



90 ARBORETUM

NEW HAMPSHIRE'S FIRST MASS TIMBER BUILDING: FROM CONCEPT TO CONSTRUCTION

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NEW HAMPSHIRE'S FIRST MASS TIMBER BUILDING

FROM CONCEPT TO CONSTRUCTION – 90 ARBORETUM

Presenters:

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Farley White Interests



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SGA



ARCHITECTURE | PLANNING
INTERIOR DESIGN | VDC
BRANDED ENVIRONMENTS

**90 ARBORETUM
NEWINGTON, NH**

SAM ALTREUTER
FARLEY WHITE INTERESTS

NEW HAMPSHIRE'S FIRST MASS TIMBER BUILDING

FROM CONCEPT TO CONSTRUCTION – 90 ARBORETUM

FW is an real estate investor who:

- Buys existing buildings
- Builds new buildings
- Buys with the intent of major renovation and value creation

Our Portfolio Includes:

- Urban & Suburban Office buildings many of which are mill buildings
- Locations include: MA, NH and Florida



Wannalancit Mills 650
Suffolk
Lowell, MA.



150 Apollo Drive
Chelmsford, MA



Fifth Third
Tampa, FL

NEW HAMPSHIRE'S FIRST MASS TIMBER BUILDING

FROM CONCEPT TO CONSTRUCTION



Wannalancit Mills
Typical Interiors Before



Wannalancit Mills
Typical Interiors After

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32 Wiggins
Before



32 Wiggins
After

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55 Executive Drive
Before



55 Executive Drive
After

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480 Pleasant Street
Before



480 Pleasant Street
After

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Most of our projects are conservative and focus on cost control and predictability

We became aware of the potential that comes from Mass Timber

- Mill-like aesthetic without tight column spacing – much sought after in today's market
- High ceilings and exposed mechanical / electrical – ability to treat exposed elements in a sculptural manner
- Positive environmental attributes – carbon sequestration in particular



90 Arboretum
Entry Lobby



90 Arboretum
Typical Tenant Floor

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FROM CONCEPT TO CONSTRUCTION – 90 ARBORETUM

Our Approach

- Work with an Architect and Contractor we know well – We have over 2 decades of experience with each on 90 Arboretum
- Purchase the timber structure on a design/build basis
- Heavy use and reliance on 3D computer modeling
- Mock up major systems in an existing similar building prior to purchasing



90 Arboretum
CLT Shear Wall Core



90 Arboretum
CLT Shear Wall Core & Framing

NEW HAMPSHIRE'S FIRST MASS TIMBER BUILDING

FROM CONCEPT TO CONSTRUCTION – 90 ARBORETUM

Where we are today

- Regulatory hurdles caused us to start work in the fall and erect the frame in the winter
- Today the frame is up and nearly enclosed
- In discussions with two potential tenants



90 ARBORETUM NEWINGTON, NH

JEFF TOMPKINS
SGA

NEW HAMPSHIRE'S FIRST MASS TIMBER BUILDING

FROM CONCEPT TO CONSTRUCTION – 90 ARBORETUM

SGA is a tech forward design firm with multiple disciplines :

- Architecture / Master planning
- Virtual Design & Construction
- Interior Design
- Environmental Branding
- Graphic Design

Our markets focus on:

- Commercial Office
- Life Science
- Higher Education
- Accelerators & Incubators
- Sustainability
- Passive house

We pioneer tech-forward design that redefines how projects are visualized & delivered. Our team-first approach and trademark creativity coupled with our technological abilities have resulted in over 300M of successful, innovative commissions with certainty of outcome.



NEW HAMPSHIRE'S FIRST MASS TIMBER BUILDING

FROM CONCEPT TO CONSTRUCTION – 90 ARBORETUM

Why Mass Timber?

- It fits our sustainability goals
- It fits our desire to innovate
- When designed correctly it has a high certainty of outcome and high aesthetic value
- The 90 Arboretum project allowed the firm to leverage expertise from all of our design disciplines
- Cost competitive

Project Challenges & Solutions:

- Regulatory – NH had not yet adopted the 2015 IBC that allowed Mass Timber construction
 - SGA worked with the state Fire Marshall to allow the use of 2015 IBC while it was being debated at the State House.
- MEP/FP Consultants unfamiliar with the structural system
 - Model EVERYTHING! - We modeled every piece of the MEP/FP and Architectural Systems in many cases up to a LOD 400



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Project Challenges & Solutions:

- Lateral Bracing System - Many options
 - CIP Concrete?
 - Steel Brace Frames?
 - **CLT CORES!**
- CLT shear walls made the most sense for the project aesthetic and keeping it simple and predictable.
- Once the team modeled all the MEP pathways it was actually Less coordination risk between trades.
- Aesthetics were in keeping with the ultimate design goal
- We liked the connection details as well



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FROM CONCEPT TO CONSTRUCTION – 90 ARBORETUM

Metrics and Planning:

- Efficient multi tenant floor plates
- 23,326 GSF / Floor
- 72,978 GSF Total
- 20'-0" x 25'-0"
- 14'-0" Floor to Floor
- CLT Shear Walls
- Concrete Foundation
- SOG at Floor 1
- 3" LW conc. topping slab floors 2-3



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Metrics and Planning:

