

Interior Architecture

College of Fine Arts
School of Art + Design
Fall Semester 2015

Matthew Ziff, Associate Professor

Office hours: MW: 11:00 - 12:00
TTH: 11:00-12:30
Office: Grover Center W325
Email: ziff@ohio.edu

Study Guide for Exam 7: Friday, December 11: 10:10 - 12:20pm

Study for this exam. *It will be a lot like Exam 1 & 2 & 3 & 4 & 5 & 6. Be sure to go over the lecture/slide sets at least one full time. Be sure to watch the short videos as well. This is not an especially 'difficult' class, but you will need to study to do well on the exams.*

Exam 7 will cover everything that has been presented in class on the power point slide image sets, including the videos that I showed, and everything that I have stated in lecture and discussion.

This includes lectures:

11. Foundations of Architecture: Part 2
12. Concepts in Architecture: Nature and Design
13. Concepts in Architecture & Design: Geometry and Design
- 14: Composing With Materials

11. Foundations of Architecture: Part 2

slides 2, 3: know that these nine (9) elements are all important in the creation of works of design. be able to recognize that each one of these plays an important role in designing and building useful and safe objects, spaces and buildings.

slide 4: know that these are different ways to make things, and that each of these has limitations, characteristics and outcomes that need to be understood by the designer.

slides 6 - 11: know that making things by hand, 'hand made', produces distinct results. typically hand made objects have both more human character, and less accuracy than machine made objects. wood objects are a classic subject of 'hand making' because of the beauty of the wood grain and the long standing human love of that material.

slide 13: be able to recognize heavy timber framing as a structural system that uses large sized, 'heavy', pieces of wood to build a framework that is then filled in with non-load bearing wall panels.

slides 14 - 16: know that concrete walls can be made using a technique called 'tilt slab', which is shown in these slides. the concrete slab is cast, onto forms on the ground, allowed to set, then when ready, it is raised up, 'tilted up' into place.

slides 17, 18: know that steel is typically used in 'frameworks': namely that the pieces of steel are organized into a system of linear parts that holds up most, or all, of the other parts of a building.

slides 19, 20: know that a large cross section of heavy wood receives a long fire rating because of the way wood burns: the outer inch or more of a big piece of wood will char but not burn through for a long time. In a similar situation a steel beam will lose its weight bearing strength before a piece of heavy timber burns through, which means that unprotected steel does not, typically, have as long a fire rating as a piece of heavy timber, or a glue laminated beam, which is effectively a piece of heavy timber that has been man-made.

slides 21 - 24: know what glue laminated beams are. be able to recognize these images as showing 'glue laminated beams.'

slide 28, 29: know that buildings are made up of integrated, mutually supporting systems that work together, as a whole, to produce a useful and safe environment.

slide 32, 33: know that hydraulic elevators are the kind with the plunger beneath them (the elevators in Seigfred Hall, and in Grover Center are this kind) and that this type of elevator can only be used in buildings up to 5 or 6 stories tall, and is slow, but safe.

slides 34, 35: know that geared traction elevators are the kind that use cables to support the cars, that are used in high rise buildings, and are the kind of elevators typically shown in action movies where the hero saves the car from crashing as it plunges down hundreds of feet due to a cut cable or other bad guy deed. in fact this type of elevator has safety mechanisms that make it virtually impossible for it to actually plunge downward and crash, but for movies it looks dramatic to let the elevator fall!

slide 36: know that ceilings, and the PLENUM space above the ceiling, in commercial/public spaces, typically contain numerous systems components, such as the ones listed.

slide 39: know that high levels of carbon dioxide (CO₂) cause people to become drowsy and that contemporary HVAC (heating, ventilating and air conditioning) systems use CO₂ sensors to control the flow of fresh air coming into rooms to prevent drowsiness and to keep the air clean.

slides 40 - 50: know that these are elements of how designers actually produce their work: design process stages, consultants, diagramming, study models and that Design Process consists of a series of related steps, from being hired by a client, to post occupancy evaluation, after the client/user is in the designed spaces.

