October 17-19, 2016
ATLANTA, GEORGIA

BIMFORUM
ATLANTA, GEORGIA

Lean Architecture and Practical Coordination
“We only make money off our planes when they’re in the air”

Keep operations simple
- 737
- Point-to-point flying
- 25 minute turn around
Toyota Assembly Line Inspires Improvements at Hospital

By CHERI CONNOLLY
Washington Post Staff Writer

SEATTLE — Up until five months ago, Ted Sachowski’s weekly chemotherapy appointment was one long, tedious slog through the Virginia Mason Medical Center.

The retired engineer, battling lymphoma since 1990, typically began his journey at 8 a.m. in the first-floor lobby. There he would be directed to the sixth-floor laboratory for blood testing. Next, Sachowski, 65, would board one of the hospital’s notoriously slow elevators to meet his oncologist on the second floor. If the lab results weren’t ready, he would wait some more.

Then back to the elevators for the trek up to 12 and even more waiting. Around lunchtime — if things went smoothly — Sachowski would be seated in a noisy “bullpen” with half a dozen other patients, finally getting the intravenous chemotherapy he came for. By 10 a.m., exhausted from the 17-hour odyssey, Sachowski would arrive home.

Today, chemotherapy at Virginia Mason is a much shorter trip. The distance from lab to exam room to treatment is less than 12 feet. Once Sachowski is hooked up to his IV, he never has to leave the cheery private room — flat-screen television, computer, nursing supplies and bathrooms are all right there. And his physician, Henry O. Otero, is so close, “I can almost shout to get him,” said Sachowski, seated in a reclining chair as the intravenous line slowly infused his system.

See HOSPITAL, A4, Col. 1
How to Compare Six Sigma, Lean, and the Theory of Constraints
by Dave Nave in Quality Progress, © 2002
www.asq.com

Lean
Remove Waste
• Identify value
• Identify value stream
• Flow
• Pull
• Perfection
Focus on flow

6 Sigma
Remove Variation
• Define
• Measure
• Analyze
• Improve
• Control
Focus on problems

Value
Anything the client is willing to pay for
• Progresses the project
• Client cares about it
• Done right the 1st time

TOC
Manage constraints
• Identify constraint
• Exploit constraint
• Subordinate processes
• Elevate constraint
• Repeat cycle
Focus on constraints
Structure work to “Flow”
Reduce Variation
Progress the Work
lean architecture

Excellence in Project Delivery

Rethinking architectural methodology & practice
TRADITIONAL DELIVERY PROCESS | Design - Bid - Build
Two Steps Forward, One Step Back Fix Problems

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<tr>
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<th>SD Phase</th>
<th>DD Phase</th>
<th>CD Phase</th>
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When you solve issues
Solve the puzzle
Document the solution

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themes

Instructional Systems
Default Referencing
Working in Context
Reduction of redundancy
Typicality
Default Scheduling
Visual QC
THE CRITICAL PATH
A ROADMAP

11/5/2015

The following is a Critical Path Methodology (CPM) that identifies Milestones, team member responsibilities and general production pacing. It can be applied to a corresponding time schedule.

CONTRACTOR
The Project Architect is responsible to organize and coordinate all team members to complete their tasks. Structure MEP, Civil and other consultants are all times your clients. You must set all parameters affecting their work and see that the information along with that they provide flows to all concerned in a timely manner.

INFORMATION
Dates set on an Information Exchange Schedule. The test is to be accompanied in a team meeting where all issues can be revised affecting the project and any schedule agreed upon. All information must be reviewed through the project architect and documented.

CONTRACT
All, prework, or manner of preparing parts into a whole – Webster’s New Collegiate Dictionary. Building elements such as beams, columns, doors, exterior walls, roof systems and finish grades must be designed to fit together correctly. Meet all codes and this section document.

PROCESS
Programming and Preliminary Design - establishes basic project scope parameters and planning requirements.
Final Design Development (25% COW) - develop planning and design with code and building system issues investigated. Set basic parameters and "solve the puzzle." Complete planning, design, code and building system issues.

The Beginning of CDs - consultant team organization and parameters set, design project information to consultants.

75% - 90% CDs - remaining time is spent documenting the solution and coordinating documents.

ALWAYS
Record and sequentially copy appropriate team members for any owner, vendor or consultant information affecting project parameters including schedule issues. (i.e., Owner comments on things that may be intolerable such as HVAC does not cost adequately somewhere. Why? Can be addressed in the future). Comments and suggestions are sometimes only casually mentioned and must be listened to and documented.

PROJECT COORDINATION

THE CRITICAL PATH
The Beginning of CDs

GENERAL
Prepare Design Set.
Establish CADD parameters with consultants.
If not, will they be sending PLT files or DWG files that need to be
what will they be plotting them, are they ready to plot or in "conversion" work requirements?
Are the CADD systems that they use our own CADD software or their own?

