



Electrical Plan Review Requirements

Department of Planning & Development Review, Bureau of Permits and Inspections
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For Public Distribution

2015 VUSBC Code Cycle

December 01, 2019*

THE FOLLOWING DO NOT REQUIRE PLANS FOR PERMIT:

- 1) Electrical connections for elevators;
- 2) Exterior temporary power poles;
- 3) Projects \$5,000 or less;
- 4) All low voltage electrical projects (this does not include fire alarm or security);
- 5) Single and two family dwelling projects;
- 6) **Underground raceway.**

****Plans, and/or other documents, may be required at the discretion of the inspector. **
(For any changes in the path of egress, the contractor shall comply with Section B-2.90)**

Low voltage security (access or egress control systems or delayed locking or latching systems) and fire alarm shall be completed under separate permits. Plans are not required for low voltage security permits.

All project documents under a commercial electrical permit application shall be in PDF format and are required to be submitted (thumb/flash drive (preferred) or CD/DVD media) to the City of Richmond, City Hall, Room 108. For walk-in or mailed in permit applications or resubmissions, make sure to have a printed copy of either the permit application or plan intake sheet. ****Do not leave Room 108 without your media (thumb/flash drive or CD/DVD). The City will not claim responsibility for such devices.****

The requirements herein may not be required for all submissions. Please contact the Bureau of Permits and Inspections if you are unsure of which requirements are necessary for your project.

The following set of requirements are based on the 2015 version of the Virginia Uniform Statewide Building Code (VUSBC). Depending on when the building permit application was filed, a project might still fall under the codes listed in the December 01, 2018 version handout. We will still accept the checklist from that handout based on the building permit application version of the VUSBC.

Virginia Construction Code (VCC)-2015	International Code Council (ICC) A117.1-2009
Virginia Energy Conservation Code (VECC)-2015	National Fire Protection Association (NFPA) 20-2013
American Society of Civil Engineers (ASCE) 7-10	National Electrical Code (NEC)/(NFPA 70) - 2014
ASCE 24-14	NFPA 111-2013
Virginia Existing Building Code (VEBC)-2015	NFPA 110-2013

Pages **24-25** (Annex D) of this checklist shall be submitted, as a PDF file, with all required Construction Documents as a check to make sure the engineer/owner/contractor has fulfilled the City's requirements. The Checklist shall be signed by either the Contractor/Master Electrician OR signed/sealed by the Engineer of record. All appropriate items within this checklist that pertain to the project shall be checked (i.e. "✓").

Sections B-1.08 - B-1.14 are required for all documents submitted after the permit has been issued.

**Changes to this document will occur on June 1st and December 1st (or when there is a code cycle change). Make sure to check the webpage on these dates for any revisions:
<http://www.richmondgov.com/planninganddevelopmentreview/forms.aspx>*

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Section A: General Requirements for Projects:

01	Provide a complete set of electronic (PDF) electrical Construction Documents on either a thumb drive or CD/DVD. For plans, make sure you have one PDF file of all plans. All plans to be the same size. All submitted documents shall follow the naming convention in Section A-5, page 5.
02	The plans shall contain only information required for this permit. Information that relates to other permits shall not be on this set of plans.
03	Plans shall be neat and legible, and shall be all the same size. See Annex B for example plans.
04	Plans shall be at least 1/8" (1/8" = 1'-0") scale or larger, other than site plans. Provide a graphical scale(s) on all plans that have scaled floorplans. Provide a graphical scale for all different scaled floorplans on each plan (see Annex B-E2, E3 and E3A for examples).
05	For project with more than one plan/sheet/plan, provide a list of all plans, on the first electrical plan, stating sheet number and description of the plan. See Annex B-E1 for an example.
06	All rooms/areas containing new/relocated equipment (service entrance equipment, electrical panels, transformers, etc.) are required to show all working clearance space about equipment [NEC 110.26]. See Annex B-E3 for an example. Show all new and existing equipment and any other obstructions (trees, walls, etc.) in these rooms/areas. Make sure this is a plan view, not an elevation view (elevation view is optional unless it is required to show equipment location(s)).
07	All text on the plans shall be at least 0.125" in height. Exceptions: Photometrics, superscripts, and subscripts at least 0.1" in height.
08	All plans shall have the information shown in the example title block in Section A-1 . See Annex B-E1 for an example.
09	On the first electrical plan, provide all the project information shown in Section A-2 . See Annex B-E1 for an example.
10	Provide all necessary engineering details on the plan(s).
11	Provide a legend for all symbols and abbreviations/acronyms on the plan(s). See Annex B-E1 for an example.
12	For projects that require specifications, provide only the electrical specifications on the plans. For specifications not on plans, provide an electronic (PDF) copy of electrical specifications only. Follow the naming convention in Section A-5, page 5.
13	Within the scope of work, all spaces (specify dwelling unit numbers) and rooms shall be labeled, on all the plan(s), as to their use. See Annex B-E2, E3 for an example. This includes spaces such as closets, hallways, etc.
14	All Plans shall be signed by the proper individual, and only that individual will sign/seal all plans. See Annex A for a list of all Use Groups and whom can sign these plans. List is based on the Code of Virginia §54.1-402. Only one signature or signed/seal shall be on each plan.
15	New work shall be differentiated from that which exists. See Annex B-E4, E4A for an example. The plans shall make it clear what is new and what is existing.
16	Electrical site work requires plans. All parking lots with lighting (showing photometrics in parking lot on the plan(s)) shall be routed to Zoning for review. Provide graphical scale on all site plan plans (see Annex B-E2, E3 for an example).
17	For multi-level buildings, there shall be a floor plan for each and every level, do not show a "typical" floor plan for multiple levels. The electrical inspector will use this for their inspections.
18	For all projects (other than Residential Buildings per VECC) with any new lighting, provide a COMCheck. Refer to Section E-1 for further description of what is required for energy code compliance.
19	For dwelling units in multi-use building(s) or use groups R2, and R4 with greater than three stories, state on the plan(s) how the project is in compliance with IECC C405.1, exception. Provide on the plan(s), the percentage of high-efficacy fixtures for each dwelling unit and provide the lumens/watt rating in the fixture schedule.
20	For project with new or revised load(s), provide load calculations for entire normal service [provide separate load calculation for new generator(s)] on the plan(s). For renovation projects, provide existing load based on Article 220.87. Refer to NEC 220, NEC ANNEX D.
21	For high-rise buildings, provide all necessary emergency and legally required loads as specified for high-rise buildings on the plan(s). Refer to IBC Section 403.
22	For projects with hazardous areas, show this on the plan(s) stating the Class and Division as well. Show an outline of each hazardous area on the plans. Refer to NEC Article 500.
23	For all patient care projects, provide a list on the plan(s) stating which rooms/areas are patient care areas. Provide proper wiring to these locations. Refer to NEC Article 517.
24	For projects with photovoltaic, see Section D-2 for the City of Richmond's plan requirements for photovoltaic projects. Refer to NEC Article 690.
25	For projects that require selective coordination, check this requirement and make sure that the coordination study and other required documents (See Annex F) are submitted and approved by the City of Richmond prior to service inspection.
26	For all projects listed as class IV in Chapter 16 of the VCC (Table 1604.5), provide seismic details for mounting of all emergency equipment and devices. Refer to Section D-3 for Seismic Requirements.
27	Provide a completed checklist (Pages 24 through 25) with all applicable items checked ("✓"). The Checklist shall be signed by either the Contractor/Master Electrician OR signed/sealed by the Engineer or record.
28	All plans shall have a 3.5" x 2" clear area for City of Richmond approval stamp. Do not add a box for this area, just make sure you have at least the required 3.5" x 2" area.

Section A: General Requirements for All Projects:

A-1: Example Title Block

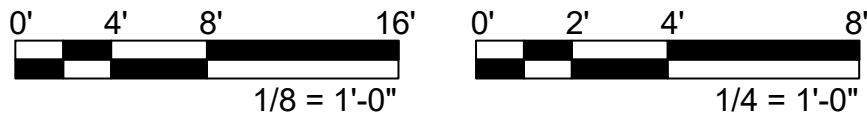
Project Name:	Project Address:		
Designer's Name:	Designer's License No. or Master No.:		
Telephone No:	Fax No:		
Email:	Scale:		
Title:			Sheet No:

A-2: Project Information

Building Code Year:	Electrical Code Year:	Construction Type:
Use Group:	Change of Use? Yes No	Occupancy Load: (Required for path of egress)
Is project in flood plain?	BFE per FIRM: (Not applicable (N/A) if project is not in a flood plain)	DFE: (Not applicable (N/A) if project is not in a flood plain)
Square footage of project: (Required for new/renovated lighting)	Total square footage of building: (Required for new/renovated lighting)	Level of Renovation: (Required for projects under the IEBC)
Elevation of Service Entrance Disconnect Switch (Not applicable (N/A) if project is not in a flood plain)	Alteration Level: (Required for renovation projects using the IEBC)	Is their new load? Yes No
Floor elevation at Service Entrance Disconnect Switch (Not applicable (N/A) if project is not in a flood plain)		

BFE—Base Flood Elevation DFE—Design Flood Elevation FIRM—Flood Insurance Rate Map
(All flood, floor and Service Entrance Disconnect Switch elevations shall be shown as “feet above sea level”)

A-3: Example Graphical Scale



A-4: External Links

Department of Planning and Development Review—Forms and Applications:

<http://www.richmondgov.com/PlanningAndDevelopmentReview/forms.aspx>

City of Richmond’s Electrical Plan Review Requirements Checklist:

http://www.richmondgov.com/planninganddevelopmentreview/forms/Electrical_Handout.pdf

COMCheck:

<https://www.energycodes.gov/comcheck>

UL Fire Stopping Details:

<http://productspec.ul.com/index.php?type=firestop>

City of Richmond GIS Flood Plain Map:

<http://cor.maps.arcgis.com/home/webmap/viewer.html?webmap=d039492bec5346c8a75de1b6340da1c8>

City of Richmond GIS Parcel Mapper:

<http://cor.maps.arcgis.com/apps/webappviewer/index.html?id=c3ed34c0fb38441fb95cd2d2d6a22d48/>

FEMA:

http://www.richmondgov.com/dpu/documents/FEMA_CITY.pdf

Virginia Construction Codes (2015 Edition):

<https://codes.iccsafe.org/category/Virginia?year=2015>

Permit/Plan/Inspection Status:

http://energov.richmondgov.com/EnerGov_Prod/CitizenAccess/Site/Public/Main

Section A: General Requirements for All Projects:

A-5: File Naming Convention

New Plan Construction Documents:

(see below for a list of file descriptions that the City accepts):

<file description>_<Street Address>.pdf

Example file names:

Plans_6112 Three Chopt Road.pdf	COMCheck_6112 Three Chopt Road.pdf
Checklist_6112 Three Chopt Road.pdf	Specifications_6112 Three Chopt Road.pdf

Resubmission based on City Comments (pre-permit):

[for documents being re-submitted due to comments for “post-permit” revisions, please see the “Post-Permit Revised Construction Documents” below] (see below for a list of file descriptions that the City accepts):

<file description>_<Street Address> - <plan number>.pdf

Example file names:

Plans_6112 Three Chopt Road - ELEC-016566-2017.pdf
COMCheck_6112 Three Chopt Road - ELEC-016566-2017.pdf
Response Letter_6112 Three Chopt Road - ELEC-016566-2017.pdf

Post-Permit Revised Construction Documents:

[The “revision date” should be based on the revision date located on the plan(s). All plans in the set shall have the same revision date]. For Post-Permit documents, do not use the “Plan Number” in the file name, only the “Permit Number” (see below for a list of file descriptions that the City accepts):

<file description>_<Street Address> - <permit number>_Rev <revision date>.pdf

Example file names:

Plans_6112 Three Chopt Road - ELEC-021780-2017_Rev 6-1-2017.pdf
Clarification Letter_6112 Three Chopt Road - ELEC-021780-2017_Rev 6-1-2017.pdf

City accepted “file descriptions”.

