WEEK 4 Saturday April 16, 2022 9:00AM-1:00 PM

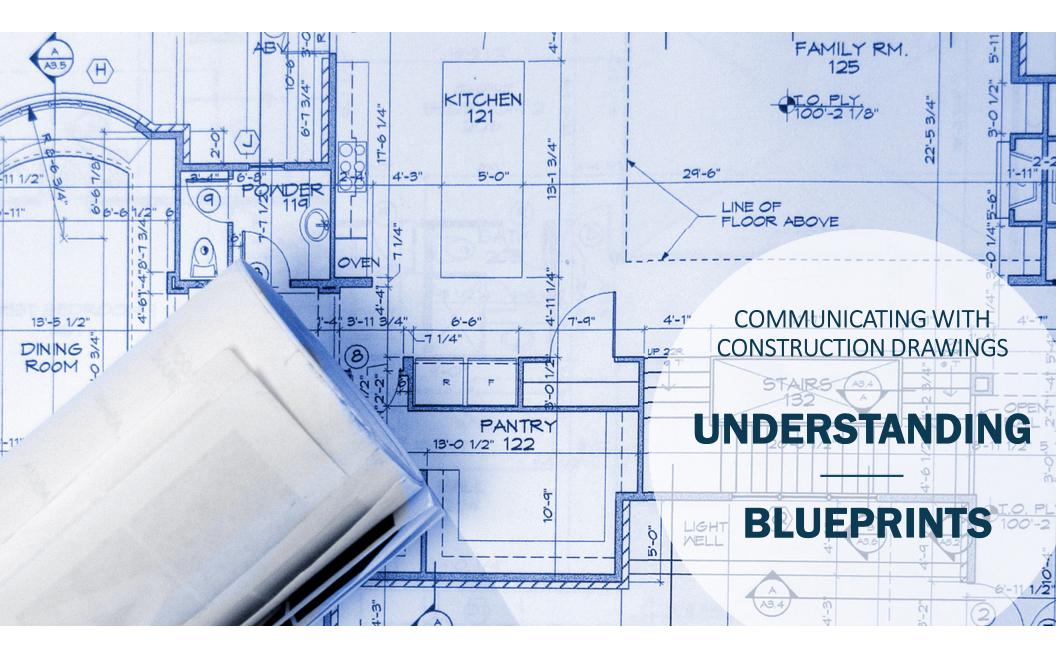
7TH CREATING SUSTAINABLE NEIGHBORHOOD DEVELOPERS' PROGRAM: Virtual

9:00 am	<i>Welcome</i> Dr. Donald Andrews Dean, College of Business Southern University and A&M College
9:05 am	<i>Course Objectives</i> Eric L. Porter President, <i>ComNet LLC</i> , Co-Creator of CSND program
9:15 am	<i>"Understanding Construction Drawings, Design & the Fundamentals of Project Development"</i> Roland Arriaga A&D Architects, LLC, New Orleans & Houston.
10:20 am	" Overcoming – Fears – Obstacles & Self Sabotaging " Michael Roberts BA/MS,The Roberts Group
10:50 am:	Break
10:55 am:	"Where are they now: A Program Certified CSND" Kenya Jarmon, Destin For Success Worldwide Development
11:30 am:	"Where are they now: A Program Certified CSND" Charles Theus Program Certified Sustainable Neighborhood Developer, Southside Economic Development Group
12:05 pm:	"The Fundamental of Project Development" Clem Lafleur, Clem Jr. Development LLC
12:55 pm:	Session Ends Dean Andrews/ Dr. Sung No/ Eric Porter









This class is adminitered by:

Roland A. Arriaga

10m²

Registered architect in FL, LA, MS, TX

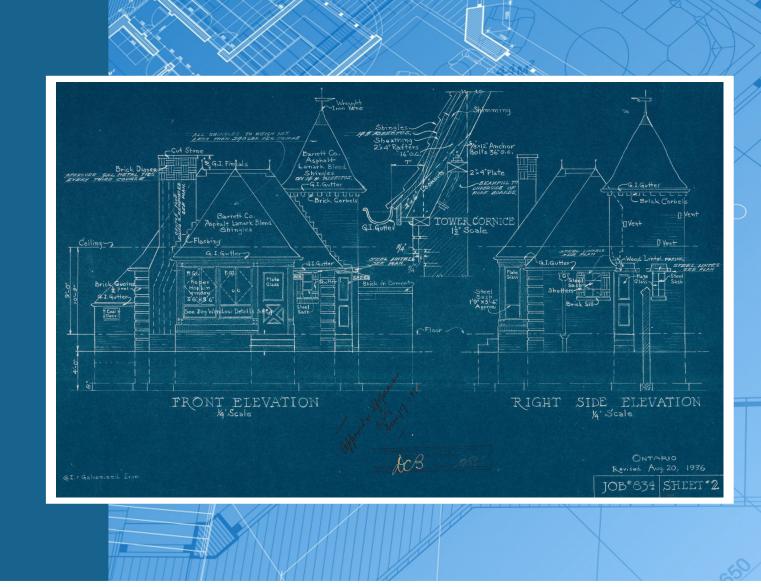
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37 + years experience in commercial, institutional, and residential architecture.

At the end this class you will understand how a set of plans is organized and how to read architectural "blueprints".

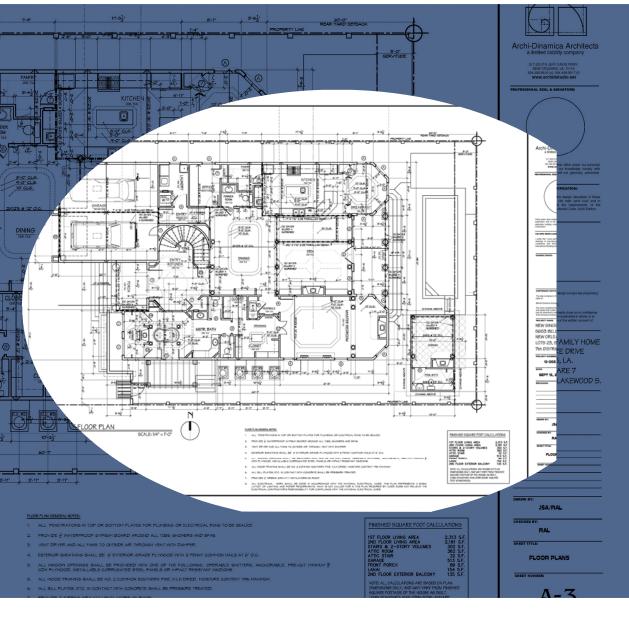
"Blueprints" are also known as:

working drawings, construction drawings, permit approved drawings.



