

A Cactus Wren, a Coatimundi and an Airport

MAPEI Helps Construct a Southwestern Masterpiece

A cactus wren, a coatimundi and an airport? Add a gila monster and a scorpion, and people in Phoenix, Arizona, would know that you are talking about Terminal 4 at Phoenix Sky Harbor International Airport. These denizens of the Southwestern United States form four separate themes that are united in tile covering 100,000 square feet of the terminal's floor. When Anthony Scuderi of Scuderi Tile first opened the plans for the job, he and his team could only say, "Wow!"

The project called for the installation of more than 35 colors of tile from eight different Italian tile manufacturers to be installed throughout the length of the building. The tiles ranged in size from 4" x 4" to 18" x 18", but that wasn't the most daunting challenge. Almost all of the tiles would have to be cut on site and many would have to be set to form different geometric patterns. The patterns would reflect the theme of four water-jet-cut medallions that would be placed in the lobby space of the terminal's four different sets of elevators. The elevator walls in each area would be covered with 5" x 5" glazed clay tiles supplied by Facings of America.

In addition to the inherent problems related to the intricate work, Scuderi's installers would have to complete the installation in a fully operational terminal. The work would be done during the day as passengers were arriving and departing from the airport. Terminal 4 includes the International concourse, where up to 800 passengers per hour can pass through the checkpoints on their ways to and from the departure and arrival gates.

Project management was key to meeting the challenges of the Sky Harbor job. Scuderi selected Philip Aldrete, one of his best managers with over 14 years of experience, to head up the team that would tackle this tile masterpiece. "And, of course, we chose to use MAPEI products for the surface preparation and tile installation because we have used them for years," said Scuderi.

“MAPEI is the Cadillac of all products, and we wouldn’t use anything less on this elaborate project.”

Aldrete worked out a solution to each challenge as it arose. Early in the substrate preparation phase, he worked with the MAPEI Sales Representative and MAPEI Field Technical Consultant to determine the best course of action. The first MAPEI inspection report of the site included the following suggestion:

“Visual observations of the substrate revealed noticeable amounts of gypsum patch, adhesive residue and epoxy coatings on the surface that will receive tile. The substrate needs to be properly prepared to industry and MAPEI Surface Preparation requirements.

A mapping system should be used in locating any visible profile cracking after scarification. Then *Mapelastic™ SM* with primer should be used to isolate cracks above the *Ultraplan® M20* topping prior to thinset application.”

Aldrete agreed with this advice. His team covered the entire 100,000 square feet of Terminal 4 with *Ultraplan M20* self-leveling underlayment and topped it with *Mapelastic SM* crack-isolation sheet membrane. Expansion joints were placed every 20 feet, as recommended in the TCNA handbook.

The tile layout was so complex that Scuderi Tile had to call on the help of computer technology. They hired an on-site engineering firm to plot points for the layout on a CAD (computer-assisted drawing) system. Once the points were plotted on a graph, installers put the computerized plans on the floor and followed them for setting the geometric patterns in the layout. Richard Houtz of Scuderi Tile took the responsibility for overseeing the layouts, and his success can be seen in the final results.

Another big hurdle involved working during the airport’s hours of daytime operation. The City of Phoenix Aviation Department required that the installers work on only 2,000 to 4,000 square feet of space at a time. The Aviation Department provided dividers to separate the installation area from the airport’s passengers for much of the work. The size of the inset designs meant that Aldrete’s team often came to the end of their workspace when they were in the middle of one of

the colorful tile patterns. “We needed guide points to ensure that the designs would be laid out correctly when we completed each component,” said Aldrete. “We wound up drilling holes through the walls of the dividers and triangulating with lasers to make certain our current tile-setting would line up with the rest of the geometric shape. This part of the work was done when no passengers were in the vicinity.”

All of the tile, except for the medallions, was cut on site. Scuderi used Facings of America to coordinate the sizing of the different tiles from each of the Italian manufacturers. “That was one big problem off our shoulders,” said Anthony Scuderi. “I have seen installations where it was impossible to coordinate logistics from just two tile companies. Facings did an excellent job of keeping everything synchronized, which made our job just a little bit easier!”

To install approximately 70% of the floor tiles, the Scuderi team used the *Kerabond/Keralastic™* premium flexible mortar system. With more than 20 years of success, the *Kerabond/Keralastic* System is still recognized as the benchmark for performance in the tile industry. In security areas and at passenger checkpoints, where there was a need for greater speed, the team used the *Granirapid®* System. *Granirapid* uses MAPEI's unique High-Hydrated Cement Technology (HCT™) to develop high, early mechanical strength and produces low residual moisture behind the tile after just 24 hours.

The walls in the public bathrooms of the terminal were covered with 18" x 24" porcelain tiles. Before setting the tiles, Aldrete's team applied roughly 5,000 square feet of *Mapelastic™ 315* flexible cement-based waterproofing membrane to the walls of the four sets of large commercial bathrooms. Both the wall and floor tiles were set with the *Kerabond/Keralastic* System.

Aldrete's installers also used the *Kerabond/Keralastic* System to install imported, hand-made glazed tiles around the elevator doors in each lobby. The tile colors in each area complemented the theme for that section of the terminal. Yellow predominated around the coatimundi theme, red

highlighted the scorpion section, blue dictated the color for the gila monster area, and green underscored the colors in the cactus wren medallion. The four medallions were cut from Italian tile, using the water-jet process. These were the only tiles pre-cut offsite. When the parts of the medallion were brought to the terminal, they were also installed with the *Kerabond/Keralastic™* System.

The installers formed 1/8-inch joints throughout the installation on walls as well as floors. When it came time to grout the joints, the team used *Keracolor™ S*, MAPEI's premium-grade polymer-modified sanded grout. Though many colors abounded in the tile, the installers used only two shades of grout – chamois and charcoal. These color choices allowed the hues of the tile to make the defining statement about the patterns in the designs.

The Aviation Department wanted to take advantage of the 10-year project warranty offered by MAPEI if the job met all installation requirements. To that end, they hired an independent consultant, Jim Petty of Pelican West consulting, L.L.C. “Jim Petty is a friendly competitor of ours,” said Anthony Scuderi. “We’ve known him for a long time, and we were glad to have Jim document the whole project for us.” Jim carried out site visits and wrote observation reports, and compiled MAPEI site inspection reports, too. He also kept a pictorial documentation of the complete tile installation from beginning to end, thus earning the airport the project warranty it sought.

Only a masterpiece would fit on such a large concrete canvas, and that’s exactly what Scuderi Tile and its collaborators produced. The final results have everyone saying, “Wow!”