- Checklist
- Clarification Letter (*Note: This letter is to clarify any modification to plans that the City did not comment on*)
- COMCheck
- Coordination Study
- Emergency Lighting Test Checklist
- Engineer Letter**
- Fault Current Letter
- Motor Efficiency Certification
- Permit Application
- Plan Intake Sheet
- Plans
- Response Letter (*Note: This letter shall contain responses to all City comments*)
- Roof Layout (*Note: for photovoltaic*)
- Series Rating Data
- Specifications
- Structural Letter (*Note: for photovoltaic*)
- Submittal Data
- Transformer Efficiency Certification

Section B: Projects 50 Volts and Greater - New and Renovated Buildings:

B-1: General Requirements

Contact Information

01	Provide engineer of record contact information. Required Contact information shall be the following: telephone number, email address, and mailing address. Or, for plans signed by a contractor, provide contractor's contact information.
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Revised Plans - Due to Plan Review Comments

02	Provide a complete set of electronic (PDF) electrical Construction Documents. Plans shall be in one PDF file and shall not have any City stamps from any discipline within the City of Richmond or any other markings that are not original to the plans. Unless required by the plan reviewer, a checklist is not be required for re-submission. All submitted documents shall follow the naming convention in Section A-5, page 5. For plans being resubmitted due to comments for a "post-permit" revision, provide all plans that were submitted for that post-permit revision (for example if only three plans were submitted in the post-permit revision, then resubmit those three plans). All documents being resubmitted shall be brought into Room 108 at City Hall for processing.
03	Revised plans are required to be the same size as original plans.
04	Provide a response letter, in PDF format with a file name based on Section A-5, Page 5, stating the resolution for each comment item. All comments shall be addressed in the response letter. Failure to provide this information will delay the permit being issued. Provide a detail response for each comment item. Responses of "Will Comply", "Okay", "Noted", "Will Verify", "This has been complied with", and other responses that do not provide a detailed response will not be acceptable responses. Responses such as those noted, will be sent back for proper responses.
05	Provide clouds around response letter modifications only (do not cloud an entire area, since the modification might not affect that entire area, unless it's a new plan, in that case cloud the plan number) with numbered revision triangles and remove clouds from previously issued revision(s). See Annex B-E1 for an example.
06	Provide revision triangles with number, description and date. See Annex B-E1 for an example (For space reason, the date and description is not shown on the example, just the revision triangle).

Revised Plans - For Revisions After Permit is Approved

07	Provide a complete set (revised plans/documents only) of electronic (PDF) electrical Construction Documents. Plans shall be in one PDF file and not have any City stamps from any discipline within the City of Richmond or any other markings that are not original to the plans. Complete set of the electrical plans is not required for changes after the permit has been issued. You only need to submit the plans that were modified based on the clarification letter. For re-submitting post-permit plans based on plan review comments, see items 02 through 06 above. Unless required by the plan reviewer, a checklist is not be required for resubmission. All submitted documents shall follow the naming convention in Section A-5, page 5. All documents being submitted shall be brought into Room 108 at City Hall for processing.
08	Revised plans are required to be the same size as original plans.
09	Provide a clarification letter, in PDF format with a file name based on Section A-5, Page 5, stating all modifications per each plan. The clarification letter shall include the plan number, date of the modification, and a detailed description of each modifications. Cloud each modification separately. Failure to provide this information will delay the permit being issued.
10	Provide clouds around modifications only (do not cloud an entire area, since the modification might not affect that entire area, unless it's a new plan, in that case cloud the plan number) with numbered revision triangles and remove clouds from previously approved revision(s). See Annex B-E1 for an example.
11	When a plan reviewer submits comments based on the post-permit plans, make sure NOT to add a new revision number and date. Keep all clouds and triangles based on the original post-permit number and date. If required to add a new revision number, KEEP the same date of the original post-permit submission.
12	Do not skip revisions, submit all revisions for review that affect the permit when they are issued; do not wait until 2 or 3 revisions have been made to submit for review.
13	There is a fee for revisions after the permit has been issued. For projects that are greater than \$500,000, there will be a one-time fee at the first revision. No other fees will be required for other revisions. For projects under \$500,000, a revision fee of 10% of the original permit application fee will be charged for all revisions after permit has been approved.

Section B: Projects 50 Volts and Greater - New and Renovated Buildings:

B-2: Code Requirements

	Description	Code
Building Code		
01	If there are no rated assemblies or no rated assemblies being penetrated, state this on the first electrical plan. Clearly label all fire rated assemblies, firewalls, fire separation walls as to their rating in hours on all electrical plans. See Annex B-E2, E3.	VCC 714.3.2
02	Provide, on the plan(s), UL listed fire stopping detail as found in the latest edition of the UL Fire Resistance Directory for the type of through penetration used (see Annex B-E6, Annex C). See link below if help is needed: http://productspec.ul.com/index.php?type=firestop	VCC 714.3.2
03	Where walls, ceilings, floors or partitions are required to have a fire resistance rating, recessed fixtures shall be installed such that the required fire resistance will not be reduced.	VCC 714.3.2
04	Smoke Alarms shall be installed on the ceiling or wall outside of each separate sleeping area in the immediate vicinity of bedrooms.	VCC 907.2.11.2.1
05	Smoke Alarms shall be installed in each room used for sleeping purposes.	VCC 907.2.11.1.1, 907.2.11.2.2
06	Smoke Alarm devices shall be located in each story within a dwelling unit, including basements, but not including crawl spaces and uninhabitable attics.	VCC 907.2.11.1.3, 907.2.11.2.3
07	Smoke Alarm devices in each dwelling unit need to be interconnected. Provide note on the plan(s) stating this.	VCC 907.2.11.5
08	In Group R-2 occupancies required by Section 907 to have a smoke alarm system, all dwelling units, and sleeping units shall be provided with the capability to support visible alarm notification appliances in accordance with Chapter 10 of ICC A117.1. Such capability shall be permitted to include the potential for future interconnection of the building fire alarm system with the unit smoke alarms, replacement of audible appliances with combination audible/visible appliances, or future extension of the existing wiring form the unit smoke alarm locations to required locations for visible appliances.	VCC 907.5.2.3.3
09	For projects required to have a path of egress, provide a continuous and unobstructed way of egress travel from any accessible point in the building to a public way. This will be the Accessible Means of Egress. This should be located on the lighting plan. See Annex B-E2.	VCC 202, 1008
10	Label all type "A" and "B" accessible dwelling and sleeping units on the plans.	VCC 1107
11	In type "A" accessible units: All lighting controls, electrical switches and receptacle outlets, electrical panelboards, environmental controls, appliance controls and user controls for security or intercom systems shall comply with ICC A117.1 section 309. Show clear spaces and mounting heights on the plans.	ICC A117.1 1003.9
12	In type "B" accessible units: All lighting controls, electrical switches and receptacle outlets, electrical panelboards, environmental controls and user controls for security or intercom systems shall comply with ICC A117.1 section 309. Show clear spaces and mounting heights on the plans.	ICC A117.1 1004.9
Flood Plain		
13	Show Design Flood Elevation (DFE) with the required project information (see Section A-1) OR state " Not in flood plain " on plans. DFE shall be based on ASCE 24-14 Table 1-1 and ASCE 24-14 Table 7-1.	VCC 1612, NEC 110.28, ASCE 24-14
14	Show floor/level elevations and flood elevations on each plan, or provide elevation detail showing this information.	VUSBC 109.3, ASCE 24-14
15	For all circuits, switches, receptacles, fixtures, and other electrical components and equipment installed below the design flood elevation shall be energized from a common distribution panel located above and accessible from above the design flood elevation. Provide the location of the common distribution panel along with the Base Flood Elevation (BFE) and Design Flood Elevation (DFE) on the plan(s).	ASCE 24-14 7.2.5
	Link to GIS Flood Plain Map for the City of Richmond: http://cor.maps.arcgis.com/home/webmap/viewer.html?webmap=d039492bec5346c8a75de1b6340da1c8 For FEMA information see the following: http://www.richmondgov.com/dpu/documents/FEMA_CITY.pdf	

Section B: Projects 50 Volts and Greater - New and Renovated Buildings:

B-2: Code Requirements

	Description	Code
Site Plans		
	It is recommended that the contractor file a separate permit for site lighting and associated electrical work, so interior electrical work will not be delayed by additional time by Zoning. Parking lots fall under this category.	
16	Show outline of building, along with any streets, alleys, and property lines on the site plan(s).	VUSBC 109.3
17	Show any parking lot lighting, site lighting, and signage. On the site plan(s).	VUSBC 109.3
18	Show all wiring/raceway sizes, along with burial depths, if installed underground. On the site plan(s).	NEC 300.5
19	Any site electrical work that encroaches on public land, shall apply for an encroachment through the Department of Public Works.	
20	All underground duct banks shall be shown on the plan. Provide detail for the duct bank on the plan.	VUSBC 109.3
21	For project with pole mounted lighting fixtures, provide detail showing pole mount on the plan(s). State depth of conductors/raceway in the detail.	VUSBC 109.3, NEC 300.5, 300.50
One-Line/Riser Diagram (See Annex B-E4. B-E4A)		
22	Provide all new equipment/devices between service and feeder conductors and existing equipment that are on the load and supply side of the new equipment, on the on one-line/riser diagram.	VUSBC 109.3, NEC 110.3, 110.9
23	Provide one-line/riser diagram for any new or revised service(s) on the plan(s).	VUSBC 109.3
24	Show all overcurrent protection device sizes (branch circuit overcurrent protection devices are not required in the one-line/riser diagram), safety/disconnect switch sizes, raceway and conductor sizes, wireway and trough sizes in the one-line/riser diagram. All overcurrent protection devices protecting feeders shall be shown on the one-line/riser diagram.	NEC 240, NEC Chapter 3
25	All new/revised feeders shall be shown on the one-line/riser diagram, with size/type conductors (including insulation type) and raceways. If there is a separate Feeder Schedule, make sure this is located on the same plan as the one-line/riser diagram.	NEC 310.15, 250.122
26	When Aluminum is allowed in lieu of Copper for service and feeder conductors, specify both the Copper and the Aluminum conductor/raceway size(s) on the one-line diagram. A table of the conductor/raceway size(s) is acceptable as well, as long as it is located on the same plan as the one-line diagram.	NEC 310.15
27	For new/revised transformers, indicate size in KVA, primary and secondary voltages, conductor size (grounding electrode conductor as well) , raceway size, and provide grounding electrode that the transformer will be bonded to in the one-line/riser diagram. If there is a separate Transformer Schedule, make sure this is located on the same plan as the one-line/riser diagram.	NEC 110.3, 250.52
28	Specify either Main Lug Only (MLO) or Main Circuit Breaker (MCB) and panel amperage for all new and revised panels in the one-line/riser diagram.	VUSBC 109.3
29	Show AIC rating of all new equipment and devices (for a service change, then show the AIC rating for all equipment and devices) in the one-line/riser diagram. For equipment with no overcurrent protection, provide equipment withstand current rating on the one-line diagram.	NEC 110.9
30	Show all utilized grounding electrodes and their types in the one-line/riser diagram. For building steel, make sure the plan specifies the method used for considering the building steel as a grounding electrode [i.e. either NEC 250.52 (A)(2)(1) or 250.52 (A)(2)(2)]. If there is a separate Grounding System Diagram, make sure this is located on the same plan as the one-line/riser diagram.	NEC 250.52, 250.52 (A)(2)
31	Show fault current at all new equipment and devices in the one-line/riser diagram (when using fault current calculations, they shall be shown on the same plan as the one-line diagram). For equipment downstream of the service or new equipment and devices, show fault currents down to less than 10KAIC. You are not required to show the fault current for any equipment that is on the load side of the equipment/device that is below 10KAIC. Provide a PDF of Dominion Virginia Power's Fault Current Letter so that we may verify your fault current on the plans.	NEC 110.9
32	Size the grounding electrode conductors for both services and separately derived systems on the one-line/riser diagram. Do not say "size per NEC".	NEC 250.66, 250.122

Section B: Projects 50 Volts and Greater - New and Renovated Buildings:

B-2: Code Requirements

Description

Code

One-Line/Riser Diagram (See Annex B-E4. B-E4A) (Cont.)

