



Architectural Analysis

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Boyd's Bear Country
Pigeon Forge, TN



Architectural Analysis:

Background and Requirements

The building is designed as a large scale barn, in Pennsylvania Dutch style and tradition. It features a large mural on the East side of the building, approximately 40' high and 60' wide, showing the company's trademark bears working on the construction and decoration of the building. The front of the lot features a steel silo bearing the Boyds logo measuring 20' in diameter and capped by a dome at 65' of full height. The top of the structure is finished with 3 cupolas reaching 36' in height and featuring a human sized cut metal bear.

The interior of the building features a decorative wooden "structure" along with wooden column covers to disguise the load-bearing steel members. The floor-to-floor height of the retail spaces is 17'-8" with a drop ceiling at approximately 10 feet from the finished floor height, allowing 7 feet of depth available for the floor system. The plenum is composed of a drop ceiling grid, in most cases without ceiling panels installed. This construction allows for the feeling of openness without the overwhelming scale of the full structure. The central bay of the building features a two-story atrium with large wooden timbers, picture windows, and a stone fireplace. Decorative timber trusses are located at the top of the atrium, and are not structural.

It is most important that the retail and support areas of the building be as functional as possible while still balancing the country barn aesthetic.



Figure 28: Central Atrium ⁵



Figure 29: Exterior Mural ¹

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Floor Plan Comparison

The largest differences in plan between the three structural systems are the alteration of bay sizes and thus the number of columns present in each floor. The original composite steel structure has 30'x30' bays and 36 steel tube columns per floor. The pre-cast concrete redesign has 45'x30' bays and 27 square concrete columns. The engineered wood redesign has 30'x22.5' bays and 50 wooden columns. The removal of columns in the pre-cast concrete system is desirable as to increase useable floor area and traffic flow.

As discussed previously, the Southern mechanical chase was moved from the rear face of the building to the front face in order to ensure diaphragm continuity in both redesigns. The movement of this mechanical chase will require a few changes in the basement design including minor alterations to the kitchen storage and preparation area. Mechanical rooms are located on the North and South end of the building, and the relocation of the Southern chase does not require a severe change in the ducts between the two.

The mechanical chase relocation also allows for the relocation of the Southern elevator in both redesigns. The placement of the elevators is now symmetrical about the center of the building and located adjacent to the stairwells. The adjustment of the elevator location creates a larger open area within the Northern-most and Southern-most bays of the building; it also creates a small nook just to the East of the elevators which can easily be created into niche displays within the expansive retail area.

Interior Appearance Comparison

In existing application of steel columns, those columns which are exposed to retail and public areas are disguised with wooden coverings, illustrations of which may be seen in Figure 30. The interior pre-cast concrete columns measure 24 inches square, a significant increase from the original steel tubes. It is expected that in order to mimic the appearance of timbers, a similar covering would be applied to the concrete columns, further increasing their size. The engineered wood columns range in size from 7 inches square to 22 inches square, being comparable in size on retail floors to the original system, an example of which may be seen in Figure 31. The wood columns could be exposed as is, exhibiting the finish of the wood itself. In individual member appearance, the engineered wood columns are most desirable to fit the architectural needs of the barn.

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Figure 30: Examples of Steel Tube Columns Disguised as Wood in Situ ²



Figure 31: Pre-Cast Column Sample ³



Figure 32: Engineered Wood Column Sample ⁴

The appearance of the floor system from below is also an influence on the interior architecture of the space. The use of pre-cast concrete members would create a lighter ceiling color and thus would make the plenum and faux ceiling more noticeable. In order to keep the desired interior scale the concrete would most likely be required to be painted black. The wooden framing option would not require any additional finishing.