



"BUILDING'S TECHNOLOGY" LLC
ENGINEERING COMPANY



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GREEN BUILDING PROJECTS

www.buildtech.mn

ZERO EMISSION BUILDING

The design project of this building is carried out by our company together with Switzerland company "Swissmade Mongolia" LLC and will be erected in two years



Basic characteristics

TOTAL FLOOR AREA	13980m ²
FLOOR AREAS	768-993m ²
TOTAL HEIGHT	51m
FLOOR NUMBER	16
FLOOR HEIGHT	3.35-3.85m
HEATING LOAD	300kW
COOLING LOAD	400kW
WATER CONSUMPTION	12.6 tn/day
INCLUDING:	
Grey water	9.5 tn/day
Water supply	3.1 tn/day
ELECTRICAL LOAD	576kW

What is Zero emission building (ZEB)?

A zero-energy building is a popular term to describe a building with zero net energy consumption and zero carbon emissions annually. Zero energy buildings can be independent from the energy grid supply. Energy can be harvested on-site-usually through a combination of energy producing technologies like Solar and Wind-while reducing the overall use of energy with extremely efficient HVAC and Lighting technologies. The zero net energy consumption principle is gaining considerable interest as renewable energy harvesting is a means to cut greenhouse gas emissions. Energy use can be measured in different ways (relating to cost, energy, or carbon emissions) and, irrespective of the definition used, different views are taken on the relative importance of energy harvest and energy conservation to achieve a net energy balance. The zero net energy approach has potential to reduce carbon emissions, and reduce dependence on fossil fuels. Buildings that produce a surplus of energy during a portion of the year may be known as "energy-plus buildings". Due to the location in area that requires heating or cooling throughout parts of the year, it is easier to achieve zero net energy consumption.

+swissmade
mongolia



Green Kindergarten Project

The planned green kindergarten facility will be located 8.4km north-west from Ulaanbaatar city center. The general plan has been developed based on detailed considerations of ambient environment, optimal space, building shape and the childrens comfort. Designed with maximum of two story structure, according to the Construction Law of Mongolia, which allocates space provision per student of 0.8m² closet space, 4.0m² learning area, 0.6m² toilet spaces, 2.0m² music facility and 4.0m² physical education spaces.



This building location plan is fully complied with local requirements and procedures and included space provisions for safety and numerous distance connections to ensure independent movement and activities of children. Classroom locations were chosen with optimal lighting and ventilation provisions based on the local climate conditions. This enables direct contact with open space that would encourage children's activities. Located in the west side of the facility with 9 to 16 hours of daylight. Children will have an opportunity to get close to the natural environment by combined green house with the kindergarten facility. Heating and moisture controls of the green house shall be connected to, and monitored by the smart monitoring system /BMS/ of the facility

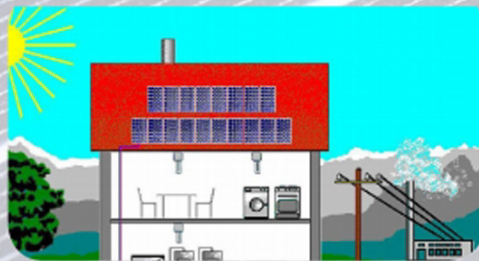
ARIG BANK PV Solar system

This Solar energy system with the capacity of 10 kW will supply the building electricity to 50-60% of renewable energy and the smart electricity management system will reduce the consumption to up 20%.



Solar power calculation has done by PV Simulation software

Building's Technology Company with German "BSD Energy" Company successfully handed the "Arig" bank solar system project in July 2015 year. All solar equipments (solar module, mounting system) are Germany brand.



Technical data:
 Solar module: SolonSE 250W polycrystalline module -42 pcs
 Inverter: SMA STP 10000TL-20
 Mounting system: Schletter brand AliGrid
 Solar system: 10.5 kWp
 One year electrical power generation 13 852 kWh
 Expected amortization period 8 year

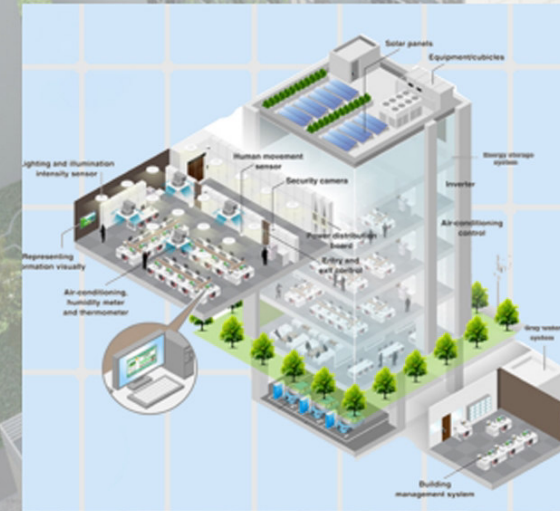


SUSTAINABLE DEVELOPMENT CENTER

We are living in the critical development period of development whereas the future life on earth on how human interacts with nature.

