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Final Thesis Proposal

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Executive Summary

The following proposal presents a research topic and two breadth subjects that I have selected for my Thesis Project of Civista Medical Center. The presented information will demonstrate the origins of the topics, my intended goals, research techniques, and expected outcomes. A weight matrix is included on the final page to illustrate the distribution of my efforts.

Research Topic

My research topic will present a detailed Infection Control Risk Assessment unique to Civista Medical Center. Infection Control is an essential facet to any construction project where the air quality to occupants may be compromised. The research will focus on the three main areas of construction, which include the main addition, the vertical expansion, and the renovations. The final report will indicate steps required to maintain the air quality throughout the project's duration.

Technical Analysis #1

A pressure reducing valve will be replaced with a non-condensing (backpressure) steam turbine. A pressure reducing valve drops the building's steam pressure. In doing so, energy is consumed rather than produced. A steam turbine can produce energy that can then be directly connected to an electrical distribution panelboard. This arrangement will ultimately save money and energy.

Technical Analysis #2

Copper wiring will replace aluminum. By utilizing Civista's feeder schedule, conductors will be resized accordingly. Then, after analyzing aluminum's safeness and practicality, a cost analysis will display aluminum's financial benefits.

Research: ***Infection Control Risk Assessment (ICRA)***

Problem

The construction at Civista Medical Center consists of three phases; a main building addition, a vertical expansion of the existing building, and selective renovations. All three areas must establish a unique Infection Control Risk Assessment or the construction will compromise the existing structure's air quality. Many of the existing building's occupants are in need of sterile environments. An unsanitary environment may jeopardize patients' well-being.

Goal

The goal of this research is to illustrate the contents of a tactical plan that will solve the problem of infectious risk for Civista Medical Center throughout the duration and complete of construction.

Research Techniques

- Research and study ICRA subject matter to gain an in-depth understanding
- Interview industry members to gather ICRA interests, concerns, and ideas
- Determine a focused assessment to perform
- Determine governing guidelines of ICRA
- Visit Civista for a firsthand evaluation
- Perform Infection Control Risk Assessment
- Publish an ICRA report that will solve the problem of infectious risk at Civista

Expected Results

The expected result of this research topic is to provide an Infection Control Risk Assessment of Civista Medical Center. It will indicate areas of concern and propose a tactical solution to the problem (inadequate air quality).

Technical Analysis #1: *MEP*

Problem

A pressure reducing valve will be replaced with a non-condensing (backpressure) steam turbine. A pressure reducing valve drops the building's steam pressure. In doing so, energy is consumed rather than produced.

Goal

Install a non-condensing (backpressure) steam turbine that produces energy while concurrently reducing the steam pressure. The energy produce by the turbine can then be directly connected to an electrical distribution panelboard. This arrangement will ultimately save money and energy.

Research Techniques

- Study existing conditions to gauge a firm understanding of the problem
- Interview construction team revision interests, concerns, and ideas
- Visit Civista for a firsthand evaluation
- Determine various solutions and individual benefits
- Determine a focused assessment of a solution to perform
- Perform analysis of proposed solution
- Publish a report of the MEP revision that highlights benefits and advantages to the new system.

Expected Results

The expected results of this technical assignment will solve the indicated problem in a manner that proves cost efficient, energy efficient, and beneficial in any way to the problem.

Technical Analysis #2: *Electrical*

Problem

Civista is wired using copper conductors only. Copper is an expensive material that is some opinions, offers the same performance from a much cheaper aluminum alloy alternative.

Goal

To replace the existing copper feeders with aluminum alloy. An analysis of the new system will compare the alloy's safeness and practicality to that of copper. Finally, a cost analysis will prove the financial benefits associated with the new system.

Research Techniques

- Study existing conditions to gauge a firm understanding of the problem
- Interview construction team revision interests, concerns, and ideas
- Visit Civista for a firsthand evaluation
- Determine various solutions and individual benefits
- Determine a focused assessment of a solution to perform
- Perform analysis of proposed solution
- Publish a report of the Electrical revision that highlights benefits and advantages to the new system.

Expected Results

The expected results of this technical assignment will solve the indicated problem in a manner that proves safe, cost efficient, time efficient, and beneficial in any way to the problem.

Weight Matrix

Below is a weight matrix. It displays how I plan to distribute my workload while analyzing the issues I am proposing.

Description	Research	Value Eng.	Const. Rev.	Sched. Rev.	Total
ICRA	34%				34%
MEP		10%	18%	5%	33%
Electrical		12%	13%	8%	33%
Total	34%	20%	31%	15%	100%