

# CLEAN Approach to Food Service



*Through the use of concrete floors and tilt up construction, Red Diamond was able to construct a state of the art facility to meet the regulations as well as will allow for seamless future growth.*

Currently under construction in Moody, AL, just northwest of Birmingham, is the new Red Diamond Inc. campus that will feature three expandable production facilities for coffee, tea and food products and services, as well as new corporate offices. The size of the project, which spans 65 acres, coupled with the company's desire for facilities that can be easily expanded, and the special nature of food service production, made concrete a perfect choice for the job. "Cast-in-place concrete columns were chosen for the corporate office as they allowed us to mimic the limestone look we hoping to achieve, and complimented the tilt up panels on the production facility and warehouse. The use of tilt up on panels on the production facility will allow the owner to expand in the future and keep a uniform appearance on the campus," stated Bill Williams of Williams-Blackstock Architects.

Concrete has historically been the material of choice in food service facilities because it provides a smooth and low maintenance surface that can hold up to vibrations from heavy machinery while being easy to clean, able to withstand high-heat and chemical sterilization processes and minimizing dust particles

or crevices that might harbor germs or dirt.

"Particularly, we wanted to make certain our packing rooms, which have pits dug in for equipment, were very dry and very stable in order to prevent moisture problems with our products, and we wanted to make sure our floor could be easily cleaned," said Bill Bowron, President & CEO of Red Diamond, Inc.

Above all, sanitation is the critical issue for flooring in modern food processing plants. A smooth finished concrete floor at the proper slope, featuring a sprayed or brushed-on sealer, is said to be best for normal environments.

"We've used a process finish that's being ground down and polished. It will be a beautiful floor," Bowron said. "The concrete was actually wet cured and it's super smooth. We knew concrete was the absolute best for something like this."

In addition to being smooth and sealed, the floor in the manufacturing facilities needed to be strong, able to hold large machinery and withstand daily vibrations from the manufacturing process. Project engineers chose concrete reinforced with steel fibers, the latest technological advancement, rather than pouring



the concrete around a wire mesh mat, which is the more traditional process for adding strength to the overall structure.

In this new process, steel fibers are put into the concrete mixture by the concrete producer at the plant and are distributed throughout the concrete during mixing, so instead of one layer of reinforcement, the project has top to bottom structural properties. Distribution of the steel throughout the entire slab lends to its strength overall. The steel fiber concrete is in use at the Red Diamond facility in the floors supporting the equipment and machinery, as well as in walls, columns and other key pressure points in the structure.

Industrial concrete floor slab systems are often required to perform under intense loading conditions, including point loads from rack legs and dynamic loading from vehicular traffic. The uniform distribution of steel fibers throughout the concrete mix transforms concrete into a more ductile composite material that increases the energy absorption capability of the slab. Additionally, it provides exceptional control of drying, shrinkage and cracking, and maximum load stability at the floor joints, where it is most needed.



## “I am very happy with stability, durability and clean approach concrete has provided us”

Red Diamond’s current food service structure utilizes prefabricated steel with a metal skin, but the new facilities needed to be flexible enough to double in size without interrupting production. In order to accomplish this, the project utilizes tilt-wall construction.

Tilt up or tilt slab is a type of building and construction technique in which modular concrete elements, which may include walls, columns and structural supports, are formed on a concrete slab, usually on the job site. The concrete is formed on the building floor or a temporary concrete casting surface near the building footprint. After it has cured, the element or elements are tilted from horizontal to vertical and braced into position until the remaining building structural components are secured, and then they are bolted into place. By pouring the concrete in forms on the ground, project engineers can make sure they are consistent in texture, strength and finish, as well as cosmetically uniform. This ensures that each panel is identical, so that they tie together perfectly.

To expand an existing facility, new identical panels can be constructed using the same process as the original panels, and tied into the existing construction and expanded structural slab. The panels are put up or taken down in sections as need or desire arises, so that the facility can be expanded quickly and efficiently.

In addition to its many technical advantages, concrete was an attractive choice for this project to meet short and long term budget requirements. Red Diamond selected decorative stained concrete and textured concrete for its exterior, allowing it to incorporate low maintenance design elements. The insulating nature of concrete also helps the buildings to be energy efficient, reducing costs for heating and cooling the large facilities.

Project contractors have been working on several buildings on the Red Diamond campus simultaneously, to help in the transition from Red Diamond’s existing facilities to the new location. Construction has involved multiple pours occurring in different areas of the campus at the same time to help meet move-in goals. Red Diamond cannot stop production for the move, so it must be done in stages, which the busy construction schedule will allow.

Red Diamond will move its corporate offices into the new facility on the Moody campus in November, and is on track to move the coffee production into its new building this year as well, with the tea production set for January/February 2009. Preparation of the site for construction of the food distribution service center is complete and construction of that facility is under way. It is estimated that all of Red Diamond’s production, distribution, service and office

facilities will occupy the new corporate campus location by the middle of next year.

“I am very happy with stability, durability and clean approach concrete has provided us,” Bowron said. “We’ve really gotten everything we’ve asked for. We are a national company and this new facility will give us the ability to substantially grow, and we’re very excited about that. I couldn’t have asked for anything more.”

■ by Wendi Lewis

