Design Documentation:

- A Contractor is provided several types of documentation to fully detail a Design/Build Project:
  - ▼ Floorplan (Construction Plan) with Dimensions
  - ▼ Furniture Plan (may be combined with Electrical)
  - ▼ Reflected Ceiling Plan (with Lighting and/or Electrical)
  - ▼ Finish Plan
  - ▼ Elevations of key areas

Projects A, B, and C were considered Conceptual designs and did not require this degree of Design documentation...
Reflected Ceiling Plan:

- The Reflected Ceiling Plan can combine a variety of elements:
  - Design of decorative ceiling elements only.
  - Lighting Plan with switching schematics.
  - Lighting Plan and Electrical Plan together.

- The combination of design elements is your choice. But...
  - Organize your approach in a way that is logical and easily understood.

Different design firms may have different, more standardized approaches.
“Reflected” Ceiling: A definition...

- To draft in Plan View, we eliminate the upper portion of a structure and observe the floorplan from a “bird’s eye” perspective.
- To draft the Ceiling Plan, we should lay on our backs and draw what we see...however, this creates a reverse image.
- Instead...we imagine a large mirror positioned on the floorplan. The mirror “reflects” the ceiling elements in correct drafting alignment.
RCP as Lighting Plan:

- The Reflected Ceiling Plan must show all design elements related to the ceiling plane.
- This may include decorative ceiling systems, or structural support members.
- The most common purpose for the RCP is to indicate placement of all ceiling lighting and the switches which control them.
- The Electrical Plan is often combined.
The Lighting/Electrical Plan:

- You have been provided with examples of the most commonly used Lighting and Electrical symbols.
- Use these symbols when creating your design layouts, and legends.
- Review the sample RCP in your hand-out today.
- Ask questions about anything you don’t understand...

Switch Indicator Lines are drafted in grid weight. Use a combination of long and short dashes. A switching line will break only one or two times.
Ceiling considerations:

- There are many design elements to examine when evaluating the ceiling plane.
  - Consider creating level changes and/or play with the configuration of planar elements in various areas.
  - Study the 3-D aspects of volumes and space.
  - Consider using unexpected materials or finishes.
  - Think about light reflection and sound absorption.
  - Integrate lighting to create different levels of use.
Lighting Levels:

- Designers must consider three basic levels of interior lighting:
  - Task lighting (Activity Lighting)
  - General Lighting (Ambient Lighting)
  - Accent Lighting (Decorative Lighting)

A finely crafted lighting plan can become the “jewelry” for every space. It creates ambience and mood.
Task Lighting...

- Functional, localized lighting to assist the user with a specific visual activity.
- Not all activities require the same light levels. The difficulty of the activity depends on:
  - Visual size
  - Contrast with the background
  - Duration of the activity
  - Accuracy needed
Task Lighting:

- Task lighting should provide ample light over the entire activity area.

- Consider placement of the light fixture:
  - Avoid casting shadows or creating glare.

- Glare is uncomfortable brightness.
  - Under-cabinet lighting should be shielded so that even a seated person can’t see the tubes.
  - Directional lighting should be carefully aimed so that others in the room don’t look directly into the bulbs.
Aging Eyesight:

- Older eyes need higher levels of task lighting.
- In general you must provide moderate to high levels of lighting for any task involving:
  - Eye to hand coordination.
  - Reading, writing and/or typing.

- Two common approaches:
  - Increase the wattage of the light bulb to the max. allowed by the light fixture.
  - Add a supplementary fixture to provide a larger path of light in key areas.
General Lighting...

- The ambient, "background" lighting that provides general illumination within a space.

- General lighting can be provided by:
  - Ceiling mounted or pendant fixtures.
  - Soffit lighting (often fluorescent). Mainly used in kitchens and baths.
  - Cove lighting (for high ceiling areas…).
  - Recessed fixtures (directional and fixed).
General Lighting:

- The general lighting levels recommended for most living spaces depends on the square footage of each room. *(Refer to your hand-outs).*
- The best lighting designs utilize a combination of fixtures to create flexible interiors.
- Every space will have its own aesthetic and functional requirements:
  - Add dimmer capabilities to all general lighting to create different moods for varying levels of activity.
General Lighting:

