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# Structural Technical Report 1

## Structural Concepts / Existing Conditions

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### [Executive Summary](#)

This report is intended to be a detailed description and preliminary analysis of the structural design of Whiteland Village in Exton, PA. Whiteland Village is a 1,320,000 sq. ft. sprawling retirement community, which is slated for completion by November 2008. The physical components of the first phase of the complex include three 5 story residence buildings, a commons building, and a healthcare facility. The entire footprint has a basement level, which serves as covered parking and utility spaces. The master plan for the site is included in the report as Appendix A. The phase one construction will be on the west side of the campus, including U-1 (renamed R-1), U-2 (renamed R-4), and the J building (renamed R-2). The other buildings will go into planning as soon as Whiteland Village becomes profitable, and will be connected with a pedestrian link.

The residence buildings, designed by Dever Architects, were intended to resemble large typical suburban single family homes with the use of mansard roofs with asphalt shingles and a central exhaust system to limit the amount of roof-mounted equipment and roof penetrations. Each condominium includes a balcony or patio.

In order to complete a thorough analysis, the scope of this report only includes the most current design of the three residence buildings. It is intended to provide an overview of the overall structural system, as well as insight into the kinds of loads the structure is required to resist per the International Building Code 2000. In addition to the magnitude and type of loads, included is a brief description of the foundation and framing systems designed to resist those loads. Whiteland Village is predominately a CMU bearing wall system with a single steel framed section, supporting precast plank. Lateral resistance is provided by reinforced masonry shearwalls, as well as braced steel frames and steel moment frames. Spot-checks of various system components are also included as part of this report. For more thorough insight into the building, sketches of floor plans, sections, and details have been included. Additionally, reduced copies of the first floor plan of each residence building have been included in Appendix B. Appendix C contains the hand calculations completed as part of the wind analysis, while Appendix D is the hand calculations for the seismic analysis. Spot check calculations are included in Appendix E.