Cairo University
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دبلوم تطبيقات التحكم الأوتوماتيكى
فى نظم القوى الميكانيكية

MEP 599 Diploma Design Project-Term2 2015/2016

Design of A Pipe-line Network for A Fire Fighting and Control System

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Abstract:

Designing of pipelines components and their operation and maintenance are one of the very important practices of the most engineers and technicians. This project includes an analysis, calculations and selection of components for a pipeline network used for a fire fighting and control system in a real multi-stories Hospital Building.

System Description:

Selected Fire protection system is a combined stand pipe, wet sprinkler system & portable fire extinguishers. Water protection systems for different protected areas are connected to fire water pipe network and pump set. The fire water protection systems are provided by water utilizing a fire pump set located at the pump room by a designed tank for domestic & fire fighting.

Description of Work Done:

The project specifies the automatic sprinkler systems and first aid hose reel systems used for buildings and structures. Materials and equipment specified in the project include Pumps, pipes, fittings, valves, special accessories, Sprinklers, and fire hose reels. The project also covers the work of fire extinguishers, cabinets and accessories as required by standard codes. Sizes and contents of each cabinet are listed in Section X4 of firefighting division. "Fire extinguishers" as used in this section refers to units which can be hand-carried, equipped with wheels or to fixed fire extinguishing systems. Types of products required include: Fire cabinets required, Fire extinguishers and Mounting brackets. Extent of fire extinguishers and fire cabinets is indicated on Drawings. Fire hose reels (size and length) are specified as per NFPA10.

Project Submittals:

Product Data: Submit manufacturer's catalog data and brochures of equipment, and certification by pump motor manufacturers indicating conformance to specific requirements and tests. Shop Drawings: Submit materials, performance data, pump curves.

Calculations: Submit hydraulic calculations showing location of selected area and fire hose including Calculation nodes drawing.

Maintenance Data: for fire pumps, motors and controllers, each type of sprinkler head, valve, piping specialty, fire protection specialty, fire hydrant, fire department connection, hose and reel, and hose cabinet specified .