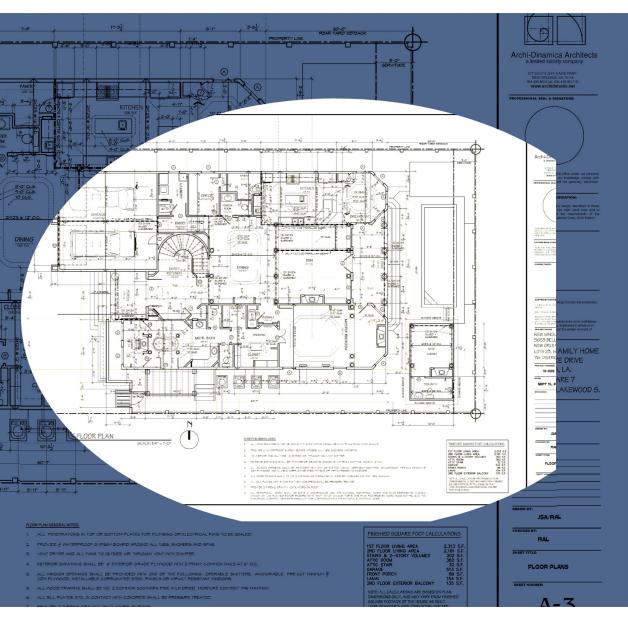
Introduction

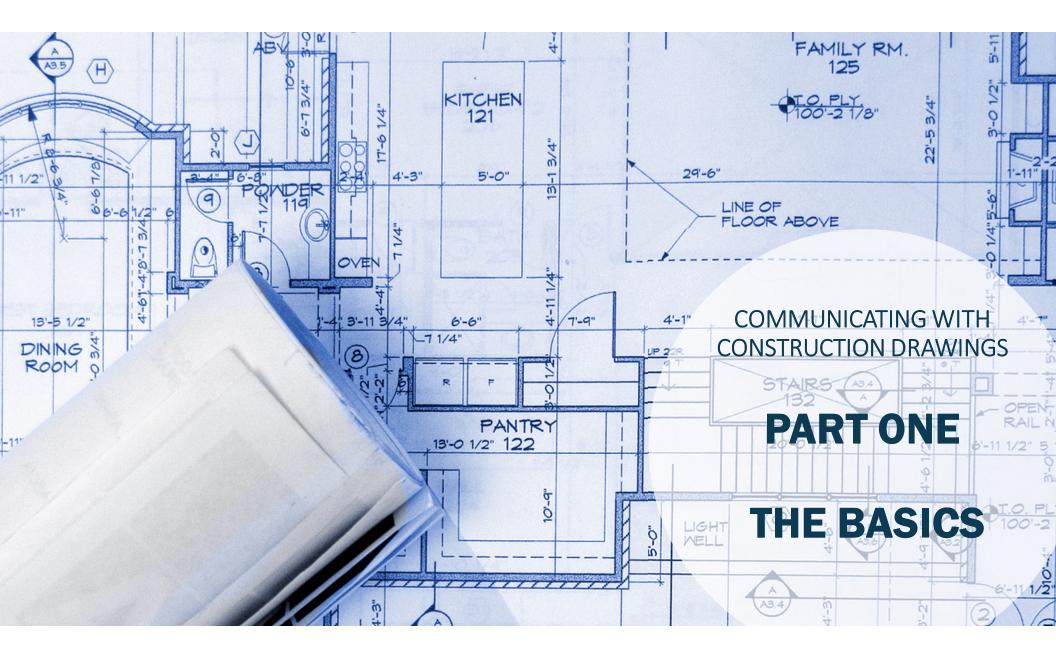
- The complexity behind a single building can be translated into a set of construction drawings.
- Blueprints also known as construction drawings or working drawings are composites of several plans assembled into a set of drawings.
- Construction drawings are the main vehicle used in construction communication.
- Working Drawings are any drawings used as a basis for construction and includes all the necessary information for the construction of any building.



Why Construction Drawings?

• As buildings and the systems within them have become increasingly complex, so have the two-dimensional drawings that describe all the details of the project. From a simple residence to a large commercial building project, the same basic drawings and related information are required in to obtain permits, order estimate costs, establish Ъ construction schedule, and ultimately construct the project.





SCALES

A knowledge of the scales on construction drawings is essential for the accurate interpretation of drawings. Three types of measuring scales are used in determining measurements in construction drawings:

- Architect's SCALE
- Engineer's SCALE
- Metric SCALE



The Architect's Scale

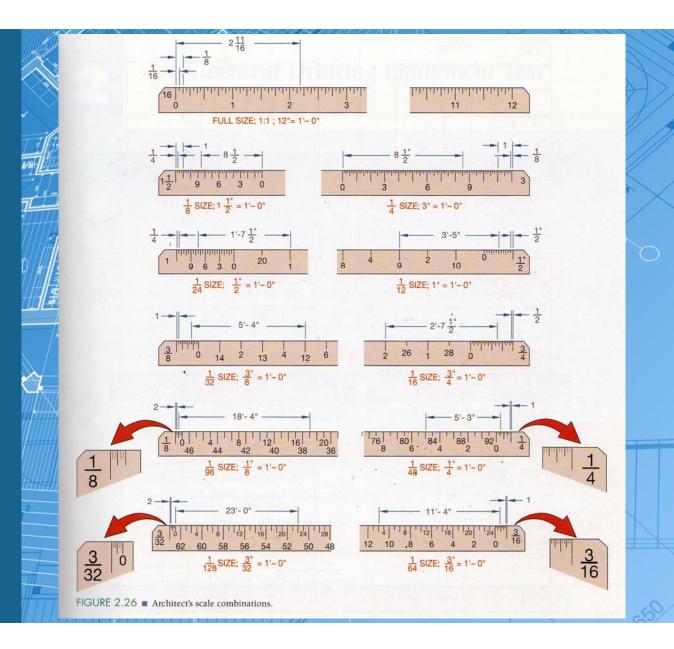
Architect's scale is either triangular type or bevel type:

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Using the Architect's scale

Architect's scale combinations and sample measurements at different scales.

The triangular architect's scale contains 11 different scales. Architect scales have numbers that run incrementally both from left to right and from right to left. A whole number or fraction to the left or right of the number line indicates the scale those numbers represent. Each increment represents a foot and is further divided into smaller increments representing inches.



Using the Architect's scale

Architect scales, such as 1/4'' = 1'-0'' (1/48 size) or 1/8'' = 1'-0'' (1/96 size), are used for structures and buildings. They are used to measure interior and exterior dimensions such as rooms, walls, doors, windows, and other details.

Other scale tools include flat scales and rolling scales. Rolling scales have the advantage of being able to measure travel distances easily, an important feature when evaluating travel distances to exterior doors.



Using the Architect's scale

Architect scales use fractions and have the following dimensional relationships:

3/32" = 1'-0"	¼" = 1 foot	³ ⁄ ₄ " = 1'-0"	1500
3/16" = 1'-0"	3/8" = 1'-0"	1 inch = 1 foot	*
1/8" = 1'-0"	1/2" = 1'-0"	1 ½" = 1 foot	840
		e 940 e 1500 940 BIB	
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The Engineer's Scale

• The Engineer's scale is either triangular type or bevel type:

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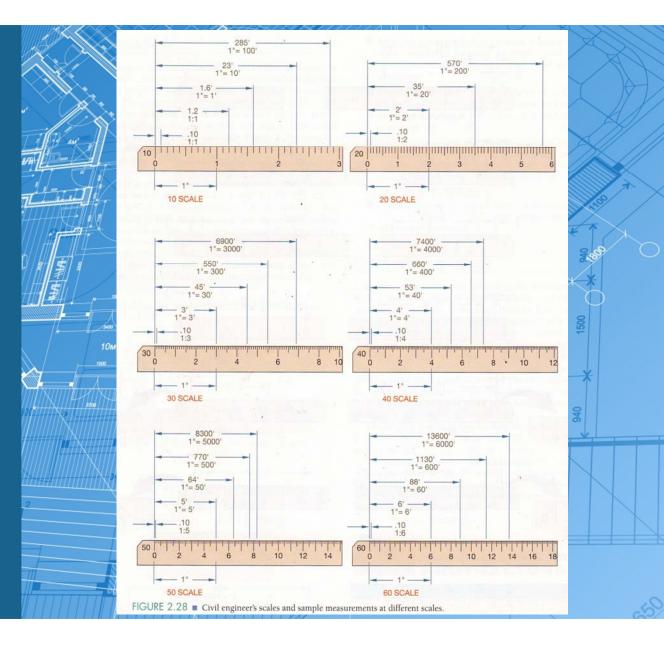
Using the Engineer's scale

