• Preconfigured, scalable designs for a variety of applications
• Robust construction suitable for harsh environmental and site conditions
• Pretested solutions to mitigate risk

ABB's EcoFlex eHouse

An innovative modular solution for power distribution
Standardized, flexible designs for project-specific requirements

The EcoFlex eHouse is a family of productized modular eHouses designed to accommodate a range of applications for the most common industry segments.

In contrast to a traditional eHouse, which is developed as a custom-tailored solution on a project-by-project basis, the EcoFlex eHouse can be delivered as stand-alone modules or combined on site to create larger eHouse solutions to meet project-specific needs.

The EcoFlex eHouse is factory designed, assembled and type-tested according to IEC 62271-202(1). With major equipment and services pre-integrated on ABB premises, the full setup is managed under the same project execution team and passes extensive factory quality inspections prior to shipment.

The EcoFlex eHouse is a commercially efficient solution. It is comprised of modules with standard ISO dimensions, offering reduced transportation costs and associated risks as well as reduced lead times due to the minimized need for engineering and site works.

The EcoFlex eHouse’s internal equipment is type-tested to relevant standards, ensuring it’s reliability.

As it is also rated IAC-AB (Internal Arc Classified), it is safe for operators, safe for the general public, and is well suited for installation in busy public areas(1).

Key features

- Reduced lead times and transportation costs
- Mitigated risks via standard designs, proven technology, and robust construction
- Project efficiency via pre-engineered designs that meet customer specific requirements

(1) Contact your Sales representative for more information.
Global applications

EcoFlex addresses worldwide industry-specific applications, is supplied globally to markets adopting the IEC standards, and accommodates local standards where these are aligned or overlap with IEC\(^{(1)}\).

The EcoFlex solution has variants suited to a vast array of applications across various segments including, but not limited to, renewables; infrastructure; electric vehicle charging; energy storage; utilities, mining; oil and gas as well as other grid applications.

While EcoFlex will align to almost any segment, this solution would best serve projects that benefit from its reduced lead time by use of a standard design and reduced shipping costs, which outweigh the need for strict adherence to a predefined site specification.

Key applications

- **Renewables**
  - Solar and wind farms

- **Energy storage**
  - Electrification and transportation, industrial and/or large scale, residential

- **E-mobility**
  - En-route bus charging stations, high power charging stations, intelligent electric bus power cabinets chargers

- **Utilities**
  - Temporary power stations

- **Data centers**
  - All data center power needs

- **Infrastructure**
  - General construction, buildings, plant, shore to ship power, and ports

\(^{(1)}\) Please contact your local ABB representative for compliance to other standards.
**Modular designs**

**Pre-engineered, pretested configurations**

Depending on the project scope, application and site requirements, ABB can formulate a functional solution using single or multiple EcoFlex modules. In addition to its modularity, the EcoFlex is fully assembled and factory tested, enabling a seamless on-site installation.

This modular concept enables customers to select from a library of pre-engineered modules and use one module or a combination of modules to accommodate larger applications.

The EcoFlex integrates readily available proven products, which can be combined and optioned, maximizing state-of-the-art ABB technology whenever possible.

Such products include medium voltage gas and air insulated switchgear; low voltage switchboards; dry and oil filled transformers; as well as auxiliary items such as protection equipment, UPS, batteries, racks and chargers.
Compact design for easy transportation

The EcoFlex eHouse is configured for ease of transportation and can be economically transported via traditional methods.

In accordance with ISO/1161, it is provided with corner fittings for lifting and transport and is based on standard dimensions – single or multiple modules of 20 or 40 feet, according to ISO1496-1.

This results in faster lead times and removes much of the overall project risk which is often an unavoidable side effect of the need for heavy lifting, transport and arduous, costly site labor.
Safe, type-tested and robust in design, construction

The EcoFlex uses design concepts proven in the harshest of environmental conditions. This eHouse is ideal for remote locations, rough environments, temporary or permanent power installations and applications requiring fast supply and installation.

