



Name _____
Class Period _____

Construction Blueprints (500 points)

The purpose of this unit is to allow students to design a home of their dreams and prepare a set of blueprints and construction drawings for their design. After the completion of the preliminary drawings, the students will have the opportunity to design a “Monster House” using their plan if they choose. This assignment can be done either using the classroom drafting equipment or the CAD software found in the classroom computer lab.

The classroom drafting equipment will be available to students in order to complete the assignment. The computer lab in the classroom will also be available for use on this assignment. Students will be required to design a house of their choice, complete with all necessary drawings included in the blueprint package. This unit will be completed on an individual basis. All designs must be completed in a professional manner.

Class time given to complete: Students will be given 4 weeks to complete this assignment. During the 4 week unit, students will be required to complete all of the drawings required for their house including the preliminary drawings.

The complete set of blueprints should contain basic sketches of what the house will look like and how the rooms will be arranged. The set should also contain all necessary floor plans (1 for a single floor house, 2 for a two story house, etc.). Also to be included are elevations of all sides of the exterior of the house. In addition, there should be a wall framing diagram and a wall section drawing. A list of requirements for each drawing is attached for students to refer to.

Students will be required to turn in a copy of their completed set of blueprints. Included in the set of blueprints should be a copy of each drawing required for this unit. Students should refer to the attached information about what is required for each drawing. All drawings should be complete with all necessary information. If the drawings were done using the CAD software, students will be required to also turn in all drawings saved to a computer disk.

Architectural Design Unit

Drawings Required:

- Rough sketch of floor plan (Bubble diagram)
- Rough Sketches of front and side elevation
- Wall section (1 required)
- Wall framing drawing (1 required)
- Final floor plan
- Final front, back, and side elevations

House design requirements:

- House should be between 1,000 and 3,000 square feet (measured on exterior of house)
- Attached garage (2 car minimum)
- May be single or multiple levels (if multi-level, must have all floor plans included)
- Each room must be labeled on floor plan
- All drawings should be on a separate piece of paper with drawings centered on a page with a title block

Floor Plan should include:

- Interior and exterior dimensions
- Layout of kitchen appliances
- Work triangle dimensions of kitchen
- Door/ window locations and sizes
- Three bedrooms (minimum)
- Two bathrooms- one full and one ½ bath (minimum)
- Bathroom fixture layout
- Living room/ family room/ great room (1 minimum)
- Utility/ laundry room

Wall framing drawing should include:

- Window opening (1 minimum)
- Door opening (1 minimum)
- Dimensions
- Stud spacing
- Headers
- Trimmer/ jack/ cripple studs
- Double top plate
- Sole plate
- Fire blocking

Rough sketches: (things to consider)

- Traffic patterns
- Noise level
- House orientation
- Bedroom locations
- Kitchen/ dining room locations
- Laundry facilities
- Plumbing locations
- Room sizes
- Ventilation
- Land that the house will located on

Wall section should include:

- Wall and ceiling finishes
- Roofing
- Siding
- Framing lumber sizes
- Insulation
- Sheathing- roof/ wall
- Floor structure members
- Sub-flooring/ finish flooring
- Footings/ foundation walls/ drain tiles
- Finish grade level
- Soffit/ overhang sizes

Elevations should include:

- Roof Pitch
- Exterior siding
- Roofing
- Windows
- Doors
- Footings/ foundation

A Set of Blueprints Includes:

Site plan- Usually the first drawing to appear in a set of blueprints. The site plan contains information about the location of the building on the lot and shows landscaping designs. Site plans show drainage designs and also where plants and trees are to be located.

Floor plan- Typically the next drawing in a set of blueprints. The floor plan contains the layout of the house. It shows where doors, windows, walls and other features such as fireplaces are located. It contains the dimensions of the rooms and the building size.

Foundation plan- The foundation plan shows what will be excavated for the basement or crawl space. It also shows the location of footings, beams, posts, and other structural components located below the first floor. If the basement of the house is to be finished off for living space it will also show the location of walls, doors, and windows.

Front elevation- The front elevation is a drawing of what the outside front wall of the house will look like when construction is complete. It shows the details of exterior trim, siding, roofing, and other items such as decks and porches. The front elevation also contains dimensions critical to the design and construction of the house.

Side elevations- In much the same way as the front elevation, side elevations are drawings showing the sides of the house. They also show all of the exterior details and dimensions

