



## Intro to Reading & Interpreting Mechanical Drawings

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## Presenter



Michael J. McDavid

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## Disclaimer

This presentation is not intended to be a comprehensive program covering all aspects of this topic. All technicians are encouraged to read and follow all applicable standards, codes and regulations related to this topic.

- ✓ It is the responsibility of each individual contractor to follow local building codes and licensing requirements and to work safely in accordance with OSHA guidelines.
- ✓ It is the contractor's responsibility to take proper precautions on each project to prevent cross contamination. Always take the health and safety of the building occupants into consideration before you conduct any cleaning procedures.
- ✓ All of the following tips are only general tips. They do not cover every situation and it is your responsibility to adapt these tips to the individual system you are working on.
- ✓ The Instructor is not responsible in any way for the work you perform after viewing this slide show. You are responsible for your own work.
- ✓ The views and opinions following are the instructors opinions and not necessarily the official position of the National Air Duct Cleaners Association.

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 TECHNICAL  
NADCA  
CONFERENCE

What We'll Learn

- Introduction to Blueprints
- Common Symbols
- Exercise

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 TECHNICAL  
NADCA  
CONFERENCE

Building Types

- Residential
- Light Commercial
- Commercial
- Industrial
- Institutional



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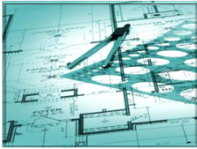
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 TECHNICAL  
NADCA  
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Background on Architectural Drawings

**Architecture** is both the process and product of planning, designing and construction.

An **Architectural drawing** is a technical drawing of a building (or building project) that falls within the definition of **architecture**



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**TECHNICAL NADCA CONFERENCE**

**Background on Architectural Drawings**

**Architectural drawings are used by architects and others for a number of purposes:**

- To develop a design idea into a coherent proposal
- To communicate ideas and concepts
- To convince clients of the merits of a design
- To enable a building contractor to construct it
- As a record of the completed work
- To make a record of a building that already exists: As Built (as it was actually built)
- In Order to create commercial proposals or track progress on projects you need to understand key areas within Architectural Drawing

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**TECHNICAL NADCA CONFERENCE**

**Background on Architectural Drawings**

**Standard views used in architectural drawing**

1. Floor plan
2. Site plan
3. Elevation
4. Cross section
5. Isometric and axonometric projections
6. Detail drawings



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**TECHNICAL NADCA CONFERENCE**

**Background on Architectural Drawings**

Standard views used in architectural drawing

1. **Floor plan**
2. Site plan
3. Elevation
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5. Isometric and axonometric projections
6. Detail drawings

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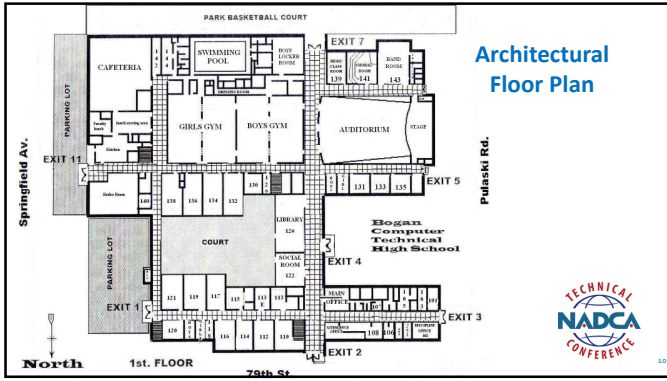
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### Architectural Floor Plan



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### Background on Architectural Drawings

- Standard views used in architectural drawing
- 1. Floor plan
- 2. **Site plan**
- 3. Elevation
- 4. Cross section
- 5. Isometric and axonometric projections
- 6. Detail drawings

