



1. Tall spans for curtain wall:

- a. May require coordination with the building structural engineer if missing support beams.
- b. Closed shapes perform better for wind loads than open.
- c. Span heights may be more than the manufacturer stock lengths, requiring engineered splices.

2. Building structural movement accommodation:

- a. Contract documents require accommodation of vertical structural building movement, and the drawings rarely give an amount to be accommodated. RFI's may be needed.
- b. Manufacturers' details only consider $\frac{1}{4}$ " of vertical structural movement, which is deficient and requires engineering adjustments.
- c. Special custom anchors may be needed based on RFI answers from building movement.

3. Jamb mullions may require extra reinforcing:

- a. Jamb mullions deflect more under wind than most adjacent wall construction, meaning that the $\frac{1}{2}$ " sealant joint has to be sized for the movement. Open-shaped jambs are weaker.
- b. The jamb mullion can either be reinforced or the joint size increased.

4. Storefront Receptors:

- a. Contract documents require accommodation of vertical structural building movement.
- b. If storefronts are more than 15'-18' long (horizontally), then it likely requires receptors.
- c. Architectural details typically show shimmed head joints without receptors and are deficient.
- d. Receptors only accommodate about $\frac{5}{8}$ " maximum vertical structural movement; if actual structural movement is more, it may require a system change to curtain wall.

5. Corners – 3D structural modeling should be performed:

- a. Short return curtain wall and storefront sections may get pulled out by wind loads and require additional steel reinforcing to help with the joint between glazing systems and structure.

6. Sunshades:

- a. Significant snow and drift load may be required as loads for design. Reinforcing may be needed.
- b. Pictures and studies have shown damage to insufficient storefront mullions with sunshades.

7. Vertical Fins and Mullion extensions:

- a. Deep cap extensions (12" or more) will add in-plane wind loads to glazing systems.
- b. Manufacturers have not designed their systems to accommodate lateral loads from fins & extensions. Reinforcing will be needed.

8. Door Headers:

- a. Long headers over entries require significant engineering to limit deflections and steel reinforcing to vertical framing adjacent to the opening.
- b. Automatic door manufacturers have specific requirements for minimizing deflection and movement if framing to curtain wall.



Level 1 – Prelim Engineering Analysis

- Cladding design loads.
- Optimize system types for the performance required.
- Frame sizes, spacing and geometry.
- Coordinate structural support and loads.
- Flag potential code compliance challenges.

Level 3 – Detailed Engineering

- Detailed engineering report of all glazing and other cladding elements with submittal and review of drawings.
- Design and detail joints for building structural movement and manufacturer limitations.
- Insulated glass unit (IGU) design.
- Determine safety glazing locations.
- Thermal analysis.
- Specifications review.

Level 5 – Post Design & Installation Support

- Answer requests for Information.
- Submittal Reviews.
- 3rd Party Design Review.
- Site Visits Inspections & Reports.
- Forensic analysis & reports

Level 2 – Drafting & Shop Drawings

- Input to Architectural Drawings and Details.
- Detailed Shop Drawings.
- Fabrication Drawings.
- BIM Models and Coordination.

Level 4 – Structural Glass Walls

- Determining applicable design loads.
- Design and detail anchorage for glass such as point support, fin supported systems and custom solutions.
- Design and analysis of laminated and Insulated Glass.
- Coordinate and account for building structural movement between trades impacting the glass scope.

Level 7 –Other Structural Glass Applications

- Analysis and design of glass railing and support design.
- Glass canopy analysis and design.
- Laminated glass floors and stair treads/landings analysis and design.
- Analysis and design of glass wind screens and structural supports.
- Analysis and design of ornamental glass.