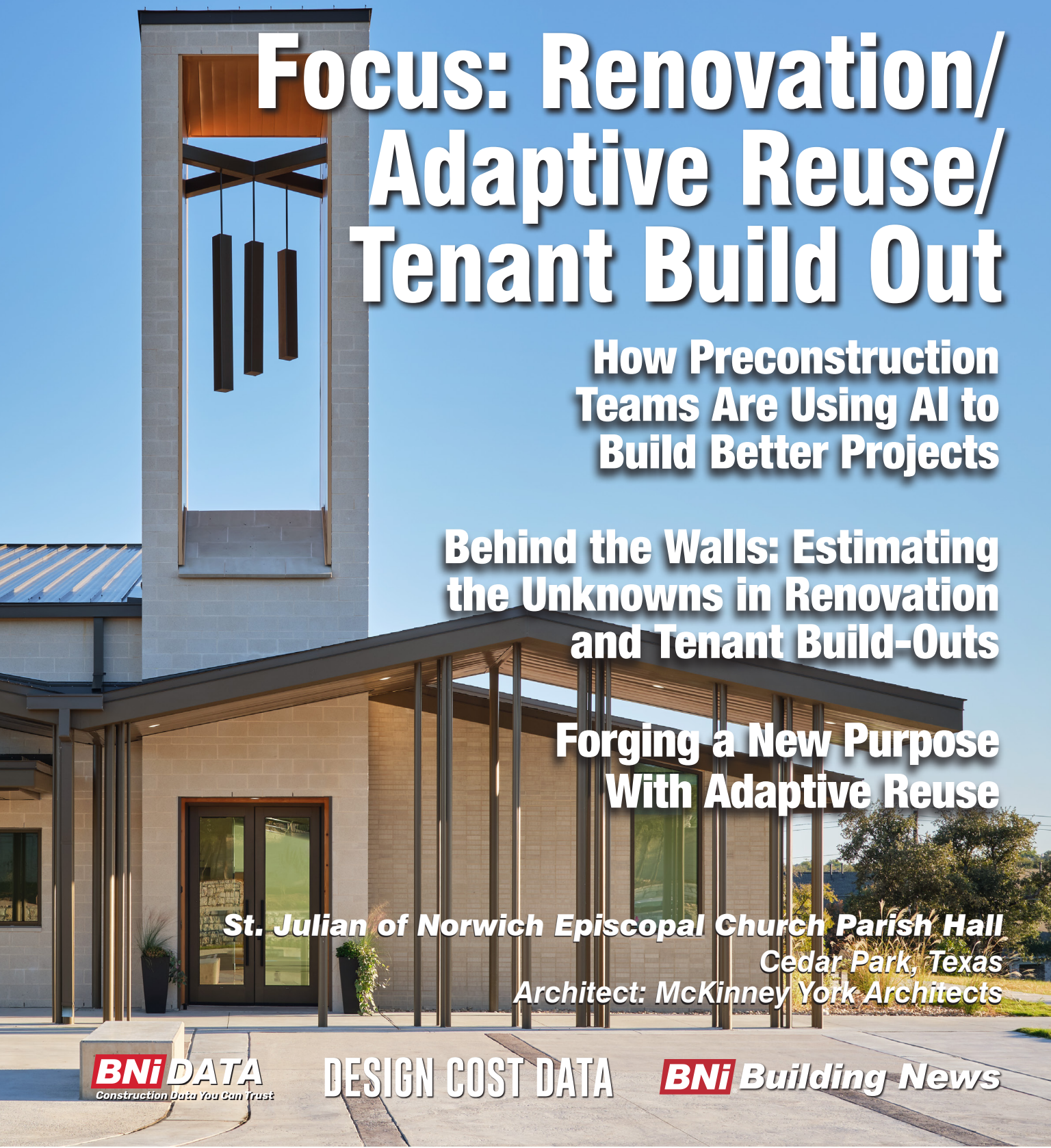
DESIGN COST DATA

September-October 2025

DIGITAL EDITION



Focus: Renovation/ Adaptive Reuse/ Tenant Build Out

How Preconstruction Teams Are Using AI to Build Better Projects

Behind the Walls: Estimating the Unknowns in Renovation and Tenant Build-Outs

Forging a New Purpose With Adaptive Reuse

St. Julian of Norwich Episcopal Church Parish Hall
Cedar Park, Texas
Architect: McKinney York Architects

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Volume 69 - Number 5 September-October 2025

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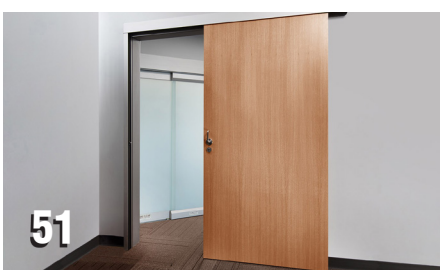
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A Word from the Editor

I'm pleased to welcome you to this edition of *Design Cost Data*, which is packed with timely and informative content designed to help you navigate today's challenging construction landscape. As the industry continues to face delayed project starts, rising material costs, labor shortages, and elevated interest rates, our goal is to provide insight and tools that support your success.

Inside this issue, you'll find a range of compelling articles, including:

- **"Behind the Walls: Estimating the Unknowns in Renovation and Tenant Build-Outs"** (page 22), which explores the complexities of estimating renovation projects where unforeseen conditions often remain hidden until demolition begins.
- **"Forging a New Purpose With Adaptive Reuse"** (page 24), highlighting Swinerton's creative adaptive reuse of a Charlotte building into its new regional office.
- **"How Preconstruction Teams Are Using AI to Build Better Projects"** (page 8), a look at how artificial intelligence is enhancing preconstruction processes, from cost modeling to risk forecasting.

As always, this issue also includes our trusted square-foot cost studies featuring both new construction and renovation projects contributed by industry peers.

Our cover story showcases St. Julian of Norwich Episcopal Church Parish Hall (page 10), a project that embodies the congregation's core values of community, contemplation, and service. Its tower stands as a visible beacon across the site, symbolizing a warm welcome to the surrounding neighborhood.

Additional featured projects include:

- **Sterman Masser, Inc. Headquarters** in Sacramento, PA (page 18), a thoughtfully designed facility that balances innovation with tradition.
- **Folsom Fire Station 34** (page 14), a Craftsman-style structure that complements its residential surroundings and future city park.



St. Julian of Norwich Episcopal Church Parish Hall
Cedar Park, Texas

All case studies are accompanied by square-foot pricing by division and regional cost trends, helping you localize total project costs for your area.

Thank you for choosing *Design Cost Data*. If you have questions, comments, or suggestions, we'd love to hear from you—feel free to reach out by phone or email.



Sincerely,
Barb Castelli

Publisher
barb@dcd.com

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DESIGN COST DATA
DIGITAL EDITION

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COVER
Photo Courtesy: Dror Baldinger Photography



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How Preconstruction Teams Are Using AI to Build Better Projects

By Beck Technology

Preconstruction has always been about foresight, translating ideas into buildable realities through careful planning, smart strategy, and experience-driven decision-making. Today, a new player is joining the conversation: artificial intelligence (AI).

From cost modeling to risk forecasting, AI tools like ChatGPT, Perplexity, and other large language models (LLMs) influence how preconstruction professionals think, plan, and collaborate.

At the core of this shift is a surprisingly simple idea: Better outcomes start with better questions.

Prompt engineering, the practice of crafting precise, effective questions for AI, is quickly becoming a new skill for forward-thinking professionals. Rather than asking AI to "do the estimating," seasoned pros are using it to enhance early-stage brainstorming, sharpen communication with clients and designers, and test new ideas.

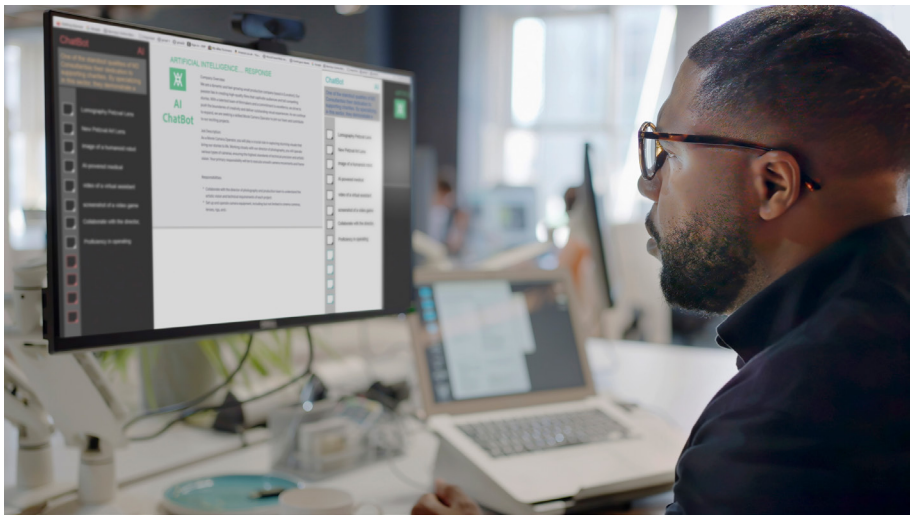


Photo courtesy: Beck Technology

AI is a brainstorming partner for planning, risk assessment, value engineering, and sustainability.

Asking the Right Questions: AI as a Strategic Partner

The quality of an AI tool's output depends heavily on the quality of your input. For preconstruction professionals, that means learning how to ask questions that are specific, contextual, and aligned with project goals.

For instance, instead of asking, "What are value engineering strategies?" try asking, "What are high-impact value engineering options for a two-phase commercial office project with a tight site, mid-range finishes, and a $250 square foot target budget?"

With this more detailed question, you will receive answers more tailored to your project.

Used this way, AI becomes a brainstorming partner. And when paired with your experience-based judgment, it can elevate the entire decision-making process.

Here are four categories of high-value prompts you can use in strategic planning and early project conversations:

1. **General Planning & Strategy**

The earliest phases of a construction project are often the most ambiguous and influential. Before a single drawing is finalized or a budget is approved, preconstruction professionals are already navigating a maze of questions about feasibility, delivery methods, design intent, and cost.

AI excels at generating options, summarizing complex variables, and revealing strategies you might not have considered. AI can help you think bigger and faster.

For example, try this:

"What are potential cost-saving strategies for a 100,000 square foot light industrial project in a suburban market with limited subcontractor availability?"

Or:

"Compare the pros and cons of CMAR vs. design-build for a publicly funded healthcare facility with a fixed deadline and tight permitting schedule."

In both cases, AI isn't replacing your judgment. Instead, it helps you frame decisions, highlight considerations, and spark more informed conversations.

AI can help validate assumptions at the conceptual level. Ask it to model budget ranges based on similar project types or generate questions you might ask the owner during initial alignment meetings.

For example, you could ask AI, "What questions should I ask a client during early design to align on scope and cost expectations?"

At this stage, preconstruction professionals can utilize AI to broaden strategic thinking and accelerate discovery.

2. **Risk Assessment & Mitigation**

Construction risk is everywhere, from fluctuating material costs, unclear scopes, unpredictable weather, and incomplete documents. When you ask AI targeted, scenario-based questions, it can expose risks you may not have considered or help you communicate them more clearly.

For example, you can ask AI, "What are common cost escalation risks for a hospitality renovation project in a unionized market, and what are some early mitigation strategies?"

Or:

"What are potential red flags in a GMP contract that could create exposure for the general contractor during preconstruction?"

These prompts won't just generate lists but will help you frame conversations around allowances, contingencies, long-lead items, and buyout strategies.

AI can also assist with contract clarity. For example, you could ask, "How can we structure preconstruction agreements to limit risk while maintaining flexibility for design development?"

Used this way, AI becomes a strategic partner in de-risking your approach, helping teams anticipate friction, allocate responsibility, and align stakeholders.

3. **Value Engineering & Cost Optimization**

Value engineering isn't about cutting corners; it's about making smart trade-offs that preserve design intent while improving performance, cost, or constructability. By prompting AI with project-specific constraints, preconstruction teams can explore a broader range of options without spending hours researching each one.

For example, you could ask, "What are high-impact value

engineering opportunities for a Class A office building with high-end finishes, limited ceiling space, and a LEED Silver target?"

Or:

"Compare the lifecycle cost and first-cost implications of using VRF vs. chilled water systems in a 150,000 square foot mixed-use building."

These prompts can bring to light nuanced insights, identify commonly overlooked options, or help teams communicate trade-offs. AI can also assist with formatting those options into owner-facing decision memos or meeting agendas. This approach saves research time, helps set expectations, and unlocks innovation during design.



Preconstruction teams use context-rich queries in AI to work faster and smarter.

AI can also support analysis of product alternatives. Try asking it, "What are durable, lower-cost alternatives to terrazzo flooring for a school project with high foot traffic and sustainability goals?"

Most importantly, using AI during value engineering conversations can shift the tone from reactive cost-cutting to proactive solution-finding.

4. Sustainability & Innovation

Whether a project aims for LEED certification, zero-energy status, or improved operational efficiency, preconstruction teams are expected to lead the conversation on what is possible.

For example, you could ask AI, "What are cost-effective sustainability strategies for a mid-rise multifamily project in a hot climate?"

Or:

"What materials offer both durability and embodied carbon reduction in a commercial retrofit?"

Rather than providing vague green suggestions, AI can compare systems, highlight relevant standards, and offer implementation examples. These insights can help you collaborate more effectively with design teams and align environmental strategies with budget realities.

On the innovation front, you might ask: "How are construction firms using AI or automation during preconstruction, and what emerging technologies should we be watching?"

These types of prompts keep your team informed and

(Continued on page 26)



St. Julian of Norwich Episcopal Church Parish Hall

Cedar Park, Texas

Architect

McKinney York Architects



Photo Courtesy: Dror Baldinger Photography

Designed by McKinney York Architects, the new St. Julian of Norwich Episcopal Church embodies the congregation's values of community, contemplation, and service.

The new home of St. Julian of Norwich Episcopal Church gives physical form to the congregation's core values of community, contemplation, and service. Located just north of Austin, Texas, on a narrow stretch of rolling oak savannah, the campus master plan honors the church's dual engagement with both spiritual and earthly realms. As the first structure on the new site, the Parish Hall sets the tone for future development. Designed with adaptability in mind, the building currently functions as a multi-purpose space—accommodating worship services for up to 150 members, as well as administrative offices and classrooms. It marks the beginning of a new chapter for the congregation and plants the seeds for the ministry's continued growth.

Visible from all areas of the site, the Parish Hall's tower acts as a beacon—welcoming the surrounding community. A sequence of rippling roof forms sweeps west to east across the property, sheltering smaller spaces that represent the family units within the congregation. These undulating rooftops symbolize the congregation's dynamic spirit and active commitment to outreach. Inside, the main gathering area centers around the communion table. High clerestory windows invite celestial light, while low, broad windows frame garden views, physically placing congregants between the spiritual and natural worlds. These architectural elements offer a tangible expression of the church's ongoing journey—honoring its past, living in the present, and looking ahead to the future. McKinney York Architects has worked with St. Julian's ministry for over a decade, having first designed their worship space in a strip mall intended for medical offices. After 10 years in that location, the growing congregation sought a new home that would foster deeper connection to nature. McKinney York Principal Al York, FAIA, RID collaborated closely with church



Designed for flexibility, the building serves as a multi-purpose space, currently hosting worship services for up to 150 members.



A wall of windows in the main gathering space opens the room to nature, allowing worshippers to connect with the outdoors during spiritual practice.



Regular visits to a sister community on Navajo land have profoundly shaped the congregation's spiritual connection to the earth.



A forest of columns at the main entrance echoes the surrounding landscape, creating a whimsical welcome for children.



Every space—from worship areas and offices to classrooms and gathering spaces—is designed with equal care.

leadership to select a site aligned with the ministry's mission. The resulting property—a long, narrow plot—reinforces the idea of spiritual progression. As congregants move from west to east across the site, they journey toward the symbolic communion table, guided by the bell tower's visual call.

The design of the new campus centers on building community in three ways: strengthening bonds within the current congregation, expanding membership, and reaching outward through service. Reflecting the congregation's current stage in their collective spiritual life, the flowing roof defines a flexible gathering space rooted in the present. A forest of columns near the main entrance connects to the surrounding landscape and creates a playful entryway for children. The open layout encourages movement between indoor and outdoor spaces, supporting the congregation's relaxed, welcoming character. As the first completed building in the master plan, the Parish Hall embodies the joy and warmth of this close-knit community.

Flexibility was paramount in the design. While the Parish Hall currently serves a variety of functions, it was planned with its future singular purpose in mind. It is a versatile "chameleon" space—host to weddings, memorials, and other spiritual gatherings. The interiors are intentionally neutral to accommodate different needs yet imbued with enough



High clerestory windows invite celestial light, while low, broad windows frame garden views.



The growing congregation sought a new home that would foster deeper connection to nature.



The new St. Julian of Norwich campus is a journey—physical, spiritual, and architectural.



Two Victorian stained glass windows from Norwich, England, now grace the Parish Hall, linking tradition with the present.



The Parish Hall's tower stands as a visible beacon from all areas of the site, offering a warm welcome to the surrounding community.

character to reflect the congregation's values at a glance.

Future adaptability was also considered. Ample storage space currently houses tables and chairs for reconfiguring rooms as needed. The kitchen meets current needs but is designed for future expansion; storage areas will later become part of an enlarged kitchen as new event spaces are built. This thoughtful planning allows the building to evolve along with the congregation.

The Parish Hall's interior spaces were designed without hierarchy. Worship areas, offices, classrooms, and gathering spaces are all treated with equal care, mirroring the ministry's values of equality and inclusion. This principle extends to the practical: single-occupancy restrooms meet code efficiently while promoting accessibility and individual choice.

Land stewardship plays a central role in St. Julian's mission. Annual visits to a sister community on Navajo land have deeply influenced the congregation's spiritual relationship with the earth. This philosophy is embedded in the Parish Hall's design. A wall of windows in the primary gathering space creates a seamless connection to the outdoors, offering worshippers views of nature as they engage in spiritual practice. The building's layout promotes porosity, with multiple pathways to exterior gathering areas. Plans are underway for a large terrace with shaded seating and native landscaping that will serve as a hub between the Parish Hall and future sanctuary. Members of the Navajo sister community attended the campus groundbreaking, honoring the deep bond between the two congregations.

St. Julian, the church's namesake, was a medieval anchorite who lived in seclusion in Norwich, England. She received visitors only through a high window in her cell, embodying the contemplative aspect of spiritual life. A dedicated meditative space is planned for the new campus, but for now, congregants find reflection in the columbarium—nestled in foliage near the Parish Hall. Future landscaping will enhance its quiet seclusion and strengthen its connection to nature.

Honoring the past, the Parish Hall also incorporates elements from the congregation's former space. Two Victorian stained glass windows—originally installed in a church in Norwich, England—were discovered by the rector's mother-in-law in a Texas antique store. Now prominently displayed along a wall of windows, the stained glass links the contemporary Parish Hall to centuries of church tradition, symbolizing both continuity and divine serendipity.

Above all, the new St. Julian of Norwich campus is a journey—physical, spiritual, and architectural. Every step across the site offers a glimpse into the congregation's future. Detailed plans include spaces for counseling, sheltering families in transition, and expanding outreach. The Parish Hall, rich with meaning and open to evolution, serves as both a foundation and a launch point for the ministry's ongoing story—one that continues to unfold in faith and fellowship.

Architect

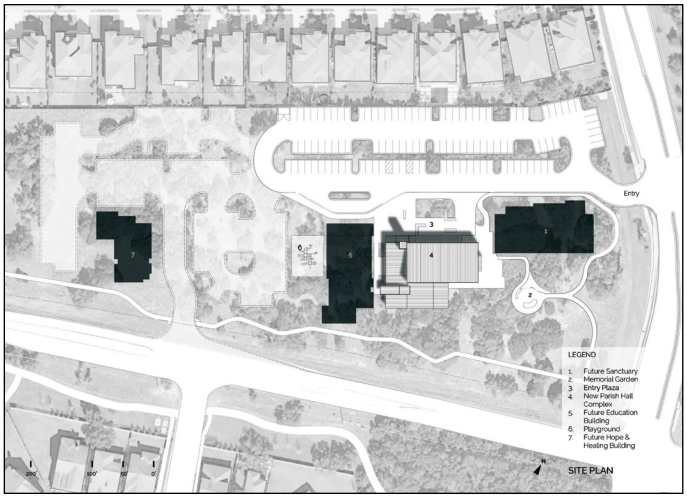
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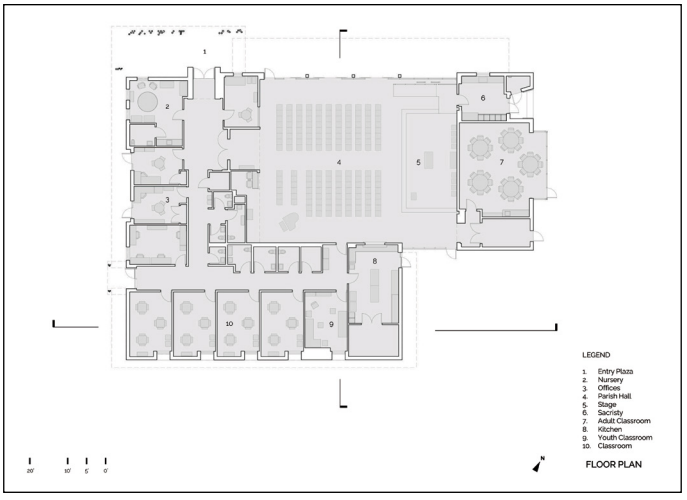
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Aptus Engineering
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Entellus (Previously CSF Civil Group)
3636 Executive Center Drive, #209, Austin, TX 78731
General Contractor
Braun & Butler
300 Hazelwood Street, #100, Leander, TX 78641
Landscape Architect
SEC Planning, LLC
3600 W. Parmer Lane, #210, Austin, TX 78727

Project General Description

Location: Cedar Park, Texas
Date Bid: Jan 2023
Construction Period: Mar 2023 to Dec 2024
Site: 3.7 acres.
Total Square Feet: 9,300.
Building Square Feet: First floor, 9,300; total, 9,300 square feet.
Building Height: First floor, 129'7"; bell tower, 144'; total, 144'.
Number of Buildings: One/Parish Hall, 170 seating.
Basic Construction Type: New/5-B/Structural steel, wood.
Foundation: Cast-in-place, slab-on-grade.
Exterior Walls: CMU, brick, curtain wall.
Roof: Asphalt shingle, metal.
Floors: Concrete.
Interior Walls: Wood stud drawlall.





DIVISION	COST	% OF COST	SQ.FT. COST	SPECIFICATIONS
PROCUREMENT & CONTRACTING REQUIREMENTS	85,070	1.51	9.15	—
GENERAL REQUIREMENTS	1,005,732	17.87	108.14	—
CONCRETE	675,000	12.00	72.58	Forming & accessories, reinforcing, cast-in-place.
MASONRY	236,775	4.21	25.46	Unit.
METALS	472,804	8.40	50.84	Structural steel framing, fabrications, anchor bolts.
WOOD, PLASTICS & COMPOSITES	717,791	12.76	77.18	Rough carpentry, finish carpentry, architectural woodwork.
THERMAL & MOISTURE PROTECTION	332,700	5.91	35.77	Dampproofing & waterproofing, insulation, roofing & siding panels, flashing & sheet metal, fire & smoke protection, joint protection.
OPENINGS	383,876	6.82	41.28	Doors & frames, entrances & curtain walls, hardware, special doors.
FINISHES	378,235	6.72	40.67	Drywall & framing, tiling, specialty flooring, flooring, ceilings, wall finishes, acoustical, painting & coating.
SPECIALTIES	31,358	0.56	3.37	Interior, signage.
EQUIPMENT	36,726	0.65	3.95	Food service.
FIRE SUPPRESSION	84,973	1.51	9.14	—
PLUMBING	143,730	2.55	15.45	—
HVAC	481,917	8.56	51.82	—
ELECTRICAL	540,052	9.60	58.07	—
ELECTRONIC SAFETY & SECURITY	19,940	0.35	2.14	Fire alarm.
TOTAL BUILDING COSTS	**5,626,679**	**100%**	**$605.02**	
EARTHWORK	512,398			Earthwork, termite treatment.
EXTERIOR IMPROVEMENTS	521,342			Irrigation, landscaping, fencing, improvements.
UTILITIES	984,496			—
TOTAL PROJECT COST	**7,644,915**			

UPDATED ESTIMATE TO OCTOBER 2025: $783.49 PER SQUARE FOOT

Regional Cost Trends

This project, updated to October 2025 in the selected cities of the United States.

EASTERN U.S.	Sq.Ft. Cost	Total Cost	CENTRAL U.S.	Sq.Ft. Cost	Total Cost	WESTERN U.S.	Sq.Ft. Cost	Total Cost
Atlanta, GA	$783.49	$7,286,466	**Dallas, TX**	$783.49	$7,286,466	**Los Angeles, CA**	$1,119.27	$10,409,238
Pittsburgh, PA	$951.38	$8,847,852	**Kansas City, KS**	$970.04	$9,021,339	**Las Vegas, NV**	$1,072.64	$9,975,519
New York, NY	$1,287.16	$11,970,623	**Chicago, IL**	$1,109.95	$10,322,494	**Seattle, WA**	$1,072.64	$9,975,519

*For more information on this project and similar projects visit **www.dcd.com***

Folsom Fire Station 34

Folsom, California

Architect

Calpo Hom & Dong Architects



Photo Courtesy: Rudy Calpo Photography

Designed in the Craftsman architectural style by Calpo Hom & Dong Architects, Station 34 features gabled roofs with broad overhangs and exposed bracing, harmonizing with the surrounding residential neighborhood.

More than 20 years ago, the City of Folsom made a visionary investment in its future by voting to annex 3,500 acres along its southern border. After years of careful planning, that land—now known as Folsom Ranch—has evolved into a vibrant community featuring over 1,000 acres of open space, 138 acres of community parks, upgraded transit infrastructure, a new town center, residential neighborhoods, and schools.

Folsom Fire Station 34 is the sixth fire station serving the city and the first located within the Folsom Ranch development. Strategically sited for rapid emergency response, the station occupies half of a 3-acre parcel, reserving the remaining 1.5 acres for future expansion. The facility also includes a dedicated office space for patrolling police officers, integrating public safety services in one location.

Primarily a single-story structure with an unfinished second floor designed for future dormitory expansion, the station spans approximately 12,195 square feet. It features three oversized apparatus bays capable of housing multiple fire engines, a fire truck, and an ambulance. The facility



The facility features six single-occupancy dorm rooms along with a fitness center, living quarters, administrative offices, a police substation, and public-facing spaces.



Horizontal metal siding and manufactured stone veneer create a residential scale appearance.



Interior finishes include polished concrete floors throughout.



Three oversized apparatus bays designed to accommodate multiple fire engines, a fire truck, and an ambulance.



Office and living areas are positioned on one side, with dormitory space on the other.

currently includes six single-occupancy dorm rooms, with the capacity to expand to 12 as staffing needs grow. Additional amenities include a fitness center, living quarters, administrative offices, a police substation, and public-facing areas.

Designed in the Craftsman architectural style, Station 34 features gabled roofs with broad overhangs and exposed bracing, harmonizing with the surrounding residential neighborhood and adjacent future city park. Horizontal metal siding and manufactured stone veneer create a residential-scale appearance while ensuring long-term durability and low maintenance. Exposed framing and metal roofing reflect traditional Craftsman design elements.

The station site is sustainably landscaped with drought-tolerant plants and bio-swales for stormwater management. All vehicular surfaces are paved in concrete to support the heavy demands of fire apparatus. An ornamental iron fence secures the site while maintaining visual openness for the surrounding community.

Inside, functionality and durability were prioritized. The centrally located Apparatus Room—sized for up to six vehicles—enables rapid deployment. Office and living areas are positioned on one side, with dormitory space on the other, optimizing workflow. Bi-fold doors allow quick and safe apparatus exits.

Interior finishes include polished concrete floors throughout and aluminum diamond plate wainscoting in the Apparatus Room. Radiant hydronic heating within the insulated slab ensures comfort, while ductless mini-split HVAC units offer individual climate control in each dorm room. Operable windows and high-volume, low-speed ceiling fans throughout the building provide ventilation options. Covered exterior patios adjacent to the dayroom and exercise room take advantage of Folsom's temperate climate.

Station 34 was warmly welcomed by the community during its public open house and now proudly serves its district. The new



The fire station includes a dedicated office space for patrolling police officers, integrating public safety services.

facility continues the Folsom Fire Department's long-standing tradition of service, which dates back to the city's founding during California's Gold Rush era and the establishment of the Folsom Volunteer Fire Department.

