Acoustical Design for the Office

Key Words: acoustical design, contract documents, FF&E

Category: SC: Systems and Construction; MF Materials, Finishes, Fixtures and Furnishings

Type: Studio Project

Level: Junior or Senior level undergraduate

Duration: 2 -3 weeks (A class period is considered to be 2 hours 45 minutes in duration and meets two times per week)

Abstract:

Good acoustical design is important to the health, safety and welfare of building occupants. In a study conducted by ASID, 70% of workers polled felt that productivity would increase if work place noise decreased. Employees having to expend effort to tune out general office noise takes away from worker satisfaction and productivity and creates a stressful environment. Health research indicates that stress is related to conditions of high blood pressure, digestive disorders, headaches, hyper-tension and ulcers (Carsia). A healthy workplace is a more productive workplace. Healthcare and financial concerns also contribute to the need for sound privacy in closed offices as well as open offices in healthcare, institutional, and office environments.

Learning Objectives:

To demonstrate understanding of the principles of acoustical design (CIDA 12c).

To apply appropriate strategies for acoustical control (CIDA 12d).

To select and apply materials and products on the basis of their properties and performance criteria, including ergonomics, environmental attributes, and life cycle cost (CIDA 11c).

To communicate design through contract documentation including drawings, schedules, and specifications appropriate to project size and scope (CIDA 6f)

Criteria and Project Requirements:

Background: The client is looking to open a retail location that also serves coffees, teas, baked goods, and a deli for sandwiches. The café and boutique concept will be open from 10 am to 6 pm most days, but participates in community events that require them to open for additional hours on special occasions.

Design Problem: The client needs an office where they can facilitate and oversee the daily operations of the boutique and café. The client will be entering orders for products for both the boutique and the café portion of their business; they will also be meeting with sales representatives, accountants, prospective employees, and larger business clients within this office space. With a space allocation estimated at 200
square feet maximum size, there should be sufficient room for appropriate furnishings to accommodate the client’s work, storage, and conferencing needs. Because of the nature of the boutique/café business model and the client’s needs for an office, design a space that provides both a respite from the noise of the retail business and auditory privacy for the office occupants.

**Office Design Requirements:**
Ergonomic task chair, desk, credenza, 6 lineal feet of book storage, 10 lineal feet of lateral filing, small conference table with seating for four. Conference and desk area should incorporate sound absorbing resonant panels. All selections should support a quiet environment, so you should consider acoustical properties for ceiling, wall, and floor treatments.

**Process:**
**Research:** Acoustical wall design, resonating panels, acoustical properties of carpet or other flooring material, and acoustical properties of ceiling materials. The majority of this should be completed in 1 or 2 class periods but may be ongoing throughout the production of the final submittals as necessary.
**Design Development:** Design a 200 square foot office that supports the Office Design Requirements outlined above. This should be completed in 1 or 2 class periods.
**Contract Documents:** Create a contract document set that communicates the overall concept of the design and office furniture layout, specifies furnishings and finishes, details an acoustical wall and illustrates the placement of sound absorbing resonant panels. Plot on appropriate sized paper and turn in. This should be completed in approximately 1-1/2 weeks.

**Presentation Method:** Contract document set with appropriate title blocks. Details below.

**Submittals:**
*With the idea that these drawings would fit into a larger set of contract documents, prepare CAD Drafted technical drawings with an appropriate title block. Communicate in a scale or scales as appropriate to provide clear communication. Set paper size according to best fit.*

**Design Concept.** Written statement clarifying the goal of the design

**Office Furniture Plan-Not to exceed 200 sq ft**
*Showing proposed furniture and equipment layout*

**Detail and specifications for partition construction.** Sections, Specifications and Annotations
*Select and draw a detail of a wall construction that will limit sound transmission from the boutique/café space.*

**Elevations.**
*Provide interior elevations that locate the placement of sound absorbing resonant panels.*

**FF&E Specifications.**
*Specify/schedule interior finishes, furnishings and equipment that are recommended as related to sound absorption.*
Evaluation Guidelines:

- Design concept is appropriate to project requirements
- Furniture plan meets client requirements.
- Partition design meets project requirements.
- Specifications and schedule represent appropriate selections and conform to project guidelines
- Overall drafting conventions for the contract document are met.
- Layout design of contract document (balanced use of composition space)
- Clarity of communication. Annotations are provided, correct spelling and grammar

Resources:


Value to Interior Design Education:

It is important for the emerging professional to have some context for designing with acoustics in mind. While most design professionals are comfortable designing with sound deadening materials, many are not comfortable or able to deliver an acoustic design strategy for spaces (Tingas). This can ultimately create a more expensive problem when acoustics have to be addressed after the design process has been completed.

Council for Interior Design Accreditation (CIDA) recommends that students demonstrate understanding of the principles of acoustic design; this studio project will allow students to meet and exceed the benchmark of understanding strategies of acoustic design.

Credits:


ROOM FINISH SCHEDULE

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<th>PRODUCT</th>
<th>MANUFACTURER</th>
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<td>Suspended Ceiling System</td>
<td>Armstrong</td>
<td>Optima Tegular Fine Textured White 1' x 1' Suspended acoustical ceiling (NRC .9-1.00) 8'-0&quot; A.F.F.</td>
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| Carpet Tiles                 | Bentley Mills | TechUpD8 4TDT4 400012 Theorem Glued, Ashlar Pattern WorkfuN Design Manager's Office CoffeePot Cafe & Boutique 6519 E. Charles St. Date: April 10, 2015 Scale: Varies Drawn: Student Page # A001