# UNIFORM BUILDING CODE COMMISSION

Report to the Utah Legislature
Business and Labor Interim Committee

August 24, 2020

**Uniform Building Code Commission recommended changes to construction codes under Title 15A, State Construction and Fire Code Act**

The following report has the full details and summary of proposed changes to the 2020 National Electric Code (NEC) and amendments as approved by the Uniform Building Code Commission. There is also a proposed change to the 2015 International Residential Code (IRC) and the 2018 International Building Code (IBC) to conform with adoption of the 2020 NEC. This proposal recommends that the 2020 NEC and amendments to international codes be adopted effective July 1, 2021.

A public hearing regarding the proposed building codes was held August 12, 2020 via electronic meeting following guidelines in effect due to COVID-19 pursuant to Executive Order by Governor Gary Herbert. The public was given a link to join the 9:00 a.m. meeting via Google Meets.

This report has two parts:

Section A – Proposed Building Codes and Amendment Changes recommended by the Uniform Building Code Commission (UBCC) and its Electrical Advisory Committee. It should be noted that the changes are made with strikethrough and underline as if making changes to existing statutes for easier identification of items that are recommended for changes.

Section B – A summary of the changes proposed in Section A. Included in the summary is a fiscal analysis of the recommendations. For those amendments which are clarifications or technical changes only, and have no fiscal impact, no cost is noted.

## Section A

### Title 15A. State Construction and Fire Codes Act

**15A-2-103 Specific editions adopted of construction code of a nationally recognized code authority.**

(1) Subject to the other provisions of this part, the following construction codes are incorporated by reference, and together with the amendments specified in Chapter 3, Statewide Amendments Incorporated as Part of State Construction Code, and Chapter 4, Local Amendments Incorporated as Part of State Construction Code, are the construction standards to be applied to building construction, alteration, remodeling, and repair, and in the regulation of building construction, alteration, remodeling, and repair in the state:

(a) the 2018 edition of the International Building Code, including Appendix J, issued by the International Code Council;

(b) the 2015 edition of the International Residential Code, issued by the International Code Council;

(c) Appendix Q of the 2018 edition of the International Residential Code, issued by the International Code Council;

(d) the 2018 edition of the International Plumbing Code, issued by the International Code Council;

(e) the 2018 edition of the International Mechanical Code, issued by the International Code Council;

(f) the 2018 edition of the International Fuel Gas Code, issued by the International Code Council;

(g) the ~~2017~~ 2020 edition of the National Electrical Code, issued by the National Fire Protection Association;

(h) the residential provisions of the 2015 edition of the International Energy Conservation Code, issued by the International Code Council;

(i) the commercial provisions of the 2018 edition of the International Energy Conservation Code, issued by the International Code Council;

(j) the 2018 edition of the International Existing Building Code, issued by the International Code Council;

(k) subject to Subsection 15A-2-104(2), the HUD Code;

(l) subject to Subsection 15A-2-104(1), Appendix E of the 2015 edition of the International Residential Code, issued by the International Code Council;

(m) subject to Subsection 15A-2-104(1), the 2005 edition of the NFPA 225 Model Manufactured Home Installation Standard, issued by the National Fire Protection Association;

(n) subject to Subsection (3), for standards and guidelines pertaining to plaster on a historic property, as defined in Section 9-8-302, the U.S. Department of the Interior Secretary's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings; and

(o) the residential provisions of the 2018 edition of the International Swimming Pool and Spa Code, issued by the International Code Council.

## Part 1
## Statewide Amendments to International Building Code

**15A-3-113 Amendments to Chapters 32 through 35 of IBC**

(1) In IBC, Chapter 35, the referenced standard for NFPA 70-17 is deleted and replaced with NFPA 70-20.

(2) In IBC, Chapter 35, the referenced standard for ICCA117.1-09, Section 606.2. Exception 1 is modified to include the following sentence at the end of the exception:
"The minimum clear floor space shall be centered on the sink assembly."

## Part 2
## Statewide Amendments to International Residential Code

**15A-3-206 Amendments to Chapters 37, 39, and 44 and Appendix F of IRC.**

(1) In IRC, Section E3705.4.5, the following words are added after the word "assemblies": "with ungrounded conductors 10 AWG and smaller".