slides 51 - 56: know that the study of human behavior is an important aspect of designing useful spaces and that human behavior, and the analysis of human behavior, are part of designing spaces and objects for people.

slides 57 - 59: know that space and form are often the most obvious and most dramatic aspects of a work of design, be it a building or a shoe.

slides 61: know that color is a highly subjective, culturally distinctive, and visually important element in the design of interiors, objects, and even exterior building surfaces.
read the short, web page, article that I wrote, "My Understanding of Color." there will be one question on the exam about this short article. (it is located on my home web page in case the link in the power point does not work)

slides 64 - 67: know that colors are shifted from lighter to darker by adding white, called tinting, or by adding black, called shading.

slides 68 - 71: know that FF&E stands for 'furniture, fixtures and equipment' and that these are the moveable pieces in an interior, such as desks, chairs, computers, electronic equipment, tables, bookcases and partitions, NOT the built in pieces, such as kitchen counters.

slides 75 -78: know that architecture and design is a powerful and expressive element in human culture and has a profound impact on how we live our lives.

slides 79 - 85: know what Universal Design is: namely that it is a set of principles (as shown in slides 80 and 85) that many, if not most, designers believe to be appropriate and goals for all design.

know that Universal Design was formulated to "simplify life for everyone by making products, communications, and the built environment more usable by as many people as possible at little or no extra cost."

12. Concepts in Architecture: Nature and Design

slides 3, 4: know what a 'concept' in design is.

slides 5: know that a 'philosophy' is a larger, overarching, design orientation, and that it is bigger than a 'concept'

slide 6: know that these five (5) contemporary approaches to design can be considered 'philosophies' of design.

slides 7 & 8: know that design is both a noun and a verb, but that it is the verb, 'designing' that is the most significant, important, meaning of the word for designers and those interested in truly understanding the world of design.

slide 14: know what 'biomimicry' is, and that it is a current, and internationally popular, way to approach the design of the built environment, at any scale, such as furniture, rooms, buildings, or even whole city plans.

slide 15: WATCH THE VIDEO: "Using Nature's Genius In Architecture" there will be four (4) questions about the video on the exam.

slides 16 - 54: know that these are all examples of natural forms and systems, either biological, or botanical, and that designers use these kinds of shapes and systems as models for their design work.

slide 56 & 57: know the definition of 'biomimicry'.

slide 58 - 73: know that designers view Nature as a constant reference point for basing their own work upon

I will not ask you to identify any of these works specifically, but I will expect you to know that all of these are examples of biomimicry in action; that the designers have based the design of these works upon a natural form, material, or concept.

slides 74 - 78: know that this building, is the 2008 Olympic Stadium building in Beijing, China, is known as 'The Bird's Nest'

slide 76: know that 'The Bird's Nest' building has a two-part structure: a red concrete seating bowl and the outer steel frame around it.

slides 79 - 82: know that all of these objects are the design work of Zaha Hadid

slides 88 - 97: know that this is the Qatar National Museum, designed by French architect Jean Nouvel, and that the rock formation called a desert rose was the inspiration for the overall form of the museum.

slides 103 - 109: know that this small pavilion is located in the Lincoln Park Zoo, in Chicago, Illinois, and that its visual and constructional character is an example of biomimicry, and is based upon the form and structure of a tortoise shell.

slide 114: know that these hi-tech glass connectors, called 'spiders' are similar in form and function to the famous 'suction cup' feet of the frog.

