

## **Technical Theatre Guidelines Indiana Theatre Standards Appendices**

Although technical theatre appears within the newly adopted theatre standards, we thought it wise to offer additional guidance as to expectations, curricular needs, and teaching resources.

*The broad subject areas are:*

Audio (including sound design and sound reinforcement)

Counterweight Rigging and General Rigging

Costume Design and Construction

Lighting Design and Stage Electricity

Makeup Design and Application

Projection Design and Application

Properties

Scenic Design and Construction

Scenic Painting

Venues

Theatre Safety (applied to each area)

### **Audio**

1. Utilization of sound reinforcement equipment
  - a. terminology
  - b. mixing board functionality
  - c. microphone types/functionality/usage
  - d. speaker types and placement
  - e. audio principles and theory
  - f. wireless technologies and theory
  - g. troubleshooting
  - h. safe practice
  
2. Sound Design
  - a. terminology
  - b. editing software
  - c. sound creation
  - d. historical musical styles/periods
  - e. script analysis

## **Counterweight Rigging and General Rigging**

1. Counterweight rigging (types)
  - a. terminology
  - b. single purchase
  - c. double purchase
  - d. loads, ratios and physics
  - e. system components
  - f. system functionality
  - g. rigging inspections
  - h. safe practice
  
2. Automated Rigging
  - a. terminology
  - b. types (fully automated, hybrid, custom)
  - c. functionality
  - d. rigging inspections
  - e. safe practice
  
3. General Rigging
  - a. terminology
  - b. terminations (knots, wire rope clips, compression sleeves)
  - c. wire rope
  - d. natural rope/synthetic rope
  - e. safe working loads
  - f. design factor (5:1, 8:1, 10:1)
  - g. computation of design factor, de-rated terminations and other factors
  - h. safe practice

## **Costume Design and Construction**

1. Types of Costumes
  - a. terminology
  - b. gender
  - c. style period/historical period
  - d. fabrics
  - e. sketching
  
2. Costume fabrication
  - a. terminology
  - b. construction materials, tools and hardware
  - c. construction techniques
  - d. actor fittings
  - e. finishing techniques including dyeing and painting
  - f. repairs
  - g. general costume maintenance
  - h. repurposing exiting garments/costumes
  - i. safe practice

## **Lighting Design and Stage Electricity**

1. Design
  - a. terminology
  - b. image research
  - c. script analysis
  - d. fixture types and functionality
  - e. color theory
  - f. color temperature
  - g. rendering
  - h. drafting the plot/paperwork
  - i. creating a shop order
  
2. Reading and hanging the plot
  - a. terminology
  - b. Interpreting paperwork (plot/instrument schedule/channel hookup, etc.)
  - c. hanging fixtures
  - d. focus
  - e. electrical cable and cable management
  - f. accessories (color frame/gobo/iris/top hat, etc.)
  
3. Electricity
  - a. terminology
  - b. dimming
  - c. power distribution
  - d. electrical theory and computation (West Virginia formula, etc.)
  - e. connectors commonly used in theatre
  - f. wiring connectors and plugs
  - g. NFPA 70: National Electrical Code ®
  - h. safe practice
  
4. Communication Protocols
  - a. terminology
  - b. AMX, DMX512a
  - c. Ethernet
  - d. connectors
  
5. Multi-Parameter Fixtures (moving lights, LED, etc.)
  - a. terminology
  - b. types of fixtures
  - c. programming (fixture, board)
  - d. power requirements
  - e. communication protocols

## **Makeup Design and Application**

1. Makeup Design
  - a. terminology
  - b. research
  - c. cultural/historical precedents
  - d. physical features of the face, hands, etc.

2. Procedures of application
  - a. terminology
  - b. types of makeup
  - c. latex
  - d. tools
  - e. techniques of application
  - f. safe practice

### **Projection Design and Application**

1. Design
  - a. terminology
  - b. research
  - c. image sources
  - d. projector/source functionality
  - e. projection surfaces
  - f. sketching
  - g. rendering
  - h. design software (Photoshop, Corel Draw, etc.)
  - i. aspect ratios
2. Projection procedures
  - a. terminology
  - b. projection equipment (projectors, cable, connectors, etc.)
  - c. projection software
  - d. projection mapping
  - e. pixel mapping
  - f. safe practice

