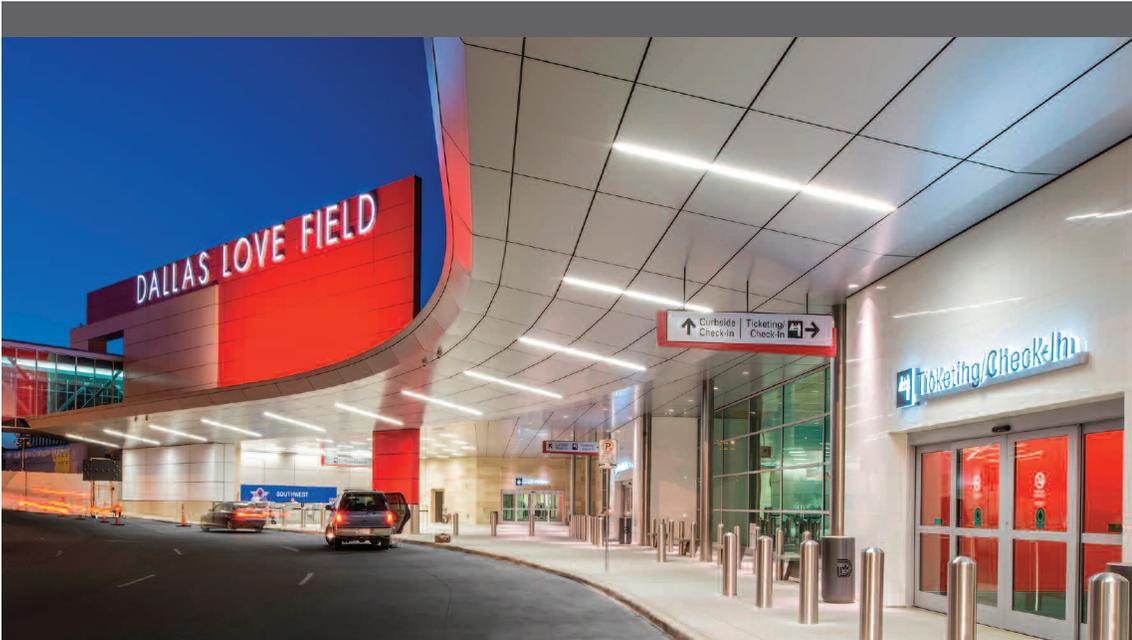


Four-Year Roofing Project Touches Down in Dallas



The Dallas Love Field Modernization Program is the largest and most ambitious construction effort since its establishment in 1917.

Dallas Love Field, a city-owned public airport in the heart of Dallas, Texas, serves seven million passengers a year providing a vital link for the economy of Dallas, the region and the nation. The airport has come a long way since it was established by the U.S. Army on October 19, 1917. Commissioned during World War I, when the top speed of even the fastest aircraft barely exceeded 100 miles per hour, the airport was little more than a grass landing strip. After more than 85 years in service, Love Field was designated as a Texas State Historical Site in 2003. Like all landmarks, it has a rich history and quite a few interesting facts surrounding it. It was at Love Field that Texan Lyndon B. Johnson took the oath of office on

Air Force One following the assassination of President John F. Kennedy in 1963.

The airport greeted the 21st Century with the Love Field Modernization Program, the largest and most ambitious construction effort since its establishment. The airport was extensively renovated and expanded with a design that maintained the basics for which Love Field is known: passenger convenience, operational efficiency and maintainability.

The \$519 million project involved a complete terminal renovation and expansion, the addition of new concourses, a larger baggage claim to accommodate future demand levels and a new ticketing wing to

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GUEST COLUMN:

By John Linnell, Everest Systems Co.



Elastomeric Restoration Systems: A Viable Alternative to Roof Tear-Offs

Introduction:

Around 30 years ago, there was a major shift in the mainstream commercial roofing industry away from the traditional built-up and gravel-type roofs to membrane roofs such as Modified Bitumen, PVC and TPO. Many of these membrane roofs are now nearing the end of their service life. In fact, the Single Ply Research

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significantly cut down on lines. The new design, developed by Corgan Architects, incorporates tall ceilings and curtainwall, allowing for an abundance of natural light.