TEST WITH HEAVY, LOADING FOR STRUCTURAL ENGINEER (HORIZONTAL INTERSECTIONS, HORIZONTAL INTERSECTIONS,
SELECT L2D design numbers for needed elements.
Dimension control for elevators, stairs, and building perimeter.
Finalize grades around building.

CHECK DATA received coordinates and document (notes, drawings, photos, videos).

BEGIN TO WORK OUT SPECIFICATIONS (FOR IT TO COORDINATE WITH OUT IT APPROPRIATELY)

COORDINATION
Work with consultants and review building systems. Are there any conflicts?
Coordinate purchased items at building for utilities with Civil and MEP.

Copy all Consultants with:
All building system components.
UL Design numbers.
Copy Structural with:
Dimension controls for elevators, stairs, at floor openings, building perimeter.
All areas with static depressions, sloping slope platforms, door frames, special equipment, showers, and food service equipment.

All information tables.
Prepare grades adjustment to building.

Food Service Information

MEP
ID 43 issues with heavy, loading for structural engineer, HVAC equipment etc.
Provide cut sheet for all major equipment (RTU, AHUs). Pumps, suns. Include sizes and weights.

Class equipment fit in spaces - horizontally and vertically?

Check there are any issues requiring design changes (such as boiler room) from AIA draft sizes.

Food Service Information

FOOD SERVICE

Determine with static depressions, sloping slope platforms.

LOCATION OF ALL DETERMINED PATHS.

CHECKLIST
COW

Issues to think through
Coordination
What to check
Typical Drawings

Phase Driven (When)

www.LEANarchitecture.com
Qualitative Information on their terms
## Building Systems Charette

### October 9, 2013

**Project Name**

**Project Number**

### Agenda

**Tuesday, November 12, 2013**

**Introduction 4:30 – 4:45 am**

- Disaster preparedness
- Site infrastructure (planned for growth)
- Preferred vendors
- Plumbing over BT area?

**Foundation Systems 5:45 – 5:30 am**

- Geotechnical recommendations
- Spread footings versus piers: benefits and disadvantages
- Area of structural slab at 5th floor – water penetration issues
- Waterproofing systems - types and maintenance
- Vapor Barrier / isolation

**Structural Framing Systems 5:10 – 5:15 am**

- Steel vs. Concrete: Fireproofing
- Floor by floor review of anticipated usage - present and future
- Slab-on-grade (SOG) vs. Suspended Slab - long-term issues in planning/maintenance
- Long term deflection of the floor edges: how much?
- Floor rebar placement - any precautions about locating penetrations?
- Setup for future vertical expansion
- Lightweight concrete vs. normal concrete
- Column grid layout and brace or shear wall locations (if necessary)
- Floor to floor heights
- Any special equipment (what, where, how much does it weigh, does it require a special room or special lifting?
- Any other depressions (plenums, jurassic closets, terraces, etc.)
- Any special vibration requirements

**Break 10:15 – 10:30 am**

**Chiel & Landscape 10:30 – 11:15 am**

- BMO District requirements and context
- City wastewater, storm and water capacity requirements
- Existing easements and platting requirements
- Traffic requirements
- Parking
- Who pays for BMO parking &Connector?
- Who provides utilities for BMO?
- Site lighting levels
- Roof barriers for trees
- Landscape budget? Roof gardens?

**Roofs & Penthouses 11:15 – 11:45 am**

- Roofing material preferences, including finishing materials
- Low slope roofs
- High slope roofs
- Overflow drains or through the wall scuppers?
- Roof walkway pads or elevated decks
- Window wash equipment docks, fire-backs, electrical outlets
- Lightning protection
- Special provisions for exhaust stacks
- Parapet height
- Main access?

**Lunch Break – Lunch Served 11:45 – 12:30 pm**

**Educational Sessions 1:20 – 2:00 pm**

- Review of the current building services and floor mechanical rooms on each level, with focus on equipment over sizes and layouts.
- Time by time review of special HVAC requirements.
- Equipment preferences?
- Special exhaust needs (fittings) – insulation type?
- Control systems digital interface with existing remote readout / control?
- Energy Conservation concerns?
- Noise / vibration issues.
- Floor vacuuming system in mechanical rooms.
- Life cycle implications?

**Electrical Systems 2:00 – 3:00 pm**

- Any aluminum permitted in distribution systems?
What is Lean Architecture?

Lean Architecture is the ongoing process of rethinking and improving architectural methodology. It is the pursuit of better work by applying Lean principles to every aspect of practice. It is about smarter information flow and understanding how we perceive and process information in order to be better communicators amongst ourselves and to the users of our services. It is identifying what adds value and reducing and eliminating what doesn’t.

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