SITE PLANNING

(Logistics, Safety, Coordination & Planning)

BRAD NILE, AIA
Andersen Construction

Disclaimer: This Presentation was developed by a third party and is not funded by WoodWorks or the Softwood Lumber Board.

BRAD NILE

5 decades of building with wood, in a 35-year construction career

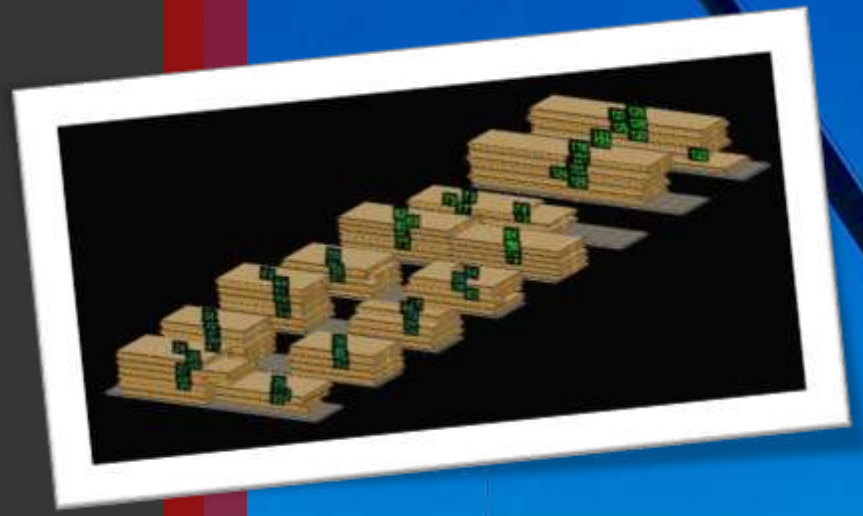
District Office • Portland OR

THE PROMISE OF MASS TIMBER CONSTRUCTION:

- A beautiful building
- Rapid construction
- Minimal staging and laydown needs
- Offsite fabrication potential for all trades

KEY FACTORS IN DELIVERING THIS PROMISE:

- A well managed and planned jobsite
- A well managed mass timber procurement and modeling effort



Corvallis, OR


District Office • Portland, OR

SITE ORGANIZATION CONSIDERATIONS:

- Building footprint compared to the available site.
- Crane location and hoisting plan
- Truck routing for materials in
- Trash, debris and recycling management

SITE ORGANIZATION

Start planning early. Refine and add every relevant detail.

CONSTRUCTION FENCE
ANDERSEN FIELD OFFICE
LOW RISE
LOW RISE
MAINTAIN COVERED ENTRY WALKWAY
CONSTRUCTION STAGING AREA
CONCRETE
CONCRETE
HIGH RISE
MID RISE
DELIVERY UNLOADING
RESTRICTED OVERHEAD LOADS
PROTECT EXISTING TRANSFORMER
M/M HOISTS
TOWER CRANE RADIUS
GARAGE ENTRANCE

SITE ORGANIZATION

Early planning should be iterative and collaborative.

OSU Marine Science Center - Construction Site Logistics

HATFIELD MARINE SCIENCE CENTER

PROPOSED OSU MARINE SCIENCES BUILDING

Tower Crane

Staging and Material Laydown

Stock pile sand

Parking for construction management staff, inspectors, and visitors

Jobsite office trailers

Vegetation Storage

Entry Gate

Existing fence to remain

Security Fence: silt fence for erosion control

SE MARINE SCIENCE DR

Tsunami mitigation berm

Flagger present during high trucking activities

Exit Gate

Construction delivery route: temporary construction access road

N

Total perimeter accessibility prepared for crane & facade access

Portland, OR

No available site - all access via sidewalk & street closures.

CRANE PLAN

No available site, except an easement just big enough for a tower crane.

CRANE PLAN

- Downtown Site
- Full-time sidewalk closure and part time street closure.
- RT crane for positioning flexibility and after-hours tuck away.