13. Concepts in Architecture & Design: Geometry and Design

slide 1: know that geometry is important in design because it can be a visual characteristic, and it can be a tool, a method, for designers to create.

slide 3: know that the simple act of 'lining things up' can be a part of creating a sense of order, or intention, of purpose, and of good design.

slides 5 - 7: know that this building in Singapore is a good example of a fairly straightforward 'grid' being used to organize the elements that make up the facade of the building, and that the protruding rectangular box shaped pieces are coordinated with the grid of the facade.

slide 8: an example of things lining up as a way to create a sense of order.

slides 9 - 14: know that the repeated use of rectangles in the design of the house and the garden, create a strong visual and constructional 'coherence.' The overall aesthetic of the house is the rectangle and the variations in the way it is used: larger ones, smaller ones, glass, wood, stone, et cetera, all rectangular.

slide 11: know that the little holes in the concrete wall are the places where the steel ties were located in the formwork. When the formwork is stripped off of the hardened concrete wall, the ties are left inside and the little holes are where the tip of the steel tie was cut off. Architects like to leave these holes visible, rather than filling them in and covering them up, because it represents the way the concrete wall was actually constructed.

slide 12 - 14: know that this interior is carefully laid out and organized, and that geometry is involved in how that is being done.

slides 15 & 16: know that the exterior of this house is a good example of a geometrically developed facade.

slide 17 - 23: know that the interior of this house is a very good example of geometry in action; that the interior elements, such as the vertical wall in slide 17 & 19, are all sized, shaped, and proportioned by using the rectangular geometry that we see.

slides 24 - 26: know that these furniture pieces are good examples of geometry based design.

slides 27 - 37: know that each of these buildings is a good example of geometry based design.

slides 38 - 40: know that this is the famous Habitat building, located in Montreal, Canada, and was designed by the Israeli-Canadian architect Moshe Safdie, in 1967, for the Expo '67 event.

slides 41 - 43: know what a geodesic dome is.

slide 44: know who Buckminster Fuller was, to the degree that I described him in class and on this slide.

slides 45 & 46: know that this is the Dymaxion Car, designed by Buckminster Fuller in 1933.

slide 48 & 49: know that this is the Dymaxion House, designed Buckminster Fuller in the early 1940's, and that he intended it to be able to be easily disassembled and moved, and that he wanted it to be mass produced, hygienic, and able to stand up to the winds of a tornado.

slide 54: know that a geodesic dome has the properties listed on this slide.

slides 56 - 62: know that these basic geometric shapes and objects are all potentially useful in designing objects and spaces.

slides 60 - 62: know that 'fractals' are a special form of geometry, geometric relationships within an object or pattern that are the same for the whole pattern and for subsets of the pattern.

slide 71: know what a **'catenary' curve** is.

slide 72: know that the famous St. Louis Gateway Arch is an inverted catenary curve.

slides 75 - 106: know that these are all examples of geometry based design. I will not ask you to identify any of these specifically.

slides 107 - 112: know that each of these naturally occurring crystals are good examples of geometry in the natural world.

14. Composing With Materials

slide 1: know that Form, Material, and Color are the three fundamental 'tools' that designers have available to create physical, built, environments.

slide 2 & 3 4: know that the Same-ness or Difference that exists within a space, or object, is a characteristic that is under the control of the designer, and that the degree to which Same- ness or Difference exists in a work can be controlled by using the Color, Form, and Material that the object, or space, is made out of.

slide 6: know that these are all qualities of materials that designers use to create intended characteristics in their work.

slides 13 - 15: know that this floor material is Terrazzo. this is the flooring material used in the Baker University Center to make the globe image on the floor.

slide 16: know that terrazzo is a poured, concrete like, material that contains small pieces of marble, or glass, or other colorful materials, and that the areas of color are divided by metal divider strips that are put down before the terrazzo is poured.

slide 17: know that this floor, in the Clay Center for the Arts and Sciences, in Charleston, West Virginia, is terrazzo.

slides 18 - 21: know how terrazzo is installed and finished, as described in class, and in these slides.

slide 23: be sure to watch the Terrazzo Floor Video: there will be at least one question based on this video.

slide 25: know that there are no Good, or Bad materials, but rather it is in the way that they are used that results in good, or bad, design.

slides 26 & 27: know that these are all good ways to help create 'good' design; each of these is a 'strategy' that can be useful in creating interesting, good, design.

