

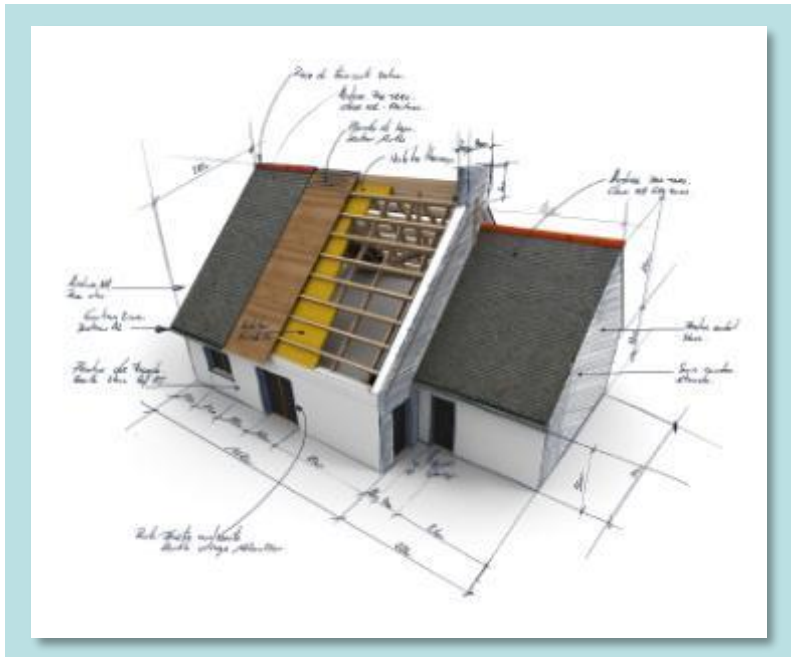


# **Fundamentals of Construction**

## **Gateway – Unit 7 – Green Architecture**

# Fundamentals of Construction

- What Is Construction?
- Types of Building Classifications
- Parts of a House
  - Common Rooms
- Systems in a House
  - Plumbing
  - Electrical
  - Heating and Cooling
- Wall Types
- Common Roof Styles
- Types of Architectural Plans



# What Is Construction?

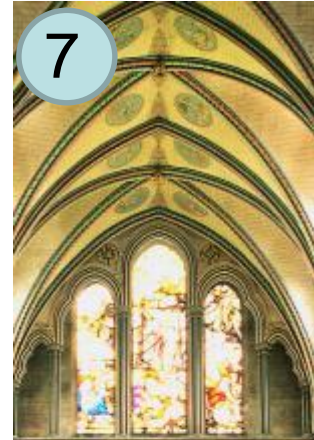


The process of building a structure that can be used for many functions.

# Types of Construction

Match the picture with the category.

- Family
- Community
- State
- Religious
- Trade
- Recreation
- Education





# Commercial Construction



A building with more than 50 percent of its floor space used for commercial activities. Commercial buildings include stores, offices, schools, churches, gymnasiums, libraries, museums, hospitals, and warehouses.

# Residential Construction



The process of building a structure that serves as a dwelling or a home in which a person lives or resides.

# Single Family Home





# Single Family Apartments/Condos





# Large Mansions/Estates



# Specialty Home





# Parts of a House

- Foundation
- Floors
- Walls
- Systems
- Roof





# Foundation

Part of the structural system that transfers the load of a building to an area of the ground.



