

Too often, restoration is thought of as a miracle that will fix any problem on any roof. Be warned: It is not. Restoration will extend the life of a roof that is in good repair, delaying for years, even decades, the day when a new roof is needed. However, it will not make an unsound roof sound again; in these cases, replacement is in order. It also will not magically resolve pervasive leaks, ponding water and other performance issues. The appropriate repairs must be made before the roof is restored or the problems will only get worse.

Contractors also must view replacement and restoration projects through different lenses. On a tear-off project, the existing roof's type, material manufacturers and installation methods are irrelevant. When restoring a roof, though, those things are highly relevant. Compatibility with the existing roof is a vital consideration when choosing the coating system to be used or the adhesive that will be used to attach a new membrane.

Assessing the Existing Roof

Stories of roof restoration "failures" have circulated through the roofing industry for years. These tales have given restoration a bit of a black eye – one that is undeserved. When restorations fail, the cause is virtually never the products used but rather because the roof should not have been restored in the first place. The products were used in an environment they were not meant for.

The contractor should start by completing a thorough visual inspections of the roof. Trash and debris should be removed to provide a clear view of the underlying and existing roof substrate. Among the things that should be looked for are:

- Ponding water or decking that is rusted, rotted, or cracked. These may indicate that the roof deck has reached the end of its service life, and the roof must be replaced.
- Spots that feel soft when walked upon. These are signs of saturated insulation. Further investigation should be done to determine whether the leak is small and can be repaired or whether the problem is more pervasive.
- Splits in the membrane. Those may be signs of unanchored insulation or damage caused by hail or temperature swings. The reason must be determined so that the appropriate action can be taken. The assessment should also include core cuts and a moisture survey. Similar to soil samples, core cuts show all layers of a roof, revealing its history and condition.

Cylindrical cuts, approximately 1.5-2 inches by one foot (3.8cm by 30.5 cm), are made to remove samples of all roof layers down to the deck. One sample per 40 to 50 squares (approximately 371.6-464.5 meters squared) should be taken (and more samples taken of the roof appears to be in poor condition).

A moisture survey is essential to ensure that the underlying substrate is dry. Several options are available:



Photo 2: This photo shows a building's roof post roof restoration.

- Infrared Moisture Scan: A handheld or drone-mounted infrared camera is used to scan the roof for moisture. Wet areas will glow "hotter" because the moisture will retain heat longer. The roof should be scanned at dusk when the distinction between "hot" and "cool" areas will be greatest.

- Electronic Leak Detection (ELD): the tests require that a conductive material, such as Detec TruGround Conductive Primer, has been applied to the substrate directly below the membrane. Water is applied to the substrate directly below that membrane. Water is applied to the roof surface, which is then scanned using a high-voltage or low-voltage ELD device. If leaks are present, the water will create electrical connections to the grounded roof deck, enabling the device to pinpoint their locations.

- Nuclear Resonance Imaging: This is an alternative to ELD when. A conductive material is not present. A robot sends radio impulses into the roof to detect water. The impulses can penetrate up to 2.5 inches (6.4cm) and are effective in assessing one layer of roofing.

Weighing the Options

Using the data gathered, contractors should consider a variety of factors to determine whether the roof can be restored. If the roof is found to be unsound for any reason, it must be replaced.

If pervasive leaks are discovered, it is safe to assume that the roof has leaked for quite some time and the insulation and roof deck throughout are compromised. The roof should be replaced.

But if leaks are small and their locations are known, they can be repaired and the roof restored.

The building owner's insurance company often makes the final decision on repairs. From the insurer's perspective, replacing the roof removes subjectivity; they know that the new roof will be back up to code and covered under warranty. But if the restoration will come with a satisfactory warranty and the work can be completed at a fraction of the cost of replacing the roof, insurers will approve a restoration.

The good news is that today's more robust coatings and single-ply membranes are backed by strong warranties. No Dollar Limit (NDL) system warranties of up to 20 years are available when coating commercial buildings. When recovering a roof on a commercial

building, NDLs of up to 30 years are available with TPO and EPDM and up to 20 years with PVC and modified bitumen.