People in the world live along with fundamental principles of sustainable development being aware of importance of natural and devote their intellectual capacities to these trends.

The palace will be open to general public and will advocate the concept of sustainable development for the purpose of organizing international, and national conferences, symposiums and exhibitions and promoting democracy and scientific and technological progress which means that it will serve as an "Information Technology Center".



Technology center

This center will promote (advertise) all kinds of environmentally friendly technology. It will introduce gray water technology and reduce water consumption by 75%. Despite high air pollution and energy shortage of the current state, the palace has been proven to be a future design of a build-

Education center

The main of the center will be all types of education including:

- The concept of sustainable development
- Planning of green buildings
- Worldwide green architectural practice and trends

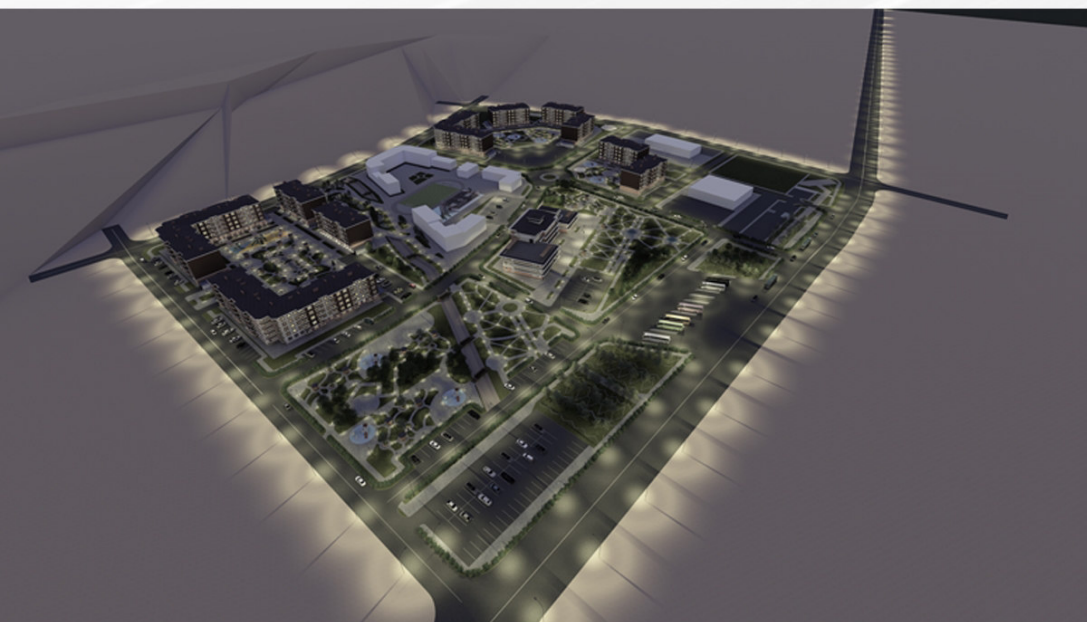
Building's basic characteristics

Total floor area	8460.22 sq.m
Floor area	795.76 sq.m
Total height	44.80 m
Floor number	12
Floor height	3.30-3.60 m
Heating load	270 kW
Cooling load	300.0 kW
Water consumption	c-27.51 m ³ /h, s-18.8 m ³ /h
Electrical load	633 kW



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Refineries worker 549
apartments

IMPLEMENTED DESIGN
DATE: 2019



Mongolia's first **Eco village**

The amount of energy that can be produced is calculated by PV-simulation program based on the Mongolian solar data. More over, placing of mono-crystal solar panels on the roof allows producing own need of electrical power. Grey water system will be used for toilets by purifying and reusing water which comes from residents of the building. It will allow reducing clean water consumption by 75%.