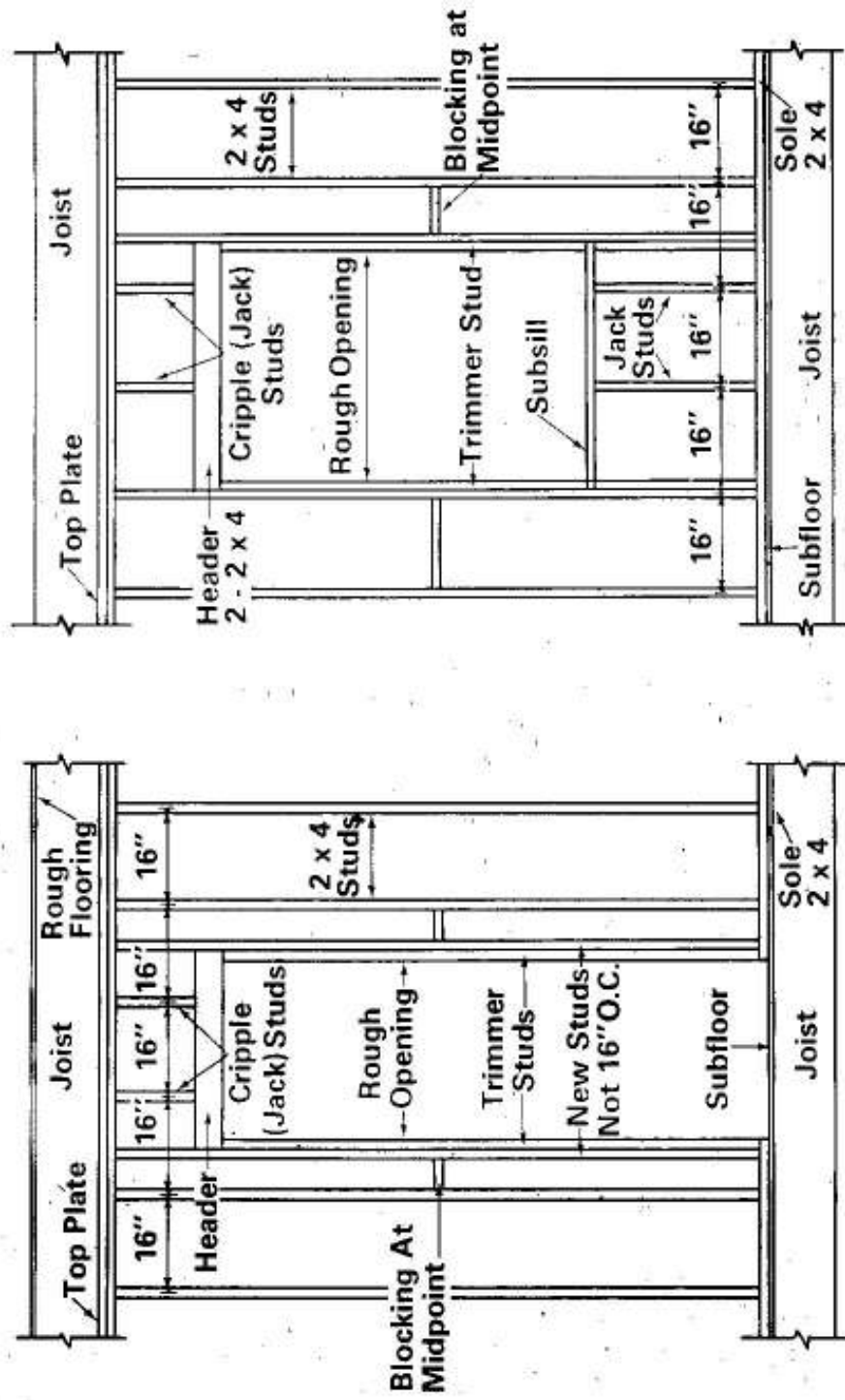
Rear elevation- The rear elevation shows the back of the house and also contains all information regarding the design and construction of the house and its exterior details.

Roof plan- The roof plan is a drawing showing the top of the house. This drawing is not always included in the set of blueprints but helps the carpenters and roofers determine the configuration of the roof. It is important to include on very complicated roof designs.

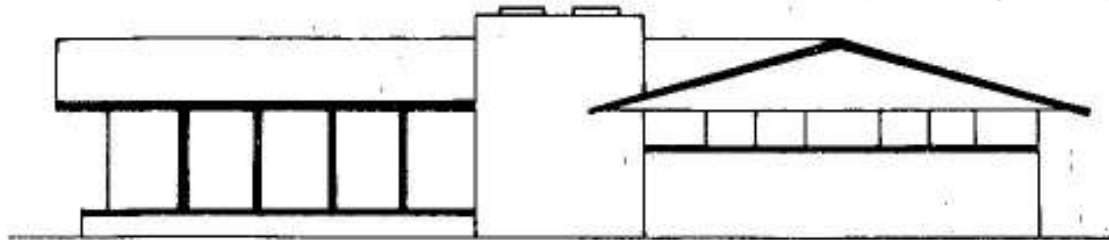
Section view- The section view is a drawing showing what the house would look like if it were cut in half and you could see into the house. Many times this drawing will be labeled as a wall section and only show a small portion of the house. It shows what materials are to be used in the construction and finishing of the house. The wall section will include items such as building materials, dimensions, and the grade level on the exterior of the house.

Cabinet details- The cabinet detail drawings are typically located on one page and show the basic design and construction of the cabinets to be located in the house. These drawings usually will show kitchen cabinet, bathroom cabinet, and built-in book case designs.

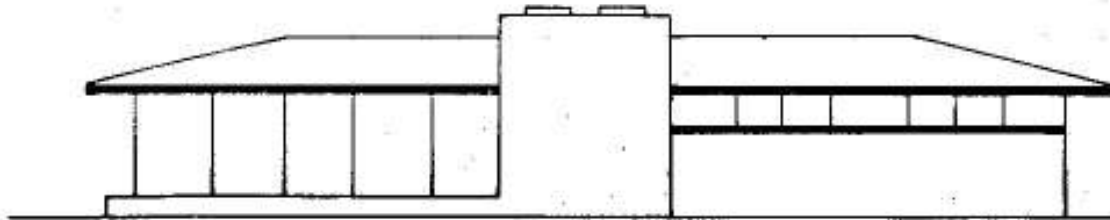
Wall Framing Members



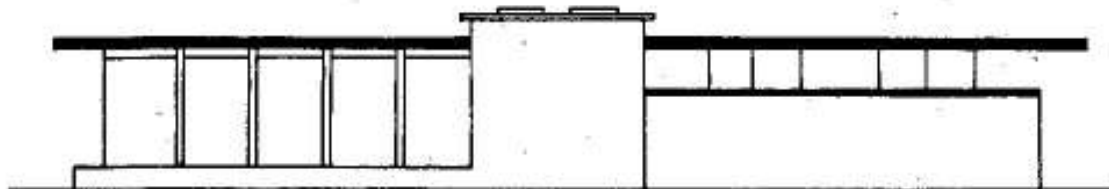
Ways Different Roofs Affect Elevation Appearance



