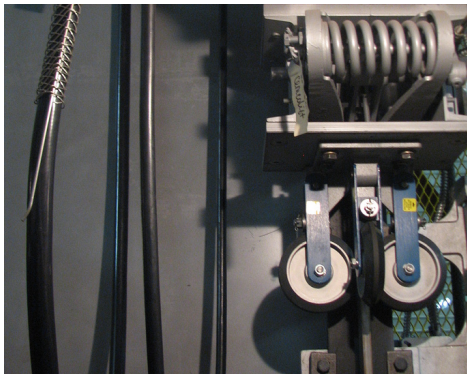
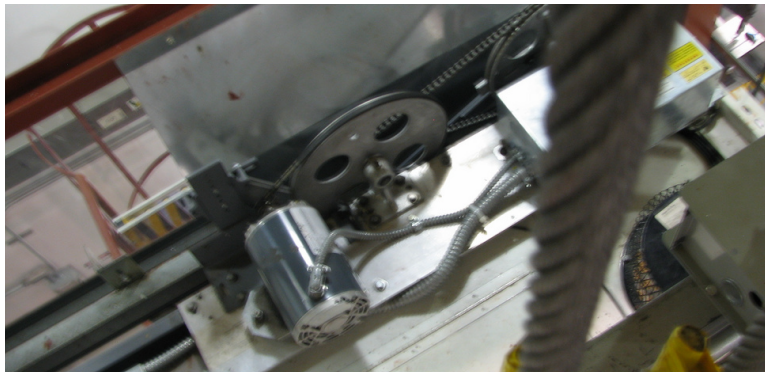
Instructor Guide





213: Elevator: Principles of Operation
Module 6: Introduction to Code Specifications

TRANSIT ELEVATOR/ESCALATOR CONSORTIUM

Table of Contents

Icons Used In This Guide

REVIEW slides

INDIVIDUAL ACTIVITY

ASK

WRITE

CLASSROOM ACTIVITY

Multimedia

SMALL GROUP ACTIVITY

REFER participants to

Agenda

Topic #	Topic Title	Duration
1	Overview	15 minutes
2	Code Compliance & Organizations	35 minutes
3	Using and Applying Code	60 minutes
4	Access and ADA Requirements	10 Minutes
5	Summary	10 Minutes
	Total Time:	130 Minutes

Overview

Purpose The purpose of this module is to:

- Provide an overview on what code organizations exist which mandate regulations for transit elevators and to introduce the participant to these organizations' publications.

Objectives

At the end of this lesson, the transit elevator/escalator trainee will be able to:

- Discuss applicable and related codes in ASME A17.1-2010
- Apply standards used in the ASME A17.1-2010 code compliance manual
- Access and review ADA compliance list for elevator doors

Materials

Mandatory Make sure you have the following

- PowerPoint Presentation
- Coursebook
- Quizzes
- Pencils

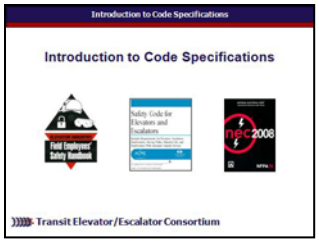
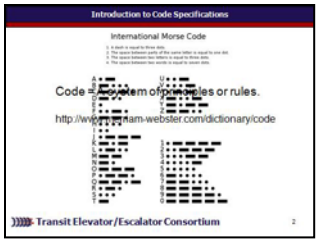
Optional You may also want the following for optional activities:

- Chalk board with chalk, large paper with marker, etc.
- Internet connection
- Lab, simulator or out of service elevator
- Code Data Plate
- Safety Handbook
- National Electrical Codes
- ASME A17.1 through ASME 17.3
- NFPA 130
- International Building Code
- Any other Applicable Code Books

Elevator – Code Specifications

Instructor's Guide

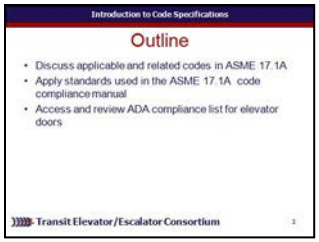
Module Length: 180 minutes Time remaining: 180 minutes This section: 15 minutes *Section start time: _____* *Section End Time: _____*

