GORKHA ECO PANEL
manufactured by
International Green Developers Nepal

COMPANY PROFILE
The Founders

Bishwo Ram Kawan
Chairman

Er. Krishna Bhakta Duwal
CEO/Director

Krishna Ram Deupala
CFO/Director

Er. Subodh Tripathee
Director

Hari Ram Bhyo
Director

Krishna Prasad Simkhada
Director

Directors with Mr. Jassim Alkhajah (Chairman, Al Khajah Establishment & Factories, Bahrain)

Directors with Mr. Pang Daquan of Wuhan, China (Wuhan Daquan Energy Saving Board Co. Ltd.)

Representatives from PSI (Mr. Monen - Netherland) at the factory with IGDN family.
International Green Developers Nepal Pvt. Ltd. (IGDN) is the first manufacturer of Pre-Fabricated building products in Nepal. IGDN was established in 2014 in a joint venture with Al Khajah Establishment & Factories, Bahrain.

Al Khajah has a wide spectrum of products, ‘A Class’ General Civil Contractor with long experience of property development in GCC countries. With Al Khajah’s vast experience in the construction sector, manufacturing of building materials, through the use of world class German technology.

IGDN has come up with much needed energy saving, earthquake resistant, thermal and sound proof building product of the 21st Century. IGDN has a state of art Eco Panel (Prefab Panels) manufacturing facility at Jagati, Bhaktapur with a production capacity of 5,00,000 m² annually. IGDN values the society, culture and customs and contribute in re-building the nation after the devastating earthquake.
The Organization

MISSION
IGDN being a pioneer in the manufacturing of prefabricated light weight panel strive for professionalization and excellence.

SCOPE
Manufacturing, Supply and Installation of EPS & Cement based Lightweight Sandwich Prefab panels.

QUALITY POLICY
IGDN in a joint venture with Al Khajah Establishment Factories, Bahrain is committed to manufacturing, supply and installation of EPS & Cement based Light Weight Prefab Panels under the brand name “Gorkha Eco Panel”.

To meet the expectations of customers, IGDN works through continual improvement process of Quality Management system in order to produce quality products, timely delivery of finished goods, & quality installation by highly skilled & competent manpower.

GORKHA ECO PANEL

Gorkha Eco Panel, is a complete light weight concrete building material, with significant advantages compared to other building materials. The thermal-insulation of building has become an imperative in the present day world, in an era of energy saving and environmental protection which these panels provide at reasonable cost.

Prefab House, can be fixed in any weather, as their raw material contains a patented special additive which makes them resistant to capillary spreading of water, and which also considerably increases the life not only of the wall, but of the structure as a whole. Gorkha Eco Panel system not only reduces the price of habitable space, but also makes the living in the house comfortable.

Thanks to the ecological properties of Gorkha panel. In the class of light-weight concrete Expandable Polystyrene (EPS) concrete is one of the lightest composites; having weight up to several times smaller than the weight of similar materials. By using it for external and internal walls, the load carried by structural members becomes considerably reduced, consequently reducing dimensions required reinforcement and weight of these members which has direct influence on the price of the building. The patented tongue-and-groove shaping locks each panel onto the others around it, making it easier to keep walls plumb and level.
Our Products

GEP Sandwich Panel

GEP Solid Panel

GEP Solid Hollow Panel

Product Specifications

Cement, Calcium Silicate Board, Sand Expanded polystyrene (EPS) glass fibre as inner core and 4.5 mm Non asbestos hydrated calcium silicate board on both sides as face board.

