WHY “TOTAL PRECAST” SHOULD BE YOUR NEXT BUILD SYSTEM
INTRODUCTION

- **Speakers**: Jason Stubbe & Sean Bickell
- **Company**: Stubbe’s Precast
- **Experience**: Over 35 years experience in the precast concrete industry
- **Total Precast Buildings Erected**: 40+
WHAT IS TOTAL PRECAST?

• Total precast structures are becoming a popular choice for many construction projects. They involve combining architectural and structural precast components to create the entire building.

• All components are manufactured offsite in a controlled environment and transported to site for erection.

• They are reinforced with either conventional rebar, pretensioned strand or a combination of both.
ADVANTAGES OF TOTAL PRECAST

SPEED OF ERECTION

Exterior Walls + Interior Load Bearing Walls + 8000 ft² of Hollow Core + Stairs & Landings in 5 workings days.
ADVANTAGES OF TOTAL PRECAST MANUFACTURED IN A CONTROLLED ENVIRONMENT
ADVANTAGES OF TOTAL PRECAST

ALL WEATHER INSTALLATION
ADVANTAGES OF TOTAL PRECAST

MULTIPLE EXTERIOR FINISHES - FLAT PANELS
ADVANTAGES OF TOTAL PRECAST

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MULTIPLE EXTERIOR FINISHES - FORMLINER
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MULTIPLE EXTERIOR FINISHES - MULTI-TONAL
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ADVANTAGES OF TOTAL PRECAST

MULTIPLE EXTERIOR FINISHES – WHITE CEMENT
ADVANTAGES OF TOTAL PRECAST
ONE MAIN STRUCTURAL TRADE ON SITE
ADVANTAGES OF TOTAL PRECAST

IN-HOUSE SERVICE START TO FINISH
ADVANTAGES OF TOTAL PRECAST

ECONOMICAL

• Durable wall that can be left exposed.

• Substantial completion in less working days.

• Building can be enclosed quicker to save heating costs and lost days.

• Superior fire resistance and acoustical control.

• Cheaper insurance for owners compared to other building systems.

• Less maintenance long term compared to other building systems.
DESIGN TIPS & CHALLENGES
DESIGN TIPS AND CHALLENGES

ENGINEERING SCOPE

ENGINEER OF RECORD (EOR)

• Creates structural drawings for permit applications, tenders and construction.
• Provides design loads to the precast engineer.
• Designs foundations (precast engineer will provide reactions once analysis is complete).
• Structural co-ordination and shop drawing review of non-precast elements.

PRECAST ENGINEER

• Designs the precast superstructure based off the loads provided by the EOR.
• All precast element sizing along with supporting structures provided (i.e. lintels).
• All connections from precast to precast as well as precast to foundation.
DESIGN TIPS AND CHALLENGES

LAYOUTS – SUITE WALL TO SUITE WALL
DESIGN TIPS AND CHALLENGES

LAYOUTS – CORRIDOR TO EXTERIOR
DESIGN TIPS AND CHALLENGES

LAYOUTS – HYBRID
DESIGN TIPS AND CHALLENGES

LAYOUTS – LOAD BEARING ALIGNMENT
DESIGN TIPS AND CHALLENGES

PARTIAL PRECAST - FIRE WALLS & SHAFT WALLS
DESIGN TIPS AND CHALLENGES

SPAN OPTIMIZATION

• 8” Hollow Core = 27 to 28 feet

• 10” Hollow Core = 37 to 38 feet

• 12” Hollow Core = 42 to 43 feet

• 14” Hollow Core = 47 to 48 feet
DESIGN TIPS AND CHALLENGES

WALL PANEL OPTIMIZATION
DESIGN TIPS AND CHALLENGES

WALL GEOMETRY – LOAD BEARING
DESIGN TIPS AND CHALLENGES

WALL GEOMETRY – NON LOAD BEARING
DESIGN TIPS AND CHALLENGES

GLAZING SECTIONS
DESIGN TIPS AND CHALLENGES

GLAZING SECTIONS
DESIGN TIPS AND CHALLENGES

WALL ASSEMBLIES

USE TREMCO'S DYNONIC 1200 FOR ALL INTERIOR PAINTING, COLOURS AS APPROVED BY ARCHITECT. ALL BACKER RODS, PRIMERS, ETC. TO MEET TREMCO'S SPECIFICATIONS FOR DYNONIC 1200 CAULKING.

