

PART 128 ELECTRICAL

8 PART 128.1 GENERAL. THE DESIGN AND CONSTRUCTION OF ALL NEW INSTALLATIONS OF

9 ELECTRICAL CONDUCTORS, FITTINGS, DEVICES AND FIXTURES FOR LIGHT, HEAT AND

10 POWER SERVICE EQUIPMENT USED FOR POWER SUPPLY TO RADIO AND TELEVISION

11 RECEIVING SYSTEMS AND AMATEUR RADIO TRANSMISSION SYSTEMS IN BUILDINGS AND

12 STRUCTURES, AND ALL ALTERATIONS OR EXTENSIONS TO EXISTING WIRING SYSTEMS

13 THEREIN TO INSURE SAFETY, SHALL CONFORM TO ARTICLE 21, TITLE 7, SUBTITLE 3 OF

14 THE BALTIMORE COUNTY CODE, 2003 AS AMENDED, INCLUDING THE REQUIREMENTS FOR

15 PERMITS AND INSPECTIONS WITH RESPECT THERETO, AND TO THE NATIONAL ELECTRICAL CODE, AS AMENDED.

17 PART 128.1.1 OUT OF STATE LICENSED CONTRACTORS. ALL WORK BEING PERFORMED

18 ON A PERMIT ISSUED TO A LICENSED ELECTRICAL CONTRACTOR WHOSE BUSINESS

19 ADDRESS IS OUTSIDE THE STATE OF MARYLAND MUST BE DIRECTLY SUPERVISED BY A

20 BALTIMORE COUNTY LICENSED ELECTRICIAN.

21 PART 128.1.2 REPAIRS TO ALUMINUM CONDUCTORS. ALL REPAIRS, CHANGES, OR

22 MODIFICATIONS INVOLVING THE USE OF ALUMINUM CONDUCTORS SHALL BE MADE

23 SOLELY BY LICENSED ELECTRICAL CONTRACTORS. ALL REPAIRS SHALL REQUIRE

24 PERMITS AND INSPECTIONS PURSUANT TO SECTION 21-7-302 OF THE BALTIMORE COUNTY

25 CODE, 2003, AS AMENDED.

26 PART 128.1.3 SIGNS, LABELS, MARKINGS. ALL REQUIRED SIGNS, LABELS, MARKINGS,

27 ETC. SHALL BE PERMANENTLY AFFIXED AND SHALL BE SUITABLE FOR THE

28 ENVIRONMENT ENCOUNTERED.

29 PART 128.1.4 ACCESSIBILITY OF BUILDING SERVICE DISCONNECT. THE SERVICE

30 DISCONNECT FOR ANY BUILDING OR STRUCTURE SHALL BE ACCESSIBLE, THAT IS,

31 CAPABLE OF BEING REACHED QUICKLY FOR OPERATION.

32 PART 128.1.5 SECURING AND SUPPORTING ELECTRICAL FIXTURES, DEVICES AND

33 **EQUIPMENT IN SUSPENDED CEILINGS.** IN ADDITION TO THE REQUIREMENTS OF THE

34 NATIONAL ELECTRICAL CODE, ALL ELECTRICAL FIXTURES, DEVICES, AND

EQUIPMENT

25

MUST BE SECURED INDEPENDENTLY OF THE CEILING GRID STRUCTURE 1 UTILIZING A

2 MINIMUM 12 SWG WIRE. LAY-IN FIXTURES SHALL BE SECURED AT DIAGONAL ENDS

3 USING TWO (2) INDIVIDUAL WIRES FROM FIXTURE TO STRUCTURE. RECESSED TYPE

4 FIXTURES SHALL BE SECURED TO THE GRID TO ACCOMMODATE INSTALLATION OF

THE

5 FIXTURE TRIM.

6 PART 128.1.6 CONDUCTOR IDENTIFICATION. CONDUCTORS SHALL BE COLOR

7 IDENTIFIED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS:

8 1. ELECTRICAL CONDUCTORS:

9 A. 120V/240V 1 ϕ BLACK, RED, (WHITE GROUNDED LEG)
10 B. 120V/208V 3 ϕ BLACK, RED, BLUE, (WHITE GROUNDED LEG)
11 C. 277V/480V 3 ϕ BROWN, ORANGE, YELLOW, (GRAY GROUNDED LEG)
12 D. 240V 3 ϕ CENTER LEG GROUND BLACK, BLUE, (WHITE GROUNDED LEG
13 STRIPED RED)
14 E. 480V 3 ϕ CENTER LEG GROUND BROWN, YELLOW, (GRAY GROUNDED LEG
15 STRIPED ORANGE).

