



# FLORIDA BUILDING COMMISSION

"STRONGER CODES THROUGH SCIENCE AND CONSENSUS"

## LIGHTNING PROTECTION WORKGROUP OPTIONS EVALUATION WORKSHEET FEBRUARY 12, 2018



*This document is available in alternate formats upon request to DBPR, Codes & Standards,  
2601 Blair Stone Road, Tallahassee, FL 32399, (850) 487-1824.*

## LIGHTNING PROTECTION WORKGROUP OPTIONS ACCEPTABILITY RATING WORKSHEET

### ACCEPTABILITY RATING EXERCISE OVERVIEW

During the meeting(s) Workgroup members will be asked to review the list of proposed options and invited to propose any additional options relevant to the topical issues within the Workgroup's scope and purpose. During meetings Workgroup members will be asked to rate the options for acceptability using a four-point rating scale. In addition, following discussion and refinement of options, members may be asked to do additional ratings of proposed options if requested by a Workgroup member. Members should be prepared to offer specific refinements to address their reservations.

Once rated for acceptability, options(s) with a 75% or greater number of 4s and 3s in proportion to 2s and 1s will be considered preliminary consensus recommendations. At the final meeting all consensus level rated option will be included in the Workgroup's package of recommendations.

At any point during the process, any option may be re-rated at the request of any Workgroup member. The status of a rated option will not be final until the final Workgroup meeting, when a vote will be taken on the entire package of consensus ranked recommendations. The Lightning Protection Workgroup's consensus recommendations will be submitted to the Electrical TAC, and ultimately to the Commission for consideration.

The following scale will be utilized for the ranking exercises:

<b>ACCEPTABILITY RATING SCALE</b>	<b>4= Acceptable,</b> <i>I agree</i>	<b>3= Acceptable,</b> <i>I agree with <b>minor</b> reservations</i>	<b>2= Not Acceptable,</b> <i>I don't agree unless <b>major</b> reservations addressed</i>	<b>1= Not Acceptable</b>
-----------------------------------	---	--	--	--------------------------

### KEY TO SYMBOLS

SYMBOL	MEANING OF SYMBOL
⓪	Proposed Option
©	Consensus Ranked Option

### CRITERIA FOR EVALUATING/RATING PROPOSED OPTIONS

Effective Options are **SMART**

CRITERIA		EXPLANATION
<b>S</b>	<b>SPECIFIC</b>	It is detailed enough so that anyone reading the <i>Option</i> will know what is intended to be accomplished.
<b>M</b>	<b>MEASURABLE</b>	The end result can be identified in terms of quantity, quality, acceptable standards, etc. You know you have a measurable <i>Option</i> when it states in objective terms the end result or product.
<b>A</b>	<b>ATTAINABLE</b>	The <i>Option</i> is feasible. Are there resources available, or likely to become available for implementing the <i>Option</i> ?
<b>R</b>	<b>RELEVANT</b>	The <i>Option</i> is relevant to the Commission's mission, purpose and charge.
<b>T</b>	<b>TIME-FRAMED</b>	There are milestones with a specific date attached to the completion.

## LIGHTNING PROTECTION WORKGROUP OPTIONS EVALUATION WORKSHEET

### WORKGROUP SCOPE AND PURPOSE

The scope of work and purpose of the Lightning Protection Workgroup is to provide consensus recommendations to the Florida Building Commission regarding whether lightning protection requirements should be included in the future update to the Florida Building Code; and if yes, to provide recommended code change language that takes into consideration available lightning protection standards and technologies.

In proposing Options for evaluation the Workgroup shall consider the following statutory requirements:

**Section 553.72 (1), F.S.—** ...The Florida Building Code shall provide for flexibility to be exercised in a manner that meets minimum requirements, is affordable, does not inhibit competition, and promotes innovation and new technology. The Florida Building Code shall establish minimum standards primarily for public health and lifesafety, and secondarily for protection of property as appropriate.