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### Architectural Site Plan



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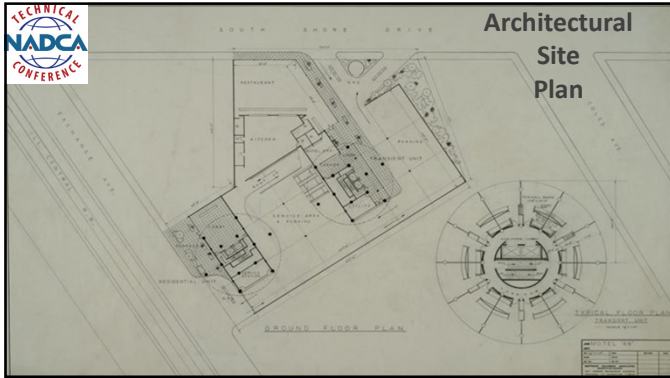
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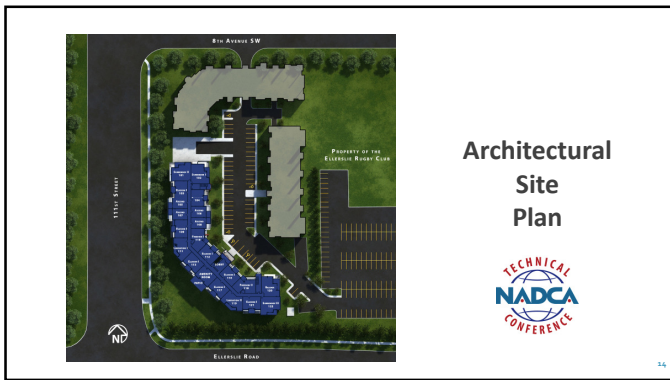
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TECHNICAL NADCA CONFERENCE

### Background on Architectural Drawings

Standard views used in architectural drawing

1. Floor plan
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4. Cross section
5. Isometric and axonometric projections
6. Detail drawings

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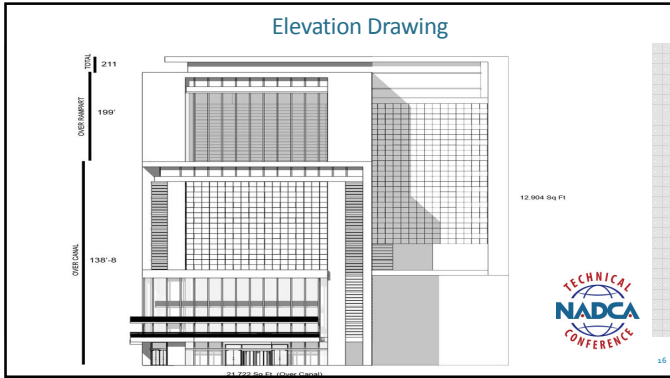
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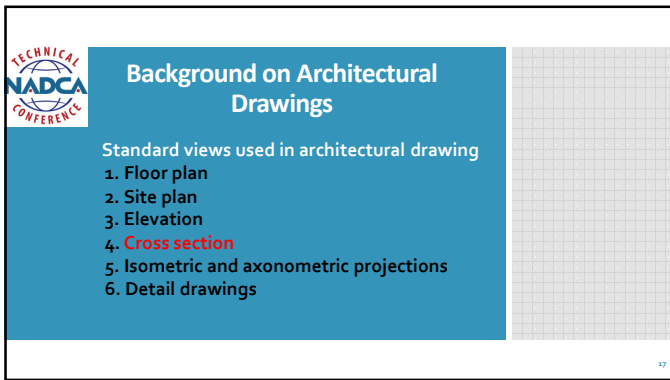
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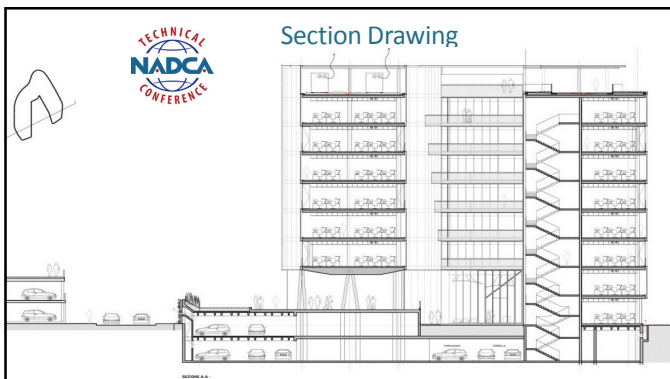
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**TECHNICAL NADCA CONFERENCE**