### **Properties**

1. Research
  - a. Types (hand props)
  - b. image search
  - c. historical references
  - d. functioning/non-functioning
  - e. rental/borrow
  - f. fabrication
2. Fabrication
  - a. terminology
  - b. tools
  - c. techniques
  - d. found objects/object components
  - e. storage and security
  - f. safe practice

## **Scenic Design and Construction**

1. Design
  - a. terminology
  - b. research
  - c. sketching
  - d. 3D rendering (Sketchup, etc.)
  - e. model making
  - f. drafting
  - g. tools
  - h. construction materials
  
2. Construction
  - a. terminology
  - b. reading blueprints
  - c. measurement
  - d. construction materials
  - e. tools
    1. hand
    2. power
  - f. joinery
  - g. safe practice

## **Scenic Painting**

1. terminology
2. tools
3. materials
4. application methods
5. disposal requirements/methods
6. reading SDS (Safety Data Sheet)
7. safe practice

## **Stage Management**

1. terminology
2. safe practice
3. tools
4. organizational strategies
  - a. communications
  - b. calendars/schedules
5. taping out stage
6. rehearsal/blocking notation
7. calling show
8. event safety strategies/compliance

## **Venue**

1. The stage
  - a. areas (deck, wings, backstage, pit, etc.)
  - b. components (curtains, rigging, etc.)
  
2. Front of House

- a. technical areas (catwalks, control booth)
  - b. administrative/audience areas (box office, lobby, audience seating, etc.)
3. Administration and Personnel (Front of House)
    - a. non-technical (house manager, box office manager, ushers, agents, etc.)
    - b. technical (light board operator, sound board operator, crew)
  4. Administration and Personnel (Stage)
    - a. artistic director
    - b. director
    - c. stage manager
    - d. technical director
    - e. crew
  5. Safety
    - a. audience safety (crowd control, evacuation procedures, etc.)
    - b. crew and performers (evacuation procedures, safe operation of systems, signage, fall arrest, fall protection)

**Resources:**

**Audio**

Practical Technical Theatre "Audio for Theatre", 2<sup>nd</sup> Edition by David Eisenhauer, Robin Weatherall, and Robert Fowler

ISBN-13 #: 978-1-934607-14-5

(AVAILABLE IN DVD/CD-ROM FORMAT, OR THROUGH YEARLY SUBSCRIPTION)

PUBLISHER: INTERACTIVE EDUCATIONAL VIDEO, LLC

Sound Console Manuals

The Sound Reinforcement Handbook (2<sup>nd</sup> Edition) by Gary Davis, Ralph Jones

Publisher: Yamaha; 2nd Edition (January 1, 1988)

ISBN-10: 0881889008

ISBN-13: 978-0881889000

Theatrical Design and Production: An Introduction to Scene Design and Construction, Lighting, Sound, Costume, and Makeup 7th Edition by J. Michael Gillette

Publisher: McGraw-Hill Education; 7th Edition (October 1, 2012)

ISBN-10: 0073382221

ISBN-13: 978-0073382227

**Costuming**

Costume Designer's Handbook: A Complete Guide for Amateur and Professional Costume Designers 2nd Revised ed. Edition by Rosemary Ingham, Liz Covey

Publisher: Heinemann Drama; 2nd Revised ed. edition (November 2, 1992)

ISBN-10: 0435086073

ISBN-13: 978-0435086077

Costuming for the Theatre by Terry McGonigle

ISBN-13 #: 978-1-934607-12-1

(AVAILABLE IN DVD/CD-ROM FORMAT, OR THROUGH YEARLY SUBSCRIPTION)

PUBLISHER: INTERACTIVE EDUCATIONAL VIDEO, LLC

Theatrical Design and Production: An Introduction to Scene Design and Construction, Lighting, Sound, Costume, and Makeup 7th Edition by J. Michael Gillette

Publisher: McGraw-Hill Education; 7th Edition (October 1, 2012)

ISBN-10: 0073382221

ISBN-13: 978-0073382227

*USITT Publications available for purchase/download at [usitt.org](http://usitt.org)*

Projects for Teaching Costume Design Vol. 1

Practical Projects for Teaching Costume Design Vol. 2

### **Counterweight Rigging**

E1.4 (2016) ANSI/ESTA E1.4-1 : Entertainment Technology - Manual Counterweight Rigging Systems

[www.esta.org](http://www.esta.org)

Articles related to counterweight rigging safety

<http://www.jrclancy.com/safetyarticles.asp>

Operations manuals for counterweight systems

<http://www.jrclancy.com/operationandsafety.asp>

Stage Rigging Handbook (3<sup>rd</sup> Edition), Jay Glerum

Publisher: Southern Illinois University Press; 3rd edition (April 18, 2007)

