

WVU DESIGN GUIDELINES & CONSTRUCTION STANDARDS
DIVISION 26 – ELECTRICAL

SECTION 262100 – TRANSFORMERS

PART 1 - GENERAL

- 1.1 Any deviance from the following instructions must be approved during design by WVU Facilities Management.
- 1.2 The substation transformers shall be designed, manufactured, tested and installed in accordance with the latest applicable standards of NEMA and ANSI, particularly NEMA 201 & 210, IEEE 100 and ANSI C57.
- 1.3 Substations shall be surrounded by an 8' tall chain link fence with privacy slats. The ground area inside the substation shall be covered with limestone gravel. The gravel and barrier shall extend 3' outside of fenceline and 3' past gate swing area.

PART 2 - PRODUCTS

- 2.1 Transformers must have copper windings.
- 2.2 All transformers with primary voltage of 23kV shall include a 32 step load tap changer.
- 2.3 All substation transformers shall have high voltage windings that are cylindrical/disc and copper wound. Low voltage coils shall be cylindrical/disc and copper wound. Coils shall be designed to make use of directed fluid flow.
- 2.4 Outdoor substation transformers must be mineral oil filled. Outdoor pad mount transformers shall be mineral oil filled with no load tap changers.
- 2.5 No dry type medium voltage transformers are acceptable out of doors.
- 2.6 No load break elbows are allowed.
- 2.7 Indoor medium voltage transformers may be dry type, FR3 or silicon liquid filled.

PART 3 - EXECUTION

- 3.1 All exterior transformers shall be surrounded by a fence. If metallic, the fence needs grounded. The grounding grid needs to extend at least 3' outside of the fenceline and 3' past gate swing area.
- 3.2 Bollards shall be placed around transformers in high traffic areas but they shall not impede access panel opening.
- 3.3 All outdoor oil filled transformers shall use mineral oil as the cooling fluid.
- 3.4 Ensure clearance is provided for maintenance. The space must conform to NEC safe working distances.

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- 3.5 Outdoor oil filled transformers shall be set in a containment area that is served by a sump pump. The pump shall be tied to a liquid level in the transformer that shuts off the pump if the oil level drops. Containment covers shall not be used.

END OF SECTION 262100