slides 28 - 37: know that each of these images is an example of a good way to create something interesting, 'good', in the design of a space, or object. Remember, these images are all about Composing with Materials, meaning the making of good design, using the qualities of specific materials in an interesting, expressive, revealing, way.

slides 41 - 46: know that the current popularity of concrete counter tops has produced a great variety of well thought out, well designed, versions of counter tops, as shown in these images.

slide 42: we actually watched this video earlier this semester. There will NOT be any questions about this video on Exam 7.

slide 42: as I discussed in class, know that concrete IS an 'eco' material in the sense that once it is poured, hardens, and is functioning, it is a clean material that does not OFFGAS (know that 'offgas' means the releasing of toxic, or unhealthy, chemicals from a product, such as new carpet, or newly painted surfaces) but that concrete IS NOT an 'eco' material in the sense that it takes a tremendous amount of energy to manufacture the Portland cement that goes into concrete, as shown in the video.

slide 47: know that 'cost' in the world of designing is a complex thing. know that cost is affected by these listed aspects.

slides 51, 52: know that these two furniture pieces are made using concrete

slides 53 - 56: know that this table, the 'Arc' table, was designed using complex mathematical models and that its final shape is an expression of the careful refinement of these models. This table did not simply come about from a casual sketch.

slides 57 - 65 : know that these are all examples of good ways to use materials to create good design effects.

slides 62 - 64: know that these glass mosaic tiles are the products of the Italian company called Bisazza, one of the best known glass tile companies in the world.

slides 66 - 75: know the concept of 'standard sizes' in terms of materials. know that many, many building products, such as those listed in slide 64, are manufactured in standard sizes, and that using these standard sizes is a very good way to save money, and time, in the construction of spaces, buildings, and objects such as furniture.

slides 76 - 84: know that these doors show some of the possibilities that exist to make a more functional (wider for easy access) and/or more visually compelling door design.

slides 86 - 87: be sure to watch the CNC Machine Makes A Wood Cabinet video. there will be at least one question based upon this video.

know that CNC machines have taken the place of human hand cutting in the making of a great many products, and that CNC machines are able to produce both amazing accuracy and amazing form, including complex curves, angles, and other shapes that would be very difficult to manufacture otherwise.

slides 89, 90: know that both these buildings, designed by Frank Gehry, used computer software in the design of the buildings, and required computer, CNC, machines in the manufacturing of components used to build these buildings.

slides 92 - 96: know that reclaimed, and recycled, materials are today widely used to make new products, such as furniture. know that the items shown in these images are examples of reclaimed and recycled materials being used to make new products.

slides 97 - 101: know that this house is a good example of using the characteristics of wood for the structure of the building, much of which is exposed, and expresses itself through the shapes and sizes of the wood components, and for the finished interior surfaces of the rooms.

slide 107: be sure to watch the first (4 minute long) video about PPG Glass Manufacturing

slides 108, 109: know about Dale Chihuly, and **be sure to watch the short video about him**

slides 110 - 121: know the basic characteristics of each of these types of glass

slides 123 - 125: know that this is the Corning Museum of Glass

slides 127, 128: know that these metal connectors are called 'spiders', and that they are used to connect sheets of glass to a supporting, usually metal, structure, such as a column or a frame.

slides 129 - 132: know that this place is the Toronto Galleria, designed by Santiago Calatrava, currently the world's most famous engineer

slides 133 - 135: know that this night club interior in Switzerland was designed by Santiago Calatrava, and that it is especially interesting to us (designers) because Calatrava is an engineer who designs bridges and large structures, but he also designs small scale objects, such as furniture and window shutters.

We ended on slide 135.

Good luck on Exam 7.

Studying usually helps do better on exams. If you have not done well on the previous exams, study MORE than you have in the past.

Exam 7 will be multiple choice, approximately 50 questions. Each student will have a paper copy of the exam and a scantron answer sheet.

Bring a pencil for the exam.

Be sure to fill out your name and your PID number on the scantron sheet.