**Section 553.73 (9)(a), F.S.—** The commission may approve technical amendments to the Florida Building Code once each year for statewide or regional application upon a finding that the amendment:

1. Is needed in order to accommodate the specific needs of this state.
2. Has a reasonable and substantial connection with the health, safety, and welfare of the general public.
3. Strengthens or improves the Florida Building Code, or in the case of innovation or new technology, will provide equivalent or better products or methods or systems of construction.
4. Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities.
5. Does not degrade the effectiveness of the Florida Building Code.

### KEY ISSUES FOR WORKGROUP CONSIDERATION

Prior to evaluating Options, are there any Key Issues that should be considered regarding Lightning Protection Standards for the Florida Building Code?

*Note below any Key Issues that should be considered prior to evaluating Options:*

## FLORIDA BUILDING CODE LIGHTNING PROTECTION REQUIREMENTS—OPTIONS FOR WORKGROUP EVALUATION

### A. [Barber and Territo] Status Quo Proposals.

**[Barber]** No changes to FBC. Lightning Protection should NOT be mandatory for newly constructed buildings no matter what square foot except for what is already mandated by existing FBC standards. Hospitals, AHCA regulated facilities, Schools and others mandate by the Lightning Risk Assessment guide of NFPA 780.

**[Territo]** I do not believe lightning protection should be required by code as suggested:

- It will mandate an unnecessary financial burden on Floridians, both consumers and government.
- Require additional licensing, permitting, and inspections.
- Mandates often take common sense out of the equation leaving only the financial burden.
- The necessity/efficacy of lightning rods cannot be stated with certainty.
- Methods/materials should not be limited to only one.

	AVERAGE RATING	4— <i>Acceptable</i>	3— <i>Minor Reservations</i>	2— <i>Major Reservations</i>	1— <i>Not Acceptable</i>
<i>Initial Rating</i>					

<i>Comments and/or Reservations:</i>

### B. [Barber]

NO mandate for Lightning Protection for all buildings, but add Approval of all systems and technologies (Faraday conventional and Early Streamer Emission) to Florida Building Code as acceptable options for Owners and Engineer, Architects to choose from.

	AVERAGE RATING	4— <i>Acceptable</i>	3— <i>Minor Reservations</i>	2— <i>Major Reservations</i>	1— <i>Not Acceptable</i>
<i>Initial Rating</i>					

<i>Comments and/or Reservations:</i>

### C.) [Holland] Chapter 27 requirement for all occupancies of the FBC-B (Modification 6460 with minor revisions).

Chapter 27

NEW – Section 2703 Lightning Protection

2703.1 Lightning Protection. A lightning protection system shall be provided for all new buildings and additions in accordance with NFPA 780, *Standard for the Installation of Lightning Protection Systems*.

2703.2 Where additions are constructed to existing buildings, the existing building’s lightning protection system, if present, shall be interconnected to the new lightning protection system.

2703.3 Surge-protective devices (SPDs) shall be installed in accordance with NFPA 70, *National Electrical Code*, as required by NFPA 780, *Standard for the Installation of Lightning Protection Systems*.

Exceptions:

1. One- and two-family dwellings
2. Lightning protection shall not be required for any building or addition where determined to be unnecessary by evaluation using the *Risk Assessment Guide* in NFPA 780, *Standard for the Installation of Lightning Protection Systems* or an alternative method approved by the authority having jurisdiction.

	AVERAGE RATING	4—Acceptable	3—Minor Reservations	2—Major Reservations	1—Not Acceptable
Initial Rating					

Comments and/or Reservations:

**D.) [Holland] Chapter 27 requirement for the uses and occupancies detailed in Chapter 4 of the FBC-B, with 10 exceptions.**

Chapter 27

NEW – Section 2703 Lightning Protection

2703.1 Lightning Protection. A lightning protection system shall be provided for all new buildings and additions in accordance with NFPA 780, *Standard for the Installation of Lightning Protection Systems*. The requirements of this section apply to the special uses and occupancies detailed in Chapter 4 of this code.