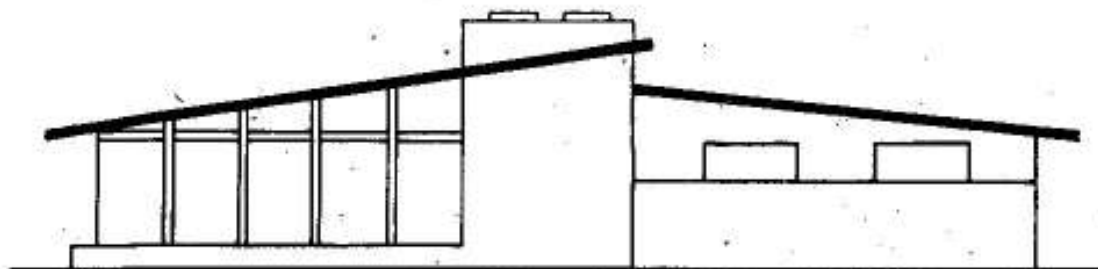
Gable



Hip



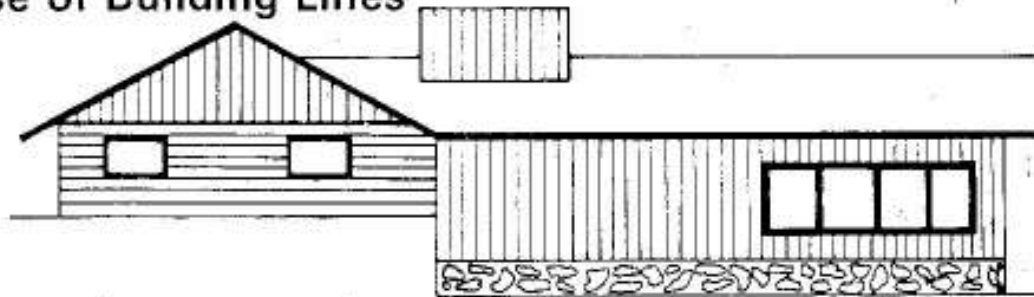
Flat



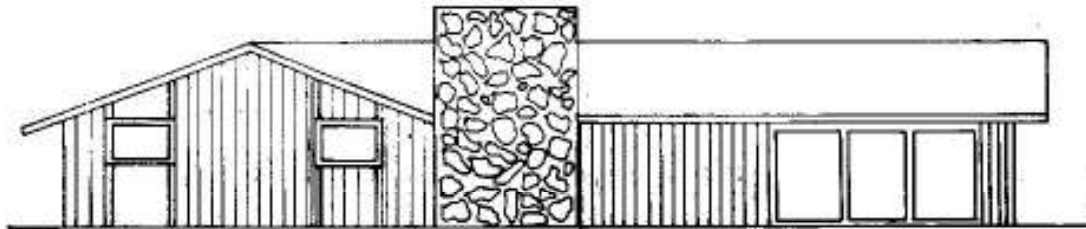
Shed

Factors Which Affect Elevation Appearance

Use of Building Lines

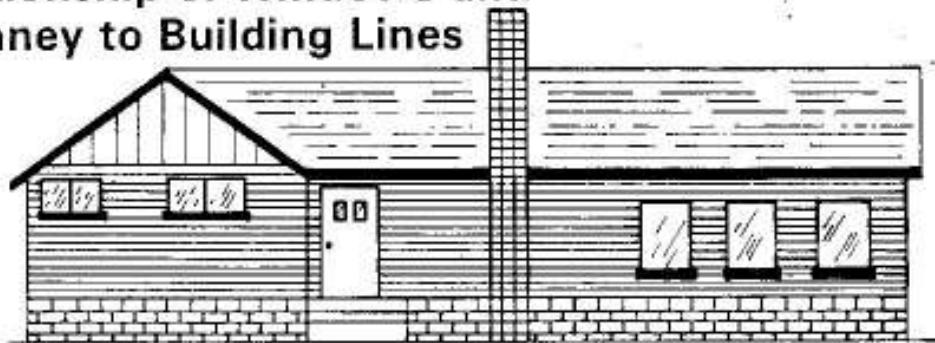


Inconsistent Lines



Consistent Lines

Relationship of Windows and Chimney to Building Lines



Unrelated

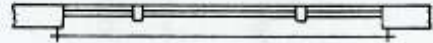


Related

Window Plan Symbols



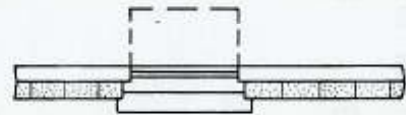
Double Hung (in Frame Wall)



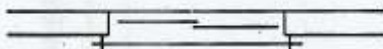
**Fixed with
Double Hung Side Lights**



Double Casement



Hopper (in Cut Stone Veneer)