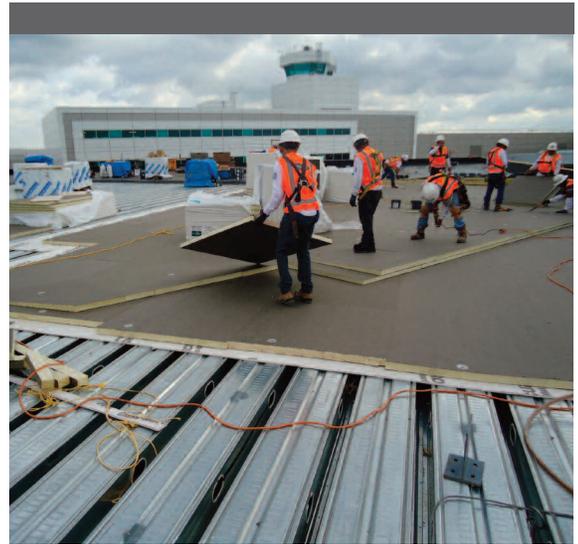
Chamberlin Roofing & Waterproofing was selected by General Contractor Hensel Phelps as the roofing contractor for this project. Chamberlin re-roofed the existing main terminal and installed a new roofing system on the expansion of the main terminal, new baggage claim, ticketing wing and concourses. In total, 450,000 square feet of a torch-applied Soprema two-ply modified bitumen roofing system was installed.

Chamberlin also installed a 45,000 square-foot GAF PVC roof on the main canopy at the airport entrance as well as a 40,000 square-foot Firestone TPO roof system on a roadway canopy. Chamberlin's scope of work also included the installation of 12,000 lineal feet of Hickman aluminum coping on all of the roofs combined. A 10-man crew worked for four years to complete this tremendous project on time and with no safety incidents.

Red Light, Green Light!

Dallas Love Field Airport remained fully functional throughout the duration of construction. Scheduling of the multiple trades working at the airport, delivery of materials and mobilization of materials had to be carefully coordinated. Due to airport traffic and safety concerns for pedestrians, accessibility to different roof areas changed often, sometimes daily. Chamberlin worked closely with Hensel Phelps to execute the project efficiently and safely. The general contractor set the schedule in phases, and Chamberlin met weekly with the project team to keep the project on track with the fluctuating schedule.

Time was of the essence in many areas that were roofed, and when an area became available for Chamberlin to work on, they had to move quickly. When re-roofing some areas, such as over boarding gates or TSA office, the crew only had a 24 to 48 hour time frame to tear off the roof and replace it. These areas could only be closed to passengers for that brief amount of time and were otherwise high traffic areas, so keeping them watertight



Chamberlin's 10-man crew worked four years on this project with no lost time or safety incidents.



Chamberlin installed over 10 acres of Soprema's torch-applied roofing system on the terminal.

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Kansas school district aging roof before restorative elastomeric coating was applied.

Institute estimates that roughly 20 million square feet of single-ply membrane is at the 20-year mark. When an old-school roofer locates this type of roof they might say, "Mr./Mrs. Building Owner you need to replace that roof!!" However, unlike the gravel built-up roofs, these membrane types allow a knowledgeable commercial roofer to give the building owner not only total replacement but a restoration option as well in the form of elastomeric restoration systems.

Elastomeric Roof Coatings have been used in the commercial roofing industry since the early 1980s, and since their inception have continued to increase market share. Dow Chemical Company estimates that the global coatings market will hit 20 billion dollars by the end of 2016. Within that 20 billion, roughly four billion are attributed to

architectural coatings, with about one-third of that being roof coatings. The restoration option has proven to be far more than a short-term repair, often chosen for its high reflectivity benefits that can typically save the building owner money in energy costs. Along with the energy benefits, elastomeric systems also offer a viable sustainable solution for an aging roof at a significant cost savings to the alternative of tear-off and replacement. An added benefit to a building owner is that often a coating system can be fully expensed in the year of installation as a repair and maintenance expenditure.

The following is a profile of a commercial roof coatings project for a school district in central Kansas that highlights some of the benefits previously outlined about restorative roof coating systems and the installation process.

