



## engineering

# When do I need an emergency generator? Complying with the new building code

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Building owners looking to perform upgrades to their building are also faced with other requirements triggered by the building code. With the recent adoption of the 2008 New York City Building Code, building owners are turning toward design professionals and code experts to understand the impact of these recent changes to the building code. One of the most commonly asked question is will the proposed upgrades

to a building require the installation of an emergency generator and an emergency distribution system. Section 2702 of the 2008 NYC Building Code addresses the requirements for emergency power systems.

Egress illumination and exit signage require emergency power. However, an emergency generator is not necessarily required to provide emergency power for lighting. Two options to satisfy the code requirements for emergency power without an emergency generator are: lighting fixtures and exit signage with self-contained emergency battery ballasts, or the use of a central battery inverter system, capable of providing the minimum required illumination level for no less than 90 minutes.

Many buildings go through ex-

tensive upgrades to their existing elevators, and, at times, consideration is given to installation of additional elevators. It is important to note that elevator upgrades and additional elevators will trigger the requirement for an emergency generator. Additionally, upgrades or building renovations requiring the installation of smoke control (i.e. smoke purge) systems or stair pressurization systems will also trigger the requirement for an emergency generator.

When major renovations are being performed to the building, if the cost of the renovation exceeds a certain percentage of the building's value, this will trigger compliance of the entire building with the 2008 NYC building code. The following building conditions would also require

the installation of an emergency generator under the emergency power requirements of the new NYC Building Code: educational facilities (K through 12) and business occupancies with a gross floor area greater than 15,000 square feet or total area greater than 100,000 square feet, high rise buildings and hotels.

The recent adoption of Local Law 26 of 2004 requires buildings 100 feet or more in height to be fully sprinklered by July 1, 2019. This may require the installation of an electrically driven fire pump. Additionally, some buildings have considered removing rooftop water tanks, used to supply water for fire protection purposes, and to provide an electrically driven fire pump. It is important to note that, the in-

stallation of an electrically driven fire pump alone will not trigger the requirement for an emergency generator. However, if the building already has an existing emergency generator, the electrically driven fire pump will be required to be backed up by the existing generator. Therefore, consideration must also be given to upgrading the existing emergency generator and emergency distribution system to serve the additional load of the electrically driven fire pump.

So, as an example, the building owner has decided to move ahead with a project for adding a new elevator and upgrade of the existing elevators. As mentioned above, the project has triggered the requirement for an emergency generator. What does this mean? The building owner may be thinking that the new emergency generator only needs to serve the elevators. However this is not the case. The design professional and/or code consultant needs to inform the owner that once an emergency generator is installed, it is required to serve all existing emergency loads as required by code as well. This includes existing electric fire pumps, existing smoke control/stair pressurization systems, existing egress lighting and exit sign (unless integral battery or central battery systems are provided), a minimum of three elevators at one time with manual transfer to the remaining elevators & etc. The code also mandates that the capacity of the emergency generator must be adequately sized to serve all of the emergency loads at the same time. All this must be taken into consideration when planning, and more importantly budgeting, the upgrade project which requires installation of an emergency generator.

There are instances where the building owner decides to voluntarily provide an emergency generator even though not specifically required by code. In this case, the emergency generator is not required to serve all of the emergency loads mandated by Section 2702 of the NYC Building Code. NYC Department of Buildings Technical Policy & Procedure Notice (TPPN) #1/07 reduces the requirements for a voluntarily installed emergency generator to encourage such installations by building owners. A voluntarily installed emergency generator is only required to serve existing egress lighting & exit sign (unless integral battery or central battery systems are provided), the existing fire alarm system and one elevator serving all floors of the building.

This article was intended to focus on the emergency power requirements for the typical building occupancies in New York City. However, Section 2702 of the 2008

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CONTINUED ON PAGE 13