Finally, contractors should not "force" a roof restoration when replacement is truly required. If immediate action is needed to protect the building and its contents but there will be a significant delay in replacing the roof, contractors should employ temporary solutions that will buy the needed time. Temporary options include heat-shrink systems and traditional tarps and sandbags.

Choosing the Right Restoration Technique

Once the decision to restore has been made, contractors should consider the following in determining whether coating or recovering is the best option:

- Does the entire roof need to be restored? If only a portion of the roof is problematic, installing new single ply membrane on that area while leaving the rest of the roof as-is may solve the issue at a lower cost.
- If the roof is coated, how close to "near new" will it be? If the existing membrane has deteriorated to the point that coating it will not breathe substantial new life into it, recovering may be a better choice.

A fluid-applied roofing system is considered a maintenance system rather than a new membrane or new roof. Thus, the quality, durability and performance of the underlying and existing roofing system must be of a quality and performance that can be maintained and extended, rather than needing to be replaced or repaired.

Whichever restoration option is chosen, contractors should consult the coating or membrane manufacturer for guidance in selecting the right products for the job. Factors to consider include the existing roofing system type, building type, local climate conditions, local building codes, budget and desired warranty. Contractors should then carefully follow the manufacturer's application or installation instructions to ensure a quality project. Manufacturers stand ready to provide support and training, as needed.

Building owners are increasingly recognizing the benefits of restoring their existing roofs and delaying the cost, hassle and environmental impact of replacing them. A contractor's first step in helping their clients reap those rewards is a bit of an investigative work to confirm that the roof is a good solid candidate for restoration and, if so, whether coating or recovering is the appropriate choice.

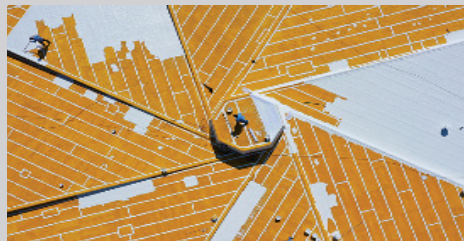


Photo 3: This photo shows a roof that is undergoing a roof restoration.



LOCATIONS:

HOUSTON

4545 Langfield Road
Houston, TX 77040
Ph. (713) 880-1432

DALLAS/FT. WORTH

2170 Diplomat Drive
Farmers Branch, TX 75234
Ph. (214) 273-9110

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Buda, TX 78610
Ph. (512) 275-1600

SAN ANTONIO

146 Industrial Drive
Cibola, TX 78108
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OKLAHOMA CITY

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PROJECTS IN PROGRESS

CITY OF HOUSTON TRANSTAR - HOUSTON, TX

Remedial Waterproofing
Contract Amount: \$600,000 (approx.)
Owner: City of Houston
General Contractor: TDI Industries
Scope of Work: Masonry and through wall flashing removal and replacement at window heads, damaged brick replacement and tuckpointing repairs, masonry sealants, window perimeter sealants and wet sealing, exterior facade and window cleaning, stucco soffit coating, rooftop antenna structure painting, site pavement and sidewalk sealants.
Project Description: Greater Houston Transportation and Emergency Management Center

1600 LAMAR ST. - HILTON AMERICAS - HOUSTON, TX

Remedial Waterproofing
Contract Amount: \$4.2 million (approx.)
Owner: Houston First Holding, LLC
Architect: Gensler
Scope of Work: Removal of existing roof down to existing deck, furnish and install vapor barrier, polyisocyanurate insulation, Dens Deck Prime coverboard, TPO fleece-back roof membrane, TPO membrane flashings, pipe penetrations, sheet metal counterflashings, TPO coated metal pitch pans, custom color/finish sheet metal, all covered by a 20-year manufacturer warranty.
Project Description: Upscale Downtown Hotel with Rooftop Terrace

HANOVER TURTLE CREEK - DALLAS, TX

New Construction Roofing
Contract Amount: \$2.4 million (approx.)
Owner: Hanover Company
General Contractor: Hanover RS Construction, LLC
Scope of Work: Full building envelope above and below grade waterproofing, roofing, sheet metal, joint sealants, site sealants, expansion joints and firestopping.
Project Description: Multi-Family Apartment Tower and Garage