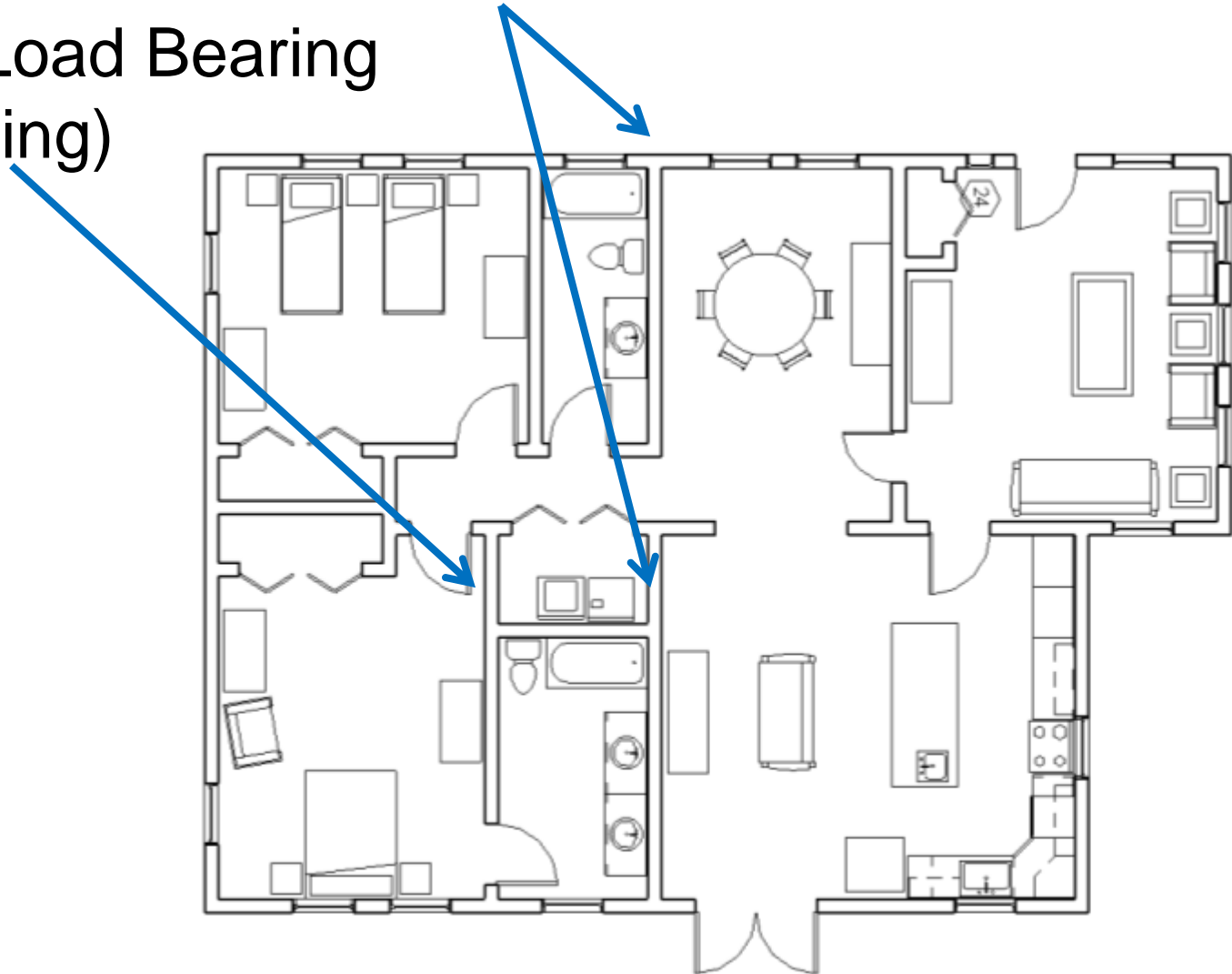
# Floors



Floor Framing System – The primary way that horizontal loads are carried to the beams or columns; also provides lateral support for walls.