(2) In IRC, Section E3901.9, the following exception is added:
"Exception: Receptacles or other outlets adjacent to the exterior walls of the garage, outlets adjacent to an exterior wall of the garage, or outlets in a storage room with entry from the garage may be connected to the garage branch circuit."

(3) IRC, Section E3902.16 is deleted.

(4) In Section E3902.17:

(a) following the word "Exception" the number "1." is added; and

(b) at the end of the section, the following sentences are added:
"2. This section does not apply for a simple move or an extension of a branch circuit or an outlet which does not significantly increase the existing electrical load. This exception does not include changes involving remodeling or additions to a residence."

(5) IRC, Chapter 44, is amended by adding the following reference standard:

| "Standard reference number | Title |
|---|---|
| USC-FCCCHR 10th Edition Manual of Cross Connection Control | Foundation for Cross-Connection Control and Hydraulic Research University of Southern California Kaprielian Hall 300 Los Angeles CA 90089-2531 |

Referenced in code section number
Table P2902.3"

(6) In IRC, Chapter 44, the Reference Standard for NFPA 70-14 is deleted and replaced with NFPA 70-20.

~~(6)~~(7) (a) When passive radon controls or portions thereof are voluntarily installed, the voluntary installation shall comply with Appendix F of the IRC.

(b) An additional inspection of a voluntary installation described in Subsection ~~(6)~~7(a) is not required.

## Part 6
## Statewide Amendments to National Electrical Code

**15A-3-601 General provisions.**

The following are adopted as amendments to the NEC to be applicable statewide:

(1) The IRC provisions are adopted as the residential electrical standards applicable to residential installations under the IRC. All other installations shall comply with the adopted NEC.

~~[(2) In NEC, Section 210.8(B), the words "and three phase receptacles rated 150 volts to ground or less, 100 amperes or less" are deleted.]~~

~~(3)~~ (2) NEC, Section ~~210.71~~ 210.65, is deleted.

~~[(4) In NEC, Section 240.67, the words "January 1, 2020" are deleted and replaced with "upon adoption of the 2020 NEC".]~~

Amended by Chapter 186, 2018 General Session

**Section B**

**Uniform Building Code Commission - Summary of recommended changes to construction codes under Title 15A, State Construction and Fire Code Act. Includes fiscal analysis where there is a cost increase or cost savings.**

**Summary of Proposed Changes:**

The UBCC Electrical Advisory Committee recommended to the UBCC Commission adoption of the 2020 National Electrical Code (NEC). The Commission voted unanimously to forward the Committee's recommendation to adopt the 2020 NEC and believe it provides industry updates, technical advances, and updated safety measures which better serve the public.

The Commission also recommends that current statewide amendments to the 2017 NEC which have now been incorporated into the 2020 NEC be deleted. The Commission believes the 2020 code now adequately addresses the reason for the Utah amendments and they are no longer necessary.

The Commission also recommends amending the references in the 2015 IRC and the 2018 IBC which refer to past editions of the NEC to conform with adoption of the 2020 NEC.

Statewide amendments to the 2020 NEC clarify that 2015 IRC provisions are adopted as the residential electrical standards applicable to residential installations under the IRC. All other installations shall comply with the adopted 2020 NEC. The amendments also delete Section 210.65 from the 2020 NEC which pertains to the requirement for receptacle outlets in meeting rooms.

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# 2020 NEC Summary and Fiscal Analysis

| Article | Change | Fiscal Impact |
|---|---|---|
| 100 | Two new definitions should align with those of the IBC and IFC | No cost |