### Background on Architectural Drawings

Standard views used in architectural drawing

1. Floor plan
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5. Isometric and **axonometric** projections
6. Detail drawings

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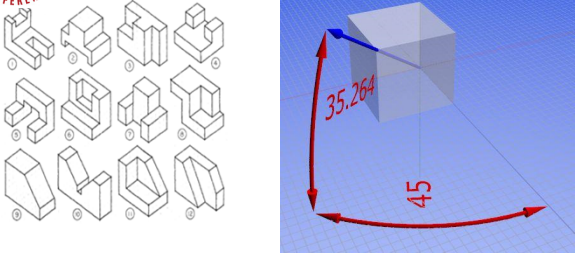
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**TECHNICAL NADCA CONFERENCE**

### Isometric Drawings



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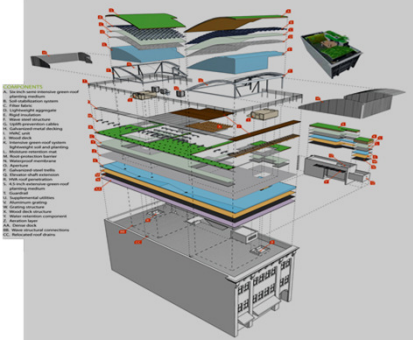
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**TECHNICAL NADCA CONFERENCE**

### Axonometric Building Drawing



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### Understanding Mechanical Drawings

**AS BUILT**  
4-15-68

|  |                   |                 |                        |
|--|-------------------|-----------------|------------------------|
| <b>MECH. EQUIP. ROOM<br/>PENTHOUSE</b> |                   |                 | JOB NO.<br><b>6333</b> |
| SCALE: 1/4" = 1'-0"                    | CH'K'D.<br>H.C.Y. | DRAWN<br>R.P.H. | ISSUED<br>HAM.         |
| DATE 10/10/65                          |                   |                 | SH. NO.<br><b>M-25</b> |

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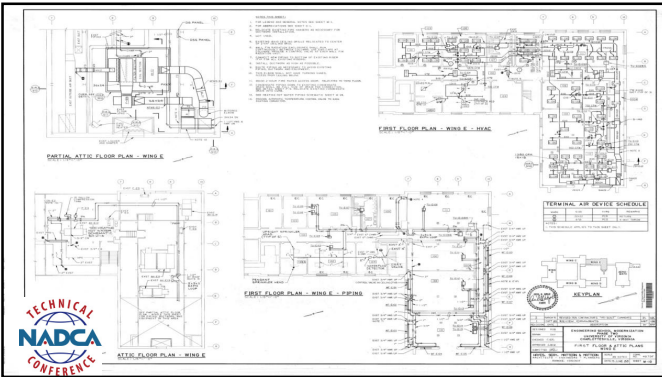
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### Mechanical Symbols

|           |       |  |
|-----------|-------|--|
| (WALL)    | ⊕     | HUMIDISTAT                             |
| (CEILING) | ⊕     |  |
|           | →     | SUPPLY AIR                             |
|           | ⇐     | RETURN AIR                             |
|           | →⚡    | EXHAUST AIR                            |
|           | 18/12 | DUCT WIDTH (OR VISIBLE SIDE) AND DEPTH |
|           | 14"   | DUCT DIAMETER                          |