# Wall Types

- Load Bearing (Supporting)
- Non-Load Bearing (Dividing)



# The Systems of a House

- Plumbing
- Electrical
- Heating and Cooling
- Roof





# Types of Plumbing Systems

- Sewer Management
- Drinking and Waste Water



# Types of Electrical Systems

- Television
- Cable/Internet
- Appliances
- Heat
- Lighting



# Energy Sources for Heating and Cooling Systems

- Oil
- Electric
- Natural Gas
- Coal
- Nuclear
- Sustainable
  - Wind
  - Solar
  - Geothermal
  - Hydroelectric
  - Biomass



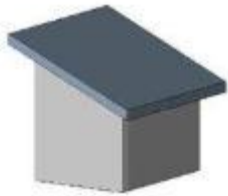


# Roof Systems

- Roofs protect buildings and occupants from wind, rain, cold, sun, heat, dust, etc.
- Roofs come in many shapes.



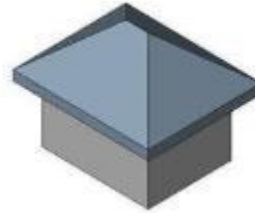
# Common Roof Systems



Shed



Gable



Hip



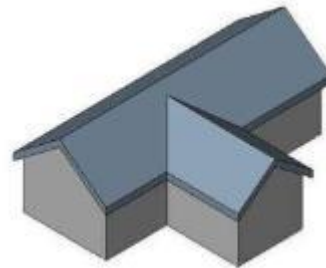
Gable with Dormer



