

API Plant Expansion

Overview

Industry:
Pharmaceuticals

Focus:
Multiple Reactors
Flammable Solvents
Utilities & HVAC
Full Engineering

Full Engineering Services

A major expansion to an existing operating facility, including site master plan, was executed in three phases.

Phase 1 – Flammable Storage Warehouse

A Flammable Storage Warehouse was designed to provide storage of flammable liquids, gases and dry raw materials in four separate compartmented areas. The project included construction of a large mezzanine deck to provide space for change rooms and a document room as well as open floor space for future expansion.

One of the compartments was further subdivided into dry storage compartments, with freezer rooms and hot storage rooms, and was filled with FM200 fire suppression. Sprinkler water containment was also provided for the facility.

Phase 2 - Dryer Building

A two-storey building of approximately 10,000 square feet was designed to accommodate five dryers of various types, three milling rooms, five dryer loading rooms and a solvent recovery/cleaning room. The building was designed to cGMP standards in the process areas. Service areas of the building included a corridor, lift, utility room, electrical, mechanical and control rooms.

Phase 3 - Reactor Plant

This new addition housed three independent production units, as well as a warehouse space. One of the production units was designed specifically to produce high activity products. A total of 14 reactors were installed, as well as other equipment, including chromatography.

The project included the design of a two-storey 13,000-square-foot building addition to house the new process equipment. All mechanical building services were provided, as well as fire protection. HVAC included zone specific

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requirements, plus HEPA filtered exhaust for the high activity area. Mechanical work also included a storm water management study for the area, with a new storm main, and retention ponds. Electrical services included new high voltage power distribution and a new substation.

The plant incorporated clean design principles. One of the features was a central utilities plant, with common walls to all three production units. An effort was made to minimize the amount of piping and ductwork in the process areas. As much as possible the ductwork was run vertically, both for a clean design, and to open up the utility area for piping.

JNE Process Safety group initiated a HAZOP study to establish the safety requirements for the project. This included blast panel area calculations.

Also performed as part of this project was a Code Compliance study. This study reviewed the existing plant for building code compliance, as the plant had undergone rapid changes in the past several years and the municipal authorities required an overall review.

Project Size: 24,000 sq. ft.

Project Value: \$14M CDN

