

# Atrium Medical Corporation

## [Headquarters Facility]

*Technical Report 3: Problem Identification  
and Thesis Analysis Options*



## Table of Contents

### → Project Information

Analysis Option 1  
Analysis Option 2  
Analysis Option 3  
Analysis Option 4  
Questions



# Project Information

Project Name:	Atrium Medical Corporation HQ's
Project Location:	Merrimack NH
Project Size:	101,200 SF
Site Size:	> 2 Million SF
Project Budget:	\$17 Million
Building Uses:	Manufacturing, R&D, Warehouse/Storage, Offices, Engineering Shops
Structure:	Poured Concrete Foundation Steel Superstructure
Façade:	Insulated Metal Wall Panels

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### Project Team

CM Firm:	Hutter Construction
Architect:	Lavallee Brensinger
Structural:	Foley Buhl Roberts
Civil:	Hayner Swanson, Inc.
Mechanical:	Johnson & Jordan, Inc.
Electrical:	Gate City Electric

## Table of Contents

- Project Information
- **Analysis Option 1**
- Analysis Option 2
- Analysis Option 3
- Analysis Option 4
- Questions



# Analysis Option 1: *Prefabricated Structural System*

## Current Conditions

Structural design imposes individual steel member assembled on top of poured concrete foundation.

- Erection time for steel: Approximately 2 Months

## Proposed Design

Propose 2 prefabricated systems

- Precast Concrete Structure
- Prefabricated Wall Bracing & Roof System

## Intent of Proposal

Newly designed system(s) intended to decrease schedule duration to permit owner occupancy sooner.

## Breadth Option 1:

Structural analysis of precast concrete structure

## Table of Contents

Project Information

Analysis Option 1

→ **Analysis Option 2**

Analysis Option 3

Analysis Option 4

Questions



# Analysis Option 2:

## *SIPS Analysis*

### Current Conditions

Project duration is approximately 13 months, not including design phases.

### Proposed Design

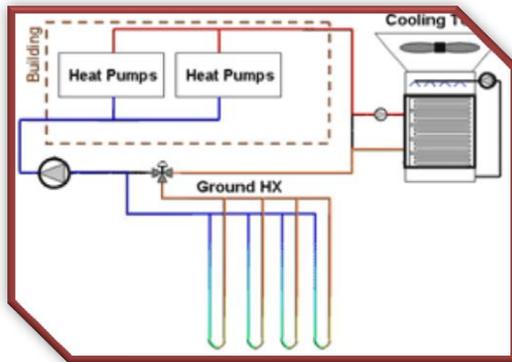
Implement a short interval production schedule by using the prefabricated systems found in Analysis Option 1. Then model using 4D modeling software for typical (repetitive) construction tasks.

### Intent of Proposal

Imposing a SIP schedule will decrease individual task times, decrease overall project duration, and allow a foresight of possible problem areas during future construction.

## Table of Contents

Project Information  
Analysis Option 1  
Analysis Option 2  
→ **Analysis Option 3**  
Analysis Option 4  
Questions



# Analysis Option 3: *Geothermal System Implementation*

## Current Conditions

Project utilizes boilers and chillers to supply hot/cold water to (4) single zone roof-top units and (8) multi-zone air handling units

## Proposed Design

Implement 3 geothermal system designs; horizontal well fields, vertical well fields and open loop system in retention pond.

## Intent of Proposal

Perform cost analysis for implementing each system. Initial costs will be compared with geothermal and existing system, as well as lifecycle costs over a 20 year period.

## Breadth Option 2: Mechanical

Perform heating/cooling analysis on new system and compare efficiencies with current design.

## Table of Contents

Project Information

Analysis Option 1

Analysis Option 2

Analysis Option 3

→ **Analysis Option 4**

Questions

# Analysis Option 4: *LEED Certification*

## Current Conditions

Project did not strive for LEED Certification, but intended to provide owner with sustainable building.

- Currently 14 points shy of certification

## Proposed Design

Perform analysis to determine areas in which the project can improve to achieve certification.

## Intent of Proposal

Determining areas where project can be improved allows a cost and duration estimation to determine desire of pursuing certification



## Table of Contents

Project Information

Analysis Option 1

Analysis Option 2

Analysis Option 3

Analysis Option 4

→ **Questions**

# Questions?

