Innovative Teaching Manual

PROJECT TITLE
Hands-On Construction Experience in an Interior Design Materials and Methods of Construction Course

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PROJECT LEVEL
Second Year

ABSTRACT
The ability to skillfully use materials and detail their assemblage is crucial to the execution and completion of successful interior design projects. Whether it's a complex custom millwork detail or a simple doorframe detail, designers must be concerned with how materials meet, terminate, fasten, and finish. Practicing interior designers struggle with detailing issues on a daily basis, but unfortunately students are rarely exposed to these issues in school. Skills, or even a refined sensitivity to issues of proper material use is absent in many interior design programs. Most interior design programs offer course work in basic material science and common methods of construction, but do not offer students an opportunity to experience materials and their assemblage first-hand.

To address these issued, a small construction project for a second-year interior design construction class was developed. The project is designed to condense a number of important construction issues in to a small-scale, comprehensive learning experience that culminates in the construction of a built artifact. The project consists of a multi-step process where students create an overall vision for the project, select and critically analyze materials, develop details for the installation of the materials, and finally construct their design.

OBJECTIVES
The objectives are fourfold. First, the project is to complement the information conveyed in lecture, by offering the students an opportunity to apply what they learn first-hand. Second, provide the students with an experience that is immediate and tactile. Third, offer the students an opportunity to select materials and critically analyze them for their use in the project. Fourth, relate the drawings they produce with the designs they construct.

CRITERIA
Most interior design programs offer course work in basic material science and common methods of construction, but unfortunately do not offer students an opportunity to experience materials and their assemblage first-hand. Lectures are limited to line drawings and photographs, supplemented with occasional site visits. While both lectures and site visits are beneficial, they lack an immediacy and tactile experience that can enhance the students understanding of construction and detailing. Recognizing this, some design programs have developed laboratories where modest full-scale construction projects can be built in large vacant studios. Other programs require students to donate time to community projects like Habitat

for Humanity. Both of these solutions are problematic. First, most interior design programs lack the substantial facilities required to house full-scale construction mock-ups. Second, the scheduling requirements of Habitat for Humanity can often conflict with the academic calendar. Other alternatives need to be developed that offer students first-hand experience with construction, but avoid the problems just described.

PROCESS

The project requires the students, in teams of four or five, to construct a 2'-0" x 6'-0" abstract composition/assemblage using common materials such as gypsum board, metal ducts, cabling, corrugated metal – any material or product they can purchase or scavenge. The compositions are not to be "pretty," rather; they are to be handsome compositions that explore an engineering and constructional aesthetic. Common finish material, such as tile, wall coverings, carpet, etc. are expressly prohibited. The students have ample opportunity to explore the use of these common finishes in other course work. By prohibiting the use of these materials, the students learn to look for and appreciate the aesthetic qualities of non-finish materials. The assemblages are to be built onto a lightweight metal stud framework – a method of construction commonly used in contract interior construction. But the assemblages are not merely sculptures, nor are they simply materials affixed to a metal framework. Rather, the selected materials and products are carefully and deliberately integrated with one another. The construct is to be thought of as half art and half construction.

Careful thought must be give to how the selected materials are to be supported, attached, terminated, and finished. Furthermore, the students must integrate one or more internal light sources into the composition. They must do so in a manner such that the light will enhance the overall visual effect of the composition. They then must wire the luminaries using standard construction practices and control them with a switching mechanism.

In the design of the project they are forced to make decisions on a whole range of issues, including the following:

1. **How are the materials composed?** – The students must design the panel in a visually dynamic manner. The design and/or arrangement of elements must induce visual movement and tension.

2. **How are materials structurally supported?** – The students must determine where and how additional framing is required to support the various elements of the composition. For instance, gypsum board requires support along its entire edge or else it will break. And without framing behind the gypsum board it becomes impossible to edge bead. And if materials, such as ductwork, are to project outward form the face of the panel how are they supported and/or joined to the gypsum board and/or other materials?