16 2. RACEWAY PULL IN SYSTEMS. PHASE AND GROUNDED CONDUCTORS:
17 A. CONDUCTORS 8 GAUGE WIRE (AWG) OR SMALLER; THE ENTIRE
18 CONDUCTOR SHALL BE THE REQUIRED COLOR THE ENTIRE LENGTH.
19 B. CONDUCTORS LARGER THAN 8 GAUGE WIRE (AWG); SHALL BE THE
20 REQUIRED COLOR OR RE-IDENTIFIED AT ALL PANELBOARDS, CONTROL
21 CENTERS, TERMINATIONS AND JUNCTION POINTS.

22 3. CABLE SYSTEMS: CABLE CONDUCTORS SHALL BE PERMITTED TO BE RE23
IDENTIFIED THE REQUIRED COLOR AT ALL PANELBOARDS, CONTROL CENTERS,
24 EQUIPMENT, AND JUNCTION POINTS, EXCEPT THAT ALL 277/480 VOLT FEEDER AND
25 BRANCH CIRCUIT CABLES OF 8 GAUGE WIRE (AWG) OR SMALLER, SHALL BE THE
26 REQUIRED COLOR THE ENTIRE LENGTH OF THE CIRCUIT.

27 4. STRIPING AND RE-IDENTIFICATION. STRIPING AND RE-IDENTIFICATION WHEN
28 PERMITTED SHALL BE ACCOMPLISHED BY:
29 A. PERMANENT COLORING OR TAPING OF 2 INCH RINGS AT 5 INCH
30 INTERVALS; OR
31 B. A PERMANENT COLORED STRIPE THE LENGTH OF THE WIRE.

32 **PART 128.2 ALUMINUM CONDUCTORS PROHIBITED 8AWG AND SMALLER.**
33 ALUMINUM CONDUCTORS OF SIZES 8 (AWG) AND SMALLER AMERICAN WIRE GAUGE
ARE
34 STRICTLY PROHIBITED FROM USE.
26

**PART 128.3 ALUMINUM CONDUCTORS PROHIBITED IN AIR 1 CONDITIONERS, HEAT
2 PUMPS AND ELECTRICAL HEAT.** ALUMINUM CONDUCTORS OF ANY GAUGE
AMERICAN
3 WIRE GAUGE (AWG) ARE STRICTLY PROHIBITED FROM USE IN THE INTERIOR OF AIR
4 CONDITIONERS, HEAT PUMPS OR ELECTRICAL HEAT UNITS OF ANY TYPE IN
BALTIMORE
5 COUNTY.

6 **PART 128.4 FOOTING GROUND REQUIRED.** THE GROUNDING ELECTRODE FOR ALL
NEW
7 BUILDINGS SHALL BE CONCRETE ENCASED IN ACCORDANCE WITH THE NATIONAL
8 ELECTRICAL CODE, AS AMENDED.

9 **PART 128.5 INSULATED SPLICING DEVICES.** INSULATED SPLICING DEVICES DESIGNED
10 TO BE USED WITHOUT A BOX SHALL BE ACCESSIBLE.

11 **PART 128.6 ELECTRICAL SIGNS.** ELECTRICAL SIGNS MOUNTED ON THE OUTSIDE OF
ALL
12 BUILDINGS AND TENANT SPACES SHALL HAVE A DISCONNECT SWITCH TO
DISCONNECT
13 THE SIGN CIRCUIT BEFORE ENTERING THE SIGN. THIS SWITCH SHALL BE LOCATED
14 ADJACENT TO AND WITHIN SIGHT OF THE SIGN SERVED.

