

Save these instructions: These safety guidelines contain essential information that must be followed during installation of the xStorage Buildings system. These safety instructions must be carefully read and understood prior to operating the equipment i.e. the power conversion system and the battery pack and must be saved for future reference. The installation must be done in a dry, indoor environment within 0°C to 30°C free of conductive contaminant.

Note: the xStorage Buildings systems can only be installed by a qualified personnel i.e. an Eaton certified UPS installer who needs to fully understand and apply provided safety instructions in order to avoid severe product damage, electrical shock hazard and potentially death. The xStorage Buildings systems battery packs can only be installed within the Eaton 42U rack and connected with the Eaton xStorage Standard, xStorage Medium and xStorage Large power conversion systems.

These safety guidelines apply to the following xStorage Buildings systems and product life usage phases:

xStorage Buildings Systems			
Power conversion system / Charging power	Part number / Battery pack capacity		
Eaton xStorage Standard / 20kW and 40kW			
Eaton xStorage Medium / 50kW, 200kW and 400-500kW	XSTC1U12E / 4.2kWh	XSTC2N12E / 6kWh	XSTC4N6E / 10.08kWh
Eaton xStorage Large / 275kW, 550kW, 825kW and 1100kW			

Use phase	User	Actions
Logistics	Forwarder	Loading, storing, delivery
Installation	Eaton certified installer	Unpacking, mounting, installation, commissioning
Operating phase	Eaton User	Normal operation via the user interface, malfunction, notification, misuse
Service and maintenance	Eaton certified service provider	Standard check up, replacement of the battery packs, the power conversion system or the electrical units, software upgrade
Deinstallation	Eaton certified installer	Dismantling the installed xStorage Building System



Warning logistics

- Do not lift any of the packed or unpacked units on your own without help or using an adequate machine lifter. There is a severe risk of self-injury.
- Do not pack pallets with product on top of each other. 1 pallet contains: 3 rows of products i.e. 3 packed on top of each other distributed in 2 side to side columns. If the stocked number of packages exceeds the defined number there is a double risk of damaging the products and risking packages falling directly to the floor and on the handler of the units leading to potential death and product irreversible damage.
- When loading, lifting, storing and delivering products ,avoid uncontrolled product movements. These could harm both the product and the handler of the units.
- The battery pack must be transported in its original packaging, in an upright orientation (terminals at the top). Compliant, non-flammable material must be used to protect the battery pack from impact damage. Never lift the battery pack by the terminals.
- During the delivery, products must be carefully packed to prevent any product damage during the transport in case of excessive vehicle movements which should be avoided.



Caution logistics

- xStorage battery pack units and power conversion systems are considerably heavy: wear safety shoes and preferentially use a vacuum lifter for handling operations.
- All handling operations such as loading, lifting, moving packed units through the warehouse, delivery and unloading will require AT LEAST two persons working together.
- Always store xStorage equipment in a dry and humidity controlled environment (where the storage temperature range is from -10 up to 40°C) and far away from running liquids.
- Never let a foreign body penetrate inside the battery pack packaging.
- In case of dropping the packaging report this immediately to the responsible personnel who then have to carry out a product quality control check and make sure that any fall or impact did not cause any damage to the product.
- Do not leave packed products outside. Excessive weather might cause severe product damage.



