Saint Andrews Condominiums
January 10, 2008
Introductory Structural Design Meeting with WDY Engineers

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Phil Sydnor
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On Thursday, January 10, 2008, Bill Hawkins and Phil Sydnor introduced Jim Gipe to the proposed St. Andrews Condominium project. We discussed several structural systems to support the building. We settled on two structural options for the building. The second option has the potential for two to three variations. We also ruled out other structural options. Below is a synopsis of the two preliminary options for which Jim Gipe will be putting together a fee proposal. Jim's fee proposal will include total engineering design services. Please also see on page 2 a synopsis of the structural options ruled to not be viable.

- **Option 1 – Post-Tensioned concrete slabs supported by poured in place concrete walls and columns**
  Benefits:
  - Maximum floor to ceiling height without beams (8" thick floor slab)
  - Up to 28' spans can be achieved
  - Vertical form work can be reused
  - One subcontractor required for structural work

  Drawbacks:
  - Expensive
  - "Tensioning" crew must return to site for each slab to tension cables and then to re-tension cables on lower floors as additional weight is added above
  - Additional weight of thick slabs and concrete structure can increase requirements for lateral system

- **Option 2 – Poured in place concrete floors slabs over metal decking supported by poured in place concrete walls and columns on first floor and supported by CMU exterior walls, structural steel grid, and/or cold formed steel studs on floors 2 – 6**
  Benefits:
  - Less expensive structural system
  - Maximum floor to ceiling height with beams (4" thick floor slab, including metal decking)
  - Lighter building weight overall resulting in simplification of lateral system
  - Space for sound insulation at each floor slab

  Drawbacks:
  - Internal beams required (14 ½" total structural depth at beams)
  - Multiple subcontractors required for structural work

- **Structural systems determined to not be viable**
  - Wood
    - Very unlikely to hold weight of stone veneer
    - Vulnerable to mold and rot
    - Building code compliance issues can result due to controlling “whipping affect” caused by heavy concrete loads beneath wood structure on upper floors
  - Pre-cast concrete floor slabs
    - A thin floor slab thickness cannot be achieved due to 8” pre-cast floor slab plus 3” top coat
  - Tilt-up walls are not possible due to site constraints

- **Sound Engineer**
  - Coordination with a sound engineer should occur during the Structural preliminary design phase to determine the best sound barrier system for the exterior walls as well as the floor slabs. Bill Hawkins has contacted Toban Cooley with Listen Acoustics.