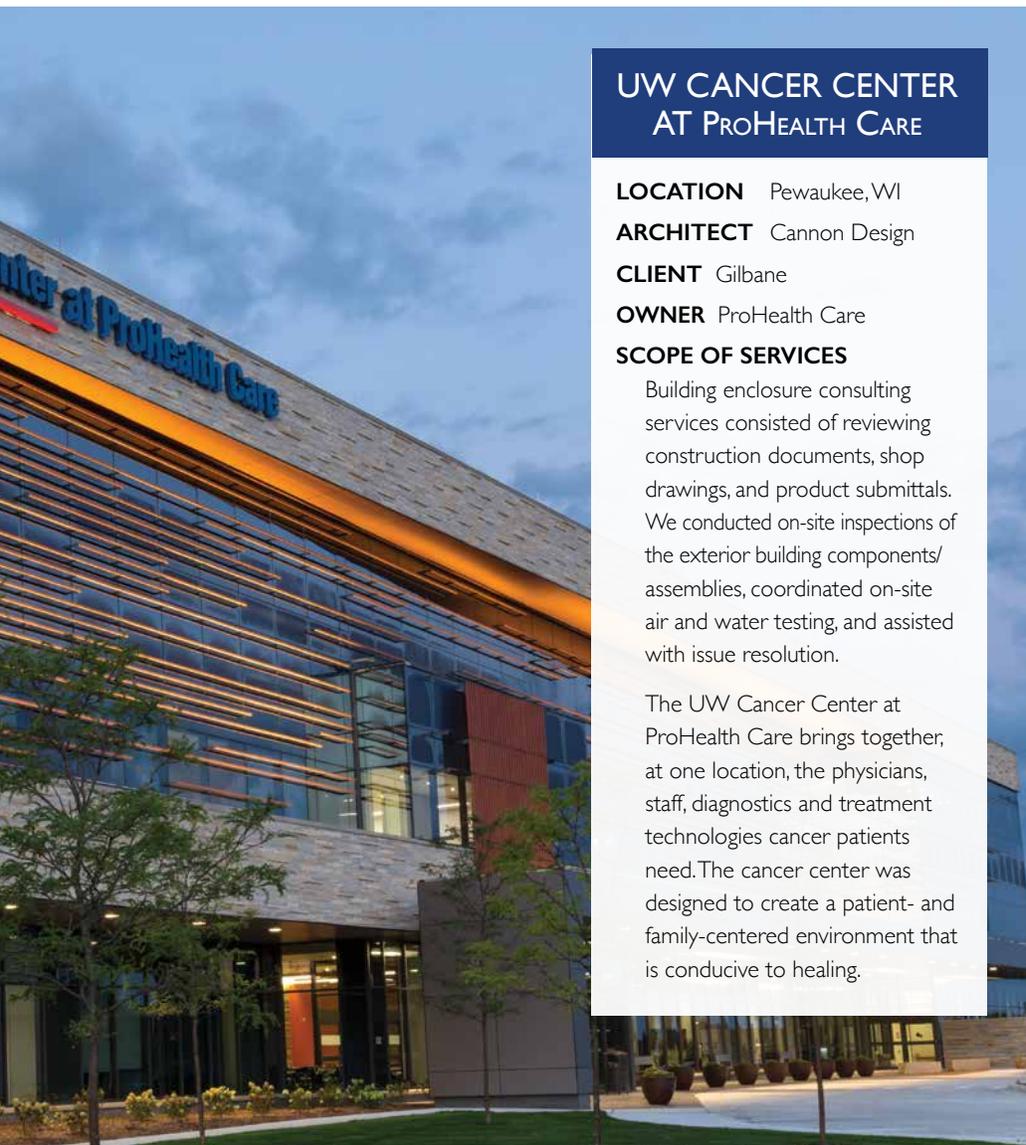
Columbia St. Mary's Hospital

SCOPE OF SERVICES

In current architectural publications, HOK is advertising this installation as the first successful precast rainscreen installation completed in the United States. WJH&A was selected as envelope consultant after exhaustive research conducted by HOK identified us as the most qualified firm to employ reliable precast concrete rainscreen panel cladding within their "high-performance wall" expectation.

In addition to delivering all of the necessary technical detail and insight for the high-performance exterior wall assemblies, WJH&A provided the technical detailing and supporting structural engineering for the precast rainscreen application.

Our most interesting contribution to our client was to guide and cajole an industry unwilling to change, into becoming a participant (although a reluctant one) in the delivery of high-performance precast wall assemblies.



