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Lean Construction Conference, San Francisco, California

November 2006

Whitepaper Received

Ten Key Decisions to A Successful Construction Project

**Choosing Something New:
The Integrated Agreement for Lean Project Delivery**

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Toyota Way, 14 Principals

1. Base your management on a long-term philosophy, even at the expense of short-term financial goals.
2. Create continuous process flow to bring problems to the surface.
3. Use "pull" systems to avoid overproduction.
4. Level out the workload (work like the tortoise, not the hare).
5. Build a culture of stopping to fix problems, to get quality right the first time.
6. Standardized tasks are the foundation for continuous improvement and employee empowerment.
7. Use visual control so no problems are hidden.
8. Use only reliable, thoroughly tested technology that serves your people and process.
9. Grow leaders who thoroughly understand the work, live the philosophy, and teach it to others.

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Toyota Way, 14 Principals

10. Develop exceptional people and teams who follow your company's philosophy.
11. Respect your extended network of partners and suppliers by challenging them and helping them improve.
12. Go see for yourself to thoroughly understand the situation.
13. Make decisions slowly by consensus, thoroughly considering all options; implement decisions rapidly.
14. Become a learning organization through relentless reflection and continuous improvement.^v

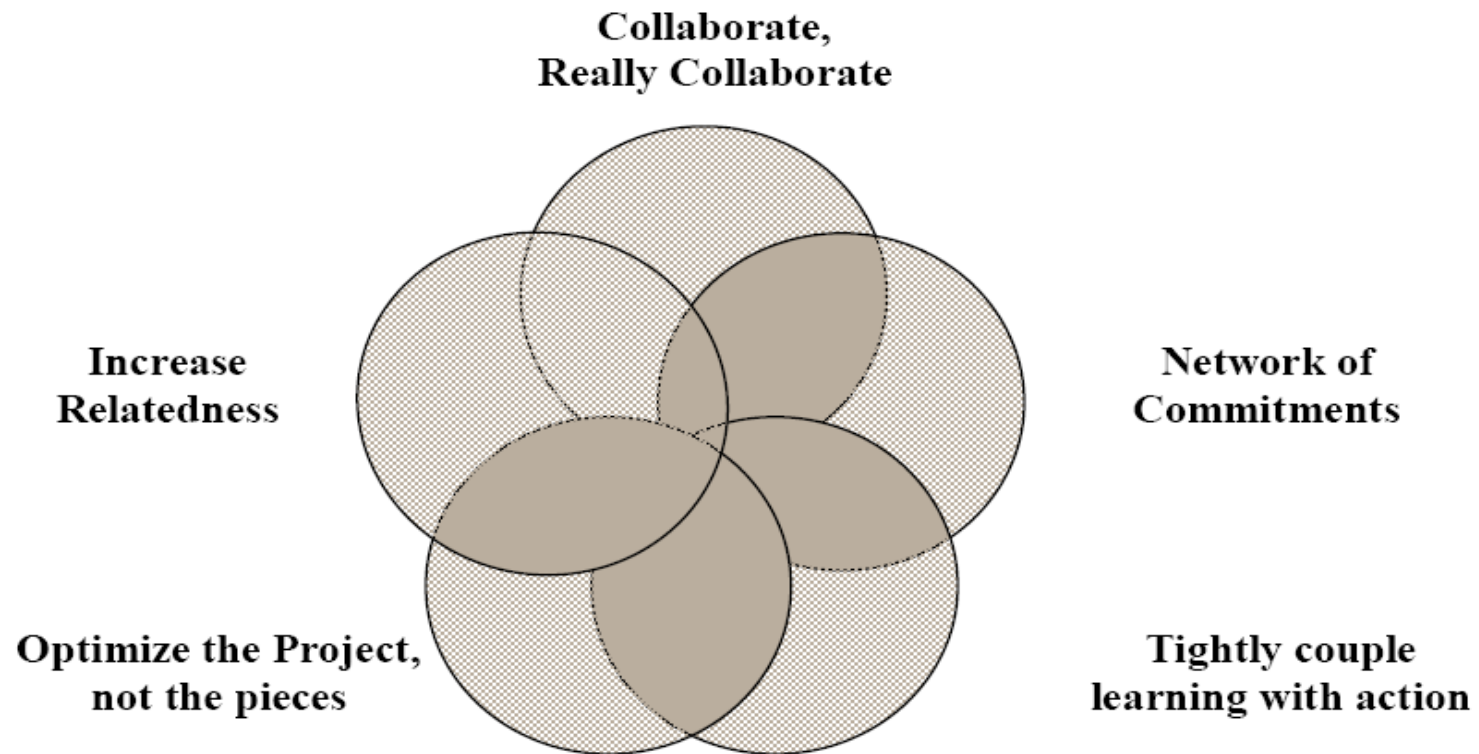
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Toyota Identified Wastes (Muda)

