

Brian Selke

From: Brian Selke
Sent: Wednesday, September 27, 2023 1:25 PM
To: Brian Selke
Subject: FW: Indiana Elevator Mechanic Exam
Attachments: 1019_001.pdf

Please allow this to be my public comment.

Fire Prevention and Building Safety Commission:

I am writing today to request a modification to the Indiana Elevator Mechanic Examination. I would like to propose allowing the 2007 ASME A17.1 (or current addition) be allowed in the examination center during testing. I am proposing this for the following reasons:

1. Over 417 pages in 2007 ASME A17.1 (see attachment #1)
2. 2007 ASME A17.1 covers electric elevators, hydraulic elevators, elevators with other type of driving machines (rack-and pinion elevators, screw column elevators, +), special application elevators (inclined elevators, limited-use/limited application elevators, power sidewalk elevators, special purpose personnel elevators, elevators used for construction, +), escalators and moving walks, dumbwaiters and material lifts, ++ (see attachment #2)
3. Only 25 questions covering ASME A17.1 out of 160 (see attachment #3) Note: exam is 4 hours with 160 questions- 1.5 minute per question.
4. Qualified Elevator Inspector (QEI) exam is open book. State elevator inspectors are QEI certified.
5. It's a timed test and an individual will need to know his way around the code book. Jonathan Brooks with the Wagner Consulting Group who just gave 10 hour continuing education for QEI (Purdue & Plainfield) which most of the State elevator inspectors attended believes in open book, "Get you to know how & where to find specific information".
6. Exam was to be based on general elevator knowledge, but does ask 25 very specific code questions. It is not reasonable or practical to expect candidates to memorize the code book, nor would you want them to apply code based on memory.
7. KY, MI, WI, FL to name a few states that allow open book elevator mechanic exams. (see attachment #3 – KY allows 6 code books in examination center, 3 ½ hour exam, 80 questions-2.63 minutes per question) (see attachment #4 – FL open book, 3 hour exam & only 50 questions- 3.60 minutes per question)
8. 13% success rate since August 2020 (15 of 110 applicants have passed)
9. Similar code tests are open book.

Please note that I propose only allowing the 2007 ASME A17.1 code book (or current addition) into the examination center during testing. I hope you will consider my proposal and I would be happy to discuss this further with you.

Thanks,
Brian Selke, President
Mid-America Elevator Co., Inc.
1116 East Market Street
Indianapolis, IN 46202
Office: (317) 635-5500
Cell: (317) 691-5165
bselke@midamericalelevator.com

- Waiver, Section 1.2
- Weatherproof
 - definition of, Section 1.3
- Weatherproofing
 - inclined elevator, 5.1.7.2
 - outdoor escalator, 6.1.8.1
 - outdoor moving walk, 6.2.8.1
 - rooftop elevator, 5.6.1.8
 - sidewalk elevator, 5.5.1.8
- Wedge rope socket, 2.20.9.5
- Welding
 - alteration and repair, 8.6.2.2
 - electric elevator, 8.8
 - hydraulic elevator plungers and cylinders, 3.18.5
 - hydraulic elevator valve, piping and fitting, 3.19.5
 - inclined elevator, 5.1.1.2
 - limited-use/limited-application elevator, 5.2.1.30
 - material lift with automatic transfer device, 7.9.2
 - rack-and-pinion elevator, 4.1.18
 - rooftop elevator, 5.6.1.27
 - screw-column elevator, 4.2.20
 - shipboard elevator, 5.8.1
 - sidewalk elevator, 5.5.1.28
- Wharf ramp, 1.1.2
- Width
 - escalator, 6.1.3.2
 - escalator step, 6.1.3.5.2
 - moving walk, 6.2.3.7
 - moving walk, definition of, Section 1.3
- Winding drum machine (*see also* Driving machine)
 - final terminal stopping device, 2.25.3.5
 - limitation of use, 2.24.1
 - material and grooving, 2.24.2.1
 - refastening of ropes, 8.6.4.10
 - securing of rope to, 2.20.6
 - slack rope switch, 2.26.2
 - spare rope turns on drum, 2.20.7
- Window
 - definition of, Section 1.3
- Window and skylight, 2.1.5
- Wire rope (*see* Rope and Suspension means)
- Wiring (*see also* Electrical equipment)
 - dumbwaiter, 7.1.8
 - electric elevator, 2.8.1
 - elevator used for construction, 5.10.1.21.3
 - escalator, 6.1.7.4
 - hydraulic elevator, 3.8
 - inclined elevator, 5.1.1
 - limited-use/limited-application elevator, 5.2.1.8
 - material lift with automatic transfer device, 7.9.1
 - moving walk, 6.2.7.4
 - private residence elevator, 5.3.1.18.4
 - rack-and-pinion elevator, 4.1.3
 - rooftop elevator, 5.6.1.8
 - screw-column elevator, 4.2.6
 - shipboard elevator, 5.8.1
 - sidewalk elevator, 5.5.1.8
 - special purpose personnel elevator, 5.7.19
- Working platform on top of car, 2.14.1.7
- Working pressure, hydraulic elevator, 3.19.1.2
 - acceptance inspection of, 8.10.3.2.2(m)
 - definition of, Section 1.3
- Yield strength
 - definition of, Section 1.3