UW CANCER CENTER AT PROHEALTH CARE

LOCATION Pewaukee, WI

ARCHITECT Cannon Design

CLIENT Gilbane

OWNER ProHealth Care

SCOPE OF SERVICES

Building enclosure consulting services consisted of reviewing construction documents, shop drawings, and product submittals. We conducted on-site inspections of the exterior building components/assemblies, coordinated on-site air and water testing, and assisted with issue resolution.

The UW Cancer Center at ProHealth Care brings together, at one location, the physicians, staff, diagnostics and treatment technologies cancer patients need. The cancer center was designed to create a patient- and family-centered environment that is conducive to healing.

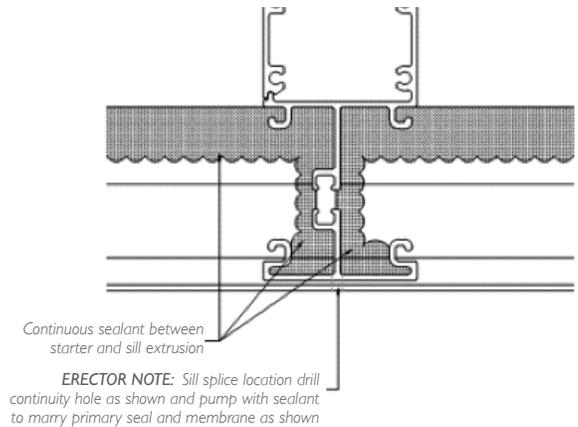
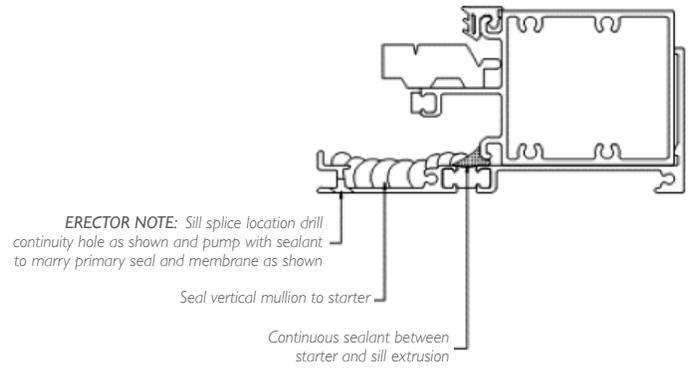


FORENSIC SERVICES

BUILDING FAILURE? WE FIND THE CAUSE.

When exterior envelope systems are not properly designed, executed or installed, wall panels can succumb to the elements and compromise a building's performance and longevity.

Prior to founding WJ. Higgins & Associates, Inc. Wes Higgins spent years investigating failing building exteriors for a window manufacturer. That background, coupled with the diligence and knowledge of our team of consultants, enable us to diagnose and analyze the source of the problem and recommend a custom a long-term, maintenance-free solution.



PROBLEM: Owner reported interior water leakage during and after rain events.

INVESTIGATION: Thorough investigation by WJH&A revealed that many sill receptor splice joints lacked membranes and sealants. Additionally, vertical mullions were set directly on the splice joint in many locations, piercing the splice joint sealants. (See drawing.)

REMEDICATION: The frame assemblies were modified to permit the placement of new sealants, while avoiding the expense and inconvenience of removing the window framing. Water testing was performed to confirm the repair.

West Bend Mutual

“ YOUR ABILITY TO BRING SUBJECT MATTER EXPERTISE TO THE TABLE WITHOUT BRINGING STAKEHOLDERS ON THE DEFENSIVE WAS EXTREMELY CONSTRUCTIVE. IN HELPING TO ESTABLISH SOLUTIONS, YOUR EFFORTS REMAINED FOCUSED ON BUILDING PERFORMANCE AND NOT PLACING BLAME. THIS VERY COLLABORATIVE APPROACH HELPED DRIVE US TO AN EFFECTIVE CONCLUSION THAT WAS ACCEPTABLE TO ALL. ”

Randy Stark, Director of Facilities, West Bend Mutual



RUSH-COPELY YORKVILLE MEDICAL CENTER

LOCATION Yorkville, IL

ARCHITECT

Anderson Mikos Architects LTD.

CLIENT

Architectural Panel Systems, Inc.

OWNER

Rush-Copley Medical Center

SCOPE OF SERVICES

Submission and fabrication drawings of 4 mm composite material for canopy, soffit and fascia. Services also included incorporation of extensive field measurements.



500 LAKE SHORE DRIVE

LOCATION Chicago, IL

ARCHITECT

Solomon Cordwell Buenz

CLIENT

Solomon Cordwell Buenz

OWNER River East P24 LLC

SCOPE OF SERVICES

Provided exterior envelope consulting, from schematic design through construction contract administration.