PRE-CONSTRUCTION SITE CONSIDERATIONS:

- Street and sidewalk closures
- Pedestrian protection
- No-fly zones
- Hoisting obstructions:
  - ✓ Overhead power lines
  - ✓ Trees
  - ✓ Neighboring buildings
  - ✓ Facade access
  - ✓ Utility connections

PEDESTRIAN PROTECTION

Jurisdictional requirements and readymade options

HOISTING OBSTRUCTIONS

Trees, Power Lines and No-fly zones

FACADE ACCESS EXAMPLES

TIMBER PROCUREMENT PRE-CONSTRUCTION CONSIDERATIONS:

SCHEDULE

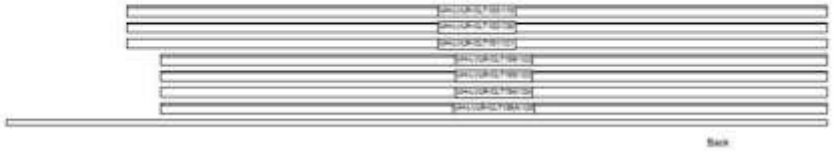
- Adequate time for modeling
- Confirmed Material Delivery Flow

DELIVERY PLANNING

- Truck sequence and cadence
- “Fly from truck” modeling and loading
- Factory center-of-gravity locating
- Hoisting and rigging provisions
- Worker Safety Provisions
- Guardrails

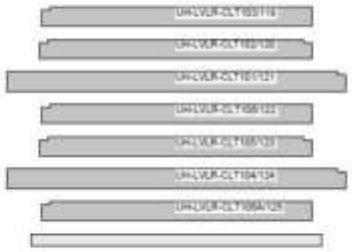
TRUCK LOADING, SEQUENCE & CADENCE PLANNING

(CLT LOAD MODELING EXAMPLE)



SW-09

Sequence	Part Name	Weight [lb]
119	UH-LVLR-CLT103	6517
120	UH-LVLR-CLT102	6555
121	UH-LVLR-CLT101	8152
122	UH-LVLR-CLT106	6199
123	UH-LVLR-CLT105	6235
124	UH-LVLR-CLT104	7754
125	UH-LVLR-CLT106A	6199
		47611



FLY FROM TRUCK MODELING & LOADING

Essepi Systemi X-Lam Near Trento Italy

HOISTING & RIGGING PROVISIONS

Hardware & Center of Gravity Locating

SAFETY PLANNING SUMMARY

PLAN EARLY & CONTINUOUSLY

- Hoisting
- Worker access and tie-off provisions while the structure is underway
- Guardrail provisions
- Structure temporary bracing & stabilization

PUBLIC SAFETY

- Necessary traffic revisions
- Pedestrian protection

GENERAL ACCESS

- Stair assemblies going up with the structure
- Maintaining 2 paths of egress.

MAXIMIZE OFF-SITE FABRICATION
(BEYOND THE STRUCTURE)

