

PART 1 GENERAL

- 1.01 Based on occupant utilization criteria provided by UAF Facilities Services, the design consultant is to produce NEC required electrical load calculations. The design consultant is to size the transformer primary and secondary conductors to this calculation. After providing this load calculation to UAF Facilities Services Division of Utilities and FS/DDC, the group will make the final decision on the size of the transformer. It is imperative to involve FS in the decision because it involves energy conservation and circuit breaker switching.
- 1.02 Power Transformers: Copper windings for HV and LV.
- 1.03 Locate oil-filled transformers on a concrete pad minimum.
- A. Sized for the transformer load.
 - B. Minimum of 4000 psi concrete 8 inch thick with #4 rebar each way, at 12 inch spacing.
 - C. Constructed on a minimum of 24 inches of non-frost susceptible fill.
 - D. Handholes or vault beneath or other means to allow sufficient room to meet NEC cable bending radius requirements.

PART 2 PRODUCTS

- 2.01 Power transformers:
- A. Outdoor pad-mounted, oil-filled units with primary disconnect means and current limiting fuses.
 - B. Where the transformer cannot be located farther than 15 feet from nearest side to a non-combustible building wall or 25 feet from a combustible building wall, then replace the standard mineral oil with approved less flammable fluid, clearances to buildings per Factory Mutual Data Sheet 5-4.
 - C. All transformers to have two 2.5% FCAN and two 2.5% FCBN taps for adjusting voltage.
 - D. Transformer primary connections: 600 amp non-loadbreak bushings unless otherwise noted or required.
- 2.02 Oil Filled Transformers:
- A. Rate oil-filled transformers for 65 degree C rise.

- B. Copper windings throughout.
 - C. Rate fusing and connectors for the available primary fault current.
 - D. Provide a liquid temperature gauge with temperature alarm contacts, along with magnetic liquid level gauge and oil sampling provisions. Temperature gauge to be suitable for cold weather operation.
- 2.03 Primary windings:
- A. Delta wound.
 - B. Voltage rated for 12470 VAC.
 - C. Voltage adjusting taps.
 - D. Provide loop feed primary with four position 400 amp loop feed switch for transformers of 225 KVA rating or less.
- 2.04 Consider losses when evaluating bids from transformer suppliers. Determine minimum losses acceptable to Owner.
- 2.05 Insulating oil for transformers: Certified non-PCB, suitable for -40 degree C.

PART 3 EXECUTION

- 3.01 For loop feed transformers, any unused HV bushings to have insulating caps provided. The caps shall be rated for the primary voltage.
- 3.02 Provide a 12 foot loop of slack at all transformer terminations to allow later phasing changes and/or re-termination.
- 3.03 MC Cable Terminations:
- A. Provide heat shrink over exposed copper tape shields.
 - B. Provide heat shrinkable breakout boots for moisture control.

END OF SECTION