

MCCREA HOUSE: PREFABRICATED UNB RESIDENCE BUILDING

ABDULLAH NAJM | MUDIWA MHARAPARA | MUHAMMAD HAMZA | MUHAMMAD OWAIS | ZHAOYE WANG

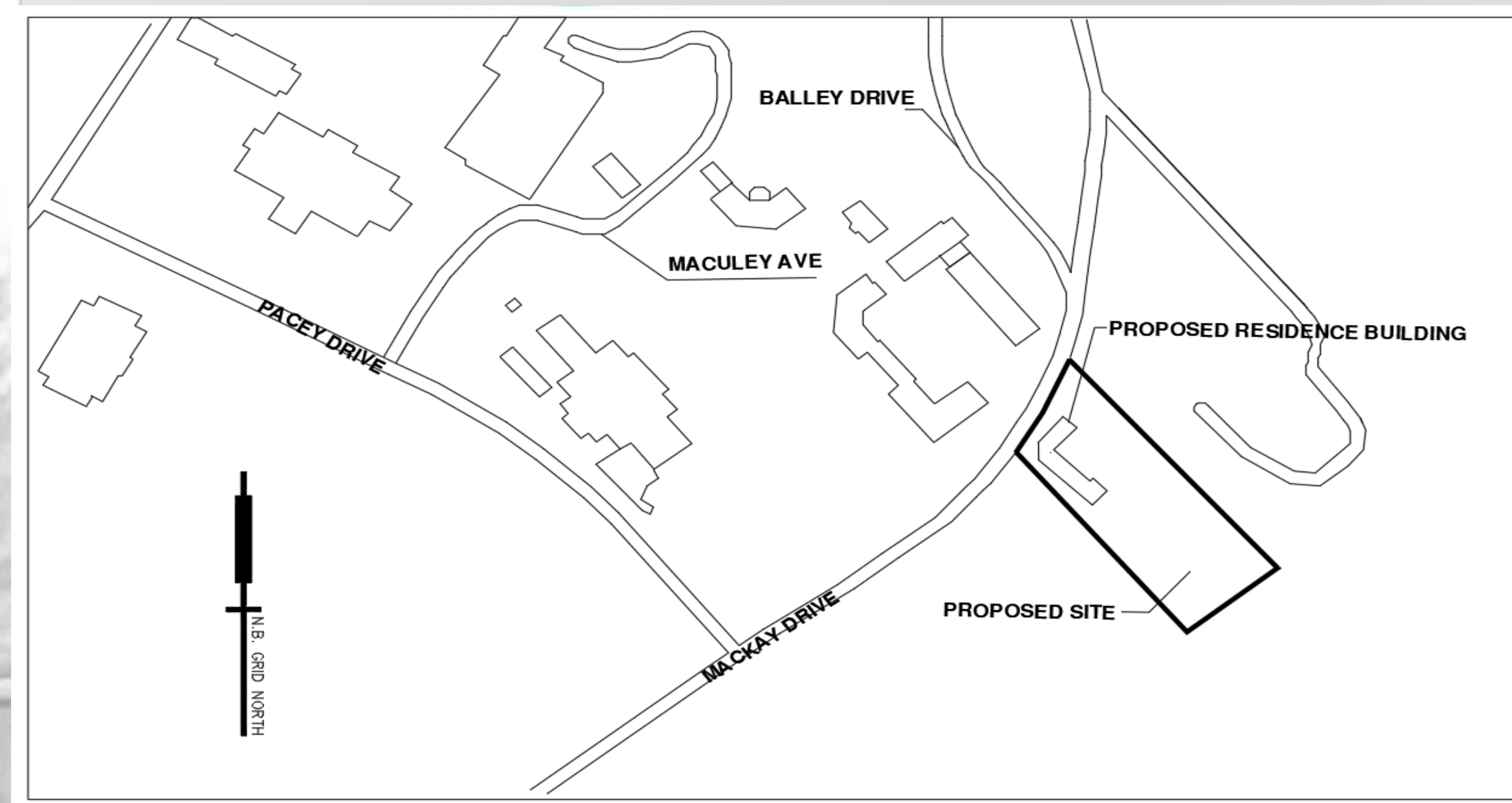
Background

University of New Brunswick Fredericton campus is in need of a new residence building which accommodates 150 residents and conforms to the pre-existing campus architecture and parking space. The new building will utilize off-site construction technique and address sustainability and accessibility issues.