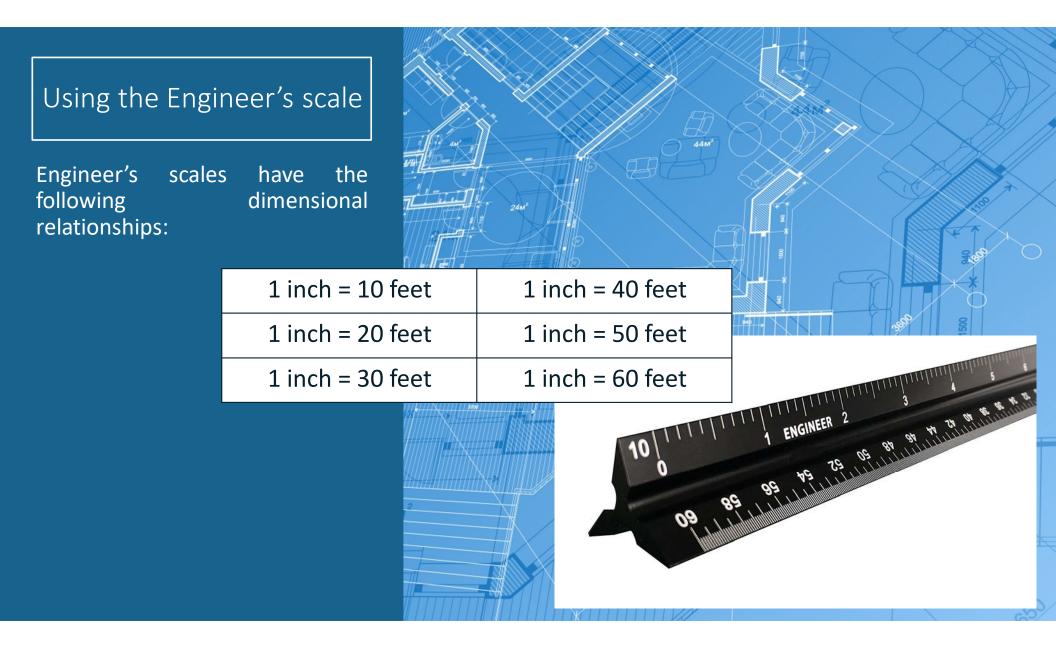
Engineer's scale combinations and sample measurements at different scales.

Engineer scales have numbers that run incrementally from left to right. The whole number to the left of the number line indicates the scale those numbers represent.

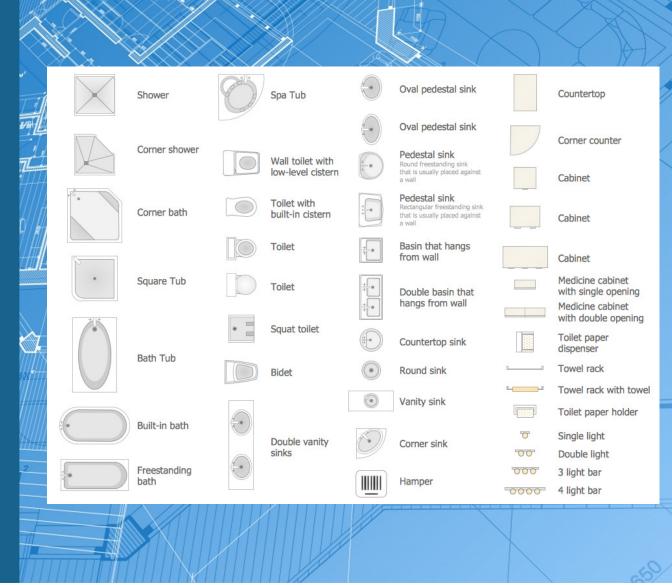
The Engineer's Scale is often used for measuring topographical features on plot plans, surveys, and other large land tract plans showing roads, water mains, and other utilities.

The Engineer's Scale is calibrated in multiples of 10 with each space representing a foot.



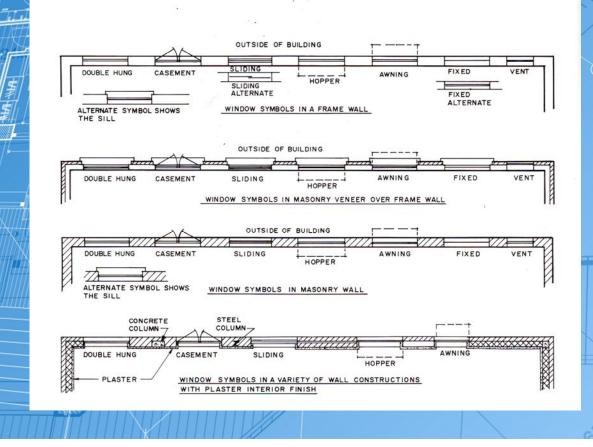


 Architects use standardized symbols so that anyone who looks at the drawing can understand that they are looking at a fireplace, window, kitchen table, or bathtub. For reference, every set of architectural drawings includes a symbol legend. If you aren't familiar with a symbol, you will be able to find it in the legend.

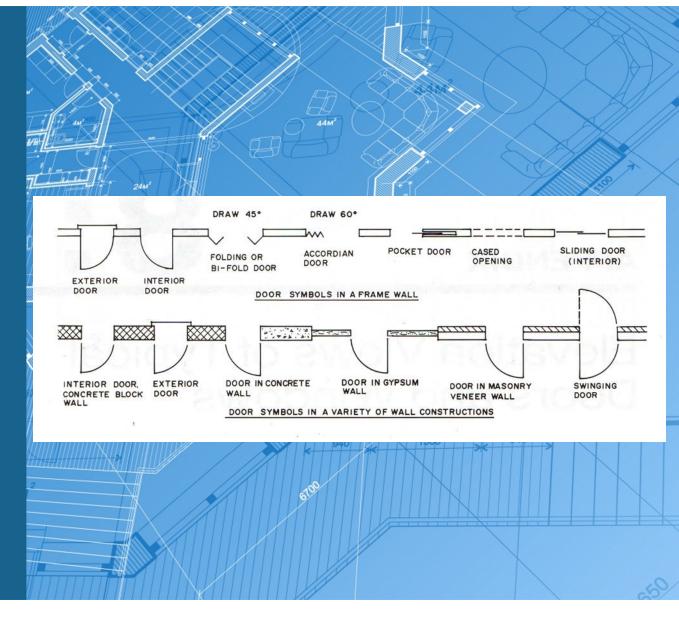


 Hundreds of abbreviations and symbols are used to convey building components such as doors, windows, and related information.

Door and Window Symbols in Plan View

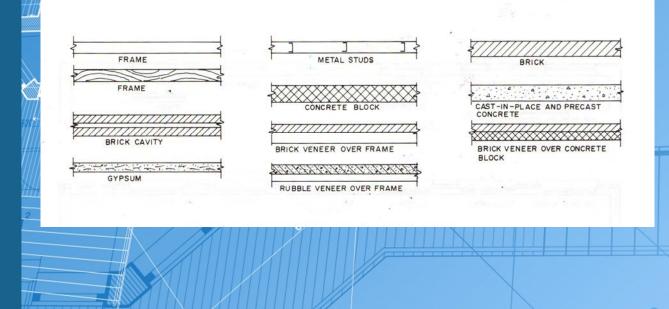


 Symbols provide a "common language" for plan reading throughout the US and abroad and they are created according to relevant standards and conventions.



- Different types of lines are used on floor plans to show wall thicknesses. Walls are shown as two parallel lines.
- Each line type conveys a meaning in the way it is represented and its placement on the drawing.
- The addition of veneers and exterior material is shown with additional lines containing the symbol for the material used.

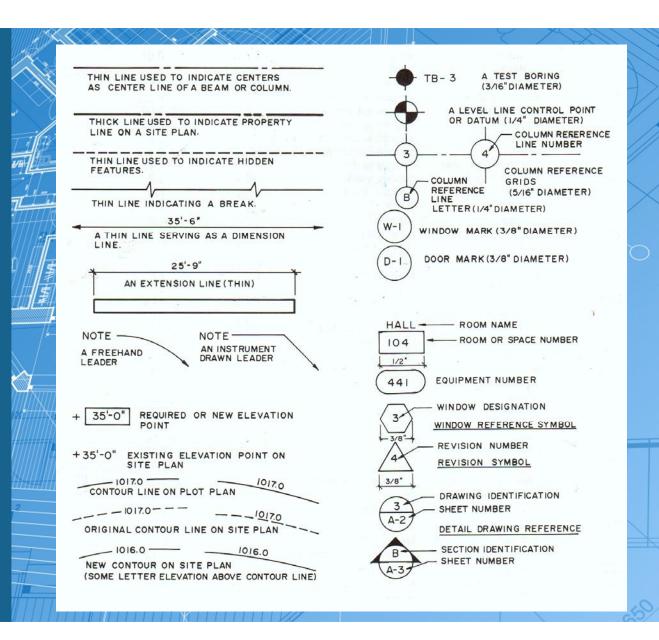
Symbols for Walls In Section



 Architects and engineers use basic graphics to describe specific building elements and materials. For example, a masonry wall when viewed in section will normally be shown with a 45-degree crosshatching through the wall. These standardized graphics help the architect, engineer and builder communicate more clearly.