2703.2 Where additions are constructed to existing buildings, the existing building’s lightning protection system, if present, shall be interconnected to the new lightning protection system.

2703.3 Surge-protective devices (SPDs) shall be installed in accordance with NFPA 70, *National Electrical Code*, as required by NFPA 780, *Standard for the Installation of Lightning Protection Systems*.

Exceptions:

1. The following special uses and occupancies:
  - 1.1. Section 405: Underground buildings
  - 1.2. Section 409: Motion picture projection rooms
  - 1.3. Section 416: Drying rooms
  - 1.4. Section 418: Organic coatings
  - 1.5. Section 426: Hyperbaric facilities
  - 1.6. Section 454: Swimming pools and bathing places
  - 1.7. Section 458: Manufactured buildings
  - 1.8. Section 460: Mausoleums and columbariums
  - 1.9. Section 462: Use of asbestos in new public buildings or buildings newly constructed for lease to government entities—prohibition
  - 1.10. Section 465: Control of radiation hazards
2. Lightning protection shall not be required for any building or addition where determined to be unnecessary by evaluation using the *Risk Assessment Guide* in NFPA 780, *Standard for the Installation of Lightning Protection Systems* or an alternative method approved by the authority having jurisdiction.

	AVERAGE RATING	4—Acceptable	3—Minor Reservations	2—Major Reservations	1—Not Acceptable
Initial Rating					

Comments and/or Reservations:

**E.) [Holland] Chapter 4 requirement for the uses and occupancies detailed in the Chapter, with 10 exceptions.**

Chapter 4

NEW – Section 401.3 Lightning Protection

401.3 Lightning Protection.

401.3.1 A lightning protection system shall be provided for all new buildings and additions in accordance with NFPA 780, *Standard for the Installation of Lightning Protection Systems*. The requirements of this section apply to the special uses and occupancies described herein.

401.3.2 Where additions are constructed to existing buildings, the existing building’s lightning protection system, if present, shall be interconnected to the new lightning protection system.

401.3.3 Surge-protective devices (SPDs) shall be installed in accordance with NFPA 70, *National Electrical Code*, as required by NFPA 780, *Standard for the Installation of Lightning Protection Systems*.

Exceptions:

3. The following special uses and occupancies:
  - 3.1. Section 405: Underground buildings
  - 3.2. Section 409: Motion picture projection rooms
  - 3.3. Section 416: Drying rooms
  - 3.4. Section 418: Organic coatings
  - 3.5. Section 426: Hyperbaric facilities
  - 3.6. Section 454: Swimming pools and bathing places
  - 3.7. Section 458: Manufactured buildings
  - 3.8. Section 460: Mausoleums and columbariums
  - 3.9. Section 462: Use of asbestos in new public buildings or buildings newly constructed for lease to government entities—prohibition
  - 3.10. Section 465: Control of radiation hazards
  
4. Lightning protection shall not be required for any building or addition where determined to be unnecessary by evaluation using the *Risk Assessment Guide* in NFPA 780, *Standard for the Installation of Lightning Protection Systems* or an alternative method approved by the authority having jurisdiction.

	AVERAGE RATING	4—Acceptable	3—Minor Reservations	2—Major Reservations	1—Not Acceptable
<i>Initial Rating</i>					

<i>Comments and/or Reservations:</i>

**F.) [Holland] Chapter 4 requirement applying to the (9) medical-type uses and occupancies only (Section 449, 450, 451, 452, 457, 463, 464, 467, and 469).**

Chapter 4

MODIFIED & NEW Sections – Lightning Protection

4xx.x Lightning Protection.

4xx.x

A lightning protection system shall be provided for all new buildings and additions in accordance with NFPA 780, *Standard for the Installation of Lightning Protection Systems*.