ISBN-10: 0809327414

ISBN-13: 978-0809327416

### **Lighting Design and Electricity**

The Automated Lighting Programmer's Handbook 3rd Edition by Brad Schiller

Publisher: Focal Press; 3rd edition (October 5, 2016)

ISBN-10: 1138926248

ISBN-13: 978-1138926240

Designing with Light: An Introduction to Stage Lighting (Film) 6th Edition

By J. Michael Gillette, Michael McNamara

Publisher: McGraw-Hill Education; 6<sup>th</sup> Edition (January 22, 2013)

ISBN-10: 0073514233

ISBN-13: 978-0073514239

Electricity for the Entertainment Electrician & Technician 2nd Edition

By Richard Cadena

Publisher: Focal Press; 2 edition (February 13, 2014)

ISBN-10: 0415714834

ISBN-13: 978-0415714839

Lighting Console Manuals

Lighting Design (2006) by Robert Fowler  
(ISBN # 978-1-934607-06-0)  
(AVAILABLE IN DVD/CD-ROM FORMAT, OR THROUGH YEARLY SUBSCRIPTION)  
PUBLISHER: INTERACTIVE EDUCATIONAL VIDEO, LLC

Lighting for Theatre (2006) by Robert Fowler  
(ISBN # 978-1-934607-10-7)  
(AVAILABLE IN DVD/CD-ROM FORMAT, OR THROUGH YEARLY SUBSCRIPTION)  
PUBLISHER: INTERACTIVE EDUCATIONAL VIDEO, LLC

NFPA 70: National Electrical Code (NEC), 2014 Edition.

Scene Design and Stage Lighting 10th Edition by R. Craig Wolf, Dick Block  
ISBN-13: 978-0495501909  
ISBN-10: 0495501905  
Wadsworth Publishing (March 26, 2013)

Theatrical Design and Production: An Introduction to Scene Design and Construction, Lighting, Sound, Costume, and Makeup 7th Edition by J. Michael Gillette  
Publisher: McGraw-Hill Education; 7th Edition (October 1, 2012)  
ISBN-10: 0073382221  
ISBN-13: 978-0073382227

USITT RP-2, Recommended Practice for Theatrical Lighting Design Graphics - (2006).  
[http://www.dolphin.upenn.edu/pacshop/RP-2\\_2006.pdf](http://www.dolphin.upenn.edu/pacshop/RP-2_2006.pdf)

*USITT Publications available for purchase/download at [usitt.org](http://usitt.org)*

Practical Projects for Teaching Lighting Design Vol.1  
Practical Projects for Teaching Lighting Design Vol. 2

### **Properties**

The Theatre Props Handbook: A Comprehensive Guide to Theater Properties, Materials and Construction Paperback – July 1, 2000 By Thurston James  
Publisher: Players Press; 2<sup>nd</sup> Revised Edition (July 1, 2000)  
ISBN-10: 088734934X  
ISBN-13: 978-0887349348

### **Safety**

NFPA 70: National Electrical Code (NEC), 2014 Edition.

Occupational Safety and Health Administration: OSHA 10/General Entertainment Safety Training

NFPA 101: Life Safety Code®  
<http://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=101>

Power Tool Operation and Safety  
<http://www.powertoolinstitute.com/>

## **Scenic Design and Construction**

Basic Set Construction and Theatre Safety by Robert Fowler  
(ISBN 13 # 978-1-934607-09-1)  
(AVAILABLE IN DVD/CD-ROM FORMAT, OR THROUGH YEARLY SUBSCRIPTION)  
PUBLISHER: INTERACTIVE EDUCATIONAL VIDEO, LLC

Power Tool Operation and Safety  
<http://www.powertoolinstitute.com/>

Scene Design and Stage Lighting 10th Edition by R. Craig Wolf, Dick Block  
ISBN-13: 978-0495501909  
ISBN-10: 0495501905  
Wadsworth Publishing (March 26, 2013)

Set Design by Robert Fowler  
(ISBN 13 # 978-1-934607-05-3)  
(AVAILABLE IN DVD/CD-ROM FORMAT, OR THROUGH YEARLY SUBSCRIPTION)  
PUBLISHER: INTERACTIVE EDUCATIONAL VIDEO, LLC