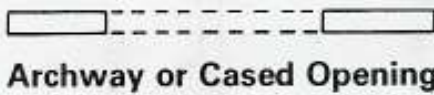
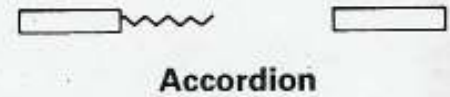
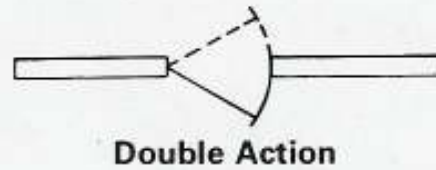
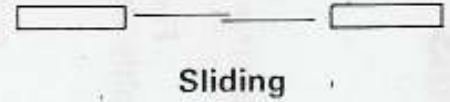
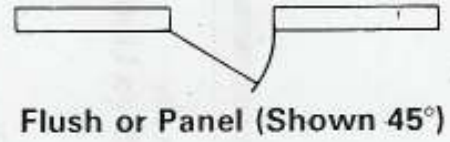
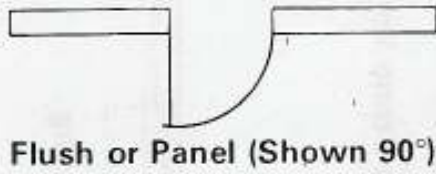
Sliding



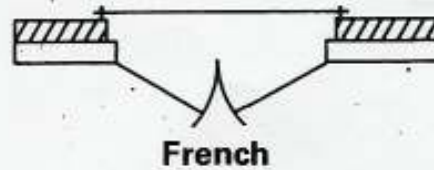
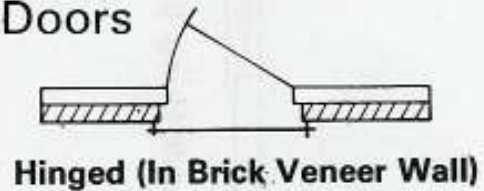
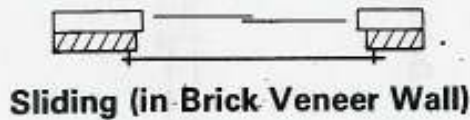
Awning

Door Plan Symbols

Interior Doors

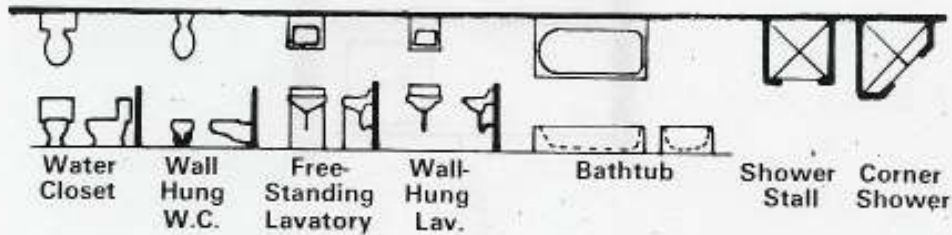


Exterior Doors

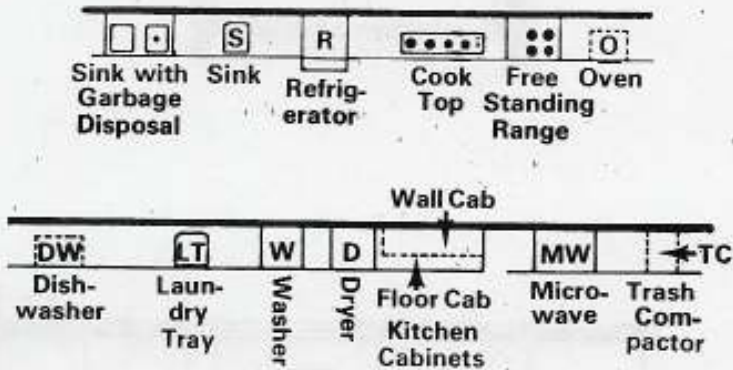


Plan Symbols

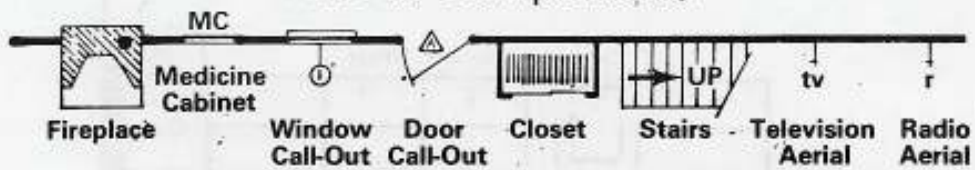
Bathroom Fixtures



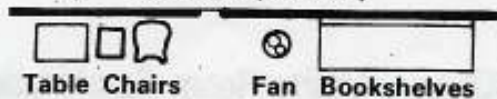
Kitchen and Laundry Fixtures



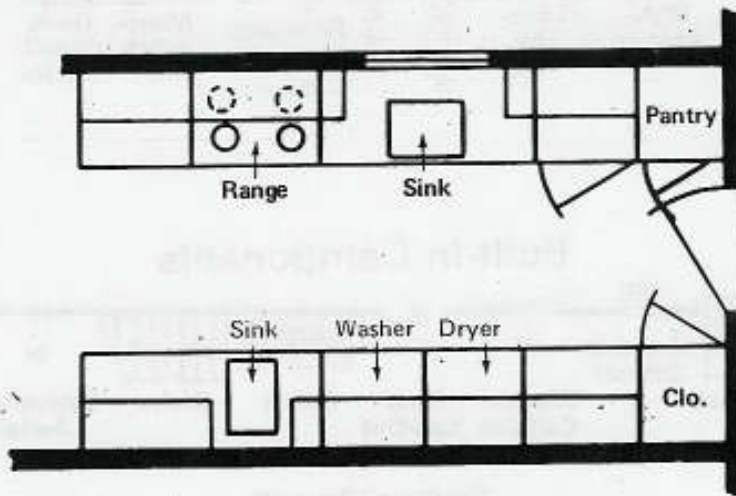
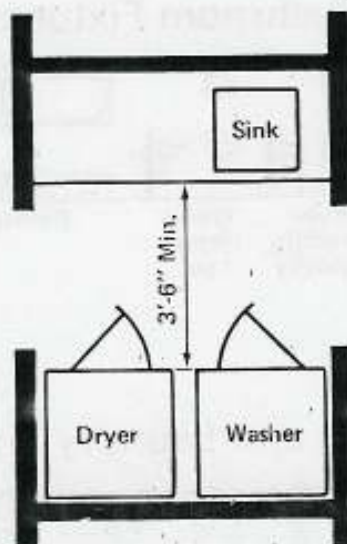
Built-In Components