15 **PART 128.7 MULTI OCCUPANCY ELECTRIC SERVICE.** IN MULTI-OCCUPANCY
16 BUILDINGS, SEPARATE SPACES SUPPLIED BY SEPARATE ELECTRIC SERVICE
17 LATERALS
18 OR DROPS MUST BE SEPARATED BY TWO-HOUR RATED FIRE PARTITIONS THAT
19 EXTEND
20 TO THE UNDERSIDE OF THE FLOOR OR ROOF SHEATHING ABOVE OR TO THE BOTTOM
21 OF
22 A FIRE-RATED ASSEMBLY.

23 THE FIRE PARTITION MAY BE OF ONE-HOUR RATED CONSTRUCTION IF ALL THE
24 FOLLOWING CONDITIONS ARE MET:

25 1. ADJACENT SERVICES ARE SUPPLIED BY THE SAME TRANSFORMER;

26 2. THE SPACES ARE SPRINKLERED;

27 3. THE BUILDING IS OWNED BY ONE LEGAL ENTITY;

28 4. IDENTIFYING SIGNS ARE INSTALLED AT EACH SERVICE LOCATION; AND

29 5. ALL PUBLIC SERVICES FEEDS SHALL PASS THROUGH PUBLIC OR

30 COMMON AREA SPACE.

31 **PART 128.8 SUPERVISION OF SOLAR PHOTOVOLTAIC INSTALLATIONS.** ALL PHASES
32 OF

33 SOLAR PHOTOVOLTAIC INSTALLATIONS, REPAIRS AND/OR MODIFICATIONS SHALL BE
34 PERFORMED UNDER THE SUPERVISION OF A LICENSED ELECTRICIAN QUALIFIED TO
35 INSTALL SUCH SOLAR PHOTOVOLTAIC INSTALLATIONS.

36 **PART 128.8.1 INSTALLATION OF SOLAR PHOTOVOLTAIC SYSTEMS.** NEW

37 PHOTOVOLTAIC SYSTEMS, OR EXTENSIONS OF EXISTING SYSTEMS SHALL ALSO
38 COMPLY

39 WITH SECTION 11.12 PHOTOVOLTAIC SYSTEMS OF NFPA 1, FIRE CODE, 2015 EDITION.

40

41 **EXCEPTION:** DETACHED, NONHABITABLE GROUP U STRUCTURES 1 INCLUDING, BUT
42 NOT LIMITED TO, PARKING SHADE STRUCTURES, CARPORTS, SOLAR TRELLISES AND
43 3 SIMILAR STRUCTURES SHALL NOT BE SUBJECT TO THE REQUIREMENTS OF THIS PART.

44 **PART 128.9 SOLAR PHOTOVOLTAIC SUPPLY SIDE CONNECTION TO UTILITY.** WHERE
45 SOLAR PHOTOVOLTAIC SYSTEMS ARE CONNECTED TO THE UTILITY ON THE SUPPLY
46 SIDE

47 OF THE SERVICE DISCONNECT, THE REQUIREMENTS OF THE NATIONAL ELECTRICAL
48 CODE, ARTICLE 230 SHALL APPLY TO THE INSTALLATION. GROUNDING AND BONDING
49 REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE, ARTICLE 250 FOR SERVICES
50 SHALL APPLY. THE UNFUSED PHOTOVOLTAIC SUPPLY SIDE CONDUCTORS SHALL BE
51 10 KEPT AS SHORT AS PRACTICABLE AND MUST BE IN A RACEWAY.

52 **PART 128.10 INTENTIONALLY LEFT BLANK.**

53 **PART 128.11 SOLAR PHOTOVOLTAIC WIRING.** NO PART OF THE PHOTOVOLTAIC
54 WIRING

55 OR GROUNDING SYSTEM IS PERMITTED TO OBSTRUCT THE NORMAL FLOW OF WATER
56 OFF

57 THE ROOF. THE FINAL WIRING FROM THE LAST MODULAR OF THE ARRAY TO THE
58 15 COMBINER OR JUNCTION BOX MUST BE IN A RACEWAY OR TRACK.