4xx.x

Where additions are constructed to existing buildings, the existing building's lightning protection system, if present, shall be interconnected to the new lightning protection system.

4xx.x

Surge-protective devices (SPDs) shall be installed in accordance with NFPA 70, *National Electrical Code*, as required by NFPA 780, *Standard for the Installation of Lightning Protection Systems*.

Exception:

Lightning protection shall not be required for any building or addition where determined to be unnecessary by evaluation using the *Risk Assessment Guide* in NFPA 780, *Standard for the Installation of Lightning Protection Systems* or an alternative method approved by the authority having jurisdiction.

Applicable Sections:

- Section 449: Hospitals
- Section 450: Nursing homes
- Section 451: Ambulatory surgical centers
- Section 452: Birthing centers
- Section 457: Mental health programs
- Section 463: Adult day care
- Section 464: Assisted living facilities
- Section 467: Hospice inpatient facilities and units and hospice residences.
- Section 469: Office surgery suite

	AVERAGE RATING	4—Acceptable	3—Minor Reservations	2—Major Reservations	1—Not Acceptable
<i>Initial Rating</i>					

<i>Comments and/ or Reservations:</i>

**G.) [Morgan]**

Section 2703 Lightning Protection

2703.1 A Lightning Risk Assessment shall be performed for any new building or addition by using the Lightning Risk Assessment in NFPA 780, *Standard for the Installation of Lightning Protection Systems* or an alternative method approved by the authority having jurisdiction.

2703.2 If the Lightning Risk Assessment indicates that a lightning protection system should be installed, then a lightning protection system shall be provided for all new buildings and additions in accordance with NFPA 780, *Standard for the Installation of Lightning Protection Systems* and UL 96A, *Installation Requirements for Lightning Requirement*

2703.3 Where additions are constructed to existing building, the existing building's lightning protection system, if connected to the new lightning protection system, shall be inspected and brought into compliance with current standards.

2703.4 Surge protection devices shall be installed for all normal and emergency electrical systems in accordance with NFPA 70, *National Electrical Code*.

Exceptions:

1. One- and two-family dwellings.

	AVERAGE RATING	4—Acceptable	3—Minor Reservations	2—Major Reservations	1—Not Acceptable
<i>Initial Rating</i>					

<i>Comments and/or Reservations:</i>

**H.) [Barber] Only if a requirement is recommended for approval:**

If lightning protection is mandated and added to FBC for newly constructed buildings, then ALL systems and technologies available should be allowed using accepted installation standards for each system . The following are accepted standards for each technology. Do not create monopoly for only one type of system or technology. Allow owners and engineers to choose which is best for the structure it is protecting.

- a. UL 96A CONVENTIONAL
- b. NFPA 780 CONVENTIONAL
- c. HBP-21 EARLY STREAMER EMISSION
- d. PROPOSED NFPA 781 STANDARD FOR EARLY STREAMER EMISSION SYSTEMS
- e. UL 96A FOR STREAMER RETARDING AIR TERMINAL SYSTEMS
- f. NFC-17-102 French Standard for Early Streamer Emission systems

	AVERAGE RATING	4—Acceptable	3—Minor Reservations	2—Major Reservations	1—Not Acceptable
<i>Initial Rating</i>					

<i>Comments and/or Reservations:</i>

**I.) [Barber] Only if a requirement is recommended for approval:**

In conjunction with lightning protection, if lightning protection systems are mandated for all buildings within parameters, then all electrical panels, distribution panels, sub panels, and all low voltage systems SHALL HAVE SURGE PROTECTION. The damages and risks of direct strike damage to a structure is much less than damages to electrical equipment from a nearby strike or surges generated from lightning.

	AVERAGE RATING	4—Acceptable	3—Minor Reservations	2—Major Reservations	1—Not Acceptable
<i>Initial Rating</i>					

<i>Comments and/or Reservations:</i>