Furniture (General)

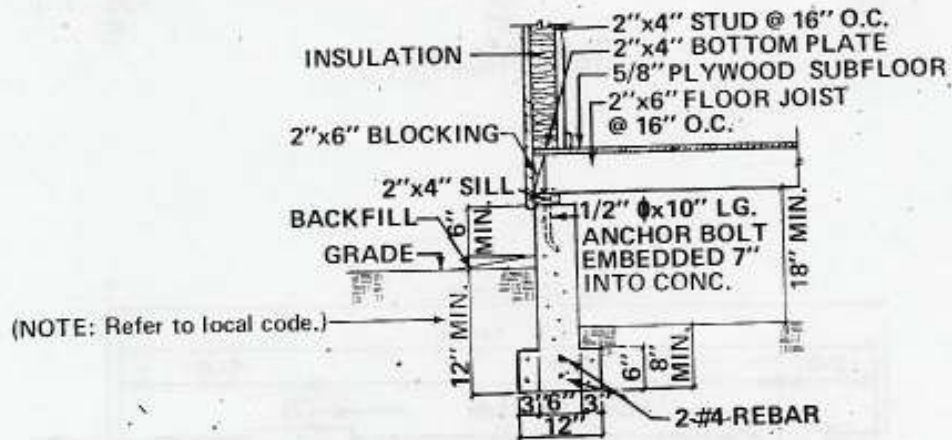
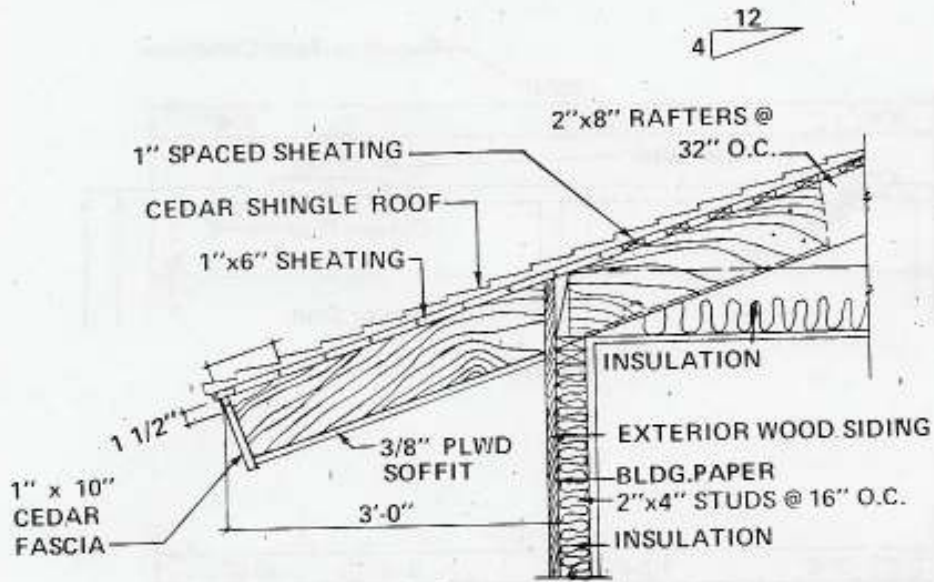


