



## Three Building Facelift at Temple University

### The Project

The words expansion, development, investment, and growth have been synonymous with Temple University over the past five years. For many of our GBCA general and specialty contractors, this has translated to significant opportunities and challenges, which in our world of construction are really one in the same.

As new construction of Temple's \$137-million Science Education and Research Center (SERC) took center stage this summer, its three surrounding high-rise buildings, Anderson Hall, Gladfelter Hall, and Engineering were to receive a fast track replacement window.

### The Team

In order to achieve design consistency over this block of buildings, Temple utilized USA Architects for both the new SERC building and the facelift. Temple selected Gilbane Building Company as construction manager through a best-value bid process. Façade work is not new to Gilbane — look at their work at City Hall as just one example — and they keep true to their reputation for keeping projects on time and on budget. When faced with the task of choosing subcontractors, they looked to Eureka and Graboyes to create the best team possible.

While some competitive glass and glazing contractors bid the entire project, Eureka Metal & Glass and Graboyes Commercial Window Co. split the scope of work to match their strengths and deliver the best outcome for Temple from the perspectives of quality, price, and schedule. This arrangement proved to be successful as they were ultimately awarded the work. The storefront and curtainwall was manufactured by YKK AP, replacement windows came from Graham Architectural Products, and glass for all windows was fabricated by J.E. Berkowitz. Graham Architectural Products was specifically selected to help create narrow profile without inhibiting sight lines.

### Phase One — 2,509 Windows in 71 Days

The two-way benefits of window replacement are unique: new and improved aesthetics on the outside, while delivering better performance of energy, light, operation, and sound on the inside. To match the new SERC building, the replacement windows are finished in PPG's high performance, three-coat metallic Duranar paint® and the glass, PPG's SolarBan® 60 to let in 70 percent of the natural light while offering superior thermal insulation.

While these new benefits were plenty, so were the challenges. To minimize disruption of faculty and students, Graboyes conducted field measuring of every window opening during winter break, and was required by contract to perform the field installation between April 15th and July 31st. With shop drawings, submittals, approvals, and mock-ups required before ordering materials, the crunch was on from day one. Graham and J.E. Berkowitz delivered on time, and Graboyes utilized dual crews, each installing approximately 20 windows per day to complete work on July 25th, a week ahead of schedule.

With city campus construction, you can count on minimal on-site storage, tight traffic and parking, so the logistics and product flow are critical to keep crews on pace. On a daily basis, new windows and glass were moved up to the floors in each building while demolished windows came down. Graboyes utilized a four-person delivery team and was fortunate to secure short-term warehouse space just a few blocks away.

### Phase Two — Storefront, Entrances, and Curtainwall

Gilbane was successful in completing this project on time over the summer before students returned to their classes. While the building wasn't full, Gilbane still had the challenge of working around summer students and staff for delivery, classrooms, elevator usage and safety of those onsite. Coordinating and maintaining security on the main floor was also a large task as the façade was pulled down.



Eureka was challenged by a lack of sufficient as-built information to complete the engineering prior to summer break. Once the unseen conditions were exposed, engineering ran parallel to product release, which presents obvious risks if the intended design cannot be engineered. Materials were sequenced to the jobsite on a daily basis to fill production needs to complete the required areas prior to the students' return in mid-August. The Gilbane team worked very closely with Eureka and together provided a safe and weather-protected building while at times having over 1,000 total square feet of windows removed and in process of replacement. Close attention to the 10-day forecast

allowed task sequencing that kept the project moving forward quickly while also keeping the inside of the building leak free.

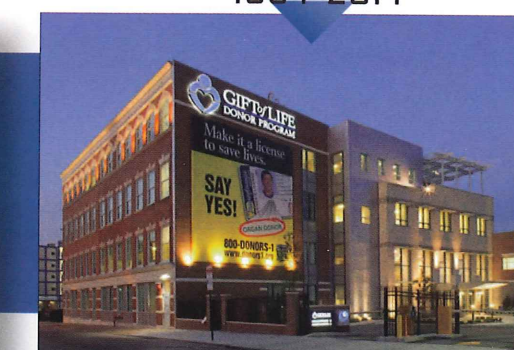
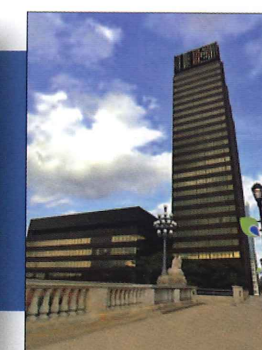
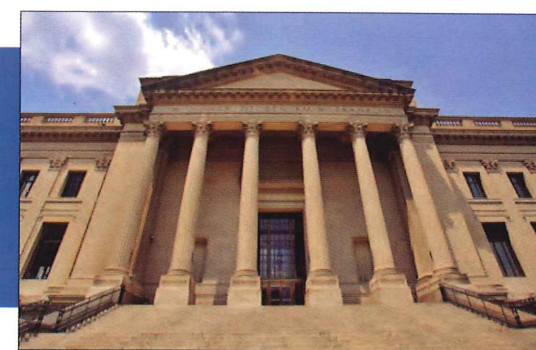
### Lessons Learned — Tips to Consider For Your Next Window Replacement Project

1. Develop a full understanding of the timeline. Take into account measuring, mock-ups, drawings, selections, historic approvals, testing, and manufacturing lead time. Custom replacement windows must fit; they simply can't be purchased "off the shelf."
2. Where design/build components exist, leverage the value of an experienced window replacement contractor who offers more than a "bid from the prints." By evaluating field conditions, they will help value-engineer, minimize change order potential, and build achievable schedules.
3. Realize that unforeseen conditions will bring serious challenges to complete the quality installation on time. Allowance for the likely surprises in up-front scheduling and procurement is critical to project success.
4. For window projects in a live building, an emphasis on safety goes beyond the norm. With active occupants, pedestrians below, and with demolition and installation taking place at a large window opening above, need we say more? **CT**

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