Product Information

Building Envelope: Metal Sales, Eldorado Stone
Roofing: Metal Sales, Johns Manville
Window, Entrances & Storefronts: Arcadia
Daylighting: Solatube
Interior: Rockfon Ceiling Tile, PABCO Drywall, Kelly Moore Paint, DalTile.
Flooring: J & J, Interface, DalTile, Ecore Everlast UltraTile, Retro Plate Polished Concrete.
Lighting: H.E. Williams, Finelite, Kenall, Lithonia, Day-Brite, Gardco, Bega, FC Lighting, Emergi-Lite

Architect

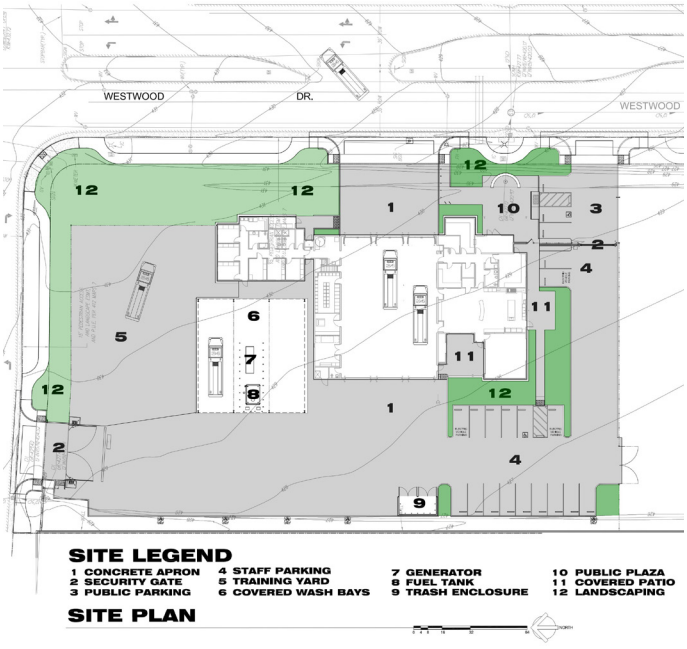
Calpo Hom & Dong Architects
2120 20th Street, Suite One, Sacramento, CA 95818
www.chdarchitects.com

Project Team

Structural Engineer
Bevier Structural Engineering
2479 Sunrise Boulevard, Gold River, CA 95670
Mechanical Engineer
Sigma Engineering
3517 Marconi Avenue, #204, Sacramento, CA 95821
Electrical Engineer
Capitol City Design
1751 Cebrian Street, West Sacramento, CA 95691
Consulting Engineer
Warren Consulting Engineers
1117 Windfiled Way, #110, El Dorado Hills, CA 95762
General Contractor
D. L. Falk Construction, Inc.
3526 Investment Boulevard, Hayward, CA 94545
Landscape Architect
Yamasaki Landscape Architecture
1223 High Street, Auburn, CA 95603

Project General Description

Location: Folsom,California
Date Bid: Mar 2023
Construction Period: Jun 2023 to Jan 2025
Site: 1.5 acres.
Total Square Feet: 12,195
Building Square Feet: First floor, 11,146; mezzanine, 1,049; total, 12,195 square feet.
Building Height: Wash rack, 27'; floor to floor, 14'; total, 30'.
Number of Buildings: Two.
Basic Construction Type: Wood frame.
Foundation: Cast-in-place, slab-on-grade.
Exterior Walls: Metal, manufactured stone.
Roof: Metal.
Floors: Concrete.
Interior Walls: Wood stud drywall.



DIVISION	COST	% OF COST	SQ.FT. COST	SPECIFICATIONS
PROCUREMENT & CONTRACTING REQUIREMENTS	163,353	2.16	13.40	—
GENERAL REQUIREMENTS	1,150,147	15.23	94.31	—
CONCRETE	620,670	8.22	50.90	Forming & accessories, reinforcing, polished concrete.
MASONRY	90,058	1.19	7.38	Unit.
METALS	127,650	1.69	10.47	Structural steel framing, fabrications.
WOOD, PLASTICS & COMPOSITES	999,680	13.24	81.97	Rough carpentry, finish carpentry.
THERMAL & MOISTURE PROTECTION	644,934	8.54	52.89	Dampproofing & waterproofing, insulation, roofing & siding panels, flashing & sheet metal, fire & smoke protection, joint protection.
OPENINGS	683,138	9.05	56.02	Doors & frames, entrances & curtain walls, hardware, special doors.
FINISHES	457,558	6.06	37.52	Drywall & framing, tiling, specialty flooring, flooring, ceilings, wall finishes, acoustical, painting & coating.
SPECIALTIES	168,443	2.23	13.81	Interior, signage.
EQUIPMENT	133,929	1.77	10.98	Food service, fuel storage.
FURNISHINGS	14,176	0.19	1.16	Roller shades.
SPECIAL CONSTRUCTION	236,024	3.13	19.35	Pre-engineered building.
FIRE SUPPRESSION	165,970	2.20	13.61	—
PLUMBING	454,950	6.03	37.31	—
HVAC	560,000	7.42	45.92	Floor heating, vehicle exhaust removal system, HVAC equipment, ductwork, start-up testing & air balance.
ELECTRICAL	880,000	11.65	72.16	Electrical, emergency generator, material & labor, conduit, wire & cable, fire alarm, communications.
TOTAL BUILDING COSTS	**7,550,680**	**100%**	**$619.16**	
EARTHWORK	396,469			Earthwork.
EXTERIOR IMPROVEMENTS	904,346			Irrigation, landscaping, fencing, improvements.
UTILITIES	143,137			—
TOTAL PROJECT COST	**8,894,632**			

UPDATED ESTIMATE TO OCTOBER 2025: $798.27 PER SQUARE FOOT

Regional Cost Trends

This project, updated to October 2025 in the selected cities of the United States.

EASTERN U.S.	Sq.Ft. Cost	Total Cost	CENTRAL U.S.	Sq.Ft. Cost	Total Cost	WESTERN U.S.	Sq.Ft. Cost	Total Cost
Atlanta, GA	$568.26	$6,929,960	Dallas, TX	$568.26	$6,929,960	Los Angeles, CA	$811.80	$9,899,943
Pittsburgh, PA	$690.03	$8,414,952	Kansas City, KS	$706.56	$8,579,951	Las Vegas, NV	$777.98	$9,487,446
New York, NY	$933.57	$11,384,935	Chicago, IL	$805.04	$9,817,444	Seattle, WA	$777.98	$9,487,446

For more information on this project and similar projects visit www.dcd.com

Bright Skies Ahead: Birdair's ETFE Canopies Transform Houston's IAH Terminal B

At George Bush Intercontinental Airport (IAH) in Houston, a new era of passenger experience is taking shape—literally—through the elegant curves of cutting-edge ETFE canopy structures. As part of the airport's $2.6 billion Terminal B redevelopment, Birdair, Inc., a global leader in tensile architecture, is delivering nearly 80,000 square feet of covered outdoor space using its signature TensoSky® ETFE system.

The project introduces a series of light, transparent canopies that do more than just shield travelers from the elements. These high-performance membrane structures are redefining what airport architecture can look and feel like—airier, brighter, and more inviting.

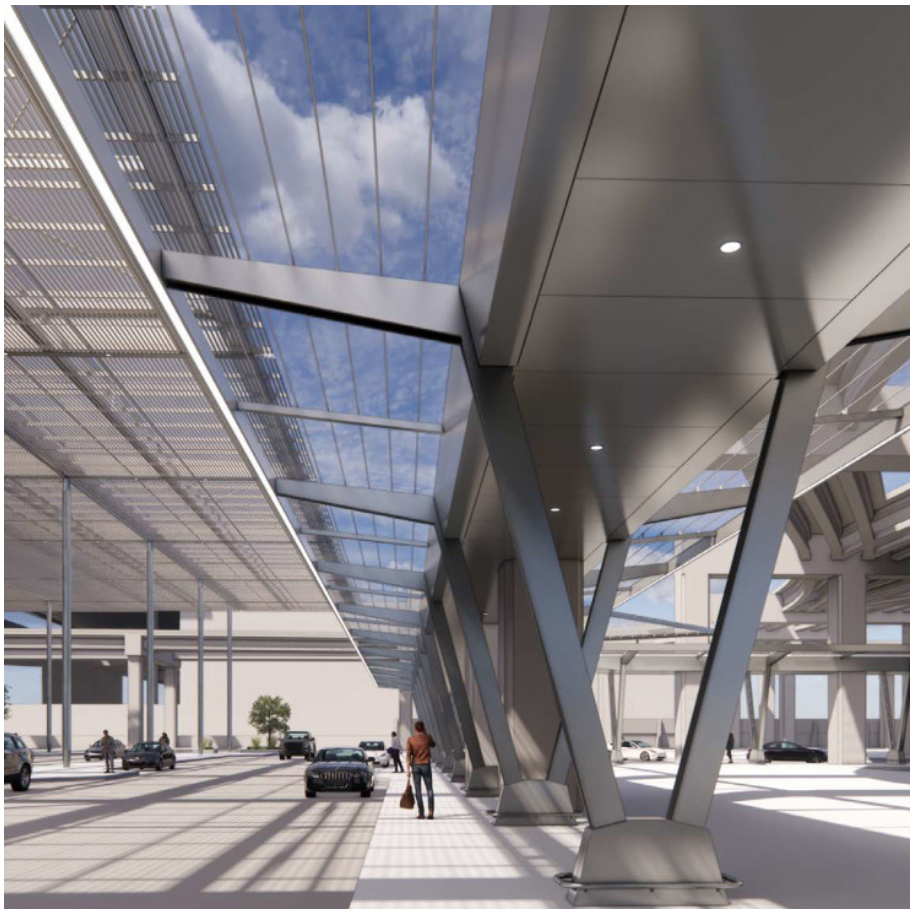


Photo Courtesy: Birdair

Birdair's TensoSky® ETFE system will provide nearly 80,000 square feet of covered space at George Bush Intercontinental Airport's redeveloped Terminal B.

Engineering Meets Elegance

Birdair's scope includes supplying its advanced ETFE film system, along with the stainless-steel cables and connection hardware that support the canopies' minimalistic design. The single-skin ETFE features a fritted pattern, a subtle print that helps manage solar heat gain while preserving high levels of natural daylight. The result? An energy-efficient, visually striking solution that protects passengers without closing them off from the sky.

"These canopies will do more than provide cover—they'll create a sense of lightness and openness that transforms the traveler's first and last impressions of Houston," says Dave Capezzuto, Birdair's Senior Vice President of Operations & Pre-Construction. "We're proud to be part of a project that combines innovation and beauty in equal measure."

A Collaborative Vision

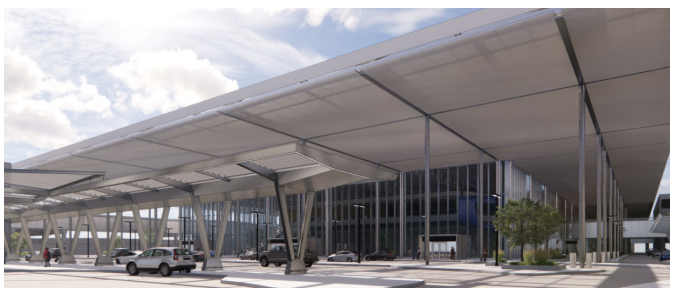
Birdair is working alongside industry heavyweights Clark Construction, architecture and engineering firm Page, and structural engineers Walter P. Moore to bring the vision for the new terminal to life. Construction is set to begin this summer and will take approximately five months, with a field crew of 15 to 20 using man lifts and scissor lifts to install the canopy structures.

Located 23 miles north of downtown Houston, IAH welcomed over 48 million passengers in 2024 and serves as a critical international gateway. The Terminal B renovation, which includes United Airlines' new terminal, reflects the airport's commitment to staying ahead of the curve—not just in capacity and convenience, but in sustainability and design.

The Material of the Future

TensoSky® ETFE is part of a new generation of building materials pushing the boundaries of architectural possibility. Known for its ultra-light weight, strength, and clarity, ETFE can span large distances with minimal structural support. It's also self-cleaning, recyclable, and allows up to 95% light transmission—qualities that make it an increasingly popular choice for airports, stadiums, and other high-traffic public spaces.

In addition to its visual impact, ETFE offers strong environmental credentials. Its low surface friction repels dirt, reducing the need for chemical cleaning. It performs well in extreme temperatures, resists UV degradation, and can be remolded into new components after its useful life—an appealing prospect for projects seeking both style and sustainability.



Birdair is working alongside Clark Construction, architecture and engineering firm Page, and structural engineers Walter P. Moore to bring the new terminal vision to life.

Setting the Standard

With nearly seven decades of experience in tensile architecture, Birdair continues to set the bar for innovative, functional structures that inspire. As travelers arrive and depart through the reimagined Terminal B at IAH, they'll pass beneath canopies that reflect not just the Texas sky—but the future of airport design itself.

For more information on Birdair's, visit ***Birdair.com***

Sterman Masser, Inc. Headquarters

Sacramento, Pennsylvania

Design/Build Contractor

Mowery Construction



Photo Courtesy: Tom Holdsworth Photography

Mowery Construction partnered with the Sterman Masser family of companies to deliver a modern, functional workplace designed for future growth—reflecting the rural landscape and character of the local community.

Over the past year, Mowery Construction has had the privilege of partnering with the Sterman Masser family of companies to design and construct their new corporate headquarters in the heart of Sacramento, Pennsylvania. From the very beginning, this project was guided by a bold yet thoughtful vision: to create a modern, highly functional workplace that supports future growth while honoring the rural landscape and character of the surrounding community. The result is a facility that seamlessly blends cutting-edge design and environmental stewardship with a deep respect for place and people.

As a multigenerational, family-owned enterprise with roots in the region, the Sterman Masser families approached the development of their new headquarters not simply as a real estate investment, but as a statement of values. They wanted a facility that could evolve with their companies and serve as a collaborative, energizing hub for employees—while also remaining sensitive to the architectural heritage and natural setting of Sacramento, PA.

Working closely with the family, The Mowery team developed a headquarters that strikes an elegant balance between innovation and tradition. The building's form and material palette echo local agrarian structures, while the layout and features speak to a progressive workplace culture. The exterior is a nod to the local environment—with clean, modern lines and durable materials that complement the surrounding farmland and low-slung buildings. This contextual sensitivity was essential to gaining community support and ensuring the building feels at home in its rural surroundings.

Inside, the headquarters offers a flexible and open environment that fosters productivity, collaboration, and well-being. A variety of workspace types—private offices, meeting rooms, open-plan workstations, and breakout zones—allow for both focus and teamwork. The design encourages natural movement and interaction, which is critical for the dynamic and growing businesses housed within.

From the outset, sustainability was a driving force behind every decision. The



A look inside the headquarters reveals an open, flexible environment designed to support productivity, collaboration, and well-being, with a mix of private offices, meeting rooms, open workstations, and breakout spaces.

facility is a model of environmental performance, beginning with a high-efficiency building envelope designed to reduce thermal loss and improve year-round comfort. Large, strategically placed windows flood the interior with natural daylight and provide sweeping views of the surrounding countryside. This not only reduces dependence on artificial lighting but also enhances employee morale and connection to nature.

Heating and cooling needs are met through a state-of-the-art geothermal system, which harnesses the stable temperatures below the earth's surface to deliver clean, renewable energy year-round. This system significantly reduces the building's carbon footprint and operational costs while providing long-term energy resilience. The mechanical systems were carefully integrated into the architecture, maximizing efficiency without compromising aesthetics or usability.

The lighting system, too, reflects a commitment to performance and sustainability. High-efficiency LED fixtures are used throughout, coupled with occupancy and daylight sensors to minimize energy use without sacrificing illumination quality. Combined with the daylighting strategy, the lighting design contributes to the building's overall energy reduction goals and supports the health and productivity of its occupants.

As importantly, the entire design-build process was rooted in collaboration, transparency, and alignment with the Sterman Masser families' strategic goals. From site planning and design through construction, Mowery maintained an open dialogue with ownership to ensure that every element of the headquarters reflected their vision—both functionally and symbolically.

This new facility is more than just an office; it is a home base for innovation, a demonstration of environmental responsibility, and a proud reflection of the Sterman Masser legacy. It empowers their team with a state-of-the-art workspace that encourages growth, while remaining grounded in the agricultural heritage and natural beauty of the region they call home.

As the company grows and evolve, this headquarters will continue to support their operations, culture, and mission. It's a place built not just for today—but for generations to come.

In its 100th year in business, Mowery is proud to have helped the Sterman Masser Family of Companies bring this vision to life.



Energy-efficient LED lighting, paired with occupancy and daylight sensors, enhances performance and sustainability while maintaining exceptional illumination throughout the space.



The new headquarters is sensitive to the architectural heritage and natural setting of the area.



A modern home base for innovation and sustainability, this facility proudly reflects the Sterman Masser legacy.



Natural daylight reduces dependence on artificial lighting but also enhances employee morale and connection to nature.

LEED Certified®

Product Information

Exterior: 3M, Hoover Treated Wood Products
Interior: Sherwin Williams, USG
Roofing: Certainteed, Carlisle SynTec
Entrances & Storefronts, Windows: Kawneer
Finishes: Armstrong, Mohawk
Elevator: TKE
Lighting: Lithonia, Juno, 3G

Design/Build Contractor

Mowery Construction
1000 Bent Creek Boulevard, Mechanicsburg, PA 17050
rsmowery.com

Project Team

Architect
Warhaus
231 North George Street, York, PA 17401
Structural Engineer
Providence Engineering
252 W. Swamp Road, Doylestown, PA 18901
Mechanical Engineer
HB McClure
600 S. 17th Street, Harrisburg, PA 17104
Electrical Engineer
E & G Electrical
300 W. Suncrest Drive, Carlisle, PA 17013
Civil Engineer
Spotts, Stevens, and McCoy
1047 N. Park Road, Reading, PA 19610
Cost Estimator
Mowery Construction
1000 Bent Creek Boulevard, Mechanicsburg, PA 17050
LEED Consultant
Lorax
808 St. Paul Street, Baltimore, MD 21202

Project General Description

Location: Sacramento, Pennsylvania
Date Bid: Dec 2023
Construction Period: Mar 2024 to Dec 2024
Site: 17.36 acres.
Total Square Feet: 22,856.
Building Square Feet: Basement, 10,000; first floor, 10,000; second floor, 2,856; total, 22,856 square feet.
Building Height: -
Number of Buildings: One/Wood frame.
Basic Construction Type: New.
Foundation: Cast-in-place, slab-on-grade.
Exterior Walls: CMU, curtainwall.
Roof: Asphalt shingles, metal.
Floors: Concrete.
Interior Walls: Wood stud drywall.



Large, strategically placed windows flood the interior with natural daylight.



Private offices, meeting rooms, open-plan workstations, and breakout zones allow for both focus and teamwork.

DIVISION	COST	% OF COST	SQ.FT. COST	SPECIFICATIONS
PROCUREMENT & CONTRACTING REQUIREMENTS	287,630	4.09	12.58	—
GENERAL REQUIREMENTS	1,144,929	16.29	50.09	—
CONCRETE	536,691	7.64	23.48	Forming & accessories, reinforcing, cast-in-place, cast decks & underlayment.
MASONRY	106,508	1.52	4.66	Unit, stone assemblies, manufactured.
METALS	349,586	4.97	15.30	Structural metal framing, fabrications, decorative metal.
WOOD, PLASTICS & COMPOSITES	745,422	10.61	32.61	Rough carpentry, finish carpentry, architectural woodwork.
THERMAL & MOISTURE PROTECTION	164,668	2.34	7.20	Dampproofing & waterproofing, thermal protection, weather barries, roofing & siding panels, flashing & sheet metal, joint protection.
OPENINGS	426,802	6.07	18.67	Doors & frames, entrances, storefronts & curtain walls, windows, hardware, glazing.
FINISHES	489,342	6.96	21.41	Plaster & gypsum board, tiling, ceilings, flooring, wall finishes, painting & coating.
SPECIALTIES	12,609	0.18	0.55	Information, interior, storage, other.
CONVEYING SYSTEMS	129,400	1.84	5.66	Elevators.
FIRE SUPPRESSION	88,550	1.26	3.87	Fire-extinguishing systems.
PLUMBING	221,970	3.16	9.71	Piping & pumps, equipment, fixtures.
HVAC	1,357,650	19.32	59.40	Piping & pumps, air distribution, central heating, central cooling, central HVAC.
ELECTRICAL	965,800	13.74	42.26	Medium-voltage distribution, low-voltage transmission, electrical & cathodic protection, lighting.
TOTAL BUILDING COSTS	**7,027,557**	**100%**	**$307.47**	
EARTHWORK	1,571,076			—
TOTAL PROJECT COST	**8,598,633**			

UPDATED ESTIMATE TO OCTOBER 2025: $388.43 PER SQUARE FOOT

Regional Cost Trends

This project, updated to October 2025 in the selected cities of the United States.

EASTERN U.S.	Sq.Ft. Cost	Total Cost	CENTRAL U.S.	Sq.Ft. Cost	Total Cost	WESTERN U.S.	Sq.Ft. Cost	Total Cost
Atlanta, GA	$291.32	$6,658,484	**Dallas, TX**	$291.32	$6,658,484	**Los Angeles, CA**	$416.18	$9,512,120
Pittsburgh, PA	$353.75	$8,085,302	**Kansas City, KS**	$360.69	$8,243,837	**Las Vegas, NV**	$398.84	$9,115,781
New York, NY	$478.60	$10,938,938	**Chicago, IL**	$412.71	$9,432,852	**Seattle, WA**	$398.84	$9,115,781

*For more information on this project and similar projects visit **www.dcd.com***

Are Your Building Projects on Hold? Use This Time for BIM Coordination

By Michael Tobias

Avoiding change orders is in the best interest of construction managers, since these changes waste materials and man-hours. Depending on how a project contract is structured, the cost of changes may fall on the contractor, the owner, or both. However, there will always be someone who loses money when a construction project needs changes. Unplanned modifications also delay the project - in the real estate sector, this means waiting longer to charge rent.

The key to preventing change orders is detecting clashes and conflicting specifications early in the design stage. Modifications in design documents take some time, but correcting construction work is far more expensive - time, materials, and skilled labor are wasted. The current construction slowdown due to ***coronavirus is an excellent chance for BIM coordination***, fixing any design errors such as MEP clashes.

Thanks to modern communication technology, project design, and other engineering tasks can continue during emergencies like the COVID-19 outbreak. This helps keep the construction industry moving, and projects can be resumed faster after the emergency. With ***clash detection*** and resolution, many construction issues can be solved before they occur. This helps developers complete their projects faster while staying on budget.



Photo courtesy: shutterstock.com

Clash Detection in Construction Projects

The systems that keep buildings in operation are complex, with many types of equipment and components. Different installations must often share tight spaces, such as the space between a drop ceiling and the upper floor slab. With so many components together, location conflicts can occur. If these issues reach the construction stage undetected, they may result in expensive changes. ***Clash resolution*** can save developers plenty of money, fixing errors before they occur.

When hard or soft clashes are detected, building system components must be moved to solve the issue. On the other hand, workflow clashes can normally be solved by changing the project plan. However, changes in the physical layout of a project can also help solve a workflow clash. For example, if a non-critical component will interfere with a piece of equipment that comes later, it can simply be moved out of the way.

There are three main types of clashes in construction projects, which are summarized below:

Clash Type	Description
Hard clash	Equipment or components have overlapping locations, which makes the installation physically impossible. Example: Electrical conduit that crosses an air duct in design documents.
Soft clash	Equipment or components have no overlap, but they interfere with each other due to proximity. Example: Placing a component one meter away from an equipment piece that requires a two-meter clearance.
Workflow clash	Issues that affect workflow, even when there are no hard or soft clashes. Example: Planning an activity on the 2nd month of a project, which relies on materials that arrive on the 3rd month.

During the clash detection and resolution process, ***MEP engineers*** can also optimize the layout of building systems. This can help reduce project costs while simplifying construction work. For example, it may be possible to power all electrical devices on a floor with less conduit and wiring, saving materials and electrician hours.

How Modern Design Software Simplifies Clash Resolution

Back when all construction plans were drawn in two dimensions, detecting clashes was more difficult. In 2D CAD software, vertical distances are not evident and many components must be drawn with overlap. However, modern design software like ***Autodesk Revit*** changes this: location conflicts are visible in 3D, and the software is smart enough to detect them.

When only 2D design software was available, design professionals had to detect clashes without help. In tight spaces with many components, such as mechanical rooms, clash detection can be challenging even for experts. However, since modern ***BIM software*** detects clashes, engineers and architects can use time more productively - instead of searching for errors, they can focus on the best solution for each error detected.

Since the coronavirus outbreak is over, resuming construction projects quickly is important. By focusing on clash detection and resolution now that projects are on hold, developers can save plenty of time later. Thanks to remote collaboration technology, design professionals can work on construction documents without meeting. Also, many building departments now accept electronic submissions for project approvals and work permits.

*Michael Tobias, the Founding Principal of **NY Engineers**, currently leads a team of 150+ MEP/FP engineers and has led over 4,000 projects in the US.*

Behind the Walls: Estimating the Unknowns in Renovation and Tenant Build-Outs

By Andrew Kleimola

Renovation and tenant improvement (TI) projects may appear straightforward on paper, but for estimators, they're a different kind of beast entirely. Unlike new construction—where you're pricing from a clean slate—these projects come with a hidden history. What lies behind the walls, above the ceiling grid, or beneath the floor slab is often unknown until the demolition crews start swinging hammers.

That uncertainty creates a fundamental challenge: how do you produce a responsible, realistic estimate for a project where part of the scope hasn't revealed itself yet?



The Illusion of Simplicity

From the client's perspective, renovation and tenant build-outs can feel "easier" than new builds. No major sitework, no new structure, and often no permits beyond interior renovations. But that perception is misleading.

In reality, estimating for renovations often requires more experience, more risk management, and more creative thinking than greenfield work. An estimator must assess not just what's on the plans, but what's not there—and account for the inevitable unknowns that come with aging infrastructure, incomplete as-builts, and unforeseen conditions.

Risk Hiding in Plain Sight

The biggest enemy of any renovation estimate? Unknown conditions.

These can include:

- Hidden mechanical, electrical, and plumbing (MEP) systems that don't match record drawings
- Structural modifications made over decades without proper documentation
- Asbestos or other hazardous materials concealed behind finishes
- Inadequate code compliance of existing systems
- Fire-rated assemblies that were never installed—or are now compromised
- Previous workarounds or "creative fixes" that only show up during demo

Unlike new construction, where plans and specifications rule, renovation estimates must contend with what's actually built, and the only way to know that is through detailed site walks, selective demolition, and investigation.

Contingency ≠ Guesswork

Estimators are often asked, "Why is the contingency so high?"

The answer: because it has to be.

But good estimators don't just throw in an arbitrary 10% and call it a day. They define contingency based on:

- Historical project data: What types of issues typically arise in similar buildings?
- Building age and system type: Older buildings with multiple renovations often hide more surprises.
- Extent of demolition: Selective demolition increases risk—full gut jobs offer more clarity.
- Scope clarity: The less defined the design, the more contingency is required.
- Access and logistics: Working in occupied spaces or downtown high-rises affects everything from labor productivity to material delivery costs.

Contingency is not padding—it's responsible risk pricing. But it must be documented clearly in the estimate and, ideally, broken down by risk category. Doing so gives stakeholders a better understanding of where the budget pressure points may emerge.

Allowances Done Right

Another common mistake in TI and renovation estimating is the misuse of allowances. These are tools, not trash bins for uncertainty.

A well-structured allowance should:

- Be tied to a defined scope of work (e.g., light fixture replacement, flooring system upgrades)
- Include clear assumptions on square footage, quality level, and access
- Be based on realistic unit costs, not wishful thinking
- Include escalation if procurement is delayed

When allowances are vague or inflated "just in case," they create problems downstream. Overly optimistic allowances lead to budget busts during procurement. Overly padded allowances often get value-engineered or criticized as fluff. Either way, trust is lost.

Think of allowances like temporary place-holders in your estimate. They're only effective if they come with a "handle" - something that tells the owner, designer, and construction team how and when they'll be replaced with actual scope and costs.

Productivity Hits and Hidden Costs

Estimating the cost of work in an occupied building or tight urban environment isn't as simple as slapping on a "working in an existing space" factor.

Real productivity hits come from:

- Limited laydown or storage space
- Night or weekend work to avoid disrupting tenants
- Work in phases to keep areas operational

- Coordination with existing systems, often requiring detailed shut-down procedures
- Fire watch or escorts required during intrusive work

Estimators need to understand these project-specific logistics and consult with superintendents or operations teams early. A 10% productivity hit on labor isn't unusual in these situations—but you have to justify it with reasoning, not just gut feeling.