DO	SAY	Materials Needed
REVIEW introduction slides **Instructor's Notes** _____ _____ _____ _____ _____	**In your own words:** Welcome to the module on code specifications. ***Advance.*** Most of you have probably heard about this kind of code. This is called Morse Code. Can anyone describe what Morse Code is? Discuss participant responses. Morse code is a system of symbols used to represent a certain meaning. ***Advance.*** Another type of code, according to merriam-webster's dictionary is a system of principles or rules. And this is the kind of code we will talk about today. ***Advance.***	✓PPT slides 1, 2  

Elevator – Code Specifications

Instructor's Guide

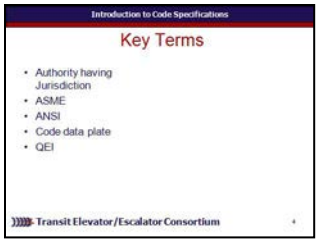
Module Length: 180 minutes Time remaining: 180 minutes This section: 15 minutes *Section start time: _____* *Section End Time: _____*

DO	SAY	Materials Needed
REVIEW module objectives **Instructor's Notes** _____ _____ _____ _____ _____	**In your own words:** An elevator code is a system of regulations pertaining to the design, manufacture, installation and maintenance of elevators. The general purpose of codes is to provide for public safety. Today we will… ***Advance for each objective.*** Discuss applicable and related codes in ASME 17.1A Apply standards used in the ASME 17.1A code compliance manual Access and review ADA compliance list for elevator doors ***Advance.***	✓PPT slide 3 

Elevator – Code Specifications

Instructor's Guide

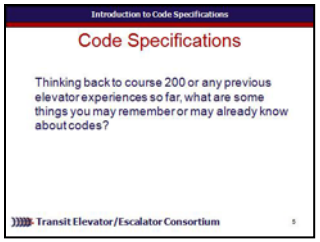
Module Length: 180 minutes Time remaining: 180 minutes This section: 15 minutes *Section start time: _____* *Section End Time: _____*

DO	SAY	Materials Needed
REVIEW key terms **Instructor's Notes** _____ _____ _____ _____ _____	**In your own words:** Lets take a look at some of the key words we will be defining as move through this module. Authority having Jurisdiction ASME ANSI Code data plate and QEI ***Advance.***	✓PPT slide 4 

Elevator – Code Specifications

Instructor's Guide

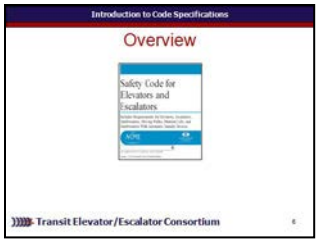
Module Length: 180 minutes Time remaining: 180 minutes This section: 15 minutes *Section start time: _____* *Section End Time: _____*

DO	SAY	Materials Needed
ASK participants what they remember about electric traction elevators **CLASSROOM ACTIVITY** **Instructor's Notes** _____ _____ _____ _____ _____	**In your own words:** Thinking back to course 200, what are some things you remember or already know about codes and code specifications? ***[Discuss participant responses, if list them on a chalk board or similar.]*** ***Advance.***	✓PPT slide 5 ✓ Chalk board/chalk or paper/marker 

Elevator – Code Specifications

Instructor's Guide

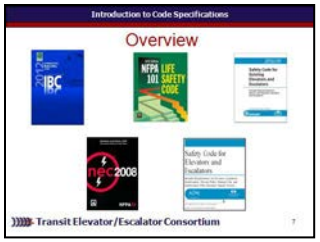
Module Length: 180 minutes Time remaining: 165 minutes This section: 45 minutes *Section start time: _____* *Section End Time: _____*

DO	SAY	Materials Needed
REVIEW slide **Instructor's Notes** _____ _____ _____ _____ _____	**In your own words:** The most widely recognized and used code is ASME A -17.1 sponsored by the National Bureau of Standards, The American Institute of Architects, The American Society of Mechanical Engineers (ASME), and published by ASME. It has been adopted by many states and municipalities. Some states and municipalities have written their own codes, most of which are based on the ANSI A-17.1. ***Advance.***	✓PPT slide 6 

Elevator – Code Specifications

Instructor's Guide

Module Length: 180 minutes Time remaining: 165 minutes This section: 45 minutes *Section start time: _____* *Section End Time: _____*

DO	SAY	Materials Needed
REVIEW slide **Instructor's Notes** _____ _____ _____ _____ _____	**In your own words:** Municipal and state building codes invoke most, or all, of the following standards developed by the following: ***Advance.*** International Building Code (IBC) ***Advance.*** National Fire Protection Association which publishes the National Electric Code (NFPA 70) ***Advance.*** National Fire Protection Association which publishes Life Safety Code (NFPA 101) ***Advance.*** American Society of Mechanical Engineers which publishes Safety Code for Elevators and Escalators (ASME A17.1) ***Advance.*** American Society of Mechanical Engineers which publishes Safety Code for <u>Existing</u> Elevators and Escalators (ASME A17.3) ***Advance.***	✓PPT slide 7 

