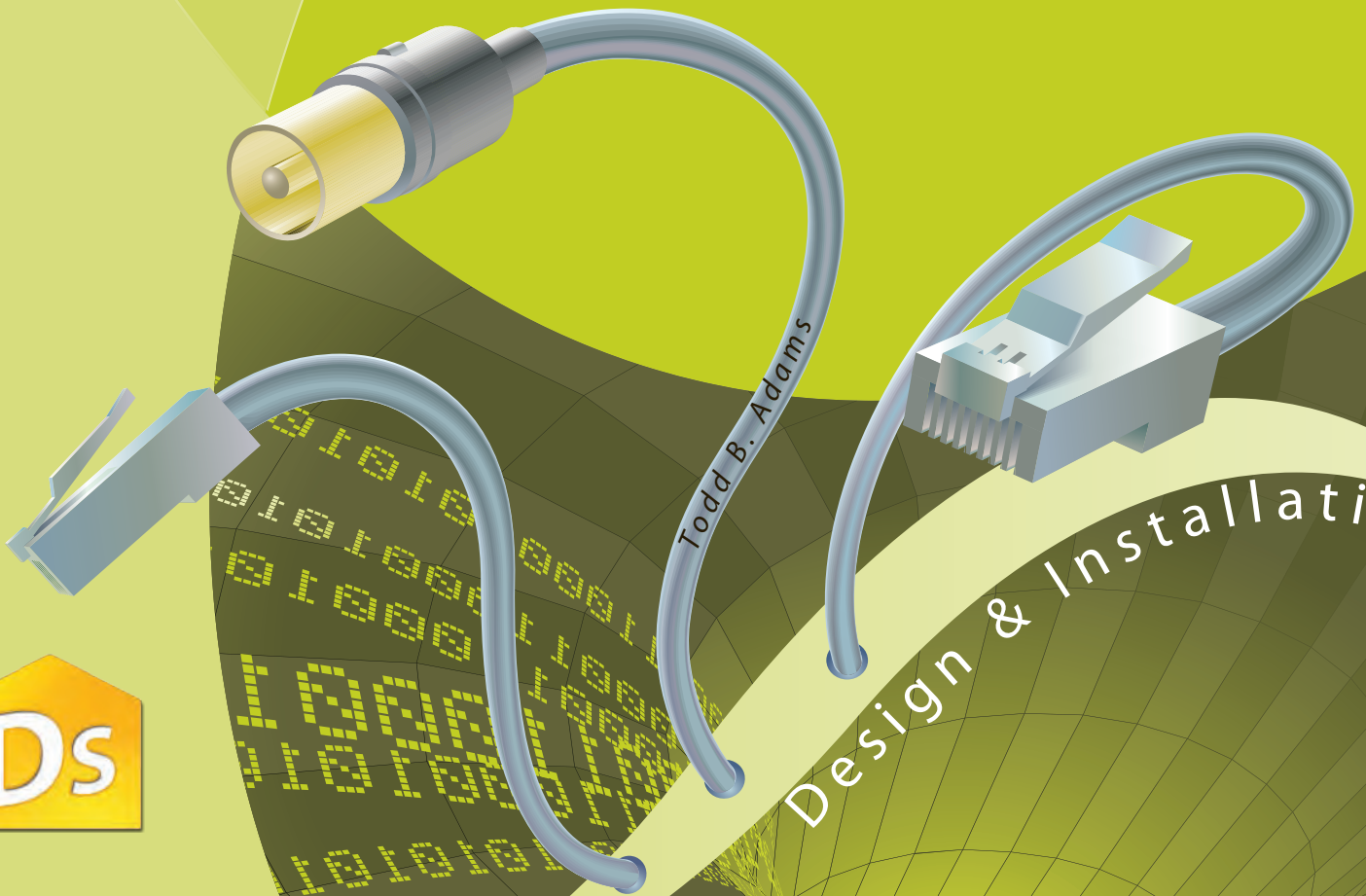


Sample Instructor Guide



Structured Cabling



Design & Installation



Structured Cabling

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Preface

About this Sample

This booklet is an example of an instructor guide for a design and installation class on structured cabling. It represents only a small section of our instructor guide for our book *Structured Cabling | Design and Installation*. While the information is accurate, each section has been condensed. The purpose is to show various styles of content to include tables, figures, and written information.