3. **How do materials meet? –** How is it best to detail the joining of dissimilar materials? Do they touch? Is there a reveal and/or a change in plane between them? And how are the materials terminated?

4. **How are the materials fastened?** – Are mechanical fasteners (i.e., nails, screws, bolts, etc.) used and, if so, for what? Is there a pattern to their use,

or are they randomly placed? And to what structural material are the fasteners attached?

5. **How are the various materials finished?** – Are the materials painted or left natural? Is the drywall textured or smooth? If textured, what kind of texture? And how does the texture relate to the rest of the composition?

When addressing issues such as these, the students begin to learn that when making decisions about construction issues they are, in effect, making "design" decisions. They come to realize that design and construction are inseparable.

The project is broken down into a number of distinct steps to help the students to move through the process. For many students, the project can initially appear to be overwhelming with its unfamiliarity, its issues, and the prospect of actually constructing something.

Step One: When designing the compositions and selecting materials, the students are required to address each material's "personality." That is, they are to purposefully decide whether to express a material's innate properties or to violate its nature. By doing so the students learn to appreciate that if a material is used in a manner compatible with its nature it can lead to a sense of order and harmony. Likewise, a purposeful misuse may create visual tension – a legitimate component of visual expression. What is to be avoided is the haphazard use of material that will dilute the overall visual effect and reflect a loss of control over the development and execution of their designs. To aid them in their decision-making process I have developed a questionnaire (Appendix One) that prompts the students to identify and characterize the materials they are considering.

Step Two: The students are to visit a home center, hardware store, or lumber yard and familiarize themselves with the variety of construction products sold. They are to choose the materials primarily for their visual and aesthetic appeal.

Step Three: The students develop conceptual sketches that integrate many of the products seen at the home center. They are to fully document their visual intent in both written and graphic form prior to construction.

Step Four: They are to develop a number of details that graphically describe how materials are to be installed, supported, fastened, and finished.

Step Five: The purchase or scavenging of an assortment of materials including metal studs and runners, corner bead, drywall tape and compound, Romex, j-boxes, switches, wire caps and any other materials unique to their designs.

Step Six: Construct and wire the panel. They construct the panels with a modest number of tools, such as tin snips, screwdrivers, a power drill, and sometimes a saber saw. The instructor typically sets aside a number of weekend days where he/she helps guide the students through the process of constructing their projects. The student's final

step is to wire the light fixtures in parallel and connect them to one or more internal switches.

PRESENTATION

The students are to produce a limited number of drawings that clearly document the design of the panel. The drawings are to be constructional in nature and clearly document the construction of the panel. Specific requirements include the following:

1. A front elevation documenting the exterior appearance and overall dimensions of the panel.
2. A rear elevation showing needed reinforcement for cutouts or objects integrated into the composition.
3. A section through the panel.
4. Drawings documenting small-scale details (i.e., how materials meet, join, or fasten).
5. A constructed panel.
6. A light fixture integrated into the panel composition.
7. Wiring that will extend from a wall outlet to a light switch to the light fixture.

EVALUATION

Grading is based on the following criteria:

1. Artistic composition of the panel.
2. Concern for the selection and use of materials.
3. Sensitivity to how materials are to meet/relate to each other.
4. Proper reinforcement of objects integrated into the panel.
5. Quality and thoroughness of the drawings.
6. Craftsmanship in the construction of the panel.

PROJECT LENGTH

This project is introduced at the beginning of the course with a limited number of past projects shown as examples. Selected projects are chosen for both their quality and diversity. Teams are chosen during the first week and given a schedule for the completion of the project. The first few weeks are dedicated to the design of the panel. The students meet with the instructor to get feedback on the design and constructability of their designs. Once the panels are designed, the students document their design through elevations, sections, and details over the next few weeks. The final stage consists of the construction of the panel. Three consecutive Saturdays are blocked out where the teams can meet, and with the instructor's supervision, construct the panels.

It should also be noted that this is only one of several requirements for the course. There are also a number of exams, field trips, and in-class exercises to complement course content.

DOCUMENTATION