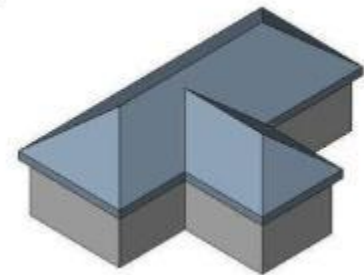
Flat



Gambrel



Gable & Valley



Hip & Valley

# What Roof Types Do You See?





# Common Rooms

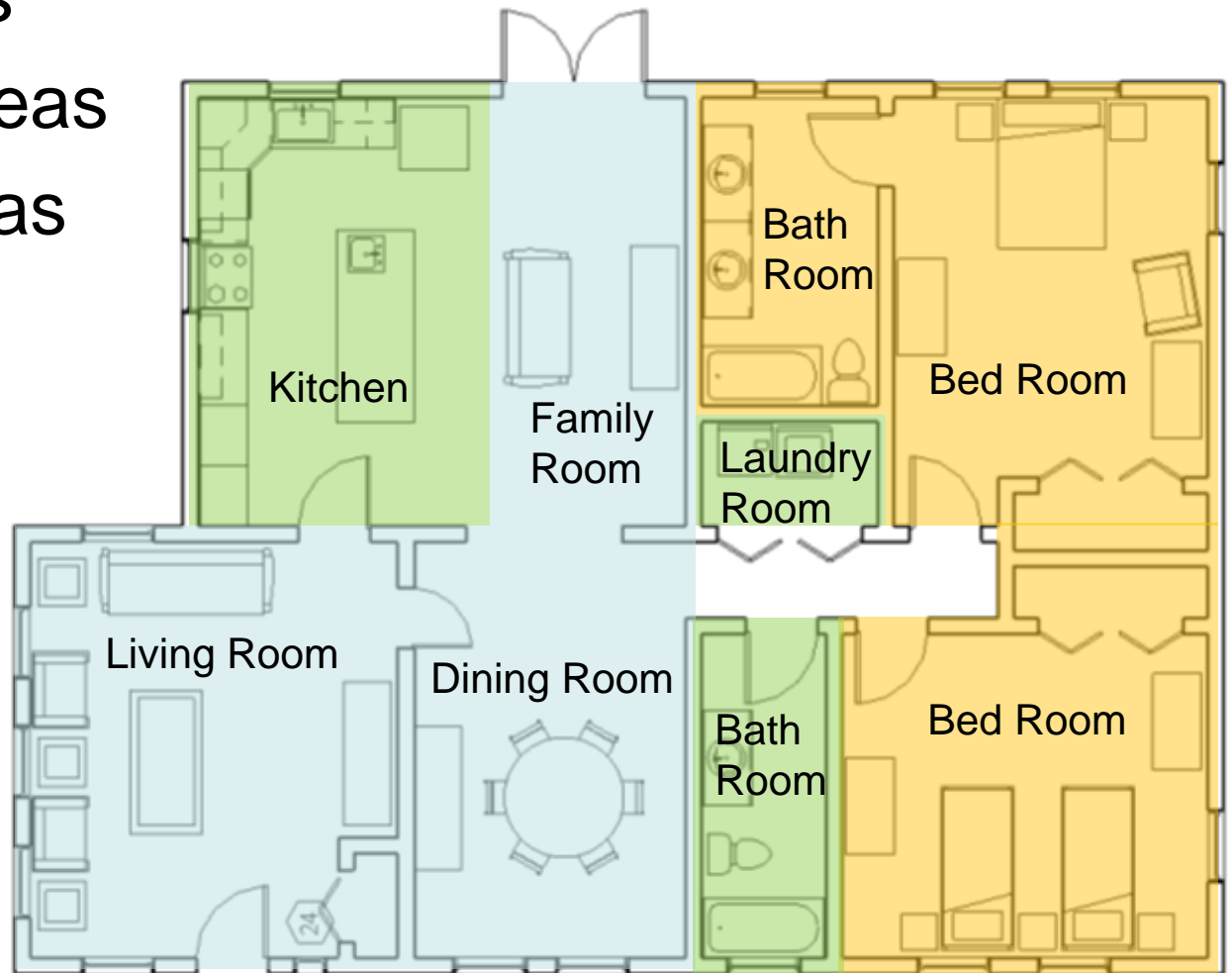


## Room Legend

- BATH
- BEDROOM
- CL
- DINING
- KITCHEN
- LAUNDRY
- LIBRARY
- LIVING
- MASTER BATH
- MASTER BEDROOM
- MUD ROOM
- OFFICE
- PANTRY

# Areas of a Residential Home

- Living areas
- Sleeping areas
- Service areas



# In What Area Does Each Room Belong?

- Basement (not finished)
- Basement (part finish)
- Garage
- Patio
- Office
- Library
- Living Room
- Bathroom
- Master Bathroom
- Bedroom
- Kitchen
- Dining Room
- Family Room
- Laundry Room

Living  
Service  
Sleeping  
Sleeping  
Service  
Living  
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Living





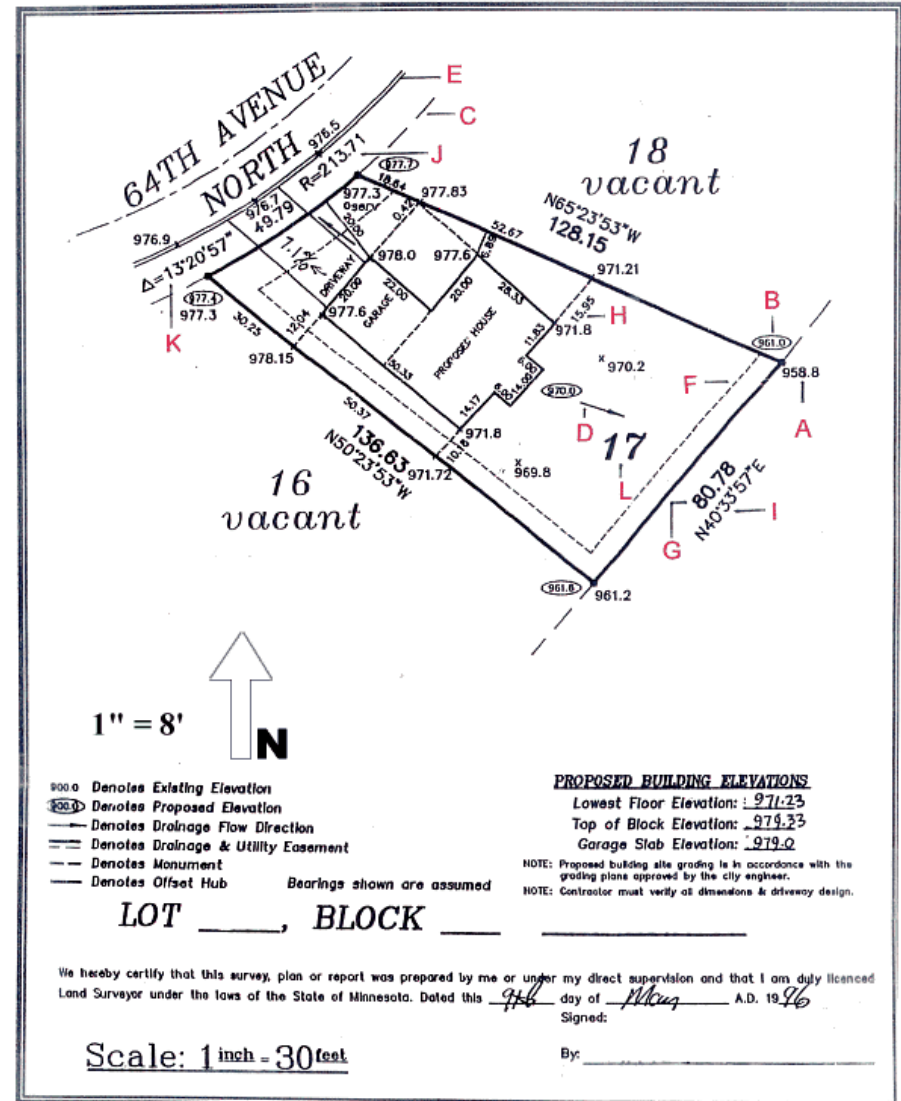
# How Is “Green” Energy Used in a House?