Design Deliverables

- Floor Plans & 7-9 Person Living Pod Layout
- Site Plan
- Building Design
- Elevation Drawings
- Cost Analysis
- Sustainability Assessment
- 3-Dimensional Modelling

Location Plan



Site Layout



Northeast Elevation-McCrea House



Interior Design of the Building

Lobby Design



Ballroom Design

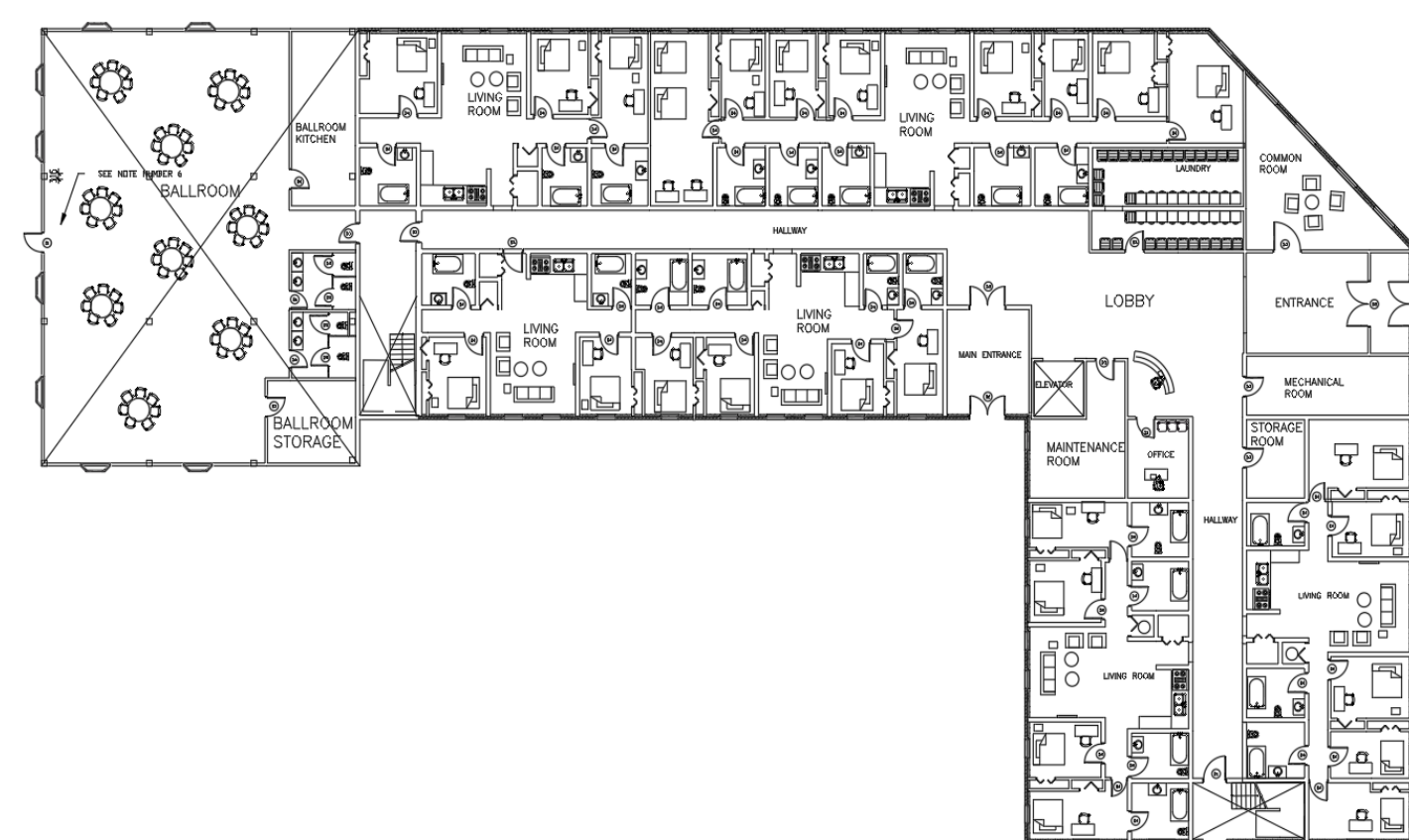


Pod Design



Floor Plan Layouts

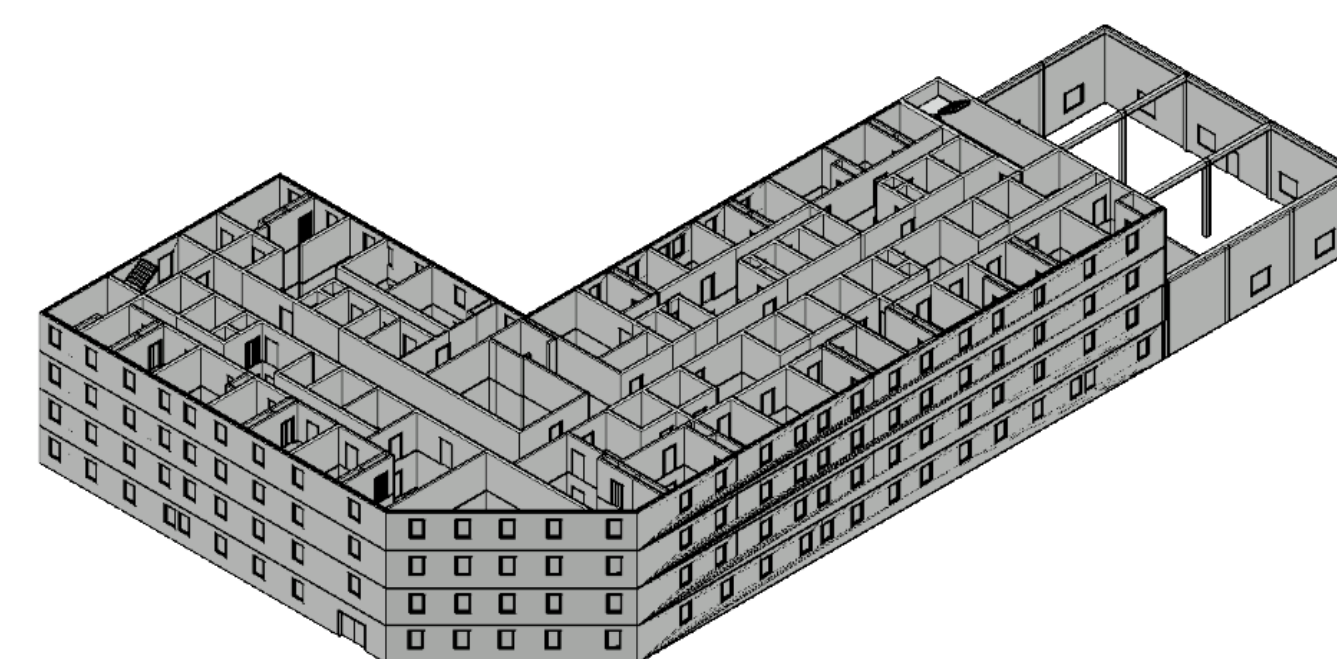
First Floor



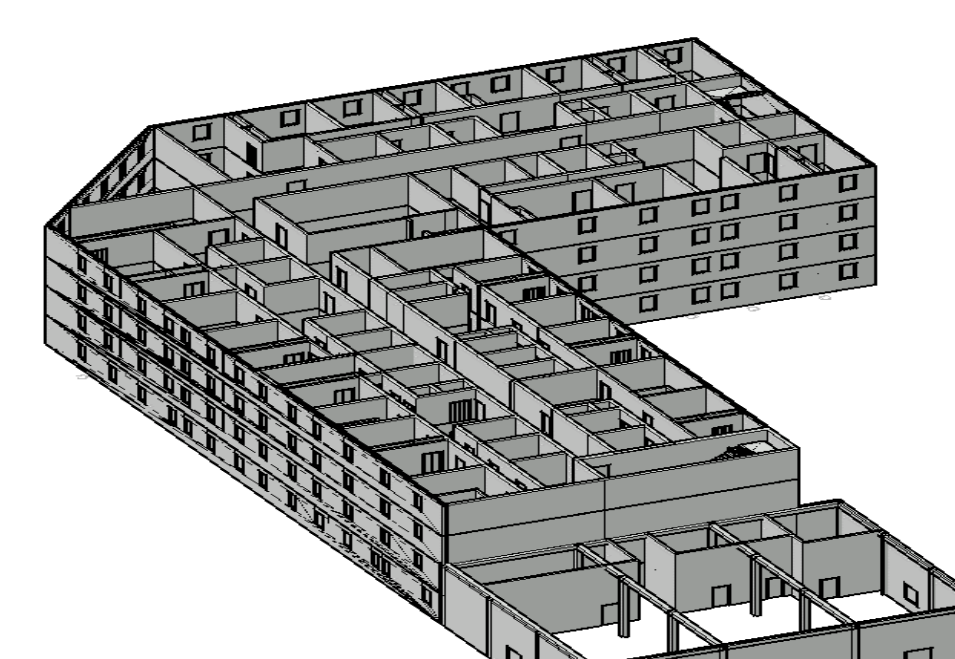
Second, third, and fourth Floor



Revit Structural Models of the Building



South-Western view