	Symb Eleva	ools for N tion	Material	s in	
	BRICK	CONCRETE BLOCK,	CONCRETE BLOCK.	CONCRETE OR PLASTER	
10m ² 10m ²	SPLIT STONE	RUNNING BOND	STACK BOND	RUBBLE STONE	1500
	MARBLE HORIZONTAL SIDING	GLASS	FLASHING BOARD AND BATTEN OR VERTICAL GROOVE SIDING	PLYWOOD	40

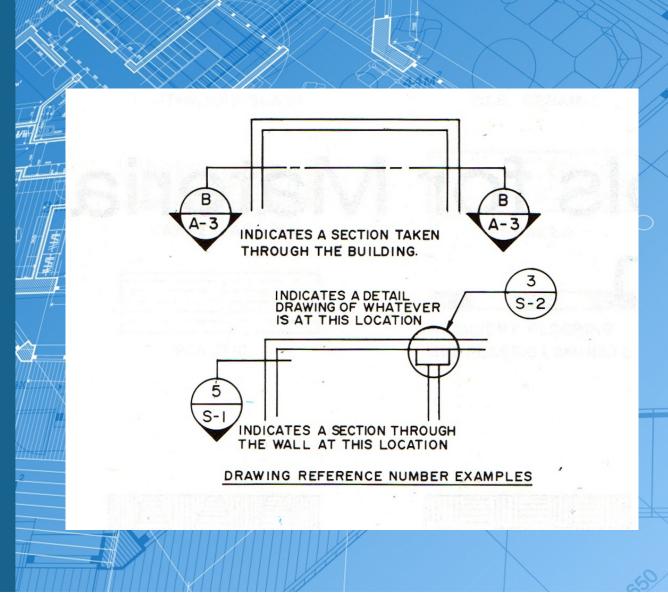
 Symbols are typically standardized; abbreviations and symbols can differ from one architect or engineer to another and from one discipline to another.



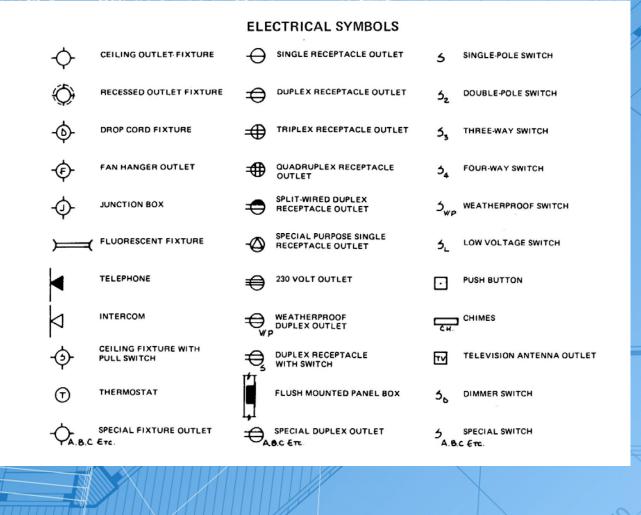
 To clarify their intent, the architect provides a legend, typically on the first sheet, that relates the symbols and their intended meaning.

SYMBOL LEGEND (101)SECTION REFERENCE DOOR NUMBER DETAIL REFERENCE SPOT ELEVATION A101 Name Elevation EXTERIOR ELEVATION DATUM A101 ेर्द्ध A101 ē, INTERIOR ELEVATION NORTH ARROW Ref 1 (\mathbf{F}) CALLOUT REFERENCE KEYNOTE A101 Room name B-1 MATERIAL KEYNOTE ROOM NAME / NUMBER 101

• A Building Section reference describes a cut through the body of the building

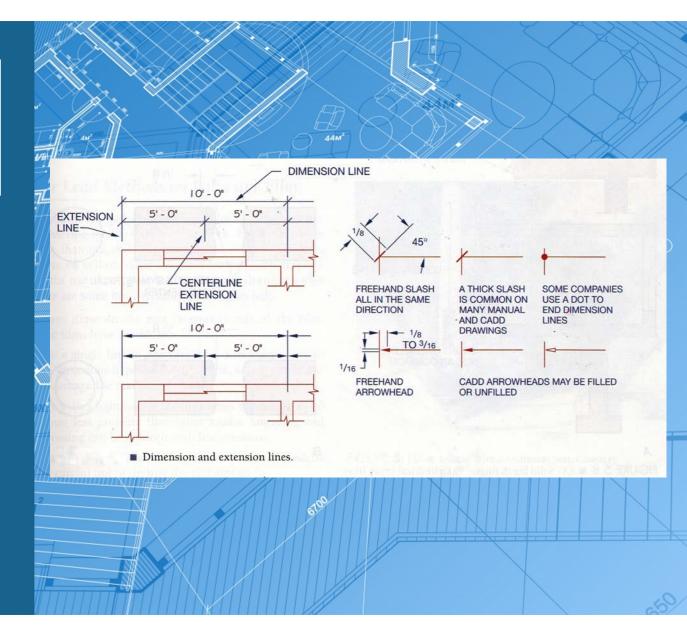


 Electrical symbols on power and lighting plans



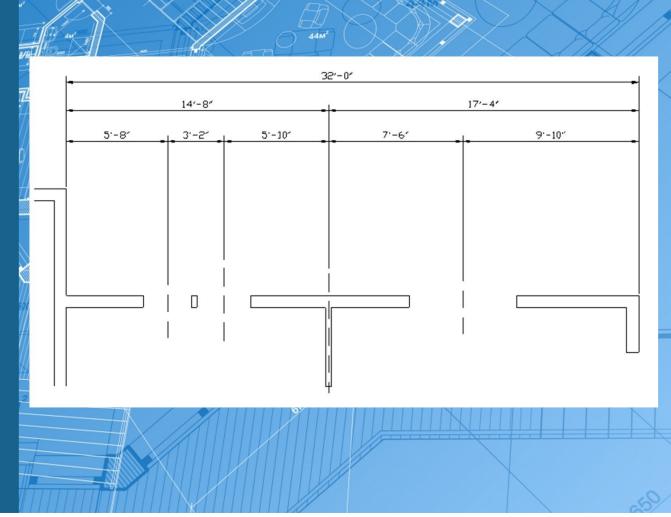
Reading architectural dimensions

- The purpose of dimensioning is to define size and location of the various materials and components
- Extension lines show the extent of a dimension.
- Dimension lines show the length of the dimension an terminate at the related lines with slashes, arrowheads, or dots.