- Solar – Heating (air and water)
  - Passive – Windows and skylights let in heat and light
  - Active – Solar panels collect and convert sunlight into electricity or heat
- Geothermal – Uses the temperature of the earth to heat or cool the house
- Wind – Generates electricity
- Hydroelectric – Generates electricity

# Types of Architecture Plans

- Plot Plan

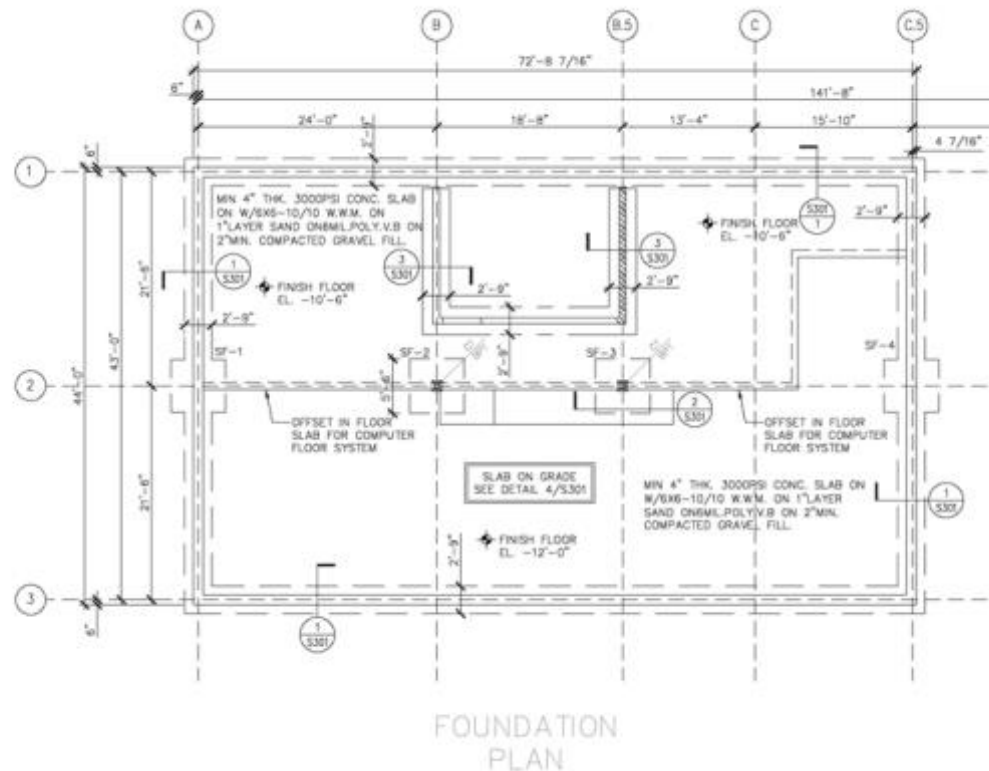
Designates the boundary lines of the property, location of the house, location of any other structures, roads, driveway, and sewer systems.



