

Walker Park Roxbury, MA

A Lean Design Pilot Project for Affordable Housing

Brief Background

- Enterprise and MHP concerned about the rising cost of creating affordable housing
- Introduction of Lean design and construction at Enterprise NY meeting
- MHP creates grant program for nonprofits to pay for testing innovative approaches to design and construction
- Urban Edge is a recipient, leveraging Enterprise grant
- CEDAC supported effort and allowed for larger upfront costs for design

It takes a team to implement innovation

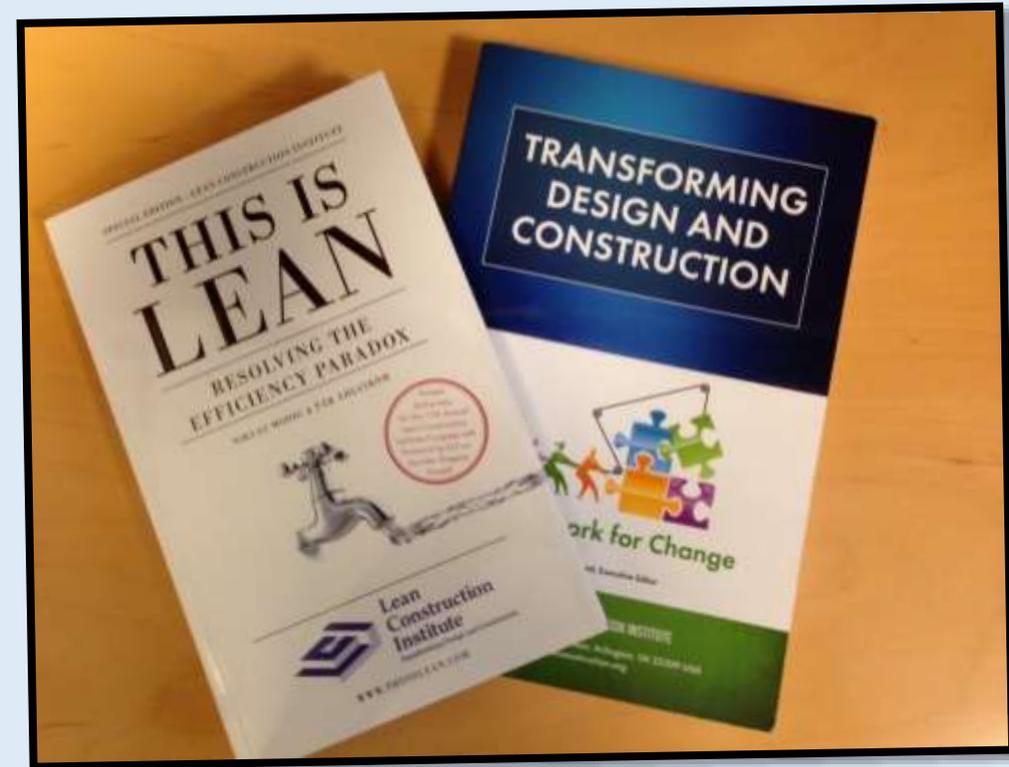
- **Urban Edge** project sponsor - Boston based CDC
- PCA Architects Cambridge, MA
- Commodore Builders Boston
- Lean consultants:
 - Brian Anderson Anderson Porter Design, Cambridge
 - Colin Milberg ASKM & Assoc. Amherst, MA
- City of Boston Department of Neighborhood Development
- Massachusetts Housing Partnership
- Enterprise Community Partners
- CEDAC nonprofit pre-development lender



A Quick Intro: What is Lean?

IN THE DESIGN PROCESS:

- Before you start drawing anything, key parties meet to determine project goals (values); owner, contractor, architect, MEP engineers
- Design based on a detailed estimate (v. estimate on a detailed design)
- Design for what is constructible (v. evaluating constructability of design)
- Work together to define the issues and produce decisions, then design (v. designing alone and then coming together as group for decisions and re-designing)
- Work together face to face (v. alone in separate rooms)



(c) Lean Project Consulting, Inc.

Lean in the construction process – Last Planner System

Goals

- Eliminate waste in production
- Plan in small batches
- Remove constraints
- Leverage experience of foreman and subs
- Produce & Measure Reliable Commitments
- Maintain consistency and improve quality