**200**

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| 200.3 | Connection to Grounded System | N/A |
| 200.10(B) | Identification of Terminals | N/A |
| 210.8 | Ground Fault Circuit-Interrupter Protection for Personal (Both Residential as covered under the IBC and Commercial) | $20 to $50 per location identified in the code |
| 210.8(A) | Dwelling Unit GFCI Protection (Residential as covered under the IBC) | 30A GFCI - $75 to $125 for the typical dryer circuit<br>50A GFCI - $90 to $150 for the typical range |
| 210.8(A)(5) | GFCI protection in Dwelling basements (Residential as covered under the IBC) | $20 to $50 per receptacles circuit in the basement of a dwelling unit |
| 210.8(A)(11) | GFCI protection at indoor damp and wet locations of Dwelling units (Residential as covered under the IBC) | $20 to $50 per location identified in the code |
| 210.8(B) | GFCI Requirements at Non-Dwelling Unit Locations (Commercial) | $20 to $150 per location identified in the code |
| 210.8(B)(2) | GFCI Protection for Personnel in Other than Dwelling Kitchens (Commercial) | $20 to $250 per location identified in the code |
| 210.8(D) | GFCI Protection in Specific Appliances (Commercial) | $20 to $50 per location identified in the code |
| 210.8(E) | GFCI Protection for Equipment Requiring Service (Both Residential as covered under the IBC and Commercial) | $20 to $50 per location identified in the code |
| 210.8(F) | GFCI Protection in Outdoor Outlets (Residential as covered under the IBC) | $20 to $150 per location identified in the code |
| 210.11(C)(3) | Bathroom Branch Circuits | |
| 210.11(C)(4) | Garage Branch Circuits | |
| 210.12(C) | AFCI Protection in Patient Sleeping Rooms in Nursing Homes and Limited Care Facilities | $30 to $50 per location identified in the code |
| 210.12(D) | AFCI Protection in Guest Rooms and Guest Suites | $30 to $50 per location identified in the code |

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| 210.15 | Devices Not Allowed to be Reconditioned | 210.15 covers GFCI, AFCI and GFPE devices for branch circuits and reconditioning of these devices is not being done, therefore no additional costs. |
| 210.52(C) | Receptacles Outlets for Countertop or Work Surfaces (Residential as covered under the IBC) | $5-$10 per location identified in the code |
| 210.52(C)(1),(C)(2), & (C)(3) | Receptacles in wall spaces, island and peninsulare countertops and workspaces (Residential as covered under the IBC) | $5-$10 per location identified in the code |
| 210.52(E)(3) | Receptacle Outlet for Balconies, Decks, and Porches (Residential as covered under the IBC) | $5-$10 per location identified in the code |
| 210.65 | Receptacle Outlets in Meeting Rooms | Amendment in place |
| 215.9 | Feeders in GFCI in Readily Accessible Location | |
| 215.10, EX. No. 3 | Exception to Permit Temporary Feeders | |
| 220.12 and Table 220.12 | Lighting Load for Non-Dwelling Occupancies | Cost Savings |
| 220.12(J) | Unit Loads for Dwelling Units | Cost Savings |
| 220.42 | Lighting Load Demand Factors | Cost Savings |
| 220.53 | Appliance Load Dwelling Unit | |
| 225.30(B) | Special Conditions for More than One Outside Feeder | Cost Savings |
| 230.46 | Spliced and Tapped Conductors. Listing requirement not required until 1/1/2023 | |
| 230.62 C | Relocation from another section of code | No cost |
| 230.67 | Surge protection requirement for services (Residential as covered under the IBC) | 100-200 per service |
| 230.71 | Farm panels affected | No cost |
| 230.85 | Utility already requires this change proposed | No cost |
| 240.6 C | Allows for password protection for limiting access | Significant savings |
| 240.87 (B)(5) | clarification for arc flash protection (Commercial) | Minimal cost |