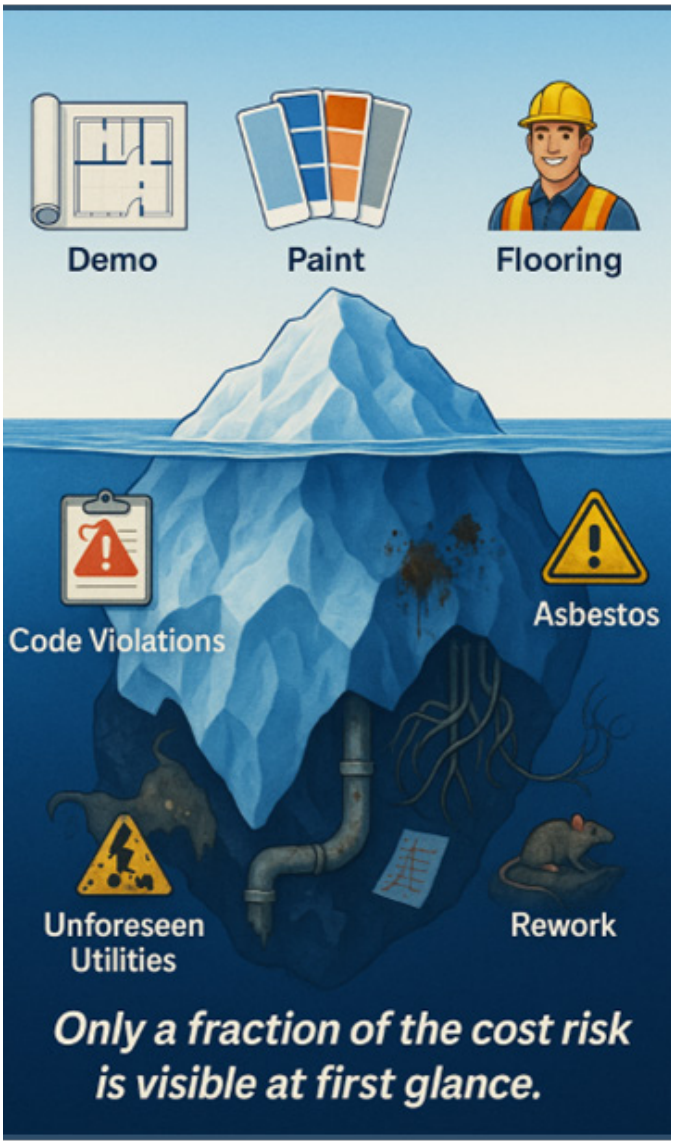
Demo Is Not Free (and Never Simple)

One of the most underappreciated components in TI and renovation estimates is demolition.

Too often, demolition is priced as a low-dollar-per-square-foot activity with little thought. But selective demo is delicate, often hand-performed, and involves:

- Hazardous material abatement
- Salvage or protection of existing finishes
- Temporary power and HVAC rerouting
- Cutting, patching, and firestopping
- Permits and haul-off fees

Don't forget to account for temporary barricades, floor protection, dust containment, and even working hours limits. This isn't the wrecking ball—it's surgery, and your estimate needs to reflect that.



"Good estimating in renovation work requires a proactive nature. It's not enough to know old buildings hide risks—you have to investigate, ask the right questions, and build those unknowns into your numbers."

Clear Communication: The Estimator as Educator

More than almost any other type of project, renovations require estimators to educate stakeholders.

The best estimates include a Basis of Estimate (BOE) that outlines:

- What was known and unknown at the time of pricing
- What existing conditions were assumed to remain
- What assumptions were made for systems, finishes, access, and scheduling
- Clarifications on what is included and excluded
- How contingency and allowances were calculated

A well-written BOE turns your estimate from just a number into a decision-making tool. It also protects you as an estimator when surprises inevitably surface.

Lessons Learned from the Trenches

Let me share a quick story from the field. On a recent adaptive reuse project converting an old department store into office space, the drawings showed one floor slab thickness. After demo began, the team found three different slab types—each with different reinforcing, elevations, and patch conditions.

That difference cost over $200,000 in slab infill, cutting, and grouting—none of which was visible at time of estimate. But because the estimator had included contingency for "unknown floor conditions" and documented it in the BOE, the client didn't panic. The Team pivoted, reallocated funds, and kept the project on track.

That's the power of estimating done right: not just identifying risk—but preparing for it.

Conclusion: Estimating the Unseen

Renovations, tenant improvements, and adaptive reuse projects may not involve tower cranes or deep foundations, but they test the estimator in other ways—especially in risk identification, logistics planning, and communication.

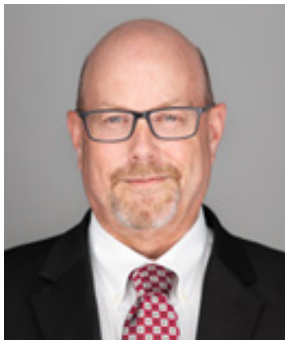
Good estimating here isn't about being perfect. It's about being realistic, transparent, and prepared for surprises hiding behind the walls.

Because in renovation, it's not a matter of if you'll find something unexpected. It's when—and whether your estimate helped the team handle it.

"Knowing is not enough; we must apply. Willing is not enough: we must do."

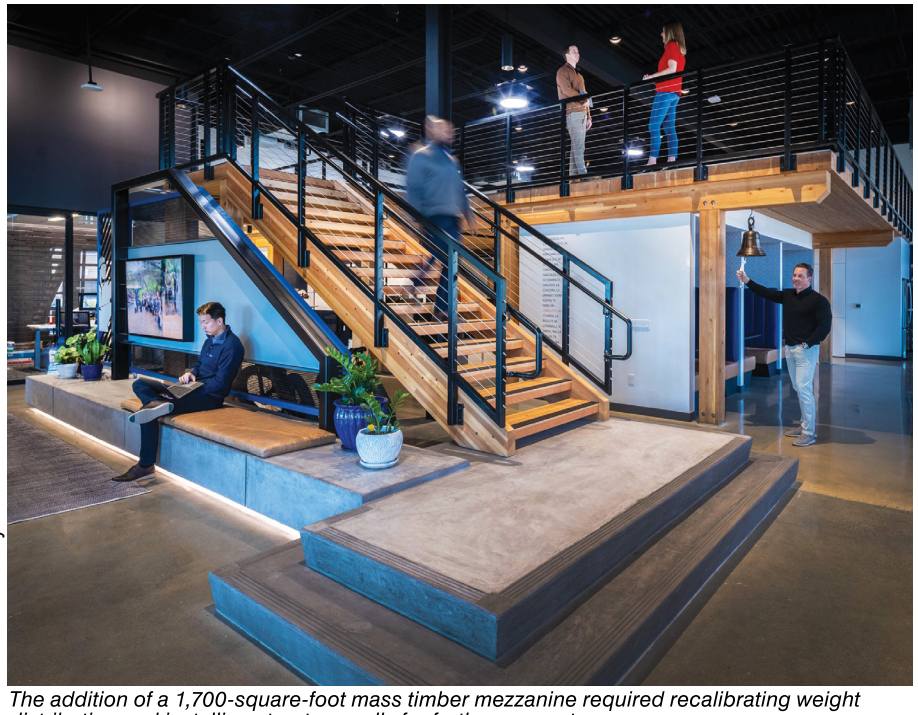
- Johann Wolfgang von Goethe
- German writer and philosopher (1749 -1832)

About the Author: ***Andrew Kleimola*** *is a Certified Estimating Professional with over 35 years of experience in construction and cost consulting. He currently leads estimating efforts as part of the Infrastructure & Capital Projects (IC&P) team at Accenture, where he serves as an Independent Cost Estimator and Owner's Representative on complex aviation, infrastructure, and public-sector projects. Andrew is an active member of American Society of Professional Estimators (ASPE), ASPE Orlando Chapter 50, and a dedicated advocate for elevating the profession of estimating through mentorship, education, and industry engagement.*



Forging a New Purpose With Adaptive Reuse

By: Thomas Ivy



Photos courtesy: Swinerton

The addition of a 1,700-square-foot mass timber mezzanine required recalibrating weight distribution and installing structure walls for further support.

Swinerton's embrace of adaptive reuse for its regional office in Charlotte presented challenges that were outweighed by opportunities.

In 2023, 45% of projects billed by U.S. architects focused on the renovation, rehabilitation, retrofitting, extension or preservation of existing buildings, according to the American Institute of Architects. Swinerton is one of the construction firms at the forefront of these transformations, not just for clients but for its own offices.

Putting Down Roots

In 2018, Swinerton launched its Carolinas division and set about finding a prime location for office space in Charlotte. Ideally, it would be near active areas within the market and appeal to employees and clients. Additionally, the space would have room for expansion and reflect Swinerton's culture as builders.

The firm was already contributing to revitalizing Charlotte's neighborhoods by repurposing various buildings through adaptive reuse developments. Through this experience, Swinerton realized that an adaptive reuse approach for its own office in Charlotte would effectively reflect the company's culture and showcase its expertise, all while providing a comfortable workspace for its employees.

Swinerton decided on Station West, a 67,000-square-foot adaptive reuse development within FreeMoreWest, an emerging live-work-play community located next to Charlotte's popular Uptown neighborhood. This area was once home to Camp Greene, a 6,000-acre U.S. Army base established in 1917. After the base was relocated, the region developed into a vibrant commercial and residential hub, but its popularity began to decline in the 1970s.

The company chose a former warehouse building with nearly 19-foot ceilings, allowing for unique architectural and design features highlighting the builder's craftsmanship. To maintain the authenticity of the original environment, the exterior walls, roof, interior demising walls and concrete slab were preserved. The building also has numerous large windows, patio access and connectivity to Charlotte's Greenway, integrating the structure with the surrounding natural environment.

Encountering Challenges

In June 2021, Swinerton established temporary offices on-site at Station West in a building adjacent to the site. This allowed for effective oversight and responsive decision-making, which were especially important when working within a 70-year-old structure.

True to the reputation of adaptive reuse projects, the former warehouse space offered challenges. An oversized commercial walk-in refrigerator required removal to create the desired open floor plan. Also, the neighboring operating concrete plant presented logistical obstacles to coordinating construction machinery and deliveries with incoming and outgoing mixing trucks. Architectural fencing addressed aesthetic challenges by creating a visual barrier between sites.

There were also structural challenges to overcome. Engineers determined that the original structure would not support the weight of the planned mezzanine level, which was constructed of mass timber. Weight distribution was



Swinerton adapted the former warehouse to include a variety of common areas, a glass-enclosed conference room, and abundant natural light from large windows and skylights.



Rather than moving into an established office building when it launched its Carolinas division, Swinerton decided to locate in an adaptive reuse development near Charlotte's Uptown neighborhood.

recalibrated with additional footings, and structure walls were installed to support the heavy apparatus.

On-the-job Training

Swinerton also identified workforce development opportunities as part of the Station West construction project. Supervisors utilized the build as a self-perform training platform, running training exercises for project engineers and managers for various tasks, including screw spacing for hanging drywall and installing mass timber elements. The company also self-performed all concrete and steel work, in addition to installing ceilings, walls, and all finishes and fixtures.

Working in tandem with Charlotte-based interior construction firm CBI Workplace Solutions, the Swinerton team also learned how to install Falkbuilt wall systems that feature glass-enclosed conference rooms and offices. That service is now offered to Swinerton's commercial interior clients.

From Old to Bold

Swinerton's Carolinas division office is also a showroom. Completed in 2021, the 8,535-square-foot environment more than doubled the original footprint and accommodated a regional team that had grown to 90 professionals since the company's regional expansion in 2018. The $1.6 million construction project was completed in 18 weeks.

The 1,700-square-foot mass timber mezzanine is suspended nearly 9 feet above the main level; this centerpiece added approximately $160,000 to the construction costs. It was designed, fabricated and installed by Timberlab, an affiliate company of Swinerton, which operates a fabrication facility in nearby Greenville, South Carolina. Mass timber is also featured in a conference room, where a floating panel cascades like a waterfall down an adjacent wall.

Abundant natural light infuses the space from several skylights on the mezzanine level as well as expansive windows throughout the space. This combines with the biophilic elements of the mass timber to support a healthy work environment.

Common areas welcome employees and guests with a variety of spaces to accommodate diverse working preferences and functions, from collaborative meetings and individual head-down focused work for Swinerton employees to unassigned workspaces for visitor "hoteling" options and open space for neighboring organizations needing meeting space. Three operational garage doors offer immediate access to the patio, creating seamless connectivity to the natural environment.

In less than two years, the Carolinas division needed more space. In 2023, the construction firm completed a nearly $1 million expansion, adding 3,000 square feet of additional private offices and workstations (now totaling 17 and 25, respectively), a 13-foot communal worktable and a "family room" with another garage door opening.

Although it can present obstacles, adaptive reuse can also reinvigorate neighborhoods and provide impressive and unique environments. The vision and desire to discover new purposes in old buildings ensure that adaptive reuse will continue to play an important role in commercial real estate development and construction.

About the Author: *Thomas Ivy is senior project manager at Swinerton.*

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Lessons Learned

Throughout the build-out of its office in Charlotte, the Swinerton team learned the following valuable lessons about tackling an adaptive reuse project:

Be prepared for the unknown. Old buildings are filled with quirks, many of which may remain unknown until well into a project. Remaining flexible and willing to adapt are keys to successfully completing an adaptive reuse project.

Multitenant adaptive reuse projects are a team effort. In an adaptive reuse environment, it's important to align with neighbors to maintain the building aesthetic. In many cases, restrictions will be in place that dictate what can and cannot be changed or installed into an exterior facade or shared areas.

Mitigate risk. Calculate a contingency for unexpected work into the budget. For example, outdated plumbing or HVAC systems may need to be replaced to pass inspection. Account for the potential for unknown expenses.

Acquire a set of as-built drawings. Obtaining a set of as-built drawings for the base building and the original structure before beginning construction can help avoid unforeseen conditions with the slab, roof and exterior walls. If these drawings are not available, use scanning technologies to provide a better understanding of current conditions such as previous placement of mechanical, electrical and plumbing systems.

Save on finishes. Taking advantage of an adaptive reuse property's industrial aesthetics and unique features can save on costs for flooring, ceilings, drywall and other finishes. At Swinerton's Charlotte office, the ceiling is open to the original overhead structural elements. The flooring is the original concrete, polished and sealed. The brick walls from the original building remain visible.

Identify long lead times. Particularly with specialty elements, get a head start on procurement to avoid delays in the build schedule. For Swinerton, delivery of the wall systems and garage doors were delayed.

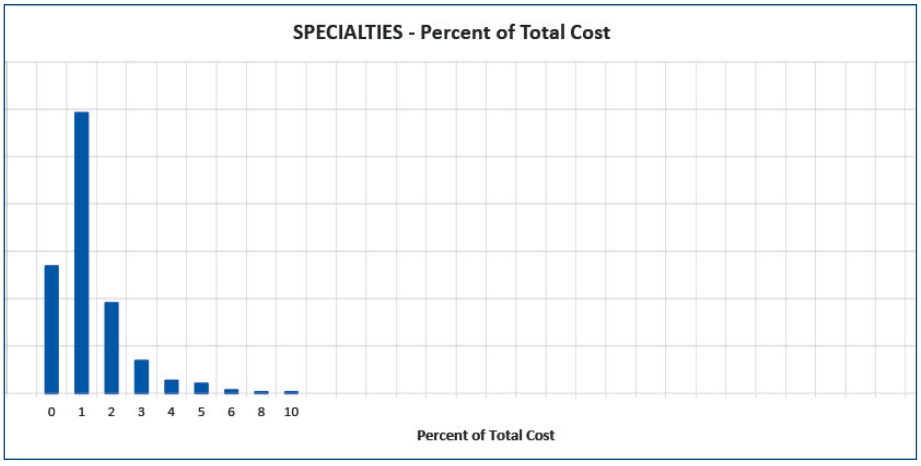
Cost Ranges Across Building Divisions:
A Breakdown for Construction Projects
Exploring Division 10: Specialties

At BNi, we work in close collaboration with a trusted network of suppliers, contractors, government agencies, and industry professionals to provide a detailed, 360-degree view of construction costs. By analyzing labor rates, productivity trends, material prices, and actual project costs, we deliver reliable, data-driven insights into what it truly takes to build today.

Drawing on six decades of real-world data, we've developed a robust set of cost parameters for each CSI building division—organized into high, medium, and low percentage ranges. These ranges, presented in a bar graph format, serve as a guide to help you determine where your project estimate is most likely to fall. Keep in mind, project-specific conditions may influence your final costs and should be carefully considered alongside our data.

This bar chart focuses on Division 10: Specialties, serving as a visual guide to where your project costs might fall. The center of the chart highlights the most typical estimates, while the ends illustrate the potential low and high extremes. Remember, your final costs can vary significantly depending on specific project demands and site conditions.

Division 10 – SPECIALTIES - Percent of Total Cost
Low .75% Average 1.01% High 2.00%



Past CSI building divisions are available on ***DCD.COM*** under Cost Trends.

About BNi: *BNi provides powerful, customizable data services to help you estimate with confidence. Our tools and resources are designed to support accurate budgeting, whether you're navigating volatile material markets or addressing labor shortages. And we deliver our data in a variety of formats to integrate seamlessly into your workflow.*

To learn more about square foot construction costs, visit the ***BNi Square Foot Costbooks****.*

(How Preconstruction Teams Are Using AI to Build Better Projects continued from page 9)

spark creative thinking. AI can also help identify how technologies such as 3D printing, modular construction, robotic layout tools, or AI takeoff tools could apply to your project.

From Prompts to Practice

As with any tool, AI's value depends on how well it's used. In preconstruction, that means grounding AI prompts in real project data, goals, and constraints. The best results come from context-rich queries that mirror the kinds of strategic conversations you already have with your team or your client. Here are a few best practices:

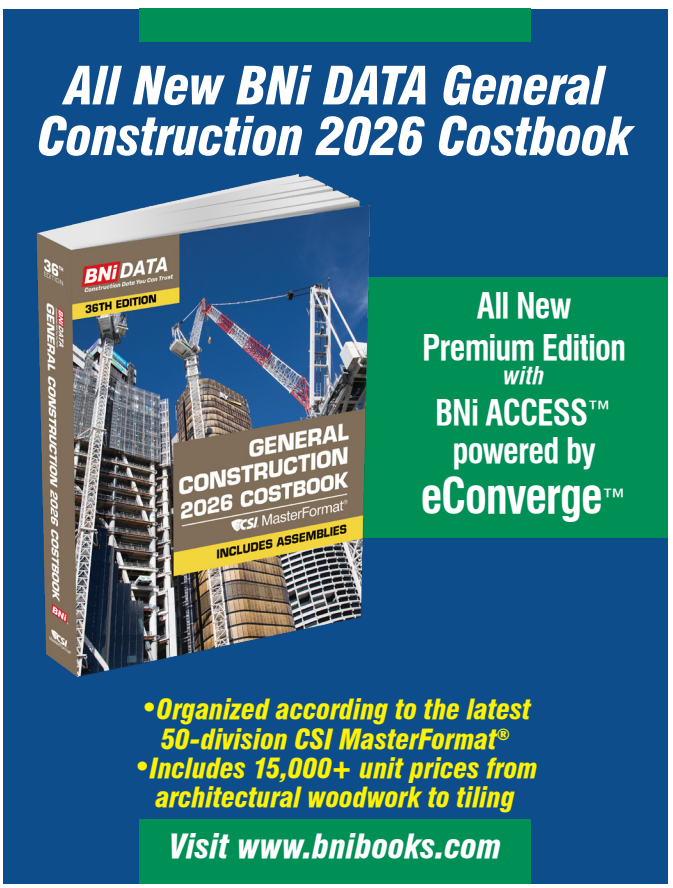
- Be specific. Include project type, location, budget range, and known constraints.
- Layer questions. Don't stop at one prompt but follow up and refine.
- Cross-check responses. AI can hallucinate or miss critical details; always validate the answers with your expertise.
- Use prompts as a starting point, not a final decision. Think of AI as your brainstorming partner, not your project lead.

Firms that adopt this mindset will get more from AI, leading to faster ideation, sharper insights, and better alignment across disciplines.

AI can supercharge estimators, planners, or project executives. The most successful technology adoption stories in construction will come from teams that learn to ask the right questions, apply the answers wisely, and stay curious about what's possible.

About Beck Technology: *Beck Technology empowers construction professionals with innovative preconstruction and estimating software.*

For more information, visit ***www.beck-technology.com***.



Hull Prairie Intermediate School

Perrysburg, Ohio

Architect

The Collaborative - TMP



Photos Courtesy: Rich Brienik

The new building includes 32 classrooms, four special education classrooms, and two technology labs.

In an effort to remain a destination district in Northeast Ohio, as well as respond to the continuous community growth, Perrysburg Schools of Perrysburg, Ohio, embarked on a five-year plan to upgrade all their facilities.

The Collaborative, along with TMP Architecture, led the design and construction of a new 5th and 6th grade facility to house 900 students in a 130,000-square-foot building. The new building provides a more open and diverse learning environment and in doing so, reinvents the way the district teaches, by increasing access between students and teachers.

The flexible teaching spaces and innovative social areas allow for more creative interactions among students and teachers and help foster a better learning environment. The new building includes 32 classrooms, four special education classrooms, and two technology labs.

An exploratory cluster completes the heart of the building, with band rehearsal studios, orchestra rehearsal spaces, visual arts, and stage production areas open to the dining zone.

Hull Prairie Intermediate School provides an open and diverse learning experience that has updated the ways schools are built. The results make Hull Prairie Intermediate School a destination school for students seeking innovation and change in their learning.



An exploratory cluster completes the heart of the building with stage production areas open to the dining zone.

Product Information

Building Envelope: **Belden Brick Company**
Roofing: Johns Manville
Windows, Entrances, Storefronts & Curtainwalls: OldCastle BuildingEnvelope®
Flooring: Interface, Mannington, Shaw, Johnsonite
Interior: National Gypsum, Owens Corning
Lighting: Focal Point, Gotham, Lithonia
Daylighting/Skylights: Velux
Elevators: Schindler

Architect

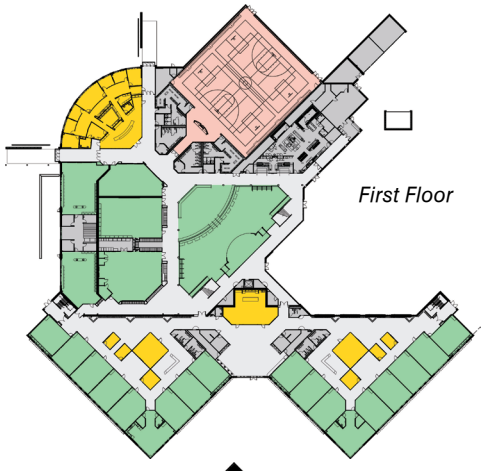
The Collaborative - TMP
1 Seagate Place, #118, Toledo, OH 43604
www.thecollaborativeinc.com

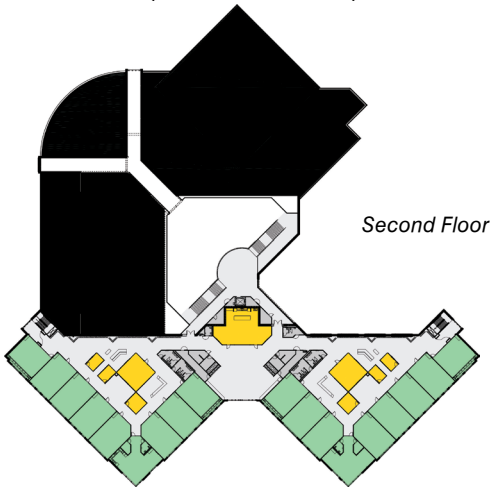
Project Team

Structural Engineer
LKL Engineers
2735 N. Holland Sylvania Road, #2A, Toledo, OH 43615
Mechanical & Electrical Engineer
JDRM
5604 Main Street, #200, Sylvania, OH 43560
Construction Manager
Gilbane
950 Main Avenue, #1410, Cleveland, OH 44113
Cost Estimator
Swint Consulting
2550 Drummond Road, Toledo, OH 43606

Project General Description

Location: Perrysburg, Ohio
Date Bid: Mar 2015
Construction Period: Apr 2015 to Aug 2016
Total Square Feet: 131,307
Site: 18 acres.
Number of Buildings: One; 36 classrooms; seating 28 per classroom; seating 900 gymnasium.
Building Sizes: First floor, 94,670; second floor, 36,637; total, 131,307 square feet.
Building Height: First floor, 15'; second floor, 17'; total, 32'.
Basic Construction Type: New/Steel Frame.
Foundation: Cast-in-place, slab-on-grade.
Exterior Walls: Brick, curtain wall, EIFS.
Roof: Membrane. **Floors:** Concrete.
Interior Walls: Metal stud drywall, CMU.


First Floor


Second Floor

DIVISION	COST	% OF COST	SQ.FT. COST	SPECIFICATIONS
PROCUREMENT & CONTRACTING REQUIREMENTS	23,746	0.10	0.18	—
GENERAL REQUIREMENTS	2,586,877	10.67	19.70	—
CONCRETE	269,287	1.11	2.05	Forming & accessories, reinforcing, cast-in-place.
MASONRY	2,090,910	8.63	15.92	Unit.
METALS	2,994,033	12.35	22.80	Structural metal framing, joists, decking, cold-formed metal framing, fabrications, decorative.
WOOD, PLASTICS & COMPOSITES	228,480	0.94	1.74	Composite fabrications, other.
THERMAL & MOISTURE PROTECTION	1,040,882	4.29	7.93	Membrane roofing, EIFS.
OPENINGS	3,059,880	12.63	23.30	Doors & frames, entrances, storefronts & curtain walls, windows, glazing, rough carpentry.
FINISHES	2,363,773	9.75	18.00	Plaster & gypsum board, ceilings, flooring, wall finishes, painting & coating.
EQUIPMENT	293,900	1.21	2.24	Food service.
FURNISHINGS	932,616	3.85	7.10	Casework.
CONVEYING SYSTEMS	73,790	0.30	0.56	Elevator (1 passenger).
FIRE SUPPRESSION	297,000	1.23	2.26	Water-based fire-suppression systems, fire pumps.
MECHANICAL	4,144,753	17.10	31.57	Plumbing: piping & pumps, equipment, fixtures, HVAC: piping & pumps, air distribution, central heating equipment, central cooling equipment, central HVAC equipment.
ELECTRICAL	3,835,246	15.84	29.22	Medium-voltage distribution, low-voltage transmission, lighting, structured cabling, data, audio-video, electronic detection & alarm.
TOTAL BUILDING COSTS	**24,235,173**	**100%**	**$184.57**	
EARTHWORK	1,171,363			Site clearing, earth moving, water, sanitary sewerage, storm drainage.
EXTERIOR IMPROVEMENTS	845,000			Bases, bollards & paving, improvements, planting.
TOTAL PROJECT COST	**26,251,536**			

UPDATED ESTIMATE TO OCTOBER 2025: $312.84 PER SQUARE FOOT

Regional Cost Trends

This project, updated to October 2025 in the selected cities of the United States.

EASTERN U.S.	Sq.Ft. Cost	Total Cost	CENTRAL U.S.	Sq.Ft. Cost	Total Cost	WESTERN U.S.	Sq.Ft. Cost	Total Cost
Atlanta, GA	$276.62	$36,321,733	**Dallas, TX**	$276.62	$36,321,733	**Los Angeles, CA**	$395.17	$51,888,190
Pittsburgh, PA	$335.89	$44,104,961	**Kansas City, KS**	$342.48	$44,969,765	**Las Vegas, NV**	$378.70	$49,726,182
New York, NY	$454.44	$59,671,418	**Chicago, IL**	$391.87	$51,455,788	**Seattle, WA**	$378.70	$49,726,182

For more information on this project and similar projects visit www.dcd.com



Photo Courtesy: Scott Witalis

BirdSmart™ Bird Safe Glass by Vitro Architectural Glass, is a sustainable and cost-effective solution designed to protect birds while enhancing building performance.

BirdSmart™ Bird Safe Glass by Vitro Meets Growing Demand of Bird-Friendly, Sustainable Glazing

Every year, over a billion birds collide with glass structures. The issue is how birds see glass. Reflections of trees and sky make glass look like an open space, while its transparency creates the illusion of a clear path, which confuses birds and results in tragic consequences for wildlife and significant ecological disruption. The good news is that there are growing bird-friendly regulations and increased glazing options that help alert birds to the presence of glass.

Enter *BirdSmart*™ Bird Safe Glass by Vitro Architectural Glass, a sustainable and cost-effective solution designed to protect birds while enhancing building performance. This innovative glass features first-surface laser-etched dot patterns combined with a *Solarban*® solar control low-e coating on the second surface, seamlessly blending modern aesthetics with energy efficiency and offering an eco-friendly glazing option that addresses the growing demand for sustainable designs while reducing bird collisions.

Glass… For the Birds

BirdSmart™ glass tackles bird collisions by adding laser etched patterns to the exterior surface of the glass, breaking up reflectivity and transparency that often confuse birds. The first surface laser-etched markers for *BirdSmart*™ glass are available in four dot patterns with directional and non-directional orientation: 2 x 2 square, 2 x 4 rectangle, 2 x 4 diamond and 2 x 2 diamond.