59 **PART 128.12 GENERATORS.** ALL GENERATORS SHALL COMPLY WITH THIS CODE AS
60 WELL

17 AS THE LATEST EDITIONS OF NFPA 37 STANDARD FOR THE INSTALLATION AND USE
OF
18 STATIONARY COMBUSTION ENGINES AND GAS TURBINES, AND NFPA 110 STANDARD
FOR

19 EMERGENCY AND STANDBY POWER SYSTEMS. INSTALLATION AND USE SHALL BE IN
20 ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

21 **PART 128.12.1 PROPERTY LINE SETBACK.** ALL GENERATORS SHALL BE SO
POSITIONED

22 AS TO BE A MINIMUM OF 5 FEET FROM A PROPERTY LINE.

23 **PART 128.12.2 GENERATOR EXHAUST.** ALL GENERATORS SHALL BE POSITIONED SO
THAT

24 THE EXHAUST POINT OF DISCHARGE IS AS FOLLOWS:

25 1. AT LEAST 5 FT IN ANY DIRECTION AWAY FROM ANY OPENINGS OR AIR
26 INTAKES.

27 2. AT LEAST 5 FT AWAY FROM A BUILDING.

28 3. AT LEAST 5 FT AWAY FROM A PROPERTY LINE.

29 **PART 128.13 PORTABLE GENERATORS.** THE FOLLOWING REQUIREMENTS GOVERN
THE

30 USE OF PORTABLE GENERATORS:

31 1. PORTABLE GENERATORS SHALL NOT BE OPERATED OR REFUELED WITHIN
32 BUILDINGS, PORCHES, BALCONIES, OR ON ROOFS.

28

2. FUELING FROM A CONTAINER SHALL ONLY BE PERMITTED 1 WHEN THE ENGINE IS
2 SHUT DOWN AND ENGINE SURFACE TEMPERATURE IS BELOW THE AUTOIGNITION
3 TEMPERATURE OF THE FUEL.

4 3. A PORTABLE GENERATOR SHALL BE ALLOWED TO BE UTILIZED AS A SOURCE OF
5 POWER FOR A MAXIMUM OF 30 DAYS IN ANY CONSECUTIVE 12-MONTH PERIOD.

6 4. TEMPORARY WIRING METHODS MAY BE ACCEPTABLE ONLY IF APPROVED BASED
7 ON THE CONDITIONS OF USE. EXCEPT AS MAY BE SPECIFICALLY MODIFIED IN THE
8 LATEST EDITION OF NFPA 70, ALL OTHER REQUIREMENTS OF NFPA 70 FOR
9 PERMANENT WIRING SHALL APPLY TO TEMPORARY WIRING INSTALLATIONS.

10 5. EXTENSION CORDS AND FLEXIBLE CORDS SHALL NOT BE AFFIXED TO
11 STRUCTURES, EXTEND THROUGH WALLS, CEILINGS, OR FLOORS, OR UNDER
12 DOORS OR FLOOR COVERINGS, OR BE SUBJECT TO ENVIRONMENTAL OR PHYSICAL
13 DAMAGE AND, UNLESS SPECIFICALLY PERMITTED IN ARTICLE 400.7 OF NFPA 70,
14 FLEXIBLE CORDS AND CABLES SHALL NOT BE USED AS A SUBSTITUTE FOR THE
15 FIXED WIRING OF A STRUCTURE.

16 6. DEVIATIONS FROM REQUIREMENTS 1 AND 4 ABOVE DURING PERIODS OF
17 CONSTRUCTION, REMODELING, REPAIR OR DEMOLITION UNDER A VALID
18 BUILDING PERMIT SHALL BE SUBJECT TO THE APPROVAL OF THE CODE OFFICIAL.

19 **PART 128.14 AUTHORITY TO ORDER DISCONNECTION OF ENERGY SOURCES.** THE
CODE

20 OFFICIAL SHALL HAVE THE AUTHORITY TO ORDER THE DISCONNECTION OF ENERGY
21 SOURCES SERVING A BUILDING, STRUCTURE OR MECHANICAL SYSTEM WHEN IT IS
22 DETERMINED THAT ANY PORTION OF THE SYSTEM, EQUIPMENT, OR INSTALLATION IS
23 HAZARDOUS OR UNSAFE.