Elevator – Code Specifications

Instructor's Guide

Module Length: 180 minutes Time remaining: 165 minutes This section: 45 minutes *Section start time: _____* *Section End Time: _____*

DO	SAY	Materials Needed
REVIEW slide **Instructor's Notes** _____ _____ _____ _____ _____	**In your own words:** In addition to these building codes, transit systems are also required to comply with the Standard for Fixed Guideway Transit and Passenger Rail Systems (NFPA 130). Each jurisdiction may even amend certain portions of these codes as deemed necessary. Those amendments can then be adopted into law and generally are found in the jurisdiction's building codes. It must be noted that codes do not "approve", "certify", "rate," or "endorse" any item, construction, proprietary device, or activity. The codes state the standard. ***Advance.***	✓PPT slide 8 

Elevator – Code Specifications

Instructor's Guide

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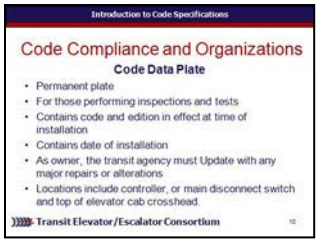
DO	SAY	Materials Needed
REVIEW slide	**In your own words:** How does the elevator technician know which code to use and when? The answer is found on the elevator's **code data plate**. The code data plate is a ***Advance*** permanent plate and intended ***Advance*** for those performing inspections and tests. ***Advance*** It contains code and edition in effect at time of installation and also ***Advance*** contains date of installation. ***Advance*** As owner, the transit agency must Update with any major repairs or alterations. ***Advance*** Locations or places you may find the data plate include the controller or main disconnect switch and top of elevator cab crosshead. ***Advance.***	✓PPT slide 10

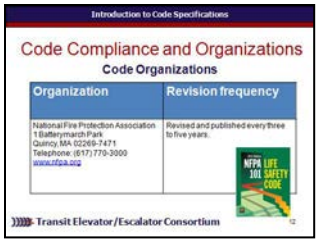
Instructor's Notes

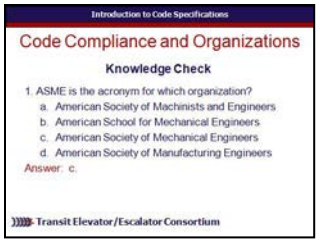


Elevator – Code Specifications

Instructor's Guide

Module Length: 180 minutes Time remaining: 165 minutes This section: 45 minutes *Section start time: _____* *Section End Time: _____*

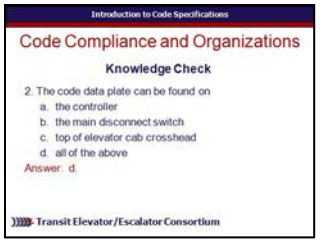
DO	SAY	Materials Needed
REVIEW slides	**In your own words:** The following table lists the locations for purchasing codes and standards as well as how often the organization revises and publishes their codes: ***[Read and discuss slide.]*** ***Advance.***	✓PPT slides 11, 12, 13
Instructor's Notes _____ _____ _____ _____ _____	***[Read and discuss slide.]*** ***Advance.*** ***[Read and discuss slide.]*** ***Advance.***	  

DO	SAY	Materials Needed
ASK **Instructor's Notes** _____ _____ _____ _____ _____	**In your own words:** Lest see what we know so far: ASME is the acronym for which organization? a. American Society of Machinists and Engineers b. American School for Mechanical Engineers c. American Society of Mechanical Engineers d. American Society of Manufacturing Engineers ***Call on participants for answers.*** ***Advance for answer.*** Answer: c. ***Advance.***	✓PPT slide 14 

Elevator – Code Specifications

Instructor's Guide

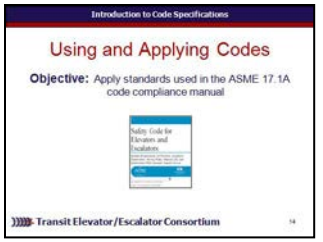
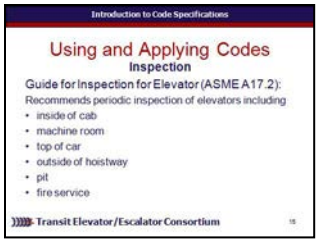
Module Length: 180 minutes Time remaining: 165 minutes This section: 45 minutes *Section start time: _____* *Section End Time: _____*