SPRAY INSULATION BY OTHERS

PRECAST CONC. PANELS

2 STAGE CAULKING JOINT:
FULL SEALANT MIN 1/2 INCH THICK EXTERIOR BEAD ON BACKER ROD INTERIOR BEAD ON GROUT

PLAN THRU HORIZ. JOINT

2 STAGE CAULKING JOINT:
FULL SEALANT MIN 1/2 INCH THICK ON BACKER ROD

WEEP HOLE PROTECTION WITH USE OF "WEEP-VENT" SCREEN OR SIMILAR PRODUCT

TYPICAL

WEEP HOLE

3/4" CHAMFER

SPRAY INSULATION BY OTHERS

PRECAST CONCRETE PANELS

SECTION B-B

JOINT SEALING DETAILS AT LOAD BEARING EXT. WALLS
DESIGN TIPS AND CHALLENGES

WALL ASSEMBLIES

USE TREMCO DYMONIC 100 FOR ALL EXTERIOR CAULKING. COLOURS AS APPROVED BY ARCHITECT. ALL BACKER RODS, PROJECTS, ETC. TO MEET TREMCO’S SPECIFICATIONS FOR DYMONIC 100 CAULKING.

PLAN THRU HORIZ. JOINT

SECTION A-A

JOINT SEALING DETAILS AT EXTERIOR CLADDING WALLS
DESIGN TIPS AND CHALLENGES

INSULATED WALLS

- Exterior Stairwells
- Mechanical Penthouses
- 14” or 15” Thick (assuming R20)
DESIGN TIPS AND CHALLENGES

WALL CONNECTIONS

- PRECAST WALL W/SLEEVES. SLEEVES TO BE FILLED SOLID W/ HIGH STRENGTH NON SHRINK GROUT
- REBAR SPLICER INSTALLED INTO FORM SAVER COUPLER
- PLASTIC SHIMS
- GAP UNDER WALL TO BE GROUTED SOLID W/ HIGH STRENGTH GROUT
- 10W BAR - 1220 LONG @ EACH GROUT JOINT
- GROUT VOID SOLID
- CONTINUOUS PLASTIC BEARING PAD
- FORM SAVER
DESIGN TIPS AND CHALLENGES

WALL CONNECTIONS

Alignment Connections at Vertical Joints:

- (2) 200 x 45 LG, A325 bolt w/ washer
- FERRULE LOOP INSERT C/W HAIRPIN
- L 201 x 203 x 127 x 150 LG C/W (2) 2 x 75 slotted holes
DESIGN TIPS AND CHALLENGES

WALL CONNECTIONS
DESIGN TIPS AND CHALLENGES

BALCONIES
DESIGN TIPS AND CHALLENGES

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BALCONIES

[Images of two buildings with balconies]
DESIGN TIPS AND CHALLENGES

PARKING GARAGES
DESIGN TIPS AND CHALLENGES

THERMAL

• Layout
• Balcony Support
• Interior Stud Wall Placement
• Size of Windows/Openings

SAMPLE PROJECTS

• Bloor Street, Mississauga – 4 Storeys
SAMPLE PROJECTS

• Hampton Inn, Sarnia – 6 Storeys
SAMPLE PROJECTS

- Holiday Inn Express, Brantford – 6 Storeys
SAMPLE PROJECTS

• Intercontinental Combo Hotel, Niagara – 6 Storeys
SAMPLE PROJECTS

• Saginaw II, Cambridge – 7 Storeys
SAMPLE PROJECTS

• Jackson Street Apartments, Hamilton – 7 Storeys
SAMPLE PROJECTS

• Riverbanks Lofts, Cambridge – 10 Storeys
SAMPLE PROJECTS

• 255 Sunview, Waterloo – 12 Storeys
SAMPLE PROJECTS

• The HUB, Waterloo – Multiple Multi-Storey Towers
SAMPLE PROJECTS

- Lester Street Residence, Waterloo – 13 Storeys
SAMPLE PROJECTS

- 222 Albert, Waterloo – 13 Storeys
SAMPLE PROJECTS

- Maple Avenue Apartments, Barrie – 15 Storeys
SAMPLE PROJECTS

• River House Condominiums (MacDonell), Guelph – 18 Storeys
SAMPLE PROJECTS

- Phillip Street Student Residences, Waterloo – 22 Storeys