33	For generators and transfer switch(es), specify the NEC Article (700, 701, 702, etc.) next to the generator and/or transfer switch(es), to specify the use of the generator/transfer switch(es), in the one-line diagram.	NEC 240.12, 240.100, 517.17, 517.30 (G), 620.62, 645.27, 700.27/700.28, 701.27, 702, 708.54
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Grounding/Bonding

34	Size of service grounded conductor shall be based on Table 250.102(C)(1), but shall not be required to be larger than the largest ungrounded service-entrance conductor.	NEC 250.24 (C)(1)
35	For parallel conductors, the size of the grounded conductor in each raceway shall be based on the total circular mil area of the parallel ungrounded conductors in the raceway, as indicated in 250.24 (C)(1), but not smaller than 1/0 AWG.	NEC 250.24 (C)(2)
36	Structural steel and metal piping shall be connected to the grounded conductor of a separately derived system in accordance with 250.104(D).	NEC 250.30 (A)(8)
37	Building(s) or structure(s) supplied by feeder(s) or branch circuit(s) shall have a grounding electrode or grounding electrode system. The grounding electrode conductor(s) shall be connected in accordance with NEC 250.32(B) or (C).	NEC 250.32
38	All grounding electrodes as described in 250.52(A)(1) through (A)(7) that are present at each building or structure shall be bonded together to form the grounding electrode system. Where none of these grounding electrodes exist, one or more of the grounding electrodes specified in 250.52(A)(4) through (A)(8) shall be installed and used.	NEC 250.50
39	Where an ac system is connected to a grounding electrode in or at a building or structure, the same electrode shall be used to ground conductor enclosures and equipment in or on that building or structure. Where separate services, feeders, or branch circuits supply a building and are required to be connected to a grounding electrode(s), the same grounding electrode(s) shall be used.	NEC 250.58
40	The size of the grounding electrode conductor at the service, at each building or structure where supplied by a feeder(s) or branch circuit(s), or at a separately derived system of a grounded or ungrounded ac system shall not be less than given in Table 250.66, except as permitted in 250.66(A) through (C).	NEC 250.66
41	Equipment grounding conductors shall not be smaller than shown in Table 250.122, but in no case shall they be required to be larger than the circuit conductors supplying the equipment.	NEC 250.122
42	Provide grounding/bonding requirements for permanently installed pools, spas, hot tubs, and fountains based on Article 680.	NEC 680

Disconnects and Starters

43	The service disconnecting means shall be located within the nearest point the conductors enter the building. There shall not be any greater than six feet of unprotected conductors from when the service enters the building to the service disconnecting means.	NEC 230.70(A)(1)
44	Show location of all safety/disconnect switches and motor starters on the floor plan(s) - in sight of equipment. See Annex B-E3.	NEC 110.26, NEC 240.21
45	For safety/disconnect switches and motor starters provide size, type (i.e. fused/non-fused), overcurrent protection device size (if applicable), and NEMA rating on the plan(s).	NEC 110.3
46	For all permanently connected devices greater than 300VA, provide disconnect means within site of the device.	NEC 422.31 (B), (C)

Section B: Projects 50 Volts and Greater - New and Renovated Buildings:

B-2: Code Requirements

Description

Code

Overcurrent Protection Devices

47	For overcurrent devices rated 800 amperes or less, the next higher standard overcurrent device rating shall be permitted to be used based on all conditions of 240.5(B) are met.	NEC 240.4(B)
48	Where the overcurrent device is rated over 800 amperes, the ampacity of the conductors it protects shall be equal to or greater than the rating of the overcurrent device defined in NEC 240.6.	NEC 240.4(C)
49	Single-phase (other than 2-wire) and multiphase (other than delta-delta, 3-wire) transformer secondary conductors shall not be considered to be protected by the primary overcurrent protective device.	NEC 240.4(F)
50	Ground fault protection of equipment shall be provided in accordance with the provisions of NEC 230.95 for solidly grounded wye electrical systems of more than 150 volts to ground but not exceeding 600 volts phase-to-phase for each individual device used as a building or structure main disconnecting means rated 1000 amperes or more.	NEC 240.13
51	Conductors shall be permitted to be tapped, without overcurrent protection at the tap, to a feeder as specified in NEC 240.21(B)(1) through (B)(5). The provisions of NEC 240.4(B) shall not be permitted for tap conductors.	NEC 240.21(B)
52	A set of conductors feeding a single load, or each set of conductors feeding separate loads, shall be permitted to be connected to a transformer secondary, without overcurrent protection at the secondary, as specified in NEC 240.21(C)(1) through (C)(6). The provisions of NEC 240.4(B) shall not be permitted for transformer secondary conductors.	NEC 240.21(C)
53	Provide proper overcurrent protection for taps supplying a transformer.	NEC 240.21(B)(3), 240.21(C)(5)
54	Series rated combination devices shall be selected by a professional engineer.	NEC 240.86(A)
55	Professional Engineer shall provide documentation on how devices meet the series rating.	NEC 240.86(A)
56	For calculated applications, the professional engineer shall provide these calculations with the documentation on how devices meet the series rating.	NEC 240.86 (A)
57	Series ratings shall not be used where: 1) Motors are connected on the load side of the higher-rated overcurrent device and on the line side of the lower-rated overcurrent device, and 2) The sum of the motor full-load currents exceeds 1 percent of the interrupting rating of the lower-rated circuit breaker.	NEC 240.86 (C)

Panelboards

58	Provide, on the plan(s), panelboard schedule with loads in amps or KVA (indicate which) fuse or circuit breaker sizes and wire sizes - See Annex B-E5 . Panelboard schedules are required for all new projects and for renovations projects that will be modifying circuit numbers and circuit locations.	NEC 220
59	Show panelboard location(s) on floor plan(s).	NEC 110.26
60	Indicate main lugs only (MLO), main fuse, or main circuit breaker (MCB) size in the panelboard schedule.	NEC 110.3
61	For all new panels, indicate voltage, phase, size (in amperes) and AIC rating in the panelboard schedule. For MLO panels, provide withstand current rating.	NEC 110.3

Branch Circuits

62	Show all homeruns, listing the circuit numbers and panel they are associated with. See Annex B-E2, E3 .	NEC 310.15(B)(3) (a), (B)(3)(b)
63	Show circuit number at each branch device, if not clear by the homerun. See Annex B-E2, E3 .	
64	Check for too many fixtures and receptacles on a circuit.	NEC 210.20, 220.14 (I)
65	Provide size of conductors/raceway for branch circuits that are not shown in the panel schedule.	VUSBC 109.3
66	Provide proper GFCI and AFCI Protection.	NEC 210.08, 210.12

Section B: Projects 50 Volts and Greater - New and Renovated Buildings:

B-2: Code Requirements

	Description	Code
Branch Circuits (Cont.)		
67	For all dwelling units, provide proper receptacle spacing and required receptacle locations.	NEC 210.52
68	Provide, on the plan(s), the wiring methods, including raceway, conductors, and conductor insulation type, unless provided in specifications.	NEC Chapter 3
Equipment/Appliances		
69	Show, label and provide description for all new and revised equipment/appliance/device/lighting on the plan(s). For buildings with multiple tenants/dwelling units, label the tenant/dwelling unit number next to equipment that is not specifically located in each tenant/dwelling unit.	NEC 110.26, VCC 109.3
70	For equipment located in either a damp or wet location, provide proper protection for that equipment based on the requirements in Chapter 4 of the National Electrical Code.	NEC Chapter 4
Transformers		
71	Transformers larger than 112.5KVA shall be located in a fire rated room. See exceptions for transformers with insulation class of 155 or greater. Provide proper documentation, on the plan(s) on how the transformer meets any exceptions.	NEC 450.21(B)
Fire Pumps		
72	Provide sufficient detail on the plan(s) to show how the fire pump will be protected from interruption.	NEC 695.3
73	Transformer size in accordance with NEC Article 450.3, feeder size in accordance with NEC Article 215.3, overcurrent protection device shall be selected or set to carry indefinitely the sum of the locked-rotor current of the fire pump motor(s), the full-load current of the associated fire pump accessory equipment, and 100 percent of the remaining loads supplied by the transformer.	NEC 695.5 (C)(2)
74	Comply with NEC 695.6 (A) and (B) .	NEC 695.6 (A), (B)
75	Indoor fire pumps in non-high-rise buildings shall be physically separated or protected by fire rated construction in accordance with Table 5.12.1.1.2.	NFPA 20 4.12.1.1.2
76	Rooms containing fire pumps shall be free from storage and penetrations not essential to the operation of the pump and related components.	NFPA 20 4.12.1.1.4
Generators		
77	For Emergency (NEC Article 700) and Legally Required (NEC 701) Loads, where an outdoor housed generator set is equipped with a readily accessible disconnecting means located within sight of the building or structure supplied, an additional disconnecting means shall not be required where ungrounded conductors serve or pass through the building or structure. The disconnecting means shall meet the requirements of 225.36. Specify the NEC Article (700, 701, 702, etc.), to specify the use of the generator, on the plan(s).	NEC 700.12 (B)(5), NEC 701.12 (B)(6)
78	The generator room shall have a minimum 2-hour fire rating or be located in an adequate enclosure located outside the building capable or resisting the entrance of snow or rain at a maximum wind velocity required by local building codes.	NFPA 110 7.2.1.1
79	No other equipment, including architectural appurtenances, except those that serve this space, shall be permitted in this room.	NFPA 110 7.2.1.3
80	Emergency Power Supply System equipment shall not be installed in the same room where the normal electrical service equipment is installed.	NFPA 110 7.2.3
81	Transfer switches shall be permitted to be installed in the normal electrical service room where twice the clearance required by article 110.26(a) of NFPA 70 (NEC) exists between equipment enclosure	NFPA 110 7.2.3
Lighting Fixture Schedule/Lighting Plans		
82	Show all lighting fixture types in lighting fixture schedule. Show the fixture type next to each fixture on the floor plans.	VECC C405.4.1, C405.5.1
83	Show input watts for all fixture types in the lighting fixture schedule.	VECC C405.4.1, C405.5.1

Section B: Projects 50 Volts and Greater - New and Renovated Buildings:

B-2: City of Richmond Requirements (Continued)

	Description	Code
Lighting Fixture Schedule/Lighting Plans (Cont.)		
84	Show circuit connections for exit and egress lighting on the plans. See Annex B-E2 .	NEC 700.12(F)
85	Provide exterior egress lighting at all egress exits. Exterior egress fixtures shall be connected to life safety and/or battery-back up. If existing, provide this information on the plans.	VCC 1008.3 (5)
86	Prior to final inspection, all projects that require emergency lighting shall have either (i) or (ii) below : (i) A master electrician, or a professional engineer shall provide the City with a signed copy of the Emergency Lighting Test Checklist located in ANNEX E stating that all emergency lighting test meets or exceeds IBC for normal and emergency power based on Sections 1006.2 and 1006.3.1 of the IBC. OR (ii) Provide normal and emergency lighting photometrics on the electrical plan(s). Show photometrics for areas that are part of the path of egress only. Provide, on the electrical plan(s), the method of determining the photometrics and all total light loss factors, lamp lumen depreciation, luminaire dirt depreciation, and ballast factor utilized in the calculations. For both normal and emergency photometrics, provide maximum and minimum illumination levels, as well as the maximum to minimum ratio. For battery operated emergency lighting, specify on the plan(s) that the lighting will not have lower than an average of 0.6 footcandles after 90 minutes of operation.	VCC 1008.2, 1008.3.5, 1007
Emergency Systems		
87	Provide means on the plans to show separation of emergency wiring and equipment from all other wiring.	NEC 700.10(B)
88	Provide sufficient details on the plans to show how the emergency systems will be protected from complete failure due to fire, flood, icing, and vandalism.	NEC 700.12
89	Plans shall show all specific requirements for unit equipment. See exception in Article 700.12(F).	NEC 700.12(F)
90		
Legally Required Standby Systems		
91	Provide sufficient details on the plans to show how the emergency systems will be protected from complete failure due to fire, flood, icing, and vandalism.	NEC 701.12
92	Provide proper disconnecting means for outside generator on the plans.	NEC 701.12(B)(5)
93		
94	In buildings where a required accessible floor is four or more stories above or below a level of exit discharge, at least one required accessible means of egress shall be an elevator complying with IBC Section 1007.4.	VCC 1009.2.1

Section C: Projects Less than 50 Volts (Low Voltage) - New and Renovated Buildings:

C-1: General Requirements

	Description	Code
	Plans are not required for low voltage permits. Please see below for when a permit is required for low voltage work.	
01	A Permit is required for low voltage when the project either penetrates a rated assembly, or is in a plenum area.	VUSBC 108.2
	A permit is not required if the project is not in a plenum area and the project is not penetrating any fire/smoke rated assemblies.	VUSBC 108.2
	Fire Alarm and security low voltage will not be covered under an electrical permit. You will need to submit a Fire Alarm permit application for all Fire Alarm projects. Security permits are required for the installation of access and egress control equipment. No plans are required for Security permits.	