DO	SAY	Materials Needed
ASK **Instructor's Notes** _____ _____ _____ _____ _____	**In your own words:** The code data plate can be found on a. the controller b. the main disconnect switch c. top of elevator cab crosshead d. all of the above ***Call on participants for answers.*** ***Advance for answer.*** Answer: d. ***Advance.***	✓PPT slide 15 

Elevator – Code Specifications

Instructor's Guide

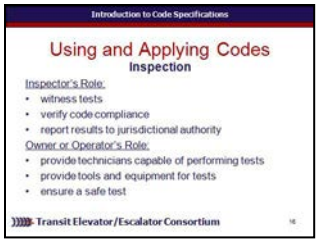
Module Length: 180 minutes Time remaining: 165 minutes This section: 45 minutes *Section start time: _____* *Section End Time: _____*

DO	SAY	Materials Needed
REVIEW slides **Instructor's Notes** _____ _____ _____ _____ _____	**In your own words:** The next objective looks at how to apply standards used in ASME 17.1a code compliance manual. ***Advance.*** According to the Guide for Inspection for Elevator (ASME A17.2), periodic inspection of elevators is recommended and includes the inside of ***Advance for each area.*** cab, the machine room, the top of the car, outside of the hoistway, in the pit, and fire service. ***Advance.***	✓PPT slides 16, 17  

Elevator – Code Specifications

Instructor's Guide

Module Length: 180 minutes Time remaining: 165 minutes This section: 45 minutes *Section start time: _____* *Section End Time: _____*

DO	SAY	Materials Needed
REVIEW slide **Instructor's Notes** _____ _____ _____ _____ _____	**In your own words:** During inspection, ***Advance*** the inspector's role is to witness the tests required to verify code compliance and report the results to the jurisdictional authority. On the other hand ***Advance*** The owner or operator of the equipment is required to provide technicians capable of performing the code-mandated tests safely. The tools and equipment necessary to conduct the tests must also be furnished by the owner or operator. Safety is paramount while conducting tests. ***Advance.***	✓PPT slide 18 

Elevator – Code Specifications

Instructor's Guide

Module Length: 180 minutes Time remaining: 165 minutes This section: 45 minutes *Section start time: _____* *Section End Time: _____*

DO	SAY	Materials Needed
REVIEW slide **Instructor's Notes** _____ _____ _____ _____ _____	**In your own words:** In addition to standard mechanic's tools, the following tools and materials are recommended for periodic tests: Barricades, Lock Out Equipment, Keys, Wiring Diagrams, Test Procedures, Come-Along, ***Advance*** Dynamometer, Torque Wrench, Tachometer, Multimeter, and Canned Smoke. ***Advance.***	✓PPT slide 19 

Elevator – Code Specifications

Instructor's Guide

Module Length: 180 minutes Time remaining: 165 minutes This section: 45 minutes *Section start time: _____* *Section End Time: _____*

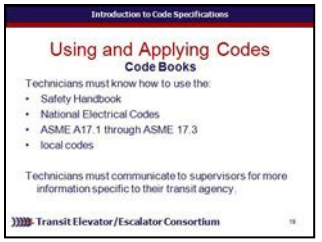
DO	SAY	Materials Needed
REVIEW slide	**In your own words:** ***Advance*** Some jurisdictions require that inspectors be certified by an accredited organization as a Qualified Elevator Inspector (QEI). An elevator mechanic obtains QEI certification is ***Advance*** obtained after meeting work experience requirements and passing a written test. ***Advance*** The certification must be renewed on a yearly basis and ***Advance*** inspectors must take continuing education to stay current with changes in the elevator industry. It is a nationally recognized certification. ***Advance.***	✓PPT slide 20

Instructor's Notes

Elevator – Code Specifications

Instructor's Guide

Module Length: 180 minutes Time remaining: 165 minutes This section: 45 minutes *Section start time: _____* *Section End Time: _____*

DO	SAY	Materials Needed
REVIEW slide **Instructor's Notes** _____ _____ _____ _____ _____	**In your own words:** For code books, The technician needs to be able to identify the location of the transit agency's code manuals and should be able to use them when necessary. The maintenance technician should know how to use and get information from the Safety Handbook, the National Electrical Codes, ASME A17.1 through ASME A17.3, and local codes. The technician should communicate with his or her supervisor for more information that is specific to the transit agency. ***[Discuss the location of your transit authority's location of these books.]*** ***Advance.***	✓PPT slide 21 