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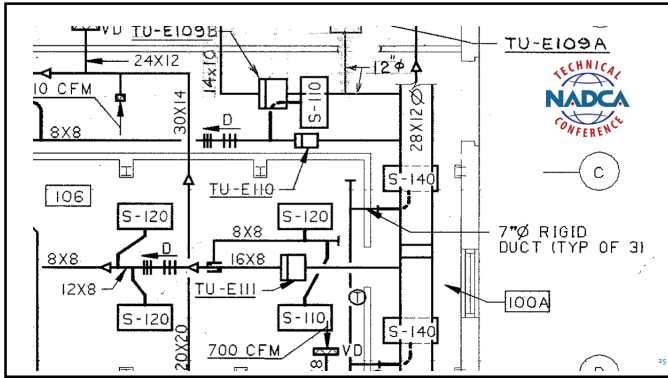
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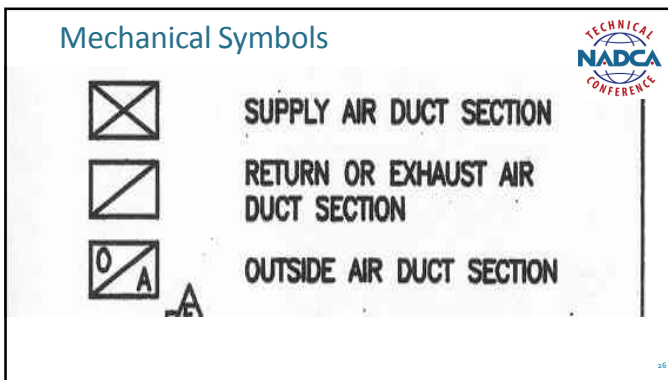
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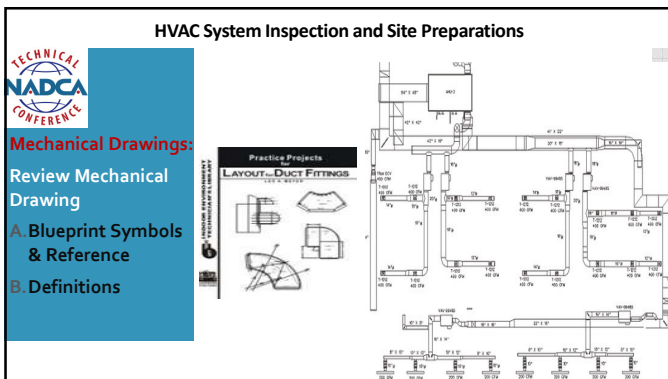
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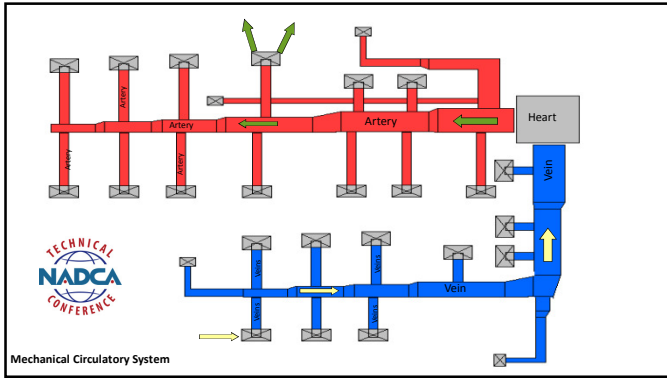
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**General/Sheet Notes**

### Understanding Mechanical Drawings

KEYPLAN

**NOTES (THIS SHEET)**

1. FOR LEGEND AND GENERAL NOTES SEE SHEET M-1.
2. FOR ABBREVIATIONS SEE SHEET G-1.
3. RELOCATE EXISTING FIRE HANDERS AS NECESSARY FOR DUCTWORK INSTALLATION.
4. NOT SHED.
5. EXISTING RAYS OF BUILDING RELOCATED TO CENTER OF 12" x 14" CEILING GRID.
6. NEW FAN RADIATION PANELS SHALL BE RUN CONTIGUOUSLY BETWEEN COLUMNS, USE FLEX COUPLER AT COLUMN JOINTS. CONTROL VALVE AT EACH RAY FOR RADIATION UNIT.
7. CONVERT NEW PIPING TO BOTTOM OF EXISTING RISER. STOP FOR ALL EXISTING RISERS.
8. INSTALL DUCTWORK AS HIGH AS POSSIBLE.
9. BRUTE PIPING AS NECESSARY TO AVOID EXISTING PIPING, DUCTWORK AND EQUIPMENT.
10. THIS FLOOR SHALL NOT HAVE TURNING VANES, ACCESS FROM CEILING MECH.
11. BRICK 2-HOUR FIRE RATED ACCESS DOOR, RELOCATED TO THIRD FLOOR.
12. CONDENSATE PIPING DOWN TO EXISTING CONDENSATE DRAIN TRAP, BE FULL SIZE OF DRAIN PIP CONNECTION. SEE SCHEDULE P-3. RELOCATE EXISTING CONDENSATE DRAIN INTO CURB.
13. SEE HEATING HOT WATER PIPING SCHEMATIC SHEET M-1A.
14. PROVIDE ADJUSTABLE TEMPERATURE CONTROL VALVE TO EACH EXISTING CONNECTION.