TTU SOUTH END ZONE - DALLAS, TX

New Construction Waterproofing & Sub Roof
Contract Amount: \$3.8 million (approx.)
Owner: Red Raider Facilities Foundation (Texas Tech)
Consultant: WJE
Architect: Populus
General Contractor: Joint Venture Between Manhattan Construction & Lee Lewis
Scope of Work: Subroof, below grade waterproofing, elevator pit waterproofing, above grade waterproofing, joint sealants, air barrier, hot fluid-applied waterproofing, traffic coating, dampproofing, flashings, expansion joints and firestopping.
Project Description: Endzone/Seating Structure & Football Training Facility for the Texas Tech Football Stadium

SMU END ZONE - DALLAS, TX

New Construction Waterproofing
Contract Amount: \$1.2 million (approx.)
Owner: Southern Methodist University
Architect: Hellmuth, Obata & Kassabaum, Inc.
General Contractor: JE Dunn
Scope of Work: Below grade waterproofing, air barrier, traffic coating, joint sealant, insulation firestopping and hot applied.
Project Description: Extension of the Existing SMU Stadium

SITE 3 WAREHOUSE - TAYLOR, TX

New Construction Roofing & Waterproofing
Contract Amount: \$1.7 million (approx.)
Owner: Taylor Site Three, LLC
Architect: Powers Brown Architecture
General Contractor: EBCO General Contractors, LTD
Scope of Work: Installation of joint sealants, site and paving sealants, TPO, flashing and sheet metal.
Project Description: Warehouse for Semiconductor Fabrication Facility

KARLIN - PWA - AUSTIN, TX

Remedial Waterproofing
Contract Amount: \$1.6 million (approx.)
Owner: Karlin
Architect: Page
General Contractor: Turner Construction
Scope of Work: Installation of air barrier, sheet metal flashing, joint sealants, expansion joints and PUMA below grade waterproofing.
Project Description: Class A Commercial Office Building

BILL MILLER HQ - SAN ANTONIO, TX

New Construction Waterproofing
Contract Amount: \$400,000 (approx.)
Owner: Bill Miller Bar-B-Q
Architect: RVK Architecture
General Contractor: SpawGlass Contractors, Inc.
Scope of Work: Exterior composite installation, fluid-applied air barrier, laminated sheet metal flashing, joint sealants (tilt wall joints, head of cmu, cmu control joints), slab on grade joints (semi-rigid epoxy at saw cuts), concrete floor densifier and spray foam insulation.
Project Description: New Headquarters & Central Meat Production Facility

TAMU SAN ANTONIO REC CENTER - SAN ANTONIO, TX

New Construction Roofing
Contract Amount: \$500,000 (approx.)
Owner: Texas A&M San Antonio
Architect: MarmonMok Architecture
Consultant: GNA Architects
General Contractor: Chamberlin Roofing & Waterproofing
Scope of Work: Installation of TPO roofing.
Project Description: Brand New University Recreation Center with Gym, Weight Room and Locker Rooms

OKANA WATERPARK - OKLAHOMA CITY, TX

New Construction Waterproofing
Contract Amount: \$1.5 million (approx.)
Owner: AICCM Land Development
Architect: Architectural Design Consultants
General Contractor: Manhattan Construction
Scope of Work: Installation of waterproofing, firestopping and sealants.
Project Description: Indoor Waterpark & Resort



FALL 2023

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NEWSLETTER

Houston House Exterior Renovation



This picture is an aerial-view taken intended to capture House House in Houston, Texas.

The Houston House Apartments is a 31-story Apartment Complex that was built in 1966 and has welcomed guests such as Elvis Presley and the King of Spain. The 396-unit apartment tower sits on the south end of Downtown Houston and was originally designed by Charles M. Goodman Associates. The Houston House Apartments is also known for its unique ability to provide its breathtaking views of the popularly known Downtown Houston Skyline, a rooftop pool and a wide range of other amenities in the surrounding area, along with floor-to-ceiling windows, luxury granite countertops and private balconies.

