



### *Materials*

- A full set of plans for a small-scale project such as a house. If the group is large, two sets of the same plans would be advisable so that students can view them more easily.
- Blueprint Reading Handout
- Blueprint Reading Abbreviations and Answer Sheet handouts

### *Preparation*

- Copy the same set of blueprints for each team.
- Be sure to save these plans for use in the Scavenger Hunt Session

### *Eating & Settling-In (15 min)*

#### *Greetings (10 min)*

Greet the students, and ask them to greet each other, with a friendly, "Hello!" and a handshake or fist bump.

#### *Focus (5 min)*

Learn how to read blueprints and how they are organized. Introduce plan, elevation, section, and detail views and the concept of scale.

#### *Mini-Lesson/Modeling (20 min)*

- Mentors guide students through a set of blueprints or plans for an actual project.
- Explain key organizational principles, symbols and abbreviations
- Discuss the differences among plan, elevation, section and detail views as well as the concept of scale.
- Students and mentors then try to identify a list of common and not-so-common abbreviations found on plans.



### *Small Group/Independent Work Time (40 min)*

- Students are separated into teams.
- Each team is provided with a set of blueprints.
- Mentors guide students through a set of plans for an actual project.
- Discuss the overall organization of the plans, showing, for example, the civil, landscape, structural, architectural, interior, electrical and mechanical sections.
- Mentors help students interpret the commonly used symbols and abbreviations.
- To engage students in the process of examining the plans, mentors should ask students questions about the plans they are viewing – for example, the dimensions of the structure or a room, the number of windows on the first floor, and so forth.
- Finally, as a game, students and mentors can test their knowledge of abbreviations by filling out the following Blueprint Reading Abbreviations.

### *Presentation/Reflection (15 min)*

Teams share their answers. Consider using the Agree/Disagree activity to check for correct answers.

### *Looking to Next Week (5 min)*

Provide a brief overview of what's to come in the next session - ideally this session is immediately followed by the Scavenger Hunt Lesson.

### *Clean-Up (10 min)*

Remember to save necessary the materials for the Scavenger Hunt session!

# BLUEPRINT READING HANDOUT

*Print and distribute this page to each team!*

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## *Visualization*

You must be able to build a project in your mind before you attempt to build it in the field. Plan reading allows you to study a project in great detail. Of course, you must have basic plan reading skills.

## *The Four Views*

**Plan View** – This view always looks down from above. The plan can be for the entire site, one floor, a ceiling, a room, or a piece of furniture. Reflected ceiling plans illustrate drywall ceilings, acoustical ceilings, light fixtures, air distribution grills and sprinkler heads. Floor plans illustrate walls, doors, cabinets, plumbing fixtures, stairways and handrails. The finish plan indicates floor finish locations, wall finishes and ceiling types for individual rooms.

**Elevation View** – This type of view shows you what you would see if you were actually stand-ing in a space or outside of a building. This view illustrates doors, windows, exterior finishes, cabinets, wall mounted light fixtures, and wood molding locations.

**Section View** – This type of view is very interesting. The view cuts an imaginary line through a building structure. You must imagine that all of the building behind the line has been removed. What remains is the exposed structure and building interior. Section views have directional arrows that tell you which way you will be looking. Wall, roof and slab construction is visible. This view tells you how structural elements interact to provide support for the building. This view also allows you to see the area above the acoustical ceiling as well as the roof construction. Section views are also utilized to illustrate cabinet construction.

**Detail View** – Just as the name indicates, a detail view takes a small portion of a section and magnifies it. This view allows you to clearly see relationships between steel, masonry, drywall, insulation and other internal components. The detail view is used extensively when the architect wants to "blow up" a portion of the building to clarify the design.

# BLUEPRINT READING HANDOUT

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**Schedules** - These are lists of items and detailed descriptions of the items. Schedules utilize columns and rows to organize the information. Examples of schedules are: equipment schedules; room finish schedules; door and hardware schedules; and plant material schedules.

**Notes** - These are written instructions or directions. General notes are usually placed together on a cover page. More specific notes can be found anywhere on the plans. Always read ALL of the notes.

**Legends** - Legends indicate and illustrate symbolic representations for materials and other components of the project. Examples of legends are: material cross-sections; light fixture symbols; mechanical fixture symbols; and furniture and plants.

**Abbreviations** - Blue prints (plans) have a special language that must be learned. Abbreviations are used because there is always a limited amount of space on the sheet available to describe materials and to provide information.

**Types of plans** - Civil, Structural, Architectural, Electrical, Mechanical, Equipment, Furniture.

**Plan dimensions** - Civil plans utilize feet, tenths and hundredths of a foot. All other plans utilize the familiar feet, inches, and fractions of an inch.

**Scale** - A variety of scales are used within a set of plans. Large buildings and sites utilize high value scale ratios. Details use a much larger scale to illustrate fine details and small objects.

## Site Plan:

1" = 10 feet

1" = 20 feet

1" = 60 feet

## All other plans:

1/16" = 1 foot

1/4" = 1 foot

1/2" = 1 foot

1" = 1 foot

3" = 1 foot (exploded view)

# BLUEPRINT READING ABBREVIATIONS

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Listed below are common blueprint abbreviations. Write in what you think the abbreviation represents.

Example: "OD" is "outside diameter"

FF \_\_\_\_\_

AHU \_\_\_\_\_

WH \_\_\_\_\_

HVAC \_\_\_\_\_

RD \_\_\_\_\_

SIM \_\_\_\_\_

COL \_\_\_\_\_

TYP \_\_\_\_\_

FEC \_\_\_\_\_

NIC \_\_\_\_\_

ACT \_\_\_\_\_

BM \_\_\_\_\_

EWC \_\_\_\_\_

QTY \_\_\_\_\_

CL \_\_\_\_\_

PT \_\_\_\_\_

DS \_\_\_\_\_

SF \_\_\_\_\_

CMU \_\_\_\_\_

LF \_\_\_\_\_

CPT \_\_\_\_\_

CY \_\_\_\_\_

GYP \_\_\_\_\_

SY \_\_\_\_\_

# BLUEPRINT READING ABBREVIATIONS - ANSWERS

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<b>FF</b>	Finished Floor	<b>AHU</b>	Air handling unit
<b>WH</b>	Water Heater	<b>HVAC</b>	Heating, ventilating, air conditioning
<b>RD</b>	Roof Drain	<b>SIM</b>	Similar
<b>COL</b>	Column	<b>TYP</b>	Typical
<b>FEC</b>	Fire Extinguisher Cabinet	<b>NIC</b>	Not in contract
<b>ACT</b>	Acoustical Ceiling Tile	<b>BM</b>	Beam
<b>EWC</b>	Electric Water Cooler	<b>QTY</b>	Quantity
<b>CL</b>	Center Line	<b>PT</b>	Paint
<b>DS</b>	Downspout	<b>SF</b>	Square foot
<b>CMU</b>	Cement Masonry Unit	<b>LF</b>	Linear foot
<b>CPT</b>	Carpet	<b>CY</b>	Cubic yard
<b>GYP</b>	Gypsum	<b>SY</b>	Square yard