Utility Room



Kitchen/Utility Room Combination

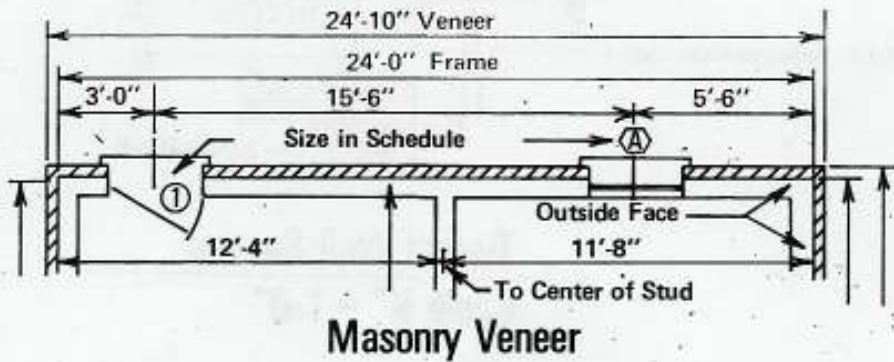
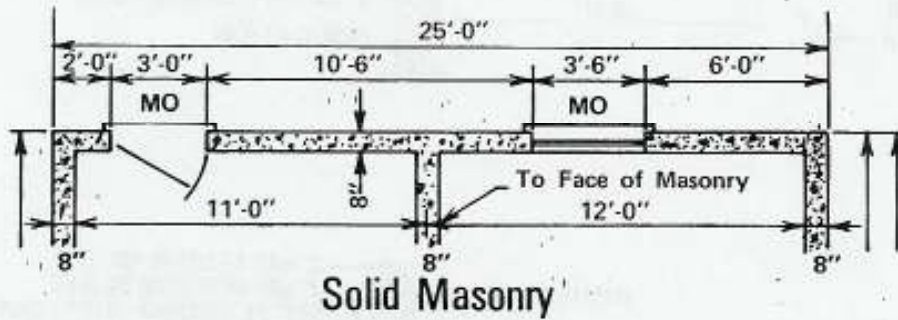
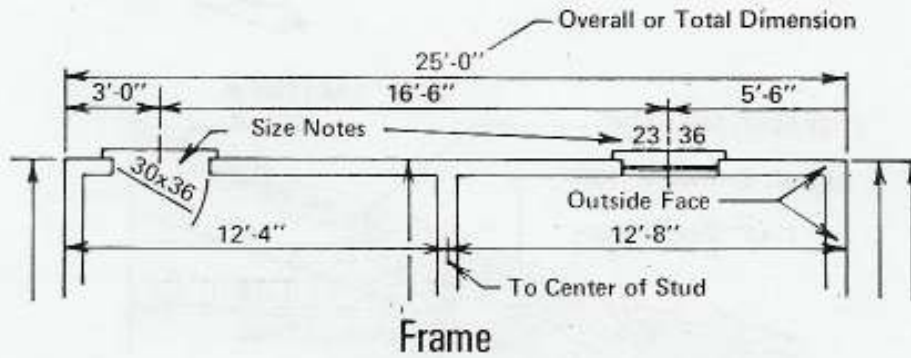
Wall Section Dimensioning