Experts agree that etching the exterior surface of glass is the most effective way to prevent bird collisions. This method eliminates the illusion of open space and makes the glass more visible to birds. Unlike other methods, such as ultraviolet (UV) coatings that rely on certain birds' ability to see UV light, the first-surface laser etchings of *BirdSmart*™ glass deliver a universal solution that works for all bird species, including those that cannot see UV coatings as well, like hummingbirds, pigeons and birds of prey.

Another benefit of BirdSmart™ glass is that it can achieve peak energy performance when paired with *Solarban® 65*, *Solarban® 70* or *Solarban® 72* solar control low-e coatings by Vitro on the second surface without sacrificing visible light transmittance (VLT) or solar heat gain coefficient (SHGC). By seamlessly marrying bird safety with energy efficiency, *BirdSmart*™ glass ensures there are no compromises between ecological benefits, aesthetic preferences and building performance.

Supporting Bird-Friendly Regulations & Sustainability

The escalating demand for bird-safe materials is fueled by both growing environmental awareness and increasingly stringent building codes. In North America, a number

(Continued on page 37)

Copiah County Medical Center

Hazlehurst, Mississippi

Architect

Dean & Dean/Associates Architects



Photos Courtesy: Hubert Worley Photo/Artist

The new Copiah County Medical Center is a resource for quality services for the immediate and surrounding community.

Copiah County Medical Center, formerly Hardy Wilson Memorial Hospital, has provided quality patient-focused services to residents of Hazlehurst, Mississippi, and Copiah County for more than five decades.

The aging existing facility was on a landlocked campus. CCMC solicited Dean and Dean/Associates Architects to provide planning and design services for a new replacement facility that would improve the functional and operational efficiencies for each department within the hospital. CCMC also wanted to relocate the new Critical Access Hospital to provide better visibility and access to the community.

Dean and Dean/Associates Architects worked closely with the Hospital board, administration, and staff to program and develop a design that met CCMC's needs to serve the community and surrounding areas for decades to come.

The new replacement Critical Access Hospital was efficiently designed as a one-story facility totaling 53,639 square feet. The $12.6 million construction project



View of ED nurse station and treatment rooms.



The physical therapy room.



The main circulation corridor leads to admissions, the patient care wing, and the centralized waiting room.

consists of 25 private, spacious patient rooms, nine state-of-the-art emergency department rooms, and a specialty clinic, as well as complementary ancillary spaces such as radiology, laboratory, surgery, intensive outpatient program, inpatient and outpatient rehab, and cardiopulmonary departments.

The design features an inviting main lobby that opens to a main circulation corridor leading to admissions, a business office, the patient care wing, and a centralized waiting room that serves the multi-specialty clinic and all outpatient services. A spacious cafeteria not only serves inpatients and staff meals daily, but also provides a nice restaurant-style venue for the public to visit during lunch hours.

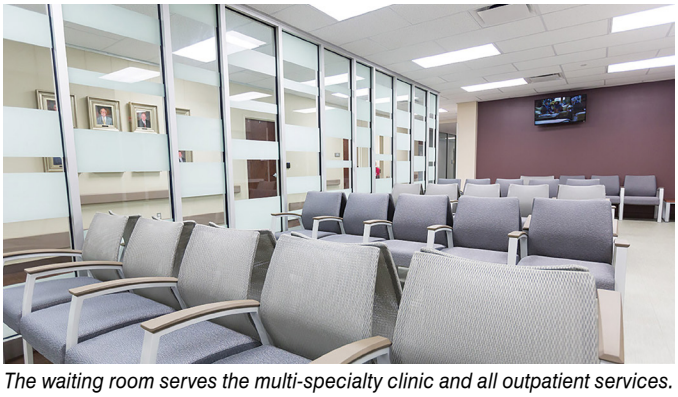
The new hospital is Copiah County's premier health care facility. The staff is committed to providing a resource for quality services and compassionate care for the immediate and surrounding community.



The cafeteria serves in-patients and staff daily, as well as the public during lunch hours.



An outpatient surgery room.



The waiting room serves the multi-specialty clinic and all outpatient services.



Exterior of the physical therapy room.

Product Information

Building Envelope: Petersen, Carolina Ceramics
Roofing: Carlisle
Windows & Curtain Wall: Kawneer
Entrances & Storefronts: Stanley
Flooring: Armstrong, Mannington Commercial
Interior: Clark-Dietrich, National Gypsum
Lighting: Williams, Kurtzon, Luminaire, Pathway

Architect

Dean & Dean/Associates Architects
4400 Old Canton Road, #200, Jackson, MS 39211
www.deandean.com

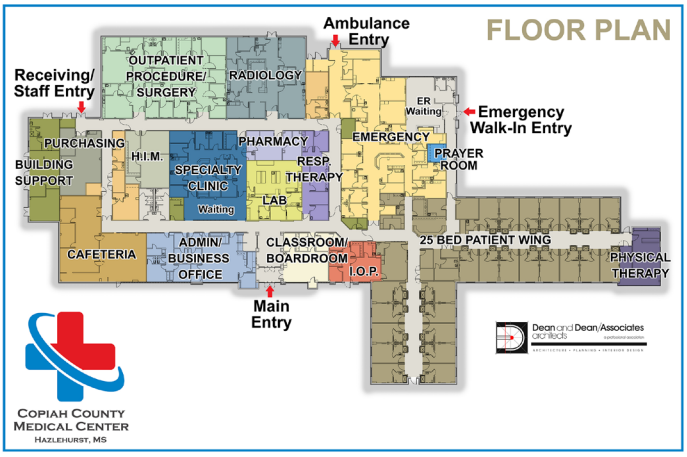
Project Team

Structural Engineer
Spencer Engineers
2508 Lakeland Drive, #200, Flowood, MS 39232
Mechanical Engineer
GSK Mechanical
201 Park Court, Ridgeland, MS 39157
Electrical Engineer
Schultz & Wynne
4523 Office Park Drive Jackson, MS 39206
Civil Engineer & Landscaping
McMasters & Associates, Inc.
1 Woodgreen Place, #210, Madison, MS 39110
General Contractor
Hanco Corporation General Contractors
6316 Highway 49, Hattiesburg, MS 39401

Project General Description

Location: Hazlehurst, Mississippi
Date Bid: Feb 2015
Construction Period: May 2015 to Feb 2017
Total Square Feet: 53,639 **Site:** 9.3 acres.

Number of Buildings: One; 25 patient rooms, 25 bed capacity.
Building Sizes: First floor, 53,639; total, 53,639 square feet.
Building Height: First floor, 22'; total, 22'.
Basic Construction Type: New/II-B.
Foundation: Cast-in-place, pier & grade beam, reinforced concrete, slab-on-grade.
Exterior Walls: Brick, curtain wall, metal siding.
Roof: Membrane. **Floors:** Concrete.
Interior Walls: Metal stud drywall.



DIVISION	COST	% OF COST	SQ.FT. COST	SPECIFICATIONS
PROCUREMENT & CONTRACTING REQUIREMENTS	842,000	7.74	15.70	—
GENERAL REQUIREMENTS	785,957	7.22	14.65	—
CONCRETE	548,127	5.04	10.22	Forming & accessories, reinforcing, cast-in-place, grouting.
MASONRY	206,140	1.89	3.84	Unit, manufactured.
METALS	927,518	8.52	17.29	Structural metal framing, joists, decking, cold-formed metal framing, fabrications, decorative.
WOOD, PLASTICS & COMPOSITES	329,817	3.03	6.15	Rough carpentry, finish carpentry, architectural woodwork, plastic fabrications.
THERMAL & MOISTURE PROTECTION	731,325	6.72	13.63	Thermal protection, weather barriers, roofing & siding panels, membrane roofing, flashing & sheet metal, roof & wall specialties & accessories, fire & smoke protection, joint protection.
OPENINGS	622,766	5.72	11.61	Doors & frames, entrances, storefronts & curtain walls, windows, hardware, glazing, louvers & vents.
FINISHES	1,254,016	11.53	23.38	Plaster & gypsum board, tiling, ceilings, flooring, wall finishes, acoustic treatment, painting & coating.
SPECIALTIES	291,720	2.68	5.44	Signage, toilet partitions, toilet accessories, corner guards, fire extinguishers & cabinets, handrails, cubicle curtains, wall guards, sun control devices, other.
EQUIPMENT	83,763	0.77	1.56	Medical gas equipment, dock bumpers.
FURNISHINGS	53,588	0.49	1.00	Lab work surface, roller shades.
SPECIAL CONSTRUCTION	11,732	0.11	0.22	X-ray radiation protection.
FIRE SUPPRESSION	216,460	1.99	4.04	Water-based fire-suppression systems.
PLUMBING	790,406	7.26	14.74	Piping & pumps, equipment, fixtures, gas & vacuum systems for laboratory & healthcare.
HVAC	1,520,905	13.98	28.35	Piping & pumps, air distribution, air cleaning devices.
ELECTRICAL	1,506,324	13.84	28.08	Medium-voltage distribution, low-voltage transmission, facility electrical power generating & storing equipment, electrical & cathodic protection, lighting.
COMMUNICATIONS	61,398	0.56	1.14	Structured cabling.
ELECTRONIC SAFETY & SECURITY	96,778	0.89	1.80	Electronic access control & intrusion detection, surveillance, detection & alarm, monitoring & control.
TOTAL BUILDING COSTS	**10,880,740**	**100%**	**$202.85**	
EXISTING CONDITIONS	43,546			Demolition, subsurface investigation.
EARTHWORK	310,079			Earth moving, earthwork methods.
EXTERIOR IMPROVEMENTS	727,324			Bases, bollards & paving, site improvements, irrigation, planting.
UTILITIES	701,701			Water, sanitary sewerage, storm drainage, electrical, communications.
TOTAL PROJECT COST	**12,663,390**			

UPDATED ESTIMATE TO OCTOBER 2025: $344.49 PER SQUARE FOOT

Regional Cost Trends

This project, updated to October 2025 in the selected cities of the United States.

EASTERN U.S.	Sq.Ft. Cost	Total Cost	CENTRAL U.S.	Sq.Ft. Cost	Total Cost	WESTERN U.S.	Sq.Ft. Cost	Total Cost
Atlanta, GA	$352.90	$18,929,007	**Dallas, TX**	$352.90	$18,929,007	**Los Angeles, CA**	$504.14	$27,041,439
Pittsburgh, PA	$428.52	$22,985,223	**Kansas City, KS**	$436.92	$23,435,914	**Las Vegas, NV**	$483.13	$25,914,712
New York, NY	$579.76	$31,097,655	**Chicago, IL**	$499.94	$26,816,094	**Seattle, WA**	$483.13	$25,914,712

For more information on this project and similar projects visit www.dcd.com



Photo courtesy: elements.envato.com

When Fast Cash Becomes Financial Quicksand for Construction Businesses

By Scott Peper, Chief Executive Officer of Mobilization Funding

When a construction business hits a cash flow snag—materials to order, a big payroll week, and a project start date looming—Merchant Cash Advances (MCAs) can look like a lifeline. They're fast, there's barely any paperwork, and in an industry where banks often say no, MCAs say yes.

But behind that easy approval is a financial structure that can quickly sink even the most promising companies.

Across the country, business owners in construction and manufacturing have turned to MCAs in moments of stress, only to find themselves stuck in daily or weekly repayment cycles that drain their working capital and nearly wipe out their operations. The emotional toll is real. Exhaustion, anxiety, and fear take over. One bad contract or one delayed payment from a client, and suddenly, everything they built is at risk.

Here's why it happens and how to avoid it.

MCAs Aren't Loans—They're a Costly Alternative

A Merchant Cash Advance is a lump sum of money a business receives upfront in exchange for a percentage of future receivables. It's not a loan. You agree to repay the advance through a daily or weekly payment automatically withdrawn, no matter how much revenue you're actually generating.

MCAs are marketed as flexible, non-traditional funding. But in reality, they're often far more expensive and far less transparent than loans or lines of credit. One of the biggest traps is the factor rate, which replaces a traditional interest rate. A factor rate of 1.4 means a $100,000 advance will cost you $140,000, plus the closing fee, which is often a reduction in the amount of money you receive. For example, a 5% closing fee on that $100,000 advance will only net you $95,000. You're still paying off $140,000 total. Paying off the original amount early doesn't reduce the total cost. To make matters worse, many business owners don't fully understand the true cost until they're already committed. Factor rates are rarely disclosed as APRs, and high-pressure brokers may gloss over the fine print. As a matter of fact, many times the loan term is less than 12 months (6-8 months) - making the 40% factor rate much higher than a 40% APR.

Meanwhile, the structure of these products makes it nearly impossible to recover once you fall behind. The real issue isn't just the cost—it's the way the terms are designed to pull money via a daily or weekly debit directly from your business' operating account. This structure may not matter much for businesses with daily point-of-sale revenue, but for industries with complex billing cycles and long gaps between invoicing and payment, like construction and manufacturing, it's a disaster waiting to happen.

A Dangerous Mismatch for Project-Based Cash Flow

Construction subcontractors and manufacturing firms often front costs such as labor, materials, and equipment and wait 30, 60, or even 90 days to get paid. That delay creates a cash flow gap that MCAs ignore entirely.

MCAs withdraw fixed amounts daily or weekly, regardless of whether you've been paid. You could be midway through

(Continued on page 48)

Jewish Federation of Southern Arizona

Tucson, Arizona

Architect

CDG Architects, Ltd.



Photos Courtesy: Robin Stancliff Photography

The exterior of the building is stucco with clear anodized aluminum window frames and storefront door systems, rendering a clean, sophisticated look.

The Jewish Federation of Southern Arizona (JFSA) managed for many long years to operate out of a sprawling former residence in Tucson, Arizona. Performing administrative, educational, philanthropic and community functions heroically in the tight, outdated quarters, it was finally JFSA's turn to develop this new 19,000 square foot "Center for Jewish Philanthropy" to house the JFSA and Jewish Community Foundation of Southern Arizona offices as well as the Arizona Jewish Post.

Co-location of these organizations allows for shared administrative functions, shared use of conference and storage facilities and makes good fiscal sense for the Jewish community. The new facility is located on the Tucson Jewish Community Center (JCC) campus, which allows shared overflow parking for both buildings during events. Co-location of these organizations allows for shared administrative functions, shared use of conference and storage facilities and makes good fiscal sense for the Jewish community. The new facility is located on the Tucson Jewish Community Center (JCC) campus, which



The lobby welcomes visitors with a bold donor and message wall, works from local artists, an open reception desk, and comfortable seating.



The building height and exterior attributes, the landscape architecture, and outdoor lighting met rigorous requirements established for this scenic River Road location.

allows shared overflow parking for both buildings during events.

Frank Mascia FAIA, of CDG Architects, wanted to make sure the Federation/Foundation facility did not become just another office building. "We were trying to find a touchstone for the Jewish community," he said, "something respectful, defining, something that had not been done before." The square ceiling "tent" structure over the entrance lobby became this touchstone, subtly symbolic of the biblical welcoming tent. Faced with unfinished wood, the ceiling is reminiscent of historic Eastern European wood synagogue structures. The porcelain floor tile evokes the earthen tent floor, "Jerusalem stone" veneer travels from the building exterior into the lobby appearing to be ruins of an ancient building. The wood ceiling became a fitting background for a local sculptor's dramatic work of hand crafted glass and metal. The lobby welcomes visitors with a bold donor and message wall, works of local artists, an open reception desk and comfortable seating. The north-facing two-story window wall endows the space with natural light and views to the mountains. The building height and exterior attributes, the landscape architecture and outdoor lighting met rigorous requirements established for this scenic River Road location.

The square ceiling "tent" structure over the entrance lobby became this touchstone, symbolic of the biblical welcoming tent. Faced with unfinished wood, the ceiling is reminiscent of historic Eastern European wood synagogue structures; the subtle porcelain floor tile evokes the earthen tent floor. Jerusalem stone veneer travels from the building exterior into the lobby, appearing to be ruins of an ancient building. The wood ceiling became a fitting background for a local sculptor's dramatic work of handcrafted glass and metal. The lobby welcomes visitors with a bold donor and message wall, works of local artists, an open reception desk, and comfortable seating. The north-facing two-story window wall endows the space with natural light and views to the mountains. The building height and exterior attributes, the landscape architecture, and outdoor lighting met rigorous requirements established for this scenic River Road location.

The construction of the building is wood frame with stucco exterior. The window frames and storefront door systems are clear anodized aluminum giving the building a very clean, sophisticated look. Roof fascias are trimmed with unfinished "galvalume"; window shade boxes along the south face of the first floor are steel, painted deep cobalt blue to match five security and light bollards that mark the front entry. Heating and air conditioning are provided by conventional rooftop electric heat pumps. The facility has LED lighting throughout with specialty lighting to highlight meaningful art pieces displayed throughout the building. Security, a primary concern for this building, is addressed with a secure vestibule at the building entrance, card reader access doors to private areas and significant camera coverage at the exterior perimeter of the building.



Jerusalem stone veneer travels from the building exterior into the lobby.

Offices line secure corridors in wings on both floors. Natural light reaches most interior spaces through exterior windows and transom lights over doors. Small and large meeting rooms on both floors can be utilized by in-house staff, as well as outside organizations.

An event space with overflow onto a secure patio, adjacent catering kitchen, and state-of-the-art presentation systems are incorporated in the space to accommodate events of all kinds.

The new Center for Jewish Philanthropy building achieves the JFSA's goals of providing new office, support, meeting and event space for a variety of Jewish communal services under one welcoming "tent".

Product Information

Building Envelope: CEMCO, Jumbo Tex® by Fortifiber, Chemsta®, Parex
Roofing: Johns Manville
Windows: Gerkin Window & Doors, Guardian Industries
Entrances & Storefronts: United States Aluminum
Flooring: Mohawk, Patcraft, Armstrong, Daltile
Interior: Dunn Edwards, Haley Doors, Formica PLAM, Silestone, AMPCO Toilet Partitions
Lighting: Lithonia, Aculux, Windfall Outdoor, SABRE, Peerless, WAC, Luminii
Elevators: Otis

Architect

CDG Architects, Ltd.
2102 N. Country Club Road, #9, Tucson, AZ 85716
www.cdg-architects.com

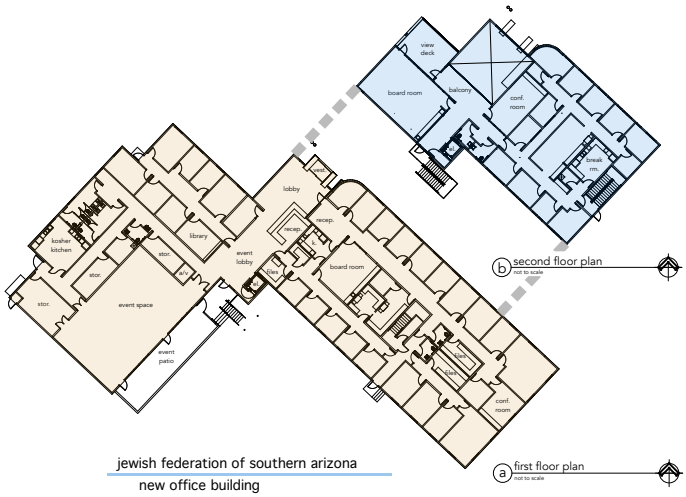
Project Team

Structural Engineer
Turner Structural Engineering
3026 N. Country Club Road, Tucson, AZ 85716
Mechanical Engineer
Adams & Associates Engineers, PLLC
6422 E. Speedway Boulevard, #130, Tucson, AZ 85710
Electrical Engineer
Matthews Consulting & Design, Inc.
10950 N. La Canada Drive, #9101, Oro Valley, AZ 85737
Civil Engineer
Cypress Civil Development
2030 E. Speedway Boulevard, #110, Tucson, AZ 85719
General Contractor
BFL Construction Company, Inc.
700 E. Broadway Boulevard, #200, Tucson, AZ 85719
Interior Designer
Annie Lewis
3719 N. Campbell Avenue, Tucson, AZ 85719

Project General Description

Location: Tucson, Arizona
Date Bid: Oct 2016
Construction Period: Jan 2017 to Sep 2017
Total Square Feet: 19,118
Site: 3.67 acres.
Number of Buildings: One.

Building Sizes: First floor, 14,383; second floor, 4,735; total, 19,118 square feet.
Building Height: First floor, 15'6"; second floor, 13'; total, 30'.
Basic Construction Type: New/VB-AS.
Foundation: Slab-on-grade.
Exterior Walls: Stucco.
Roof: Built-up.
Floors: Concrete, wood.
Interior Walls: Wood stud drywall, metal stud drywall.



DIVISION	COST	% OF COST	SQ.FT. COST	SPECIFICATIONS
PROCUREMENT & CONTRACTING REQUIREMENTS	69,542	2.16	3.64	—
GENERAL REQUIREMENTS	665,608	20.67	34.82	—
CONCRETE	253,307	7.87	13.25	Forming & accessories, reinforcing, cast-in-place, cutting & boring.
MASONRY	46,980	1.46	2.46	Stone assemblies.
METALS	126,742	3.94	6.63	Structural metal framing, decking, decorative.
WOOD, PLASTICS & COMPOSITES	356,309	11.06	18.64	Rough carpentry, finish carpentry, millwork.
THERMAL & MOISTURE PROTECTION	139,734	4.34	7.31	Thermal protection, weather barriers, membrane roofing, flashing & sheet metal, fire & smoke protection.
OPENINGS	220,712	6.85	11.54	Doors & frames, entrances & storefronts, hardware.
FINISHES	442,356	13.74	23.14	Plaster & gypsum board, tiling, ceilings, flooring, painting & coating, stucco.
SPECIALTIES	35,613	1.11	1.86	Toilet & bath accessories, toilet partitions, flag pole, fire extinguisher & cabinet, lockers, bike racks, awnings.
EQUIPMENT	3,224	0.10	0.17	Food service.
CONVEYING SYSTEMS	58,243	1.81	3.05	Elevator (1 passenger).
FIRE SUPPRESSION	49,800	1.55	2.60	Water-based fire-suppression system.
PLUMBING	105,211	3.27	5.50	Piping & pumps, equipment.
HVAC	180,620	5.61	9.45	Air distribution, decentralized HVAC equipment.
ELECTRICAL	424,900	13.19	22.23	Medium-voltage distribution, low-voltage transmission, lighting, LED.
COMMUNICATIONS	22,498	0.70	1.17	Audio-video, data.
ELECTRONIC SAFETY & SECURITY	19,041	0.58	0.99	Access control & intrusion detection, surveillance, detection & alarm.
TOTAL BUILDING COSTS	**3,220,440**	**100%**	**$168.45**	
EXISTING CONDITIONS	19,514			Demolition & structure moving, site testing.
EARTHWORK	99,165			Site clearing, earth moving, termite treatment, SWPPP.
EXTERIOR IMPROVEMENTS	215,819			Bases, bollards & paving, irrigation, landscaping, stripping.
UTILITIES	62,490			Water, sanitary sewerage, electrical, communications.
TOTAL PROJECT COST	**3,617,428**			

UPDATED ESTIMATE TO OCTOBER 2025: $274.40 PER SQUARE FOOT

Regional Cost Trends

This project, updated to October 2025 in the selected cities of the United States.

EASTERN U.S.	Sq.Ft. Cost	Total Cost	CENTRAL U.S.	Sq.Ft. Cost	Total Cost	WESTERN U.S.	Sq.Ft. Cost	Total Cost
Atlanta, GA	$281.09	$5,373,861	**Dallas, TX**	$281.09	$5,373,861	**Los Angeles, CA**	$401.56	$7,676,944
Pittsburgh, PA	$341.32	$6,525,402	**Kansas City, KS**	$348.02	$6,653,351	**Las Vegas, NV**	$384.82	$7,357,071
New York, NY	$461.79	$8,828,485	**Chicago, IL**	$398.21	$7,612,969	**Seattle, WA**	$384.82	$7,357,071

For more information on this project and similar projects visit www.dcd.com

(BirdSmart™ Bird Safe Glass by Vitro Meets Growing Demand of Bird-Friendly, Sustainable Glazing continued from page 29)



Bird-friendly building codes are becoming more common across North America as communities prioritize environmental responsibility and wildlife conservation.

of states and provinces have introduced bird-friendly building codes to protect avian populations from the risks posed by modern architecture. These include California, Illinois, Ontario, Oregon, Minnesota, Washington D.C., Virginia, Wisconsin, Alberta, British Columbia, Maryland and Maine.

One of the most common guidelines in North American bird-friendly standards is the 2" x 4" rule. Research shows that most birds will not attempt to fly through spaces less than 2 inches high and 4 inches wide. Applying patterns that adhere to this rule can significantly reduce bird strikes. Some recommendations suggest using the even more stringent 2" x 2" rule.

BirdSmart™ glass by Vitro has received American Bird Conservancy (ABC) tunnel testing approval to comply with existing and emerging building codes.

Beyond regulatory compliance, *BirdSmart*™ glass embodies a commitment to sustainability. Unlike traditional acid etching or other chemical-based methods, *BirdSmart*™ glass utilizes a precise, non-caustic laser etching process to apply bird-friendly visual markers, offering a greener way to prevent bird strikes. Additionally, as of April 2024, all Vitro architectural glass products meet the Low Embodied Carbon (LEC) standards set by the U.S. General Services Administration (GSA), and all Vitro glass is Cradle to *Cradle Certified*®.

These designations apply to all products made at all Vitro plants, all the time, and reinforce Vitro's standing as a leader in sustainable innovation, making *BirdSmart*™ glass an ideal solution for projects seeking Leadership in Energy and Environmental Design (*LEED*®) or other green certification credentials.

Cost-Effective and Versatile

Traditionally, bird-friendly technologies have been perceived as niche and cost-prohibitive. However, *BirdSmart*™ glass disrupts this narrative with a meticulous approach to production efficiency and versatility.

Both *BirdSmart*™ glass and *Solarban*® glass are manufactured at Vitro's Wichita Falls, Texas plant. This central location ensures an efficient supply chain and allows for direct shipping, which reduces transit times, speeds up delivery, and contributes to the product's sustainability.

BirdSmart™ glass provides exceptional versatility in both scale and fabrication. Available in dimensions as large as *Titan*™ glass (130 x 240 inches) and orders as small as a single pack, *BirdSmart*™ glass offers practicality and accessibility for everything from expansive urban developments to intricate architectural designs. *BirdSmart*™ glass can be applied to clear, *Acuity*® and *Starphire*® low-iron glasses by Vitro and can be manufactured with or without a low-e coating.

Don't Wing It. Choose *BirdSmart*™ Glass.

Bird-friendly building codes are gaining traction across North America, driven by a growing commitment to environmental responsibility and wildlife conservation. In addition to existing codes, many other regions are actively proposing legislation to mandate bird-friendly practices in new construction and renovations. The goal is to minimize the environmental impact of urban development and create safer spaces for bird species, especially during migration seasons when the risk of collisions increases.

On a national scale, the Federal Bird Safe Buildings Act has the potential to create a significant shift. If passed, it would require federal buildings across the U.S. to use bird-safe materials and designs, setting a precedent for other sectors to follow. Meanwhile, sustainable building rating systems like LEED v5 from the U.S. Green Building Council now offer credits for projects incorporating bird-friendly glass under the Sustainable Sites Biodiverse Habitat category.

As these codes, green building programs and voluntary standards evolve, there is a growing need to include bird-friendly glass in designs. With strong legislative support and a growing range of innovative materials, bird-safe glass standards continue to increase. This shift reflects a greater awareness of the need to balance human development with wildlife protection.

Sustainable construction is no longer a choice in modern architecture; it's a necessity for meeting the challenges of a rapidly changing world. This shift is an opportunity to redefine design practices and create spaces that prioritize ecological responsibility, design excellence, and energy efficiency.

BirdSmart™ glass by Vitro exemplifies a commitment to sustainability, seamlessly blending aesthetics, functionality and accessibility. Designed to set a new benchmark in eco-conscious architecture, *BirdSmart*™ glass harmonizes innovation with nature, promoting environmental stewardship without compromise.

Visit ***vitroglazings.com/birdsmart*** to learn more.

Sharpsburg Library

Sharpsburg, Pennsylvania

Architect

Front Studio Architects



Photos Courtesy: Ed Massery/Front Studio Architects

The colorful sliced and stacked design of the Sharpsburg Community Library is now a bold community asset.

In contrast with the one-story concrete-block building that the library once was, the colorful sliced-and-stacked design of the Sharpsburg Community Library is now a bold community asset: it has sparked a change in perception of the district and is a harbinger of new development.

The Borough of Sharpsburg began this project with the idea that their public library would become a centerpiece for Main Street and would bring new vibrancy to their central commercial district. The bold design and bright colors of the renovated building helped to achieve that vision.

The project included both an addition and extensive renovation and it was completed with substantial community involvement. The size of the existing structure was tripled to include a programming room, computer bar, and children's area.

