

## Multi-Million Dollar Face-Lift Raises Eyebrows



*The newly renovated Kirby buildings in Houston, Texas.*

There are many things for an owner to consider and calculate when redeveloping a real estate asset. Should it be torn down for something sleek and new? Should it be renovated or possibly repurposed? One client was considering those same options with their Art Deco 1960s office development that was significantly lacking curb appeal. Removing it altogether and building something new was definitely on the table; however, taking into consideration its location, architectural significance and market potential, demolition was not the most desirable or economical alternative.

3701 Kirby, a 12-story office building and 3801 Kirby, which is seven-stories, are located in Houston's Greenway Plaza district just north of Interstate 59. Many tenants hang their hat here including oil and gas companies, law offices and design and architectural

shops. It is also the home to Baylor College of Medicine who operates a clinic at this location. Instead of tearing the two buildings down, the owners chose to give them a multi-million dollar face-lift that includes a new exterior skin and rooftop amenity decks, one with a putting green.

Due to a long, proven track record and positive working relationship, Chamberlin was called upon by general contractor, JE Dunn, and building owner, The Appelt Company, to provide roofing and waterproofing services to update the two buildings while they were fully occupied.

"The renovation of occupied buildings like these is nearly always more challenging than a grass roots project as it relates to the structure's unknowns and

(Continued pg. 2...see KIRBY RENOVATION)

### GUEST COLUMN:

*Stanley P. Graveline,  
Vinyl Roofing Division of the Chemical Fabrics and  
Film Association Committee Member*



## The Drawing Board: Cool Reflective Roofs are Energy Smart in All Geographies

In 2012, the eighth consensus-based sustainability standard developed through NSF for building products went into effect — NSF/ANSI 347, Sustainability Assessment for Single Ply Roofing Membranes. It is the first standard for evaluating and certifying sustainable attributes of low-slope single-ply roofing membranes over their entire life cycle.

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## (KIRBY RENOVATION Continued from pg. 1)

the task of working around occupants,” said Jeff Persyn, Vice President of The Appelt Company. “Chamberlin’s breadth of project and trade experience and knowledge of building systems of all kinds appeared, from my perspective, to be invaluable when overcoming these challenges.”

### Eyebrows Get a Lift

One of the challenges on this project was to install 117,000 square feet of waterproof coating to the top and underside of the buildings’ horizontal eyebrows on each elevation to provide an aesthetic appearance and preserve the concrete from deterioration. 3701 Kirby consisted of nine floors with five foot wide eyebrows extending out from each level and 3801 had seven floors with a similar exterior. Developing the most effective work access to the eyebrows was very important for safe and efficient production.

### Innovative Solutions

Different work area access ideas were considered, such as working directly from the concrete eyebrows on each level. In order to access the eyebrows there was one entry ladder on the side of the property that extended from the ground to the top level, which was the

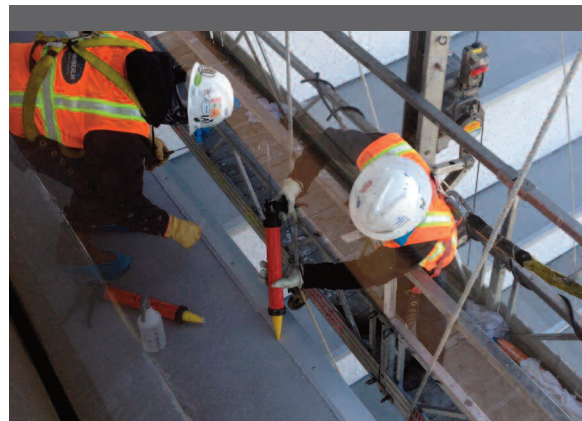
only way to access each floor. If this was the process chosen, Chamberlin would have to climb the ladder with materials to the designated level and walk around the entire building as they install the coating. Once complete on that level, they would have to walk back around the building, with materials, to the ladder, in order to climb to the next designated area. This posed a safety concern with installers working on a narrow concrete eyebrow while carrying material around on the ledges.

At the start of the project, Chamberlin’s operations team, including field supervision, met extensively to plan how the work would be performed safely and on time. In order to access the eyebrows safely, Chamberlin proposed using swing stages with a slide out porch that would help with installation at the underside of the eyebrow. This option was accepted by the general contractor and utilized throughout the entire project. Once the installation of the coating was complete, Chamberlin installed 9,400 linear feet of sheet metal trim at the edge of the eyebrows to finish it off.

