

The End of “Value Engineering”

Virtual Builders Roundtable Workshop

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The Virtual Building Era

“In the United States, goodwill has been value-engineered away.”

“Why is Europe Winning?” Peter Buchanan

The VBM project approach encourages & enhances collaborative design relationships...signaling the end of an era of America’s construction industry that has been risk averse, conservative, and confrontational...

Architechnic -Virtual Building Goals

- ❖ Create “Quality” design
- ❖ Fulfill the Client’s Project Objectives
- ❖ Exceed the Client’s Expectations
- ❖ Be on the leading edge of Architecture and Technological Innovation

Owens Brothers Concrete

A Process in a Box...



Design/Build: WM Brown Construction Architect: Architechnic, Ltd. Structural Engineer::CON/STEEL

Owens Brothers Concrete

QuickTime™ and a
YUV420 codec decompressor
are needed to see this picture.

VBM Benefits

ARCHITECT

- ✓ The time required for public approvals were reduced by using accurate full motion visualizations presented for both city planning staff and public meetings.
- ✓ The 3D model was used by a sound consultant to evaluate sound attenuation measures requested by the City and neighborhood groups.
- ✓ The Owner easily educated about issues that would affect the quality of building form.

STRUCTURAL ENGINEER

- ✓ The model was imported by the Structural Engineer into their modeling software saving review time and guaranteeing accuracy in the field
- ✓ The Structural Engineer created only one set of drawings for panels and steel shop drawings
- ✓ Steel Fabrication - 20% Savings in Time and Money
- ✓ Cost of sending Air Express paper drawings was reduced by over 65%



N-S BUILDING SECTION

VBM Benefits

CONTRACTOR

- ✓ There were no delays in erection due to layout of field cast panels
- ✓ The team developed an innovative and cost reducing foundation anchor system
- ✓ Erection sequences were planned and studied in Virtual Space
- ✓ The Superintendent was clearly informed about the construction and required
- ✓ Only three RFI's - all for no additional cost

OWNER

- ✓ Able to understand and revise several important manufacturing sequences
- ✓ The cost of plant manpower was reduced due to simulations of the work process
- ✓ Equipment operation and maintenance efficiencies were achieved prior to erection avoiding expensive field revisions of equipment.
- ✓ Life Cycle costs were lowered by using day lighting in the work areas
- ✓ The cost of dust and sound control was reduced

Great Bear Inn

Project Location - Big Mountain Montana

109 Rooms with Spa, Restaurant and Meeting Rooms (110K sq ft)

QuickTime™ and a
H.264 decompressor
are needed to see this picture.

Great Bear Inn

Project Location - Big Mountain Montana

109 Rooms with Spa, Restaurant and Meeting Rooms (110K sq ft)



Architect of Record: Godden|Sudik

Model Manager: Architechnic, Ltd.

Great Bear Inn

Project Location - Big Mountain Montana
109 Rooms with Spa, Restaurant and Meeting Rooms



Architect of Record: Godden|Sudik

Model Managers: Architechnic, Ltd.

Great Bear Inn

- Architect -
 - ✓ Good Conceptual Estimates before DD's
 - ✓ Prioritize Critical Design Issues Sooner
 - ✓ Design Revisions are still with the budget!
- Owner -
 - ✓ Risk Reduction
 - ✓ Early Comparison of Systems
 - ✓ Confirmation of Pro-forma Projections
 - ✓ Go - No Go with less investment in Fees
- Contractor
 - ✓ Reduced Pre-Construction Investment

The Architect's Evolving Role

Storm Clouds on the horizon...



The Architect's Role

- Create “One of a Kind” Project
- Synthesis of Complex & Diverse Data
 - ⇌ Life Safety
 - ⇌ Site Uniqueness
 - ⇌ “Spirit of Place”
 - ⇌ “User Needs” - Patterns
 - ⇌ Owners Objectives
 - ⇌ Production Processes
 - ⇌ Building Systems
 - ⇌ Budget/Quality



The Architect's Risks

- Establish Program Elements in Space

Make it Architecture!

Form & Tectonics



Benefits of VBM for Architecture

- ✓ Scalable Multi Dimensional Decision Support
- ✓ Increases Design Analysis & “Spell Checking”
- ✓ Increases Time to Study Form Giving
- ✓ Stage for Simulating Production Alternatives
- ✓ Speeds up Design Process - Due to Parametric Objects and Templates
- ✓ Improves Team Communication
Internal and Externally
- ✓ Increase Contractor Trust
- ✓ Increase Client Satisfaction
- ✓ Eliminate Value Engineering



The Virtual Building Model ... An exoskeleton for the mind.