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| 240.88 | Reconditioned equipment limitations | Significant savings |
| 242 | New article gathered from other sections | No cost |
| 250.25 | allows grounding systems to be connected to line side | No cost |
| 250.64 (A) | Clarification for use of copper vs aluminum | Manufacturer cost |
| 250.64 (B)(2) and (B)(3) | Conduit clarity given for PVC to be schedule 80 | No cost |
| 250.184© | Additional exception added for grounding electrodes of 1300 ft | Cost savings |
| **300** | | |
| 300.4(G) | Alternative Metal Fittings: Protection Against Physical Damage | N/A |
| 300.7(A) | Sealing in Raceways Exposed to different Temperatures | N/A |
| 300.15(F) | Boxes, Conduit Bodies, or Fittings Where required | Cost savings |
| 300.22(D) | Air-Handling Areas Beneath Raised Floors for IT Rooms | N/A |
| 300.25 | Exit Enclosures (stair towers) | No cost |
| 300.45 | Danger Signs | N/A |
| 310.10 | Conductors for General Wiring | N/A |
| 310.12 | Uses Permitted of XHHN, XHWN and XHWN-2 | N/A |
| Table 310.12 | Dwelling Unit Service and Main Power Feeder Conductors | N/A |
| Table 310.16 | Ampacity Table | N/A |
| 311 | Medium Voltage Cable | |
| 312.8(B) | Energy Management Equipment | |
| 314.16(B)(5) | Volume Allowance for EGCs and Equipment Bonding Jumpers | N/A |
| 314.27(C) | Outlet boxes for Support of Ceiling-Suspended (Paddle) Fan | Changes the method of installation. Minimum cost impact. |
| 320.80(A) | Adjustment Factors of Type AC Cable | N/A |

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| 330.13 | Type MC Cable "TC-ER-HL" in Hazardous (Classified)Locations | N/A |
| 334.2 | Deletion of Reference to Type MNS Cable | N/A |
| 334.3 | Measuring Type MN cable from the enclosure | N/A |
| 337 | New Article Covering Type P Cable | N/A |
| 338.2 | Service-Entrance Conductor Assembly | N/A |
| 338.100 | Assemblies, Construction, and Uninsulated SE conductors | N/A |
| 342.10(E) | Intermediate Metal Conduit (Type IMC) | Cost Savings |
| 342.14 | Type IMC with Dissimilar Metals | |
| 344.10(A) | Uses permitted of Red Brass RMC | N/A |
| 350.10(4) | Permitted Uses for LFMC | N/A |
| 370.20 | Conductor Sizing and Terminations for Cablebus | |
| 374.6 | Listed Cellular Metal Floor Raceways | N/A |
| 380.12(7) | Uses Not Permitted for Multi-outlet Assembly | N/A |
| 382.104(C) | Equipment Grounding Conductor for Concealable Nonmetallic Extensions | N/A |
| 392.10 | Limitations for Single Conductor Applications in Cable Tray Systems | N/A |
| 392.30(B)(4) | Securing and Supporting (Cable Trays) | N/A |
| 392.44 | Expansion Splice Plates | N/A |
| 392.46 | Bushed Conduit, Tubing (Cable Trays) | N/A |

**400**

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| Table 402.3 | Added new Fixture Wire Cable type to Table FFHH-2 | Minimal cost impact |
| 404.7 | Indication for Switches needs to be visible when accessing the external operating means | None - Safety |
| 404.9 | Include faceplate requirements for all types of switches not just snap switches | None - Safety |
| 404.14 | Switches are now required to be Listed and Used within their ratings | No cost |

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| 406.4(D)(4), Ex. No. 1 | Exception No.1 for AFCI Replacement Receptacles is no longer relevant because there are products now that comply with the main requirement. | Minimal - Product is now available |
| 406.4 (D) (7) | Automatically Controlled Receptacles are required to be replaced with Equivalently Controlled Receptacles (Commercial) | $10/outlet installed |
| 406.5 (G)(2) | Receptacles are prohibited from being installed in the area beneath a sink in the Face-up Position | None - Safety |
| 406.9 (C) | Restricted Zone around Bathtub defined for Receptacle Outlet Installation | None - Safety |
| 406.12 | Tamper-resistant receptacles Requirements are expanded to detached garages, accessory buildings, and common areas in Multifamily dwelling units and hotels/motels. | Minimal |
| 406.13 | Single Pole Separable-Connectors requirements were added to this section of the code in addition to previous location in Article 520 & 530. | No cost |
| 408.4 (A) | Circuit Directory for a Panelboard - Added language that it must be in an approved location adjacent to the Panel Door | Minimal - Safety |
| 408.6 | Short Circuit Current Ratings - new requirements are adding field markings for the available fault current and date calculation was performed to be on the enclosures at the point of supply. (Commercial) | $15 per piece of equipment |
| 408.8 | Panelboards are not permitted to be reconditioned but Switchboards and Switchgear are permitted to be reconditioned | Cost Savings if owner is willing to install reconditioned switchboards |
| 408.18 (C) | Markings required to Switchboards/Switchgear if they require Rear and/or Side Access | Minimal - Done at the Manufacturer level |
| 408.43 | Panelboards are prohibited from being installed in the face-up position | None - Safety |
| 410.36(A) | Luminaires can be supported in accordance with separable attachment fittings | None - Fixtures typically come with attachment fittings |