In this text we show industry standards where appropriate. When no industry standard exist, a best practice is indicated by the DIpartner logo is used. These are practices that DIpartner recommends the reader adopt.

Objectives

Objectives point out the key knowledge and skills for each lesson. Students should obtain a comprehensive understanding of the objectives throughout this course.

Key Terms

Key terms represent common vocabulary used within the residential integration industry. Students should fully understand these terms and how they apply to the industry.

Discussions

These discussions have been designed to help students understand the topics at the application and analysis levels. Each discussion is open ended and can take the form of a short question and answer within the class, or an assignment to be completed as a group or individual students.

Activities

Activities enhance the learning experience by having students complete a real-world exercise. These activities may be performed in a group, or individually. They can be completed during the class or between classes. The completed activity may be presented to the class, or handed into the instructor for review. The instructor is encourage to develop further activities to meet the academic needs of the class .

Teaching Tips

In order to enhance the teaching environment, tips are provided within each lesson. The tips are general in nature and can be applied in any manner that helps students learn the material.

Summary

This section summarizes key points of the lesson. The summary focuses on key skills and knowledge of the lesson and should be repeated at the end of each lesson, thus reinforcing the critical nature of the material.

Review Questions and Answers

Review questions are created to help the student understand the material at the knowledge and comprehension level. Each question has been created following standards similar to certification exams, so as to prepare the student for the certification process. Each lesson contains a review quiz and is included on the DVD.

PowerPoint Thumbnails

Each lesson corresponds to a PowerPoint presentation on the DVD. The presentation is created in a graphical nature with very few words. This has been done to allow the instructor to elaborate on key knowledge and skills. Each lesson concludes with review questions and answers that can be presented to the class as a whole.

The Construction Process

Objectives

- ◆ Understand the construction process of a typical residential dwelling
- ◆ Discuss the role of the AHJ in the construction process
- ◆ Identify the role of the NEC® in low-voltage installation

Key Terms

authority having jurisdiction (AHJ)

National Electrical Code® (NEC®)

International Residential Code (IRC)

Discussions

What is the construction process? Who has authority over the process?

Discuss the six phases of a typical construction project, while allowing students to comment on how this process changes from region to region.

Explain the AHJ and his role within the construction process. Emphasis should be placed on permits and permit inspections.

What is the order of the trades during rough-in phase, and why?

Discuss how HVAC is first installed due to its size restrictions and placement issues. This is followed by plumbing, which is easier to place than HVAC components, yet more difficult than electrical. Electrical follows with cabling, fixtures, and outlets, which are relatively easy to place. Low-voltage cabling, and devices are placed after all other contractors are finished with their work. The nature of low-voltage devices and cabling requires separation from HVAC, plumbing, and electrical fixtures and cabling. More on this is discussed in “Cabling Best Practices”.

Activities

OSHA

Have students to visit the OSHA web site (www.osha.gov) and conduct a search on applicable requirements for the residential construction process. Have a group of students present their findings.

Create a Project Schedule

Present the following scenario to the students:

A 4000 sq. ft. home is being constructed in the northeastern region of the United States. It has five bedrooms, living room, dining room, kitchen, breakfast room, study, three-car garage, three-seasons porch, and a pool area. Create a realistic project schedule, noting which contractors are involved with each stage. Identify which activities are required to be completed prior to the start of other's work.

Teaching Tips

Suggest that students contact the local electrical inspector and review local code requirements with regards to low-voltage installations.

Suggest students create a learning journal to document their findings throughout the learning process. Activities, notes, and further research should be listed within the learning journal.

Summary

Important points in this lesson include:

- ◆ The construction process has six phases, preconstruction, framing, rough-in, interior finishes, and post construction
- ◆ The AHJ inspects and approves work during the construction process
- ◆ NEC® applies to low-voltage installation

Review Questions and Answers

The AHJ has the last say on the job?

- A. True
- B. False

Low-voltage installation must follow the NEC?

- A. True
- B. False

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The first contractor to have access to the home during the rough-in phase is _____.

- A. Plumbing
- B. Low-voltage
- C. HVAC**
- D. Electrical

Temporary power is installed at the job-site during the _____ phase.

- A. Preconstruction**
- B. Framing
- C. Rough-in
- D. Interior finishes

The home is made weather tight after the completion of the rough-in phase.