When the work began, the production rates did not reach what was initially estimated. After monitoring production



*The Art Deco style of the Kirby buildings feature “eyebrow” architectural elements on the entire facade which created unique renovation challenges.*



*Chamberlin workers waterproofed the eyebrow decking on the buildings’ facade.*

(Continued pg. 3...see KIRBY RENOVATION)

## (COOL REFLECTIVE ROOFS Continued from pg. 1)



*The use of white thermoplastic materials result in lower roof surface temperatures during the summer months when compared to dark colored roofs.*

As products with environmental claims continue to enter the marketplace, independent, third-party certification of products to national standards can help architects and specifiers make educated decisions about product selection. Product design and manufacturing, membrane durability, corporate governance and innovation are all addressed in the standard. NSF 347 is also the first standard that addresses the building envelope, carrying with it the

potential for improving building energy efficiency while positively impacting the quality of the urban environment.

As more utilities charge premiums on electricity rates during peak demand hours to try and influence behavior and even out the load on their strained systems, the need to present owners in all climate zones with sound strategies for reducing peak building cooling demand will escalate. According to the United Nations Intergovernmental Panel on Climate Change, for most regions in North America a one-in-20-year hottest temperature event will become a one-in-two-year event by the end of the 21st century — and the one-in-20-year maximum daily temperatures will increase 4-9 degrees Fahrenheit. There is no sign of these trends reversing themselves in the foreseeable future.

Fortunately, there is no shortage of modeled and empirical evidence that white roof surfaces reduce building cooling energy consumption regardless of geography. White thermoplastic materials, which have been in use since the 1960s in Europe and the 1970s in North America, reflect a significant portion of incident solar radiation back into the atmosphere (reflectance), and also quickly release to the

(Continued pg. 3...see COOL REFLECTIVE ROOFS)



## (KIRBY RENOVATION Continued from pg. 2)

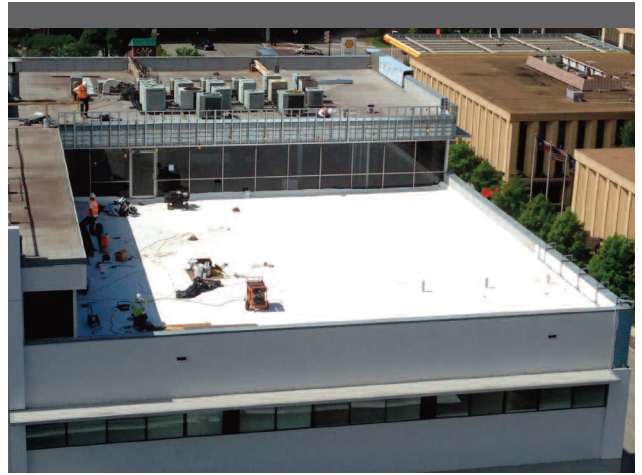
and meeting to discuss the most efficient way to obtain the required rates, Chamberlin made modifications in the swing stage lengths as well as changing a few sequences in the installation steps which helped to meet the required production rates and finish the work on time.

### Preparation for Amenity Deck

Another challenging and unique aspect of this project was the roof replacement on 3801 Kirby. Chamberlin was asked to tear off the modified bitumen roof system that was currently in place in order to provide structural steel reinforcement on the concrete deck to support the new paver installation. Chamberlin removed the roof system then immediately installed a temporary membrane to protect the building occupants underneath.

In order to install the steel “I” beams, each piece was laid out in the desired location and holes were drilled in the concrete as stud anchors. The beams were put into place, then Chamberlin waterproofed each stud penetration in the temporary membrane. Chamberlin infilled ISO insulation between the beams that was then followed by the installation of a wood deck. Though this is not a typical roofing process, Chamberlin installed a single-ply TPO roof system over the wood decking as it was being installed to create a water tight assembly. Once Chamberlin was finished with the roof installation, a protection mat was put into place and pavers were installed along with the putting green, making the roof deck a beautiful amenity for the tenants.

“Chamberlin’s performance on this project was excellent,” said Persyn. “What I have come to expect from their company when working with them on and off for the past 17 years - high quality workmanship, timely execution, and safely done not only for the workers but the occupants of our buildings. There has not been one warranty call to date related to Chamberlin’s work on this project.” ■



*The new rooftop on 3801 Kirby nearing completion prior to paver installation.*



*Chamberlin applied 38,000 sq. ft. of traffic coating to this fourth floor parking deck in preparation of the roof-top amenity space.*

## (COOL REFLECTIVE ROOFS Continued from pg. 2)

atmosphere the fraction of energy that the roof absorbs (emittance). The result is a lower roof surface temperature during the summer months when compared to dark colored roofs.

