St. Joseph's Women's Hospital

Project Background Information...

St. Joseph's Women's Hospital
Neonatal Intensive Care Unit (NICU)

3030 W. Martin Luther King, Jr. Blvd.
Tampa, FL 33607

Project Location

Project Delivery Team

Owner
St. Joseph's Hospital Women's Hospital
Neonatal Intensive Care Unit (NICU) Expansion
Operated by Baycare Health Systems
3030 West Dr. Martin Luther King, Jr. Boulevard
Tampa, FL 33607

Construction Manager
Barton Malow Company
8529 South Park Circle, Suite 140
Orlando, FL

Architect
HKS Architects, Inc.
225 East Robinson Street, Suite 405
Orlando, FL 32801

Structural Engineer
HKS, Inc.
1919 McKinney Avenue
Dallas, TX 75201

MEP Engineer
Smith Seckman Reid, Inc.
6948 Professional Parkway East
Sarasota, FL 34240

Civil Engineer
Mills & Associates
3242 Henderson Boulevard, Suite 300
Tampa, FL 33609

Medical Equipment Planner
HKS Architects, Inc.
113 Seabord Lane
Franklin, TN 37067

Landscape Architect
Graham Booth Landscape Architecture
646 Second Avenue South
St. Petersburg, FL 33701

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Construction Management

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Façade Redesign and Prefabrication...

How is it Being done?

- Precast Concrete panels welded to steel embed plates in two-way flat plate slab
- Glazing "stick-built" in the field after precast has been erected

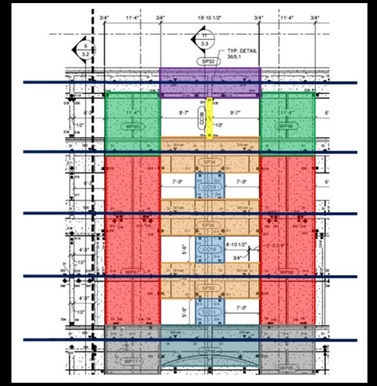
What Issues Have Surfaced?

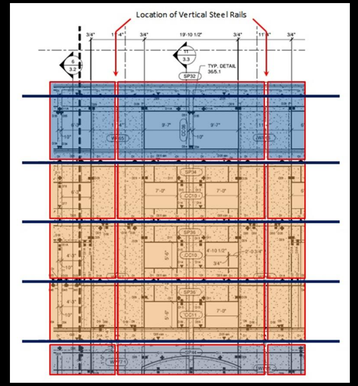
- Crane pick limitations
- NOA Rating for glazing assembly
- Extensive field welding

What Do We Hope to Gain?

- Reduce welding and installation time
- Include window installation in prefabrication stage
- NOA Rating Certification
- Cost savings

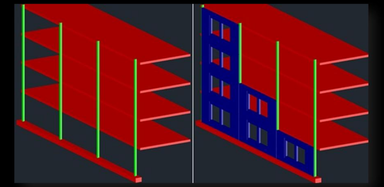
How Can it Be Done?

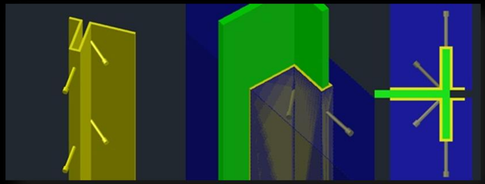




Create a Repeatable Consistent Design that Requires fewer Panels and Connections!

Tongue and Groove Type Precast System





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Post Tension Slab Punching Shear...

What is the Problem?

- Reducing concrete slab thickness shifts the critical design issue toward punching shear at column supports

What Needs to Be Done?

- Evaluate punching shear according to ACI 318-08-11
- Determine if additional provisions are needed to resist shear
- Design reinforcing to correct the issue if it is found that concrete alone cannot resist the loads.

Structural Grid Layout and Loading Parameters

Structural Layout Image with Dimensions

Load Parameters

- Self Weight of Concrete – 93.75PSF
- Superimposed Dead Load – 15PSF
- Live Load – 80PSF

Critical Dimensions

- Slab Depth – 7.5"
- Max Span – 28'
- Column Dimensions – 24" x 24"
- *d= 6.75"*
- *B_0= XXXX*

Close up Drawing of Location and Dimensions of Critical Shear Plane

Factored Loads

$$W_u = 1.2(DL) + 1.6(LL)$$

ACI 318-08-11.11.2.1 Calculation of V_c

- V_c should be taken as the lesser of the following three equations:
  - $Vc = (2 + 4/B)\ldots$
  - Vc =
  - Vc =

Calculation of V_u

- Value must be less than Vc determined above otherwise additional shear reinforcing must be designed
  - Equation for Vu

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