A STUDY OF CONNECTIONS

During the course of developing this project a variety of conditions were examined. Some studies focused on the importance of light and its relationship to structure and others simply looked at how things were put together.

Old Warehouse Structure, Belle Island, Richmond, Virginia
Above: Steel columns meeting the concrete foundation; two bolts per column.
Right: Line of light between two gables resulting from the decomposition of the building’s gutter.
Kanapaha Botanical Gardens, Gainesville, Florida
This building’s structure is derived from four corner rooms meeting with a central hall intersecting two axes. The project consists of solid sawn members. The columns of the central hall are split into quarters allowing for light and views between the vertical members. The separation of columns also allows for the easy addition and subtraction of members.

Right: First connection of columns and beams.
Bottom Right: Connection of the column to the base.
Below: Exterior post connection of handrail on the porch.
Left: Notice the reduction of beams and minimization of column heights as the space moves vertically.
Connections of Columns to Beam

A variety of connections were drawn and modeled to determine what worked best within the framework of the three concepts. At right several ideas are illustrated.

The connection chosen (succeeding pages) to be used throughout the project consists of two collars, as shown in succeeding pages that slide over the column. The bottom collar is bolted to the column; the top collar slides over the beam, placing the beam between two vertical guides. The collars are bolted together and the beam is compressed between the collars eliminating the need for the beams to be drilled.
DESIGN FOR DISASSEMBLY

In the development of this project thought was given to what the site will finally look like at the end of its usefulness. Rather than raze the buildings designed in this thesis, the materials above the horizon could be recycled for use in other projects or the material recycled to make new structural pieces. In the end the site would look like the trestles, reinforced concrete in the landscape. Could the permanent infrastructure of this project be a base for future development?

The questions above required a different way of thinking about designing a building. Where does the secondary structure rest? How does the exterior wall meet the structure? In what way should a beam be attached to a column?

Previously the connections integral to the superimposition of the geometries have been looked at and each of those connections becomes a mediator between materials.

In designing the connections three basic concepts governed the decisions: light, both literal dispersion of light and lightness of material, flexibility, and deconstructability of the members of the building.

Flexibility and deconstructibility stem from my definition of sustainability: the generosity of materials to be reused or recycled with minimal waste or damage, a fundamental system of structure that allows expansion and contraction of form, a belief in compiling structure and materials into a form that works with environmental and physical conditions versus competing with them.
The walls connect to the floor plate via a segmented construction. Segment 1 consists of SIPS panels nine feet tall and with a variable width in increments of one foot. Segment 2 is a wooden I-beam ten inches high. The I-beam is sheathed on the exterior by a recessed metal skin creating a shadow line. The interior is a place where joists connect to the wall and tie the wall into the main structure. The second level is the same construction topped by a three foot parapet.

The skin of the building consists of aged steel panels that are 36 x 12 inches. The finish of the panels are slightly rusted then sealed. In the context of the town there is a lot of brick, however brick is not conducive to quick construction and deconstruction. The color of brick is however desired and the town has a precedence for a metal skinned building.

In the example at right the skin is a horizontal metal panel, like a rolling door at a storage facility.
The questions of assembly and disassembly of a superimposition of geometry has been the focus of this thesis. In the final state, after the building’s usefulness has expired what happens to the site? This thesis is part of the site’s history and what remains tells a story that continues the tale of the site’s life. The existing railroad trestles inspired this thesis in its entirety. So, these closing images show the current state, the proposed state, the eventual state, and the final state. The final state mingles with the railroad trestles creating an archeological record.
REFERENCES:


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Thank You.
Education
2000-2003  Master of Architecture, Virginia Tech
1993-1996  Bachelor of Arts, Studio Art, University of Richmond

Experience
2001-2003  Graduate Assistant, Department of Architecture, Virginia Tech
Maintain the department's current web site and develop a new site to enhance navigation through the URL.

Develop web site for The Nature Conservancy's Virginia Coast Reserve highlighting the Reserve's mission and programs. Duties included client contact and design sessions. HTML, Java, and some ASP coding. Teaching client software applications to enable transfer of site responsibilities.

1996-2000  Exhibitions and Collections Manager, University of Richmond Museums
Work with the director in the design and layout of exhibitions and publications. Care for and document a growing collection of art and objects and organize the shipping of objects for exhibition and coordinate with other institutions for loans. Prepare exhibition galleries for installation of objects. Interact with a wide range of guests, scholars, artists, and faculty. Manage the schedules of 20-25 student assistants and supervise student's working in galleries. Train selected senior students for collection handling and management.

Provide images and infrastructure for web sites, photography of events and objects, site and brand development.

Selected Publications
From The Ground Up, Masters of Architecture Thesis, Virginia Tech
Religion & Politics: The Renaissance Print in Social Context, Exhibition Catalogue, University of Richmond Museums, Marsh Art Gallery
Ralph Adams Cram, The University of Richmond, and the Gothic Style Today, Exhibition Catalogue, University of Richmond Museums, Marsh Art Gallery
Pygmalion and Galatea, Exhibition Catalogue, University of Richmond Museums, Marsh Art Gallery
101 Photographs by 101 Photographers, Exhibition Catalogue, University of Richmond Museums, Marsh Art Gallery

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Bobby Chandler Award in Art, 1995, Department of Art, University of Richmond