Elevator – Code Specifications

Instructor's Guide

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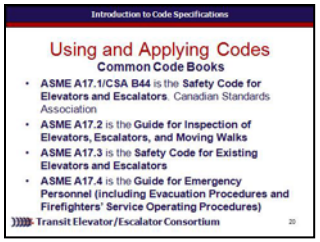
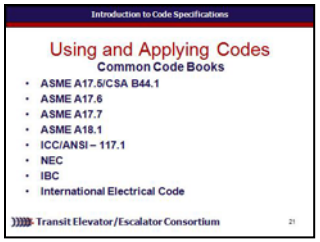
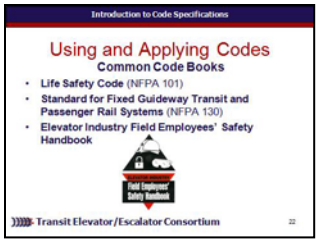
DO	SAY	Materials Needed
REVIEW slide **Instructor's Notes** _____ _____ _____ _____ _____	**In your own words:** ***[Quickly review the following:]*** There are several code books and handbooks that provide resources for safety information which elevator technicians need to use while inspecting, testing, and working on elevators. ASME A17.1/CSA B44 is the Safety Code for Elevators and Escalators. Canadian Standards Association ASME A17.2 is the Guide for Inspection of Elevators, Escalators, and Moving Walks ASME A17.3 is the Safety Code for Existing Elevators and Escalators ASME A17.4 is the Guide for Emergency Personnel (including Evacuation Procedures and Firefighters' Service Operating Procedures) ***Advance.***	✓PPT slide 22 

Elevator – Code Specifications

Instructor's Guide

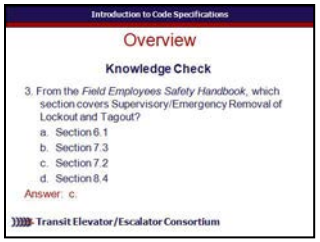
Module Length: 180 minutes Time remaining: 165 minutes This section: 45 minutes *Section start time: _____* *Section End Time: _____*

DO	SAY	Materials Needed
REVIEW slides **Instructor's Notes** _____ _____ _____ _____ _____	**In your own words:** ASME A17.5/CSA B44.1 ASME A17.6 ASME A17.7 ASME A18.1 ICC/ANSI – 117.1 NEC IBC International Electrical Code ***Advance.*** And… Life Safety Code (NFPA 101) Standard for Fixed Guideway Transit and Passenger Rail Systems (NFPA 130) Elevator Industry Field Employees' Safety Handbook. More information about each of these organizations can be found in your coursebook. ***Advance.***	✓PPT slides 23, 24  

Elevator – Code Specifications

Instructor's Guide

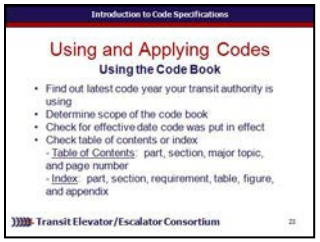
Module Length: 180 minutes Time remaining: 165 minutes This section: 45 minutes *Section start time: _____* *Section End Time: _____*

DO	SAY	Materials Needed
ASK **Instructor's Notes** _____ _____ _____ _____ _____	**In your own words:** Lest see what we know so far: From the *Field Employees Safety Handbook*, which section covers Supervisory/Emergency Removal of Lockout and Tagout? a. Section 6.1 b. Section 7.3 c. Section 7.2 d. Section 8.4 ***Call on participants for answers.*** ***Advance for answer.*** Answer: c. ***Advance.***	✓PPT slide 25 

Elevator – Code Specifications

Instructor's Guide

Module Length: 180 minutes Time remaining: 165 minutes This section: 45 minutes *Section start time: _____* *Section End Time: _____*

DO	SAY	Materials Needed
REVIEW slide **Instructor's Notes** _____ _____ _____ _____ _____	**In your own words:** To use the code book, f find out which is the latest code year your transit property is currently following and check the scope to see what the code book applies to. Check to see effective date including the year and date, the code was put in effect. Check the table of contents or the index to see what part, section, or subsection the equipment was covered in. The table of contents will give the part, section, major topic and page number. The index will refer to the part, section, requirement, table, figure, and appendix. The index covers parts that are more individual. It does not state the page. The code books use a numerical system which is in logical sequence with standards, or guideline procedures, inspection techniques, and cautionary notes. ***Advance.***	✓PPT slide 26 