<table>
<thead>
<tr>
<th>Name</th>
<th>Specification (mm)</th>
<th>Weight (kg)</th>
<th>Allowed tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gorkha Eco Panel / Light Weight Energy Saving Board (Sandwich Panels)</td>
<td>2270 x 610 x 50</td>
<td>50–55</td>
<td>Width±2</td>
</tr>
<tr>
<td></td>
<td>2270 x 610 x 60</td>
<td>60–65</td>
<td>Width±2</td>
</tr>
<tr>
<td></td>
<td>2270 x 610 x 75</td>
<td>70–75</td>
<td>Width±2</td>
</tr>
<tr>
<td></td>
<td>2270 x 610 x 90</td>
<td>85–90</td>
<td>Width±2</td>
</tr>
<tr>
<td></td>
<td>2270 x 610 x 120</td>
<td>110–115</td>
<td>Thickness±1</td>
</tr>
<tr>
<td></td>
<td>2270 x 610 x 180</td>
<td>165–170</td>
<td>Smoothness±2</td>
</tr>
<tr>
<td>GEP Solid Panels</td>
<td>2270 x 610 x 210</td>
<td>165–170</td>
<td>/</td>
</tr>
<tr>
<td>GEP Solid Hollow Panels</td>
<td>1800 x 610 x 60</td>
<td>55–60</td>
<td>Width±2</td>
</tr>
<tr>
<td></td>
<td>1800 x 610 x 90</td>
<td>70–80</td>
<td>Width±2</td>
</tr>
<tr>
<td>GEP Hollow Panels</td>
<td>1800 x 610 x 90</td>
<td>65–70</td>
<td>Width±2</td>
</tr>
</tbody>
</table>

www.greendevelopersnepal.com/services-products.php
HEAT INSULATION AND PRESERVATION
The energy saving feature of Gorkha Eco Panel chiefly embodies in heat preservation and insulation. Major materials adopt anti freezing and heat preserving environmental protection materials poly-styrene grains with good heat insulation and preservation function, which could adjust the indoor temperature at a constant range, thus achieving the effects of ecological adjustment.

WATER PROOF, FIRE PROOF
The Face boards of GEP on both sides are 4.5mm Non Asbestos, hydrated calcium silicate fire proof boards, and the main material is a mixture of sand, fly ash and so on. GEP panels have a fire proof limit of 4 hours against a high temperature of 1000 degree C. Besides, these materials give out no toxic gas and perfectly meet the international environmental protection criterions.

The test also proves that water containers can be made by using GEP with no need for plastering and the containers have no leakage at all.

SOUND INSULATION AND ABSORPTION
The inside constructional material (EPS beads) Expandable Polystyrene Beads has good sound insulation and sound absorbing functions.

QUICK INSTALLATION AND TIME SAVING
The construction work of 500 Sq. ft wall with traditional blocks requires 7 days for 3 people for the construction and another 7 days for the surface finish. Whereas for the same area of wall using GEP, requires only 3 days including the installation and surface finish work, this saves a lot in terms of time, value and money.

HIGH INTENSITY AND QUAKE PROOF
GEP panels are with high intensity and having earthquake resistance function and shock resistance function is dozens times higher than other wall material. They can be nailed directly or have expansion bolt to lift and hang heavy things, they also can be covered by ceramic tile, wall paper, wood panel, coating etc.

SPACE AND COST SAVING
The thicknesses of GEP panels are between 50mm to 120mm. They can increase the building carpet spaces compared to traditional blocks.

The weight is only 1/12 of traditional wall body, and save the cost of construction structure.
## Technical Data