- MEP systems
- Facade Elements

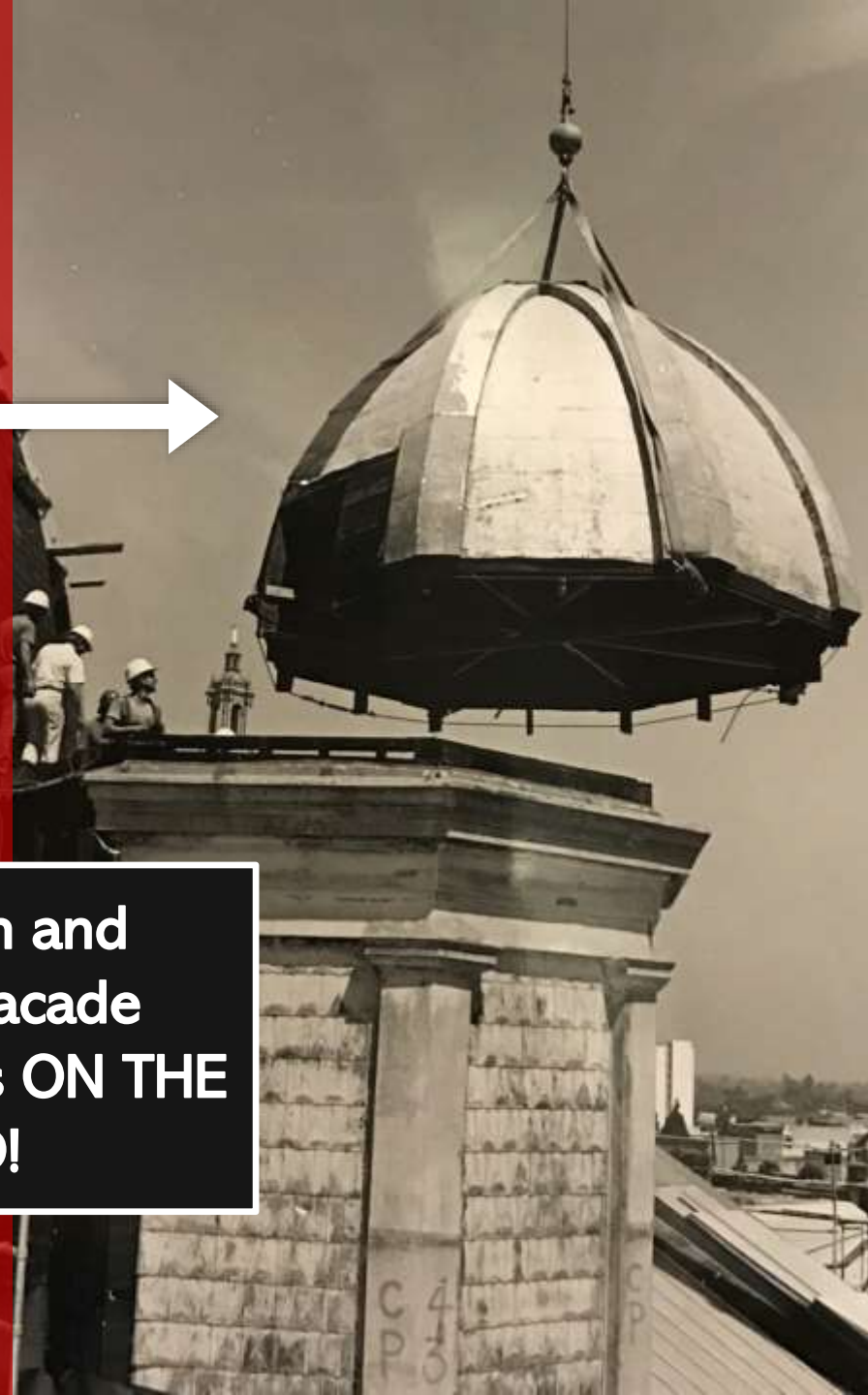
WORKER SAFETY PROVISIONS:

HAVE A PLAN!

San Jose, CA
Dinwiddie Construction

THE 1986 PLAN:

- ✓ Demolish and rebuild facade elements ON THE GROUND!



THE 2019 PLAN:

✓ Maximize off-site fabrication - Prefabricated Facade Panels

Newport, OR

Maximize Off-site Fabrication - Plumbing and Piping Systems.

Working the plan: Prefabricated Wall Elements,
shop installed roof vapor barrier.

CONCLUSION

Plan early and continuously.

- Crane type and location
- Material Flow
- Public Safety
- Temporary Bracing

Model everything.

- Realize a no-sawdust jobsite.
- If it is in the building, it is in the model.
- Model truck loads for direct fly to position.

Maximize off-site fabrication
(Beyond the Structure).

- MEP systems
- Facade Elements

EXCELLENT EXAMPLES OUTSIDE THE USA:

Brock Commons, UBC

Urban One, Structurlam, Seagate

Vancouver, British Columbia

EXCELLENT EXAMPLES OUTSIDE THE USA:

Swatch Omega Headquarters

Blumer Lehmann,

Gossau, Switzerland

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ONE MORE TIME:

Plan early and continuously.

- Crane type and location
- Material Flow
- Public Safety
- Temporary Bracing

Model everything.

- Realize a no-sawdust jobsite.
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- Model truck loads for direct fly to position.

Maximize off-site fabrication *(Beyond the Structure).*

- MEP systems
- Facade Elements

Thank you for your participation.

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QUESTIONS?

This concludes The American Institute of Architects Continuing Education Systems Course

Brad Nile

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