Elevator – Code Specifications

Instructor's Guide

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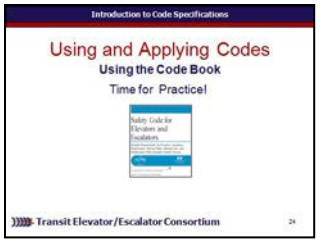
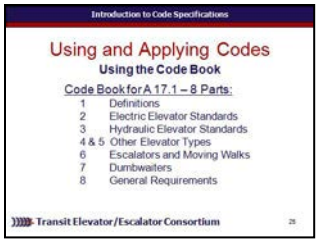
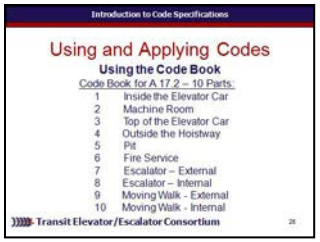
DO	SAY	Materials Needed
CLASSROOM ACTIVTY **REVIEW** slides **Instructor's Notes** _____ _____ _____ _____ _____	**In your own words:** ***[Instructional Strategy: Participants should open a code book and look for the various sections of the code book as per slide 24.]*** ***Advance.*** The Code Book for A 17.1 has 8 parts: 1 Definitions 2 Electric Elevator Standards 3 Hydraulic Elevator Standards 4 & 5 Other Elevator Types 6 Escalators and Moving Walks 7 Dumbwaiters 8 General Requirements ***Advance.***	✓PPT slides 27, 28  

Elevator – Code Specifications

Instructor's Guide

Module Length: 180 minutes Time remaining: 165 minutes This section: 45 minutes *Section start time: _____* *Section End Time: _____*

DO	SAY	Materials Needed
REVIEW slide	**In your own words:** The Code Book for A 17.2 has 10 parts: 1 Inside the Elevator Car 2 Machine Room 3 Top of the Elevator Car 4 Outside the Hoistway 5 Pit 6 Fire Service 7 Escalator – External 8 Escalator – Internal 9 Moving Walk – External 10 Moving Walk - Internal ***Advance.***	✓PPT slide 29



Instructor's Notes

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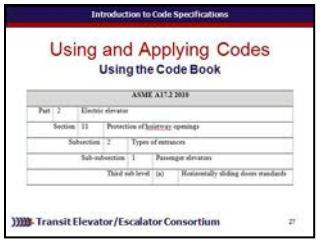
Elevator – Code Specifications

Instructor's Guide

Module Length: 180 minutes Time remaining: 165 minutes This section: 45 minutes *Section start time: _____* *Section End Time: _____*

DO	SAY	Materials Needed
REVIEW slide **Instructor's Notes** _____ _____ _____ _____ _____	**In your own words:** When referring to the code, you must state the ASME A 17.1 YYYY where YYYY is the year the code was published; Part; Section; Subsection; and the Sub-subsection **so that ASME A 17.1 2010 2.11.2.1.(a)** which covers the standard for horizontally siding doors is divided this way: It is important to use exact numbering and symbols when referring to the code in writing (i.e., 2.11.2.1.(b) gives the horizontally siding single section doors). If the wrong number is used or the symbol is not used properly, you will mislead the person looking for the information in the code. Hence, you must use every period and parenthesis exactly as written in the code. Also, always state which code (i.e., ASME A17.3) and year (i.e., 2004), exactly as the codes do change. ***Advance.***	✓PPT slide 30 

Elevator – Code Specifications

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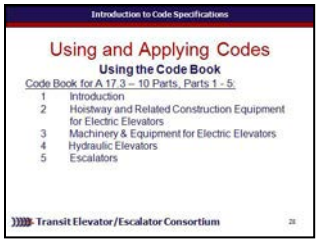
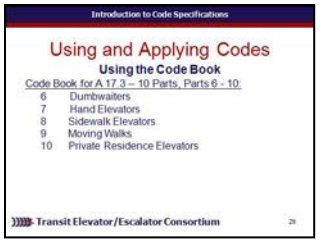
Module Length: 180 minutes Time remaining: 165 minutes This section: 45 minutes *Section start time: _____* *Section End Time: _____*