Lawrence Berkeley National Laboratory’s (LBNL) 2001 study of a retail store in Austin, Texas, revealed that simply by switching a black colored membrane to a white membrane, the average summertime rooftop surface temperature on the facility decreased from 168 degrees Fahrenheit on the black to 126 degrees Fahrenheit on the white. This resulted in peak hour cooling energy savings of 14 percent and overall annual energy savings of 7.2 cents per square foot (the equivalent of 9.5 cents per square foot in 2013 dollars).

LBNL also simulated the potential impact of substituting conventional dark colored roofs with cool roofs on conditioned commercial buildings in 236 U.S. cities. They determined differences in cooling and heating energy use between dark roofs and aged cool roofs (assumed average reflectivity of 0.55) considering such factors as the building inventory (types, ages, density of construction) and local energy sources.



*The Bush Center at Southern Methodist University in Dallas, Texas is a prime example of a successful use of cool reflective roofing.*

Not surprisingly, greatest net energy savings were calculated for states like Arizona, New Mexico and Nevada. LBNL’s modeling showed that there could be a small heating penalty associated with the use of cool roofs in the coldest climates. In Minnesota, for example, the value was on average 0.137 therm per square meter per year for conditioned commercial buildings. But excluding remote Alaskan locations, the summertime cooling energy savings more

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than offset any heating penalty, producing net annual energy savings.

A sampling of some of LBNL's results, including cooling energy savings, heating penalties and net annual energy savings, is shown in Table 1. Overall, LBNL estimates that the use of cool roofing materials on 80 percent of U.S. commercial buildings would result in 10,400 GWh of cooling energy savings and approximately \$735 million in overall energy savings. This avoided production of the energy saved could reduce CO2 emissions by 6.23 metric tons annually.

The experience of major building owners such as Target Corporation, with approximately 1,900 facilities across the United States, broadly bears out the research. For more than 20 years Target has used reflective PVC roof membranes on all of its facilities, an important component of its energy efficiency program.

Also of note is that industry sources estimate approximately 5.5 billion square feet of thermoplastic roofing membrane has been installed in ASHRAE climate zones 5 and higher over the past decade. More than two billion of that has been installed in zones 6 and 7 alone.

While it's understood that reflective roof surfaces can reduce overall energy consumption, no private or government cool roof initiatives suggest that using a cool roof is justification for using less insulation. Savvy project owners are looking to use all available means and technologies wherever

Table 1. Calculated impacts on cooling/heating energy use from replacing dark roofs with cool roofs on conditioned commercial buildings. Source: Lawrence Berkley National Laboratory

State	Cooling Energy Saving kWh/m <sup>2</sup> CRA	Heating Energy Penalty therm/m <sup>2</sup> CRA	Energy Cost Saving (\$/m <sup>2</sup> CRA)
California	6.13	0.0292	0.699
Nevada	6.86	0.0737	0.570
Florida	5.72	0.0115	0.448
New Hampshire	5.35	0.121	0.482
Minnesota	4.17	0.137	0.136
Illinois	4.22	0.0994	0.217
US	5.02	0.0645	0.356

Table 1

practical and cost effective to reduce building energy consumption, rather than partially substituting one approach for another.

For each ASHRAE climate zone, Oak Ridge National Laboratory (ORNL) estimated the energy equivalency of cool roofs vs. non-cool roofs with additional insulation to determine the extra insulation required to achieve "energy equal" roofing systems for new construction and retrofit. ORNL selected one city from each ASHRAE climate zone and assigned a default R-value for a cool roof (reflectance: 0.65, emittance: 0.90). Then ORNL determined the additional insulation that would be required under a non-cool roof (reflectance: 0.10, emittance: 0.90) to produce similar heating/cooling costs as the cool roof. In all climate zones, additional insulation required for energy equality ranged from R3 in Fairbanks,

Alaska, to R17 in Miami, Fla., with an average of R9 in new construction and R4 in retrofit. (See Table 2)

Even in locations where net energy savings may be modest, combined with the additional benefits of reduced peak demand and a contribution to the reduction of the urban heat island effect, cool roofing technology provides a comprehensive package of benefits in all climate zones. ■

*Stanley P. Graveline sits on the technical committee for the Vinyl Roofing Division of the Chemical Fabrics and Film Association. For more information, visit [www.vinylroofs.org/cool](http://www.vinylroofs.org/cool). Follow Vinyl Roofs on Twitter via @reflectiveroofs. This article was originally published in Architectural Roofing & Waterproofing/WC Architect magazine.*



LBNL estimates that the use of cool roofing materials on 80 percent of U.S. commercial buildings would result in 10,400 GWh of cooling energy savings and approximately \$735 million in overall energy savings.