2

CONTENTS

ASME Foreword	viii	
ASME Committee Roster	xii	
CSA Committees	xvi	
ASME Preface	xviii	
CSA Preface	xxi	
Summary of Changes	xxii	
Part 1	General	
1.1	Scope	1
1.2	Purpose and Exceptions	1
1.3	Definitions	2
Part 2	Electric Elevators	17
2.1	Construction of Hoistways and Hoistway Enclosures	17
2.2	Pits	19
2.3	Location and Guarding of Counterweights	21
2.4	Vertical Clearances and Runbys for Cars and Counterweights	22
2.5	Horizontal Car and Counterweight Clearances	24
2.6	Protection of Space Below Hoistways	25
2.7	Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms	25
2.8	Equipment in Hoistways, Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms	33
2.9	Machinery and Sheave Beams, Supports, and Foundations	34
2.10	Guarding of Equipment and Standard Railing	36
2.11	Protection of Hoistway Openings	37
2.12	Hoistway Door Locking Devices and Electric Contacts, and Hoistway Access Switches	45
2.13	Power Operation of Hoistway Doors and Car Doors	49
2.14	Car Enclosures, Car Doors and Gates, and Car Illumination	51
2.15	Car Frames and Platforms	59
2.16	Capacity and Loading	63
2.17	Car and Counterweight Safeties	67
2.18	Speed Governors	71
2.19	Ascending Car Overspeed and Unintended Car Movement Protection	74
2.20	Suspension Ropes and Their Connections	75
2.21	Counterweights	81
2.22	Buffers and Bumpers	83
2.23	Car and Counterweight Guide Rails, Guide-Rail Supports, and Fastenings	85
2.24	Driving Machines and Sheaves	94
2.25	Terminal Stopping Devices	96
2.26	Operating Devices and Control Equipment	98
2.27	Emergency Operation and Signaling Devices	109
2.28	Layout Drawings	118
2.29	Identification	118
Part 3	Hydraulic Elevators	120
3.1	Construction of Hoistways and Hoistway Enclosures	120
3.2	Pits	120