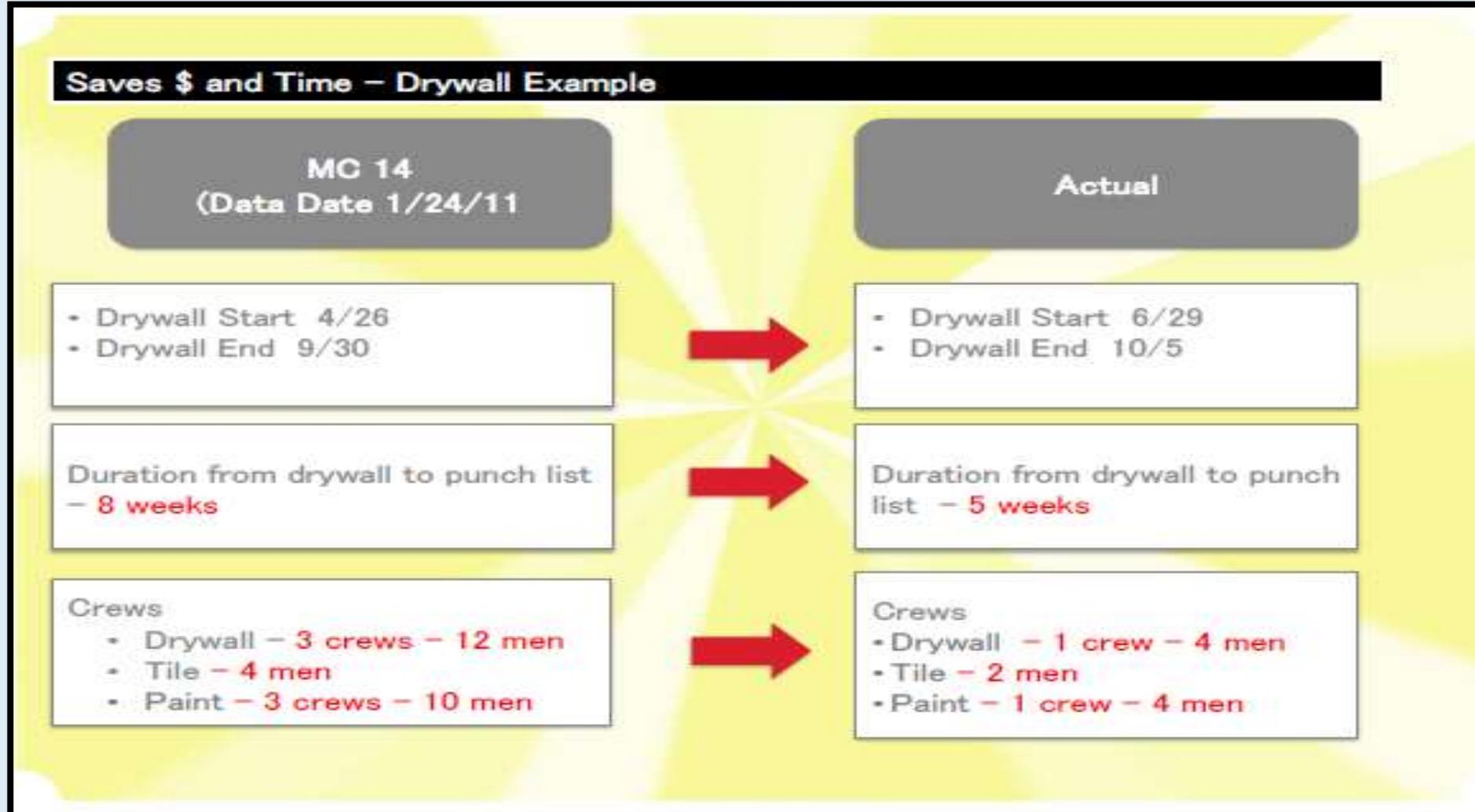
How to Execute

- Pull Planning (design too!)
- Create Module
- Weekly Work Plan (creates REAL commitments)
- 6-week make ready
- Consistent workforce
- Lessons Learned



Lean in Action

Drywall Example from MassArt dormitory building – courtesy of Suffolk Construction



Development Context for Walker Park

Project context:

- Nonprofit sponsor
- City of Boston and state subsidy needed
- ‘Normal’ development process:
 - Design and then bid to approved contractors for pricing (per city and state requirements)
 - 3 design reviews with 2 known sets of design guidelines:
 - DND, BRA and DHCD

Project specifics and goals:

- Consists of 3 sites – 2 are contiguous
- New construction – 40 units
- Pilot goals:
 - Minimize time line by using most available financing sources starting with 4% credits
 - “Back into” cost number as goal, maximizing unit count (40 units):
\$307,535 TDC including acq. cost of \$24,000/unit = \$195,000 p/u construction costs

Successes

- Identification of “must-have” and prioritization of “nice-to-have” elements of development
- Buy in from DND resulted in a more streamlined review process and an advocate in BRA design review
- Design process more streamlined – eliminating most redesign
- Big savings early on:
 - Reduction in number of buildings from 3 to 2
 - Elimination of podium
 - Efficient building design/layout
 - HVAC



Full team meeting with pull planning and Choosing by Advantages work- Jan 2015



DEPARTMENT OF NEIGHBORHOOD DEVELOPMENT
MULTIFAMILY NEW CONSTRUCTION

DESIGN REQUIREMENTS & GUIDELINES

Final - 04/1/2014
As developed with DND, H&H Consulting and LDP

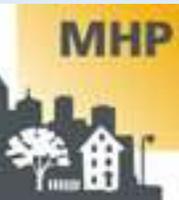
Process helped City of Boston efforts to streamline Design Review guidelines and create one set of guidelines for the city and state.



Specific Impacts- A Few of Many!

Lean design process created opportunity for dozens of quick decisions in team meetings that lead to project savings, including:

- Room dimensions tweaked to minimize cutting of sheetrock
- Early help from DND to pushback on BRA's aesthetic concerns
- Early decisions on floor and wall assemblies
- 'Choose by advantage' process made clear which HVAC system was best
- Owner was in 'real time' discussions between architect and MEP team, which normally doesn't happen
- Sub-contractor conversations illuminated issues that might otherwise not have been discussed such as optimal truss design, metal studs over wood, etc.



Room for Improvement- Program and Policy

- Align public funding award process with fast pace of the Lean process
 - Carrying costs
 - Potential for code changes
 - Risk shift
- Align BRA and DND review processes or even better, have only one design review; either BRA or DND- would save time and money!
- Different state level design review (DHCD) for City of Boston approved projects
- Add flexibility to design guidelines or prioritize some design options over others.