Section D: City of Richmond Code Related Detailed Requirements:

D-2: Photovoltaic Requirements (Commercial)

	Description	Code
General Requirements		
	Provide an electronic (PDF) copy for all documents required for Photovoltaic projects. All submitted documents shall follow the naming convention in Section A-5, page 5.	
01	Items in Sections A and B of the City of Richmond's Electrical Plan Review Requirements are required for photovoltaic project plan submission.	
One-Line Diagram (in addition to the information required in Section B-1)		
02	The following items shall be shown on the one-line/riser diagram: Array configuration, Combiner/junction box identified, DC grounding system specified, Disconnecting means for DC and AC specified, Inverter specified, AC grounding and system grounding specified, Point of connection attachment method identified.	NEC Article 690
Manufacturer's Data Required		
03	Provide manufacturer's cut sheets for all photovoltaic equipment.	VUSBC 109.3
Photovoltaic Array Information		
04	Provide the following array information on the plan(s): Number of module in series, Number of parallel source circuits, Total number of modules, Operating voltage, Operating current, Maximum system voltage, Short-circuit current.	NEC Article 690
05	Show voltage and current calculations at the direct current (DC) side and the alternating current (AC) side of the inverter(s) on the plan(s). Show calculation for total photovoltaic output on the plan(s).	NEC 110.3, 690.7, 690.8
06	Unless the panelboard is rated not less than the sum of the ampere ratings of all overcurrent devices supplying it, a connection in a panelboard shall be positioned at the opposite (load) end from the input feeder location or main circuit location. Provide appropriate label on panelboard.	NEC 705.12(D)(2)
Roof/Wall mounting Information		
07	A building permit is required for all photovoltaic/solar projects. The building permit shall be issued prior to the release of the electrical permit.	VCC Chapters 14-16
08	Show, on the plans, all photovoltaic equipment/devices, including solar panels, inverters, panels (new and revised), disconnect switches, and any other equipment/devices that are required for this photovoltaic project.	VUSBC 109.3, NEC 110.26
Labels Required		
09	Provide the following Equipment labels on the plan(s), based on the following NEC articles: 690.5(C), 690.7(E), 690.10(C), 690.17, 690.35(F), 690.51, 690.52, 690.53, 690.54, 690.55, 690.56, 690.64(B)(7).	NEC 690

D-3: Seismic Requirements

01	Category IV buildings shall require seismic information. All electrical equipment and devices shall have a Component Importance Factor (I_p) $I_p=1.5$, and will require the below information.	VCC Table 1604.5, ASCE 7-14 13.1.3
02	Show all bracing and mounting details for raceways, lights and electrical equipment on the plan(s).	ASCE 7-14 13.2.1, 13.2.7, 13.4, 13.6.1, 13.6.4, 13.6.5.5.6
03	Prior to calling for inspection provide shake table test results certified by a third party for light fixtures, panels, MCC's, switchboards, Transfer switches, generators, UPS equipment, bus duct, and other similar electrical equipment.	ASCE 7-14 13.2.2

Section E: Energy Compliance Requirements:

E-1: Virginia Energy Conservation Code (VECC) Requirements

	Description	Code
01	For projects with new lighting, provide the Interior and/or Exterior Lighting COMCheck, in PDF format . Make sure fixture designations (i.e. fixture type “A”, “B”, etc.) shown in the fixture schedule (fixtures designation shall be shown for all fixtures on the plans) are shown in the COMCheck as well. All fixtures, new and existing, for the work area shall be in the COMCheck . Provide this on the plan(s), or submit an electronic (PDF) copy of the Interior and/or Exterior COMCheck(s) . COMCheck(s) shall be signed by the proper individual based on Section A.13. Follow the naming convention in Section A-5, page 5 . See Section A-4 for a URL link to the COMCheck software.	VECC C405.4.2, C405.5.1
Commercial		
02	Dwelling units within commercial buildings shall not be required to comply with Sections C405.2 through C405.5, provided that they comply with Section R404.1.	VECC C405.1
03	Lighting systems shall be provided with controls as specified in Sections C405.2.1, C405.2.2, C405.2.3, C405.2.4 and C405.2.5	VECC C405.2
04	Internally illuminated exit signs shall not exceed 5 watts per side.	VECC C405.3
05	The input watts for screw lamp holders shall provide the maximum wattage of the luminaire.	VECC C405.4.1
06	The input watts for low-voltage lighting shall be the specified wattage of the transformer supplying the system.	VECC C405.4.1
07	For any fixture that does not provide the input wattage in the fixture schedule, you shall provide manufacturer’s cut sheet for those fixtures.	VECC C405.4.1
08	For projects with track lighting and plug-in busway, specify the wattage from one of the three options below in the COMCheck: The specified wattage of the luminaires included in the system with a minimum of 30W/lin. ft.; The wattage limit of the system’s circuit breaker; or The wattage limit of other permanent current limiting devices on the system. For current limiting devices, provide manufacturer’s cutsheet and show the current limiting device(s) on the plan(s) noting the value the current will be limited to.	VECC C405.4.1
09	Each dwelling unit located in a Group R-2 building shall have a separate electrical meter.	VECC C405.6
10	Electrical transformers shall meet the minimum efficiency requirements of Table C405.7. Provide equipment efficiency certification or efficiency rating from transformer manufacturer.	VECC C405.7
11	Electric motors shall meet the minimum efficiency requirements of Tables C405.8(1) through C405.8(4). Provide equipment efficiency certification or rating from motor manufacturer.	VECC C405.8
12	For the luminaires in each elevator cab, not including signals and displays, the sum of the lumens divided by the sum of the watts shall be not less than 35 lumens per watt.	VECC C405.9.1
13	Ventilation fans in elevators that do not have their own air-conditioning system shall not consume more than 0.33 watts/cfm at the maximum rated speed of the fan. Specify on the plan(s) the wattage of the fan or specify the elevators have air-conditioning.	VECC C405.9.1
Residential (R-2, R-3, and R-4 buildings three stories or less in height above grade plane)		
14	A minimum of 75 percent of the lamps in permanently installed luminaires shall be high-efficacy lamps or a minimum of 75 percent of the permanently installed luminaires shall contain only high-efficacy lamps.	VECC R404.1

Annex A: Individual Responsible for Signing Plans (Code of Virginia §54.1-402)
















Use Group	Description	1 To 3 Stories	Over Three Stories	100 or less occupants	Over 100 occupants	0 to 800 Amp Service	Over 800 Amp Service	0 to 50 Volts	51 to 600 Volts	Over 600 Volts
A1A	Theater With Stage	(1)(4)	Seal(4)	(1)(4)	Seal(4)	(1)(4)	Seal(4)	(1)(4)	(1)(4)	Seal(4)
A1B	Theater - No Stage	(1)(4)	Seal(4)	(1)(4)	Seal(4)	(1)(4)	Seal(4)	(1)(4)	(1)(4)	Seal(4)
A2A	Night Club	(1)(4)	Seal(4)	(1)(4)	(1)(4)	(1)(4)	Seal(4)	(1)(4)	(1)(4)	Seal(4)
A2B	Restaurant	(1)(4)	Seal(4)	(1)(4)	(1)(4)	(1)(4)	Seal(4)	(1)(4)	(1)(4)	Seal(4)
A3B	Museum/Art Gallery	(1)(4)	Seal(4)	(1)(4)	(1)(4)	(1)(4)	Seal(4)	(1)(4)	(1)(4)	Seal(4)
A3C	Library, Exhibits	(1)(4)	Seal(4)	(1)(4)	(1)(4)	(1)(4)	Seal(4)	(1)(4)	(1)(4)	Seal(4)
A3D	Passenger Terminal	(1)(4)	Seal(4)	(1)(4)	(1)(4)	(1)(4)	Seal(4)	(1)(4)	(1)(4)	Seal(4)
A3E	Recreation Center	(1)(4)	Seal(4)	(1)(4)	(1)(4)	(1)(4)	Seal(4)	(1)(4)	(1)(4)	Seal(4)
A3F	Lecture Hall	(1)(4)	Seal(4)	(1)(4)	(1)(4)	(1)(4)	Seal(4)	(1)(4)	(1)(4)	Seal(4)
A3G	Restaurant Fast Food	(1)(4)	Seal(4)	(1)(4)	(1)(4)	(1)(4)	Seal(4)	(1)(4)	(1)(4)	Seal(4)
A3H	Church	(1)(2)(4)	Seal(4)	(1)(2)(4)	(1)(2)(4)	(1)(2)(4)	Seal(4)	(1)(4)	(1)(2)(4)	Seal(4)
A3M	Misc Assembly	(1)(4)	Seal(4)	(1)(4)	(1)(4)	(1)(4)	Seal(4)	(1)(4)	(1)(4)	Seal(4)
A4A	Recreation Center	Seal	Seal	Seal	Seal	Seal	Seal	Seal	Seal	Seal
A5	Grandstand, Stadium	(1)(4)	Seal(4)	(1)(4)	(1)(4)	(1)(4)	Seal(4)	(1)(4)	(1)(4)	Seal(4)
B1	Business: Auto Dealership	(1)(2)(4)	Seal(4)	(1)(2)(4)	(1)(2)(4)	(1)(2)(4)	Seal(4)	(1)(4)	(1)(2)(4)	Seal(4)
B2	Business: Doctor's Office	(1)(2)(4)	Seal(4)	(1)(2)(4)	(1)(2)(4)	(1)(2)(4)	Seal(4)	(1)(4)	(1)(2)(4)	Seal(4)
B3	Business: Bank	(1)(2)(4)	Seal(4)	(1)(2)(4)	(1)(2)(4)	(1)(2)(4)	Seal(4)	(1)(4)	(1)(2)(4)	Seal(4)
B4	Business: Car Wash	(1)(2)(4)	Seal(4)	(1)(2)(4)	(1)(2)(4)	(1)(2)(4)	Seal(4)	(1)(4)	(1)(2)(4)	Seal(4)
B5	Business; Fire Station	(1)(2)(4)	Seal(4)	(1)(2)(4)	(1)(2)(4)	(1)(2)(4)	Seal(4)	(1)(4)	(1)(2)(4)	Seal(4)
B6	Business: Funeral home	(1)(2)(4)	Seal(4)	(1)(2)(4)	(1)(2)(4)	(1)(2)(4)	Seal(4)	(1)(4)	(1)(2)(4)	Seal(4)
B7	Business: Laundry	(1)(2)(4)	Seal(4)	(1)(2)(4)	(1)(2)(4)	(1)(2)(4)	Seal(4)	(1)(4)	(1)(2)(4)	Seal(4)
B8	Business: Medical offices	(1)(2)(4)	Seal(4)	(1)(2)(4)	(1)(2)(4)	(1)(2)(4)	Seal(4)	(1)(4)	(1)(2)(4)	Seal(4)
B9	Business: Offices	(1)(2)(4)	Seal(4)	(1)(2)(4)	(1)(2)(4)	(1)(2)(4)	Seal(4)	(1)(4)	(1)(2)(4)	Seal(4)
B10	Business: Miscellaneous	(1)(2)(4)	Seal(4)	(1)(2)(4)	(1)(2)(4)	(1)(2)(4)	Seal(4)	(1)(4)	(1)(2)(4)	Seal(4)
E1	Education: School 1 to 12	Seal	Seal	Seal	Seal	Seal	Seal	Seal	Seal	Seal
E2	Daycare over 2 ½ years	Seal	Seal	Seal	Seal	Seal	Seal	Seal	Seal	Seal
F1	Factory Moderate Hazard	(1)(3)(4)	Seal(4)	(1)(3)(4)	(1)(3)(4)	(1)(3)(4)	Seal(4)	(1)(4)	(1)(3)(4)	Seal(4)
F2	Factory Low Hazard	(1)(3)(4)	Seal(4)	(1)(3)(4)	(1)(3)(4)	(1)(3)(4)	Seal(4)	(1)(4)	(1)(3)(4)	Seal(4)
H1,2,3,4,5	High Hazard	Seal	Seal	Seal	Seal	Seal	Seal	Seal	Seal	Seal
I1	Group Home 6 or More	Seal	Seal	Seal	Seal	Seal	Seal	Seal	Seal	Seal
I2A	Institutional Incapacitated	Seal	Seal	Seal	Seal	Seal	Seal	Seal	Seal	Seal
I2B	Day Nursery	Seal	Seal	Seal	Seal	Seal	Seal	Seal	Seal	Seal
I3	Institutional Restrained	Seal	Seal	Seal	Seal	Seal	Seal	Seal	Seal	Seal
I4B	Child Care 5 or More Under 2.5 Years	(1)(4)	Seal(4)	(1)(4)	Seal(4)	(1)(4)	Seal(4)	(1)(4)	(1)(4)	Seal(4)
M1	Retail: Convenience Store	(1)(2)(4)	Seal(4)	(1)(2)(4)	(1)(2)(4)	(1)(2)(4)	Seal(4)	(1)(4)	(1)(2)(4)	Seal(4)
M2	Retail: Department Store	(1)(2)(4)	Seal(4)	(1)(2)(4)	(1)(2)(4)	(1)(2)(4)	Seal(4)	(1)(4)	(1)(2)(4)	Seal(4)
M3	Retail: Supermarket	(1)(2)(4)	Seal(4)	(1)(2)(4)	(1)(2)(4)	(1)(2)(4)	Seal(4)	(1)(4)	(1)(2)(4)	Seal(4)
M4	Retail: Store	(1)(2)(4)	Seal(4)	(1)(2)(4)	(1)(2)(4)	(1)(2)(4)	Seal(4)	(1)(4)	(1)(2)(4)	Seal(4)
M5	Retail: Service Station	(1)(2)(4)	Seal(4)	(1)(2)(4)	(1)(2)(4)	(1)(2)(4)	Seal(4)	(1)(4)	(1)(2)(4)	Seal(4)
R1H	Hotel	(1)(4)	Seal(4)	(1)(4)	Seal(4)	(1)(4)	Seal(4)	(1)(4)	(1)(4)	Seal(4)
R1M	Motel	(1)(4)	Seal(4)	(1)(4)	Seal(4)	(1)(4)	Seal(4)	(1)(4)	(1)(4)	Seal(4)
R2A	Dormitories	(1)(4)	Seal(4)	(1)(4)	Seal(4)	(1)(4)	Seal(4)	(1)(4)	(1)(4)	Seal(4)
R2B	Multi-family - 3 or more units	(1)(4)	Seal(4)	(1)(4)	Seal(4)	(1)(4)	Seal(4)	(1)(4)	(1)(4)	Seal(4)
R3A	1 or 2 Family over 3 stories	NO PLANS REQUIRED								
R4A	Assisted Living	(1)(4)	Seal(4)	(1)(4)	Seal(4)	(1)(4)	Seal(4)	(1)(4)	(1)(4)	Seal(4)
R5	1 or 2 Family dwelling	NO PLANS REQUIRED								
S1	Storage Moderate Hazard	(1)(4)	Seal(4)	(1)(4)	Seal(4)	(1)(4)	Seal(4)	(1)(4)	(1)(4)	Seal(4)
S2	Storage - Low Hazard	(1)(4)	Seal(4)	(1)(4)	Seal(4)	(1)(4)	Seal(4)	(1)(4)	(1)(4)	Seal(4)
U	Temporary, Miscellaneous	(1)(4)	Seal(4)	(1)(4)	Seal(4)	(1)(4)	Seal(4)	(1)(4)	(1)(4)	Seal(4)