# Types of Architecture Plans

- Foundation Plan

Designates the outside walls and some interior structure walls of a house that support the above construction.

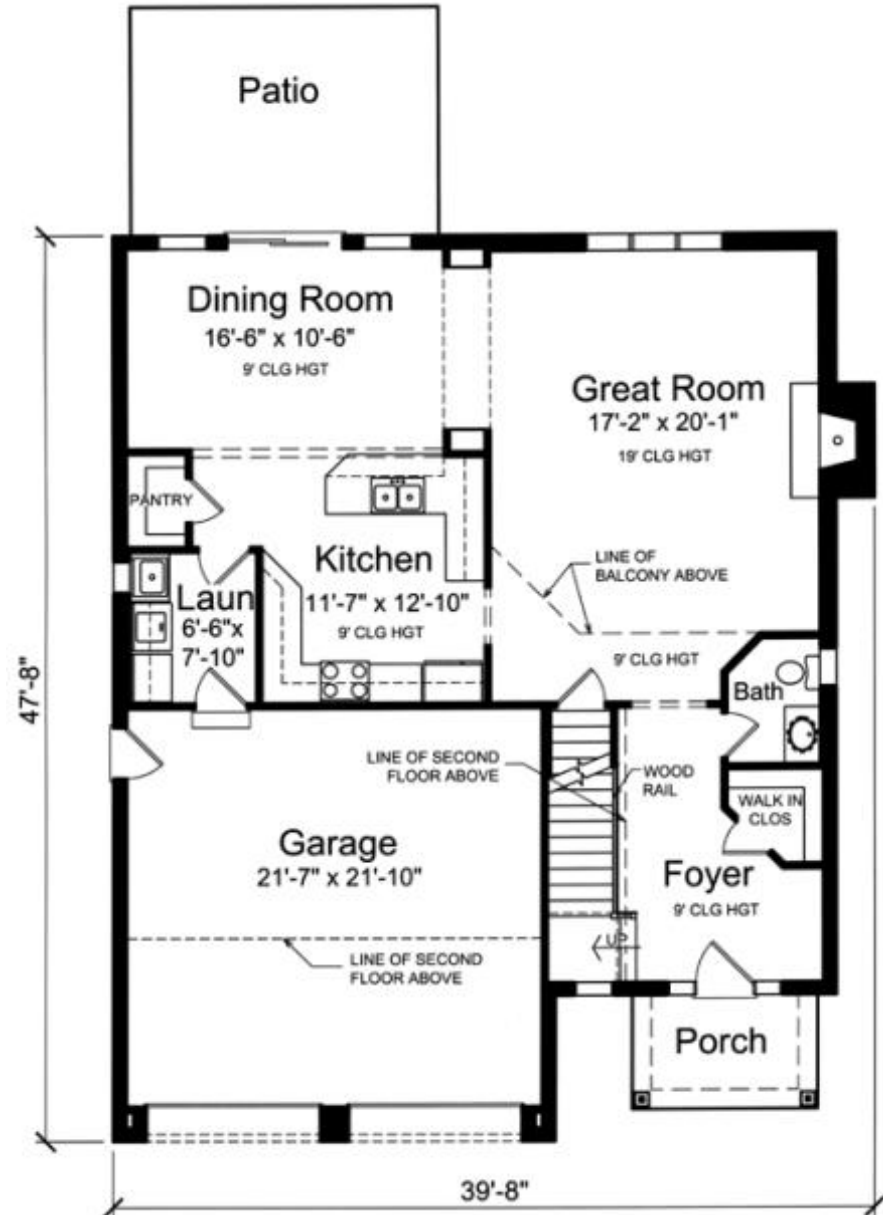




# Types of Architecture Plans

- Floor Plan

Shows the design and structure of the house, includes both load bearing and non-load bearing walls. Looks down on a house without the roof on. Includes details such as doors, windows, appliances, fixtures, and sometimes furniture.



# Types of Architecture Plans



- Elevations

Views of the structure or house from a given direction, usually north, south, east, and west.