(Continued pg. 3...see ROOF RESTORATION SYSTEMS)



(DALLAS LOVE FIELD Continued from pg. 2)

was imperative. Chamberlin met this challenge with proactive communication, a clearly laid out installation plan and accelerated production, which sometimes included working overnight. Throughout the project, they completed their work on time, allowing the other trades that followed behind to begin their work, keeping production on schedule.

Security measures are high at this bustling airport. Several crew members had to complete the FAA badging process to gain access to restricted areas of the facility. These badges appointed them as escorts, and the rest of the crew had to be accompanied by an escort to get on site.

Thinking Outside The Box

While installing the new roof system on the baggage claim facility, Chamberlin discovered an oversight in the construction of the building. The roof deck was not properly sloped for drainage. Instead, it was mostly flat in areas where it should be

slanted to allow the water runoff to reach the drains. The result of some sloping and some flat areas created a wavy effect across the rooftop. One light rain immediately after this discovery confirmed that pooling water would be a huge issue on this roof. Chamberlin redesigned the roof installation on the spot to solve the issue without replacing the roof deck. After conferring with Hensel Phelps on the plan, they got started rectifying the situation.

To begin, the previously installed insulation was removed. Then Chamberlin began re-installing the insulation, adding extra to fill in the flat areas and raise them to meet the necessary slope of the roof. Some areas required up to six inches of additional insulation. Once the roof was leveled at the appropriate slope, Chamberlin proceeded with installing the two-ply Soprema modified bitumen roofing system. The finished product resulted in a roof that efficiently and effectively drains water. This was all done without interrupting the overall production schedule of the project.



Chamberlin redesigned the roofing system to allow for proper drainage, adding as much as six inches of extra insulation to meet required slope.



Insulation was added to the roof area and tapered toward drains.

(Continued pg. 5...see DALLAS LOVE FIELD)

(ROOF RESTORATION SYSTEMS Continued from pg. 2)

Project Profile Specifications

Size: 50,000 Square Feet

Age of Roof: 20 years old

Insulation value: R-20

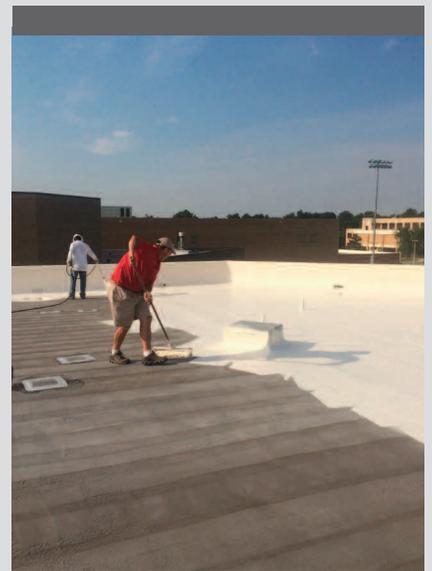
Deck: Structural Steel

Substrate: Smooth Asphalt 2 Ply BUR with aluminized asphalt topcoat and Granulated Modified Capsheet with aluminized asphalt topcoat.

Project Overview: A school district in central Kansas was starting to have some aging issues with their asphalt roofs. In some areas, the cap sheet was “bubbling” and “delaminating,” in other places the seams were failing, and in yet others the parapet walls and penetrations needed to be re-flashed. The District was looking for the most cost effective option while still hoping to get a viable 10-year warranted system for the building. The School District was not aware of white reflective roof coatings as an option for their aging roof. Throughout the years many contractors



An added benefit to a building owner is that often a coating system can be fully expensed in the year of installation as a repair and maintenance item.



Elastomeric roof restoration systems offer building owners cost-saving alternatives to full removal and replacement.

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Throughout the years many contractors had been in the school district office talking about removal and replacement of the roof system. The specific company who was awarded this project was the only contractor to offer a white reflective roof coating option.

Substrate Preparation: Most elastomeric coating system guidelines require a properly prepared substrate before the application of the coating restoration system. For this particular system, there were some concerns that needed to be addressed. First, there were numerous delamination bubbles in the granular modified bitumen cap sheet. These needed to be cut out and repaired with similar materials. Second, there were a number of hail-damaged areas that were sealed. Third, all minor deck repairs were made and flashed-in with repair sealant.