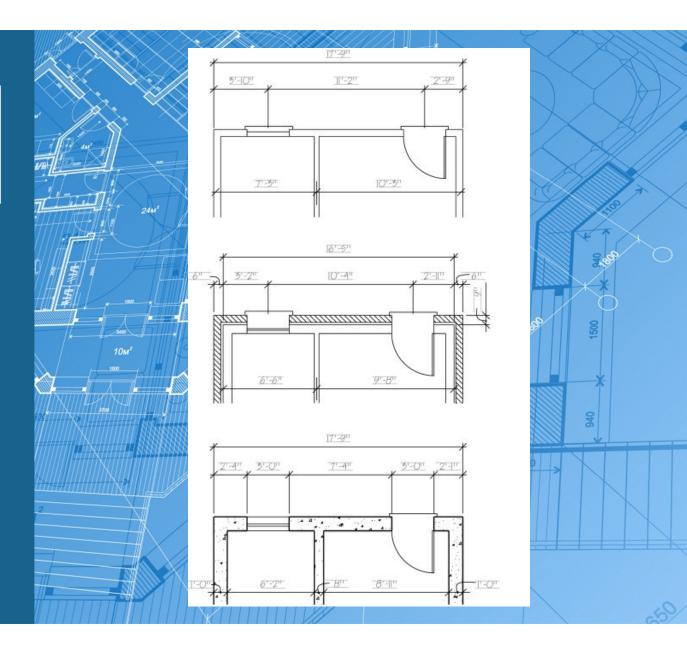
Reading architectural dimensions

There are usually three dimension lines: the line closest to the building describes small elements - for example, piers, door widths, and window openings; the second line carry some of the small dimensions and reflect major features such as a wing, section or offset; the third line (farthest from the building line) is an overall dimension that will show the total distance from outside face to outside face of the building. Various types of construction will demand slight changes in dimensioning; for instance, wood frame dimensioned from face of stud to face of stud.



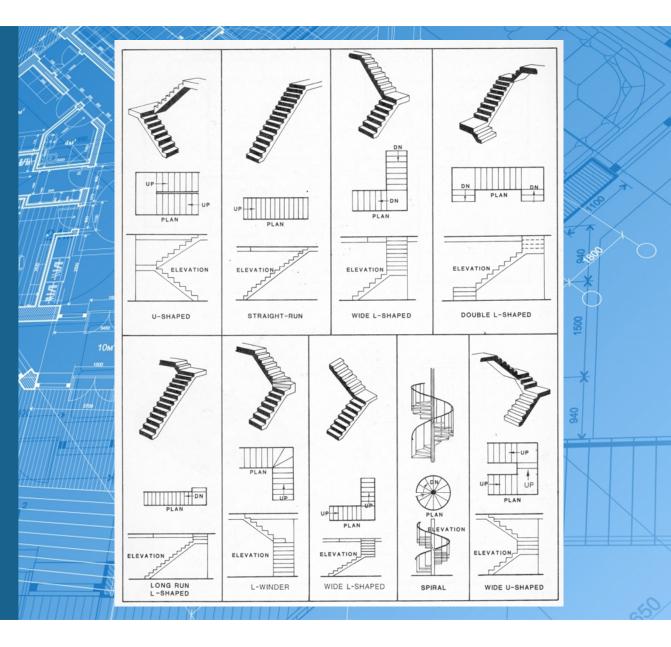
Reading architectural dimensions

- Wood frame buildings are dimensioned from the face of exterior stud to the center of openings to the center of the interior stud.
- Masonry (units of brick, block or stone) are dimensioned to their edges.



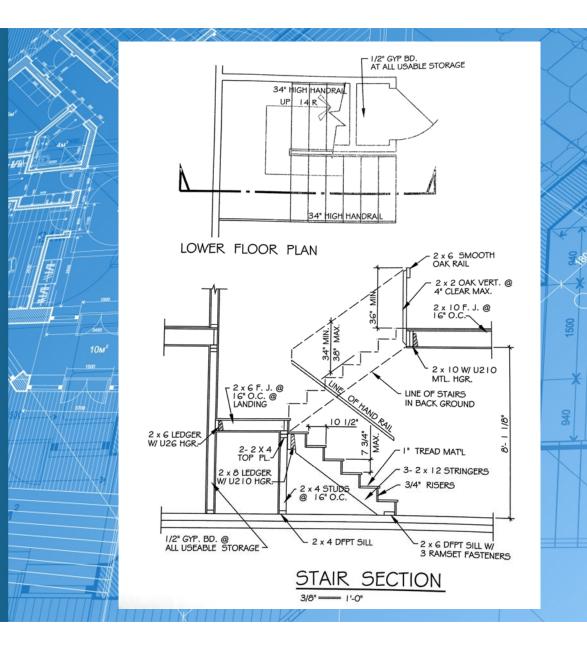
Stairs

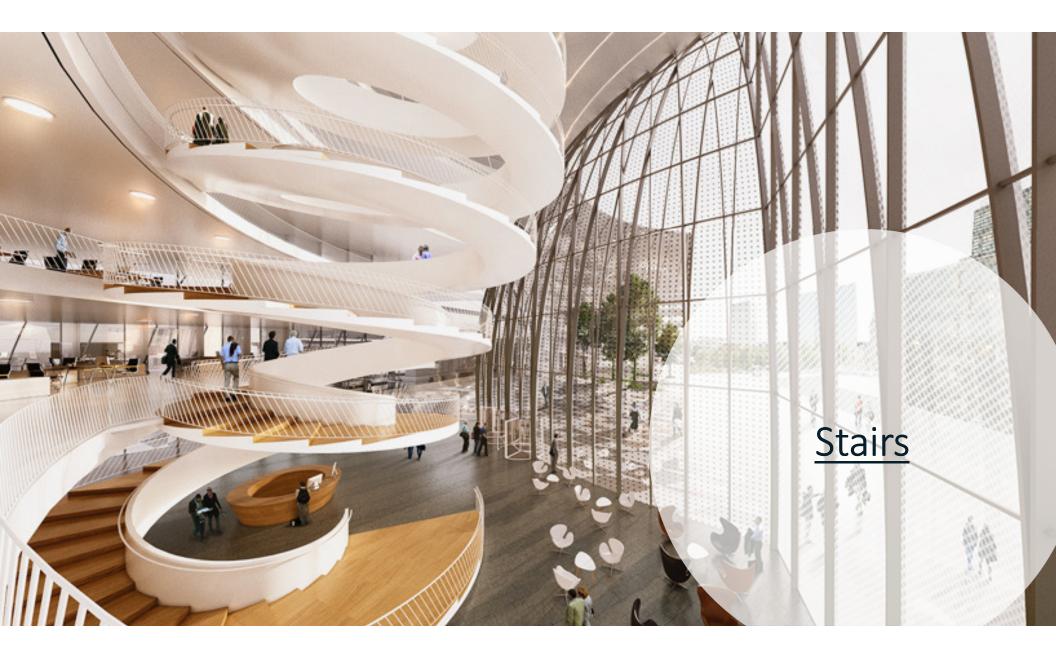
- Stairs on plan will be drawn as a straight run, open, and U-shaped stair layouts.
- Masonry (units of brick, block or stone) are dimensioned to their edges.