#2

3.3	Location and Guarding of Counterweights	120
3.4	Bottom and Top Clearances and Runbys for Cars and Counterweights	120
3.5	Horizontal Car and Counterweight Clearances	122
3.6	Protection of Spaces Below Hoistway	122
3.7	Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms	122
3.8	Electrical Equipment, Wiring, Pipes, and Ducts in Hoistway, Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms	123
3.9	Machinery and Sheave Beams, Supports, and Foundations	123
3.10	Guarding of Exposed Auxiliary Equipment	123
3.11	Protection of Hoistway Landing Openings	123
3.12	Hoistway Door Locking Devices, Car Door or Gate Electric Contacts, and Hoistway Access Switches	123
3.13	Power Operation, Power Opening, and Power Closing of Hoistway Doors and Car Doors or Gates	123
3.14	Car Enclosures, Car Doors and Gates, and Car Illumination	123
3.15	Car Frames and Platforms	123
3.16	Capacity and Loading	124
3.17	Car Safeties, Counterweight Safeties, Plunger Gripper, and Governors	124
3.18	Hydraulic Jacks	126
3.19	Valves, Pressure Piping, and Fittings	129
3.20	Ropes and Rope Connections	131
3.21	Counterweights	131
3.22	Buffers and Bumpers	132
3.23	Guide Rails, Guide-Rail Supports, and Fastenings	132
3.24	Hydraulic Machines and Tanks	132
3.25	Terminal Stopping Devices	133
3.26	Operating Devices and Control Equipment	134
3.27	Emergency Operation and Signaling Devices	136
3.28	Layout Data	136
3.29	Identification	137
Part 4	Elevators With Other Types of Driving Machines.	138
4.1	Rack-and-Pinion Elevators	138
4.2	Screw-Column Elevators	140
4.3	Hand Elevators	144
Part 5	Special Application Elevators.	147
5.1	Inclined Elevators	147
5.2	Limited-Use/Limited-Application Elevators	153
5.3	Private Residence Elevators	158
5.4	Private Residence Inclined Elevators	165
5.5	Power Sidewalk Elevators	169
5.6	Rooftop Elevators	173
5.7	Special Purpose Personnel Elevators	177
5.8	Shipboard Elevators	182
5.9	Mine Elevators	183
5.10	Elevators Used for Construction	186
Part 6	Escalators and Moving Walks	192
6.1	Escalators	192
6.2	Moving Walks	204
Part 7	Dumbwaiters and Material Lifts	215
7.1	Power and Hand Dumbwaiters Without Automatic Transfer Devices	215

#2

7.2	Electric and Hand Dumbwaiters Without Automatic Transfer Devices	219
7.3	Hydraulic Dumbwaiters Without Automatic Transfer Devices	225
7.4	Material Lifts Without Automatic Transfer Devices	227
7.5	Electric Material Lifts Without Automatic Transfer Devices	230
7.6	Hydraulic Material Lifts Without Automatic Transfer Devices	236
7.7	Automatic Transfer Devices	236
7.8	Power Dumbwaiters With Automatic Transfer Devices	237
7.9	Electric Material Lifts With Automatic Transfer Devices	237
7.10	Hydraulic Material Lifts With Automatic Transfer Devices	239
7.11	Material Lifts With Obscured Transfer Devices	239
Part 8	General Requirements	240
8.1	Security	240
8.2	Design Data and Formulas	241
8.3	Engineering Tests, Type Tests, and Certification	259
8.4	Elevator Safety Requirements for Seismic Risk Zone 2 or Greater	267
8.5	Escalator and Moving Walk Safety Requirement for Seismic Risk Zone 2 or Greater	287
8.6	Maintenance, Repair, and Replacement	288
8.7	Alterations	302
8.8	Welding	316
8.9	Code Data Plate	317
8.10	Acceptance Inspections and Tests	317
8.11	Periodic Inspections and Tests	332
8.12	Flood Resistances	343
Part 9	Reference Codes, Standards, and Specifications	344
9.1	Reference Documents	345
9.2	Procurement Information	351
Figures		
2.16.1.1	Inside Net Platform Areas for Passenger Elevators	63
2.20.9.4	Tapered Rope Sockets	78
2.20.9.5	Wedge Rope Sockets	78
2.23.3	Elevator Guide Rails	86
2.23.4.1-1	Maximum Weight of a Car With Rated Load or of Counterweight With Safety Device for a Pair of Guide Rails as Specified in 2.23.4.1	88
2.23.4.1-2	Minimum Moment of Inertia About <i>x-x</i> Axis for a Single Guide Rail With Its Reinforcement	89
2.27.3.1.6(h)	Visual Signal	112
2.27.3.3.7	Panel Layout	115
2.27.7.1	Phase I Emergency Recall Operation Instructions	117
2.27.7.2	Phase II Emergency In-Car Operation	118
2.27.9	Elevator Corridor Call Station Pictograph	119
5.1.17.3	Vertical and Horizontal Components of Velocity	151
6.1.3.3.10	Dimensions	194
6.1.6.9.1	Caution Sign	202
8.2.1.2	Minimum Rated Load for Passenger Elevators	242
8.2.2.5.1	Turning Moment Based on Class of Loading	244
8.2.4	Gravity Stopping Distances	246
8.2.5	Maximum Governor Tripping Speeds	247
8.2.6	Stopping Distances for Type B Car and Counterweight Safeties	249
8.2.7	Minimum Factors of Safety of Suspension Wire Ropes of Power Passenger and Freight Elevators	252
8.2.8.1.1	Allowable Gross Loads	254
8.2.9.1.3	Load Distribution	257