Last, the flaking aluminum coating that was currently in place needed to be cleaned and removed as much as possible. Coating systems are only as good as what they are applied to, and in this case the aluminum coating was nearly 70% removed from the surface in order to obtain a good substrate for application. Commercial rotary deck scrubbers along with 3500 PSI Turbo Tip pressure washers were used to clean the substrate before basecoat was applied.

Coating System Installation: Once the asphalt BUR was properly prepared, a bleed blocking basecoat was applied at a rate of 1.5 gallons per 100 square feet in one application pass.

After the basecoat cured, all-purpose urethane hybrid repair sealant was applied to all flashings and penetrations, as well as the asphalt terminations on top of the parapet walls. Once all sealant was applied, a high tensile acrylic coating was applied at a rate of 1.5 gallons per 100 square feet in one pass. The high tensile acrylic coating was chosen as the topcoat because of its ability to stay whiter longer than traditional acrylic coatings. It also has very strong tensile strength properties, which in turn help with foot traffic durability on the roof. And lastly, the high tensile finish coat has a glossy sheen to it which makes it a much brighter and aesthetically pleasing look.

Final Job Considerations: Overall, the project was completed on time and on budget. An added benefit was that the low VOC products that were used made it possible for the students and teachers to continue with classes as usual. The initial roof substrate temperatures were ranging in the

50,000 Square Feet Asphalt BUR System	
Option A: "Traditional" Option (Tear off and Replacement)	Option B: New Option (Coating Restoration System)
Year 1: \$400,000 New Roof (based on \$8 per square foot installation cost)	Year 1: \$400,000 New Roof (based on \$8 per square foot installation cost)
Year 5: \$5,000 Repair/Maintain	Year 5: \$5,000 Repair/Maintain
Year 10: \$5,000 Repair/Maintain	Year 10: \$5,000 Repair/Maintain
Year 15: \$500,000 Replace (based on \$10 per square foot replacement cost due to inflation)	Year 15: \$112,500 Restore (based on \$2.25 per square foot restoration cost)
Year 20: \$5,000 Repair/Maintain	Year 20: \$5,000 Repair/Maintain
Year 25: \$5,000 Repair/Maintain	Year 25: \$5,000 Repair/Maintain
Year 30: \$600,000 Replace (based on \$12 per square foot replacement cost due to inflation)	Year 30: \$63,000 Restore (based on \$1.25 per square foot restoration cost)*
Total Cost: \$1,520,000 Cost	Total Cost: \$595,500

*The year 30 restoration cost is only \$1.25 because in the re-coat application the contractor only needs to wash and re-coat. So in order to maintain warranted status, there is much less labor and material involved for the 30-year re-coat process.

Comparison Table

150 to 165 degrees Fahrenheit range before the system was applied. After the system was installed, the substrate temperature was 90 to 100 during the hottest time of the day. This drop in thermal shock on the roofing system will significantly extend the life of the roofing system.



Kansas school district roof after restorative coating is installed.

Additionally, the savings in amount of weight of material thrown in the landfill is significant. This was not only a cost savings for the school but provided a much greater environmental benefit. Lastly, the most important consideration from the perspective of the District's decision makers was the cost

savings benefit to the building owner. Above is a detailed outline of a 30-year life cycle cost of a coating restoration system versus the traditional tear-off and replacement.

As you can see in the comparison table, when you look at a 30-year life cycle cost analysis it makes perfect sense to offer a restoration system at year 15 with a re-coat of the restoration system at year 30. This approach can be up to 50% cheaper over the 30-year period than the traditional tear off/replacement approach.

Conclusion: Roof coatings are the fastest growing segment of the commercial roofing industry. There is no arguing that when a coating restoration system is done right and applied to the right roof, a building owner can often save significant money by converting their roof to a sustainable solution rather than just removing it. As the roofing industry evolves, liquid applied "manufactured-in-place" roofing systems are becoming more and more accepted and viable. Roof coating technologies have never been better which is giving building owners and decision makers fantastic new cost saving options in lieu of total tear off and replacement. ■

John Linnell has worked in the coatings industry since the 1980s. With a Chemistry Degree from the Auckland Institute of Technology in New Zealand, John has worked in every facet of the industry from process engineering and quality control to new product development and sales. With his expertise, he has served on the board of Reflective Roof Coatings Institute and is a founding member of the Cool Roof Rating Council. John can be reached at 1-800-575-8966 or jmlinnell@everestssystemscos.com. www.everestssystemscos.com



A birdseye view of the completed Dallas Love Field Modernization Project.