DO	SAY	Materials Needed
REVIEW slides **Instructor's Notes** _____ _____ _____ _____ _____	**In your own words:** The Code Book for A 17.3 has 10 parts. The first 5 parts include: 1 Introduction 2 Hoistway and Related Construction Equipment for Electric Elevators 3 Machinery & Equipment for Electric Elevators 4 Hydraulic Elevators 5 Escalators ***Advance.*** Parts 6 – 10 include: 6 Dumbwaiters 7 Hand Elevators 8 Sidewalk Elevators 9 Moving Walks 10 Private Residence Elevators ***Advance.***	✓PPT slides 31, 32  

Elevator – Code Specifications

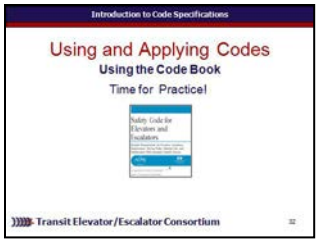
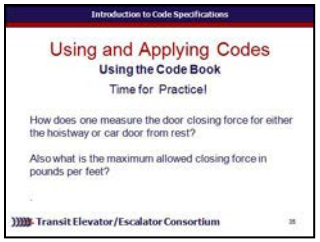
Instructor's Guide

Module Length: 180 minutes Time remaining: 165 minutes This section: 45 minutes *Section start time: _____* *Section End Time: _____*

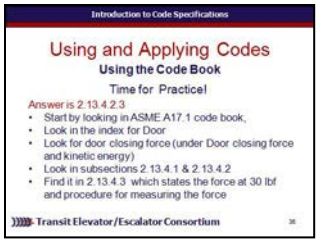
DO	SAY	Materials Needed
REVIEW slide	**In your own words:** The term **Safety Integrity Level** (SIL) is for specifying the safety integrity requirements of the safety functions allocated to safety devices and systems, where safety integrity level 4 has the highest level of safety integrity and safety integrity level 1 has the lowest. The Safety Integrity Level is an attempt to ensure proper aftermarket devices and system(s) meet the original specifications as designed by the manufacturer. This level is given to safety items especially electrical and electronics devices. ***Advance.***	✓PPT slide 33

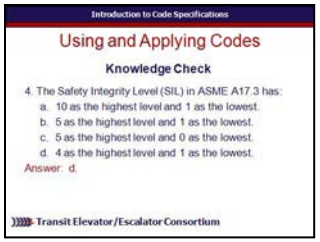
Instructor's Notes

Module Length: 180 minutes Time remaining: 120 minutes This section: 45 minutes *Section start time: _____* *Section End Time: _____*

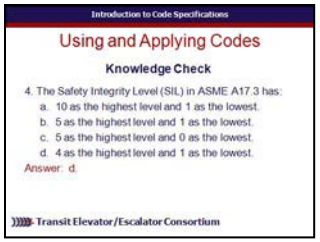
DO	SAY	Materials Needed
CLASSROOM ACTIVITY **Instructor's Notes** _____ _____ _____ _____ _____	**In your own words:** Okay, now it's time to see how this works in the real world. ***Advance.*** How does one measure the door closing force for either the hoistway or car door from rest? Also what is the maximum allowed closing force in pounds per feet? ***[*Instructional Strategy: *Participants should open a code book A17.1 to answer this question. Participants can work independently, in small groups/pairs, or as a class to complete the task.]*** ***Advance.***	✓PPT slides 34, 35  

Module Length: 180 minutes Time remaining: 120 minutes This section: 45 minutes *Section start time: _____* *Section End Time: _____*

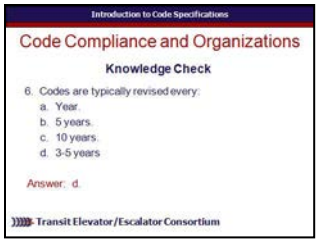
DO	SAY	Materials Needed
CLASSROOM ACTIVITY **Instructor's Notes** _____ _____ _____ _____ _____	**In your own words:** Answer is 2.13.4.2.3 • Start by looking in ASME A17.1 code book, • Look in the index for Door • Look for door closing force (under Door closing force and kinetic energy) • Look in subsections 2.13.4.1 & 2.13.4.2 • Find it in 2.13.4.3 which states the force at 30 lbf and procedure for measuring the force ***Advance.***	✓PPT slide 36 