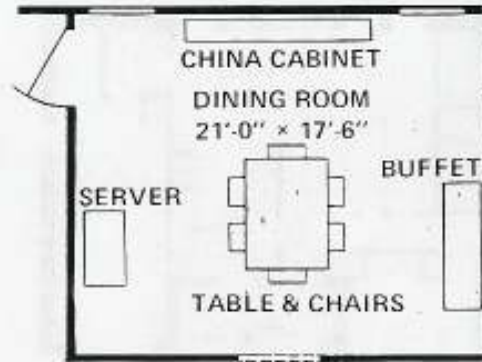
Typical Wall Section

Scale $\frac{3}{4}" = 1'-0"$

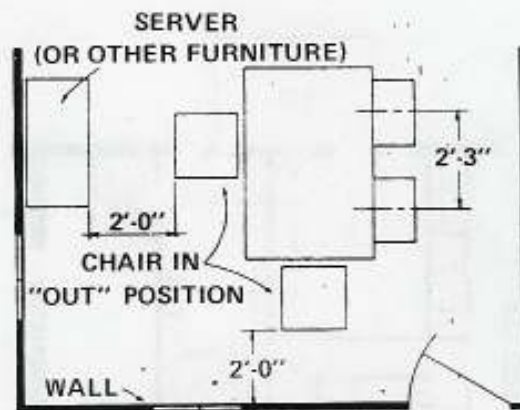
Exterior Wall Dimensioning



Dining Room

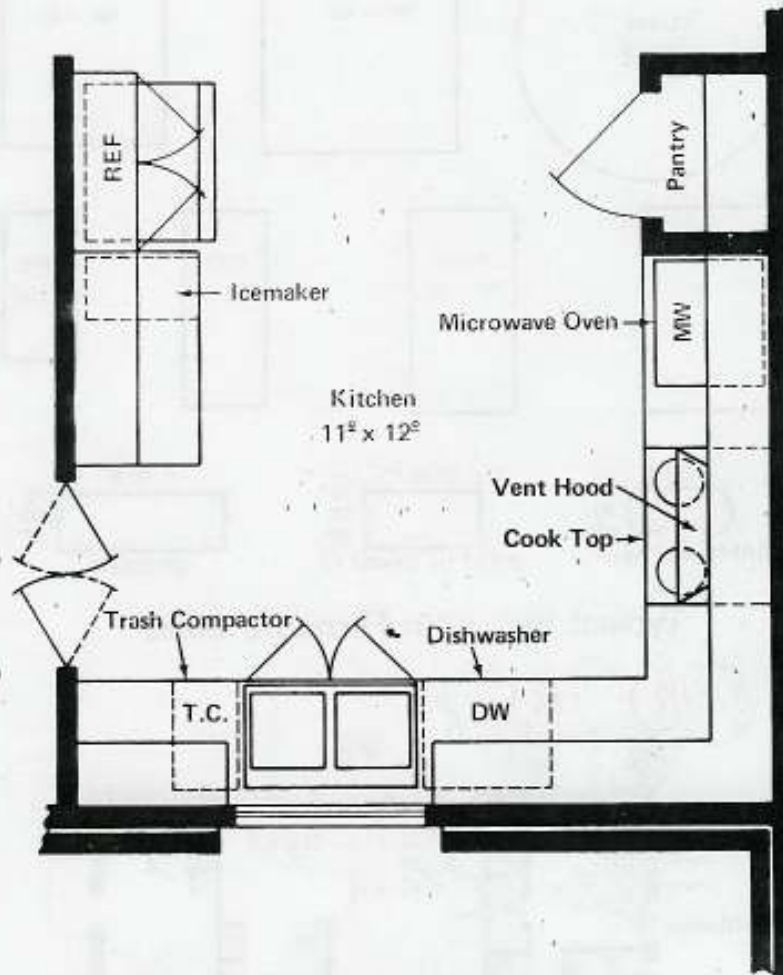


Typical Furniture Arrangement



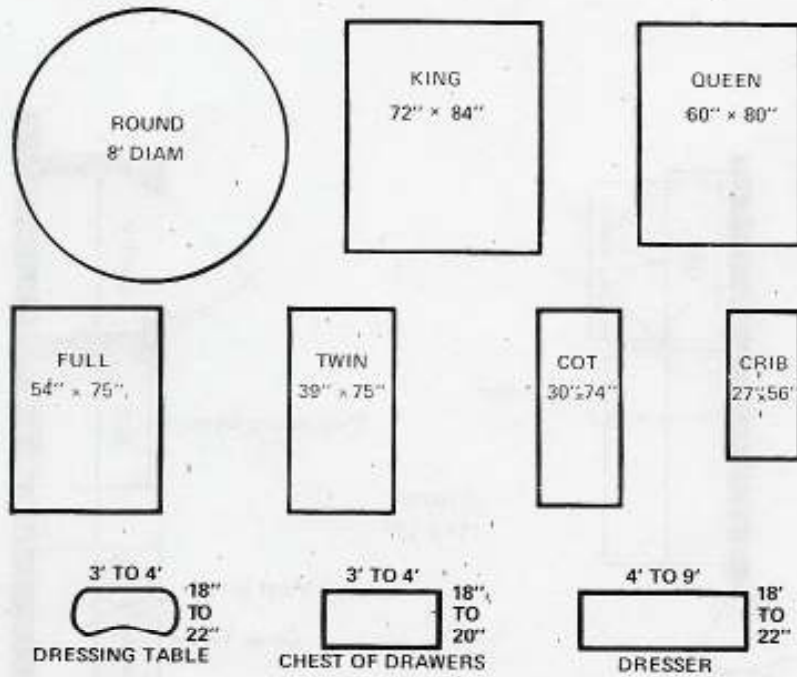
Clearances

Kitchen

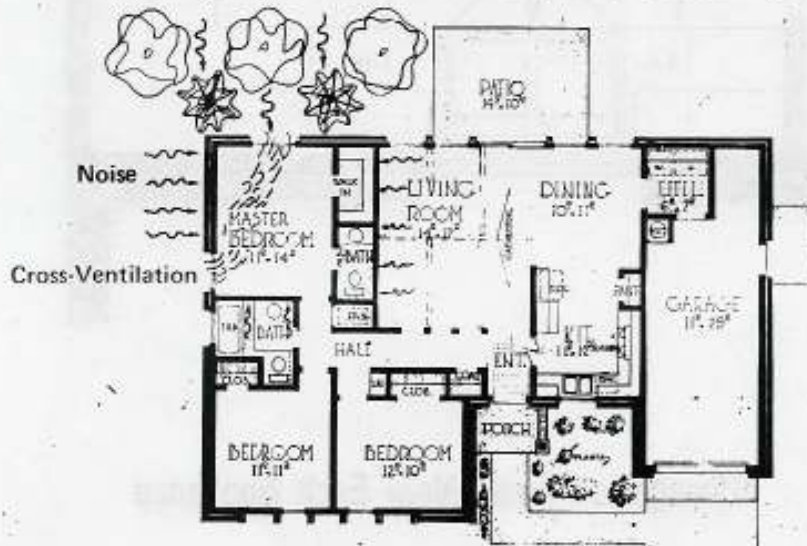


Storage is Placed Near Each Appliance

Bedroom



Typical Bedroom Furniture Sizes



Noise Prevention and Cross-Ventilation

Bathroom Sizes



4'-3" x 4'-3"



5'-6" x 4'-3"

1/2



6'-0" x 5'-6"

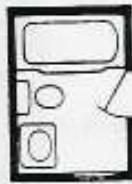


4'-6" x 5'-6"



8'-6" x 3'-0"

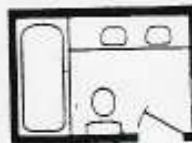
3/4



5'-0" x 7'-6"

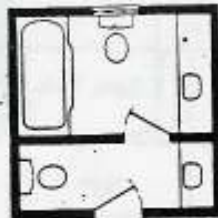


6'-0" x 8'-0"

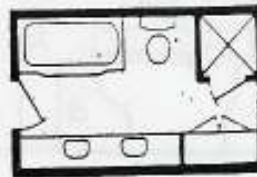


8'-0" x 5'-6"

Full



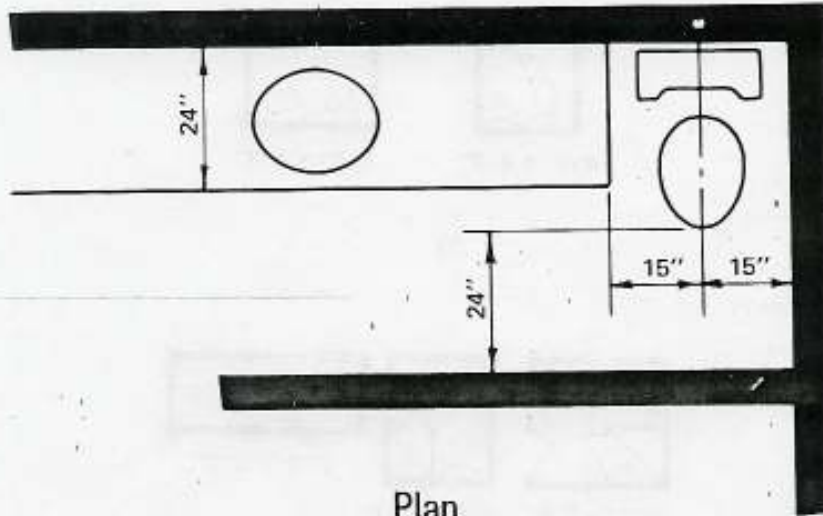
9'-0" x 9'-0"