Safety: Every Day, All The Time, No Excuses

For this project, Chamberlin chose to erect the perimeter safety line eight feet in from the edge of the roof due to the increased pedestrian traffic on the jobsite. Panther carts were utilized for the crew members to tie their fall protection harnesses to for increased mobility. In lieu of other tie-off anchor points, the Panther carts allowed the crew to work more quickly, without having to stop to untie and re-tie themselves to different anchor points.

Another fall protection tool Chamberlin used to enhance productivity was a horizontal lifeline. This steel cable ran across the roof attached at each end with fasteners and a deck plate. This was another tie-off point for the crew members that allowed them to work freely and efficiently all over the roof. The project successfully concluded on time and with zero safety incidents.

A Noteworthy Job

Precise care was taken to provide the highest quality installation of the GAF PVC and Firestone TPO roof systems. Very few punch list items were found for any of the roofs installed. Brett Biggers, Soprema Regional Technical Manager, commends Chamberlin on the excellent workmanship and professionalism exhibited on the Dallas Love Field Modernization

project saying, “There were numerous design, installation and logistical challenges associated with the project in addition to the weather extremes throughout the project’s lengthy duration. Despite these challenges, the project was completed with minimal deficiencies.”

Chamberlin is honored to have been a part of such a transformational project for a Texas State Historical Site that plays a large role in Dallas’ community. ■



The finished GAF Roof at Dallas Love Field entryway.

Employee Profile



Patrick Halaszyn
Operations Manager —
Waterproofing & Caulking
Austin, TX

Experience:

Pat first started his career out of college working in the semiconductor industry, performing testing and certification of cleanrooms and process equipment. This work took him across the states and even overseas, living on the road for most of his early career. Eventually he settled down in Houston, Texas, with his wife, Caryn, and sought a job locally that required less travel. Almost 10 years ago, he was hired at Chamberlin as an Assistant Project Manager in the Waterproofing & Caulking department. He learned waterproofing from scratch - spending time in the field, watching and listening. Over the past decade, he has worked his way up to Operations Manager and has been involved in some of Chamberlin’s highest profile projects, including the recent construction of the JW Marriott in Austin, Texas. Pat takes pride in his accomplishments at Chamberlin and says, “Watching the business grow in Austin has been very rewarding.”

A Day in the Life:

Pat can attest that the early bird gets the worm. Often at the office by 5 am, he gets organized for the day and makes sure his crews have the information, paperwork and materials they need for their projects. Throughout the day, you will find him on the job site or taking care of business in the office.

Outlook:

Pat works to develop a relationship with each of his clients by making sure he has time in the field to interact with them personally. These relationships help him to understand the client’s point of view and how Chamberlin can best serve them. Teamwork is a huge contributor to quality and productivity, according to Pat. “Everyone from upper management to the laborer has to work together for the whole group to be successful,” he said. “Superintendents working alongside their crew not only increases production by having one more set of hands on the job, but this also motivates the crew, thereby increasing their quality.”

“Pat is a valuable Operations Manager,” said Art Canales, Chamberlin Executive Vice President, “he has a big heart and takes ownership of issues. He truly understands the meaning of teamwork.”

Ultimately, Pat believes with anything you do - no matter the task - do your very best, and give it everything you’ve got. Don’t ever quit.

Outside the office:

In his down time, you may find Pat enjoying the peace and quiet of a forest, as he hunts dinner for his family, or perhaps, sprucing up his yard. But his greatest joy is spending time with his family, including his two kids, Cooper and Emerson. He enjoys quality time with them by serving as their Boy Scout troop assistant den leader. ■

We asked Pat to choose his favorites from this random list of things as a way to get to know him a little better:

PAT’S PICKS:

SEC	Big 12
Sit Down	Buffet
Han Solo	Indiana Jones
Fresh	Frozen
Pat Green	Pat Benetar

PROJECTS IN PROGRESS

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FAIRMONT AUSTIN HOTEL – AUSTIN, TX

