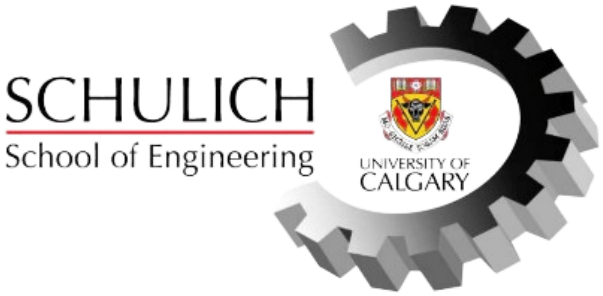

DEPARTMENT OF ELECTRICAL
AND COMPUTER ENGINEERING

ENEL 674: Industrial and Commercial Power Systems

Group – 10

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Total Continuous Load we got from previous Service Sizing calculation is *94.824 kW.*

After adding the EV charging station of *1.5 kW.*

30 HP fire pump with assuming 85% efficiency for the building is *19 kW*.

So,

$$Max.\ Operating\ Load = 94.824+1.5+19 = 115.324\ kW$$

Now,

New Service Size for Operating Load is,

$$Amp = \frac{(94.824*1.25)+20.5\ kW}{\sqrt{3}*600} = 133.78\ A$$

In this case we must increase from a 100A, 347/600V, 3 phase service to a 150A, 347/600V, 3 phase service for this building.

So, the conductor sizing is affected by the addition of EV charging portal & motor pump. However, with the new service size we can now add 16 kW more load in the future and it will not affect the new 150 A conductor sizing. So, it becomes more robust and future proof.