Stock Scenery Construction Handbook Perfect Paperback – September 15, 2015  
By Bill Raoul, Mike Monsos  
Publisher: Broadway Press; Third edition (September 15, 2015)  
ISBN-10: 0911747435  
ISBN-13: 978-0911747430

Theatrical Design and Production: An Introduction to Scene Design and Construction, Lighting, Sound, Costume, and Makeup 7th Edition by J. Michael Gillette  
Publisher: McGraw-Hill Education; 7th Edition (October 1, 2012)  
ISBN-10: 0073382221  
ISBN-13: 978-0073382227

*USITT Publications available for purchase/download at [usitt.org](http://usitt.org)*

Practical Projects for Teaching Scene Design Vol. 1  
Practical Projects for Teaching Scene Design Vol. 2

USITT Scenic Design and Technical Production Graphic Standard – (1999).  
<http://www.dolphin.upenn.edu/pacshop/usitt92.pdf>

## **Scenic Painting**

Scenic Art for the Theatre 3rd Edition by Susan Crabtree, Peter Beaudert  
Publisher: Focal Press; 3 edition (December 1, 2011)  
ISBN-10: 0240812905  
ISBN-13: 978-0240812908

## **Stage Makeup**

Stage Makeup: The Actor's Complete Guide to Today's Techniques and Materials Paperback – April 1, 1999 By Laura Thudium

Publisher: Back Stage Books; 3.2.1999 edition (April 1, 1999)

ISBN-10: 0823088391

ISBN-13: 978-0823088393

Theatrical Design and Production: An Introduction to Scene Design and Construction, Lighting, Sound, Costume, and Makeup 7th Edition by J. Michael Gillette

Publisher: McGraw-Hill Education; 7th Edition (October 1, 2012)

ISBN-10: 0073382221

ISBN-13: 978-0073382227

## **Stage Management**

The Back Stage Guide to Stage Management, 3rd Edition: Traditional and New Methods for Running a Show from First Rehearsal to Last Performance 3rd Revised, Expanded ed. Edition

Publisher: Back Stage Books; 3rd Revised, Expanded ed. edition (June 16, 2009) by Thomas A. Kelly

ISBN-10: 0823098028

ISBN-13: 978-0823098026

Business and House Management (2004) by Lana Hagan, Marti Fowler, and Robert Fowler

(ISBN 13 # 978-1-934607-07-7)

(AVAILABLE IN DVD/CD-ROM FORMAT, OR THROUGH YEARLY SUBSCRIPTION)

PUBLISHER: INTERACTIVE EDUCATIONAL VIDEO, LLC

The Stage Manager's Toolkit: Templates and Communication Techniques to Guide Your Theatre Production from First Meeting to Final Performance (The Focal Press Toolkit Series) 1st Edition

By Laurie Kincman

Publisher: Focal Press; 1st edition (April 13, 2013)

ISBN-10: 0415663199

ISBN-13: 978-0415663199

Stage Management (2<sup>nd</sup> Edition) (2012) by Jason Daunter and Tom Martin

(ISBN 13 # 978-1-934607-13-8)

(AVAILABLE IN DVD/CD-ROM FORMAT, OR THROUGH YEARLY SUBSCRIPTION)

PUBLISHER: INTERACTIVE EDUCATIONAL VIDEO, LLC

## **General Resource and Reading**

eSET Lexicon. App available for download from iTunes and Google Play

Technical Theatre Textbooks

Backstage Handbook: An Illustrated Almanac of Technical Information / Edition 3 by Paul Charter ISBN-13; 2900911747392 Publisher: Broadway Press Publication date: 11/01/1994

Careers in Theatre (2012) by Marti and Robert Fowler

(ISBN 13 # 978-1-934607-11-4)

(AVAILABLE IN DVD/CD-ROM FORMAT, OR THROUGH YEARLY SUBSCRIPTION)

PUBLISHER: INTERACTIVE EDUCATIONAL VIDEO, LLC

Introduction to Technical Theatre (2006) by Marti and Robert Fowler  
(ISBN 13 # 978-1-934607-08-4)  
(AVAILABLE IN DVD/CD-ROM FORMAT, OR THROUGH YEARLY SUBSCRIPTION)  
PUBLISHER: INTERACTIVE EDUCATIONAL VIDEO, LLC

NFPA 70: National Electrical Code (NEC), 2014 Edition.

Occupational Safety and Health Administration: OSHA 10/General Entertainment Safety Training

NFPA 101: Life Safety Code®

<http://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=101>

