Designing out Ladder Use (and falls)
My Thoughts on PtD

“PtD is not understood in the field - or it would not be needed”

“Designed in “armed hazards” are unrecognized”

“Owners buy from their Designer lifetime “armed hazards” (unprotected skylights)

“Un-needed work at height is Designed in”
New Construction – Lifetime Threat

Gauge 7’ from floor and 21” to wall – unreadable

Must be recorded each shift

Ladder must be used - cannot be fully extended
Pioneers?
(from contract language)

APPENDIX C – DESIGN SAFETY CHECKLIST

Safety Design Considerations in Design

- Roof Access
  - A. Parapet Design Reviewed (39-45” top rail or top of wall)
  - B. Fall Anchorage Points Installed on Roof for window washers
  - C. Fall Protection Planning for Awning Maintenance and Construction
The Barrier - Conventional Thinking

“We only use ladders”
Worker
Solutions = Efficiency

“Couldn’t we just drop a rope?”
VP of Safety

“Just Take the Stairs”
Why Take such Chances?

- Poor ladder use - driven by Operations
- Work planning is nice, but occasional
- Ladder are needed – but last

“This is an Operations Problem not a safety problem!” Peter Furst
Blame the Designers

Designed Hazard – snowy roof to smooth floor, broken arm.
It's Bad Designers

Designed Hazard - Ladder needed - lamp at 16'

Designed Hazard - Chicago
It’s Bad Designers

One Roof – Two Lifetime Threats Designed by Professionals – new construction

Consider two-feet of accumulated snow…. 
Where to Start

- Recognize Design Errors - Education
- Warn Owners – “Don’t Buy Hazards”
- It will take a generation
The Hazards of Ladders
Well Recognized
Canada 1991

Construction Regulation (Ontario Regulation 213/91)

“Ladders are not work platforms. They are a means of access. In situations where you can use a scaffold or other type of approved work platform, use it.”
a. **Elimination**: ..... (i.e. build roof trusses on ground level and then lift into place or design change by lowering a meter or valve at high locations to a worker’s level);

b. **Prevention** (traditional or same-level barrier): isolate ..... hazards from work areas by erecting same level barriers such as guardrails, walls, covers or parapets;

c. **Work platforms** (movable or stationary): Use scaffolds, scissors lifts or aerial lift equipment to facilitate access to work location.....”
“Ladders can be used if after assessing the risks the use of more suitable work equipment is not justified because of the low risk and short duration.”

“Short duration is taken to be between 15 and 30 minutes depending upon the task”
If not Ladders - what?
The Yankee Stadium Example

3 hrs. 23 min. to assemble – Failed Insp.

38 minutes for task
Get Operations Attention

Cost of one ladder incident $504,846
Total Profit for Job $3,309,000
Estimated Margin (3%)
NEW Sales Needed to Recoup $16.8 Million

“It's not the cost of the injury it's the cost of additional sales to recover the loss”
The Fix – Make the Case

- No ladders (Shell Oil) - “Not only can we eliminate 763 excursions at height – we can save a week on schedule”
- Crown House UK “The studies indicated staff carried out tasks three times more efficiently”.
- Ladders are typically inefficient but they have a role (platform) but ladders...last.
Share (and teach) What We Learn

We actually did it 30% faster than planned”

ITSI - Allen Max Construction - MT
Questions?