

GENERAL REQUIREMENTS

TOTAL ELECTRICAL LOAD CALCULATIONS



December 20, 2022

Mr. Vladimir Lyubetsky
DRA Architects
260 Charles Street, Suite 300
Waltham, MA 02453

RE: Northeast Metro Technical High School
Project: 60-20-409

Dear Vladimir,

This is to acknowledge that we sent to WMGL&D a work order application, load letter, and site plan locating their utility feeders, junction boxes, and pad mounted transformers for the new electric service for Northeast Metro Technical High School. They have acknowledged receipt of this information and have also acknowledged that there will be a new service for this project. Attached at the end of this load letter is our most recent e-mail correspondence regarding the loads.

Very truly yours,

Dino D. Buro, P.E.

BALA CONSULTING ENGINEERS



Projected Preliminary Electrical Connected Loads

Lighting

(lighting load at 0.81W/sf (energy code X 125% continuous load as per NEC, roughly 365kW, plus site lighting, 100 kW)

492 kW

Receptacles (3 watt / SF)

1161 kW

Mechanical:

• Miscellaneous Electric Heat FTUs and EUHs	210 kW
• Energy Recovery Ventilators (ERVs)	77 kW
• VRF Fan Coil Units	625 kW
• VRF Condensing Units	445 kW
• Rooftop Units RTUs (2) and HRUs (5)	500 kW
• Miscellaneous Electric Heat FTUs and EUHs	210 kW
• Makeup Air Units (2)	63 kW
• Indoor Air Handling Units (11)	792 kW
• Exhaust Fans Largest 20hp	61 kW
• Air Cooled Condensing Units (ACCUs)	127 kW
• Miscellaneous AC Split Systems	61 kW
• VRF Condensing Units (VCUs)	965 kW

Plumbing:

• Electric Hot Water Heaters (2 @ 108, 2 @ 90kW each)	396 kW
• Miscellaneous Circ Pumps (Fractional hp)	5 kW
• Miscellaneous Pumps	5 kW
• Air Compressor (1 @ 40hp, 1 @ 20hp, 5 @ 15hp)	135 kW
• Domestic Water Booster Triplex Pump (3 @ 20hp)	60 kW

Elevators (two at 60 hp)

120 kW

Miscellaneous Power



(Appliances, Copiers, Elec Heat Trace, Art Rm equipment, Field House Equipment, etc.)	100 kW
Kitchen (Gas)	300 kW
Miscellaneous Equipment	45 kW
	Total: 6,955kW 7,321kVA

Projected Preliminary Electrical Connected Loads with code applied Demand Factor:

First 1,161kVA at 100%	1,161kVA
Plus	
Next 6,160kVA at 75%	4,620kVA

Demand Total: 5,781kVA

Based on projected connected loads with code applied demand, calculated estimated demand load is 6,953Amps at 480Volts, 3-phase.

Proposed secondary service will be sufficient to serve this calculated ampacity. Final utility transformer quantity and size to be determined by Utility Co. Two 2500kVA normal power transformers and one 300kVA emergency transformer are requested. Additionally, we are requesting a 300kVA transformer and 480V service to supply site power to the football field area (750kVA if the locker room building and concession building are constructed [currently add-alternates]). Lastly, we are requesting a 112.5kVA, 480V service to the new school message board area near Farm Road.

(NOTE, This does not include any PV generation)

Project will be supported by a utility-supplied standby generator that will provide a dedicated emergency service to the building.