

STATE BUILDING CODE INTERPRETATION NO. I-10-04

July 1, 2004

The following is offered in response to your letter dated May 25, 2004 in which you seek guidance as to the classification of an underfloor concealed space designed to supply environmental air. Your concern is the fact that the 1999 National Electrical Code (NEC) and the 1996 International Mechanical Code (IMC) portions of the 1999 State Building Code seem to conflict.

This is an occupational hazard that occurs when the state adopts books written by different publishers that apply to the same condition. The key to the dilemma lies in the specific language of the codes. The IMC is rather general on this subject and classifies any enclosed portion of a building designed to allow air movement and thereby serving as part of the air distribution system as a plenum. The NEC (and the referenced NFPA 90 A standard), however, could treat this type of space as either a plenum or as an "other space used for environmental air", depending on specific facts.

There are two issues here in determining if the NEC requires treatment of the underfloor space as a plenum: first is whether or not the air that is handled in the underfloor space is supplied or extracted by ductwork. This is because the NFPA definition of plenum is a compartment or chamber *to which one or more ducts are connected* that forms part of the air distribution system. Thus, in the eyes of NFPA, if the underfloor space is connected to ductwork, it is a plenum. If the space under the floor moves air by virtue of grilles in the floor and the negative or positive pressure created by other air handling equipment, it may be classified as "other space used for environmental air". The second issue arises from the wording of subsection (b) of Article 300-22 in the NEC. That section requires specific wiring methods "in ducts or plenums specifically fabricated to transport environmental air." So, another criteria for determining if the referenced underfloor space is treated as a plenum or not by the NEC is whether or not the space was specifically fabricated to transport environmental air.

We find then that the IMC definitely considers the referenced underfloor space as a plenum, but the NEC determination of plenum or other space used for environmental air depends on two tests: the existence of a connection to ductwork and if the space was specifically fabricated to transport environmental air. Since two portions of the State Building Code differ in specifics regarding the same issue and both portions of the code must be complied with, the more restrictive requirements of the two codes will prevail. Thus, all plenum requirements (including wiring) from the IMC must be followed (considering that several exceptions also apply), but the NEC wiring provisions of Article 300-22 (b) for a plenum will only apply if the underfloor space is connected to one or more ducts and was specifically fabricated to transport environmental air; otherwise the wiring provisions of Article 300-22 (c) for "other space used for environmental air" will apply.