The apartment tower underwent interior renovations and upgrades to the MEP system

in 2010 with Kirksey Architects. The project was in dire need of structural renovations to the balconies, parking garage, balcony railing and joint sealants through-out. In 2017 ColRich started a structural renovation of these work items with a different contractor.

The project was then put on hold that same year and ultimately put back out for rebid in 2019. Chamberlin was successful on the award of this project through a lump sum contract that had unit prices that would cover the owner for any additional or deductive work that was needed during the construction process to not slow down the repairs. Major structural repair projects require significant costs for access, overhead

(Continued pg. 2...see Houston House)

CONSULTANT'S CORNER



Jeremy Grunewald
National Product Manager
Mule-Hide Products Co. Inc.



Chris Kuykendall
Fluid-applied Segment Manager
Mule-Hide Products Co. Inc.

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- Membrane waterproofing
- Elastomeric wall coatings
- Traffic coatings
- Expansion joints
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- Water repellents/metal flashing

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

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production, material handling and ensuring safety for the public during the construction so it was vital to have those prices in place to not delay decision making on additional quantities of repairs. This major structural repair, painting and balcony railing project has brought new life to the Houston House Apartments with a refreshing new look that transformed the Downtown Houston Skyline.

SAFETY FIRST

Chamberlin, the project engineer and the material manufacturers all had a hand in quality control for this project. The project team working together and observing the progress of the scopes throughout the job helped deliver the highest quality possible on this exterior renovation, that the owner was pleased with. Chamberlin performed daily QA/QC checks to ensure that we we're maintaining high standards. Adhesion tests were performed on the wet glazing sealants, as well as on the balcony coatings. All the different adhesion tests passed. PSI was a third-party consultant contracted by the owner, ColRich, that took care of reviewing all of our concrete repair installations periodically. A Job Hazard Analysis (JHA) covering each task performed was also developed for this project and reviewed by the project superintendent. It was communicated to crew members each day before work began. Stretch and flex exercises were also performed. All equipment was inspected by a competent person daily before use.

It was extremely important for the crew to inspect the equipment each day before beginning work to confirm proper functionality as well as keep safety as a primary focus while working. Being that high up, correctly inspecting, anchoring and wearing fall protection gear could be a matter of life or death in the case of an accident. The team wore appropriate Personal Protective Equipment including harnesses, gloves,

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(Roof Restoration or Replacement continued from pg. 1)



Photo 1: This photo shows a roof that was freshly re-coated.

There are a few other benefits. The cost can be dramatically lower than replacement. The building's energy efficiency can be significantly enhanced. There is far less disruption to normal building activities. The roof will be back by a fresh warranty. And it is a much more sustainable choice.

But not every roof is a good candidate for a restoration. A variety of factors must be weighed in selecting the best way to restore a given roof. Every job must begin with the contractor asking two important questions:

1. Should the roof be restored?
2. If so, how?

Restoration or Replacement - There is a Difference

Roofs can be restored in two ways. The roof can be coated with one of a variety of fluid-applied systems, including silicone, acrylic and styrene-ethylene-butylene-styrene (SEBS) thermoplastic elastomer. Or the existing roof can be recovered with new thermoplastic polyolefin (TPO), ethylene propylene diene monomer (EPDM), polyvinyl chloride (PVC), or modified bitumen.

In either case, a restored roof is not the same as a brand-new roof and it should not be presented to owners as such. It is imperative that contractors understand what roof restoration can – and – cannot accomplish and the different mindsets required when approaching restoration and replacement projects. Then they can communicate that to the owners.

vests, safety glasses and hard hats.

It was extremely important for the crew to inspect the equipment each day before beginning work to confirm proper functionality as well as keep safety as a primary focus while working.

Safety is something that our different crews are required to implement before anything else every single day, no matter how big or small the job is. Without safety you essentially have nothing at all.

VALUE ANALYSIS/ENGINEERING

By contract, the 31-story apartment complex was to be completed by March of 2023, starting in December of 2019. The entirety of the project was based around safety. Not only completing the project in a safe manner but adding value to the Houston House by fixing issues that arose that would promote better safety to the building, the tenants and the area surrounding the building.