New Construction Roofing & Waterproofing

Contract amount: \$3,200,000
Owner: Manchester Texas Financial Group
Architect: Gensler
Consultant: Curtainwall Design Consultants
General Contractor: Hunt Construction Group
Scope of Work: Single-ply PVC roofing system, sheet metal, hot fluid-applied waterproofing, pavers, traffic coating, fluid-applied air barrier, below-grade waterproofing, joint sealants
Project Description: 37-story hotel

HALLMARK – HOUSTON, TX

Remedial Waterproofing

Contract Amount: \$350,000
Owner: Brazos Presbyterian Homes, Inc.
Consultant: JP Consultant
General Contractor: Chamberlin Roofing & Waterproofing
Scope of Work: Clear optic sealer, brick replacement, tuckpointing, power washing
Project Description: Exterior renovation of senior living community

TI SOUTH BUILDING PARKING GARAGE – DALLAS, TX

Remedial Waterproofing

Contract Amount: \$200,000
Owner: Texas Instruments
Architect: MJD II Architects
General Contractor: Tecton Services, LLC
Scope of Work: Joint sealants, vehicular expansion joint, vertical preformed expansion joint, stairwell expansion joint cover
Project Description: Parking garage renovation

ST. LUKE'S UNITED METHODIST CHURCH – HOUSTON, TX

New Construction Roofing & Replacement

Contract Amount: \$650,000
Owner: St. Luke's United Methodist Church
Architect: Jackson and Ryan Architects
General Contractor: Brookstone Construction
Scope of Work: New SBS modified bitumen roofing and shingle roofing, removal and replacement of existing roof systems, sheet metal and flashing
Project Description: New worship center and renovation of existing buildings

BNSF HASLET DISPATCH DR TRAINING – FORT WORTH, TX

New Construction Roofing

Contract Amount: \$250,000
Owner: Burlington Northern Rail Road
General Contractor: Austin Commercial, LP
Scope of Work: Single-ply TPO and standing seam metal roofing systems
Project Description: Burlington Northern Santa Fe Railroad training facility

RENT-A-CAR FACILITY – DALLAS, TX

Remedial Waterproofing

Contract Amount: \$1,000,000
Owner: Dallas-Fort Worth International Airport Board
Architect: Parsons
General Contractor: Chamberlin Roofing and Waterproofing
Scope of Work: Removal and replacement of expansion control joints
Project Description: Parking garage repair at Dallas-Fort Worth Airport

OKLAHOMA UNIVERSITY RESIDENTIAL COLLEGE – OKLAHOMA CITY, OK

New Construction Waterproofing

Contract Amount: \$200,000
Owner: The University of Oklahoma
Architect: ADG, Inc.
General Contractor: JE Dunn Construction
Scope of Work: Below-grade bentonite waterproofing, air barrier, expansion joints, site sealants
Project Description: Mixed use dormitory

SKY HOUSE ON MAIN – HOUSTON, TX

New Construction Roofing

Contract Amount: \$400,000
Owner: Skyhouse Houston II, LLC
Architect: Smallwood, Reynolds, Stewart, Stewart & Associates
General Contractor: Batson Cook Company
Scope of Work: Installation of single-ply roofing and sheet metal
Project Description: Residential high rise

HENRY B. GONZALEZ CONVENTION CENTER – SAN ANTONIO, TX

New Construction Waterproofing

Contract amount: \$950,000
Owner: City of San Antonio
Architect: POPULOUS, Inc., Marmon Mok
General Contractor: Hunt-Zachry, A Joint Venture
Scope of Work: Below-grade waterproofing, sheet metal flashing, air barrier, site sealants, joint sealants, insulation, crystalline waterproofing, water repellents
Project Description: Convention center expansion

OKLAHOMA UNIVERSITY HEALTH SCIENCE CENTER – OKLAHOMA CITY, OK

New Construction Waterproofing

Contract Amount: \$500,000
Owner: University's Association
Architect: Bockus Payne Associates Architects
General Contractor: Manhattan Construction Company
Scope of Work: Dampproofing, bentonite waterproofing, water repellent, thermal insulation, fluid-applied air barrier and joint sealants
Project Description: United Healthcare student resources academic office building

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