DO	SAY	Materials Needed
ASK **Instructor's Notes** _____ _____ _____ _____ _____	**In your own words:** Lest see what we know so far: The Safety Integrity Level (SIL) in ASME A17.3 has: a. 10 as the highest level and 1 as the lowest. b. 5 as the highest level and 1 as the lowest. c. 5 as the highest level and 0 as the lowest. d. 4 as the highest level and 1 as the lowest. ***Call on participants for answers.*** ***Advance for answer.*** Answer: d. ***Advance.***	✓PPT slide 37 

Module Length: 180 minutes Time remaining: 165 minutes This section: 45 minutes *Section start time: _____* *Section End Time: _____*

DO	SAY	Materials Needed
ASK **Instructor's Notes** _____ _____ _____ _____ _____	**In your own words:** Lest see what we know so far: What is the relationship between ANSI and ASME? a. ANSI and ASME are the same organization. b. ANSI oversees development of codes and standards and ASME publishes them. c. ANSI oversees development of codes and standards and ASME enforces them. ***Call on participants for answers.*** ***Advance for answer.*** Answer: b. ***Advance.***	✓PPT slide 38 

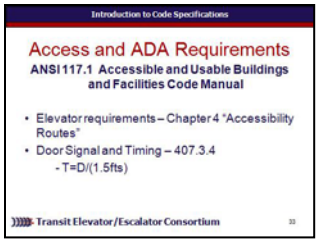
Module Length: 180 minutes Time remaining: 165 minutes This section: 45 minutes *Section start time:* _____ *Section End Time:* _____

DO	SAY	Materials Needed
ASK **Instructor's Notes** _____ _____ _____ _____ _____	**In your own words:** Lest see what we know so far: Codes are typically revised every: a. Year. b. 5 years. c. 10 years. d. 3-5 years ***Call on participants for answers.*** ***Advance for answer.*** Answer: d. ***Advance.***	✓PPT slide 39 

Elevator – Code Specifications

Instructor's Guide

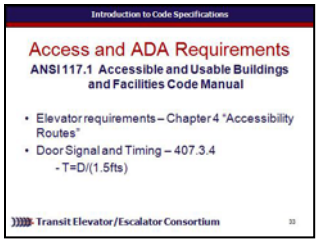
Module Length: 180 minutes Time remaining: 15 minutes This section: 15 minutes *Section start time: _____* *Section End Time: _____*

DO	SAY	Materials Needed
REVIEW slide **Instructor's Notes** _____ _____ _____ _____ _____	**In your own words:** Where would a Technician find the requirements for existing hall call buttons' height? How long must the elevator doors stay open when answering a call? These issues are about accessibility therefore they are covered in ICC-ANSI 117.1 Accessible and Usable Buildings & Facilities code manual. This manual is divided into chapters. Elevators requirements are covered in Chapter 4 "Accessibility Routes", The answer to the height of the existing hall call buttons the requirement is 54inches which is covered in 407.2.1.1. ***Continued – DO NOT Advance.***	✓PPT slide 40 

Elevator – Code Specifications

Instructor's Guide

Module Length: 180 minutes Time remaining: 15 minutes This section: 15 minutes *Section start time: _____* *Section End Time: _____*

DO	SAY	Materials Needed
REVIEW slide **Instructor's Notes** _____ _____ _____ _____ _____	**In your own words:** The answer to the timing of the doors is a formula found in 407.3.4 Door & Signal Timing. The formula states T=D/(1.5fts) which means the doors must stay open (T) for the time it takes a person to travelling 1.5 feet per second from the center line of the hoistway call buttons station to the centerline of the doors. Hence if a person must travel 10 feet (at 1.5 feet per second) from the centerline of the hoistway call buttons station to the centerline of the doors. The doors would have to stay open for 6.6 seconds (round up 7 seconds). The absolute minimum time an elevator door must stay open is 5 seconds. ***Advance.***	✓PPT slide 40 

Elevator – Code Specifications

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Module Length: 180 minutes Time remaining: 15 minutes This section: 15 minutes *Section start time: _____* *Section End Time: _____*

DO	SAY	Materials Needed
REVIEW slides **ASK** **Instructor's Notes** _____ _____ _____ _____ _____	**In your own words:** ***Read slide.*** ***[For each objective, briefly review what was learned in this module or ask participants to share what they have learned for each learning objective and briefly discuss as a class.]*** ***Advance.*** Lets take a look at some of the key words we have defined as moved through this module. ***[Read slide. Discuss definitions as a group.]*** ***Advance.*** ***[Read slide. Discuss definitions as a group.]*** ***Advance.*** ***Administer quiz.***	✓PPT slides 41, 42