- Contemporary aesthetics with charm of a mill building interior.
- Curtainwall entry element
- ACM & Trespa rain screen exterior wall system
- Aluminum storefront punched windows
- Maximize glazing to meet energy code but also to expose as much of the CLT from the exterior as possible

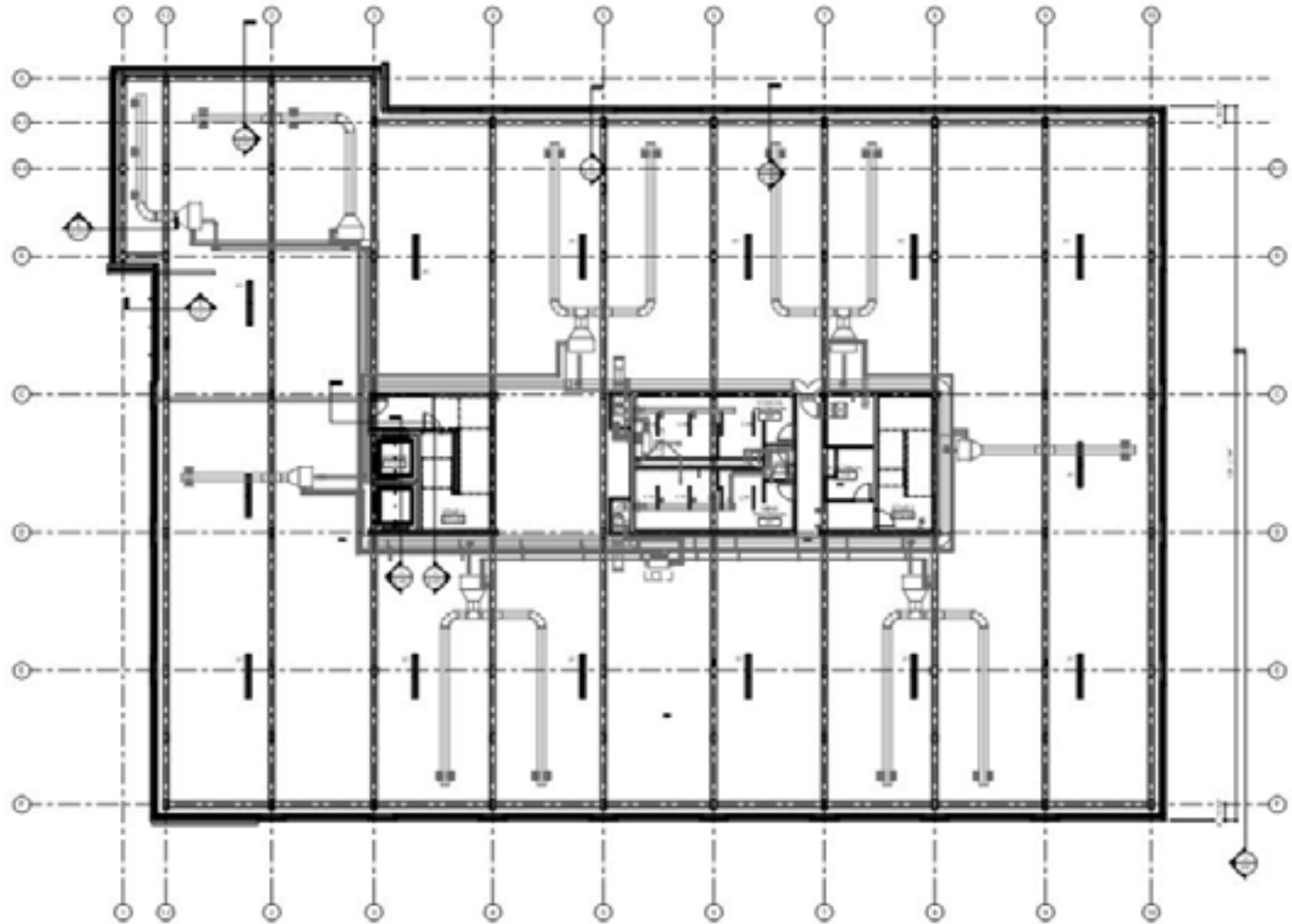


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Metrics and Planning:

- Energy efficient HVAC and lighting systems
- Variable Refrigerant Flow (VRF) Heating & Cooling condensers.
 - 1 Interior & Exterior zone per column bay
- Energy Recovery Ventilator (ERV) fresh air system
 - VRF & ERV lighter weight than typical RTU or cooling tower systems
- LED strip lighting fixtures



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Metrics and Planning:

- Fully exposed structure is a desirable outcome
- All systems were highly modeled and coordinated
- All systems are exposed and all pathways, included future tenant needs, were planned
 - Additional beam penetrations were coordinated for tenant use
- The building was classified as Type 5 construction to allow the tenant to install ceilings in specialized areas





CLT Shear Wall Connection



CLT Shear Walls



CLT Shear Walls + Framing



Sprinkler line
beam
penetrations





Third floor columns vary in height to pitch the roof to drain. Reduces the need and cost for tapered insulation





Exterior Wall System



Exterior Wall System



Exterior Wall System



Lobby Design



Lobby Under Construction



HVAC System Under Construction



HVAC System Under Construction

THANK YOU.

Q +A

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