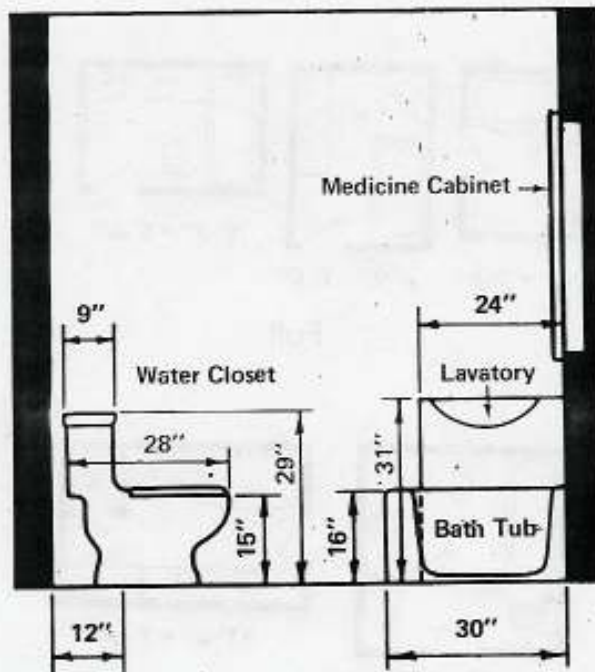
11'-0" x 7'-0"

Luxury

Bathroom Clearances

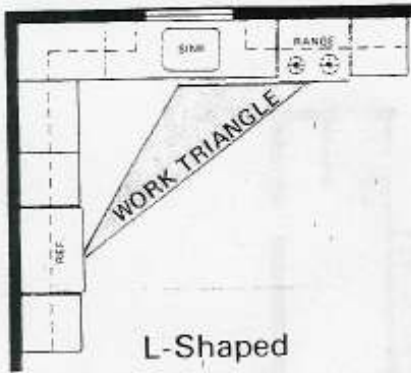


Plan

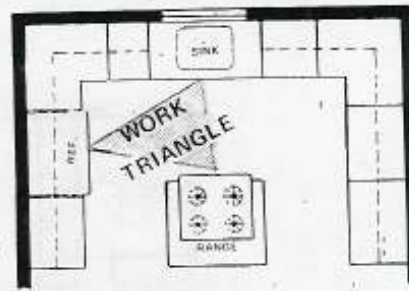


Elevation

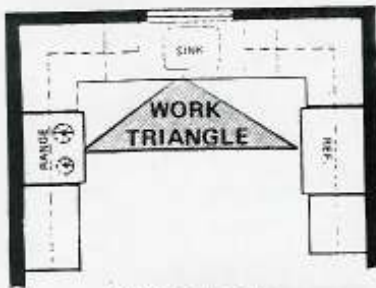
Kitchen Arrangements



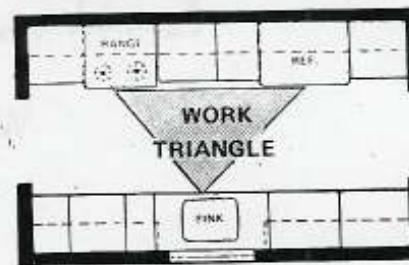
L-Shaped



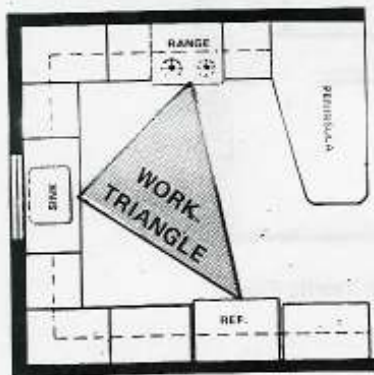
Island



U-Shaped



Corridor



Peninsula



Straight Line (One wall)

WORK TRIANGLE IS FROM REF. TO SINK TO STOVE(RANGE) -

MINIMUM DISTANCE BETWEEN SHOULD BE FOUR (4) FEET

MAXIMUM DISTANCE BETWEEN SHOULD BE NINE (9) FEET

TOTAL TRIANGLE SHOULD BE BETWEEN 12 - 26 FEET

TM 3

Name _____
Class Period _____

Construction Blueprint Grading Rubric

_____ Was there a **rough sketch of the floor plan** included in the set of blueprints?
(25 Points)

_____ Was there a **rough sketch of each elevation** included in the set of blueprints?
(100 Points)

_____ Was there a **final design of the floor plan** included in the set of blueprints?
(50 Points)

_____ Was there a **final design of each elevation** included in the set of blueprints?
(100 Points)

_____ Was all **necessary information** included on the **floor plan** including room names and sizes? (25 points)

_____ Was all **necessary information** included on **elevation drawings** such as roof pitch and type of siding used? (25 points)

_____ Was there a **wall framing drawing** included in the set of blueprints?
(50 Points)

_____ Was there a **wall section drawing** included in the set of blueprints?
(50 Points)

_____ Was all **necessary information** included on the **wall framing** drawing?
(25 points)

_____ Was all **necessary information** included on the **wall section** drawing?
(25 points)

_____ Was the set of blueprints completed in a **professional manner**? (25 points)

_____ **TOTAL (500 points possible)**