Elevating Emergency Power Requirements for Elevators

BY KEITH LANE, P.E., *RCDD/NTS Specialist, LC, LEED AP Lane Coburn & Associates, LLC.*

The International Building Code (IBC) was adopted last year in the state of Washington. Starting July 1, 2004, all projects obtaining building permits are required to follow the IBC. Prior to July 1, 2004, all projects followed the Uniform Building Code (UBC).

Many items in the IBC that are different from the UBC can affect the electrical distribution systems in commercial buildings. One such issue is that in buildings of four or more stories, the IBC requires the elevator to be part of the standby power system. As a result many new projects will now potentially require a standby generator. Specific indications on the subject from various sections of the 2003 version of the IBC include:

IBC 2003 Section 1007.2.1, Buildings with four or more stories: "In buildings where a required accessible floor is four or more stories above or below a level of exit discharge, at least one required accessible means of egress shall be an elevator complying with Section 1007.4."

IBC 2003 Section 1007.4, Elevators: "An elevator to be considered part of an accessible means of egress shall comply with the emergency operation and signaling device requirements of Section 2.27 of ASME A17.1 Standby power shall be provided in accordance with section 2702 and 3003. The elevator shall be accessed from either an area of refuge complying with Section 1007.6 or a horizontal exit."

There are many items in the IBC that are different from the UBC and can affect the electrical distribution systems in commercial buildings.

IBC 2003 Section 2702.1, Where required: "Emergency and standby power systems shall be installed in accordance with the ICC Electrical Code, NFPA 110 and NFPA 111."

(The International Electrical Code has not been adopted in the Seattle area; in this case we have completed an installation in accordance with the 2002 National Electrical Code.)

Photo: Schindler Elevator Corp.

IBC 2003 Section 2702.2, Where required: "Emergency and standby power systems shall be provided where required by Sections 2702.2.1 through 2702.2.19."

IBC 2003 Section 2702.2.5, Accessible means of egress elevators: "Standby power shall be provided for elevators that are part of an accessible means of egress in accordance with Section 1007.4"

IBC 2003 Section 3003.1, Standby Power: "In buildings and structures where standby power is required or furnished to operate an elevator, the operation shall be in accordance with Section 3003.1.1 through 3003.1.4."

These referenced requirements in Section 3003.1 refer to the transfer of all the elevators in the bank and detail the requirements for the automatic transfer to standby power within 60 seconds after failure of normal power. In addition, this section allows for the standby generator to be sized for only one elevator in a multi-elevator operation when the elevators can be sequenced to operate only one elevator at a

time under generator power and require any machine room venting or air conditioning to be connected to the standby power source.

This requirement was first introduced in the 2000 edition of the IBC. At the time, there was some confusion about what constituted a four-story building. The IBC issued an Interpretation number 27-03 issued in March of 2004 to clarify this point of contention. According to this interpretation, "A 'level' is a horizontal plane that is part of a story, not the entire story height. A story is the vertical space between the upper surface of one floor level and the upper surface of the floor level next above or below." This interpretation essentially indicates that the first story of the building is indeed the first story above the level of exit discharge. Before this interpretation, one could potentially conclude that this 2003 IBC code would only apply to five-story buildings—four stories above the level of egress, the first floor.

The electrical engineer or electrical distribution system designer should coordinate with the authority having jurisdiction to verify their specific interpretations and requirements for this IBC issue. Based on the 2002 NEC Section 701.11(E), if the AHJ approves, a connection ahead of service-disconnecting means can be utilized as the legally required standby power source in lieu of a standby generator for an elevator. This provision has additional requirements including separate disconnect enclosures and separation from the normal main service disconnect. In addition, there are some exemptions noted in Section 1007.2.1. As with the basic code interpretation, all exemptions should be approved by the AHJ prior to completion of the electrical distribution system design.

It is important to understand the changes between the UBC and IBC, especially as they relate to the electrical distribution system. These changes can be expensive and must be implemented from the very beginning of the design phase. Not understanding these International Building Code requirements will only create more pain and expense during the plan review and construction phase of the project.

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Editor's note: *For more on differences between the UBC and IBC that impact a building's electrical distribution system, go to csemag.com* |cse|