The new library is not only well suited to the intellectual stimulation of reading but is captivating to users and to the entire community. Pittsburgh Quarterly described the design as "an effective metaphor for the experience of the library as a place where a community assembles."

Indeed, this dynamic building accommodates a variety of activities with a high degree of thoughtfulness, organization, and attention to detail, all while working within a tight budget of $206 per square foot.

The cheerful library is both an inviting and a memorable experience because it engages people's bodies, minds, and imaginations. Now, it is not just a place to go, but a place to be.



The new community room is both modern and well lit with natural light.



Deep bold contrasting colors help make every visit to the library a lasting experience.

Product Information

Building Envelope: Petersen Aluminum PAC-CLAD®, James Hardie Building Products, Dupont
Windows, Entrances & Storefronts: Kawneer
Flooring: Mohawk, Mannington Commercial
Lighting: Corelite, Portfolio, All Pro, Stile

Architect

Front Studio Architects
357 N. Craig Street, Pittsburgh, PA 15213
www.frontstudio.com

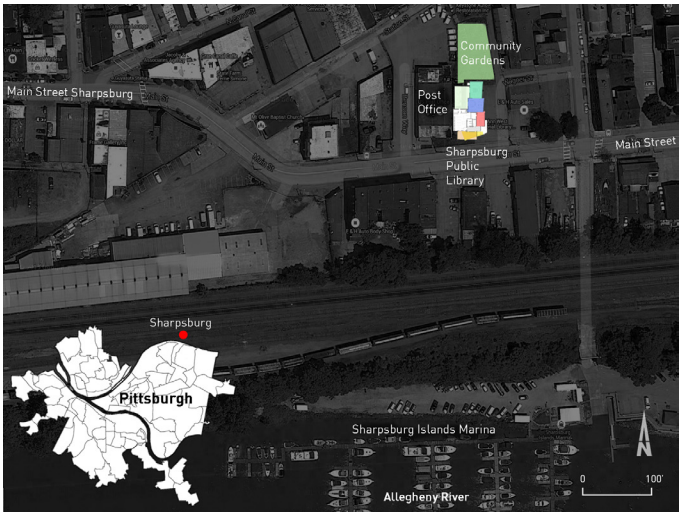
Project Team

Structural Engineer
Barber & Hoffman Engineers
215 Executive Drive, #202, Cranberry Township, PA 16066
Mechanical & Electrical Engineer
A & F Engineering
104 Atlantic Avenue, Elizabeth, PA 15037
GeoTechnical Engineer
GeoMechanics, Inc.
600 Munir Drive, Elizabeth, PA 15307
Cost Estimator
Kaden Construction LP
1801 Main Street, Pittsburgh, PA 15215
General Contractor
Franjo Construction
335 E. 7th Avenue, Homestead, PA 15120

Project General Description

Location: Sharpsburg, Pennsylvania
Date Bid: Apr 2014
Construction Period: Sep 2014 to Jun 2015
Total Square Feet: 4,000
Site: .20 acres.
Number of Buildings: One.
Building Sizes: First floor, 4,000; total, 4,000 square feet.
Building Height: First floor, 20'; total, 20'.
Basic Construction Type: Addition/Renovation/VB.
Foundation: Slab-on-grade.
Exterior Walls: Corrugated metal, fiber cement board, storefront.
Roof: Membrane. **Floors:** Concrete.
Interior Walls: Wood stud drywall.





DIVISION	COST	% OF COST	SQ.FT. COST	SPECIFICATIONS
PROCUREMENT & CONTRACTING REQUIREMENTS	17,835	2.24	4.46	—
GENERAL REQUIREMENTS	85,865	10.80	21.47	—
CONCRETE	146,695	18.45	36.67	Reinforcing, cast-in-place, (concrete breakdown: cubic yards foundation, +/–34; cubic yards floors, +/–33).
WOOD, PLASTICS & COMPOSITES	143,144	18.00	35.79	Rough carpentry, finish carpentry.
THERMAL & MOISTURE PROTECTION	136,658	17.19	34.16	Thermal protection, roofing & siding panels, membrane, joint sealants.
OPENINGS	66,397	8.35	16.60	Doors & frames, specialty doors & frames, windows, entrances & storefronts, hardware.
FINISHES	38,857	4.89	9.71	Plaster & gypsum board, flooring, painting & coating.
SPECIALTIES	7,610	0.96	1.90	Toilet compartments, toilet accessories, signage, fire extinguishers, bulletin boards.
FURNISHINGS	1,171	0.15	0.29	Bicycle racks.
PLUMBING	38,274	4.81	9.57	Piping & pumps, fixtures.
HVAC	42,589	5.36	10.66	Air distribution, central HVAC equipment.
ELECTRICAL	70,016	8.80	17.50	Medium-voltage distribution, lighting.
TOTAL BUILDING COSTS	**795,111**	**100%**	**$198.78**	
EXISTING CONDITIONS	26,908			Subsurface investigation, demolition, structure moving.
EARTHWORK	21,024			Excavation support & protection, backfill.
EXTERIOR IMPROVEMENTS	3,150			Fences, gates.
UTILITIES	3,859			Storm drainage.
TOTAL PROJECT COST	**850,052**			

UPDATED ESTIMATE TO OCTOBER 2025: $347.66 PER SQUARE FOOT

Regional Cost Trends

This project, updated to October 2025 in the selected cities of the United States.

EASTERN U.S.	Sq.Ft. Cost	Total Cost	CENTRAL U.S.	Sq.Ft. Cost	Total Cost	WESTERN U.S.	Sq.Ft. Cost	Total Cost
Atlanta, GA	$292.04	$1,168,148	**Dallas, TX**	$292.04	$1,168,148	**Los Angeles, CA**	$417.20	$1,668,783
Pittsburgh, PA	$354.62	$1,418,465	**Kansas City, KS**	$361.57	$1,446,278	**Las Vegas, NV**	$399.81	$1,599,250
New York, NY	$479.78	$1,919,100	**Chicago, IL**	$413.72	$1,654,876	**Seattle, WA**	$399.81	$1,599,250

For more information on this project and similar projects visit www.dcd.com



Making the Optimal Choice for Your Manufacturing Operations: Expanding vs. Building New

Authors: Kristen Heater, Burns & McDonnell, Project Manager, Consumer Products and Corey Kingsland, Burns & McDonnell, Project Manager, Site Selection

For manufacturing companies planning to expand, deciding between building on a greenfield site or expanding an existing facility is a critical choice. A greenfield site offers a fresh start and complete flexibility for custom construction. On the other hand, expanding an existing facility can leverage established utilities and workforce, though it may present limitations in space or layout.

The optimal path depends on your company's unique objectives, operational needs and appetite for risk. Thorough evaluation of the benefits and challenges of each option allows owners to make a strategic decision that sets the stage for sustained growth and long-term success.

Choosing between developing a greenfield site or expanding an existing facility is a complex decision with significant implications. The right approach can greatly affect a company's operational efficiency, cost structure and long-term success, making strategic planning crucial. While expanding an existing facility might seem like a straightforward choice, it often involves hidden risks and higher costs due to legacy conditions and complexities.

Criteria for Selecting the Right Greenfield Site

Selecting the right site is one of the most consequential decisions in any greenfield manufacturing project, shaping not just the facility's immediate success but also its long-term viability and competitiveness. The process requires a holistic evaluation of factors ranging from the availability of a skilled workforce and robust community infrastructure to logistical connectivity and regulatory compliance.

Labor Pool and Workforce Considerations

When choosing a region for a new greenfield development, it's crucial to select an area with a strong labor pool, particularly workers skilled in automation and advanced technology, to provide sustainable operations. Equally important is the quality of local housing and community support, which is critical for attracting and retaining a stable workforce.

Logistical Advantages

Proximity to major transportation hubs — including highways, railways, ports and airports — is essential for establishing and maintaining efficient logistics, as well as minimizing transit costs. Evaluating the entire supply chain early helps assess its capability to support expansion and deliver smooth operations. Additionally, incorporating ***advanced automation*** into fulfillment and distribution systems can help reduce processing time, minimize errors and accelerate delivery timelines to support evolving customer demands.

Site Due Diligence

There has been a growing interest and investment by local and state governments and economic development entities to identify, assess and promote available industrial sites. Local governments, states and economic development enterprises frequently invest in the necessary due diligence and off-site

infrastructure upgrades to transform undeveloped land into certified or shovel-ready sites. This preparatory phase can involve securing planning and zoning approvals, completing surveys, verifying title documents, conducting environmental assessments and soil analyses, and coordinating public infrastructure improvements. All of this is undertaken before any development activity commences.

By addressing these issues up front, much of the inherent risk can be mitigated, allowing interested end users to feel confident about their decision to locate in a new area prior to making any contractual arrangements for purchasing the property.

Zoning and Regulatory Compliance

Compliance with local zoning codes is vital, with particular attention paid to aspects such as noise, lighting and wastewater handling. Additionally, choosing a location with stable and predictable weather conditions can help minimize operational disruptions.

Identifying regions that offer favorable tax incentives — such as valuable tax breaks or subsidies — can notably decrease project costs. However, it is crucial for companies to thoroughly examine any associated clawback clauses to avert unexpected liabilities, and to confirm the availability of extension options should their project schedules change.

Early evaluation of potential site locations, labor availability and other critical factors enables better decision-making and fosters effective collaboration with key stakeholders. Developing a high-level understanding of expansion costs, scope and schedule from the outset allows companies to better guide their budgeting and planning efforts. Initiating pre-capital expenditure studies and modeling efforts as soon as possible further clarifies the project's timeline and scope. Before even beginning the site search, it is imperative to understand the budget, logistics, market dynamics, and the locations of suppliers and customers, among other key considerations.

"Engaging a design-build partner early and using clearly defined stage gates offers better planning, early issue detection and stronger alignment — reducing delays and driving smoother project execution from the start."

Strategic Considerations for Developing Greenfield Projects

When planning a new facility, several critical factors must be considered at the outset to achieve success. First, it's essential to define a clear scope and understand the specific needs the facility will address. Then, create a plan that effectively meets these requirements. Understanding the project's driving factors up front helps guide decisions and steer the project in the right direction.

Project Execution Planning

Engaging a ***design-build partner*** early in the process and utilizing clearly defined front-end planning stage gates offers significant benefits. Beginning as early as pre-capital planning, stage gates provide a structured approach to project planning, allowing each phase to be thoroughly evaluated before proceeding. This method helps identify potential issues early, allowing for proactive solutions and reducing the likelihood of costly delays or rework. Stage gates also facilitate better communication and alignment among stakeholders, seeing that everyone remains on the same page regarding project goals and expectations. This approach enables a more streamlined integration of engineering design, procurement and construction from the very start.

Early development of a project execution plan is essential to the success of the project. The execution plan provides a road map for the project, outlining the steps required to achieve the project's objectives. The plan must remain dynamic and be continuously updated throughout the evolution of the project. Establishing the budget, schedule and risk factors as part of the execution plan is critical. Early risk identification and management of mitigation strategies help prevent costly delays and rework. The plan also establishes a communication framework, seeing that all stakeholders remain informed and engaged throughout the life cycle of the project. Early design considerations to address the process flow within the new building — and how that relates to the logistics of the site — are crucial for operational efficiency. It is also important to consider the master plan for future growth to see that the facility can adapt and expand to evolving needs.

Selecting a Design-Build Partner

Before initiating a project, a company should inquire about a design-build partner's experience with similar projects and its approach to project management, including handling timelines, budgets and change management. It's crucial to understand the design-builder's communication strategy and how it will keep the client informed about progress. Additionally, clients should ask about the use of subcontractors, the prospective partner's vetting process, and the on-site safety protocols. Companies should seek examples of how the design-build partner has managed unexpected challenges in previous projects. Finally, discussing the design-builder's approach to integrating sustainability practices and regulatory compliances will provide insight into commitment to quality and adherence to industry standards. These questions help establish a clear understanding of expectations and generally foster a stronger working relationship.

Challenges Associated With Greenfield Projects

Greenfield projects typically require a significant upfront investment in land acquisition, site preparation and construction. Building a new plant involves many moving parts, and several common mistakes can lead to costly delays or issues if not addressed properly.

There are multiple common mistakes and challenges for greenfield projects, including:

- *Project execution:* Poor project planning and inadequate vetting of design, construction and procurement plans.
- *Environmental concerns:* Failure to conduct detailed site assessments early in the process.
- *Project scope management:* Allowing the project scope to become too broad or undefined, or oversizing the scope by compounding redundancy.
- *Infrastructure development:* Lack of required infrastructure, including necessary utilities and transportation links.
- *Regulatory hurdles:* Navigating complex permitting processes and adhering to stringent environmental regulations can delay project timelines.

(Continued on page 45)

Department of Veterans Affairs Medical Center

Long Beach, California

General Contractor

JXR Constructors, Inc.

The project consisted of renovating two active medical clinics for the Department of Veterans Affairs Medical Center in Long Beach, California. Both the Spinal Cord Injury clinic and the Radiation Oncology clinic were occupied by staff and patients throughout the project – requiring that the work be performed at night and on weekends so as to minimize impacts to patient care.

The two active medical clinics were well overdue for renovations and improvements. The department heads formalized their needs back in 2011, but it wasn't until mid-2013 that the VA was able to contract for a design. SRD Architects, Inc. finalized their design in March of 2014. Unfortunately, due to delays in securing funding, it took over two years for the VA to be able to solicit in May 2016. JXR Constructors competitively bid the project in June 2016, and was awarded the contract in August 2016.

Since it was over five years from the date that the original renovation needs were identified, and over two years since the design had been completed, normal building and hospital wear-and-tear events had occurred. Some rooms had experienced damage due to water leaks, and others had been renovated under emergency measures. Some of the rooms had new equipment installed, and those rooms had been completely renovated to accommodate new multi-million dollar equipment upgrades.

As a result, it became clear during the preconstruction phase that much of the two-year- old design was not relevant to current conditions or current clinic needs. JXR Constructors worked closely with VA Engineering and medical staff to define scope and design changes, to ensure that the medical staff would receive a renovation that would best serve their patients' needs.

The Radiation Oncology Clinic, Building 161, consists of 46 rooms, and includes a reception area, four patient exam rooms, two radiation linear accelerator rooms with two associated control rooms, a CT Scanning room and control room, a Superficial Therapy room and control room, nurses' station, treatment planning rooms, staff and physician offices, and circulating space. In total, approximately 10,800 square feet of active medical space needed to be renovated.

The Spinal Cord Injury Outpatient Clinic, Building 150 U-Ward (first floor), consists of 44 rooms, including a reception area and circulating space, eight patient exam rooms, nurses' station, procedure room, hyperbaric room, urodynamic lab, cysto lab with control room and scrub room, clean and soiled linen rooms, separate staff and patient restrooms, pharmacy, four doctor/nurse offices, and a personal care clinic for disabled veterans that includes a nurses' station, shower rooms, changing rooms, restrooms, and hopper rooms.

The Spinal Cord Injury, Building 150 Therapy (basement), consists of eight areas, including Therapy, Physical Therapy, Corrective Therapy, Occupational Therapy, and associated therapist offices. In total, the renovation area was approximately 10,000 square feet of active medical space.

All work was done in phases: five phases for the Radiation Oncology clinic and eight for the Spinal Cord injury clinic. Continuous infection control measures



Photos Courtesy: JXR Constructors, Inc.

The CT scanning room was one of the rooms sucessfully renovated.



Lobbies were extensively renovated with new flooring, paint, HVAC ducts, grilles, lights, acoustical ceiling and sprinkler heads.



Work included new flooring (welded sheet vinyl floor with integrated cove base) in exam and treatment rooms.

were utilized and relocated continuously as work progressed from room to room and phase to phase. An additional challenge included the requirement to HEPA vacuum, mop, and wipe down all surfaces nightly to maintain hospital dust and infection control standards.

Work included demolition of all interior finishes, including hard lid and acoustical ceilings, light fixtures, HVAC grilles and ducting, existing FRP (fiberglass reinforced plastic), hand/crash rails and corner guards, countertops and casework, flooring (vinyl, rubber, and ceramic tile) and wall tile, and the removal and reinstallation of medical equipment.

Renovations included replacement of flooring in corridors, lobbies, offices, and patient care rooms with new flooring and base with coved wall base in exam and treatment rooms. Corridors received new wall protection and handrails. New architectural hard lid ceilings were installed in the Spinal Cord Injury clinic at the reception area, the waiting room, and over the nurses' station.

New paint and ceilings were applied throughout project area. Reception area counter(s) were modified for ADA accessibility. Existing counters within the project were removed and replaced with new solid surface countertops. All toilet room floors were removed and replaced with an epoxy finish, ceramic tiles were installed on the walls, full height and new partitions and

Product Information

Flooring: Johnsonite, Mondo
Interior: Marlite, Acrovyn
Lighting: Lithonia, Prudential, Juno



The reception area was completely renovated.



Exam and treatment rooms were completely renovated with new welded sheet vinyl flooring with integrated cove base flooring, paint, and ceiling tiles.



All toilet floors were replaced with an anti-slip coating epoxy finish and ceramic tiles were applied to the walls.

accessories were installed. All gypsum board ceilings, soffits, walls, doors, and frames were repainted. New acoustic ceiling systems were installed, including a new grid system and ceiling panels. New light fixtures, diffusers, and access panels were installed into the new ceiling systems. Fire sprinkler heads were relocated, as needed, so all were centered on ceiling tile, and all heads were replaced with flush-type sprinkler heads.

Despite the challenges of a complete renovation of active medical spaces, pre-planning and flexibility were keys to the successful completion on time and with minimal impact on patient services.

General Contractor

JXR Constructors, Inc.
4550 Kearny Villa Road, #207, San Diego, CA 92123
www.jxrconstructors.com

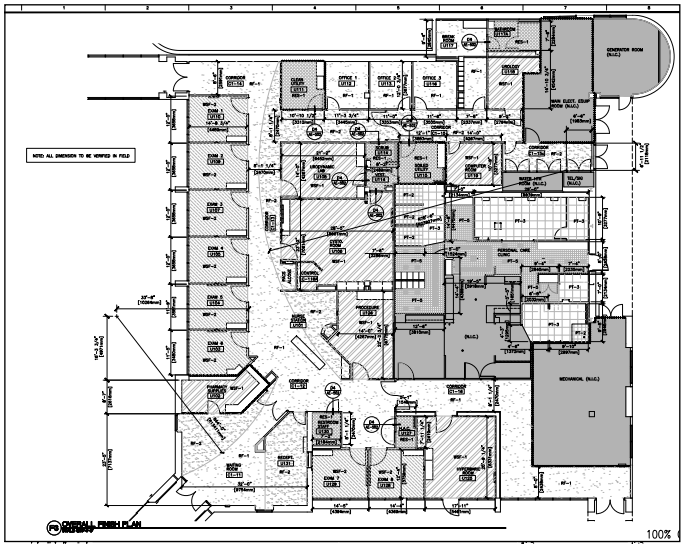
Project Team

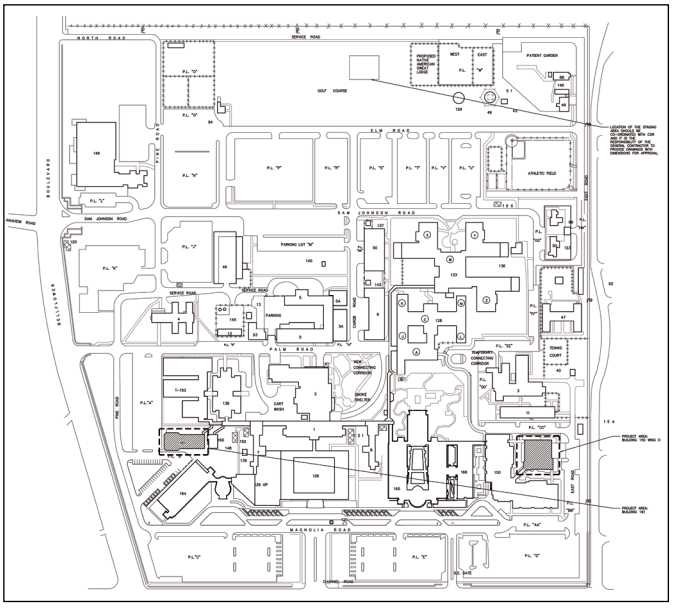
Architect
SRD Architects, Inc.
3920 E. Coronado Street, #201
Anaheim, CA 92807

Mechanical & Electrical Engineer
SBA Consulting Engineers, Inc.
3920 E. Coronado Street, #207,
Anaheim, CA 92807

Project General Description

Location: Long Beach, California
Date Bid: Jun 2016
Construction Period: Oct 2016 to Sep 2017
Total Square Feet: 18,250
Number of Buildings: Two; total of 98 rooms/areas.
Building Sizes: Building one first floor, 10,000; building two first floor 8,250; total, 18,250 square feet.
Building Height: Building one first floor, 8'; building two first floor, 8'; total, Varies 8' to 12'.
Basic Construction Type: Interior Renovation.
Foundation: Slab-on-grade.
Exterior Walls: CMU, curtain wall.
Floors: Concrete.
Interior Walls: Metal stud drywall.





DIVISION	COST	% OF COST	SQ.FT. COST	SPECIFICATIONS
PROCUREMENT & CONTRACTING REQUIREMENTS	82,092	3.70	4.50	—
GENERAL REQUIREMENTS	686,083	30.95	37.59	Administrative requirements, temporary storage of items to be reinstalled, execution & close out, infection control measures (temp barriers, negative air, monitoring), phase cleaning & final cleaning.
METALS	3,304	0.15	0.18	Fabrication.
WOOD, PLASTICS & COMPOSITES	23,033	1.04	1.26	Finish carpentry, fabrications.
THERMAL & MOISTURE PROTECTION	40,550	1.83	2.22	Dampproofing & waterproofing, fire & smoke protection, joint protection.
OPENINGS	15,070	0.68	0.83	Doors & frames, coiling doors, louvers & vents.
FINISHES	816,495	36.83	44.74	Metal studs & gypsum board, flooring, wall tile, acoustical ceilings, painting & coating.
SPECIALTIES	15,116	0.68	0.83	Signage, toilet accessories.
FURNISHINGS	82,095	3.70	4.50	Casework, countertops.
FIRE SUPPRESSION	68,843	3.11	3.77	Water-based fire-suppression systems.
PLUMBING	54,428	2.46	2.98	Fixtures.
HVAC	66,780	3.01	3.66	Air distribution, test & balance.
ELECTRICAL	240,798	10.86	13.19	Medium-voltage distribution, low-voltage transmission, lighting.
COMMUNICATIONS	13,639	0.62	0.75	Data, voice.
ELECTRONIC SAFETY & SECURITY	8,400	0.38	0.46	Detection & alarm.
TOTAL BUILDING COSTS	**2,216,726**	**100%**	**$121.46**	
EXISTING CONDITIONS	200,435			Assessment, demolition, structure moving, material removal.
TOTAL PROJECT COST	**2,417,161**			

UPDATED ESTIMATE TO OCTOBER 2025: $198.97 PER SQUARE FOOT

Regional Cost Trends

This project, updated to October 2025 in the selected cities of the United States.

EASTERN U.S.	Sq.Ft. Cost	Total Cost	CENTRAL U.S.	Sq.Ft. Cost	Total Cost	WESTERN U.S.	Sq.Ft. Cost	Total Cost
Atlanta, GA	$139.28	$2,541,791	**Dallas, TX**	$139.28	$2,541,791	**Los Angeles, CA**	$198.97	$3,631,130
Pittsburgh, PA	$169.12	$3,086,460	**Kansas City, KS**	$172.44	$3,146,979	**Las Vegas, NV**	$190.68	$3,479,832
New York, NY	$228.81	$4,175,799	**Chicago, IL**	$197.31	$3,600,870	**Seattle, WA**	$190.68	$3,479,832

For more information on this project and similar projects visit www.dcd.com

(Making the Optimal Choice for Your Manufacturing Operations: Expanding vs. Building New continued from page 41)

- *Cost overruns:* Unexpected costs related to site preparation, infrastructure development, and environmental mitigation can lead to unexpected budget overruns.

Failing to vet design, construction and procurement plans early often results in conflicts, unexpected costs and delays. The same goes for neglecting early assessments of zoning and environmental factors, including wastewater disposal, wetlands and noise mitigation. Comprehensive due diligence is essential to comply with all regulations and prevent permitting delays.

Staying focused on essential project needs prevents unnecessary costs. New developments tend to face stricter regulations, requiring extensive permitting and infrastructure investments. Early procurement of long lead equipment, including electrical components, is crucial as delays in acquiring these items can significantly impact the entire project timeline.

Strategic planning and experienced guidance are key to successfully managing greenfield project challenges.

Benefits of Leveraging Assets Within an Existing Facility

Expanding or updating current facilities for new manufacturing operations on a project site offers a variety of distinct advantages. By utilizing existing infrastructure, such projects often require significantly reduced initial capital investment and often have shorter development timelines, enabling quicker production startup. These projects also tend to have fewer regulatory hurdles compared to greenfield developments, allowing companies to bring products to market more quickly.

Existing facilities are typically located in established industrial areas with access to transportation networks and a skilled workforce. Redeveloping owned assets can also boost employee morale and spur economic growth by demonstrating a commitment to the future of the site and its workforce. Leveraging existing owned assets can provide a competitive edge by allowing companies to quickly adapt to market demands and scale operations efficiently and cost-effectively. With this comes the importance of collaboration for a successful project. Clear communication with subcontractors, aligned schedules and defined scopes of work help keep the effort on track.

Challenges Associated With Existing Facility Expansions

Leveraging existing facilities does not come without its challenges. While expanding an existing facility may seem like a simpler option, it often involves hidden risks and higher costs due to legacy conditions and complexities. Existing structures and facility constraints may limit options for optimizing the process layout and integration of new technologies, while older facilities might require significant upgrades or environmental remediation, leading to unexpected expenses. Bringing an older facility up to current regulatory standards can be complex and costly. Limitations in site circulation can affect the flow of materials and personnel, reducing overall efficiency.

Failure to conduct detailed site assessments to identify all potential hazards and contaminants can lead to unexpected discoveries, such as hidden underground issues, and a range of other unforeseen complications.

Additionally, expansions can sometimes result in facilities that are less aesthetically pleasing, as integrating modern elements with the existing design may disrupt the original architectural harmony. Space for future growth may also be limited, potentially constraining long-term scalability.

Creating a detailed construction schedule that accounts for peak production times and planning work during off-peak hours or weekends must be accounted for to help minimize disruptions to existing operations. Avoiding many common pitfalls requires strategic planning as well as construction aligned with operational needs.

Key Considerations for Decision-Making

Expanding an existing facility can often be more affordable in the short term, but if the existing infrastructure is outdated a new facility may ultimately provide greater efficiency and meet future demands more effectively.

In evaluating options, several key factors must be considered to make an informed decision:

- *Environmental impact:* Greenfield projects often require extensive environmental assessments and can impact local ecosystems. This involves navigating complex permitting processes and adhering to environmental regulations. Conversely, expanding an existing facility may involve remediation of contaminated sites, which can be costly and time-consuming.
- *Infrastructure development:* Greenfield sites generally lack existing infrastructure, necessitating significant investment in utilities and transportation links. This can lead to higher initial costs and longer project timelines. Existing sites, on the other hand, may have outdated or insufficient infrastructure that needs upgrading, but benefit from existing structures that can be repurposed, potentially shortening the timeline.
- *Regulatory compliance:* Both greenfield and existing sites require strict adherence to regulatory standards. Understanding these regulatory requirements is crucial for project success.
- *Cost considerations:* Greenfield projects often incur higher initial costs due to infrastructure development and environmental assessments. Existing facility expansion may have lower capital expenditure but can involve significant remediation or other unforeseen costs. Evaluating the total cost upfront is essential for budget planning.
- *Project timeline:* Greenfield projects typically have longer timelines due to the need for infrastructure development and regulatory approvals. Expansion can benefit from existing structures, potentially shortening the timeline, but remediation efforts and infrastructure upgrades can cause delays. Effective project management is key to maintaining timelines.
- *Community impact:* Greenfield developments may face opposition from local communities concerned about environmental and social impacts. Investments in expansion projects are often supported by communities as they revitalize and repurpose existing sites, contributing to local development.
- *Flexibility in design:* Greenfield projects offer a blank slate, allowing for greater flexibility in design and planning. Expanding an existing building often requires creative solutions to integrate new technologies with existing structures, which can be challenging.

The decision between greenfield and existing facility expansion isn't simply a matter of preference — it's a critical, high-stake choice that is unique to each business and involves various factors that require careful consideration. It depends on a company's specific needs, operational goals and long-term strategy. Considering these factors helps in making an informed decision that aligns with project goals, budget and timeline.

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How Contractors Can Navigate Uncertainty and Protect Margins

By Jeff Gerardi

Construction has always weathered its share of uncertainty, and 2025 has proven to be another trying year for the industry so far.