1. Overproduction: Producing items for which there is no order resulting in overstaffing, storage, or transportation.
2. Waiting: Workers idled watching a machine or waiting for material, equipment, approvals, or directions.
3. Unnecessary Transport: Moving work-in-process or inventory.
4. Over or incorrect processing: Taking unneeded steps to achieve an outcome; inefficiencies due to poor tools or design (too much work or rework); procuring to higher standard than required.
5. Excess Inventory: Raw material, WIP or finished goods, increasing lead time, obsolescence, damaged goods, storage, transportation; also hides production and delivery problems.
6. Unnecessary movement: Wasted employee motion – looking for, reaching for, stacking parts or tools. Walking is waste.
7. Defects: Production of defective parts or correction. Repair, rework, scrap, inspection.

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Sutter Health, The Five Big Ideas



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Collaborate Throughout Design Planning, and Construction

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Collaboration during Planning, Design, and Construction Reduces Re-Work.

Value Engineering, Design/Build, and Constructability Reviews, Construction tends to be more successful than Design and Construction.

Integrated Project Delivery (IPD) Team (Project Manager, CM, Architect, Contractor)

Architect & Contractor are selected based preference of CM and CCM
Major project decisions are made by consensus of the Core Group of the IPD Team.

IPT Team selects major consultants and subcontractors.

Executive oversight of the Core Group to foster learning and collaborative environment.

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Collaboration of All Project Participants

Target Value Design (TVD) is intended to make explicit that Value, Cost, Schedule, and Constructability are the basic components of the design criteria.

Target Value Design: Continuous cost model updating to assure that on-going design is not exceeding budget; and methods for evaluating the Design tradeoffs and opportunities (including function/cost trade offs) in order to maintain total project target cost.

During Design/Construction, continuous cost model updating to assure that on-going design is not exceeding budget and methods for evaluating TVD tradeoffs opportunities are in order to maintain to project target cost.

Third Party Quality Assurance (Consultants/Plant Engineering)

Built-In Quality Plan to ensure the expectations of the Contractor/Subcontractors will be responsible for accepting and executing the scope of work.

Overall Goal: Minimize the amount of re-work.

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Projects are Networks of Commitments

Fundamental success of Lean Project Construction is the willingness and ability of all IPD Team members to make and secure reliable promises as the basis for planning and executing the project.

IPT Agreement makes a bold stand of stating “zero RFI’s goal” given the deep level pre-construction collaboration. (\$0 RFI’s)

Milestone Schedule: phased schedules, “make ready” look ahead plans, weekly work plans, method for measuring (Earned Value Report), recording, and improving planning reliability.

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Optimize the Project

Lean Project Construction seeks to create a system of shared risk, with the goal of reducing overall project risk, rather than shifting it.

IPT Agreement investing significant amount of up-front collaboration (man-hours) with the Project Team in a effort to eliminate ambiguity in the documents and maximize the collective understanding of project's conditions of satisfaction.

Contractor is compensated on Cost-Plus Fixed Fee, Guaranteed Maximum Price Contract with some Subcontractor being Cost-Plus GMP also.

The Mechanical and Electrical Subcontractors will be Design/Build Subcontractors on Cost-Plus GMP Contract. Remaining subcontractors will be fixed priced.

Guaranteed Maximum Price Proposals will submit on drawings submitted for the building permit, reducing the need for contingency.

“Incentive Sharing Plan” is encourage for superior performance based upon the lean project delivery goals. The incentive program will be funded with project savings as evidence by both preservation and reduction project's Cost of the Work as compared to the amounts contained within the GMP contract amount.

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Tightly Couple Action of Lessons Learned

Concept of Lessons Learned and Continuous Improvement are embedded into project performance.

Weekly assessments of planning system reliability and reasons for variance with the Project Team for determining ways to reduce variability (Earned Value Reporting).

Assessments are made during construction of the root causes of contingency utilization and change orders with the goal of minimizing future need additional contingency.

Project Team is specifically charged with developing the project evaluation criteria, conducting periodic project assessments, and planning/implementing programs to improve Project performance and performer with the Project.

Built-In Quality Plan specifically must address how to assess: Performance, Identify Root Causes (Problems), and Continuously Improve Performance.

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Conclusion

Lean Project Construction seeks to align relationships with Lean ideals. Interaction of Design and Construction are assembled as a temporary production system.

Lean Project Construction (Lean Project Delivery) exemplifies Toyota's Production System – the elimination of the system-wide of waste and pursuit of value from the Owner's perspective.

Integrated Project Delivery Team reduces or eliminates risk by employing new conceptual and autonomic approaches to project delivery.

Lean Project Delivery supports the conclusion that risk associated with Time, Cost, Quality, and Safety can be reduced by implemented Lean thinking.