Table 2. Amount of additional R-value needed for a black roof to achieve energy equivalence with a white roof. Source: Oak Ridge National Laboratory

Climate Zone	Representative City	Default R-Value for White Roof New Construction	Additional R-Value required for Black Roof New Constr.	Default R-Value for White Roof Retrofit Construction	Additional R-Value required for Black Roof New Constr.
1	Miami, Florida	20	17	6	6
2	Austin, Texas	25	16	9	7
3	Atlanta, Georgia	25	11	9	5
4	Baltimore, Maryland	30	10	12	5
5	Chicago, Illinois	30	6	12	3
6	Minneapolis, Minnesota	30	5	12	3
7	Fargo, North Dakota	35	5	15	2
8	Fairbanks, Alaska	35	3	15	2

Table 2



# Chamberlin Roofing & Waterproofing Moves to Farmers Branch



*The new Chamberlin Roofing & Waterproofing building in Farmers Branch, Texas was awarded the Tilt-Up Achievement Award from the Tilt-Up Concrete Association.*

Chamberlin Roofing & Waterproofing moved their North Texas office to their newly-constructed building in Farmers Branch, Texas, just a few miles from their previous DFW office location. Though the move was not far, the two offices are worlds apart. The new 28,000 square foot facility has a sleek, modern design created by Alliance Architects. Schwob Building Company was the general contractor, and Chamberlin completed the roof system, as well as the waterproofing, elastomeric coating, warehouse flooring and all control joint work themselves.

The energy efficient building contains some unique features, such as restroom countertops made out of recycled porcelain from sinks, bathtubs and toilets. LED lighting throughout the building and sensor faucets on all sinks lend to energy savings. The 14,000 square foot warehouse space is ideal for Chamberlin's in-house sheet metal fabrication shop. The craft and safety training room and main conference room both have cutting edge technology, equipped with the latest A/V controls, allowing all Chamberlin offices across Texas and Oklahoma to collaborate and communicate smarter and faster to better serve our clients.

Founded in 1897, Chamberlin branched out from Michigan to Texas in 1978, when they opened their first office in Houston, Texas. Since then, they have grown to serve Texas, Oklahoma, Louisiana, Arkansas and New Mexico with offices in Houston, Farmers Branch, Austin and San Antonio, as well as Moore and Tulsa, Oklahoma.

The ribbon cutting ceremony for their new location in Farmers Branch, Texas was held on Friday, August 14, 2015 and attended by several representatives from the City of Farmers Branch. The new building has already been awarded a Tilt-Up Achievement Award from the Tilt-Up Concrete Association (TCA). The TCA Achievement Awards program was established to honor projects that use site-cast Tilt-Up concrete to introduce new building types, advance industry technology and provide unique solutions to building programs. The winning entries illustrate the variety, beauty, and flexibility of the Tilt-Up construction concept, as well as Tilt-Up's unique ability to get the job done faster and for less money. ■



*The ribbon cutting ceremony for the new Chamberlin Roofing & Waterproofing building in Farmers Branch, Texas was held August 14, 2015.*

## LOCATIONS:

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or 1-800-749-1432

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### MENIL DRAWING INSTITUTE AND ENERGY HOUSE – HOUSTON, TX

#### New Construction Roofing & Waterproofing

Contract Amount: \$1,300,000 (approx.)  
Owner: Menil Collection  
Architect: David Chipperfield Architect  
General Contractor: Gilbane Building Company  
Scope of Work: Installation of PVC membrane roof system, sheet metal counter flashings and copings, below-grade waterproofing, HDPE sheet waterproofing, air barrier, sheet metal flashing and trim, joint and site sealants, and water repellent  
Project Description: Art museum expansion

### ST. ANTHONY HOSPITAL MIDTOWN PAVILION – OKLAHOMA CITY, OK

#### New Construction Roofing & Waterproofing

Contract Amount: \$550,000 (approx.)  
Owner: St. Anthony Hospital  
Architect: Rees and Associates  
General Contractor: Turner Construction  
Scope of Work: Fluid-applied waterproofing, water repellents, thermal insulation, weather barrier and joint sealants  
Project Description: 111,000 square foot facility to house emergency department, intensive care units and inpatient care areas