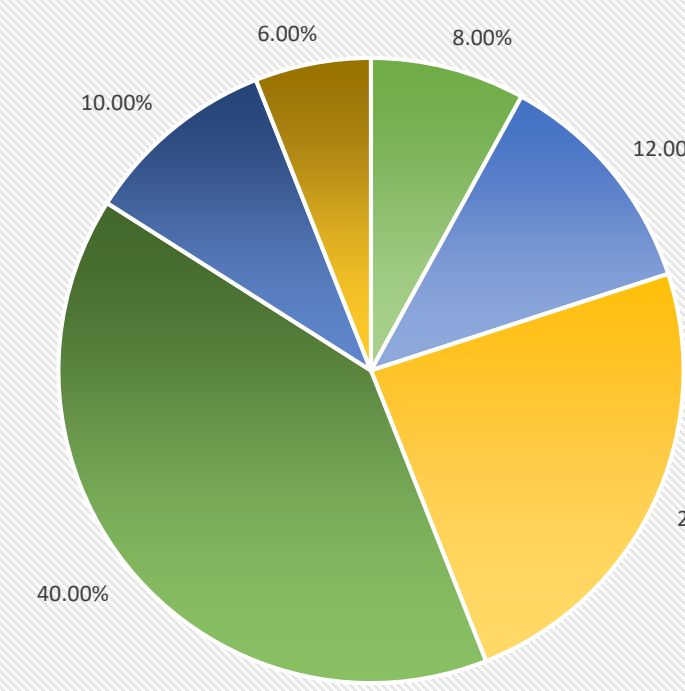


South-Eastern view

Cost Estimation

Building Construction Cost Breakdown

Total Building Cons. Cost = \$26,938,000



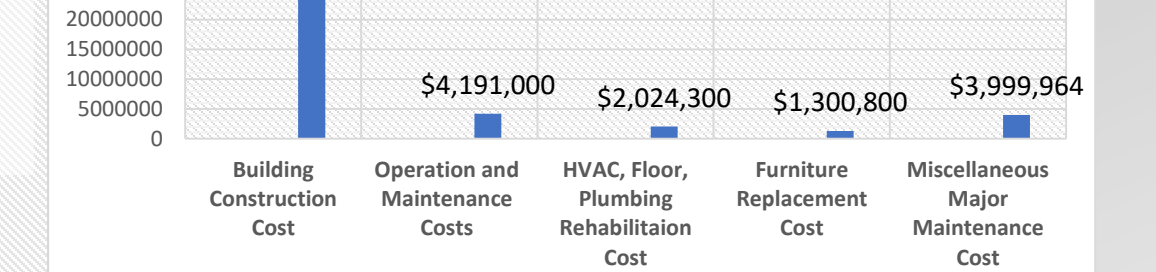
Total Cost Includes:
Contractor fees = 25 %
Design fees = 7 %
Total Markups = 25 %
Site Work = 15 %
Contingency = 15 %

