



Cayman Building Code Resolution

The following **Code Resolution** is to help the customer clarify a code related issue. It in no way supersedes the adopted codes which must also be referred to. This Resolution supersedes any and all older ones

Title: Electrical Service / Fit Out Calculations

Code Section: 2014 NEC

Resolution Number:

Revised: 24 May 2018

Reason: Electrical Building fit-outs are difficult to calculate whether the base building service load is known or not. This policy is designed to help designers manage this challenge, while keeping the intent of the NEC in mind.

NOTE 1: The "Designer of Record for the Service" will be referred to as "DRS" in this document

NOTE 2: The "Designer of Record for the fit-out" will be referred to as "DRF" in this document

NOTE 3: Fit-out, up-fits, build-outs are all considered the same

Resolution:

NEW CONSTRUCTION

Method 1 (new construction)

Base building (Electrical) permit remains open and (electrical) DRS keeps adding the loads as the fit-outs come in. We do not look at the base building electrical permit again until the first fit-out is ready to occupy (CO, CC, SPO).


NOTE: During the design stage the DRS will give anticipated loads for each floor, panel, unit

As the fit-outs come in, the review will be based **only** on the fit-outs with respect to what the DRS has allocated for that portion of the building. **NOTE:** fit-outs will have to come in with a letter/ documentation from the DSR as to the allocation for that space.

Before the first CO, SPO, COC etc. is issued for the **building or any fit-out**, the service riser(s) will be updated with the most current information (loads).

Example: DRS designs a 5 story 10 unit building (10-200 amp panels) with a 1500 amp service and allocates 125 amps to each panel in the building. Several fit-out come in at the same time to building control (along with documentation/ letter from the DRS). Each fit-out is treated independently and as long as the electrical calculations for that fit-out does not exceed 125 amps, BC approves it.

When the first fit-out is ready for CO, SPO or CC the updated service / riser for the building must be submitted for review. The building will get a SPO until all ongoing fit-outs are completed (CO'd)



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Building fit-out calculations

Method 2: (new construction)

The DRS engineers the building alone for 100% maximum loads. If this is done the DRS is relinquished of ownership once the shell has been completed.

Example 1: A shopping center has a 1000 amp service (main) and each of the five (5) shops has a 200 amp panel supplied.

Example 2: An Office building has a 2000 amp service and is split up between 8 units. Unit 1,2,3 have 400 amp service , units 4,5 have 200 amp service and units 6,7,8 have 100 amp service. When added together , the total of 1900 is below the service capacity.

In Example 1 or 2: --Provide the following details in addition to the normal electrical checklist:

1. Number of units in the building
2. Size of the (main) overcurrent protecting each unit.
3. Sizes of each main in each unit
4. Calculations for the unit, that is being permitted.
5. Any other relevant information

Building fit-out calculations (cont.)

Existing Buildings: When fitting out an existing building the following information must be obtained by the electrical designer of record for the fit out (DRF); The DRF must first establish the actual or calculated load for the building. This may be done by one of the following methods:

Method 1: (220.87 --see Cayman Data Logger Policy)

- a. Install a data-logger on the building for a ~~30~~ 15 day minimum. Multiply the actual recorded load by 125% to get the perceived actual load on the building.
- b. Establish the service (main) size, verify the service conductors sizing.
- c. Subtract the actual load from the main and design for the fit out.
- d. Building shall be substantially occupied. (80%)

Method 2: (220.87 - 1 year demand)

- a. Obtain one years power demand data from CUC for the entire building on the service being impacted.
- b. Establish the service (main) size, verify the service conductors sizing.
- c. Subtract the actual load from the main and design for the fit-up
- d. Building shall be substantially occupied. (80%)

Method 3:

- a. Evaluate the building and provide a calculated load for each unit with in the building 220 parts III and IV.
- b. Design a riser detail to include service and feeder to each units (main) within the building.
- c. Subtract all the calculated loads from the main and design for the fit-out

Method 4: (100% demand)

If the DRF can verify that the new construction 100% design has been maintained. Building control needs the following submitted:

- a. Number of units in the building
- b. Size of the service (main)
- c. Sizes of the service and feeders to each unit
- d. Calculations for the unit, that is being permitted.
- e. Any other relevant information

NOTE 1: The DRF will provide Receptacle and Lighting Layout, Risers, Panel Schedules, Load Calculations etc. for the fit-out

Method 5:

Calculation for existing spaces shall be based on reliable information (.i.e. previous approved plans). Information from latest approved plans can be used and can be amended with the proposed.

DRF shall provide for the fit-out

- a. Calculations shall be provided for all feeders and services,
- b. Calculations shall show the area in square feet of the space(s) supplied by each feeder,
- c. Total calculated load before applying demand factors,
- d. The demand factor(s) used
- e. The calculated load after applying demand factors. NEC 215.5 and 220.