**CMGT 235 – Electrical and Mechanical Systems**

**Homework #24** – Single-Family Dwelling Service Entrance Calculation

Due: 12/4/2018

Points: 30

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Complete the attached Single-Family Dwelling Service-Entrance Calculations (Standard) Form for the following:

Single-Family Dwelling – Service Entrance Calculations (Standard)

|  |  |
| --- | --- |
| 3000 ft2 of Living Floor Area  3 Small-Appliance Branch Circuits  2 Laundry Branch Circuits  1 Electric Dryer: 4.2 kW, 240V  1 Wall-mounted Oven: 5 kW, 240V  1 Electric Range: 15 kW, 240V  1 Under-Cabinet Microwave Oven: 12A, 120V  1 Dishwasher: 12 AMPS, 120V | 1 Garbage Disposal: ½ hp, 115V  1 Trash Compactor: 10 AMPS, 120V  2 Attic Fans: 1/4 HP, 120V  1 Sump Pump: 1/3 HP, 120V  1 Garage Door Opener: ¾ hp, 120V  1 Level 2 EVSE: 24A, 240V  1 Central A/C Unit: 28A, 240V  1 Electric Baseboard Heat: 6 kW, 240V |

1. Show Calculation for:

**Step 7.** Electric Range, Wall-Mounted Ovens, Counter-Mounted Cooking Units

Wall-mounted oven and Electric Range are supplied from a single branch circuit and located in the same room.

**Step 21.** Raceway Size

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| QTY | GAUGE | TYPE | Cross-Section Area | |  |
|  |  |  |  | |  |
|  |  |  |  | | EMT |
|  |  |  | Total Cross-Section Area |  |  |