### TECHNICAL DETAIL SANDWICH PANEL

<table>
<thead>
<tr>
<th>Dimension</th>
<th>60mm</th>
<th>90mm</th>
<th>120mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anti-Impact Performance (times)</td>
<td>≥8</td>
<td>≥10</td>
<td>≥15</td>
</tr>
<tr>
<td>Anti-Bending Damage (load times over dead weight)</td>
<td>≥3</td>
<td>≥3</td>
<td>≥3</td>
</tr>
<tr>
<td>Anti-Pressure Strength (MPa)</td>
<td>≥5</td>
<td>≥5</td>
<td>≥5</td>
</tr>
<tr>
<td>Softening Coefficient</td>
<td>≥0.80</td>
<td>≥0.80</td>
<td>≥0.80</td>
</tr>
<tr>
<td>Surface Density (Kg/m²)</td>
<td>≤45</td>
<td>≤61</td>
<td>≤78</td>
</tr>
<tr>
<td>Moisture Rate (%)</td>
<td>≤10</td>
<td>≤9</td>
<td>≤7</td>
</tr>
<tr>
<td>Drying Shrinkage Value (mm/m)</td>
<td>≤0.45</td>
<td>≤0.5</td>
<td>≤0.6</td>
</tr>
<tr>
<td>Single Point Hanging Strength (N)</td>
<td>≥1200</td>
<td>≥1300</td>
<td>≥1500</td>
</tr>
<tr>
<td>Sound Insulation Capacity (dB)</td>
<td>≥35</td>
<td>≥40</td>
<td>≥45</td>
</tr>
<tr>
<td>Fire Proof Time Limit (h)</td>
<td>≥3</td>
<td>≥4</td>
<td>≥4</td>
</tr>
<tr>
<td>Thermal Conductivity (W/m.K)</td>
<td>≥0.30</td>
<td>≥0.30</td>
<td>≥0.30</td>
</tr>
</tbody>
</table>
GEP Installation

1. Marking
2. Cutting
3. Installation
4. Vertical Alignment
5. Horizontal Alignment
6. Horizontal Alignment
7. Nailing
8. Completed Front View
9. Completed Side View
10. Plumbing
11. Tiling
11. Conceal Wiring
Gorkha Eco Panels are made up of a mixture of Expanded Polystyrene (EPS) Beads, Cement, Water, Sand and Bonding agents and 4.5mm Calcium Silicate (non-asbestos) as face board. Face board will increase strength, seismic, fire resistance, heat, sound and moisture insulation properties. Gorkha Eco Panels are also available in solid panel (without face board) and hollow panel. GEP are available in various thicknesses from 50mm, 60mm, 75mm, 90mm, 120mm, 150mm, 180mm to 210mm as per requirement. The average density of the panel is 600kg per cubic meter.

I: Gorkha Eco Panels with Concrete Structure
II: Gorkha Eco Panels with Steel Structure
III: Gorkha Eco Panels as load bearing Structure
Exhibition and Participation

Prefab Expo Nepal
June 18 - 20, 2015

Safe Home Expo
August 7 – 9, 2015

Industrial Exhibition, Chitwan
February 8 - 14, 2016

Lekhnath Mahotsav
February 17 - 18, 2016

Exhibition in the British School
April 22, 2016

Buildcon Expo
April 8 - 12, 2016

Earthquake Safety Day (dattatraya)
August 19 - 22, 2016

Argakhachi Building Construction Expo

Nuwakot Mahotsav
Jan 27 - Feb 6, 2017

Bhaktapur International Trade Fair
December 9 - 14, 2016

10th National ASA, Architecture Exhibition
June 17 - 19, 2016

Indo Nepal Trade Fair Tourism Festival
March 5 – 11, 2017, Dehradun, Uttarakhand, India

Lekhnath Mahotsab 2073
February 9 - 18, 2017

Awareness Program in Gorkha
June 6, 2016

Workshop on Gorkha Eco Panel
June 21, 2016

Property Expo-2017, Nepal, Bhrikuti Mandap
April 7 - 10, 2017

Publications of Paper and Research

MOU with Kathmandu University, Department of Mechanical Engineering for “Designing and Piloting of Sandwich Insulated Panel, Alternative Material for Brick Wall”

Dedicated department to conduct the Research And Development Activities
Completed Projects

Drishti Eye Care, Kalanki, Ktm
Agro Manang, Apple Storage
Sipradi Trading
Thapathali, Kathmandu
Westar Residency
Balkumari, Lalitpur
Montessori Miracle, Balkot, Bhaktapur
Gyan Niketan School, Baneshwor
Star Banquet
Kamalvinayak, Bhaktapur
Patanjali Yogapeeth
Interior of Westar Residency
Redmud, New Baneshwor
Heritage Garden, Sanepa, Lalitpur

www.facebook.com/gorkhaecopanel/photos
Achievements and **Certifications**

[Images of various certificates and awards]
Our Sister Organization

Gorkha Precast & Windor Company Pvt. Ltd.