Danger installation

- The xStorage Buildings system must be installed in a temperature and humidity controlled, indoor environment, free of conductive contaminants. Never install the xStorage Buildings system in an airtight room, in the presence of flammable gases, or in an environment exceeding the specifications such as outdoors. The system is not intended for outdoor use. Excessive amount of dust in the operating environment of the xStorage Buildings system may cause damage or lead to malfunction.
- Allowed ambient temperature range is [0°C, 30°C] and must not exceed 30 °C (86 °F) especially for 10 consecutive days.
- Do not install and operate the xStorage Buildings system near water or excessive humidity (95% maximum).
- Prior to starting any installation or service work, all AC and DC power sources MUST BE disconnected. Ensure as well system grounding/PE continuity.
- Do not open or mutilate the battery pack nor the power conversion system.
- If accidentally dropping the battery pack or the power conversion system, immediately move back to the 5m safe distance and prepare foam fire extinguishers in case the battery packs cells ignite from the impact. Immediately inform your Eaton technical support representative. In case of fire, inform immediately the fire brigade, keep the safe distance from the hazard scene due to the potential risk of being exposed to toxic fumes and inhaling smoke. Inform all people in the near proximity not to enter the hazard area.
- In case of spillage incidents i.e. battery pack leakage, move away at least 5 meters from the leak point and inform your Eaton technical support representative and fire brigade. Keep away from the hazard area. Disposal of the battery needs to be handled by Eaton certified personnel.
- In the event of electrolyte contamination i.e. the exposure to uncovered battery material such as electrolyte, powder etc.; skin, eyes should be immediately flushed with plenty of clean water and contaminated clothing immediately removed. The user should request medical assistance.



Warning installation

- Prior to energizing the installed xStorage Buildings system, determine if it has been inadvertently grounded i.e. the battery pack, the power conversion system and the 42U rack. If inadvertently grounded, remove source from ground. Contact with any part of a grounded element can result in an electrical shock. The likelihood of a shock can be reduced if all grounds are removed during installation and maintenance (applicable to the equipment and remote battery supplies not having a grounded supply circuit).
- Never block the natural air flow around the system and do not place anything on the top or near the sides of the system after installation.
- Never expose the xStorage Buildings system to direct sunlight or source of heat.
- If the xStorage Buildings system must be stored prior to installation, storage must be in a dry place away from the sun and rain exposure.
- When installing the power conversion system note that within this device AC and DC sources are terminated. To prevent risk of electrical shock during the installation please ensure that all AC and DC terminals are disconnected from power source.
- Make sure to secure the Ground line to the Grid's Ground, and to double check that the Line and Neutral are not confused with Ground.
- Do not attempt to alter any wiring or connectors in the battery packs, the DC tie cabinet and the power conversion system. Attempting to alter wiring can cause injury.



Caution installation

- xStorage battery packs and power conversion systems are considerably heavy products: wear safety shoes and preferentially use a vacuum lifter for handling operations.
- All handling operations will require at least two people for unpacking, lifting and installation.
- Carefully unpack xStorage equipment avoiding any excessive movements which might lead to product damage and severe self-injury.
- Handling precautions must be taken i.e. wear rubber gloves, boots and use adequate installation tools.
- Do not lay tools, metal parts or anything else on top of the unpacked or mounted xStorage equipment.
- Battery packs and connection box must be installed in the Eaton 42U rack.
- Suitable eye protection should be worn when working with or around Lithium-ion batteries.



Danger operation

- The xStorage Buildings system once installed and energized contains components that carry HIGH HAZARDOUS CURRENTS AND VOLTAGES. As an end user DO NOT REMOVE ITS COVER and DO NOT OPEN IT at any time. All repairs and service should be performed ONLY by AN EATON AUTHORIZED SERVICE PERSON. There are NO USER SERVICEABLE PARTS inside the xStorage Buildings system.
- Never block the natural air flow around the installed system, do not place anything on the top or near sides of the system after installation.
- Although designed to meet the requirements of international safety standards, the xStorage Buildings system may become hot while in operating mode. Do not touch the peripheral surfaces especially of the power conversion system during or shortly after its operation.



Warning operation

- Any type of the xStorage Buildings system control should be performed only through the official xStorage Buildings system user interface application in the way instructed by the Eaton certified UPS installer ensuring that product is in the nominal operation mode. Any failure to do so will lead to the product misuse, its damage, malfunction and potential person injury.
- Before charging the battery packs from the grid check with the Eaton certified UPS installer that this option is available. Otherwise you are risking product damage, personal hazard and legal product misuse.
- Note that a deep cycle charge and discharge may damage the battery cells inside of the battery pack and can be dangerous if not performed correctly. The battery system must be cycled in accordance with the manufacturer's instructions. If the battery system has been over-discharged please contact your Eaton technical support representative. The battery system must not be charged and discharged outside of the recommended voltage levels. If the battery system is misused (typically over/under charged), harmful gases may be released.