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| 410.44 | Exception No.1 was deleted due to unnecessary language | No cost |
| 410.69 | Lighting control conductors must not be in the same color schemes as the branch circuit conductors. | Minimal - Safety |
| 410.116 (C) | Fire Rated Recessed Luminaires must be listed and installed in accordance with a fire resistance-rated assembly | Minimal - Safety |
| 410.118 | Clarification that a luminaire cannot be used to access an outlet, pull, or junction boxes or conduit bodies that are not associated with wiring for that luminaire. | None - Unless an access door is necessary in the area and it may cost up to $250 |
| Article 410, Part XVI | Horticultural Lighting Equipment - New article in the code addressing requirements for this type of equipment installed | No cost |
| 422.5(A) | GFCI requirements attended bottle fill stations, sump pumps, and dishwashers. (Both Residential as covered under the IBC and Commercial) | Minimal - $10 Public safety |
| 422.16(B)(2) | Requirements for a grommet or bushing to protect a flexible wire that passed through and opening. | Minimal - Safety |

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| No significant changes | No significant changes | No cost |

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| 600.2 | New definition for retrofit kits. Gives options for installations | Cost savings |
| 600.4 | revision of markings required | Minimal cost |
| 600.5 (A) | Outlet for signage requirement. Upfront cost future significant savings | Cost savings |
| 600.35 | Adds language for listing of retrofit kits for consistency of designs and safety | Minimal to consumer |

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| 605.1 | New language and clarification for office furniture that is covered by the code or not | Cost savings |
| 620.6 | Elevator pit GFCI new requirement (Commercial) | Minimal cost |
| 620.65 | Signage required for standby systems | Minimal cost |
| 625.1 | Change of language for electric vehicle | No cost |
| 625 part II | Added language and testing standards as part of rules | No cost |
| 625.17 (B) | Added language for cable to be part of equipment for EV stations | Options added |
| 625.44 | Added language for additional cable and voltage options for EV stations | Options added |
| 625.54 | GFCI requirement added for all receptacles for EV usage (Both Residential as covered under the IBC and Commercial) | Minimal cost |
| 625.56 | Wet location enclosure use for EV charging locations | Already practiced |
| 625.6 | EV GFCI for AC connection ports within vehicle | Manufacturer cost |
| 645.5 (E)(2) and (3) | I.T. equipment clarifies raised floor conditions in fire suppressed buildings | Cost savings |
| 680.2 and 680.14 | Added definition for high corrosive locations for swimming pools | Upfront costs with significant savings to consumer |
| 680.2,680.35, and 680.45 | Definition added to include immersion pools to be similar to pools | No cost |
| 680.2 and 680.50 | Splash pads added to language and bonding plane | Already practiced |
| 680.4 | Added language for AHJs to inspect periodically--not relevant as county health already has this ability on public pools and SPSC addresses this | No cost |
| 680.9(A) | Clarifies all conductors not just service conductors require clearances | No cost |
| 680.11 | Allows wiring within 5 feet of pool surrounds | Cost savings |