Total life Cycle Costs = 38.5 million dollars

Category	Cost
Building Construction Cost	\$26,938,000
Operation and Maintenance Costs	\$4,191,000
HVAC, Floor, Plumbing Rehabilitation Cost	\$2,024,300
Furniture Replacement Cost	\$1,300,800
Miscellaneous Major Maintenance Cost	\$3,999,964

Life Cycle Costs Summary

Total Building Useful life = 75 years



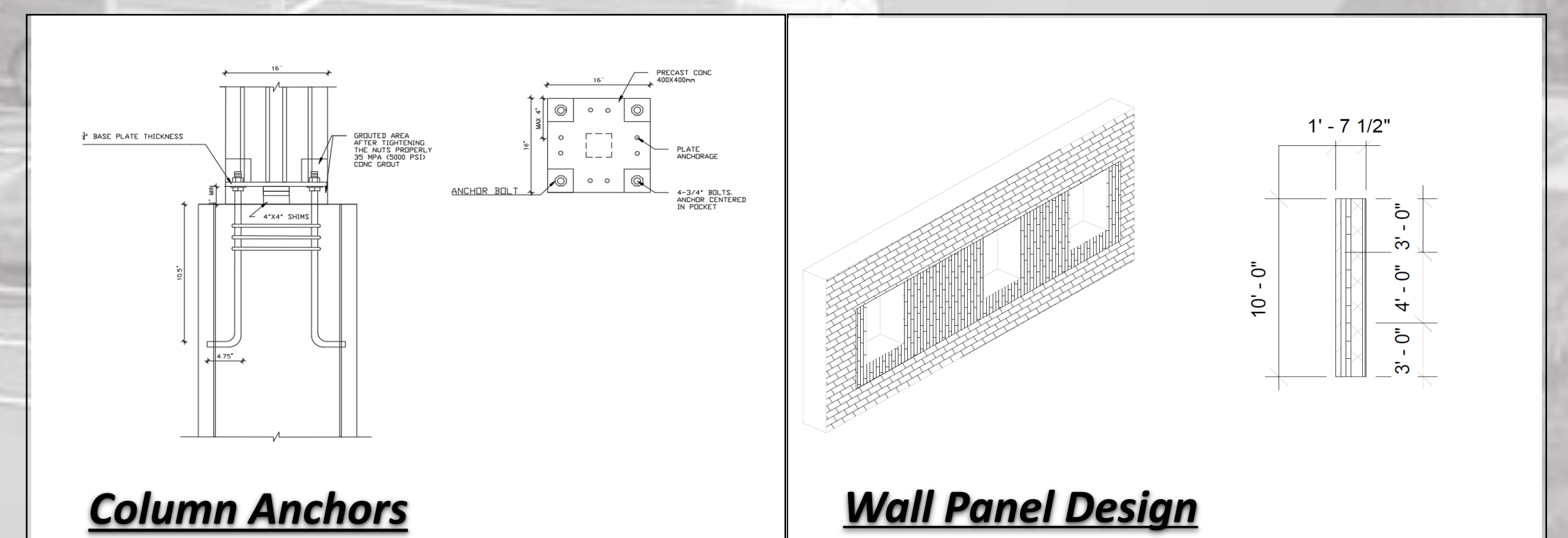
Modular Construction

The residence building will be constructed using precast methods and frame system. Component erection will require 2 crawling cranes of 160 tons each. The modular construction system will consist of the following prefabricated concrete components:

- Beams
- Columns
- Hollow Core Slabs
- Sandwich Wall Panels



Prefabricated Components & Detailing



Column Anchors

Wall Panel Design

Street View of the Building



Sustainability
466 points out of 968
Certified Gold 48%