### UT DELL RESEARCH BUILDING & PARKING GARAGE – AUSTIN, TX

#### New Construction Waterproofing

Contract Amount: \$2,600,000 (approx.)  
Owner: University of Texas Systems  
Architect: Page Southerland Page, Inc.  
Consultant: Zero/Six Consulting; Wiss, Janney, Elstner Associates, Inc.  
General Contractor: Hensel Phelps Construction  
Scope of Work: Air barrier, metal flashing, insulation, hot-applied waterproofing, expansion joints, pavers and pedestals  
Project Description: New medical school

### AMEGY BANK HEADQUARTERS – HOUSTON, TX

#### New Construction Waterproofing

Contract Amount: \$1,700,000 (approx.)  
Owner: Amegy Bank of Texas  
Architect: Kendall/Heaton Associates, Inc.  
Consultant: Curtainwall Design Consultants, Inc.  
General Contractor: D.E. Harvey Builders  
Scope of Work: Hot fluid-applied waterproofing, pavers, joint sealants, traffic coatings, expansion joints and air barrier  
Project Description: 24-story high rise office building with parking garage

### CITYLINE BLOCK B – DALLAS, TX

#### New Construction Roofing & Waterproofing

Contract Amount: \$200,000 (approx.)  
Owner: KDC Development and Investment  
Architect: Corgan Associates, Inc.  
General Contractor: Austin Commercial  
Scope of Work: Installation of TPO roof system, joint sealants, sheet waterproofing, fire stopping and caulking  
Project Description: Apartment complex in a mixed-used development

### PARK CITIES FAMILY YMCA – DALLAS, TX

#### New Construction Waterproofing

Contract Amount: \$600,000 (approx.)  
Owner: Park Cities  
Architect: Good Fulton & Farrell Architects  
General Contractor: Adolfsen & Peterson Construction  
Scope of Work: Site sealants, joint sealants, fluid-applied air barrier and cold fluid-applied waterproofing  
Project Description: YMCA of Metropolitan Dallas

### TEXAS A&M UNIVERSITY CORPS DORM – COLLEGE STATION, TX

#### New Construction and Remedial Waterproofing

Contract Amount: \$2,000,000 (approx.)  
Owner: Texas A&M University  
Architect: Kirksey Architecture  
Consultant: Zero/Six Consulting Group  
General Contractor: SpawGlass Construction  
Scope of Work: Remedial below and above-grade waterproofing and brick facade restoration; new thermal insulation, weather barrier, flexible flashing, fire resistive joints, preformed joint sealants, joint sealants and expansion control joints  
Project Description: Renovation of nine existing buildings and construction of two new Leadership Learning Centers

### TCU DANIEL-MEYER COLISEUM – FORT WORTH, TX

#### New Construction Waterproofing

Contract Amount: \$500,000 (approx.)  
Owner: Texas Christian University  
Architect: HKS Architects  
General Contractor: Austin Commercial  
Scope of Work: Below-grade waterproofing, joint sealants, air barrier, site sealants, insulation and fluid-applied waterproofing  
Project Description: Basketball arena redevelopment

### UNIVERSITY OF HOUSTON BASKETBALL FACILITY – HOUSTON, TX

#### New Construction Roofing & Waterproofing

Contract Amount: \$700,000 (approx.)  
Owner: University of Houston  
Architect: Page Southerland Page, Inc.  
General Contractor: Austin Commercial  
Scope of Work: Modified Bitumen roofing system, sheet metal counterflashing, concrete vapor retarder, bentonite waterproofing, self-adhered sheet membrane, hot fluid-applied rubberized asphalt waterproofing, air barrier, fluid-applied vapor permeable, air and moisture barrier, joint sealants, metal flashing, pavers and pedestals  
Project Description: Basketball training facility

### THANKSGIVING TOWER – DALLAS, TX

#### Remedial Waterproofing

Contract Amount: \$350,000 (approx.)  
Owner: Federal Aviation Administration  
Architect: Gensler  
General Contractor: Beck  
Scope of Work: Hot fluid-applied waterproofing and site joint sealants  
Project Description: 50-story building in downtown Dallas

For a complete list of specialty contracting services, visit [www.chamberlinltd.com](http://www.chamberlinltd.com).

#### ROOFING/SHEET METAL

- Modified Bitumen/BUR
- Single ply
- Reflective coatings
- Vegetative roofing
- Metal standing seam
- Roof related sheet metal
- Tile

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- Joint sealants
- Membrane waterproofing
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- Traffic coatings
- Expansion joints
- Dampproofing/flashing
- Water repellents/metal flashing

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