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Structural Option  
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**Boys Bear Country**  
Pigeon Forge, TN

## **Thesis Proposal**

### **Structural Redesign / Cost, Schedule and Coordination Analysis / Architectural Impact**

#### **Executive Summary:**

Boys Bear Country, located in Pigeon Forge, Tennessee, is designed as a multi-functional space and tourist attraction for Boys Collections Ltd. The 112,620 square foot building houses three floors of retail space with multiple cashier and information desks, warehouse storage, a loading dock, a full sized restaurant, food court, ice cream parlor, special events areas, and offices.

In analyzing structural systems of Boys Bear Country it is quickly apparent that special considerations will have to be made to accommodate the use of multiple materials and unique applied loads in the structure. It implements structural steel, cold rolled steel, concrete slabs, cast-in-place concrete walls and foundations, reinforced concrete block, wooden trusses, and wooden members.

The existing structural system of the building is composed of a steel grid supporting composite slabs. Wooden trusses support the roof, covered in plywood sheathing. Lateral resistance is provided by concentric braced frames, masonry shear walls, and masonry piers. Foundations consist of shallow footings and piers, built as a mixture of cast-in-place concrete and masonry.

In order to lessen the downfalls created by the application of multiple materials, options will be considered to transform the building into primarily a single material. The first option to be studied in depth will be the application of structural pre-cast concrete system. As initially identified in Technical Report 2, a wholly pre-cast system will focus on double-tees supported by pre-cast beams, girders, and columns. The second option to simplify the use of materials in the structure comes in the use of wooden framing, as studied briefly in Technical Report 2. Primary members of the structure will be engineered wood products as opposed to large scale timbers.

Breadth topics in construction management and architecture will be considered in following work. As in with the introduction of any changes to a building, cost will be a consideration in the viability of the new systems. Schedule and coordination adjustments will be rather large in the proposed adjustments. In accomplishing the goal of minimizing the number of materials used in the building, it is inevitable that these will be simplified. Both redesign options will have an impact on the architectural design of the building as its materials will be changing. Considerations will be made to balance the performance of the system as a structural frame and the appearance of the system within required design architectural goals.