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## Inspection

October 13, 2022

Austin Gulley  
Cutting Edge Lighting

RE: Dollar General -- 2440 W HWY 190 West Slidell, LA 70460

Dammon Engineering was contacted to provide consulting services regarding the electrical loads at the subject building. This inspection is limited to a visual inspection of the subject building to determine the existing electrical loads and estimate whether additional HVAC can be added to cool the building.

### History:

Dollar General has added additional coolers inside the building since the original design. These coolers have top mounted condensers adding additional heat loads inside the building. Cutting Edge Lighting has provided the information below:

- (1) Condenser = GSX140601 = 19.6a // 208/230v
- (2) Air Handler (AHU) = ASPT61D14 = 9a // 208/240v
  - AHU With 20kw Heat Kits installed = 60/50a MOCP
- (3) Currently, store has a 208V 3-phase 400amp service with a high leg. Each phase is roughly balanced at 100amps.

### Findings:

During the site visit the technician, representing Cutting Edge Lighting, took a current reading on phases A & C with a clamp on ammeter and read the following values 110A and 88A respectively. The readings were taken during the summer, with the Air Conditioners running. The ammeter readings were considered to establish the recommendation(s).

It is unlikely that the Heat and the Air Conditioner loads will be used at the same time, so calculations were prepared assuming the A/C system running, then separate calculations with the Heat system running.

The power source is as follows: 400A, 240V, 3 Phase, 4 Wire Delta High Leg. Phase A & C are 240V; Phase B is the High Leg

### **Calculations for the Air Conditioning Load:**

- Load for building minus the HVAC system is as follows:

Phase A: 24325 KVA = 203A  
Phase B: 0  
Phase C: 22825 KVA = 190A

- Nameplate data for the existing Air Conditioning is as follows:

Unit 1: 16600 KVA = 46 A  
Unit 2: 18000 KVA = 50 A

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Existing A/C Load: 34600 KVA = 96 A  
(11533 KVA per phase)

- Total Load of the existing building plus the existing A/C load:

Phase A: 35858 KVA = 299A  
Phase B: 11533 = 96 A  
Phase C: 34358 KVA = 286A

- Nameplate data for the new A/C load:

Unit 3 Condenser: 7056 KVA = 29.4 A  
Unit 3 Evaporator: 3240 KVA = 13.5 A  
Unit 4 Condenser: 7056 KVA = 29.4 A  
Unit 4 Evaporator: 3240 KVA = 13.5 A

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New A/C: 20592 KVA = 85.8 A  
(10296 KVA per phase A & C)

- Total load with the new Air Conditioner:

Phase A:	46154 KVA =	385 A
Phase B:	11533 KVA =	96 A
Phase C:	44654 KVA =	372 A

These loads represented are not continuous loads.

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### **Calculations for the Heater Load:**

- Load for building minus the HVAC system is as follows:

Phase A:	24325 KVA =	203A
Phase B:	0	
Phase C:	22825 KVA =	190A

- The Nameplate data for the existing heater is as follows:

Unit 1:	30000 KVA =	83.3 A
Unit 2:	27000 KVA =	75 A

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Total Heat:	57600 KVA =	158.3 A
	(19200 KVA per phase)	

- Total Load of the existing building plus the heater:

Phase A:	43525 KVA =	361A
Phase B:	19200 KVA =	158A
Phase C:	42025 KVA =	348A

- Nameplate data for the new heater load:

Unit 3 Heater:	20000 KVA	=	83.3 A
Unit 3 Air Handler:	3240 KVA	=	13.5 A
Unit 4 Condenser:	20000 KVA	=	83.3 A
Unit 4 Air Handler:	3240 KVA	=	13.5 A

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New Heater:	46480 KVA =	194 A
	(23240 KVA per phase A & C)	

- Total load with the new Heater:

Phase A: 66765 KVA = 555 A  
Phase B: 19200 KVA = 160 A  
Phase C: 65265 KVA = 542 A

These loads represented are not continuous loads.

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Conclusion:

The existing power system will handle the additional Air Conditioning load but will be very close to capacity of the incoming service. No additional equipment should be added if the Air Conditioning systems are added.

The existing power system **will not** handle any **additional heater load(s)**.

Recommendation:

It is highly recommended that the cooler condensers be relocated outside to eliminate the heat loads inside the building; In doing so, additional Air Conditioning most likely will not be needed.

If the client still wants to add these additional HVAC(s) to cool the building, we recommend specifying 3 phase A/C units. This will distribute the power across all 3 phases and as a result, lower the ampacity.

If 3 phase units are not available, then new Single-Phase A/C systems can be connected as follows:

Connect one system to phases A and B and the other system to Phases B and C. This will distribute some of the loads to the B phase.

**Installing the 20KW Heater Kits nor any Heater Kits is not recommended.**

Sincerely,



Brian Mistich, P.E.

See the attached