



SOUTH DAKOTA
OFFICE OF WEIGHTS AND MEASURES

Regulations for Hopper-type Scale Installations

Commercial hopper-type scales used in the buying and/or selling of products must comply with all applicable requirements of the National Institute of Standards and Technology (NIST) Handbook 44 “Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices,” as well as all applicable South Dakota Codified Laws.

South Dakota requires traceability to a National Type Evaluation Program (NTEP) certificate of conformance for all weighing and measuring devices and components where testing criteria exists. Hopper scales used in commerce must have NTEP traceable indicators, load cells and/or lever systems.

Hopper-type scales must be fully enclosed to meet Handbook 44, UR2.3 Protection from Environmental Factors requirements. The Hopper as a weighing system must be protected from the effects of wind and weather. Hopper scales used for construction use and those having capacities of more than 40,000 pounds are subject to review for an exemption from this requirement.

Prior to installation, a shop drawing(s) of the system must be submitted to this office for review. The drawing(s) must clearly show the testing means/apparatus needed for calibration and official certification testing. This required testing means must be of such construction as to allow for **safe and reasonably expedient testing** of the hopper scale to a minimum of **25% of scale capacity** with known test standards for hopper scales with capacities below 20,000 pounds. For Hopper scales having capacities 20,000 pounds and above, a means to test with a minimum of **12.5% of scale capacity** with known test standards is required. A buildup test to actual used capacity of the scale using the required test standards plus available product is required to legally place the scale in service by service agencies as well as for state certification.

The safe and expedient means stated would not allow for the stacking and/or hanging of individual 50 pound test weights for hopper scales with capacities over 1000 lbs. The use of the 1,000 pound cube-type test weights currently in use by service agencies and state inspectors is required.

For safety reasons, the preferred means is to provide sufficiently engineered “brackets or lifting arms” from which the service agencies or state inspectors chain hoists could be attached. This would require the lifting of the test standards only enough to clear the floor. The testing means provided **must be permanently attached** to the scale. Consideration for user access is important and may require that the testing means be able to fold or swing out of the way. Cables will not be accepted.

Again, for the safety of those involved in testing, **the safe-load rating of the testing means must be clearly and permanently marked on the device.** The location and placement of the hopper scale must allow for ready access with the needed testing equipment. A **minimum** of three feet of clearance between the hopper and any walls or auxiliary equipment must be maintained at all times. Exemptions to this clearance requirement will only be granted if another means of safe, effective and reasonably expedient method of testing is provided (using the 1,000 pound test weights).

The hopper structure, when serving as the weighbridge, must be properly marked in accordance with the requirements of Handbook 44 with the **Manufacturer, Model, Serial Number, Accuracy class, Capacity, n(max), and e(min)**. These markings must be of a permanent nature and readily observable after installation. The hopper scale will not be certified without these required markings.

The initial "Placed-in-Service" report submitted by a registered service agency to this office will allow for the immediate commercial use of the hopper scale provided the installation meets all the above stated requirements. State testing will follow within the first 30 days of receiving the placed-in-service report when feasible. An additional "permanence" state test will be required within the next six months (after the scale has had appreciable commercial use) when feasible.

If the hopper scale is then found to be accurate in its performance and correct in its meeting all requirements, it will receive Office of Weights and Measures Certification for continued commercial use. Should the hopper scale fail this test. The process starts basically all over again until such time as the scale can maintain accuracy. Any existing state fees apply at the time of testing. Failing a third set of tests will result in condemnation of the device and removal from commercial use.

Summary:

The requirements for hopper scale installations (including the re-installation of a used hopper scale) must:

1. Meet Handbook 44 requirements, including all marking requirements.
2. Have NTEP traceable Indicators, load cells/lever systems.
3. Be fully enclosed in a building.
4. Shop drawings must be submitted prior to installation showing safe testing means.
5. Test weights to 25% of scale capacity for those up to 20,000.
6. Test weights to 12.5% of scale capacity for those 20,000 pounds and above.
7. Buildup test to maximum used capacity is required.
8. A minimum of three feet of clearance around the hopper for access.
9. The initial placement in service will be followed by two follow-up state tests.
10. Failure of two "sets" of follow-up tests will result in condemnation.

Questions regarding these rules and regulations may be addressed to the South Dakota Office of Weights and Measures, 118 West Capitol Avenue, Pierre, SD 57501, or by calling (605) 773-3697.