

Highlights of Changes in Articles 500 through 516 in the 2005 National Electrical Code®

While there was much moving, renumbering, and rewriting text to turn Exceptions into positive language, this Code cycle did not result in many technically significant changes for hazardous locations. However, the following may be of some interest:

500.5(C)(2): The definition of Class II, Division 2 was reworded but the criteria have not changed.

500.8(D): It was clarified that field-threaded conduit entries must provide five threads engagement with explosionproof enclosures, but that factory-threaded NPT entries can provide four and one-half threads engagement.

This change was made to bring NEC threading requirements close enough to IEC tapered threading requirements (tapered is allowed, but mostly straight is used) to enable an enclosure to be reasonably manufactured to meet both NEC and IEC requirements.

501: This Article was editorially reorganized according to the NEC Style Manual. It is divided into three parts: I. General, II. Wiring, and III. Equipment. And it was extensively renumbered. For instance, Class I sealing requirements used to be in 501.5, but are now in 501.15. The last Section was 501.16; now it's 501.150.

Articles 502 and 503 were reorganized similarly.

501.10(B)(1): This was 501.4(B)(1) and a proposal to add rigid nonmetallic conduit with an equipment grounding conductor as a wiring method for Class I, Division 2 was accepted at first, but eventually rejected. This will likely be proposed for the 2008 NEC and accepted in some form.

501.15(B)(2): This was 501.5(B)(2) and was revised to state that a boundary seal between Class I, Division 2 and an unclassified location does not have to be explosionproof. The substantiation was that Division 2 wiring methods are not necessarily explosionproof, so neither should a conduit seal have to be.

The first idea was simply to add “Such seals shall not be required to be explosionproof.” since duct seal in a conduit body might well suffice. After consideration, however, that the ability to minimize the passage of gases must be verified, the words “but shall be identified for the purpose” were added. Until a different product is submitted to UL, the traditional conduit seals will be used.

501.15(F)(3): This was 501.5(F)(3) for canned pumps, process, or service connections. It was renamed Process Sealing and split into two parts. The longstanding requirements regarding an additional seal when there is a single seal are now in (b). New text in (a) states that equipment listed and marked “Dual Seal” does not have to have the additional seal called out in (b).

A new Fine Print Note draws attention to ISA 12.27.01, Requirements for Process Sealing Between Electrical Systems and Flammable or Combustible Process Fluids,” a recently published standard that contains the requirements for a dual-seal device.

Article 505 This article already met the NEC Style Manual and did not need the reorganization the others did. There were revisions in line with ones in 501, except a change similar to 501.15(B)(2) was not included.

505.7(A): There were hotly debated proposals and comments to remove the requirement that zone classification and installation be under the supervision of a qualified Registered Professional Engineer. In the end, it remains.

A new Article 506 was accepted covering Zone 21, 22, and 23 locations for flammable dusts, fibers, and flyings. The proponents think it is needed to parallel the IEC system. It covers the materials in both Class II and III. Electrically conductive dusts, however, are not included because the IEC system doesn’t differentiate metal dusts from others as the NEC does. In its present form, it is not a very usable article.

Articles 511 through 516 had several minor changes, mostly to bring them in line with the other NFPA documents from which they are derived.