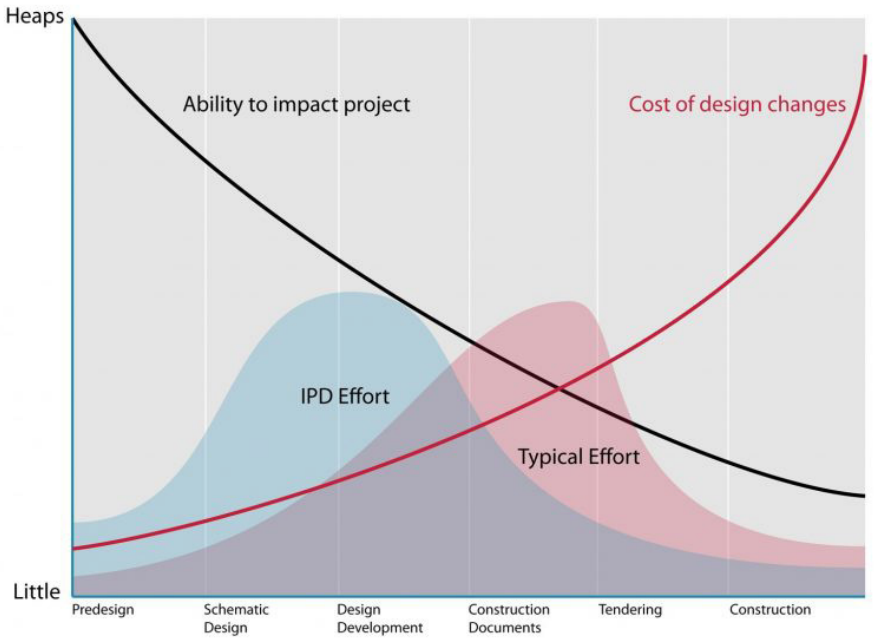
With material input costs up 41% since 2020 and trade and tariff uncertainty shaking up pricing models, contractors are facing tighter margins and longer lead times.

As developers hesitate and labor pressures rise, builders can't afford to rely on outdated strategies. But in today's high-risk climate, how can contractors reduce overall project uncertainty and risk?

Why preconstruction precision matters

Economic uncertainty brings volatility that could challenge even the most experienced builders. Our advice? Focus on what you can influence.

You may not have a say on tariffs, inflation, or the supply chain, but you do control how accurately you bid, manage costs, and uphold quality standards during preconstruction.



*The graph above illustrates the cost of a project increases exponentially when changes are made to designs throughout the course of construction. **Image source**.*

Preconstruction is your chance to reduce risk, improve margins, and build with confidence. When you invest early in the preconstruction and "build" the project before you actually build it, you'll set the job up for success and limit costly issues down the line.

Consider the MacLeamy curve, which shows that design changes become exponentially more expensive once construction starts. If you want to limit rework and protect profits, preconstruction is the time to take action.

Forward-thinking contractors leverage digital tools like model coordination and connected takeoff to plan smarter, catch issues early, and keep teams aligned on a single source of truth.

Let's break down the levers you can adjust to stay competitive during this period.

Bid more accurately

Submitting an accurate bid the first time means less uncertainty (and unexpected costs) once construction begins. It builds trust with clients, streamlines approvals, and gives your team a stronger foundation to execute.

Digital bid management platforms enable you to come up with solid bids. Take, for example, Autodesk Construction Cloud (ACC), which centralizes ***construction bid management*** so teams can collaborate in real-time and access the most up-to-date information when bidding.

Features like version control reduce confusion around scope changes, so your estimates stay aligned with what's actually being built.

Beyond access to tools, digitizing your bid management workflows equips you with historical data so you can learn from past projects, identify trends, and refine your pricing strategy.

All of these result in competitive and realistic bids that protect profitability without undercutting.

Get a closer view of costs

In a time where profits are tighter than ever, having close control of your costs is essential for managing risk. Knowing where every dollar is going before you break ground helps you bid smarter, allocate resources more efficiently, and avoid surprises later on.

Doing that starts with having a connected cost management system. Leverage construction tech to connect preconstruction estimates to live project budgets. That way, your field and office teams stay aligned as the project evolves.

Having the right cost figures during preconstruction also enables you to flag risks earlier. When you can track variances in real time, you're better equipped to catch budget drift and scope creep before they become major issues.

Focus on project qualification

It's tempting to take on every project that comes your way (especially during market volatility), but this can often do more harm than good.

Remember: not every opportunity is worth the risk. Some jobs can drain your resources or leave you exposed to unpredictable costs.

For example, projects with vague scopes, long payment cycles, or unreliable owners and partners can cause headaches and drain profitability.

So, rather than chasing volume, shift to a margin-first mindset. The goal isn't to win every bid—it's to win the right ones. When you pursue high-fit projects, you reduce risk, improve delivery outcomes, and make your team's time count where it matters most.

Ask yourself: What projects will help maximize your margins? Which ones aren't worth the risk?

Some of the factors to evaluate include:

- Delivery method - Assess how well a job aligns with your team's capabilities and project goals.
- Owner track record - Look for clients with consistent funding, clear communication, and timely approvals.
- Material volatility exposure - Be cautious of jobs that rely heavily on unstable pricing or long-lead items.

In addition to evaluating owner risk, manage the subcontractor side using prequalification tools to surface red flags early. Consider ACC, which offers subcontractor qualification tools via TradeTapp. Using these tools, you can:

- Benchmark subcontractors against thousands of others using financial and safety risk metrics
- Customize qualification workflows with tailored questionnaires, financial ratio calculations, and approval steps
- Automatically share risk insights with estimators to inform bid strategy
- ***Sync with construction ERP or accounting systems to bring internal backlog data into view***

Ultimately, qualification isn't just about checking boxes, it's about building confidence in your partnerships and making better-informed decisions from day one.

Precision in precon is the new differentiator

In today's unpredictable market, the contractors who thrive won't be the ones who work harder—they'll be the ones who plan smarter. GCs who invest in connected tools and streamlined preconstruction processes will be best positioned to win high-quality work, reduce risk, and protect their margins.

The bottom line: when uncertainty is the norm, precision isn't just a nice-to-have—it's your competitive edge.

About the author: *Jeff Gerardi is the general manager of preconstruction technology at Autodesk. In his role at Autodesk, Jeff oversees the vision and strategy of Autodesk's preconstruction portfolio of products. He is involved in the development, marketing and driving the success of these products. Prior to Autodesk, Jeff founded ProEst Estimating which was acquired by Autodesk in late 2021. Under Jeff's leadership, ProEst grew into a thriving, cutting edge SAAS technology firm that served thousands of contractors across the globe. Born into a family of business owners, Jeff has long had an entrepreneurial spirit which helped this company's growth and success. Jeff is based in San Diego with his wife and three children. They are all avid athletes always looking for life's next adventure.*

For more information visit ***Autodesk Construction Cloud***.

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ASPEnational.org Natasha@aspenational.org

(When Fast Cash Becomes Financial Quicksand for Construction Businesses continued from page 33)

a job, still waiting on your first invoice, while automatic payments drain your account.

This mismatch can cripple operations. A subcontractor might miss payroll because the MCA hit their account early in the week. A manufacturer may delay fulfilling an order because funds for materials have already been pulled.

Worse, the total repayment often exceeds the project's margin and even the company's overall margin. You end up working just to pay back the advance—defeating the very purpose of securing funding in the first place.

Defaults, Debt Stacking, and a Spiral No One Warned You About

One of the most damaging parts of an MCA is what happens when you can't keep up with the payment schedule. Missing even a single withdrawal can trigger default. When that happens, lenders can move quickly and aggressively: freezing business accounts, seizing funds through UCC liens, and demanding payment directly from your clients via notification letters. This not only cuts off your cash flow; it damages client relationships and reputation.

What catches many owners off guard is the personal guarantee they may have signed. If your business can't cover the debt, the lender can go after your personal assets. That might include your bank accounts or any other assets you own. Suddenly, the consequences are no longer limited to the company—you're at personal risk.

And then there's stacking, the common (and deeply risky) practice of taking out additional MCAs to cover gaps left by the first one. Each new advance comes with its own repayment schedule, often overlapping or compounding with others. Business owners wind up servicing five, six, even seven concurrent withdrawals—sometimes losing 30–50% of their daily revenue before they even start paying vendors or staff.

This pattern is unsustainable and devastating. There are stories of companies halting projects, losing longtime clients, and even filing for bankruptcy, all because MCA repayments pushed them past the breaking point. It's not a slow bleed; it's a cash flow hemorrhage.

A National Reckoning—and Long Overdue Reform

MCAs operate in a largely unregulated space, at least for now. Unlike traditional loans that fall under federal banking laws and consumer protection standards, MCAs are typically governed by commercial contract law, which offers fewer safeguards for borrowers.

That's starting to change.

In Texas, House Bill 700 is scheduled to take effect on September 1, 2025. The bill introduces new rules for MCA transparency and lender accountability. It requires clear cost disclosures, bans certain repayment structures, and penalizes misleading contract terms. New York, California, and other states are pursuing similar efforts.

These reforms represent a broader push to rein in the predatory elements of revenue-based financing. But change will take time, and enforcement may be uneven. For now, the burden still falls on business owners to navigate these offers carefully and skeptically.

Understanding the real structure and implications of an MCA is the first defense. Asking for APR-equivalent rates, questioning fees, and insisting on repayment terms that align with your billing cycle are all essential steps before signing anything.

Better Options Do Exist—You Just Have to Know Where to Look

While MCAs may feel like the only path forward when banks say no, they are far from the only option. Several alternative funding sources are more affordable, more flexible, and more aligned with project-based industries.

- **SBA Loans:** Government-backed programs like the SBA 7(a) and 504 loans offer long terms, low interest rates, and built-in borrower protections. They can take more time to process—but they're worth it.
- **Invoice Factoring:** This allows you to get paid faster on work you've already completed. Instead of waiting 30 or 60 days, a factoring company advances you a percentage of the invoice and collects when your client pays.
- **Purchase Order Financing:** If you've landed a big job but lack the cash to fulfill the order, PO financing gives you upfront capital based on confirmed POs.
- **Work-In-Progress (WIP) Financing:** This aligns cash flow with project milestones, allowing you to unlock funds as work is completed. It's structured to reflect how construction actually operates.
- **Working Capital Loans:** These are short-term loans with monthly repayments and transparent terms. They may come at a higher rate than traditional financing, but they're far less risky than an MCA.

The key advantage of these tools is that they're designed to work with your business, not drain it. They account for payment cycles, margin structures, and project-based realities—something MCAs simply don't.

"Fast money can feel like the only way out when you're under pressure. But too often, it's a trap disguised as a solution."

Final Thought: Don't Let a Short-Term Fix Become a Long-Term Failure

Fast money can feel like the only way out when you're under pressure. But too often, it's a trap disguised as a solution. What looks like a solid fix—cash in your account tomorrow—can turn into a daily burden that slowly erodes your ability to operate, grow, or even stay afloat. The deeper you go, the fewer options you have.

Before signing on the dotted line, ask hard questions. Look beyond the quick approval and focus on the long-term impact. And remember: the best form of capital is one that keeps you in control, not one that quietly takes it away.

About the author: *Scott Peper is the Chief Executive Officer and founder of* ***Mobilization Funding****. Prior to Mobilization Funding, Scott spent 17 years in the healthcare industry, where he held numerous positions in sales, sales management, corporate contracting, and executive management.*

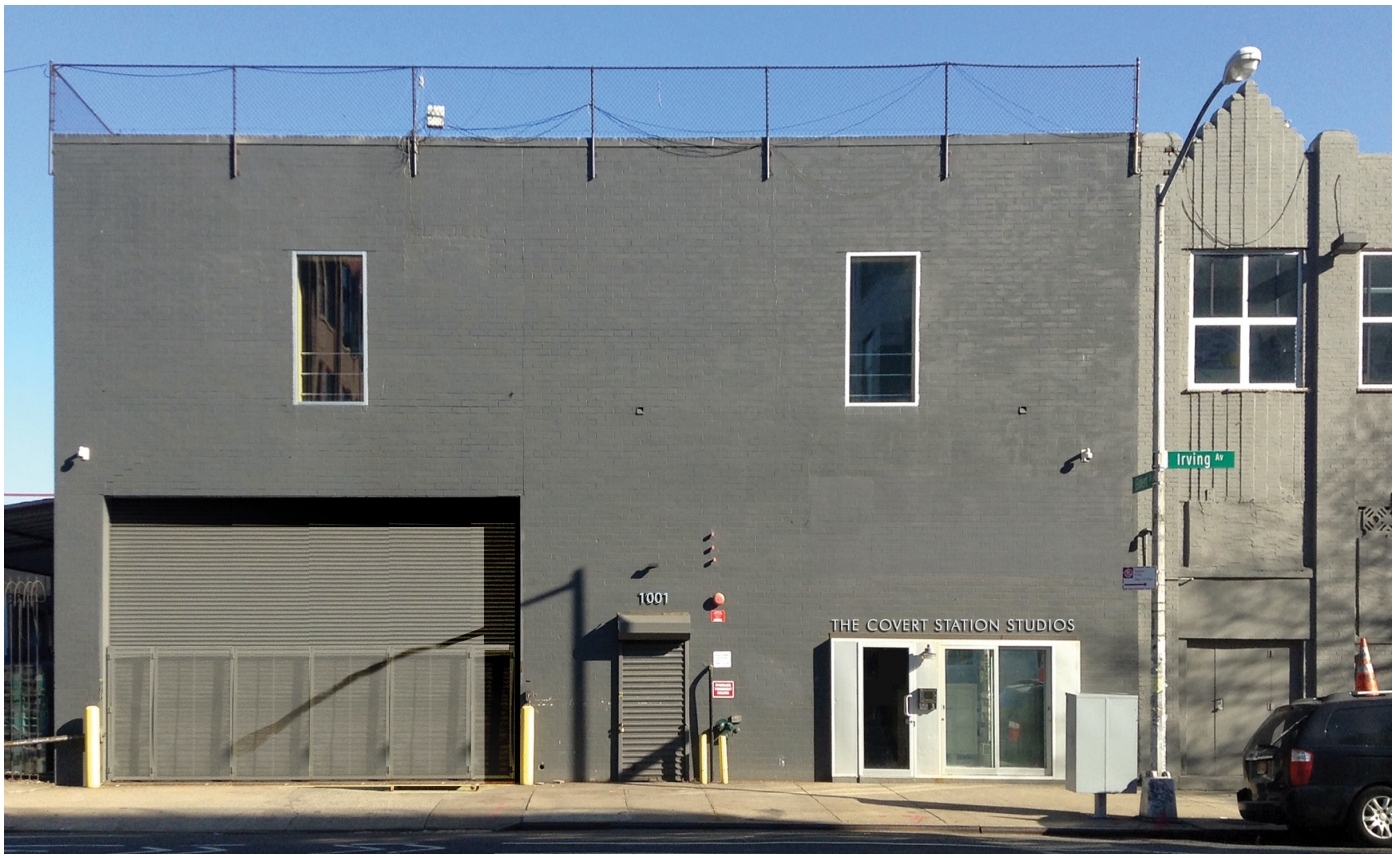
He is the host of the business and entrepreneurial podcast, "The Mobilization Mindset" and author of "The Big Book of Cash Flow." He is known across the construction industry for the content and education he offers to the community and his expertise in helping businesses successfully cash flow their projects and customers.

Ridgewood Music Studios

Queens, New York

Architect

Matthews Moya Architects



Photos Courtesy: Frank Moya/Matthews Moya Architects

Ridgewood Music Studios of Queens, New York, is a renovation of a 1960s warehouse building.

Ridgewood Music Studios of Queens, New York, is a 20,750-square-foot renovation of a 1960s warehouse building for use by start-up TAMI (tech, advertising, media and information) companies.

The infill building was constructed on a decommissioned street right-of-way on the border between the NYC Boroughs of Brooklyn and Queens. This conversion was one of many current projects built to suit the ever-expanding community of Brooklyn's creative class. The completed building is attractive to a robust rental tenant market of digital-media musicians seeking like-minded, creative communities.

Cost-effective design provides tenant spaces located on the second floor that are sized to an attractive price-point. The building's long, narrow floor plan is divided into two double-loaded corridors: one in Brooklyn and one in Queens.

Because creating community is an important project goal, open common areas are provided at the front, middle, and rear of the floor. These areas are flexible spaces where people gather and hold exhibits and small events.



The completed building is attractive to a robust rental tenant market of digital-media musicians.

New skylights were installed at each of these three areas, bringing in fresh daylight and changing the mood to a more upbeat tempo. The facility is now home to musicians, digital streaming "radio," fine arts and performing artists, and small tech groups.

Architect

Matthews Moya Architects
20 Vesey Street, PH
New York, NY 10007
www.matthewsmoya.com

Project Team

General Contractor
Royal Enterprise & Development
2341 McDonald Avenue
Brooklyn, NY 11223

Project General Description

Location: Queens, New York

Date Bid: May 2016

Construction Period: May 2016 to Oct 2016

Total Square Feet: 20,750

Number of Buildings: One; second floor adaptive reuse.

Building Sizes: First floor entryway, 500; second floor, 20,250; total, 20,750 square feet.

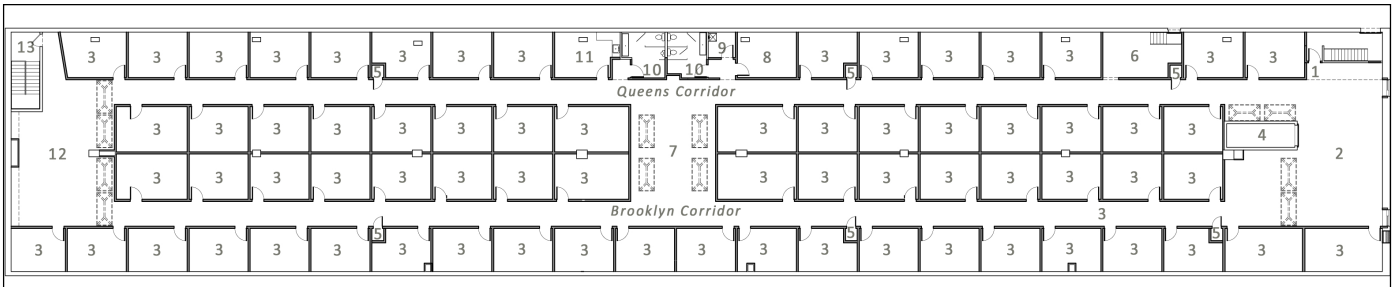
Building Height: First floor entryway, varies 8' to 12'; second floor, 8'; total, varies 8' to 12'.

Basic Construction Type: Adaptive Reuse.

Interior Walls: Metal stud drywall.



Cost-effective design provides tenant spaces located on the second floor that are sized to an attractive price point.



2nd Floor Plan

1 - Entrance Stair
2 - Gallery
3 - Studio
4 - Loading Conveyor
5 - HVAC Closet
6 - Office
7 - Café Lounge
8 - Mechanical Room
9 - Janitor Sink Closet
10 - Restroom
11 - Kitchen
12 - Music Lounge
13 - Exit Stair

DIVISION	COST	% OF COST	SQ.FT. COST	SPECIFICATIONS
WOOD, PLASTICS & COMPOSITES	22,000	4.21	1.06	Rough carpentry.
THERMAL & MOISTURE PROTECTION	5,000	0.96	0.24	Fire & smoke protection.
OPENINGS	168,200	32.21	8.11	Doors & frames, entrances & storefronts, windows, roof windows & skylights, hardware.
FINISHES	151,550	29.02	7.30	Plaster & gypsum board, tiling, ceilings, painting & coating.
SPECIALTIES	10,000	1.91	0.48	Entry intercom, mailboxes.
PLUMBING	21,000	4.02	1.01	Piping & pumps, equipment, fixtures.
HVAC	45,000	8.62	2.17	Air distribution, central HVAC equipment.
ELECTRICAL	69,500	13.31	3.35	Medium-voltage distribution, lighting.
ELECTRONIC SAFETY & SECURITY	30,000	5.74	1.45	Surveillance.
TOTAL BUILDING COSTS	**522,250**	**100%**	**$25.17**	
EXISTING CONDITIONS	43,500			Demolition & structure moving.
TOTAL PROJECT COST	**565,750**			

UPDATED ESTIMATE TO OCTOBER 2025: $41.30 PER SQUARE FOOT

Regional Cost Trends

This project, updated to October 2025 in the selected cities of the United States.

EASTERN U.S.	Sq.Ft. Cost	Total Cost	CENTRAL U.S.	Sq.Ft. Cost	Total Cost	WESTERN U.S.	Sq.Ft. Cost	Total Cost
Atlanta, GA	$31.26	$648,598	**Dallas, TX**	$31.26	$648,598	**Los Angeles, CA**	$44.65	$926,568
Pittsburgh, PA	$37.96	$787,583	**Kansas City, KS**	$38.70	$803,026	**Las Vegas, NV**	$42.79	$887,961
New York, NY	$51.35	$1,065,554	**Chicago, IL**	$44.28	$918,847	**Seattle, WA**	$42.79	$887,961

For more information on this project and similar projects visit www.dcd.com

New Smoke-Rated Barn Door Design Combines Safety, Style, and Space-Saving Functionality

Horton Automatics has expanded its innovative line of barn door solutions with the introduction of the FlexBarn™ Smoke-Rated sliding door, offering a unique blend of safety, functionality, and aesthetic appeal. Building on the 2024 introduction of a sidelite option—which enhanced natural light and visual appeal in healthcare settings—Horton's latest 2025 release takes functionality even further with UL1784 smoke-rated certification, enhancing protection for patients, staff, and other building occupants.

"The new FlexBarn Smoke-Rated design is an ideal solution for architects looking for a convenient, space-saving door that protects building occupants from smoke while it beautifies the space and improves the flow of pedestrian traffic," said J. Elias Campos, Vice President of Marketing at Horton Automatics.



The new FlexBarn Smoke-Rated sliding door delivers a sleek, safe, and versatile solution for healthcare, office, and specialty environments alike.

Photos courtesy: Horton Automatics

Designed with both form and function in mind, the FlexBarn is particularly well-suited for medical offices, patient restrooms, and high-traffic workspaces where traditional swing doors may obstruct circulation. The door's smooth operation is supported by a soft-close/soft-open dampening system and ADA-compliant hardware, easily activated with a gentle manual pull. Tested to over 175,000 open/close cycles, the system is engineered for long-term durability and daily use.

To further enhance performance, the Smoke-Rated FlexBarn can be equipped with an Automated Door Bottom, which lowers a drop-bar seal when closed—helping to reduce sound transmission and support acoustic privacy.

These versatile doors are available in a range of finishes and configurations:

- Smoke-rated options include single-slide and bi-parting aluminum systems, as well as single-slide solid core wood doors.
- Non-smoke-rated models come in a variety of finishes including wet paint, powder coat, and plastic laminate.

Installation is simple thanks to the surface-applied design, and custom sizing options are available:

- *Single-slide models*: widths from 6' 9" to 9' 5"
- *Bi-parting models:* widths from 9' 4" to 15' 4"

Whether for healthcare, office, or specialized spaces, the new FlexBarn Smoke-Rated sliding door provides an elegant, safe, and efficient solution for today's demanding interior environments.

For more information on Horton's new Smoke-Rated door or the complete line of Barn Door products, ***click here*** or contact your ***local Horton distributor***. For precise specifications and submittal documents, use Horton's proprietary tool ***iSpecifyIt***™.



The FlexBarn Smoke-Rated door raises the bar on functionality with UL1784 certification, delivering added protection for patients, staff, and all building occupants.

Our Lady of Guadalupe Parish Hall

Baytown, Texas

Architect

BRAVE / Architecture

Located in Baytown, Texas, Our Lady of Guadalupe Catholic Church has a large and active congregation. They needed a multi-functional parish hall that could aesthetically set itself apart from the existing campus.

The new hall replaces a series of aging buildings circa the 1960s, and provides spaces that can hold simultaneous functions – including classes, catered events, large gatherings, covered sport practices, and day care.

The program consisted of a 600-occupant main hall, kitchen facilities, and three classrooms with moveable partitions that enable the separate rooms to combine into a large community space.

A traditional metal building provided the framework for the project, and led the selection of other economic, durable, and functional materials to help keep the overall project cost to a minimum. The design maximizes square footage, minimizes cost, and increases energy efficiency – achieved by using a high-albedo white roof while air conditioning only 61% of the total programmed 18,000 square feet. Following the organizational spine, the roofs slope toward each other for a future rain water harvesting system to help maintain the sports fields.

The multiple functions of the program operate independently while linking to each other with wide overhangs, two patios, and a large exterior pavilion that provides maximum connection to the adjacent athletic fields. This also allows for efficient sound and traffic isolation between functions.

Inspired by the old parish hall's stained glass, the multi-colored storefront was installed adjacent to the main public spaces. The building's orientation, interior space plan, and location of programmed exterior space increases usable natural ambient light, while reducing electrical and mechanical energy consumption. The result is a perfect harmony within the two campuses that provides for the needs of the congregation.

Product Information

Building Envelope: Schulte Building Systems
Roofing: Schulte Building Systems, Firestone
Windows, Entrances & Storefronts: Oldcastle BuildingEnvelope®
Flooring: Armstrong, Daltile
Lighting: Square D, Kenall Lamar, Oxygen



Photos Courtesy: Ayala Vargas

A traditional metal building provided the framework, and led the selection of other economic, durable, and functional materials to help keep the overall project cost to a minimum.



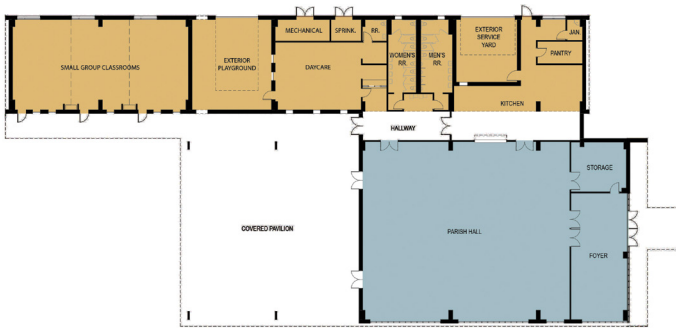
Inspired by the old parish hall's stained glass, the multi-colored storefront was installed adjacent to the main public spaces.

Architect

BRAVE / Architecture
4617 Montrose Boulevard, #C230, Houston, TX 77006
www.bravearchitecture.com

Project Team

Structural Engineer
Matrix Structural Engineer
5177 Richmond Avenue, #670, Houston, TX 77056
Mechanical Engineer
T & D Engineers
738 Highway 6, #260, Houston, TX 77079
Civil Engineer
Jarvis Civil Engineering, PLLC
2827 Delmar Terrace Drive, Spring, TX 77386
General Contractor
Zenith Construction
7818 Hillmont Street, Houston, TX 77040





Project General Description

Location: Baytown, Texas
Date Bid: Apr 2015
Construction Period: Oct 2015 to Jan 2017
Total Square Feet: 11,271
Site: 5.184 acres.
Number of Buildings: One; 3 classrooms, seating 30 each; church seating, 614 chairs, 63 seating cry room.
Building Sizes: First floor, 11,271; total, 11,271 square feet.
Building Height: First floor, 27'7"; total, 27'7".
Basic Construction Type: New/II B/Pre-Engineered Metal Building.
Foundation: Pier & grade beam, slab-on-grade.
Exterior Walls: Metal.
Roof: Membrane, metal.
Floors: Concrete.
Interior Walls: Metal stud drywall.

DIVISION	COST	% OF COST	SQ.FT. COST	SPECIFICATIONS
PROCUREMENT & CONTRACTING REQUIREMENTS	138,984	6.36	12.33	—
GENERAL REQUIREMENTS	366,353	16.76	32.50	—
CONCRETE	144,243	6.60	12.80	Cast in place.
METALS	408,234	18.68	36.22	Structural metal framing, metal panels, insulation, prefab metal building, erection.
WOOD, PLASTICS & COMPOSITES	10,950	0.50	0.97	Rough carpentry, architectural woodwork.
THERMAL & MOISTURE PROTECTION	22,957	1.05	2.04	Membrane roofing.
OPENINGS	157,430	7.20	13.97	Doors & frames, specialty doors & frames, entrances, storefronts & curtain walls, windows, hardware.
FINISHES	169,209	7.74	15.01	Plaster & gypsum board, tiling, ceilings, FRP, VCT, painting & coating.
SPECIALTIES	70,083	3.21	6.22	Canopy, folding partitions, toilet partitions, toilet accessories.
EQUIPMENT	69,691	3.19	6.18	Food service.
FIRE SUPPRESSION	56,076	2.57	4.98	Water-based fire-suppression systems, fire extinguishing systems, fire extinguisher cabinets.
PLUMBING	162,771	7.45	14.44	Piping & pumps.
HVAC	231,500	10.59	20.54	Central HVAC equipment.
ELECTRICAL	164,093	7.51	14.55	Medium-voltage distribution.
ELECTRONIC SAFETY & SECURITY	12,700	0.59	1.13	Fire alarm.
TOTAL BUILDING COSTS	**2,185,274**	**100%**	**$193.88**	
EXISTING CONDITIONS	16,406			Demolition, structure moving, assessment, surveying.
EARTHWORK	123,876			Termite control, earthwork & detention pond, lime stabilization, SWPP.
EXTERIOR IMPROVEMENTS	179,310			Bases, bollards & paving, fencing, hydro-mulch & landscaping, pavement markings.
UTILITIES	231,742			Sanitary sewerage, storm drainage, gas line, fire line.
TOTAL PROJECT COST	**2,736,608**			

UPDATED ESTIMATE TO OCTOBER 2025: $328.00 PER SQUARE FOOT

Regional Cost Trends

This project, updated to October 2025 in the selected cities of the United States.