**AS BUILT**

|  |   |  |                                       |
|--|---|--|---------------------------------------|
| <b>STANBACK &amp; SCHNEIDER</b><br>CONSULTING ENGINEER | <b>UNIVERSITY OF VIRGINIA</b><br>MECHANICAL ENGINEER              | <b>CHEMISTRY BUILDING</b><br>UNIVERSITY OF VIRGINIA  | <b>MECH. EQUIP. ROOM</b><br>PENTHOUSE |
| <b>ANDERSON, BEGENTH &amp; HANBLE</b><br>ARCHITECTS    | <b>THOMAS A. HANCOCK &amp; ASSOCIATES</b><br>STRUCTURAL ENGINEERS | <b>MACDONALD, HOWARD</b><br>CHARLOTTEVILLE, VIRGINIA | <b>0333</b><br>DATE: 07/27/2015       |

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**When We Have Questions**

Mechanical Engineer

Building owners rep.

Specification writer

*It's a risk to assume!*

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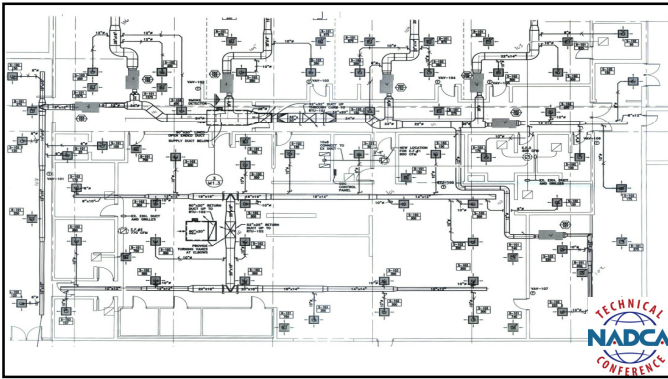
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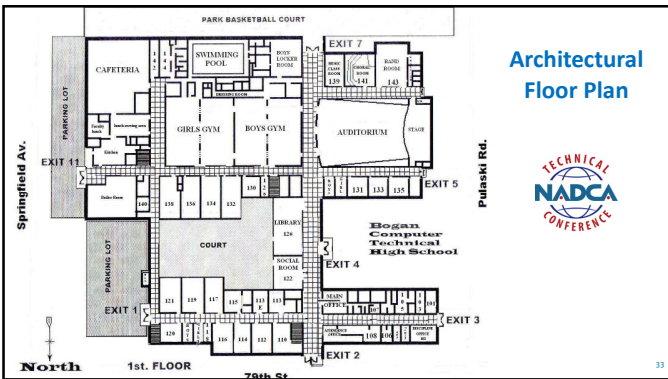
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 **Intro to Reading & Interpreting Mechanical Drawings**

**Project Totals**

- Labor
- Materials
- Total

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 **Intro to Reading & Interpreting Mechanical Drawings**

**Q&A**  
*You have Questions*  
*We have Answers*

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 **Intro to Reading & Interpreting Mechanical Drawings**

**Presenter Contact Information**

- Michael J. McDavid
- Michael.mcdavid@part-llc.com
- 636-305-8881

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