#3



INDIANA ELEVATOR MECHANIC WRITTEN COMPETENCY EXAMINATION

OVERVIEW

The Indiana Elevator Mechanic Written Competency Examination is a state-offered examination used to test the skill and knowledge of prospective Indiana Elevator Mechanic License holders. The exam was approved, under IC 22-15-5-12(b)(2)(B), by the Fire Prevention and Building Safety Commission at its July 7, 2020, meeting. Successful completion of this exam, along with meeting the training or experience eligibility requirements, is one way candidates can qualify for an Indiana Elevator Mechanic License. Other ways to qualify include successful completion of the following elevator mechanic programs:

- The National Association of Elevator Contractors Certified Elevator Technician Certification Program; or
- The National Elevator Industry Educational Program.

EXAM FACTS

The exam is a 4-hour, 160-question, closed book, multiple choice examination, offered through Elevator World, Inc., and proctored by the Indiana Department of Homeland Security or its designee. The questions are not weighted, and a passing score is 70%. The list of questions generated for any examination come from a bank of 733 questions. The questions come from four different categories, broken down as follows:

- **25 Code Questions** (based on the 2007 ASME A17.1, which is the code currently adopted in Indiana)
- **55 Installation Questions**
- **55 Maintenance Questions**
- **25 Safety Questions**

PROPOSED DATES

The examination will be offered quarterly at the Indiana Government Center located in Indianapolis, but alternative arrangements may be made due to the current situation with COVID-19. Currently, IDHS proposes to offer this exam on the following dates:

- August 24, 2020
- November 18, 2020
- February 17, 2021
- May 19, 2021

#4

DESCRIPTION OF EXAMINATION

KENTUCKY ELEVATOR MECHANIC EXAMINATION

# of Questions	Minimum Passing Score	Time Allowed
80	56 (70%)	210 minutes

CONTENT OUTLINES

The examination content outlines have been prepared and are periodically updated by committees of professionals who are subject matter experts in installation and repair of elevators. The examination content outlines these professionals have prepared identify areas of importance to licensees in order for them to perform their duties to the public in a competent and responsible manner.

Use the outline as a guide for pre-examination review course material. The outlines list the topics that are on the examination and the number of questions for each topic. Do not schedule your examination until you are familiar with the topics in the outline

Topic Area	# Items in Test
Wire Rope	5
Clearance and Space Limits	8
Electrical	8
Testing and Inspection	5
Mechanical	7
Safety	6
Controls	4
Operating Limitations	4
Fire Service	3
Maintenance and Repairs	8
Escalators and Moving Walkways	5
Emergency Power	2
Accessibility Equipment	5
Dumbwaiters	2
Rigging and Hoisting	5
Welding	3

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based only on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference materials **are** allowed in the examination center:

National Electrical Code, 2011 edition, National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169, (800) 344-3555, www.nfpa.org.

ASME A17.1 - Safety Code for Elevators and Escalators, 2007, American Society of Mechanical Engineers, Three Park Avenue, New York, NY 10065, (800) 843-2763, www.asme.org.

ASME A17.3: Safety Code for Existing Elevators and Escalators, 2008, American Society of Mechanical Engineers, Three Park Avenue, New York, NY 10065, (800) 843-2763, www.asme.org.