EASTERN U.S.	Sq.Ft. Cost	Total Cost	CENTRAL U.S.	Sq.Ft. Cost	Total Cost	WESTERN U.S.	Sq.Ft. Cost	Total Cost
Atlanta, GA	$328.00	$3,696,860	**Dallas, TX**	$328.00	$3,696,860	**Los Angeles, CA**	$468.57	$5,281,229
Pittsburgh, PA	$398.28	$4,489,045	**Kansas City, KS**	$406.09	$4,577,065	**Las Vegas, NV**	$449.04	$5,061,178
New York, NY	$538.85	$6,073,414	**Chicago, IL**	$464.66	$5,237,219	**Seattle, WA**	$449.04	$5,061,178

For more information on this project and similar projects visit www.dcd.com

Estimating a Cast-In-Place Pile Foundation

By Roy Huemer, CPE Huemer Consulting LLC Construction Education & Estimating Services, LLC

Foundation construction takes many different forms. A common method of foundation support is the concrete filled, steel shell, pipe pile. This paper will guide the reader through the process of estimating the costs associated with the construction of this type of pile. Design of this pile is an example based upon the author's prior experience. Principles of estimating the costs of construction of this type of pile is the goal of this document.

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31 00 00 Earthwork

SUBDIVISIONS

31 60 00 Special Foundations and Load-Bearing Elements
31 62 00 Driven Piles
31 62 13 Concrete Piles
31 62 13.13 Cast-in-Place Concrete Piles
03 20 00 Concrete Reinforcing
03 30 00 Cast-in-Place Concrete

Foundation design has been performed for thousands of years. Without it, the Megalithic Temples of Malta, dating back to 3600 BC and every still-standing structure built after would not have survived. In fact, poor foundation design almost ensures the failure, potentially cataclysmic in nature, of a structure.

The earliest types of piles were fabricated from timber, placed in holes dug into the ground and backfilled with soil. Since then, improvements in construction methods and materials have been driven by the desire to build safer, cheaper, higher, and more efficiently. Over the years, new technologies have been developed and subsequently a multitude of pile types currently exist and are used throughout the world. The Cast-In-Place (or CIP) Pile, as it is commonly referred to in the industry, is the topic of this paper.

The typical CIP Pile is constructed in order to support a structure or act as some type of structure in and of itself. They are used for Building support, Bridge support, Utility support and for many other purposes.

To begin, a work area will have to be prepared. An access way may need to be constructed should the route of travel not be suitable to support the heavy equipment that will be used in this operation. This can take the form of temporary access roads made of geotextile fabric and an aggregate of some sort, or a temporary structure may be required. This is all dependent upon site conditions and design requirements.

The proposed installation area will be cleared, made reasonably flat and level. Further, any ground preparation will be performed as necessary to facilitate construction. A plethora of equipment including a crane of sufficient capacity will be brought on site along with a set of pile leads, a pile hammer, and a power source for the hammer.

Next, steel pipe pile shells would be brought on site. These piles may require splicing, which is joining of two or more sections to make a single pipe section, and installation of points on the end of the pile of some sort if required.

The pile leads will be assembled and raised to a vertical orientation by use of the crane. In certain situations, the pile could be installed on a slant. In this case, the pile leads would be held in the slanted orientation for driving of piles. This is called a "Battered Pile" and is used to combat sliding and/or overturning of a structure.

The hammer will be installed in the leads and the crane will raise it to an appropriate height. The pipe pile will then be raised by the crane until it is completely within the leads and the entire assembly will be positioned using surveyed layout information. The pile will be lowered to the ground, the hammer will be lowered upon the end of the pile, and the pile will be driven into the ground.

Once the pile is driven to the expected depth, the exposed top will be cut off. A fabricated rebar cage that will act as a connection between the pile and the proposed structure will then be installed and, in this case, the pile will be filled with concrete to provide added strength.

Types and Methods of Measurement

The following are the typical units one would encounter:

EA = Each – Used for count of specific items i.e., number of Piles, Points, Splices
LF = Linear Feet – Used for lengths of components i.e., Pile, Rebar
FT or ' = Feet – Used for length as well as elevation i.e., Top of Pile, Tip of Pile
IN or " = Inches – Used for length typically shorter than one (1) foot i.e., Rebar clearances, Pile wall thickness
CY = Cubic Yard – Used for quantity of materials i.e., Concrete, Sand
LB = Pound – Used for weight i.e., Crane capacity for lifting
LS = Lump Sum – Used for quantification of complex operations to sum them into a single value
TON = Ton or 2,000 pounds i.e., Maximum crane capacity

Specific Consideration Factors

INITIAL CONSIDERATIONS

The information needed to estimate accurate and detailed costs for the construction of CIP Piles would begin to be derived from construction documents provided by a licensed design engineer. These documents would consist of plans and specifications that would include where the pile(s) would be located, into what material the pile will be driven, pile capacity, what forces would be allowed to be exerted upon the pile, pile diameter, pile wall thickness, type of steel, pile top elevation(s), pile tip elevations(s), whether splices are allowed and the methods with which a splice would be made, the need for a point or end plate, the need to fill the pile and with what material, whether that material is reinforced, whether the pile is coated and if so with what material.

The methods of measurement and payment can significantly impact the pricing the Estimator must calculate in order to suitably respond to the Proposal. In many cases, due to the volatility of final pay quantities, some Project Owners will provide line items for the work in the following manner:

- Mobilize Pile Driving Equipment
- Furnish Materials for Test Piles of _ size
- Install Test Piles of _ size
- Test Piles for capacity
- Furnish Materials for Production Piles of _ size
- Install Production Piles of _ size

Should this level of detail not be able to be incorporated into the contract in some form or other, the Estimator's risk analysis will have to incorporate said volatility of the quantities of work. It would behoove the Estimator to encourage the Proposal's Sponsor to incorporate these line items in order to not incur substantial costs due to the associated risks.

In that the subsurface materials can vary significantly in composition, the length of a pile can vary wildly. For example, bedrock can exist in one pile location at an elevation 50 feet below grade. Five feet in any direction an underground "cliff" can exist. This is where the bedrock drops or rises substantially, and the pile driven in that location can be much longer or shorter than anticipated.

Without the above listed level of detail, pricing the work will be challenging. For example, should the production pile item consist of supply and install, and the quantity installed, being the basis of payment, should run shorter than expected, the Contractor runs the risk of having compensation reduced while expense remains the same. Should the Estimator account for an anticipated underrun of quantity and, in fact, the quantity overruns, the realized compensation may not cover the actual costs as well as overhead and profit for the work completed.

EQUIPMENT SELECTION

Many factors come into consideration when selecting equipment. It would all begin with the results of the Test Pile (discussed in the Miscellaneous Pertinent Information section below) that would dictate the order length of pile(s) and the hammer with which the pile would be driven. Both the pile length and hammer size and type would then be used to select the length of leads in which the pile and hammer would be mounted to ultimately drive the pile. All of this is used to subsequently choose the crane boom length that would place the pile hammer and leads on the proposed location, and support the hammer within the leads while lifting the pile into driving position. This can be calculated as follows:

Design Pile Length + Waste Length + Variable length to allow for mill rolling = Total Pile Length
Total Pile Length + Hammer Length + Rigging for hammer = Minimum Lead Length
Minimum Lead Length + Additional Lead to achieve manufactured lengths = Total Lead Length
Total Lead Length + Rigging for assembly + increase for radius from crane (hypotenuse of the triangle) = Maximum Crane Boom Length

Once the Maximum Crane Boom length is determined, one can choose the crane from manufacturer's catalogs that would provide crane sizes that would carry the appropriately sized boom length.

Next the capacity of the crane at the appropriate radius must be calculated by the following methodology:

Total Lead weight + Total Pile Hammer weight + Total Pile Weight + Rigging = Total Load

Once the Total Load is calculated, the radius from the center of the crane at which the pile would be driven is then compared to the manufacturer's load chart.

The total load must be less than the maximum capacity, at the maximum radius of driving in conjunction with the required boom length in order to safely lift the load according to the manufacturer of the crane. See References Section for a typical crane used in this type of work for the details mentioned herein.

It should be noted various agencies have specific safety factors that are placed upon these calculations and even though the manufacturer's data may show safe lifting conditions, a multiplier of two times, three times or as much as five times may be mandated.

SOIL CONDITIONS

Soil Borings should be incorporated into the contract documents and should be performed in sufficient quantity and location to accurately describe the subsurface conditions on the site. Soil Borings are frequently taken with the use of an auger and a "spoon". The auger would drill down into the soil, allowing for retrieval of samples of the soils at different levels for classification. The spoon is a device that would be placed withing the auger and blows of a certain force upon the spoon would determine the cohesivity of the soil and its ability to withstand force.

Site soil conditions can vary wildly, even within a relatively small area. Bedrock can range from depths of 5 feet below surface to 100 feet below surface within a 20 foot stretch of ground. Soil sampling can show a layer of soil that takes 3 blows to drive an auger 6 inches deep and in a stratum 5 foot below that, it could take 50 blows to drive the sample spoon 2 inches.

SPECIFIC SITE CONDITIONS

Existing site conditions as well as project staging can severely impact the productivity of construction of these piles. Should overhead obstructions of any kind exist, this will limit the length of the section of pipe pile that may be installed. This will subsequently impact the amount of work to be completed to install the pile.

Labor Availability - In some areas of the country, Unions are in control of the people that will install these piles. If a project of significant scope will be underway in the same area of the project being bid, the availability of labor may be an issue. Further, across the industry, contractors are finding it increasingly more difficult to fill job openings with skilled personnel. This can significantly impact productivity regardless of what the company's history of performance on the scope of work has been. The potential lack of experienced personnel must be incorporated into productivity expectations as the impact to costs can be significantly more than the material itself in some parts of the country.

WEATHER

Pile driving is one of those components of a project that can take place in rain, snow, heat and cold for the most part. However, certain parts of the country do have specific weather impacts that will affect daily productivities. Lightning storms and high winds are two of these types of factors that must be considered and incorporated into the productivity of the crew.

VALUE ENGINEERING POTENTIAL

The types of piles are legion. The earliest piles were in the form of timber poles, simply placed in previously dug holes. Then stones in their natural state were piled in narrow holes to serve the same purpose. Following that, the stones were cut into shapes more suitable for stacking. Afterward, following the ability to fabricate iron and steel, shapes were derived for many structural construction purposes, and some were found to be quite efficient as foundation support.

H-Piles, Pipe Piles, Z-Piles, U-Piles and many more shapes are currently in use. Many configurations combine the available shapes to serve various construction needs. To this day, pile construction evolves and improves.

Alternatives to the designed pile should always be considered. Dependent upon contract documents, pricing said alternative sometimes may be incorporated into the estimate. In this case, the cost savings, reflected in the project pricing, could easily win the job.

Overview of Costs and Markups

Labor – The labor costs in this estimate will be based upon New Jersey Prevailing Wage Determination, in addition to payroll taxes, workers compensation, and general liability.

Equipment – The equipment rates utilized are based upon US Army Corps of Engineers document EP1110, dated 2020 escalated to today's current rates. Ownership and operating costs will be combined.

Materials – Pricing is based upon recent information gathered from local suppliers.

Indirects – Indirect costs such as on-site project management, safety, jobsite facilities such as field offices, dumpsters and sanitary facilities will be incorporated into the estimated costs via a percentage for Overhead and Profit.

Overhead – A generalized overhead for the estimate of 10% will be used to cover costs of non-job specific supervision, home office expenses, and other similar costs to the project. The actual value is company specific and can easily vary extensively and must be calculated for the specific company's requirements. 10% shall be used for this example.

Profit – For this example, 10% will be utilized.

All of these values would be dictated by each company bidding the work and should be derived by careful consideration and detailed mathematical backup.

Special Risk Considerations

Soils – The soil borings, when taken in sufficient quantity and depth, will give a detailed analysis of the materials through which the piles will be driven. Should insufficient boring information, i.e. lack of soil composition, gradation, density, and other characteristics, be provided the estimator takes on a substantial risk anticipating production.

Safety – Construction is inherently dangerous and pile driving is even more so. Fall protection, objects dropped from overhead, and unmarked utilities are just some of the considerations that must be addressed in a safety plan. The safety procedures set forth must be monitored and enforced to minimize the potential for injury on the site.

Scheduling – As piles are typically installed very early in the construction sequence on new construction, conflicts with proposed work typically isn't a significant issue. When this work is performed as modification to existing structures, clearances for the equipment required to install this work must be examined in detail. A significant impact to this work will also be the relocation of existing overhead and underground utilities and the construction of new utilities in order to not impact the construction of these piles.

Ratios and Analysis

In that the plethora of variables regarding construction of CIP piles preclude any consistent ratios for labor / equipment / material / productivity, the best source of cross checking comes from the contractor's own history.

This, of course, raises the chicken vs egg conundrum. To obtain production and cost data from one's history, one must first construct the pile. To construct the pile, one must typically estimate the work. Without estimating and subsequently constructing the pile, history cannot be obtained.

To combat this, an outside consultant well versed in the work required, region the work will be performed, labor market available, equipment required, and other aspects will be the best source of confirmation of costs.

Additionally, searching through public agencies, published unit prices for contracts can be a valuable source of pricing confirmation. Typically, these public agencies will publish the unit prices provided by all bidders at some point.

Some agencies publish almost immediately after bid opening while some publish only after award of the project. Searching through the databases of unit prices for the similar work in the similar conditions will be a valuable guide to the estimator, provided due diligence regarding the pricing is performed.

Miscellaneous Pertinent Information

Test piles are the method with which a pile design would be confirmed on a project. That entails constructing a single pile per expected condition with the equipment, materials and methodology anticipated. This paper will not be addressing said operation; however, the estimator should be aware the costs for these piles are markedly more than that for the production pile.

As witnessed by recent events, volatility of material costs can significantly impact the price of the installed pile. From labor shortages due to pandemics or raw material availability due to global instability, the estimator must be aware of these cost impacts and do their best to incorporate those costs.

Dependent upon quantity, procuring the pipe pile material may be limited to timeframes known as "mill rollings". Typically, the length and quantity of piles required would need custom fabrication which happens at certain times as decided upon by the manufacturers. This will have potentially substantial impacts to the schedule should the mill rolling not be conducive to meeting schedule requirements.

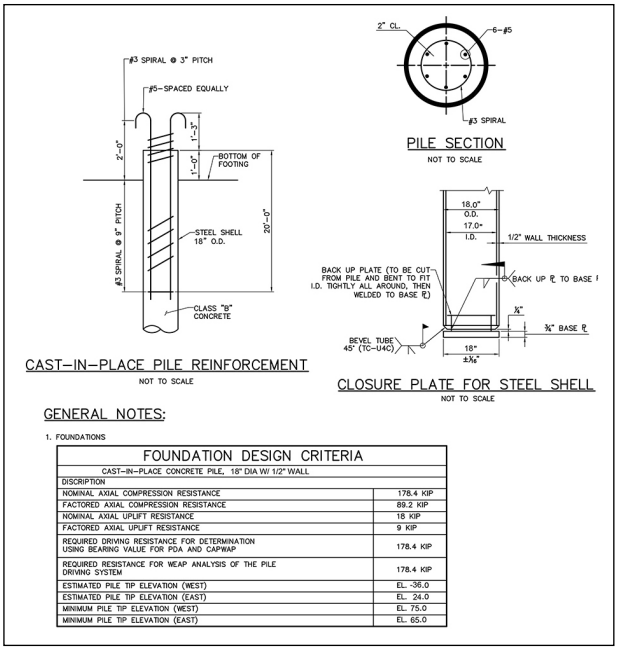
Steel Pipe Piles are manufactured at steel processing plants. These are limited in number and as such their location can impact costs directly. Should the plant and the project to which the piles are to be shipped be located on viable waterways, piles in excess of 100 feet in length could be barged to the project location. Should over the road travel be dictated, over length, overweight, and travel periods can impact delivery dates, times, and costs.

Additionally, should over the road transport be required, the length of pile to be transported will impact costs. Over length or overweight permits as well as additional splicing will add costs and the relevant conditions must be analyzed to achieve the most economical outcome.

Pay quantity for this type of item constructed under the presumed specification is to the nearest rounded whole foot per unit installed. Pay quantity is the length of pile that would be included in the calculation for compensation of the work. Some agencies will not pay for piles above grade yet are required for connection into the footing above while others will pay for all footage driven and cut off, whether incorporated into the structure or not. The calculations take these criteria into consideration.

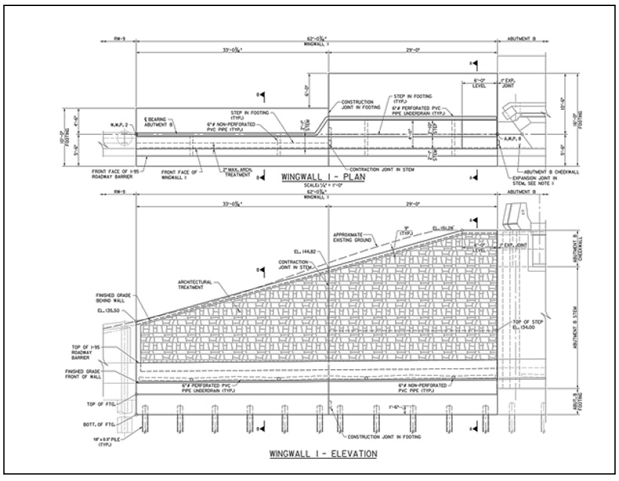
Details and Plans

Pile Detail



FOUNDATION DESIGN CRITERIA	
CAST–IN–PLACE CONCRETE PILE, 18" DIA W/ 1/2" WALL	
DISCRIPTION	
NOMINAL AXIAL COMPRESSION RESISTANCE	178.4 KIP
FACTORED AXIAL COMPRESSION RESISTANCE	89.2 KIP
NOMINAL AXIAL UPLIFT RESISTANCE	18 KIP
FACTORED AXIAL UPLIFT RESISTANCE	9 KIP
REQUIRED DRIVING RESISTANCE FOR DETERMINATION USING BEARING VALUE FOR PDA AND CAPWAP	178.4 KIP
REQUIRED RESISTANCE FOR WEAP ANALYSIS OF THE PILE DRIVING SYSTEM	178.4 KIP
ESTIMATED PILE TIP ELEVATION (WEST)	EL. -36.0
ESTIMATED PILE TIP ELEVATION (EAST)	EL. 24.0
MINIMUM PILE TIP ELEVATION (WEST)	EL. 75.0
MINIMUM PILE TIP ELEVATION (EAST)	EL. 65.0

Plan and Elevation of Wall 1



(Continued on page 58)

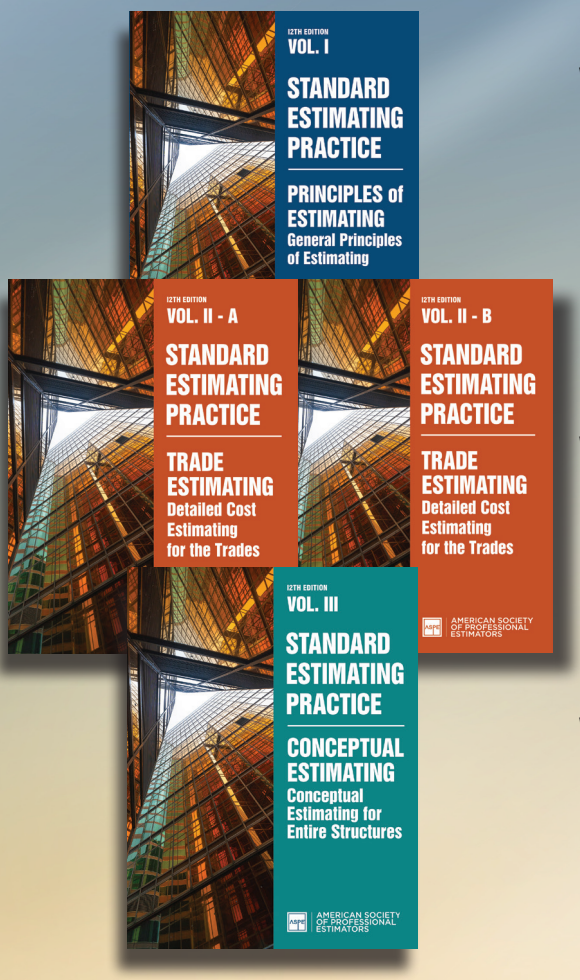
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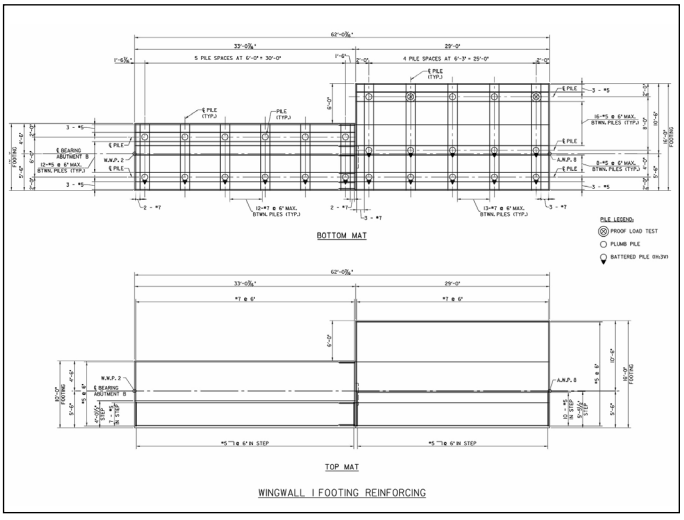
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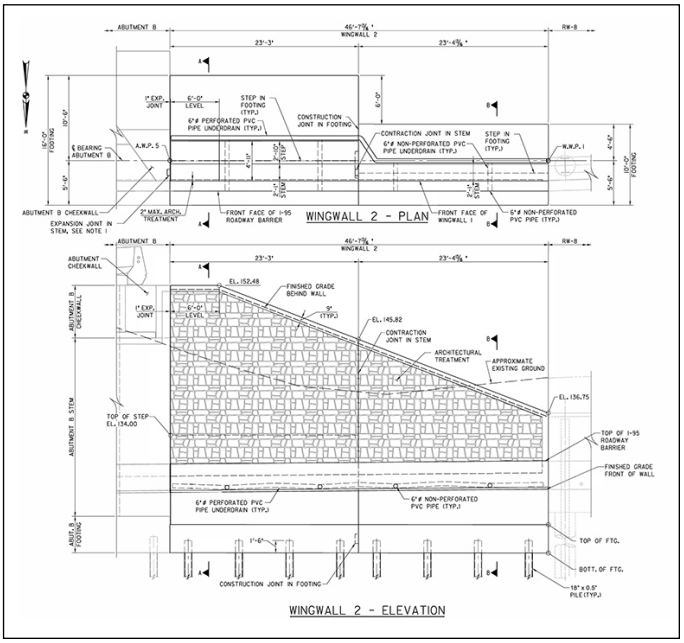
(Estimating a Cast-In-Place Pile Foundation continued from page 56)

Footing and Pile Plan Wall 1

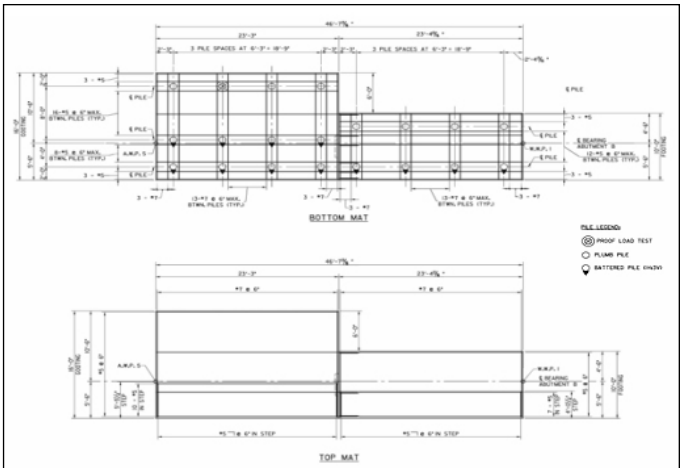


WINGWALL 1 FOOTING REINFORCING

Plan and Elevation Wall 2

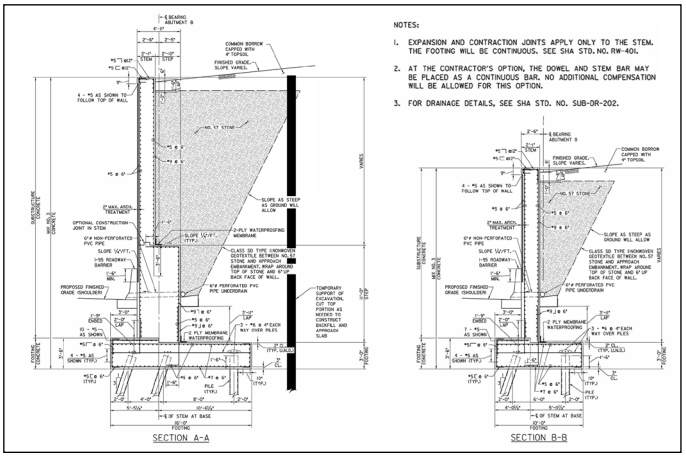


Footing and Pile Plan Wall 2



WINGWALL 2 FOOTING REINFORCING

Wall Sections and Pile Elevations



Takeoffs and Pricing

Cast in Place Concrete Filled Pipe Pile
Material Takeoff for Production Piles based on Expected Pile Length

EXPECTED PILE LENGTH

Structure	Location	Pile Size	Pile Type	Ftg Elev	Exp Tip Elev	Batter	Qty	Ftg Embed	Calc Lf Exp
Wall 1	Ftg A	18" x 0.5" Wall	Vert	128.67	58.50	none	9	1.5	71.67
Wall 1	Ftg A	18" x 0.5" Wall	Batt	128.67	58.50	1 on 3	16	1.5	75.55
Wall 2	Ftg A	18" x 0.5" Wall	Vert	124.87	15.50	none	7	1.5	110.87
Wall 2	Ftg A	18" x 0.5" Wall	Batt	124.87	15.50	1 on 3	12	1.5	116.87

PAY QUANTITY CALCULATIONS

Structure	Location	Pile Size	Pile Type	Calc Lf	Pay Qty	Totals
Wall 1	Ftg A	18" x 0.5" Wall	Vert	71.67	72.00	648
Wall 1	Ftg A	18" x 0.5" Wall	Batt	75.55	76.00	1216
Wall 2	Ftg A	18" x 0.5" Wall	Vert	110.87	111.00	777
Wall 2	Ftg A	18" x 0.5" Wall	Batt	116.87	117.00	1404
					Lf Total =	4045

MATERIAL CALCULATIONS

Pipe Pile Material

Structure	Location	Pile Size	Pile Type	Calc Lf	Waste[1]	Min Interval[2]	Purchase Ea	Purchase total
Wall 1	Ftg A	18" x 0.5" Wall	Vert	71.67	2	5	75	675
Wall 1	Ftg A	18" x 0.5" Wall	Batt	75.55	2	5	80	1280
Wall 2	Ftg A	18" x 0.5" Wall	Vert	110.87	2	5	115	805
Wall 2	Ftg A	18" x 0.5" Wall	Batt	116.87	2	5	120	1440
							Lf Total =	4200

Pile Points[3]

Structure	Location	Pile Size	Qty
Wall 1	Ftg A	18" x 0.5" Wall	9
Wall 1	Ftg A	18" x 0.5" Wall	16
Wall 2	Ftg A	18" x 0.5" Wall	7
Wall 2	Ftg A	18" x 0.5" Wall	12
		Total Points =	44

Pile Splices[4]

Total Length	Max LF	Splices Ea	Splices Total
75.00	55	1	9
80.00	55	1	16
115.00	55	2	14
120.00	55	2	24
		Total Splices=	63

Concrete

Structure	Location	Calc Lf	Qty	Lf Total	Int Dia (In)	Area (Sqin)	Cy / Pile	Total CY
Wall 1	Ftg A	71.67	9.00	645.03	17	227.29	4.19	37.7
Wall 1	Ftg A	75.55	16.00	1208.75	17	227.29	4.42	70.7
Wall 2	Ftg A	110.87	7.00	776.09	17	227.29	6.48	45.4
Wall 2	Ftg A	116.87	12.00	1402.41	17	227.29	6.83	82.0
							Cy Total =	235.7

1- Waste is estimated based upon experience. Some additional material will be removed from the exposed end of the pile after driving is complete as a result of damage from the pile hammer.
2- Dependent upon the supplier, pile lengths would be ordered in increment of five (5) foot intervals. This accounts for the total pile length that would have to be ordered.
3- Pile points can be manufactured in the field or purchased pre-manufactured. Pre-manufactured points are anticipated and would then be installed in the field.
4- Splices are determined by the pile lengths able to be provided by the manufacturer as well as the shipping restrictions as a result of job location. The lengths are dictated by the presumed site access limitations.