The lobby area at the ground floor consisted of frameless glass wall system consisting of 8' wide by 12' tall, 1-1/2" thick clear insulated glass panels supported by a stainless steel point supported clamp system. The tower exterior envelope consisted of a 4 sided structural glazed unitized curtain wall system glazed with reflective vision and spandrel insulated glass spanning floor to floor. For natural ventilation the curtain wall system included tall project-out awning type windows with single handle multi-lock hardware. Similar to the point supported system at the lobby, the parking garage was clad with an open joint 9/16" thick laminated translucent glass system consisting of a high performance interlayer and concealed aluminum mullion support framing. The garage structure also included a vertical GreenWall system to accommodate vegetation of growing vines on the elevation of the structure.



TESTIMONIALS

O'Hare Tower - Production Drafting

“ WJH&A'S CAPABILITIES, CONFIDENCE, AND CONVICTION IN EVERY PROJECT THEY ARE INVOLVED IN MADE THEM THE CLEAR CUT CHOICE TO SUPPLY POHL INC. OF AMERICA WITH A COMPLETE ENGINEERING PACKAGE, INCLUDING DRAFTING AND DESIGN REQUIREMENTS, THAT THIS COMPLICATED AND PROLIFIC PROJECT REQUIRED. ”

Dennis C. Forsling,
Vice President of Operations, Pohl Inc. of America



Guthrie Theater - Design

“ THE OPERABLE WINDOW TURNED OUT TO BE A GREAT SUCCESS. ITS IMMENSE SIZE AND WEIGHT MADE THE MECHANICAL/FUNCTIONAL ASPECTS OF THE DESIGN EXTREMELY CHALLENGING. HOWEVER, WJH&A'S CAPABILITY TO COMBINE THESE CHALLENGES WITH THE AESTHETIC ELEGANCE OF THE DESIGN APPEARANCE WAS TRULY AMAZING. TO THIS DAY, (IT) REMAINS FULLY OPERATIONAL AND COMPLETELY WEATHER-TIGHT. ”

John Pfeifer, *McGough Construction*



Larson Engineering

“ LARSON ENGINEERING HAS BEEN USING WJ HIGGINS FOR OVER 15 YEARS AND THAT IS TESTAMENT TO THEIR QUALITY AND SERVICE TO THEIR CLIENTS. LARSON HAS FULL CONFIDENCE THAT A PROJECT PERFORMED BY HIGGINS WILL BE COMPLETED ACCURATELY AND PROFESSIONALLY RESULTING IN A SUCCESSFUL PROJECT FOR ALL PARTIES INVOLVED. ”

Kevin J. Wisniewski,
S.E., P.E., Curtain Wall Department Head



WJ. HIGGINS & ASSOCIATES, INC. HAS CONTINUED MEMBERSHIPS IN THE FOLLOWING ORGANIZATIONS:

- American Institute of Architecture
- Building Enclosure Council – Wisconsin
- Construction Specifications Institute, CSI
- Institute of Infraspection
- National Fenestration Rating Council
- National Fire Protection Association
- National Glass Association
- American Architectural Manufacturers Associates
- QCxP
- National Federation of Independent Business

PROUD TO BE A WOMEN'S BUSINESS ENTERPRISE

Many projects require that minority- and women-owned businesses be part of the project team. We are proud to be a certified Women's Business Enterprise, hiring WJH&A fulfills those requirements for our clients.

MEMBER OF WAUSAU REGION CHAMBER OF COMMERCE



833 EAST MICHIGAN

LOCATION Milwaukee, WI

ARCHITECT Kahler Slater

CLIENT Glass Solutions, Inc.

OWNER Irgens

SCOPE OF SERVICES

Designed and engineered fabrication drawings for a multi-story, fully-unitized curtain wall system.

Time management and creative solutions, including custom-designed anchors, connections and assemblies to accommodate live load deflections were crucial to the success of this project. Large vertical column closures were also integrated into the system.



LOYOLA UNIVERSITY

LOCATION Maywood, IL

ARCHITECT

Solomon Cordwell Buenz

CLIENT

Solomon Cordwell Buenz

OWNER Loyola University Chicago

SCOPE OF SERVICES

Exterior envelope consulting for the university's Center for Translational Research and Education building.

The project consisted of various systems, which included a highly engineered, unitized curtain wall integrated with sunshades, mechanical operable windows, high-performance vision glass combined with translucent day lighting, and terra-cotta panels supported by outriggers from the curtain wall. The curtain wall surrounded a complex footprint consisting of segmented construction, various corners, and transitions into a radius stainless-steel panel system that surrounds the auditorium. The end result was sensational.



W.J. HIGGINS
& ASSOCIATES, INC.

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