Seal - Professional Engineer's Seal Required.

- (1) Master Electrician or Contractor's qualified individual on state license can do plans if of same quality as a professional engineer would normally submit. Contractor shall be Class A. This is only applicable when both the design and installation are under the Master Electrician or Contractor's direction or control.
- (2) Professional Engineer's seal required for greater than 5,000 square foot building.
- (3) Professional Engineer's seal required for greater than 15,000 square foot building.
- (4) Renovations where there is no change in service size (**photovoltaic projects that supply the same or less than the Power Company's service size are not considered as a change in service size**), a Master Electrician or Class A Contractor's qualified individual shall be able to sign plans.

Annex B: E1 - Symbols and Legend

SYMBOLS LEGEND

-  DUPLEX RECEPTACLE – +18" AFF UON
-  GFCI, WP DUPLEX RECEPTACLE - +18" AFF UON
-  LIGHT SWITCH - +48" AFF OR IN ELEV. PIT – 120V, 20A
-  TELEPHONE OR OUTLET - 4" SQUARE BOX WITH PLASTER RING AND 3/4" C. TO ABOVE CEILING
-  MOTOR CONNECTION
-  EXIT LIGHT – WIRE AHEAD OF SWITCH
-  DISCONNECT SWITCH, FUSE PER NAMEPLATE
-  CIRCUIT TO PANEL
-  CEILING RECESSED MOUNTED FIXTURE – INPUT WATTS-32W (90 LM/W)
-  RECESSED FLOURESCENT TROFFER (2'X4') INPUT WATTS-96W (92 LM/W)
-  RECESSED STRIP FLOURESCENT (1'X4') INPUT WATTS-64W (95 LM/W)
-  JUNCTION BOX WITH CONNECTION TO EQUIPMENT
-  1 HOUR FIRE RATED ASSEMBLY
-  2 HOUR FIRE RATED ASSEMBLY
-  3 HOUR FIRE RATED ASSEMBLY

ABBREVIATIONS

- A AMPERE
- AFF ABOVE FINISHED FLOOR
- BRKR CIRCUIT BREAKER
- C CONDUIT (RMC UON)
- CKT CIRCUIT
- CU COPPER
- EC EMPTY CONDUIT W/PULL STRING
- EGC EQUIPMENT GROUNDING CONDUCTOR
- ELEV. ELEVATOR
- EXIST EXISTING
- GEC GROUNDING ELECTRODE CONDUCTOR
- GFCI GROUND FAULT CIRCUIT INTERRUPTOR
- GND GROUND
- KAIC KILO-AMPERE INTERRUPT CURRENT
- KV KILO-VOLT
- KVA KILO-VOLT-AMPERES
- LM/W EFFICACY (LUMENS PER WATT)
- MCB MAIN CIRCUIT BREAKER
- MH MOUNTING HEIGHT
- MIN MINIMUM
- MLO MAIN LUGS ONLY
- MT'D MOUNTED
- P POLE
- PH PHASE (AFTER NUMBER 1 OR 3)
- PRI PRIMARY
- RMC RIGID METAL CONDUIT
- SEC SECONDARY
- SWBD SWITCHBOARD
- UON UNLESS OTHERWISE NOTED
- V VOLT
- W WATTS
- W/ WITH
- WP WEATHERPROOF
- XFMR TRANSFORMER
- Z IMPEDANCE

DRAWING LEGEND:

- E1 LEGENDS AND ABBREVIATIONS
- E2 PART LIGHTING PLAN
- E3 PART POWER PLAN
- E3A LARGE SCALE DETAIL
- E4 ONE-LINE DIAGRAM
- E4A RISER DIAGRAM
- E5 PANEL SCHEDULE
- E6 FIRE STOP DETAIL

CODE INFORMATION:

2015 VIRGINIA STATEWIDE BUILDING CODE (VUSBC)
2014 NATIONAL ELECTRICAL CODE (NEC)

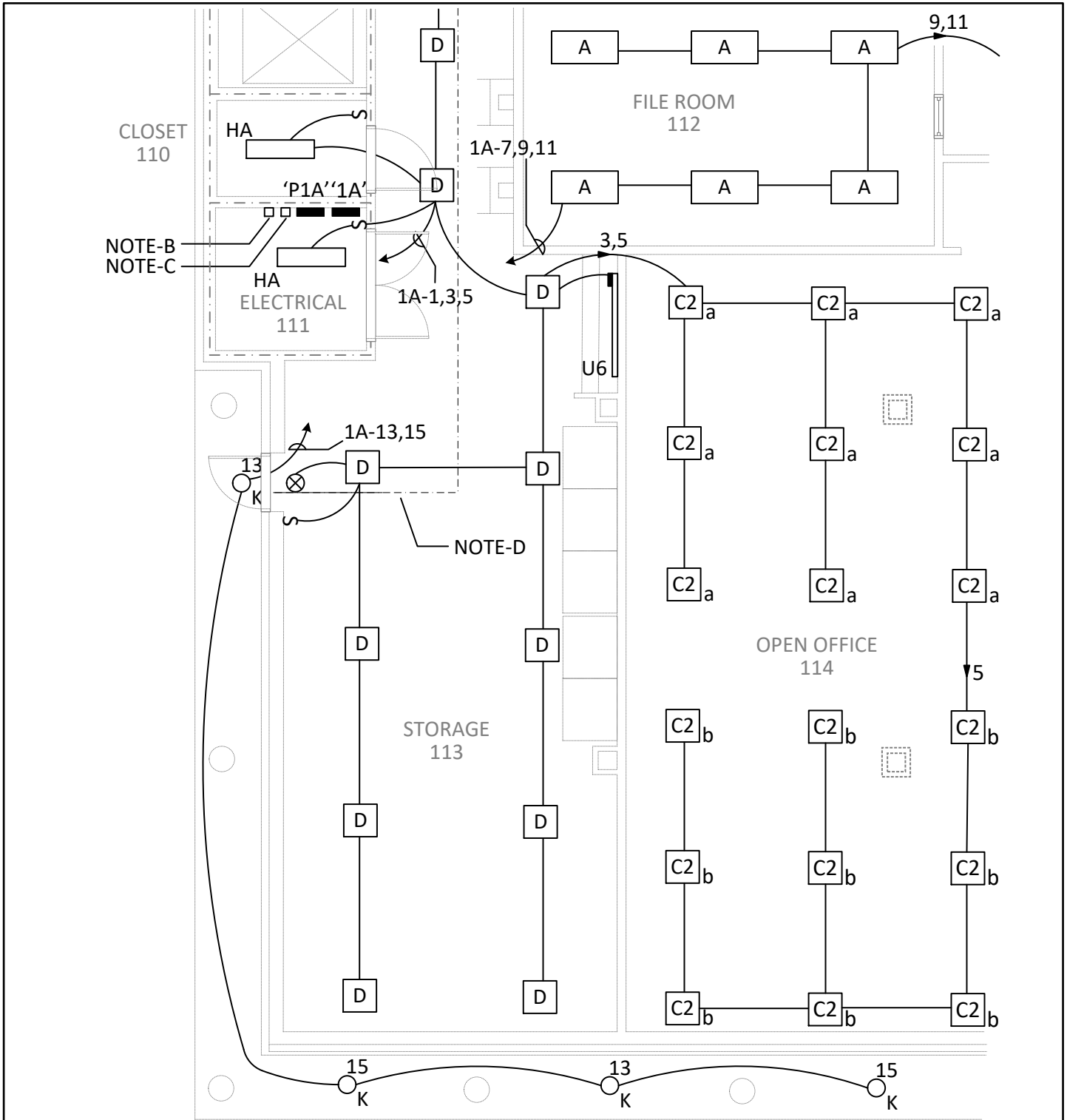
PROJECT INFORMATION:

USE GROUP: B
CONSTRUCTION TYPE: IIA
CHANGE OF USE: NO
FLOOD PLAIN: NO
OCCUPANCY: 45
FULLY SPRINKLERED BUILDING
BUILDING SQUARE FOOT: 4,500

<SIGNATURE AREA>

Project Name	Diamond Plating	
Project Address	2312 Westwood Avenue	
Master's Name	Robert Duce	
Master's Card Number	2733-012345	
Phone (804) 555-1234 Fax (804) 555-4321	Duce Electric Co. 900 East Broad Street Richmond, VA 23222	E1

Annex B: E2 - Partial Lighting Plan



PART LIGHTING PLAN

1/8" = 1'-0"

NOTES:

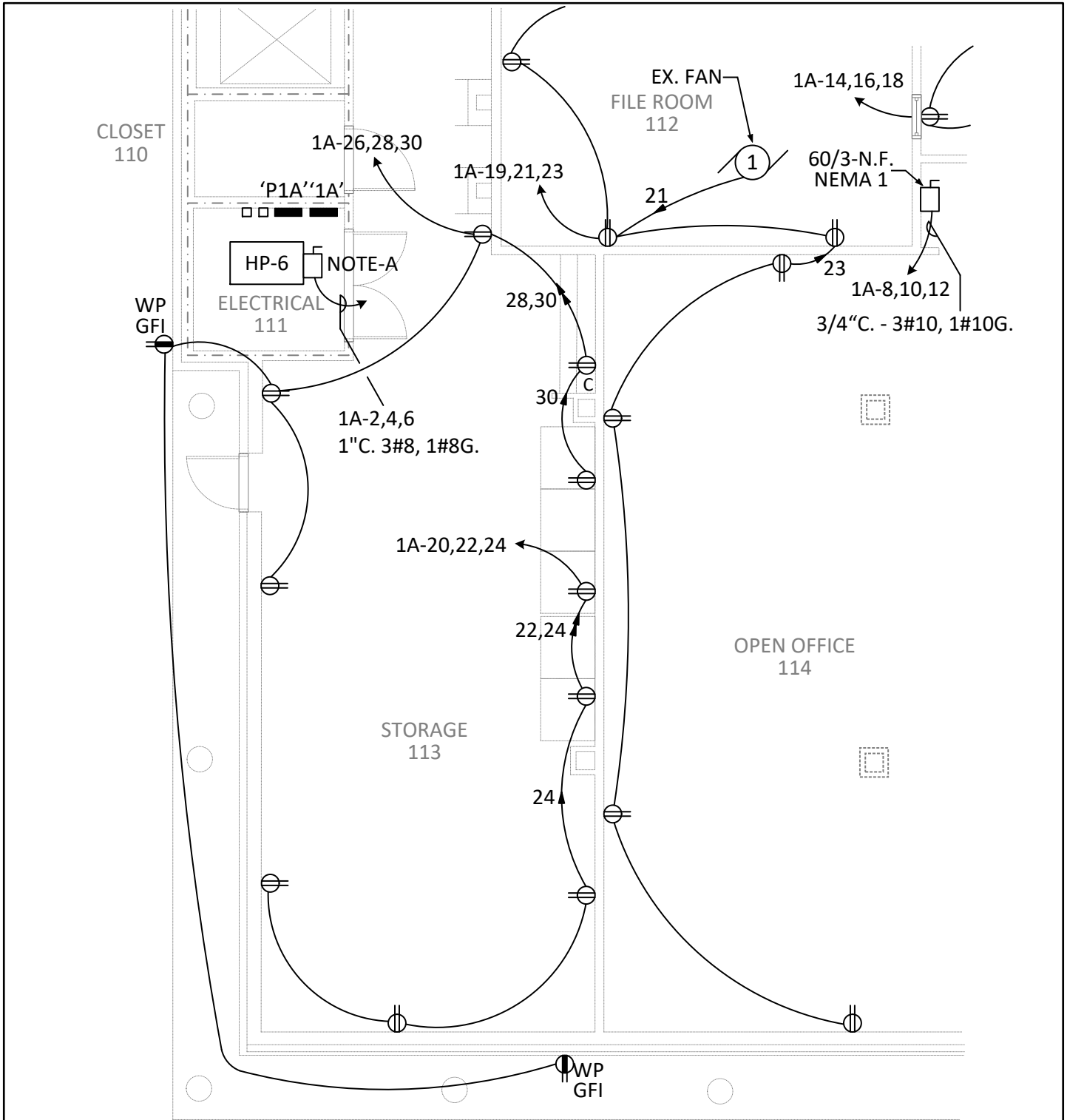
- ALL WIRING #12 W/GROUND, 3/4" C MIN UON THWN FOR CONDUCTOR INSULATION
- A. ALL WIRING #12 W/GND, 3/4" C MIN UON
- B. TIME CLOCK MH @ 48" AFF
- C. LIGHTING CONTACTOR MH @ 48" AFF
- D. PATH OF EGRESS

<SIGNATURE AREA>

1/8" = 1'-0"

Project Name	Diamond Plating	
Project Address	2312 Westwood Avenue	
Master's Name	Robert Duce	
Master's Card Number	2733-012345	
Phone (804) 555-1234 Fax (804) 555-4321	Duce Electric Co. 900 East Broad Street Richmond, VA 23222	E2

Annex B: E3 - Partial Power Plan



PART POWER PLAN

1/8" = 1'-0"

NOTES:

ALL WIRING #12 W/GROUND, 3/4" C MIN UON THHN/THWN FOR CONDUCTOR INSULATION
 A. 60A, 3PH NON-FUSED DISCONNECT SWITCH

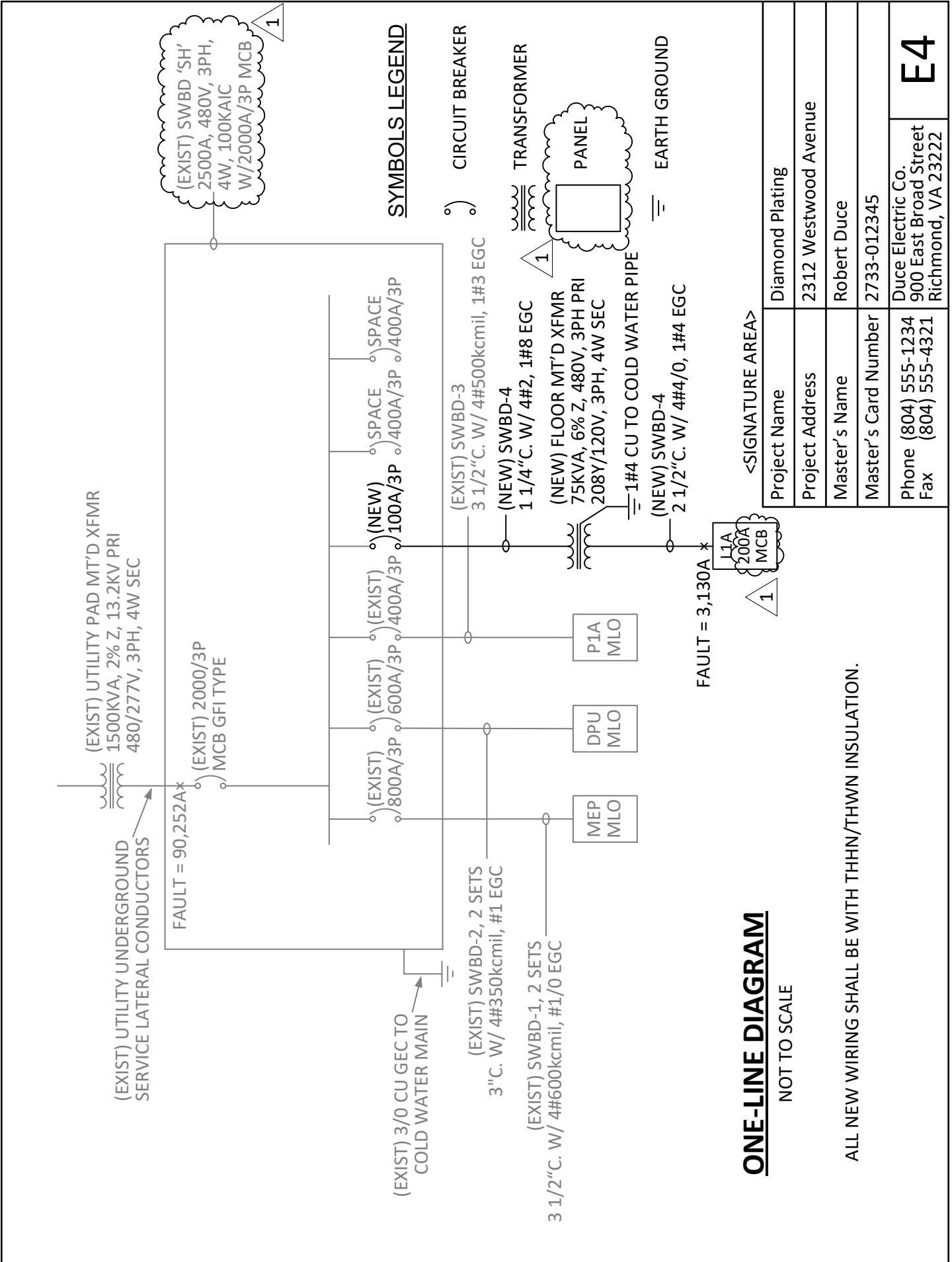


<SIGNATURE AREA>

1/8 = 1'-0"

Project Name	Diamond Plating	
Project Address	2312 Westwood Avenue	
Master's Name	Robert Duce	
Master's Card Number	2733-012345	
Phone (804) 555-1234	Duce Electric Co. 900 East Broad Street Richmond, VA 23222	E3
Fax (804) 555-4321		

Annex B: E4 - One-Line Diagram

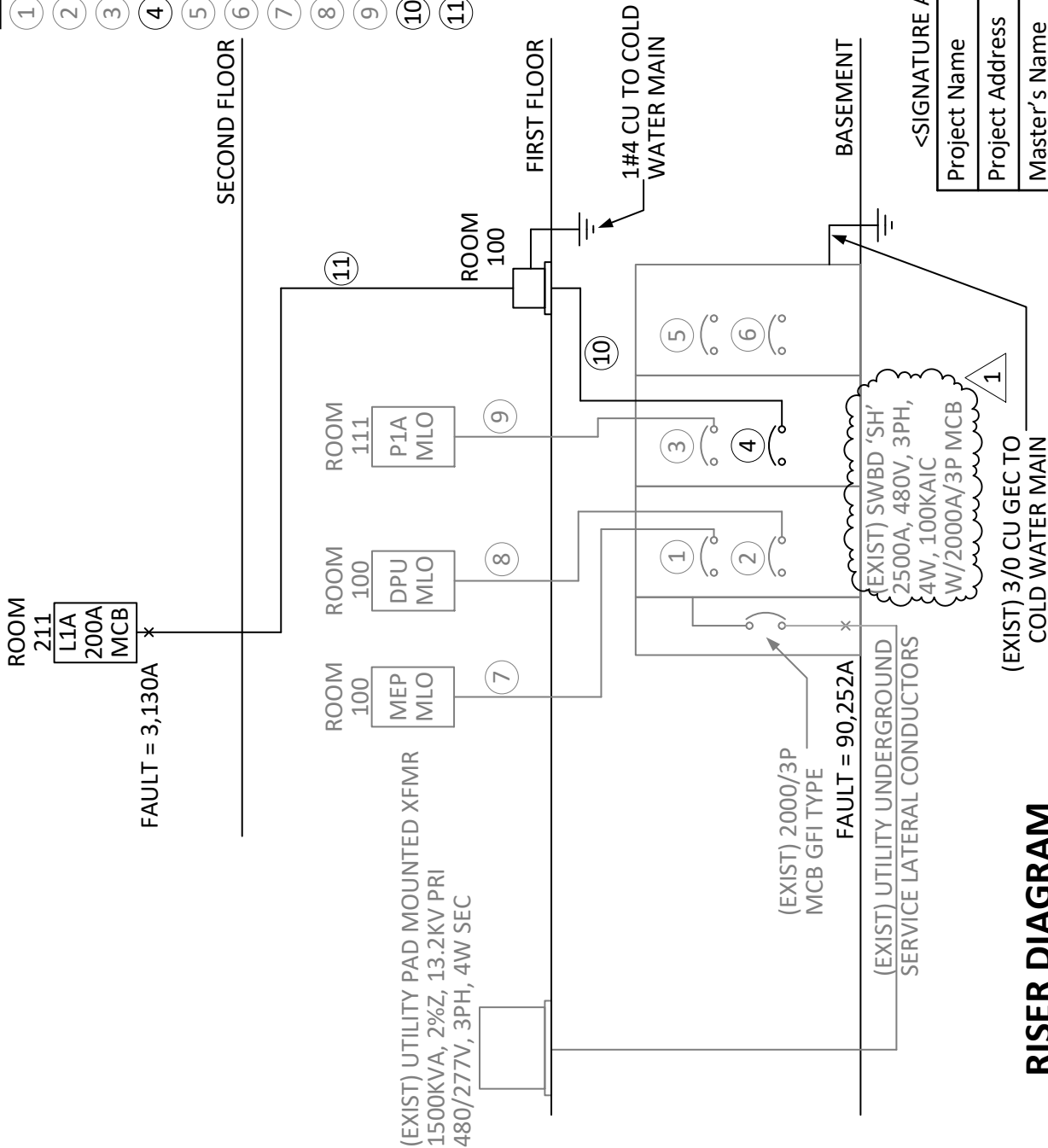
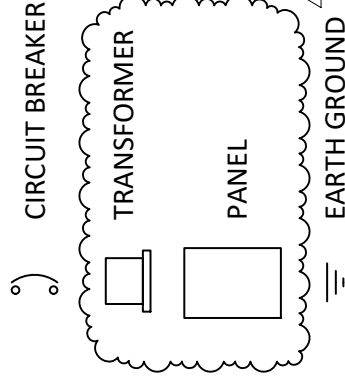