Cast in Place Concrete Filled Pipe Pile

Material Takeoff of Reinforcing Steel

18	In OD Pile w/	0.5	In Wall =		17	In ID of pile	
2	In Clearance =	13	In OD Spiral	#3 rebar w/	0.375	In dia	
12.625	In Dia along Centerline x PI (3.14159) =				39.66	In per Loop	
9	In Pitch adds	1.01	In Per loop therefore		40.67	In per spiral	
19	Vert Ft of Spiral @ 9" Pitch =				85.9	Ft of #3 Rebar	
3	In Pitch adds	0.11	In Per loop therefore		39.78	In per spiral	
2	Vert Ft of Spiral @ 3" Pitch =				26.5	Ft of #3 Rebar	
4	Extra hoops to secure Top & Bottom =				13.22	Ft added	
125.60	Ft Spiral rebar per pile @			0.376	Lbs/Ft[1] =	47.2	Lbs Total
	44	Ea Piles will use			2078	Lbs Total	
6	Ea Vertical #	5	Rebar @		21.25	Ft long	

3	In add for extension below =	0.25	Ft[2]
7	In added for hook =	0.58	Ft[1]

Total Vertical Bar Length =	22.1	Ft of #5 Rebar

132.50	Ft Total of #	5	Rebar @	1.043	Lbs / Ft = 138.20	Lbs Total

44	Ea Piles will use	6081 Lbs Total

1- Per attached CRSI standards
2- Estimator's determination for constructability

Cast in Place Concrete Filled Pipe Pile, Detail of Pile Driving Crew Costs

Description	Base Rate[1]	Tax[2]	Fringe[1]	Loaded	WC[3]	w/ WC	Qty	Labor Cost
Foreman	57.22	22.80%	36.65	106.92	10%	113.94	1	$113.94
Crane Operator 100+	62.72	22.80%	36.65	113.67	10%	121.37	1	$121.37
Operator A	57.22	22.80%	36.65	106.92	10%	113.94	1	$113.94
Operator B	55.63	22.80%	36.65	104.96	10%	111.80	1	$111.80
Dockbuilder	50.25	22.80%	50.47	112.18	10%	118.35	3	$355.05
Dockbuilder/Welder	51.25	22.80%	50.47	113.41	10%	119.70	1	$119.70
						Labor per Hour =		$935.80

Description	Base Rate[4]	Fuel (2018)	Escalation[5]	Fuel (2022)	Total	Qty	Equip Cost
Crew Truck	20.35	9.83	75%	17.20	27.72	1	$27.72
35K Excavator	45.95	7.45	75%	13.04	51.54	1	$51.54
Pick Up Truck	25.78	14.98	75%	26.22	37.02	1	$37.02
Large Loader	86.71	18.82	75%	32.94	100.83	1	$100.83
100 Ton Crane	80.9	14.3	75%	25.03	91.63	1	$91.63
Welding Rig	10.08	4.51	75%	7.89	13.46	1	$13.46
Pile Hammer	37.77	9.74	75%	17.05	45.08	1	$45.08
Pile Leads	44.69	0	75%	0.00	44.69	1	$44.69
Additional Leads	7.78	0	75%	0.00	7.78	1	$7.78
					Equip Cost per Hour =		$419.75

Total Hourly Crew Cost for Pile Driving = $1,355.55

1- Based upon attached Prevailing Wage Determination
2- Unique to individual company. At a minimum, FICA, FUTA and SUI would be included here.
3- Unique to individual company. Typically this number is determined by the State and an EMR (experience modifying rate) would be applied to achieve the actual costs to construct.
4- Based upon the attached USACOE Equipment cost inclusive of costs adjustments based on 2018 fuel index.
5- Based on fuel pricing increases shown in the Fuel Price Index from NJDOT between 2018 and 2022 as well as other cost increases.

Cast in Place Concrete Filled Pipe Pile, Detail of Miscellaneous Pile Work Crew Costs

Description	Base Rate[1]	Tax[2]	Fringe[1]	Loaded Base	WC[3]	w/ WC	Qty	Labor Cost
Foreman	57.22	22.80%	36.65	106.92	10%	113.94	1	$113.94
Crane Operator 100+	62.72	22.80%	36.65	113.67	10%	121.37	1	$121.37
Operator A	57.22	22.80%	36.65	106.92	10%	113.94	1	$113.94
Operator B	55.63	22.80%	36.65	104.96	10%	111.80	1	$111.80
Dockbuilder/Welder	51.25	22.80%	50.47	113.41	10%	119.70	1	$119.70
Ironworker	45.39	22.80%	48.92	104.66	10%	110.23	1	$110.23
						Labor per Hour =		$ 690.98

Description	Base Rate[4]	Fuel (2018)	Escalation[5]	Fuel (2022)	Total	Qty	Equip Cost
Crew Truck	20.35	9.83	75%	17.20	27.72	1	$ 27.72
35K Excavator	45.95	7.45	75%	13.04	51.54	1	$ 51.54
Pick Up Truck	25.78	14.98	75%	26.22	37.02	1	$ 37.02
Large Loader	86.71	18.82	75%	32.94	100.83	1	$ 100.83
Concrete Vibrator	3.40	0.27	75%	0.47	3.60	1	$ 3.60
Welding Rig	10.08	4.51	75%	7.89	13.46	1	$ 13.46
Generator	7.28	3.93	75%	6.88	10.23	1	$ 10.23
					Equip Cost per Hour =		$ 244.40

Total Hourly Crew Cost for Pile Driving = $ 935.38

1- Based upon attached Prevailing Wage Determination
2- Unique to individual company. At a minimum, FICA, FUTA and SUI would be included here.
3- Unique to individual company. Typically this number is determined by the State and an EMR (experience modifying rate) would be applied to achieve the actual costs to construct.
4- Based upon the attached USACOE Equipment cost inclusive of costs adjustments based on 2018 fuel index.
5- Based on fuel pricing increases shown in the Fuel Price Index from NJDOT between 2018 and 2022 as well as other cost increases.

Cast in Place Concrete Filled Pipe Pile, Crew Cost Summary

Production Pile Install

Task	Qty	Hr/Unit	Crew	Rate	Crew Hrs	Crew Cost
Attach Points	44	0.35	MX	$ 935.38	15.4	$14,404.85
Attach Splices	63	0.35	MX	$ 935.38	22.05	$20,625.13
Drive Wall 1 Vert Pile	9	2	PD	$ 1,355.55	18	$24,399.90
Drive Wall 1 Batter Pile	16	2.5	PD	$ 1,355.55	40	$54,222.00
Drive Wall 2 Vert Pile	7	4	PD	$ 1,355.55	28	$37,955.40
Drive Wall 2 Batter Pile	12	4.5	PD	$ 1,355.55	54	$73,199.70
				Crew Cost to install Production Piles =		$224,806.98

Finish All Piles

Task	Qty	Hr/Unit	Crew	Rate	Crew Hrs	Crew Cost
Cutoff Piles to elevation	44	0.25	MX	$ 935.38	11.00	$10,289.18
Install Rebar cages	44	0.5	MX	$ 935.38	22.00	$20,578.36
Fill Piles w/ Concrete	44	0.35	MX	$ 935.38	15.40	$14,404.85
				Crew Cost to finish ALL Piles =		$45,272.39

Material Costs

Description	Qty	Unit	Waste	Total	Unit Cost	Total Cost
Pipe Piles	4200	Lf	1.00	4200.00	$65.00	$273,000.00
Pile Points	44	Ea	1.00	44.00	$150.00	$6,600.00
Pile Splices	63	Ea	1.00	63.00	$100.00	$6,300.00
Spiral Rebar	2078	Lbs	1.10	2285.80	$2.40	$5,485.92
Straight Rebar	6081	Lbs	1.10	6689.10	$1.30	$8,695.83
Concrete	236	Cy	1.30	306.44	$245.00	$75,078.60
					Total =	$375,160.35

Pricing

Labor & Equipment to Install & Finish Piles =	$270,079.37
Materials delived to Job =	$375,160.35
Subtotal Costs to Construct =	$645,239.72
Overhead Costs = 10%	$64,523.97
Total of ALL Costs =	**$709,763.70**
Profit on ALL Costs = 10%	$70,976.37
Grand Total to Construct CIP Pipe Pile = $780,740.07	
Total Pay Quantity of CIP Pipe Pile =	4045 Lf
Unit Price for CIP Pipe Pile =	$193.01 per Lf

Glossary

Bedrock – A solid rock layer in the ground either at or below the surface.

CRSI – Concrete Reinforcing Steel Institute.

Capacity, Design – Design load that would be placed upon a pile.

Capacity, Maximum – The highest load a pile would be able to support without failure.

Load – The amount of weight, either in tons or pounds, that would be placed upon a pile either in a temporary or permanent condition

Mill Rolling – Timeframe in which a steel mill will produce a specific type and size of pile.

Pile Hammer – A device with which piles can be driven into the ground. Many different hammers are able to be used in this work. Vibratory, Diesel and Air driven are the most common types.

Order Length – The length of pile to be actually fabricated to be installed based upon information gathered from the construction of a Test Pile.

Pay Quantity – Contractual establishment of method of calculation for compensation of an item of work. This will determine whether payment will be made for a portion of the pile installed or if all of the pile, including cut off portions, will be included for payment.

Pile Leads – Lattice type steel support frame that holds the pile in place and provides a track upon which the pile hammer would glide while driving the pile into the ground.

Pile, Production – Piles installed utilizing information obtained from the test pile install process such as maximum force of hammer, expected travel of ram, weight of ram and blows per foot.

Pile, Test – Piles installed under the conditions the piles are expected to be installed while under monitoring the process to ensure steel strength is not exceeded and design capacity is reached by achieving a particular depth in order to achieve design bearing.

Pile Splice – Joining sections of steel pile as needed to achieve the required total pile length for anticipated installation.

Pile Tip – Elevation at which the end of the pile embedded in the substrate rests.

Pile Top – Design elevation of the exposed end of the pile after driving.

Pile Type, Batter – Pile installed intentionally on an angle to the foundation surface not 90 degrees. This is used to combat overturning or sliding forces amongst other purposes.

Pile Type, Vertical – Piles installed vertically at a 90-degree angle to the foundation surface.

Rebar – Steel bar used to provide strength to concrete as well as form of connection between the pile and foundation of the structure it will support.

Rigging – Materials with which a pile hammer is lifted in the air with a crane or excavator.

Soil Boring – Sampling of soil at various depths in a potential location of a structure where soil types, soil gradation, soil density, groundwater elevation, potential bedrock elevation, and other impactful characteristics to the subgrade soil conditions.

References

New Jersey Prevailing Wage Determination, expiring February 28, 2023 for Laborers, April 30, 2023 for Dockbuilders and June 3, 2023 for Operating Engineers ***https://lwdwebpt.dol.state.nj.us/archivewages/186095911-statewide-7-5-22.pdf***

US Army Corps of Engineers document EP1110, dated 2020 ***https://usace.contentdm.oclc.org/utils/getfile/collection/p16021coll9/id/2442***

CRSI Standard Hook Details and ASTM Standard Reinforcing Bars ***https://www.pci.org/PCI_Docs/GCPCI_Docs/Transportation_Resources/Bridge/PCEF/CRSI_Manual_of_Standard_Practice_29th_Ed-ERRATA-Nov2019.pdf***

Manitowoc 777 Crane Product Guide (including lifting charts) ***https://cranenetwork.com/uploads/specs/cwusz0furetghx32manitowoc_777_175-ton_crawler_crane_network.pdf***

ICE HIH IP2 Product Guide ***https://www.iceusa.com/products/new/equipment/pile-driving/hydraulic-impact-hammers-hih--47/ip2--557/***

About the author: *Roy Huemer, CPE, has been immersed in the construction industry since the late 1970s. His diverse experience spans home construction, mechanical drafting, CAD, civil design engineering, and heavy highway construction, shaping a robust educational and professional journey.*

Roy has held key roles, including Takeoff Technician, Field Engineer, Project Engineer, Estimator, Project Manager, Chief Estimator, Department Manager, and currently serves as a Private Consultant as well as Trainer of HCSS HeavyBid® and HeavyJob®.

A published author in ASPE's Estimating Today, Roy has developed many training courses for ASPE and his own educational company. He's an active member of ASPE's National Education Committee, and collaborates with estimators and project managers across various industries, delivering expertise and guidance.





Photo courtesy:elements.envato.com

Industry in "Holding Pattern" as Construction Employment Growth Slows Across Metro Areas

Exactly half of the nation's metro areas added construction jobs between June 2024 and June 2025, according to an ***analysis*** by the ***Associated General Contractors of America*** of new government employment data. Association officials noted that construction demand appears to be stalled in many parts of the country amid uncertainty about tariff rates and labor availability.

"Construction activity is in a holding pattern in much of the nation," said Ken Simonson, the association's chief economist. "As a result, fewer metro areas are experiencing gains in construction employment compared to a year ago." The construction economist noted that only 180 of the 360 metro areas for which the government posts construction employment data added construction jobs in the latest 12 months, whereas a year ago, there were roughly 35 more areas with gains in construction employment.

For the fourth-straight month, Arlington-Alexandria-Reston, Va.-W.Va. added the most construction jobs (9,100 jobs or 10 percent) between June 2024 and June 2025. In second place again was Cincinnati, Ohio-Ky.-Ind. (5,400 jobs, 11 percent). The top two gainers were followed by Miami-Miami Beach-Kendall, Fla. (4,800 jobs, 8 percent); Washington, D.C.-Md. (4,700 jobs, 10 percent); and Chicago-Naperville-Schaumburg, Ill. (4,500 jobs, 38 percent). Las Cruces, N.M. again had the largest percentage gain (16 percent or 700 jobs), followed by Mansfield, Ohio (14 percent, 300 jobs); Paducah, Ky.-Ill. (13 percent, 500 jobs); and New Orleans-Metairie, La. (12 percent, 3,000 jobs).

Construction employment declined over the year in 113 metro areas and was unchanged in 67 areas. The largest job loss again occurred in Riverside-San Bernardino-Ontario, Calif. (-5,200 jobs, -4 percent), followed by Nassau County-Suffolk County, N.Y. (-4,000 jobs, -5 percent) and three areas with losses of 3,800 jobs each: Los Angeles-Long Beach-Glendale, Calif. (-5 percent); Seattle-Bellevue-Kent, Wash. (-3 percent); and Baton Rouge, La. (-7 percent). The largest percentage decrease again occurred in Niles, Mich. (-17 percent, -400 jobs), followed by five areas with declines of 8 percent each: Hanford-Corcoran, Calif. (-100 jobs); Fort Collins-Loveland, Colo. (-900 jobs); Pueblo, Colo. (-300 jobs); Lake Charles, La. (-900 jobs); and Duluth, Minn.-Wis. (-300 jobs).

Association officials said construction demand was being impacted by higher interest rates, uncertainties about potential new tariffs and changes in labor policy that are stalling economic activity in parts of the country. They urged the Trump administration to announce more trade arrangements that provide greater certainty about tariff rates. And they also urged the administration to refocus its immigration efforts on undocumented workers who are engaged in criminal activity. "Uncertainty about tariff rates and labor availability are holding back private sector demand for construction," said Jeffrey D. Shoaf, the association's chief executive officer. "Creating more certainty and avoiding measures that needlessly tighten the labor market should help stimulate new construction demand."

View the metro employment ***data*** by state, by ***rank*** and ***top 10 changes***.

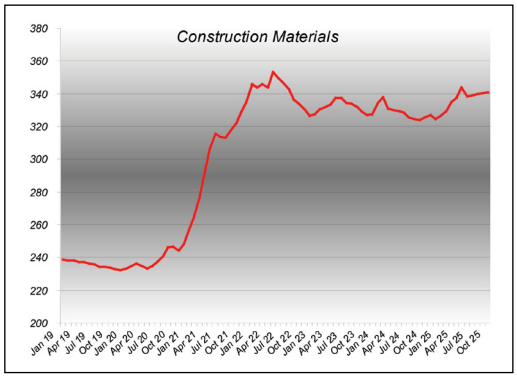
BNi Building News Construction Costs 2025

Source: US Department of Labor, Producer Price Index

Material costs are gradually rising, with most indices trending upward. However, discrepancies among reporting agencies remain significant, with some sources showing price differences as high as 25% for certain materials. Market uncertainty continues, particularly around proposed tariffs and inflationary pressures. One noticeable trend among suppliers and manufacturers is the partial absorption of tariff-related increases—passing on approximately 50% to customers while absorbing the rest.

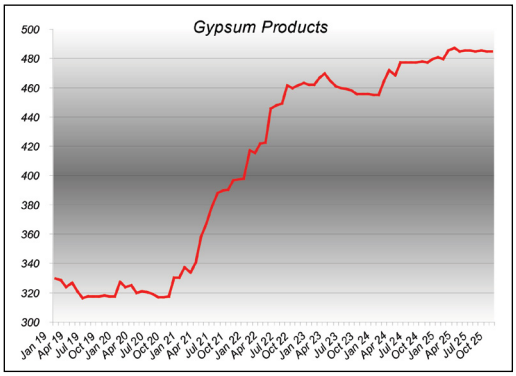
CONSTRUCTION MATERIALS

Brick prices have risen modestly—just 2% over the past year—suggesting a shift toward stabilization. This marks a change from the post-2020 average annual increase of 8%. Brick now appears to be settling into a more moderate pricing trend, aligning with the broader market.



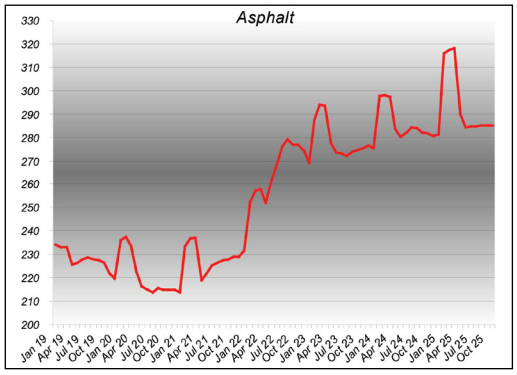
GYPSUM PRODUCTS

Gypsum pricing is also showing signs of stability, currently increasing at an annual rate of about 2%. After several years of double-digit hikes (averaging over 10% annually), this leveling-off is a welcome development. It may signal the end of the sharp price volatility seen in recent years.



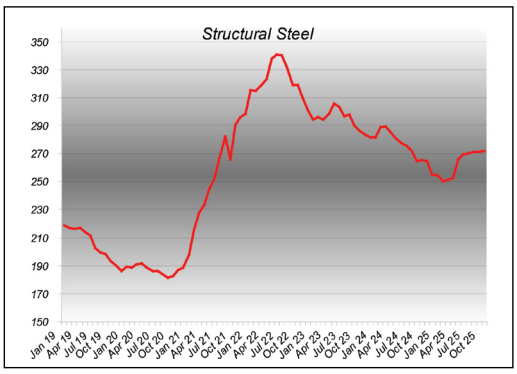
ASPHALT

Asphalt prices have remained flat over the past year and are now showing a modest 2% increase. While some sources report significant fluctuations, we believe pricing will remain relatively stable as long as crude oil markets remain steady.



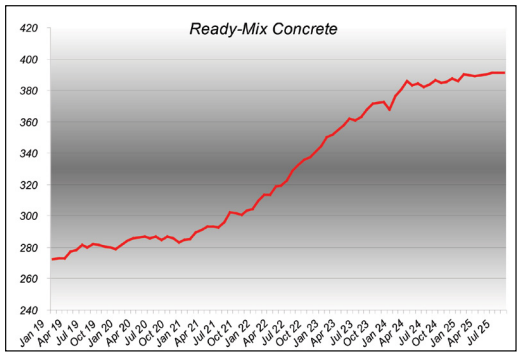
STRUCTURAL STEEL

After skyrocketing over 100% from 2020 to 2022, structural steel prices began a slow downward correction. Recently, however, we've seen a renewed upward shift—about 2%—amid growing concerns over potential tariff conflicts. Despite these changes, steel prices remain elevated compared to pre-2020 levels, and the outlook remains uncertain.



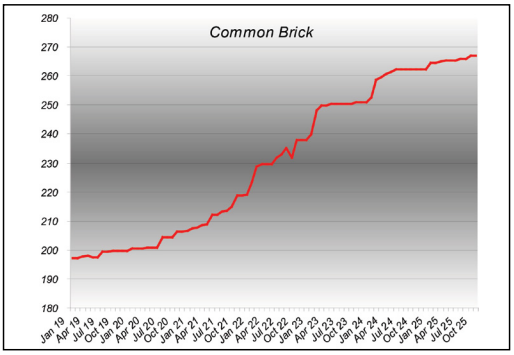
LUMBER

Lumber pricing appears to be finding equilibrium after a volatile five-year period marked by steep increases and declines. Current trends suggest moderation, though price disparities persist between standard 2x4s and larger dimensions. With housing demand no longer driving the market, the outlook for lumber remains subdued.



COMMON BRICK

Brick prices have risen modestly—just 2% over the past year—suggesting a shift toward stabilization. This marks a change from the post-2020 average annual increase of 8%. Brick now appears to be settling into a more moderate pricing trend, aligning with the broader market.



LABOR RATES FOR MAJOR NORTHWEST CITIES
SEPTEMBER 2025



Trade	Wage	Fringe	Total
BRICKLAYER	35.53	19.85	55.38
CARPENTER	20.97	3.93	24.90
ELECTRICIAN	42.25	18.84	61.09
LABORER	34.92	13.80	48.72
OPERATOR	34.60	16.38	50.98

Trade	Wage	Fringe	Total
PAINTER	17.11	1.25	18.36
RODMAN	33.37	22.98	56.35
ROOFER	19.08	2.06	21.14
SHEET METAL	35.85	22.62	58.47



Trade	Wage	Fringe	Total
BRICKLAYER	46.38	22.43	68.81
CARPENTER	49.62	15.81	65.43
ELECTRICIAN	63.50	29.73	93.23
LABORER	31.58	8.79	40.37
OPERATOR	54.69	16.90	71.59
PAINTER	35.62	15.80	51.42

Trade	Wage	Fringe	Total
PLASTERER	44.61	19.63	64.24
PLUMBER	54.72	31.66	86.38
RODMAN	43.82	34.02	77.84
ROOFER	27.49	0.00	27.49
SHEET METAL	53.55	29.61	83.16



Trade	Wage	Fringe	Total
BRICKLAYER	44.81	17.14	61.95
CARPENTER	59.92	15.04	74.96
ELECTRICIAN	73.58	30.84	104.42
LABORER	42.86	13.65	56.51
OPERATOR	54.78	25.30	80.08
PAINTER	37.80	13.63	51.43

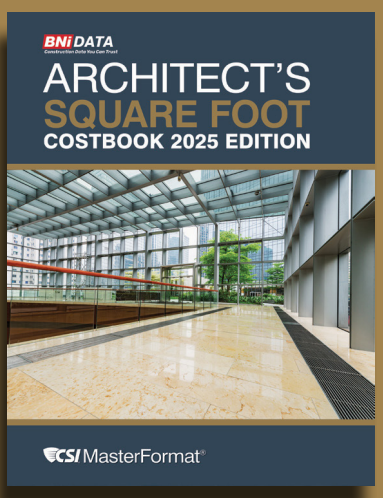
Trade	Wage	Fringe	Total
PLASTERER	52.50	20.67	73.17
PLUMBER	71.27	32.95	104.22
RODMAN	53.45	34.02	87.47
ROOFER	48.01	16.44	64.45
SHEET METAL	68.51	31.76	100.27

How to Use This Labor Rate Table

Labor rates shown here are current Davis-Bacon labor rates for Northwest cities. These will help you determine wage rates for your estimates and bids, especially for publicly-funded projects where the payment of locally prevailing wages and fringe benefits are required by law.

Davis-Bacon wage rates are required for contractors or subcontractors performing on federally funded or assisted contracts in excess of $2,000. These wage rates are based on up-to-date data from the Department of Labor.

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DCD 2025 Cost Escalation Index Table

Use this index table along with the regional modifiers to customize case study costs to a projected date and location.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2001	289	290	292	294	296	297	298	299	299	300	300	300
2002	299	300	302	304	306	307	308	309	309	311	311	311
2003	311	312	314	316	318	320	321	320	322	324	325	325
2004	326	327	329	331	335	337	337	338	339	340	340	340
2005	356	357	357	358	360	361	360	365	368	370	371	376
2006	385	386	386	387	389	390	390	391	392	395	395	396
2007	400	401	402	401	402	405	410	415	415	420	421	422
2008	425	427	427	427	428	430	432	434	434	436	437	439
2009	440	442	442	443	444	446	447	449	449	450	451	453
2010	455	458	458	460	461	462	463	463	465	465	466	466
2011	467	467	467	471	472	473	473	475	476	476	476	477
2012	477	477	477	481	482	483	483	485	489	489	489	490
2013	490	490	490	494	495	496	496	498	498	499	499	499
2014	499	500	501	502	503	504	504	507	511	513	513	513
2015	515	517	518	519	521	522	524	525	527	528	528	528
2016	533	533	533	534	535	536	537	538	538	539	540	540
2017	540	540	541	541	542	543	543	544	545	545	546	546
2018	546	549	552	555	558	565	567	570	571	572	572	573
2019	573	575	578	582	586	586	587	590	592	593	595	595
2020	595	596	596	610	612	620	630	650	660	665	670	680
2021	680	680	670	670	690	700	710	715	720	730	740	750
2022	760	770	780	790	800	810	815	820	825	830	835	850
2023	850	850	850	855	860	865	865	870	880	870	875	880
2024	880	875	873	870	865	865	862	865	862	860	858	855
2025	856	860	865	868	868	870	873	875	874	878	880	885
2026	890	895	900	905	910	910	913	915	918	920	923	925

Select a Design Cost Data case study file, which is similar to a project you have in mind, for a "base." Using the index table, find the "base" index number. Determine a target date for which your project will go out to bid (or the average month of the construction period, for a target date if it is to be negotiated), and find the index number. Divide the "target" index number by the "base" index number to get a "multiplier." Multiply the cost per square foot by the multiplier to determine the updated cost per square foot. Multiply the updated cost per square foot by the total square feet of your project to get an updated estimated cost. (Use the regional modifier guide to determine the cost variations due to area differences.)

***Please note:** Contact us if you are in need of cost models past December, 2026. One of our cost professionals will be happy to help. You can contact us at 800-533-5680.*

DCD 2025 Regional Modifiers

Use this regional modifier table along with the cost indices to customize case study costs to a projected date and location.

Eastern U.S.		**Central U.S.**		**Western U.S.**	
Connecticut	1.10	Alabama	0.83	Alaska	1.09
Delaware	1.07	Arkansas	0.80	Arizona	0.83
Florida	0.86	**Illinois**		**California**	
Georgia	0.84	Chicago	1.19	Los Angeles	1.20
Maine	0.83	Other	1.05	San Francisco	1.21
Maryland	0.89	Indiana	0.97	Other	1.20
Massachusetts	1.14	Iowa	0.93	Colorado	0.90
New Hampshire	0.89	Kansas	1.01	Hawaii	1.16
New Jersey	1.21	Kentucky	0.92	Idaho	0.88
New York		Louisiana	0.84	Montana	0.92
New York City	1.38	Michigan	0.94	Nevada	1.14
Other	1.11	Minnesota	1.07	New Mexico	0.88
North Carolina	0.79	Mississippi	0.82	Oregon	1.05
Pennsylvania		Missouri	1.00	Utah	0.86
Philadelphia	1.14	Nebraska	0.91	**Washington**	
Other	1.00	North Dakota	0.91	Other	1.06
Rhode Island	1.07	Ohio	0.95	Seattle	1.15
South Carolina	0.81	Oklahoma	0.87	Wyoming	0.83
Vermont	0.83	South Dakota	0.84		
Virginia	0.85	Tennessee	0.86		
West Virginia	1.09	Texas	0.84		
		Wisconsin	1.05		

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To calculate regional modifiers, multiply the "base cost" by the "target" modifier and divide it by the "base" modifier. Example: To adjust the updated cost of a "base" building in Mobile, AL, of $1,001,126 to Colorado Springs, CO, the calculation will be as follows: Select the regional modifier for each state or city (Colorado 0.90 and Alabama 0.80). $1,001,126 x 90 ÷ 80 = $1,126,266.75.