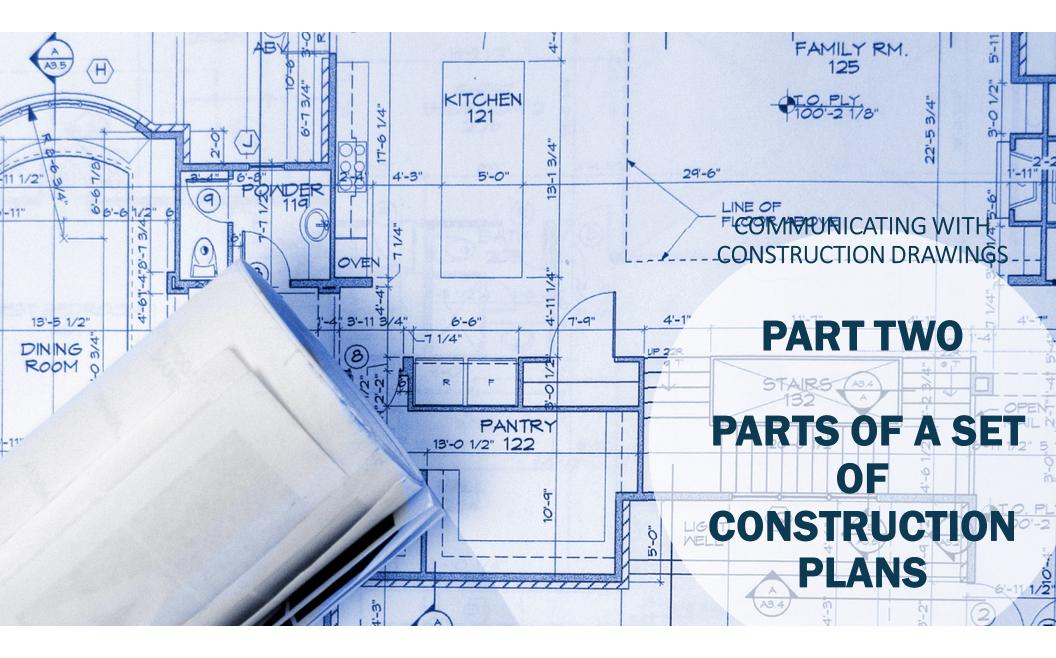


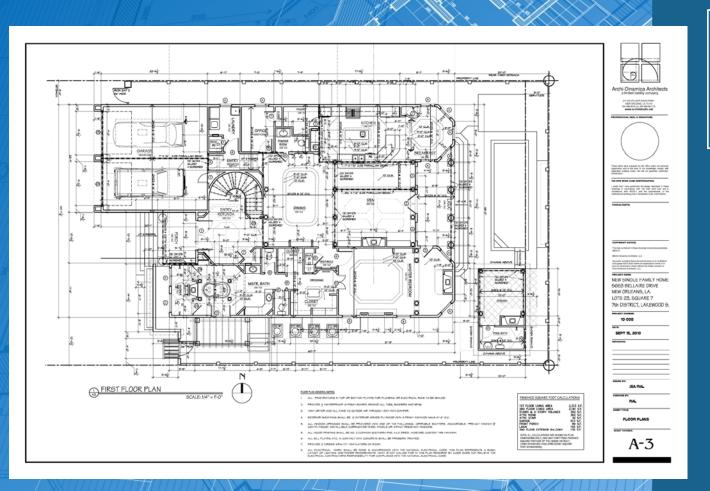
Stairs

• Plan of a U-Shaped stair in a construction set.











- Title Block
- Border
- Drawing area
- Revision block
- Legend

A residential drawing set is composed of 8 major types of drawings.

- Title Sheet
- Project Information Sheet
- Site Plan
- Foundation Plan
- Floor Plans
- Exterior Elevations
- Electrical & Lighting Plan
- Building Sections & Construction Details.

Sometimes Landscape, HVAC, and Plumbing Plans are included in the drawing set for public bid projects.

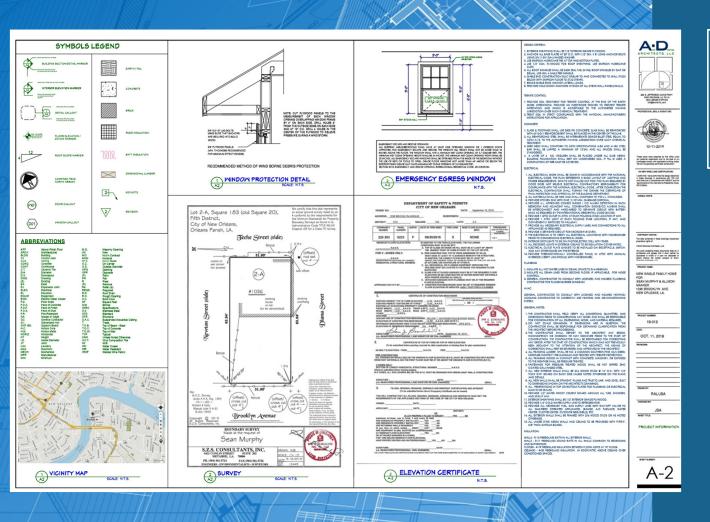




Title Sheet

The Title Sheet contains

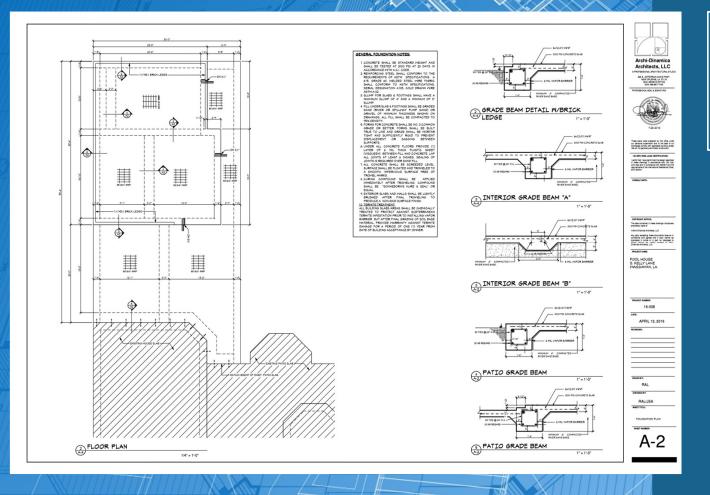
- Sheet index
- Rendering of project
- Title of project
- Responsibility Statements



Project Information Sheet

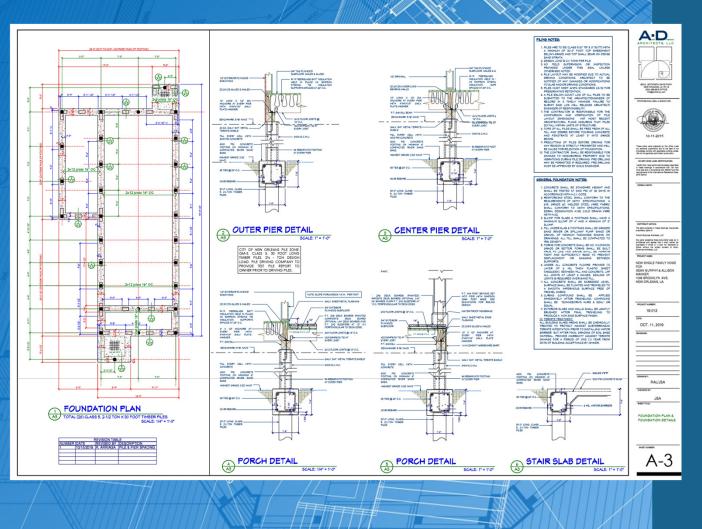
The Project Information Sheet contains

- General building code requirements
- Copy of the land survey
- FEMA certificate
- Symbols and Materials Legend



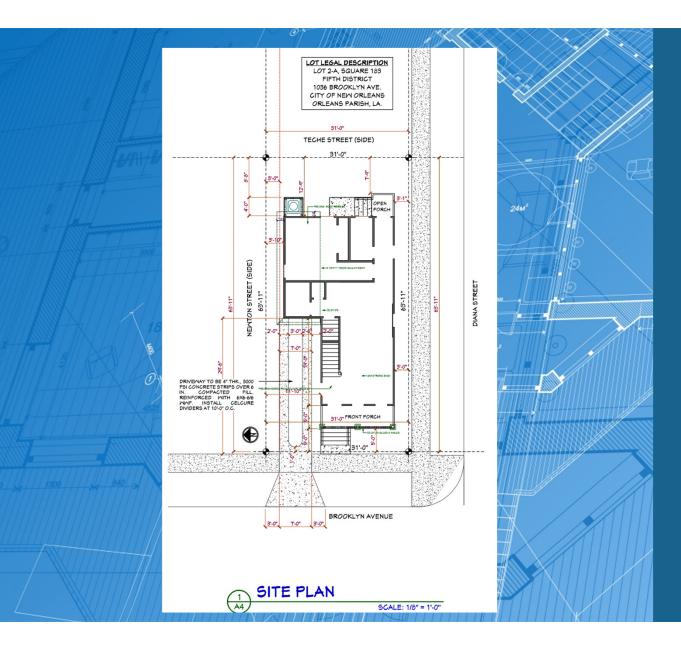
Slab On-Grade Foundation

The Slab-on-Grade Foundation Plan shows the location of all piling and reinforcing associated with the plan. It is poured on compacted sand or soil.