During production, the team discovered a safety risk on every fifth-floor balcony. The outer balcony wall appeared to be barely hanging on. After thorough research and a review of the area was complete, our team and the engineer, Structural Engineering Solutions, decided that it was important for us to move forward with removing all the dangling walls, to prevent the outer balcony walls from falling in the future.

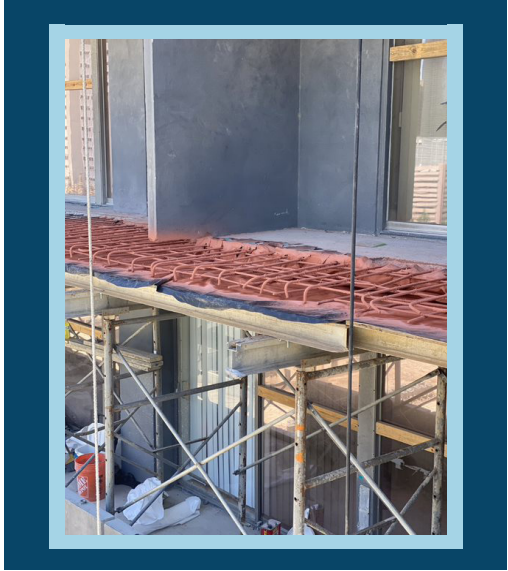
At Chamberlin we promote safety through and through in everything that we do. It is something we stand for no matter if it is in the office, in the field or safety anywhere else. This is conveyed in one of our Chamberlin values Safety, Quality, Teamwork, where it states that “none of the work we do can be considered a success, even if we do a quality job, if our safety efforts fail.”

(Houston House continued from pg. 2)

OBSTACLES OVERCOME

With the scope expanding as much as it did, the hot weather conditions the team had to undergo and the rise of COVID-19, our team did a great job adapting and growing each step of the way. Since the Houston House Apartments were occupied during the entirety of this project, the team had to come up with creative strategies to get the job done with tenants around. It was crucial for us to maintain positive and communicative relationships with all the tenants and do everything we could to ensure their happiness. The tenants not only had to deal with all the chaos of construction, but they were also dealing with COVID-19, which was a new, difficult and fearful time for all of us. The way we ensured the tenants safety, as well as our own, was by following all the mandated CDC guidelines. Not only did it make the tenants feel safer, but it also protected the team as well.

The team also had to come up with unique strategies to bring thousands of yards of concrete up to all the different stories in Houston House. The heavy loads had to be moved in high temperatures and it wasn't easy to do. The key to accomplishing this task effectively, was by having a planned out assembly line. Some of the team members were mixing the concrete, while others were helping load the materials and product on swing stages, while ensuring that everything was mobilized before it was pulled up to the story it needed to go to. One of our employees even stated, “this is how the Mayans must have felt when the pyramids were being built in a hot climate.”



EXTENUATING CIRCUMSTANCES

One of the main things we had to repair at the Houston House included patching concrete and a lot of it. In some cases, we had to go into occupied units, where people were still living their day-to-day life. We had to go in and remove their sliding glass balcony doors and remove parts of their flooring to access the root of the issue. From there we would put up plywood walls to separate the area we were repairing in their apartment to do work from the area they were still living in. In addition to this, we also had to barricade every single glass sliding door, to ensure the safety of each tenant living in the building while the balconies were being rebuilt. The barricades helped prevent the tenant from getting injured and from using the areas in their apartment during that time. This caused issues for some of the tenants, but we made sure to do the best that we could in working with each tenant to ensure that they understood the different processes taking place during production.