Annex B: E4A - Riser Diagram

DRAWING NOTES:

- ① 800A/3P (EXIST)
- ② 600A/3P (EXIST)
- ③ 400A/3P (EXIST)
- ④ 100A/3P (NEW)
- ⑤ 400A/3P (SPACE)
- ⑥ 400A/3P (SPACE)
- ⑦ 2-3 1/2"C, 4#600kcmil, 1#1/0 EGC (EXIST)
- ⑧ 2-3"C, 4#350kcmil, 1#1 EGC (EXIST)
- ⑨ 1-3 1/2"C, 4#500kcmil, 1#3 EGC (EXIST)
- ⑩ 1-1 1/4"C, 3#2, 1#8 EGC
- ⑪ 1-2 1/2"C, 4#4/0, 1#4 EGC

SYMBOLS LEGEND



<SIGNATURE AREA>

Project Name	Diamond Plating
Project Address	2312 Westwood Avenue
Master's Name	Robert Duce
Master's Card Number	2733-012345
Phone	Duce Electric Co. 900 East Broad Street Richmond, VA 23222
Fax	(804) 555-1234 (804) 555-4321

RISER DIAGRAM

NOT TO SCALE

ALL NEW WIRING SHALL BE WITH THHN/THWN INSULATION

E4A

PANELBOARD "1A" SCHEDULE

MLO SURFACE MOUNT PANEL WITH SOLID NEUTRAL AND GROUND BUS.
SIEMENS, TYPE NQOD, 120/208V, 3PH, 4W, 225A 22 KAIC

LOADS SERVED	WIRE SIZE	LOAD KVA			BRKR TRIP	P	CKT #	PHASE			CKT #	BRKR TRIP	P	CT	BRKR TRIP	LOAD KVA			WIRE SIZE	LOADS SERVED
		A	B	C				A	B	C						A	B	C		
LIGHTS	12	1.4			20	1	1	~	~	~	2				6.0				--	
LIGHTS	12	1.4			20	1	3	~	~	~	4	3	70*		6.0			8	HP #6	
LIGHTS	12		1.4		20	1	5	~	~	~	6					6.0			--	
LIGHTS	12	1.2			20	1	7	~	~	~	8			2.8					--	
LIGHTS	12		1.2		20	1	9	~	~	~	10	3	45*		2.8		10		HP #8	
LIGHTS	12			1.2	20	1	11	~	~	~	12					2.8			--	
LIGHTS	12	0.4			20	1	13	~	~	~	14	1	20	6.0			12		RECEPTACLES	
LIGHTS	12		0.4		20	1	15	~	~	~	16	1	20		6.0		12		RECEPTACLES	
SPARE	12			--	20	1	17	~	~	~	18	1	20			6.0	12		RECEPTACLES	
RECEPTACLES	12	1.4			20	1	19	~	~	~	20	1	20	1.2			12		VENDING MACHINE	
EXHAUST FAN	12		1.4		20	1	21	~	~	~	22	1	20		1.2		12		VENDING MACHINE	
RECEPTACLES	12			1.4	20	1	23	~	~	~	24	1	20			0.8	12		RECEPTACLES	
SPACE		--			20	1	25	~	~	~	26	1	20	1.0			12		RECEPTACLES	
SPACE			--		20	1	27	~	~	~	28	1	20		1.2		12		MICROWAVE OVEN	
SPACE				--	20	1	29	~	~	~	30	1	20			1.6	12		REFRIG./FREEZER	
TOTAL		4.0	5.4	3.2										12.0			12.2	12.2	TOTAL	

CONNECTED KVA: 49

* PROVIDE HACR TYPE CIRCUIT BREAKER

<SIGNATURE AREA>

Project Name	Diamond Plating
Project Address	2312 Westwood Avenue
Master's Name	Robert Duce
Master's Card Number	2733-012345
Phone (804) 555-1234 Fax (804) 555-4321	Duce Electric Co. 900 East Broad Street Richmond, VA 23222

E5

Annex B: E6 - UL Rated Fire Stop Detail

System No. C-AJ-1013

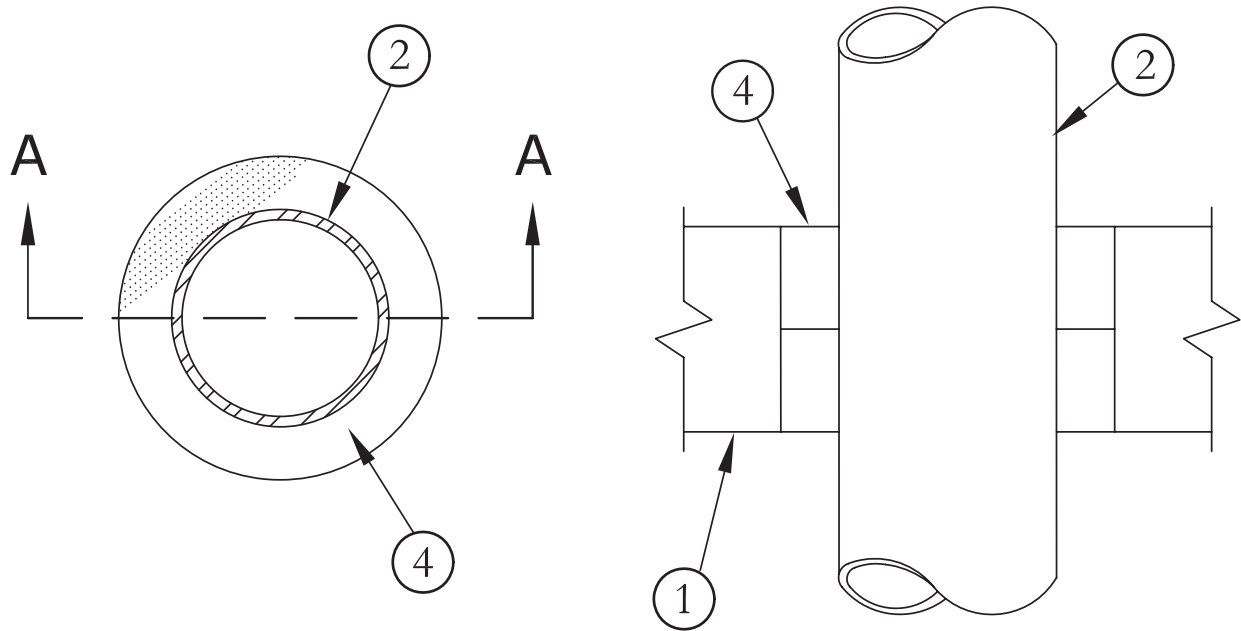
May 09, 2013

F Rating - 1 Hr

T Rating - 0 Hr

L Rating At Ambient - Less Than 1 CFM/sq ft

L Rating At 400 F - Less Than 1 CFM/sq ft



SECTION A-A

1. **Floor or Wall Assembly** - Min 5 in. (127 mm) thick reinforced normal weight (140-155 pcf) concrete. Wall may also be constructed of any UL Classified **Concrete Blocks***. Max diam of opening is 6 in. (152 mm).
See **Concrete Block (CAZT)** category in the Fire Resistance Directory.
2. **Through Penetrants** - One metallic pipe, or conduit to be centered within the firestop system. Pipe or conduit to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes or conduits may be used:
 - A. **Steel Pipe** - Nom 4 in. (102 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe. A nom annular space of 3/4 in. (19 mm) is required within the firestop system.
 - B. **Conduit** - Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or steel conduit. A nom annular space of 3/4 in. (19 mm) is required within the firestop system.
3. **Packing Material** - (Not Shown) - Nom 1 in. (25 mm) diam open cell polyurethane foam backer rod friction-fitted into the opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material.
4. **Fill, Void or Cavity Material* - Sealant** - Min 3/4 in. (19 mm) thickness of fill material applied within annulus, flush with top surface of floor or with both surfaces of wall.

3M COMPANY - Types FB-1000 NS, FB-1003SL (floors only), FB-2000 or FB-2000+.

Bearing the UL Classification Mark



<SIGNATURE AREA>

Project Name	Diamond Plating	
Project Address	2312 Westwood Avenue	
Master's Name	Robert Duce	
Master's Card Number	2733-012345	
Phone (804) 555-1234 Fax (804) 555-4321	Duce Electric Co. 900 East Broad Street Richmond, VA 23222	E6

Annex C: UL Fire Resistance Directory

USING THE UL FIRE RESISTANCE DIRECTORY The Fire Resistance Directory Utilizes an Alpha-Numeric Numbering System

Through Penetrations

<p>The first represents what is being penetrated:</p> <p>F = Floors W = Walls C = Floors Or Walls (Combined)</p>	<p>The second letter(s) provide more info about the floor or wall:</p> <p>A. Concrete floor 5” or less B. Concrete floor greater than 5” C. Wood or framed floors D. Steel decks in marine vessels E. Floor-ceiling assemblies consisting of concrete with membrane protection F thru i. Not used at present time J. Concrete/masonry walls 8” or less K. Concrete/masonry wall greater than 8” L. Framed walls M. Bulkheads in marine vessels N. Composite panel walls O thru z. Not used at present time</p>	<p>The four digit number describes the penetrating item:</p> <p>0000-0999 no penetrating items 1000-1999 metallic pipe, conduit or tubing 2000-2999 nonmetallic pipe, conduit or tubing 3000-3999 electrical cables 4000-4999 cable trays with electrical cables 5000-5999 insulated pipes 6000-6999 miscellaneous electrical penetrants such as busducts 7000-7999 miscellaneous mechanical penetrants such as air ducts 8000-8999 groupings of penetrations including any combination of items listed above 9000-9999 not used at present time</p>	<p>Example: caj 1226</p> <p>C = floor or wall A = concrete floor 5” or less J = concrete or block wall 8” or less 1226 = metallic pipe, conduit or tubing</p>
--	--	--	---

Joint systems

<p>The first two letters identify type of joint:</p> <p>FF floor-to-floor WW wall-to-wall FW floor-to-wall HW head-of-wall BW bottom-of-wall CG wall-to-wall joints intended for use as corner guards</p>	<p>The third letter signifies the movement of the joint system:</p> <p>S = no movement (static) D = allows movement (dynamic)</p>	<p>The four digit number describes the nominal joint width:</p> <p>0000 – 0999 less than or equal to 2” 1000 – 1999 greater than 2” and less than or equal to 6” 2000 – 2999 greater than 6” and less than or equal to 12” 3000 – 3999 greater than 12” and less than or equal to 24” 4000 – 4999 greater than 24”</p>	<p>Example: hwd 0003</p> <p>Hw = heat of wall D = allows movement (dynamic) 0003 = less than or equal to 2”</p>
---	---	--	---

Firestop system: A specific construction consisting of a fire-rated wall or floor assembly, a penetrating item or items passing through an opening in the assembly, and the materials designed to help prevent the spread of fire, toxic gases and smoke through the openings.

