

Voltage Drop Calculation

$$VD = (2 \times K \times I \times D) / CM$$

Where,

- Distance (K) (assume 170 ft one-way) = 340 ft round trip
- Current (I) = 0.775 A
- Conductor = #12 Cu → Resistance (D) ≈ 1.93 Ω/1000ft
- Voltage = 110v

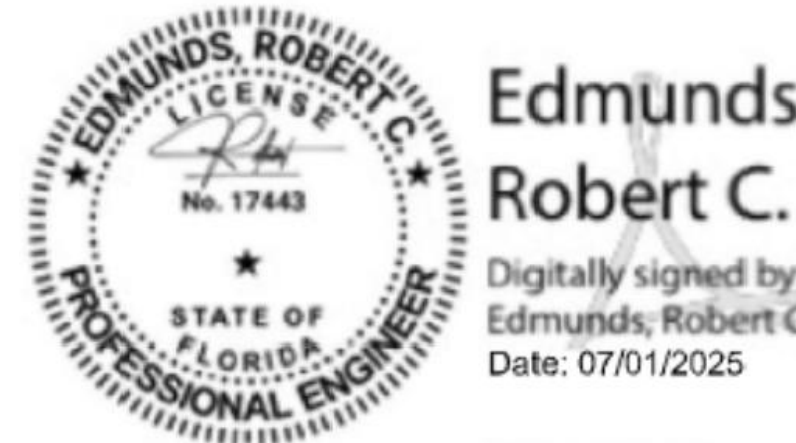
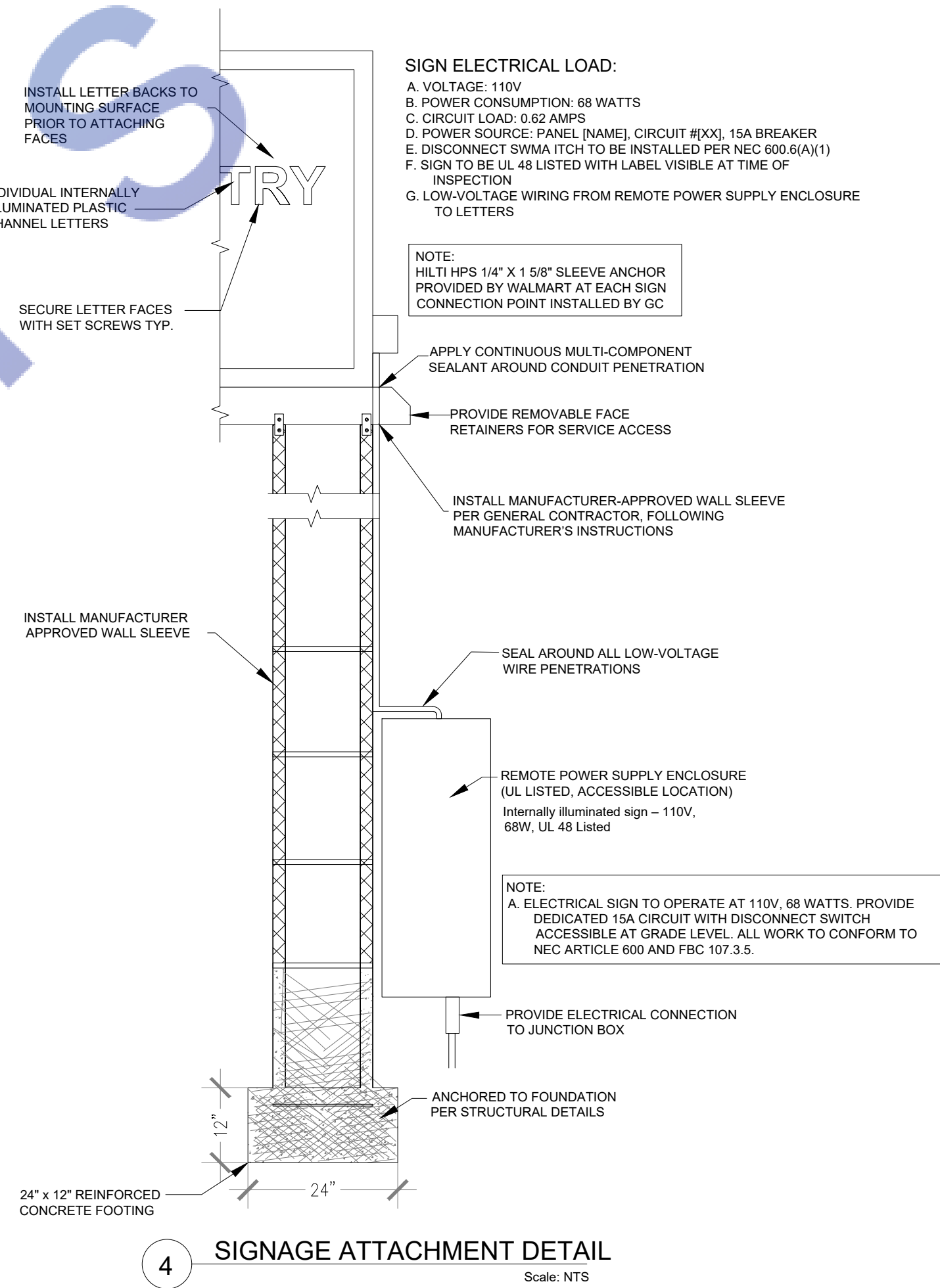
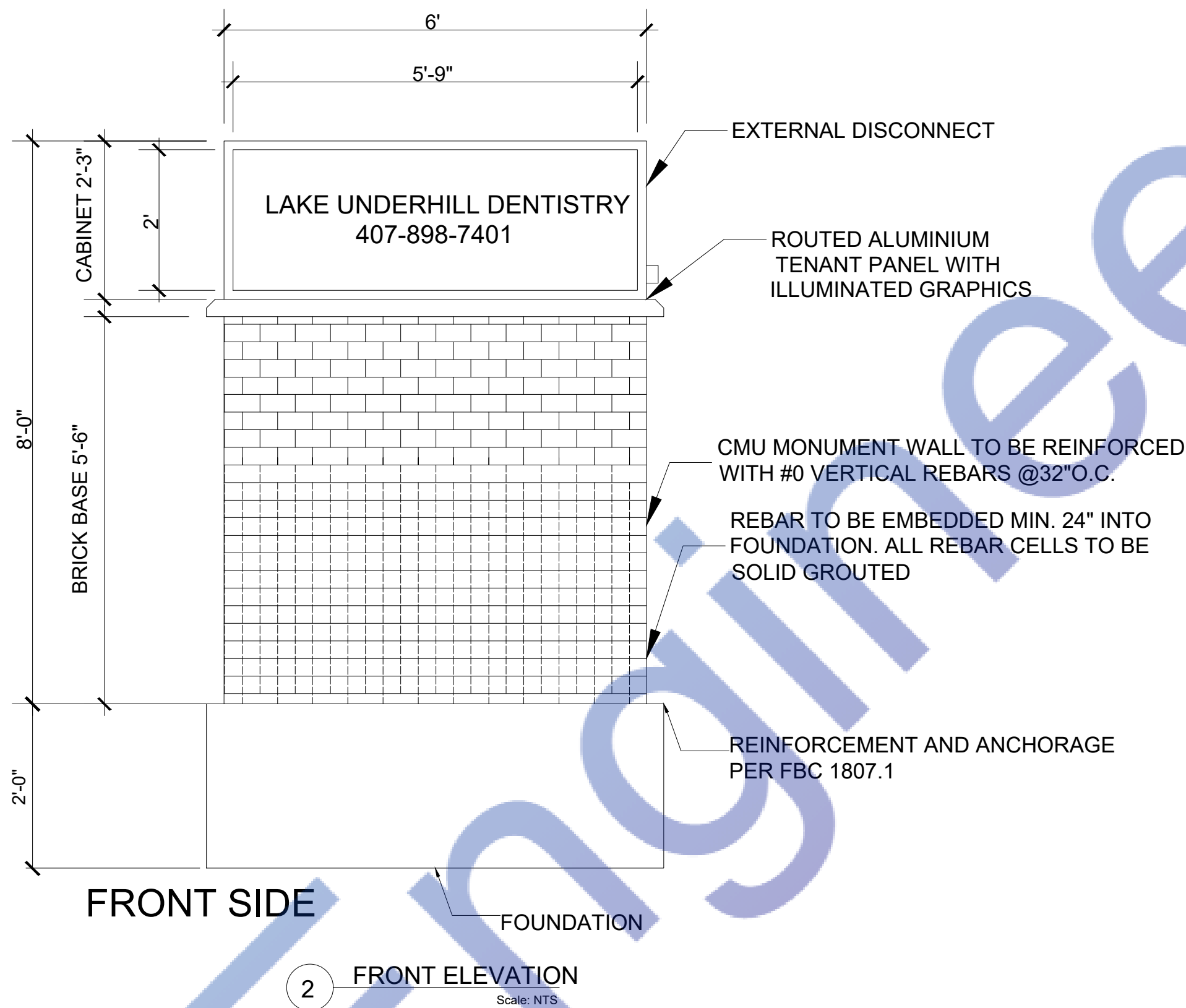
$$VD_Volts = (length_ft \times current_a \times resistance_ohm_per_1000ft) / 1000$$

$$VD = (2 \times 170 \times 0.775 \times 1.93) / 1000 = 0.508555 V$$

$$VD_Percent = (vd_volts / voltage) \times 100$$

$$\%VD = (0.508555 / 110) \times 100 \approx 0.46\%$$

- Voltage Drop: ≈ 0.51 Volts
- Percentage Drop: ≈ 0.46%
- Acceptable (NEC <3%)



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