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| 680.21 (C) | Requires GFCI protection for pool motors already practiced on smaller units added cost for larger motors | Added cost for larger equipment |
| 680.21 (D) | GFCI requirement added for existing pool motors | Added cost for larger equipment |
| 680.22 (A) (5) | GFCI requirement in pool rooms required--already practiced | Minimal cost |
| 680.22 (e) | Edge | Minimal cost |
| 680.23 (b)(6) | Revision of access to wet niche luminaires in pools | Cost savings |
| 680.26 (B)(2)© | Allows use of copper grid if structural steel is not available | Options added |
| 680.26(B)(5) | Added exemption for anchors that are small from bonding requirements | Cost savings |
| 680.59 | Fountain pumps require GFCI protection | Minimal cost |
| 680.80 and 680.84 | Revision clarifies compliance with other sections of the code | Minimal cost |
| 682.15 | GFCI for personnel and for equipment added for piers on feeders (Commercial) | Higher cost; few locations $200 |
| 682.33(C) | Clarifies bonding aspects for equipotential plane on pool surrounds | No cost |
| 690.2 | Revision changes language already recognized in other part of the code | No cost |
| 690.4 (B) | Clarifies listing requirements and field evaluations for PV systems | Minimal cost |
| 690.8 (A) | Reorganizes and provides allowance for next regular size for protection of conductors | Cost savings |
| 690.12 | New product standard to clarify purpose of rapid shutdown | Manufacturer cost |
| 690.13(a) | New disconnect requirement to de-energize live parts within (Both Residential as covered under the IBC and Commercial) | Minimal cost less than $100 |
| 690.13 E | Clarity provided for types of disconnects can be used for PV | No cost |
| 690.15 | Revision to clarify for isolation of PV equipment for service | No cost |

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| 690.33 C | Provides path for differing manufacturers compatibility for connectors | Manufacturer cost |
| 690.41 (B) | Expands ground fault protection to circuits and not just arrays | Minimal cost |
| 690.51 and 690.53 | Marking requirements for PV to be done by manufacturer for equipment | Manufacturer cost |
| 690.56 C | Due to changes in 690.12 language was clarified here as well | Minimal cost |
| 691.1 | Informational note added for clarity of coverage | Not code – Information only |
| 692.4 (B) | Provides clarity for 3 separate fuel cell types | No cost or savings |
| 695.3c(3) | Requires design professional for selective coordination of fire pumps | Higher cost for design professional |
| 695.6(J) | Allows wet location wiring methods to be considered as part of requirements | Options added |
| **700** | | |
| 700.5 (A) | Clarifies that meter mounted transfer switches shall not be used in emergency systems | No cost or savings |
| 700.12 (B) | Revision clears up language and applicability with other standards | Cost savings |
| 700.12(H) | Allows DC micro grid systems to be used as emergency backup | Options added |
| 700.32 | Informational note added for clarity of coverage | Not code – Information only |
| 702.7(A) | Signage required for standby systems | Minimal cost |
| 705 | Covers multiple power systems interconnection | Cost savings |
| 706.1 | Clarifies what is covered by this section for energy storage systems | No cost |
| 706.2 | Clarifies what is covered by this section for energy storage systems | No cost |
| 706.4 | Marking requirements for energy storage systems as found in other standards | No cost |
| 706.7 | Maintenance of energy storage systems now required (Commercial) | Applicable when equipment degrades |

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| 706.9 | Labeling identified as maximum output for equipment | No cost |
| 706.30(A)(1) | Nameplate rating again identified | No cost |
| 708.24 (D) | Bypass isolation for automatic transfer switches--allows for maintenance of systems (Commercial) | Cost approximately $200 used in special conditions |
| 710.15 | Provision now applies to 3 phase systems - already applied to single | Options added |
| 712.2 | Added definition found elsewhere for clarity and consistency | Minimal cost or no cost |
| 712.10 (B) | Marking of DC micro grid systems | Minimal cost |
| 725.48(B)(1) | Allows Class I circuits to occupy same space without barrier for associated circuits | Cost savings |
| 725.144 and table 725.144 | Cleans up ampacity misunderstandings and add informational notes | Potential cost savings |
| 760.121 (B) | Overcurrent devices can be secured in the on position | Cost savings |
| 770.24 | Fiber optic cables to be protected from damage | Minimal cost |
| 770.110 (D) | Fiber optic cables now allowed to be run in raceways, cable trays and assemblies | Options added |
| 770.133 (A) and (B) | clarifies and adds exceptions for fiber optic installations with general lighting cables and others | Options added |

**800-900**

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| No significant changes | No significant changes | No cost |