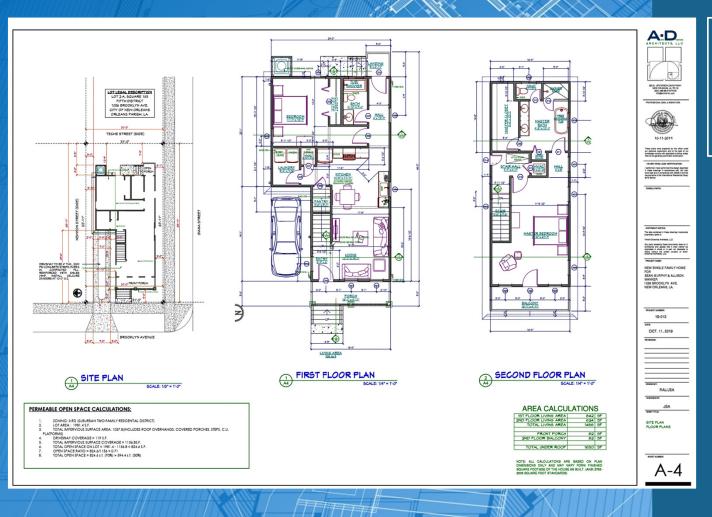
Raised Foundation

The Raised Foundation Plan shows an elevation structure above the Base Floor Elevation. Typically a raised foundation is called a pier foundation. The pier are constructed with concrete cinder blocks.



Site Plan

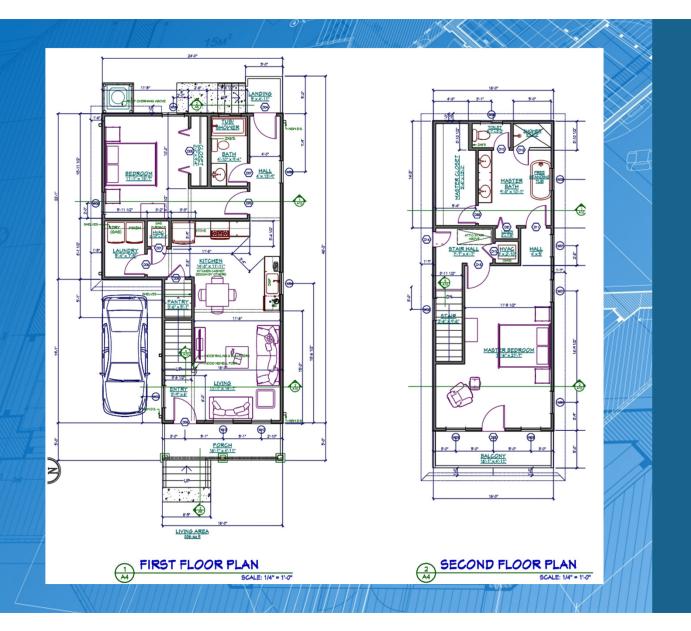
The Site Plan locates the building 'footprint' on the actual site and describes the required site work. The Site Plan shows sidewalks, driveways, flatwork, and all details related to site work.



Floor Plan View

FLOOR PLAN FOR A HOUSE

Floor plans are simply that. Each floor of the building is drawn to scale (usual a ¹/₈" or ¹/₄" scale). These plans show interior and exterior walls, door and window locations, room dimensions, stairs, cabinets, toilets and sinks, and other relevant information.



Close up of Floor Plan View

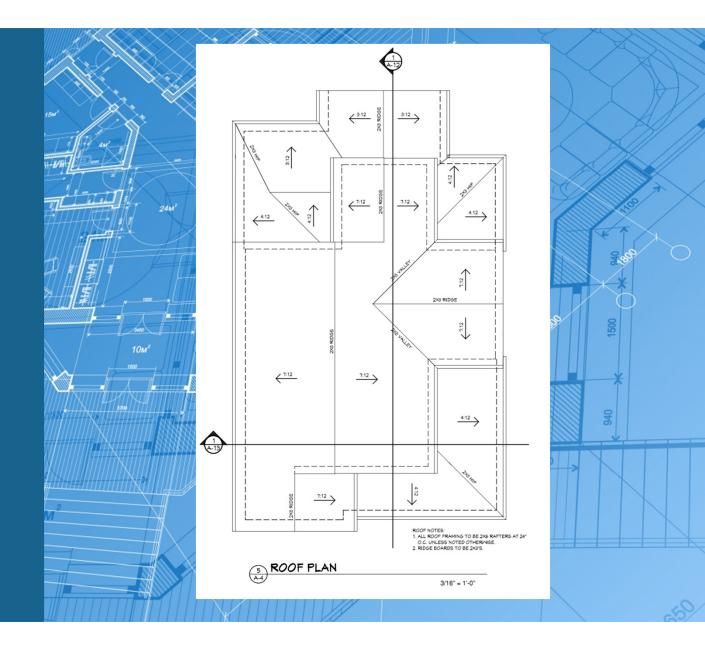
FLOOR PLAN FOR A HOUSE

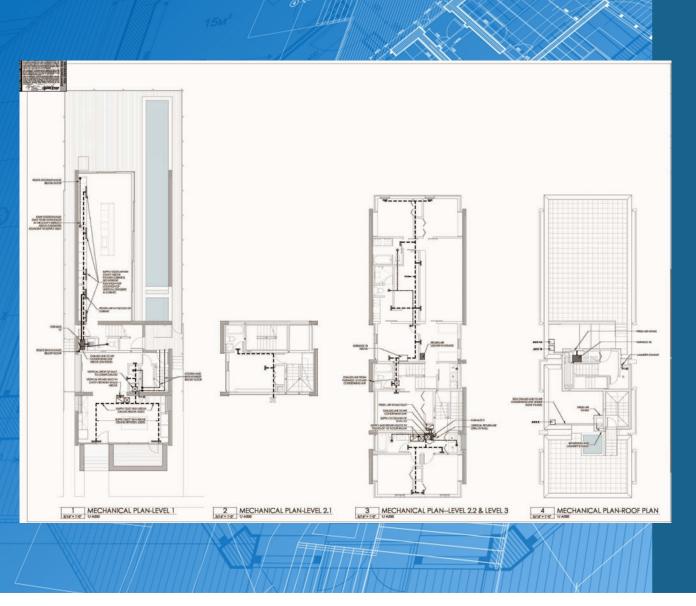
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Roof Plan View

ROOF PLAN FOR A HOUSE

Roof plans show dormers, hips, valleys, roof slope, roof pitch, roof-mounted equipment and other related details such as materials to be used and roof penetrations like plumbing or exhaust vents.





Air Conditioning Duct Layout

MEP - MECHANICAL, ELECTRICAL, PLUMBING PLANS FOR A RESIDENTIAL PROJECT

Plumbing, mechanical and electrical plans are usually needed for larger projects, but under certain public bid circumstances in housing projects each individual discipline can be shown on separate sheets without making the Architectural Plan too crowded and difficult to understand.

Electrical & Lighting Plan View

ELECTRICAL & LIGHTINGPLANFORARESIDENTIAL BUILDING

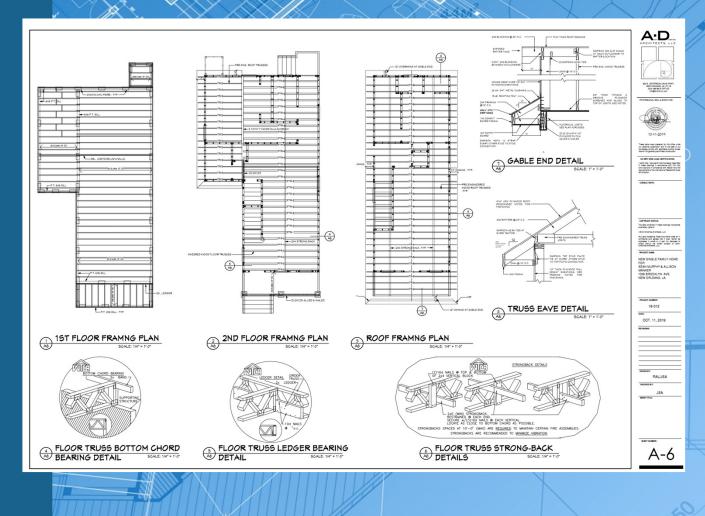
The lighting plan shows locations of all light fixtures, switches, emergency lighting, and special lighting.