- A. True
- B. False**

PowerPoint Thumbnails



After studying this lesson, you should be able to:

- Understand the construction process of a typical residential dwelling
- Discuss the role of the AHJ in the construction process
- Identify the role of the NEC® in low-voltage installation

Objectives

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- While not required by law, most local building departments adopt the NEC®
- The AHJ issues building permits
 - includes the low-voltage contractor
- AHJ performs inspections

Authority Having Jurisdiction

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- Most local building departments adopt the NEC®
- Low-voltage installations must meet NEC®, as required by local building department

National Electrical Code®

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1. Basement bearing walls
2. Basement ceiling joists
3. Walls are built
4. Second floor is framed
5. Roof is framed
6. Made weather tight by applying roofing tiles, windows, doors, and siding

Framing



Rough-In HVAC

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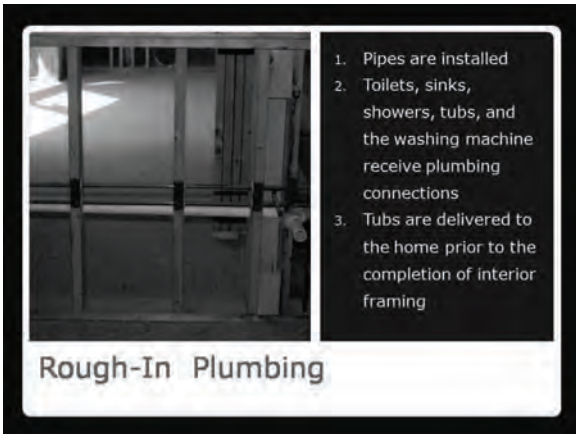


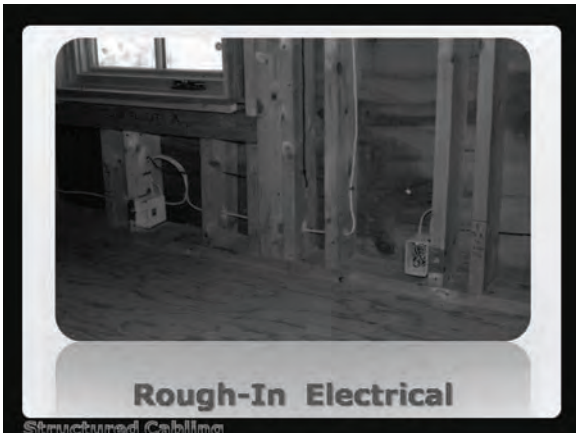
1. Ductwork is installed
2. Air exchangers are located
3. Boiler is installed
4. Air compressor lines are run outside and made ready for the chillers


Rough-In HVAC

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1. Lights are placed and cabled to switches
2. Outlets are strung together and run to circuit breaker panels
3. Appliances receive special outlets
4. Landscape lighting switches are located and the cabling is left hanging

Rough-In Electrical



Rough-In Low-Voltage

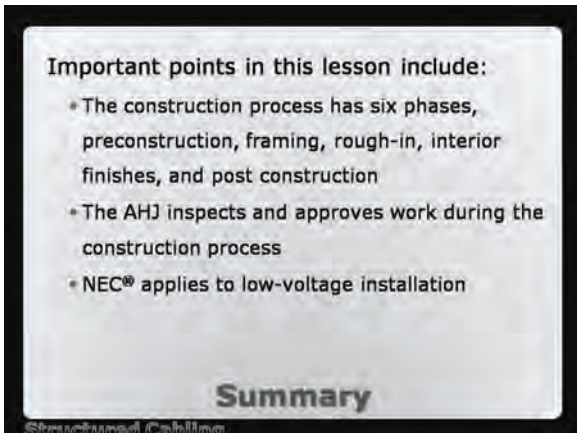
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1. Home security system is installed
2. Low-voltage systems include doorbells, intercom, music, televisions, telephones, the computer network, and the home theater
3. Also include control of devices, such as draperies, lighting, skylights, and thermostats

Rough-In Low-Voltage







The AHJ has the last say on the job?

TRUE

True False Question

Low-voltage installation must follow the NEC?

TRUE

True False Question

Plumbing

Low-Voltage

HVAC

Electrical

The first contractor to have access to the home during the rough-in phase is _____.

Multiple Choice Question

***This concludes Dpartner's
Sample of Structured Cabling
Instructor's Guide.***