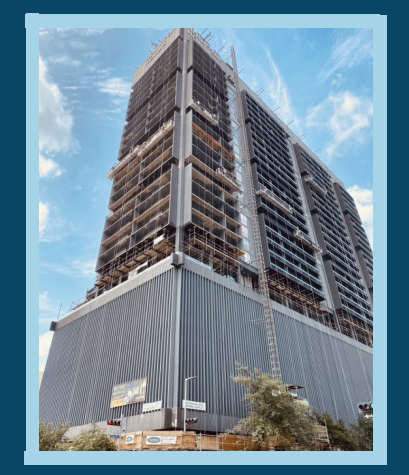


PRODUCTIVITY

Although the scope and timeline for this project ended up being much larger than we originally thought, we needed to make sure that we finished production on time for a variety of different reasons.

First being, that adding a level of disturbance for construction purposes, to the normalcy of the Houston House tenants lifestyles was becoming a burden on them. The owner was alleviating

these disturbances, by offering rent relief discounts to tenants, to compensate for the situation taking place. This caused the owner to lose money because of the situation at hand. Therefore, we needed to get the job completed in a timely and safe manner, so that tenants and the owner could both return back to living life and business as usual.



Another way that we were able to stay productive, was by finding unique ways to achieve the tasks at hand. For example, it was a large task to mobilize the products and materials going up and down on the swing stage. In order to plan and assess mobilization differently, we started using the vacated units to mix and store the concrete, to save on the amount of mobilization that we were doing prior to implementing this time saving strategy. This also helped the team keep extra materials out of the way and store them in a place that was easier to access.



Employee Profile

Jose Ortiz
Field Operations Manager
For Waterproofing & Caulking
Dallas, Texas



Where it All Started:

Jose's career started out when he was working as a window washer for buildings in Downtown Dallas. Being a window washer for buildings in Downtown Dallas, was his initial introduction to working in proximity with construction. This is where Jose's interest in seeing how buildings are made began. After doing his own research he knew he wanted to work in the construction industry to some degree, but with a company that performed the best within it. Shortly after, he ended up hearing about Chamberlin Roofing & Waterproofing and about the quality in our work. From that point forward he knew he wanted to join and be a part of our team here.

A Day in the Life:

A typical workday for Jose would be catching up with all his emails, this ensures that his day is started off on a productive foot. After this, Jose likes to reach out to his field supervisor, especially if there are any problems so they can collaborate on the best solution for the situation at hand together. After Jose finishes his morning meetings, he will go out into the field to visit projects to ensure they are going smoothly. Towards the end of his workday, he ensures there will be the appropriate amount of manpower power for each project for each day ahead.

Outlook:

In Jose's opinion, you cannot achieve positive customer service, safety, quality, or teamwork without proper communication with all parts of the company. Jose believes communication is the key to having successful projects at work and even in your personal life too. These four factors are needed to be successful in what you're trying to achieve.

Notable Projects:

Some of the notable projects that Jose has been a part of include the following:

a. Katy Station (2016-2018): Katy Station is a multi-family apartment building of 30 stories. Jose mentioned that they performed above/below grade scopes of wet glaze, traffic coating, air barrier, expansion joints and pavers.

b. Rolex Building (2016-2018): The Rolex Building is a 7-story building which also includes five stories of underground parking. The team formed this project be doing above/below grade scopes of hot/cold applied, traffic coding, sheet metal, blind sides and air barriers.

c. The Village (2017-2021): The Village is a complex that includes that includes 18 buildings that are apartments, offices and even a hotel. For this project the team performed above grade/below grade scopes of below grade, damp proofing, hot/cold applied, joint sealant, traffic coating, pavers and air barriers.

Greatest Personal Accomplishment:

Jose's greatest personal accomplishment was learning how to speak English. He can now confidently start conversations with his coworkers and understand what he is be told when others are talking to him. He also feels like he can be more active with his daughters' school life by attending school meetings and helping with their homework when they need help.

Life Without Chamberlin:

If Jose didn't have Chamberlin in his life, he would most likely pursue a career as a car mechanic. He has always been interested in the breakdown of car motors and how they are built from start to finish and how complex they are.

What Can You Consistently Expect From Chamberlin Roofing & Waterproofing?

At Chamberlin we Deliver More than quality work. We deliver a positive project experience through our continued commitment to the values we set in place more than 125 years ago. Values like diligence, pride, honesty, commitment, loyalty and ingenuity are the guideposts of our work.