While the EcoFlex is type tested according the IEC 62271-202 as a traditional Compact Secondary Substation, it also fits perfectly in more modern applications such as Energy Storage Modules (ESM) in urban installations.

It is provided with corner fittings for lifting and enclosure standard dimensions according to ISO 1496-1, which allows for easier and safer transportation.

This robust solution is constructed with steel frames, full vertical corrugated steel side and end walls, steel flooring, die-stamped steel roof and double hinged doors.

All the steelwork is constructed by semi-automatic and automatic metal inert gas (MIG) arc welding. All exterior welding seams, including those on the base structure, are continuous to give perfect water-tightness.
Summary

The EcoFlex eHouse is designed to complement the existing ABB Modular Solutions portfolio.

The EcoFlex can be delivered as stand-alone modules or combined on site to create larger eHouse solutions, with typical configurations consisting of one to four module designs.

It does not replace ABB’s existing customized eHouse offering, but rather provides an alternative for situations that are best suited by a standardized solution that offers flexibility within the project specification or for projects without a defined specification.

Features
- Pre-engineered, predesigned modular configurations
- Fully assembled and routine tested in the factory
- Robust construction provides equipment protection
- Compact design and configured for ease of transportation
- Minimized site work requirements
- Proven components from a single source to ensure reliability
- Lockable doors for security and reduced vandalism
- Natural ventilation, forced air cooling or air conditioning unit (ACU)
- Configurations with:
  - Medium voltage air-insulated switchgear (AIS)
  - Medium voltage gas-insulated switchgear (GIS)
  - Oil-filled transformers
  - Dry-type transformers
  - Low voltage switchgear
  - Uninterruptable power system (UPS)
  - Battery racks
  - Station transformers
  - Remote terminal units

Housing
- EcoFlex, in accordance with ISO/1161, is provided with corner fittings for lifting and transport.
- Enclosure standard dimensions are according to ISO 1496-1.
- EcoFlex is constructed with steel frames, full vertical corrugated steel side and end walls, steel flooring, die-stamped corrugated steel roof and corrugated double hinged doors.
- All the steelwork is constructed by semi-automatic and automatic MIG arc welding.
- All exterior welding seams, including those on the base structure, are continuous to give perfect water-tightness.
- Internal Arc Classification according to IEC62271-202 is available based on the function of the requested design

Typical configurations
- **1 module design:** Medium voltage switchgear AIS or GIS, transformer, low voltage switchgear, or combination of these items together
- **2 modules design:** Medium voltage switchgear AIS or GIS and auxiliary equipment (battery rack, charger, RTU, UPS)
- **3 modules design:** Medium voltage switchgear AIS or GIS, low voltage switchgear, auxiliary equipment (battery rack, charger, RTU, UPS)
- **4 modules design:** Medium voltage switchgear AIS or GIS, low voltage switchgear, auxiliary equipment

General technical data

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
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<tbody>
<tr>
<td>Maximum voltage rating, kV</td>
<td>Up to 40.5 kV</td>
</tr>
<tr>
<td>Ambient temperature range, °C</td>
<td>−25 to +40 °C</td>
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<tr>
<td>Relative humidity, non-condensing</td>
<td>95%</td>
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<tr>
<td>Max altitude above sea level without derating</td>
<td>Dependent upon switchgear</td>
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<tr>
<td>Corrosion class (ISO 12944)</td>
<td>CSM</td>
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<tr>
<td>IP rating, MV compartment/transformer</td>
<td>IP54/IP23 or IP43</td>
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<tr>
<td>Standard dimensions (mm)</td>
<td>20 ft. 6058 × 2438 × 2896</td>
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<tr>
<td></td>
<td>40 ft. 12192 × 2438 × 2896</td>
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</table>
The scalable design of the EcoFlex eHouse makes it an ideal solution for a wide range of applications, from e-mobility and energy storage to a more complex grid application.