- There is a wide range of recessed lighting fixtures.
  - Open reflector downlights
  - Wall washer fixtures
  - Recessed directional fixtures
  - Eyeball units (adjustable, spherical fixtures)
  - Low voltage projector spots

The best way to design a lighting plan is to view these fixtures first hand. Galaxy Lighting (Saratoga) has an excellent inter-active display. Home Expo or Lamps Plus offer additional research possibilities.
Recessed Lighting:

- Placement and orientation of fixtures can create different effects within the room:
  - Open reflector downlights placed along the perimeter of a room can provide general illumination.
  - Use one fixture for every 25 sq. ft. of floor area. Never place a downlight directly above a high-gloss surface.
  - Fixtures placed 6” to 8” from the wall create a pattern of “scallops”. Often used to emphasize wall texture, the fixtures should be placed 18” to 30” apart.
  - Use recessed directional fixtures anywhere you need a more controlled beam of light.
Wall Washer Fixtures:

- Wall washer fixtures have a cover over half the opening.
- By directing all the light to one side:
  - Light “washes” over the wall evenly from top to bottom, eliminating any beam spread “scallops”
  - The intensity of the 75w to 150w flood bulbs, combined with the even quality of light de-emphasizes texture.

**Always follow the manufacturer’s recommendations for correct spacing.**
Accent Lighting:

- Accent lighting provides the third dimension to a well-designed lighting plan.
- Often incorporated to highlight artwork, sculptures, and important accessories.
  - Low voltage projector spots provide a very narrow beam of intense white light.
  - Always aim the beam at an angle to properly highlight an object.
  - For a modeling effect, place a single unit on each side of the piece.
Electrical Information:

- NEC (National Electric Code) offers long established guidelines for electrical safety.
- Refer your hand-outs for code specifications regarding:
  - Duplex outlets
  - GFCI (ground-fault circuit interrupter) outlets
  - Outlet boxes, switches, and junction boxes
  - Light fixture codes
Things to consider:

- If entrances into a room are more than 10’ apart, there must be a switch at each entrance.
- Wall outlets must be no more than 6’ apart.
- **ADA**: Outlets should be placed 18” a.f.f due to a standard seated reach zone of 20” to 44” a.f.f.
- **GFCI** outlets must be no more than 6’ from a water source.
- **110V** outlets required for dishwasher, washers, disposals, microwave, etc.
- **220V** for dryers, cooktop and ovens.
Things to consider:

- Floor outlets should be incorporated with key furniture configurations.
- Keep all electrical out of traffic paths. Avoid extension cords.
- A service panel should be placed in an accessible, out-of-the-way location. (There must be a 30” x 48” clear work space in front of the panel).
- Remember to place exhaust fans in kitchen/baths.
Communications:

- Technology has had a huge impact on our society. Remember to include:
  - Telephone, fax, internet connections wherever needed.
  - Intercom system (for communication w/ care-giver).
  - Security system.
  - Smoke/ heat detector. Possible fire alarm system.
  - Visual/ auditory communication for a client with special needs.
  - Locate communications inside and/or near bedrooms, and at entrances to the kitchen.
Final Considerations:

- Always place as much lighting as possible on dimmer switches. This allows the client the flexibility to create different moods within each space.
- Major light fixtures should be placed on 3-way switches to provide the easiest access.
- The general guideline for sconce height is 5’-8” a.f.f. However, you must consider the special needs of each client. Research ADA fixtures whenever possible.
Specifications Binder:

- Lighting is one of the key categories within the “Spec” Book.
- Although we often create the Lighting Plan, the Contractor will usually provide the recessed lighting for the project based on the Designer’s specifications.
- The Designer usually purchases the accent and decorative lighting for the project.
Organization:

- How the Spec Book is organized is personal choice:
  - Organized by room.
  - Organized by type of product.
  - Organized by type of material.
  - Organized by Manufacturer.

- However you organize the categories, always include:
  - A photograph or line drawing of the item.
  - Room or area location of the item.
  - Item Code assigned to each product.
Sample Boards:

- Beautiful light fixtures help create the design “essence” of each space.
- Always include photos of the most important light fixtures as an integral part of your presentation.
- Select those pieces that most describe the overall flavor of your design…
  - Remember to include any scalloped patterns of light which occur in the elevations. This rendering technique can really “sell” the design!