24 **PART 128.15 ELECTRICAL RECEPTACLE REQUIRED FOR NEW OR REPLACEMENT**

25 **DECK, BALCONY OR PORCH.** WHEN THE CONSTRUCTION OF A DECK, BALCONY OR
26 PORCH IN ANY EXISTING RESIDENTIAL OCCUPANCY REQUIRES ELECTRICAL
27 MODIFICATIONS, ALTERATIONS, REPAIRS, OR INSTALLATION, AN OUTDOOR
RECEPTACLE

28 SHALL BE INSTALLED TO SERVE THE DECK, BALCONY OR PORCH IN ACCORDANCE
WITH

29 THE NATIONAL ELECTRICAL CODE, 2014 EDITION.

30 **PART 128.16 GROUNDED CONDUCTORS AT WALL SWITCH OUTLET LOCATIONS:**

31 DELETE ARTICLE 404.2(C) FROM THE NATIONAL ELECTRICAL CODE, 2014 EDITION,
ADD

32 THE FOLLOWING: A GROUNDED BRANCH CIRCUIT CONDUCTOR SHALL BE INSTALLED
AT

33 EACH WALL SWITCH OUTLET LOCATION.

34 **PART 128.17 POOL PERIMETER AREA BONDING REQUIREMENTS:**

29

DELETE ARTICLE 680.26(B)(2)(b) FROM THE NATIONAL ELECTRICAL 1 CODE (“NEC”), 2014
2 EDITION, ADD THE FOLLOWING:

3 WHERE STRUCTURAL REINFORCING STEEL IS NOT AVAILABLE OR IS ENCAPSULATED
IN

4 A NONCONDUCTIVE COMPOUND, PERIMETER SURFACE BONDING SHALL BE
5 ACCOMPLISHED BY ONE OR MORE OF THE FOLLOWING METHODS:

6 1. A COPPER CONDUCTOR GRID CONSTRUCTED OF MINIMUM 8 AWG BARE SOLID

7 COPPER CONDUCTORS BONDED TO EACH OTHER AT ALL POINTS OF CROSSING.

8 THE COPPER CONDUCTOR GRID SHALL BE CONSTRUCTED IN ACCORDANCE WITH

9 THE REQUIREMENTS OF NEC ARTICLE 680.26(B)(1)(b)(3).

10 2. WELDED CONCRETE REINFORCING WIRE BONDED TOGETHER TO FORM A SINGLE

11 GRID ENCOMPASSING THE SURFACE AREA DEFINED IN NEC ARTICLE 680.26(B)(2).

12 3. UN-ENCAPSULATED STRUCTURAL REINFORCING STEEL BONDED TOGETHER BY

13 STEEL TIE WIRES OR THE EQUIVALENT. THE STEEL GRID SHALL BE CONSTRUCTED

14 IN ACCORDANCE WITH THE REQUIREMENTS OF NEC ARTICLE 680.26(B)(1)(b)(3).

15 WHERE THE PERIMETER SURFACE DEFINED IN NEC ARTICLE 680.26(B)(2) IS:

16 1. POURED CONCRETE.

17 A. ONE OR MORE OF THE METHODS DESCRIBED IN THIS SECTION SHALL BE

18 ENCASED IN THE POURED CONCRETE.

19 2. NATURAL GRADE.

20 A. A COPPER CONDUCTOR GRID AS DESCRIBED IN THIS SECTION SHALL BE

21 INSTALLED BENEATH THE FINAL GRADE.

22 3. PAVERS.

23 A. ON NATURAL GRADE (WITH OR WITHOUT A SUBSURFACE).

24 I. A COPPER CONDUCTOR GRID AS DESCRIBED IN THIS SECTION SHALL

25 BE INSTALLED BENEATH THE FINAL GRADE.

26 B. ON POURED CONCRETE.

27 I. WHERE PAVERS ARE INSTALLED ON TOP OF POURED CONCRETE THE

28 FINISHED SURFACE SHALL BE CONSIDERED TO BE A POURED

29 CONCRETE SURFACE. ONE OR MORE OF THE METHODS DESCRIBED IN

30 THIS SECTION SHALL BE ENCASED IN THE POURED CONCRETE.