# Types of Architecture Plans

- 3-D Views

3-D depiction of the structure or house, usually to help in communicating the idea to the client or designer.





# Types of Architecture Plans

- Electrical, Mechanical, and Plumbing Systems

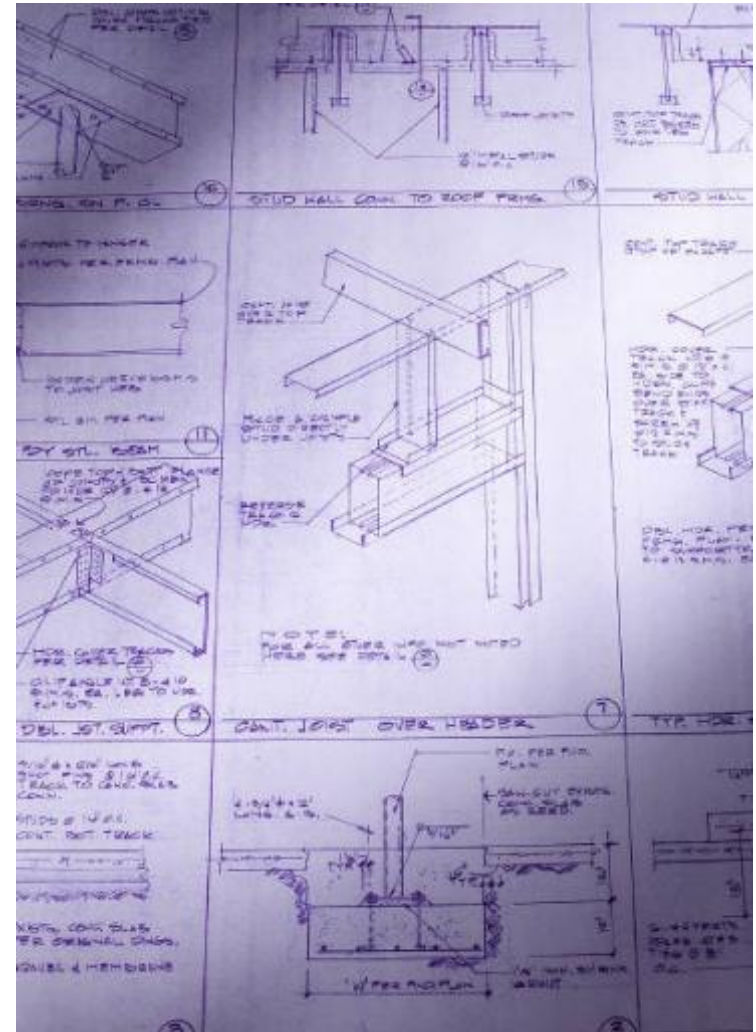
Shows the locations of the systems in the house (light switches, fixtures, outlets, heating ducts, sewer lines, etc.)



# Types of Architecture Plans

- Construction Details

Structural details that help the builders complete the house.



# Image Resources

Microsoft, Inc. (2011). *Clip art*. Retrieved from  
<http://office.microsoft.com/en-us/clipart/default.aspx>