ASTM E-814: “Standard Method of Fire Tests of Through-Penetration Firestops.”

UL 1429: “Fire Tests of Through-Penetration Firestops.” (Equivalent to ASTM E-814)

UL 2079: “Tests for Fire Resistance of Building Joint Systems.” (ASTM E1966)

Annular Space: The distance from the inside edge of the opening (floor/wall) to the outside of the penetrating item.

Point of Contact: When listed on UL system drawing, allows penetrating item to “touch” edge of opening.

Backing Material: Material used in Firestop systems (e.g. mineral wool, backer rod, CF 128 foam) to set the depth and provide support for the fill/void or cavity material.

“F” Rating: A rating usually expressed in hours indicating a specific length of time that a fire-resistive barrier can withstand fire before being consumed or before permitting the passage of flame through an opening in the assembly as determined by ASTM E-815 and UL 1479.

“T” Rating: A rating usually expressed in hours indicating the length of time that the temperature on the non-fire side of a fire-rated assembly does not exceed 325F above ambient temperature as determined by ASTM E-84 and UL 1479.

“L” Rating: Amount of air leakage through a penetration, measured in cubic feet per minute. The test is administered at ambient and 400F for validity due to variances in performance of firestop systems at different temperatures.

Intumescent: A term describing materials which are designed to expand significantly (typically 2 to 10 times original volume) and when exposed to sufficient heat. Intumescent materials are often used as firestops, particularly around combustible penetrants.

Annex D: Checklist to Submit to City of Richmond (Page 1 of 2)

Project Address: _____

Make sure to check “✓” each box for all applicable items below that relate(s) to the above project. This checklist is required for all projects that require a plan review. Submit either on the plans or as a separate PDF document.

Section A: General Requirements for All Projects									
01 _____	02 _____	03 _____	04 _____	05 _____	06 _____	07 _____	08 _____	09 _____	10 _____
11 _____	12 _____	13 _____	14 _____	15 _____	16 _____	17 _____	18 _____	19 _____	20 _____
21 _____	22 _____	23 _____	24 _____	25 _____	26 _____	27 _____	28 _____		

Section B-1: General Requirements									
01 _____	02 _____	03 _____	04 _____	05 _____	06 _____	07 _____	08 _____	09 _____	10 _____
11 _____	12 _____	13 _____							

Section B-2: Code Requirements									
01 _____	02 _____	03 _____	04 _____	05 _____	06 _____	07 _____	08 _____	09 _____	10 _____
11 _____	12 _____	13 _____	14 _____	15 _____	16 _____	17 _____	18 _____	19 _____	20 _____
21 _____	22 _____	23 _____	24 _____	25 _____	26 _____	27 _____	28 _____	29 _____	30 _____
31 _____	32 _____	33 _____	34 _____	35 _____	36 _____	37 _____	38 _____	39 _____	40 _____
41 _____	42 _____	43 _____	44 _____	45 _____	46 _____	47 _____	48 _____	49 _____	50 _____
51 _____	52 _____	53 _____	54 _____	55 _____	56 _____	57 _____	58 _____	59 _____	60 _____
61 _____	62 _____	63 _____	64 _____	65 _____	66 _____	67 _____	68 _____	69 _____	70 _____
71 _____	72 _____	73 _____	74 _____	75 _____	76 _____	77 _____	78 _____	79 _____	80 _____
81 _____	82 _____	83 _____	84 _____	85 _____	86 _____	87 _____	88 _____	89 _____	90 _____
91 _____	92 _____	93 _____	94 _____						

Annex D: Checklist to Submit to City of Richmond (Page 2 of 2)

Section C-1: General Requirements									
01	_____								

I Section D-1: NOT USED									

Section D-2: Photovoltaic Requirements																		
01	_____	02	_____	03	_____	04	_____	05	_____	06	_____	07	_____	08	_____	09	_____	

Section D-3: Seismic Requirements																	
01	_____	02	_____	03	_____												

Section E-1: Virginia Energy Conservation Code (VECC) Requirements																			
01	_____	02	_____	03	_____	04	_____	05	_____	06	_____	07	_____	08	_____	09	_____	10	_____
11	_____	12	_____	13	_____	14	_____												

Annex E: Emergency Lighting Test Checklist

PERMIT NUMBER: _____ ADDRESS: _____

It will be the responsibility of a master electrician or a professional engineer to perform a light test for the entire floor or entire project provided on the plans with new lighting, then fill out this form and submit it (in PDF format) to the City for approval prior to final inspection. The following items below will be for the entire path of egress within the scope of work for this project. Emergency Lighting Test is not required when Photometrics are present on the drawings.

Under Normal Power (Check all applicable items below)

_____	Not less than 1 Foot candle at any point in the path of egress at floor level.	IBC 1008.2.1
_____	Not less than 0.2 Foot candle at any point in the path of egress at floor level for auditoriums, theaters, concert or opera halls and similar assembly occupancies	IBC 1008.2.1 <i>exception</i>

Under Emergency Power (All items below shall be tested)

_____	Average of 1 Foot candle in the path of egress at floor level.	IBC 1008.3.5
_____	No less than 0.1 Foot candles at any point in the path of egress at floor level	IBC 1008.3.5
_____	A maximum-to-minimum illumination uniformity ratio of 40 to 1 shall not be exceeded at any point on the path of egress at floor level.	IBC 1008.3.5

	After emergency system has been active for 90 minutes, verify the following: (All items below shall be tested)	
_____	Average of 0.6 Foot candles at the end of the emergency lighting time duration at floor level.	IBC 1008.3.5
_____	No less than 0.06 Foot candles at any point in the path of egress at floor level at the end of the emergency lighting time duration.	IBC 1008.3.5
_____	A maximum-to-minimum illumination uniformity ratio of 40 to 1 shall not be exceeded at any point on the path of egress at floor level at the end of the emergency lighting time duration.	IBC 1008.3.5

Contractor/Master Electrician Sign-off:

Contractor License #: _____

Master License #: _____

Print Name: _____

Signature: _____

Date: _____

Engineer's Signed/Seal:

I Annex F: Coordination Study Checklist (Page 1 of 2)

Coordination study is required for all projects that have equipment loads due to the following NEC Articles: NEC 240.12, 240.100, 517.17, 517.30 (G), 620.62, 645.27, 700.28, 701.27, 708.54. The coordination study shall be completed by a Virginia licensed Professional Engineer.

Coordination study shall be completed prior to energizing electrical service. Provide a coordination study in PDF format. All time current curves shall be in color, not black and white. An approved coordination study is required prior to service inspection(s).

It is highly recommended that the coordination study be completed prior to ordering any of the equipment, to avoid costly changes later if the coordination study revises any of the equipment.

It will be the responsibility of a professional engineer to submit the following PDF documents for a coordination study review. All submitted documents shall follow the naming convention in Section A-5, page 5:

- 1) Completed, Signed/Sealed Coordination Study
- 2) Completed Coordination Study Checklist
- 3) Completed Plan Intake Sheet (See Annex G for the Plan Intake Sheet)
- 4) (if applicable) When the coordination study is done by an engineer other than the engineer of record, the engineer of record shall review the coordination study and provide a letter, signed and sealed, to the City of Richmond certifying the construction documents adhere to the coordination study. If any changes need to be done to the construction documents, the engineer of record shall submit those plans to the City for review.
- 5) (if applicable) For all time current curves that overlap, provide all manufacturers data for paired-coordinated overcurrent protection devices. Clearly label all paired-coordinated overcurrent devices.

	For projects with new and existing overcurrent devices
___	All new devices shall coordinate with the existing overcurrent protection device above and below the new device(s).
	For projects with all new overcurrent devices (Check all that apply)
___	Coordination study one-line diagrams shall show only the devices that require coordination. Do not show devices that are not going to be coordinated.
___	For all overcurrent protection devices required to be coordinated, provide overcurrent protection device(s) manufacturer's type on the coordination study emergency and normal one-line diagrams.
___	For all overcurrent protection devices required to be coordinated, provide overcurrent protection device(s) manufacturer's number on the coordination study emergency and normal one-line diagrams.
___	For all overcurrent protection devices required to be coordinated, provide overcurrent protection device(s) manufacturer's frame size on the coordination study emergency and normal one-line diagrams.
___	For all overcurrent protection devices required to be coordinated, provide overcurrent protection device(s) manufacturer's trip size on the coordination study emergency and normal one-line diagrams.
___	Make sure the coordination study one-line matches the approved electrical plans. If not the approved plans must be revised to match the coordination study.
___	Provide maximum fault current, for normal and emergency power, located at each piece of equipment on the normal and emergency one-line diagrams.
___	Coordination shall be done from normal power supply and emergency generator supply, down to the branch circuit overcurrent protection devices. If for any panel there are different size and/or type branch overcurrent protection devices, a separate time-current curve is required for each type of overcurrent protection device.
___	When the coordination study is done by an engineer other than the engineer of record, the engineer of record shall review the coordination study and provide a letter to the City of Richmond certifying the construction documents adhere to the coordination study. If any changes need to be done to the construction documents, the engineer of record shall submit those plans to the City for review.

I Annex F: Coordination Study Checklist (Page 2 of 2)

When submitting coordination study for City review, check the option below that applies to the project.
Option #1 - Total Selective Coordination

<input type="checkbox"/>	Provide total selective coordination showing no overlapping curves in the Time Current Curves.
--------------------------	--

Option #2 - Coordination to 0.01 Seconds

<input type="checkbox"/>	Coordination study shall coordinate to 0.01 seconds.
<input type="checkbox"/>	For all time current curves that overlap, provide all manufacturers data for paired-coordinated overcurrent protection devices. Clearly label all paired-coordinated overcurrent devices.

Option #3 - Coordination to 0.1 Seconds [For Hospitals only, see NEC Article 517.30 (G)]

<input type="checkbox"/>	Coordination study shall coordinate to 0.1 seconds.
<input type="checkbox"/>	For all time current curves that overlap, provide all manufacturers data for paired-coordinated overcurrent protection devices. Clearly label all paired-coordinated overcurrent devices.

Annex F: Plan Intake Sheet



FILLED IN BY APPLICANT – All boxes in this section must be completed if applicable

Date -	Plan # -	Permit # -
Address -		

Responsible Contractor or Permit Holder -	
Contact Person -	Phone -
Fax -	Email -
Number of Documents Submitted -	
Revision Description -	

FOR OFFICE USE ONLY

Building	Zoning	Public Works	Public Utilities
Planning	Storm water Mgmt.	Mechanical	Sprinkler
Hood	Fire Suppression	Electrical	Security
Fire Alarm	Plumbing	Gas Piping	Miscellaneous

Date Received -	Time In -	Intake Person -	
Revised due to plan review comments	Yes No	Revised due to design changes	Yes No
Has permit been issued	Yes No	Original cost of work - \$	
Cost increase per changes (if any) - \$		10% Revision fee required	Yes No
If no revision fee is required (please explain) -			
For revised plans, are the changes clouded	Yes No	Are the plans signed and sealed (if applicable)	
Yes	No	Yes	No
Comments			

Revision - Resubmittal Plan Intake Sheet
 Department of Planning and Development Review
 Bureau of Permits and Inspections
 900 East Broad Street, Room 108
 Richmond, VA 23219
 Phone (804) 646-4169 • Fax (804) 646-1569