ANSI A117.1 - Accessible and Usable Buildings and Facilities, 2009, American National Standards Institute, 1819 L Street NW Washington, DC 20036, (212) 642-4980, www.ansi.org.

ASME A18.1 - Safety Standard for Platform Lifts and Stairway Chairlifts, 2008, American Society of Mechanical Engineers, Three Park Avenue, New York, NY 10065, (800) 843-2763, www.asme.org.

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or www.access.gpo.gov/nara/cfr/cfr-table-search.html#page1

OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, 3210 E Tropicana, Las Vegas, NV 89121, (800) 733-9267, www.psiexams.com (See order form at the end of the Candidate Information Bulletin.)

The following reference materials **are NOT** allowed in the examination center:

Modern Welding, 2013, 11th Edition, Althouse/Turnquist/Bowditch/Bowditch/Bowditch, 978-1-60525-795-2, The Goodheart-Willcox Company, Inc., 18604 West Creek Dr., Tinley Park, IL 60477-6243, (800) 323-0440, <http://www.g-w.com/>

Elevator Maintenance, Zack McCain, 1999, Elevator World, Inc., P.O. Box 6507, Mobile, AL 36660, (251) 479-7043, www.elevator-world.com.

Elevator Industry Field Employees' Safety Handbook, 2010, Elevator World, Inc., P.O. Box 6507, Mobile, AL 36660, (251) 479-7043, www.elevator-world.com.

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in. Any candidate caught writing in the references during the examination will be reported to the Department of Housing, Buildings, and Construction. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin. A piece of scratch paper and pencil will be provided for calculations. Candidates will NOT be permitted to remove from the examination room ANY material that has been written on. (This would include books).



#5

In addition, in order to complete the DBPR Certificate of Competency application process, applicants must have successfully passed this examination, provide proof of the exam. The code questions for the Florida Certificate of Competency Exam have been updated to reflect the A17.1 2016 Code.

The State of Florida Certificate of Competency Exam will test your general knowledge of elevator installation and maintenance as well as your core knowledge on the ASME A17.1 Code. All of the books are available from www.elevatorbooks.com. (<https://elevatorbooks.com/>)

Core Knowledge/Study Materials

Elevator Maintenance Manual, 3rd Edition by Zack McCain (<https://elevatorbooks.com/shop/new-books/elevator-maintenance-manual-3rd-ed/>)

An in-depth guide, designed for the service technician, covering elevator maintenance programs and practices as related to electric and hydraulic elevators. Also covers essential safety procedures.

Field Employees' Safety Handbook (<https://elevatorbooks.com/shop/new-books/2020-elevator-industry-field-employees-safety-handbook-print/>)

The most up-to-date safety procedures for protection of field employees on every construction or maintenance job. The Elevator Industry Field Employees' Safety Handbook covers all aspects of safety.

Installation Manual (<https://elevatorbooks.com/shop/construction-design/2014-installation-manual/>)

Devoted to the actual process of installing elevators, both hydraulic and traction, as well as escalators. This book is brimming with photos of actual field installation procedures.

The A17.1 2016 Safety Code for Elevators and Escalators covers the design, construction, operation, inspection, testing, maintenance, alteration, and repair of the following: hoisting and lowering mechanisms equipped with a car that serves two or more landings and is restricted to the carrying of material by its limited size or limited access to the car.

You will have three (3) hours once you have started to complete the exam. The exam contains 50 multiple choice questions randomly selected from a database of over 750 questions.

- 12 questions on maintenance
- 13 questions on codes
- 12 questions on installation
- 13 questions on safety

Once you purchase the exam, you will have a maximum of 3 months to take the exam before it expires, after which you will have to pay the full value again. Immediately after you complete the exam, you will receive a second exam.

For information regarding state requirements and approval:

Bureau of Elevator Safety Division of Hotels and Restaurants

2601 Blair Stone Road

Tallahassee, FL 32399-1013

(850) 487-1395

www.myFlorida.com/dbpr/hr/elevators.html (<http://www.myFlorida.com/dbpr/hr/elevators.html>)

Author Bio