

**MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF AERONAUTICS - STANDARD SPECIFICATION  
L-112  
Installation of Airport Wind Tee**

**DESCRIPTION**

**1.1** This item shall consist of an airport wind tee furnished and installed in accordance with this specification at the location and in accordance with the design and dimensions shown in the plans. The work shall include the mounting, leveling, servicing, wiring, painting, testing, and all incidentals necessary to place it into operating condition as a completed unit to the satisfaction of the engineer.

**EQUIPMENT AND MATERIALS**

**2.1** General.

(a) Airport lighting equipment and materials covered by FAA specifications shall have the prior approval of the Federal Aviation Administration, Airports Service, Washington, D.C. 20591, and shall be listed in Advisory Circular 150/5345-1, Approved Airport Lighting Equipment.

(b) All equipment and materials covered by referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when requested by the engineer.

**2.2** Wind Tee. The basic wind tee shall conform to the requirements of Advisory Circular 150/5345-36, Specification for L-808 Lighted Wind Tee. A device for no-wind return, a position indicator, or a remote control mechanism shall be added to the above basic wind tee if specified in the plans and specifications.

**2.3** Wire. Wire in conduit rated up to 5,000 volts shall conform to Advisory Circular 150/5345-7, Specification for L-824

Underground Electrical Cables for Airport Lighting Circuits, for rubber insulated neoprene covered wire, or Federal Specification J-C-30, Type RHW, for rubber insulated fibrous covered wire. For ratings up to 600 volts, thermoplastic wire conforming to Fed. Spec. J-C-30, Types TW, THW, and THWN, shall be used. The wires shall be of the type, size, number of conductors, and voltage shown in the plans or in the proposal.

**2.4** Conduit. Rigid steel conduit and fittings shall conform to the requirements of Fed. Spec. WW-C-581.

**2.5** Concrete. The concrete for the base shall be proportioned, placed, and cured in accordance with Item P-610, Structural Portland Cement Concrete, using a 3/4 inch maximum size coarse aggregate.

**2.6** Reinforcing Steel. Reinforcing steel bars shall be intermediate or structural grade deformed-type bars and shall meet the requirements of AASHTO (American Association of State Highway Officials) M 31.

**2.7** Paint.

(a) Red lead priming paint for ungalvanized metal surfaces and the mixing thereof shall conform to the 97% grade in Fed. Spec. TT-R-191. The red lead shall be furnished in paste form and delivered on the job in the original unbroken packages bearing the maker's name and brand designation. The raw linseed oil, turpentine, and drier shall be in accordance with the Federal specifications listed below:

Raw Linseed Oil

TT-L-215

Turpentine TT-T-801

Drier; Paint, Liquid, Type I TT-D-651

(b) Priming paint for galvanized metal surfaces shall be zinc dust-zinc oxide primer paint conforming to Fed. Spec. TT-P-641. If necessary, add not more than ½ pint of turpentine to each gallon.

(c) Chrome-yellow paint for body and finish coats on metal and wood surfaces shall conform to Fed. Spec. TT-P-53. The color shall be in accordance with Fed. Std. 595, Number 1310.

(d) Priming paint for wood surfaces shall be mixed on the job by thinning the above specified chrome-yellow paint by adding ½ pint of raw linseed oil to each gallon.

### CONSTRUCTION METHODS

**3.1 Concrete Pedestal.** The wind tee shall be mounted on a concrete pedestal at the location shown in the plans. The concrete shall be poured in place and shall rest on undisturbed or stabilized soil.

The pedestal shall be reinforced by steel bars formed and placed as indicated in the plans. The exposed concrete surface shall be finished smooth with a steel trowel or rubbed to a smooth finish.

**3.2 Mounting.** Before fastening the wind-tee base to the concrete pedestal, the mounting holes shall be checked for correct spacing. Base or legs shall not be strained or forced out of position to fit incorrect spacing of mounting holes. The wind tee shall be assembled and mounted in accordance with the manufacturer's installation instructions. The under surface of the wind tee, when mounted on its pedestal, shall be not less than 4 feet above ground level.

**3.3 Leveling.** After the wind tee has been mounted in place, it shall be accurately leveled and, if necessary, counterbalanced in accordance with the manufacturer's instructions.

**3.4 Servicing.** Before placing the wind tee in operation, the contractor shall accomplish the following:

(a) Clean interior of base and check for alignment of parts.

(b) Clean and polish slip rings. Apply a very small amount of vaseline to the slip rings and wipe surplus off the rings.

(c) Set brushes for free motion on slip rings and adjust springs to proper pressure.

(d) Check adjustment and operation of control equipment where control equipment is specified.