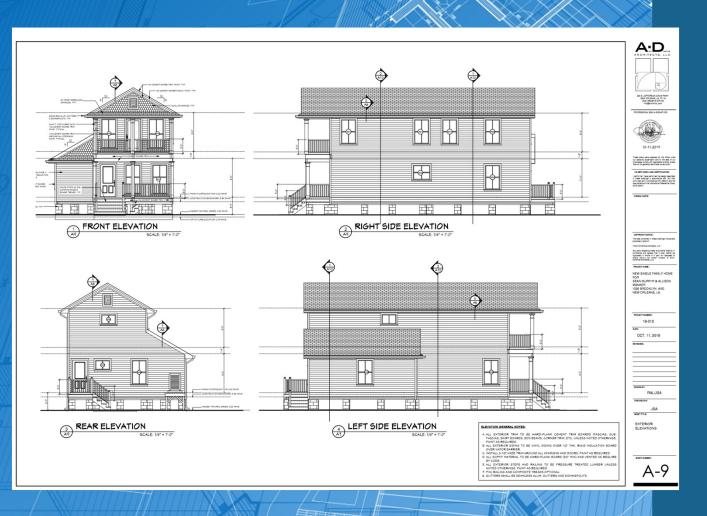


Plan View

STRUCTURAL FRAMING PLANS

The framing plans shows the framing member sizes and location of all beams and columns and framing details relevant to the framing type specified.





Elevations

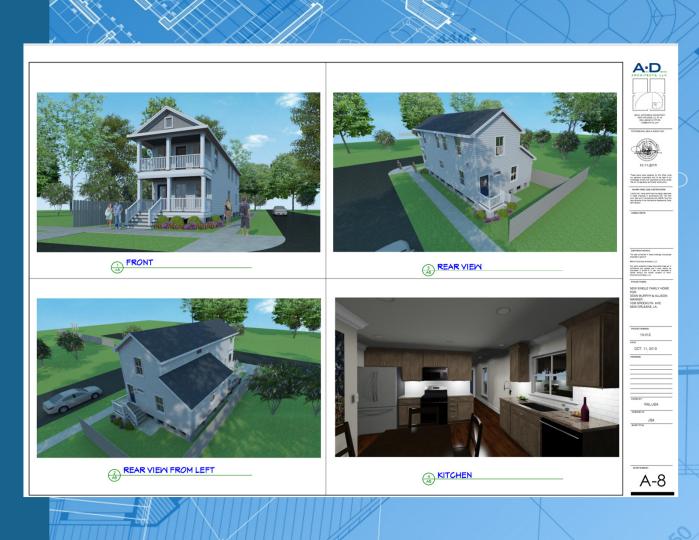
ELEVATIONS

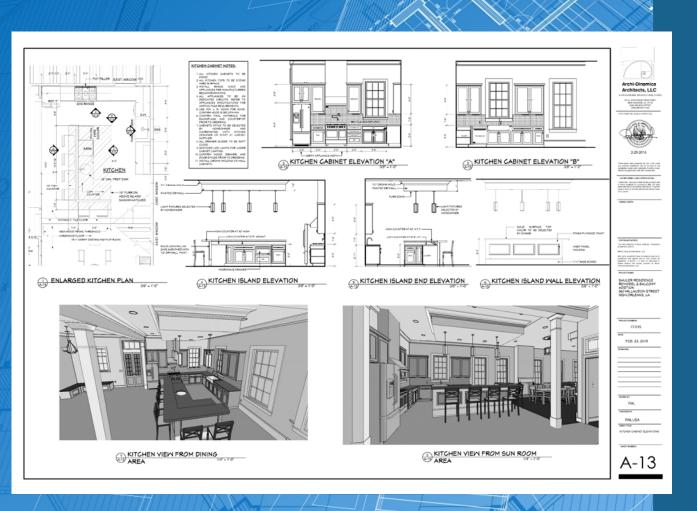
Elevations are side views showing each of the exterior walls of the building. Usually the elevations are noted north, south, east, and west and they should be cross-referenced on the First Floor Plan.

Exterior Renderings

EXTERIOR RENDERING

Describe the project in three-dimensional form. It helps with the understanding of volumes, roof planes, and certain features that cannot be described in twodimensional format. It makes the plans easier to understand.





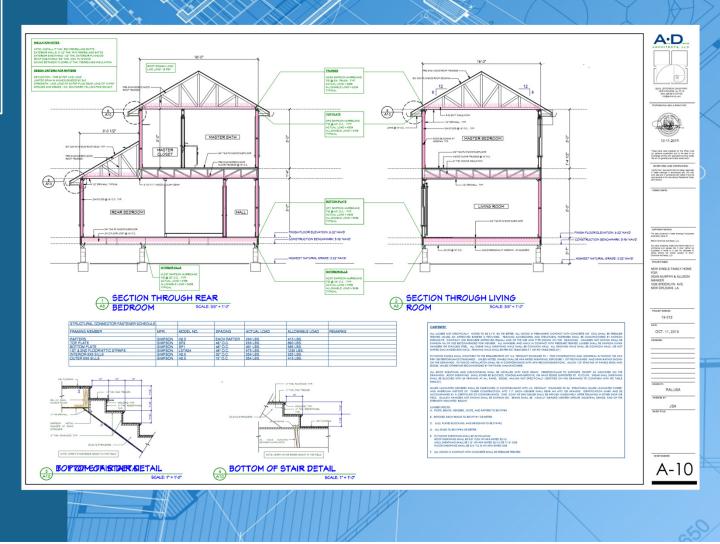
Interior Elevations

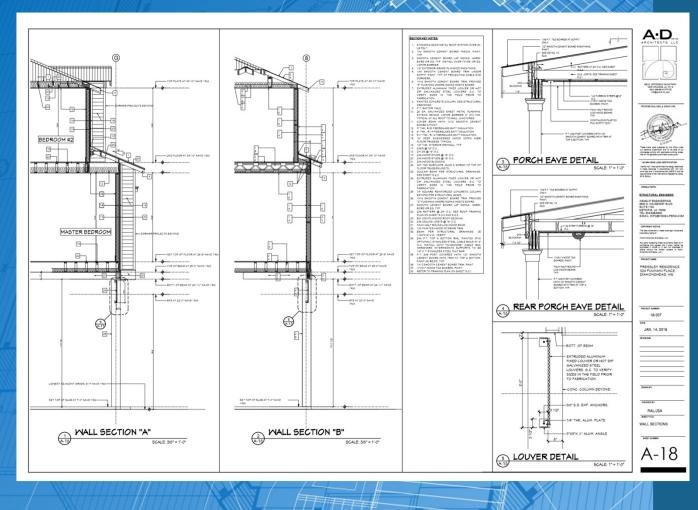
INTERIOR ELEVATIONS

Interior elevations are also included, typically to show cabinets and countertop work, bathroom walls and anywhere a plan view alone can't communicate what is needed.

Building Sections

Plan views and elevations are not sufficient to fully describe the various building components needed or how each component relates to the others. This is where 'sections' are used. Sections are basically 'slices' through a building or building component.





Wall Sections

A common 'section' is a Wall Section. This is a vertical slice through the wall that shows the inside, outside and interior components of the wall, such as studs, sheathing, insulation, siding, or masonry, as well as how the wall engages the floor or foundation below, and the roof or floor structure above.

Cabinet Sections

INTERIOR CASEWORK

Other sections include cabinet and countertop sections to depict all dimensions, relationships to other elements and interior cabinet shelving and other features. Sections are cross referenced on plan views, and elevations, so the reader can understand where the relevant 'slice' was taken. Mostly used in high end residential working drawings.