Warning service and maintenance

- To prevent risk of electrical shock during service and maintenance please ensure that all AC and DC terminals are disconnected from power sources. The xStorage Buildings system can be powered by PV solar system, the grid or by its own energy sources (batteries), and AC/DC sources are terminated within the power conversion system while DC sources are terminated within the battery pack. Therefore the output terminals may still be energized even when the xStorage Buildings system is disconnected from an AC or a DC source. After disconnecting all sources of supply, wait for 5 minutes before accessing the system.
- Make sure to secure the Ground line to the Grid's Ground and to double check that the Line and Neutral are not confused with Ground.
- When replacing the battery pack be aware that HIGH VOLTAGES, CORROSIVE, TOXIC and EXPLOSIVE substances are present in it. Because of the battery string the output terminal may carry high voltage even when the AC supply is not connected to the xStorage Buildings system. Thus do not touch battery pack terminals before making absolutely sure they are deenergized. Apply the shutdown instructions carefully.
- When replacing the power conversion system note that within this device AC and DC sources are terminated. To prevent risk of electrical shock during its service and maintenance please ensure that all AC and DC terminals are disconnected from power source and deenergized. This can only be done by an Eaton certified UPS installer.
- When servicing/replacing any other electric units listed in the xStorage Buildings accessory list make sure they are as well disconnected from any AC/DC source and deenergized.



Warning deinstallation

- Prior to starting the dismantling process, fully discharge the battery pack to prevent any potential electrical shocks.
- To further prevent risk of electrical shock during the deinstallation phase please ensure that all AC/DC terminals are disconnected from all power sources (PV and grid).
- Note that the xStorage Buildings system can be powered by PV solar system, the grid or by its own energy sources (batteries), and AC/DC sources are terminated within the power conversion system while DC sources are terminated within the battery pack. Thus, the output terminals may still be energized even when the xStorage Buildings system is disconnected from all power sources. Allow five minutes to pass before moving forward with deinstallation.
- When demounting the battery pack take every precaution to prevent product fall and avoid any potential electrical and chemical hazard as battery pack might contain residual HIGH VOLTAGES and CORROSIVE, TOXIC, EXPLOSIVE substances.
- Do not touch the power conversion system/ battery pack terminals before making absolutely sure they are deenergized.



Caution deinstallation

- Note that all xStorage Buildings units i.e. the power conversion system, the battery pack and the Eaton 42U rack are considerably heavy. Thus, wear safety shoes and make sure that all handling operations during the deinstallation such as dismantling, repacking units, moving them from the original installation zone to the transportation vehicle, loading, unloading at the waste disposal centre etc. involve AT LEAST two persons working together.
- Suitable eye protection should be worn when working with or around Lithium-ion batteries.



Caution product disposal

At the end of the xStorage Buildings product life cycle only Eaton authorized personnel are allowed to carry out a full system disposal (power conversion system, battery pack and supporting electrical elements) by following local disposal regulations. Contact the local recycling or hazardous waste centre for information on proper disposal of the used equipment.

- The product is made up of recyclable materials. Dismantling and destruction must take place in compliance with all local regulations concerning waste. At the end of its service life, the product must be transported to a processing centre for electrical and electronic waste.
- Dispose of the battery pack according to local disposal requirements. Do not dispose any of the xStorage Buildings system elements in a fire. When exposed to flame the battery pack may explode.
- The product contains Lithium-ion battery cells that must be processed according to applicable local regulations concerning this type of batteries. The battery pack may be removed to comply with regulations and in view of correct disposal.
- Do not open or mutilate any of the xStorage Buildings system elements prior to its disposal. Released electrolyte from the battery pack is harmful to the skin and eyes. It may be toxic.
- Do not discard the xStorage Buildings system or any of its elements in the domestic waste. This product contains sealed, Lithium-ion battery cells and must be disposed of properly. For more information, contact your local recycling/ reuse or hazardous waste centre.
- Do not discard waste electrical or electronic equipment (WEEE) in the domestic waste. For proper disposal, contact your local recycling/reuse or hazardous waste centre.