**3.5 Wiring.** The contractor shall furnish all necessary labor and materials and shall make complete above ground connections to the power supply cable and to the control cable, if specified, and all internal connections for the operation of the lights and the control of the wind tee.

The underground cable and duct required between the transformer vault and the wind tee shall be installed in accordance with (and paid for by linear meter measurement as described in) Item L-108, Installation of Airport Underground Electrical Duct and Item L-110, Installation of Airport Underground Electrical Duct.

**3.6 Conduit.** All exposed wiring or cable shall be run in not less than 1-inch rigid steel conduit. The conduit for the power supply shall be brought through the concrete pedestal and shall connect to the base as indicated in the plans. The underground section of the conduit shall terminate in a bushing to protect the supply

cable. The underground cable may be installed in conduits above ground.

**3.7 Ground Connections and Ground Rod.** Unless otherwise specified, the contractor shall furnish and install a ground rod, grounding cable, and ground clamps for grounding the wind tee near the bottom of the metal base. The ground rod shall be of the diameter and length specified in the plans and shall be copper or copper clad. The ground rod shall be driven into the ground adjacent to the concrete base so that the top is at least 6 inches below grade. The grounding cable shall consist of No. 6 AWG bare stranded copper wire or larger and shall be firmly attached to the ground rod by means of a ground connector or clamp. The other end of the grounding cable shall be securely attached to the metal housing under the tee by means of a suitable grounding lug or clamp of noncorrosive metal and of substantial construction. The resistance to ground shall not exceed 25 ohms.

**3.8 Booster Transformer.** If shown in plans or specified in the job specifications, the contractor shall furnish and install a booster transformer to compensate for voltage drop to the lamps. The booster transformer shall be installed in a suitable weatherproof housing as indicated in the plans and described in the proposal.

If a booster transformer for the wind tee is required to be installed in the transformer vault, it shall be installed in accordance with (and paid for as described in) Item L-109, Installation of Airport Transformer Vault and Vault Equipment.

**3.9 Painting.** The specifications covering the manufacture of the wind tee and base require that these items be painted by the manufacturer. However, the contractor shall be responsible for cleaning any rusted or bare surfaces and painting them with a prime and two finish coats to match the original finish. All other exposed equipment (except the concrete pedestal) shall

be given one prime and one finish coat of chrome-yellow paint after erection.

**3.10 Testing.** The installation shall be fully tested in operation as a completed unit prior to acceptance. These testes shall include balance and operation of the tee and voltage readings. Any necessary test equipment shall be furnished by the contractor. Tests shall be conducted in the presence of the engineer and shall be to his or her satisfaction.

**METHOD OF MEASUREMENT**

**4.1** The quantity of wind tees to be paid for under this item shall be the number of wind tees installed and accepted as completed units in place, ready for operation.

**BASIS OF PAYMENT**

**5.1** Payment will be made at the contract unit price for each completed and accepted job. This price shall be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item.

Payment will be made under:  
Item L-112-5.1 Installation of Wind Tees-per each.

**FEDERAL SPECIFICATIONS REFERENCED IN ITEM L-112**

| <u>Number</u> | <u>Title</u>  |
|---------------|---|
| J-C-30        | Cable and Wire, Electrical (Power, Fixed Installation). |

WW-C-581 Conduit, Metal,  
Rigid; and Coupling,  
Elbow and Nipple,  
Electrical Conduit:  
Zinc-Coated

TT-R-191 Red Lead, Dry and  
Paste In Oil.

TT-L-215 Linseed Oil, Raw  
(for Use In Organic  
Coatings)

TT-T-801 Turpentine; Gum  
Spirits, Steam  
Distilled, Sulfate  
Wood, and  
Destructively  
Distilled

TT-D-561 Drier, Paint, Liquid

TT-P-641 Primer Coating; Zinc  
Dust-Zinc Oxide (for  
Galvanized Surfaces)

TT-P-53 Paint, Ready-Mixed,  
Outside, Medium-  
Chrome-Yellow

Fed. Std. 595 Colors.

**AASHO SPECIFICATIONS REFERENCED  
IN ITEM L-112**

| <u>Number</u> | <u>Title</u>                       |
|---------------|------------------------------------|
| AASHO M 31    | Billet steel<br>reinforcement bars |

**FAA SPECIFICATIONS REFERENCED IN  
ITEM L-112**

| <u>Number</u>  | <u>Title</u>   |
|----------------|--|
| AC 150/5345-7  | Specification for L-<br>824 Underground<br>Electrical Cables for<br>Airport Lighting<br>Circuits |
| AC 150/5345-36 | Specification for L-<br>808 Lighted Wind<br>Tee  |