# Section Sciences et Ingénierie de l'environnement
# Design Project 2018 (semestre de printemps)

## Proposition n°12

## ECOCELL building materials in large constructions

**Encadrant externe**

Chiavi, Erich (supported by Fredi Iseli, CEO, ECOCELL)
Mattawaldstrasse 15 a, Davos-Dorf Téléphone : +41794144321

ECOCELL (Schweiz) AG
Fredy Iseli
Döllistrasse 18
CH-8592 Uttwil

Tel. E. Chiavi: +41794144321
E-mail: Chiavi: eric.chiavi@chiavi.ch
Tel. ECOCELL: +41 71 463 64 61
Fax: ECOCELL +41 71 463 64 77
E-mail: ECOCELL: Info@fredy-iseli.ch

**Encadrant EPFL**
Prof. Christian Ludwig
EPFL ENAC IIE GR-LUD
CH B2 398 – Station 6
1015 Lausanne
Tél: 021 693 76 78
Email: christian.ludwig@epfl.ch

**Descriptif du projet**

**Company ECOCELL**

ECOCELL (Schweiz) AG is a private Swiss company located at Uttwil in the canton of Thurgau. Scope of business is the production, construction and planning of residential properties (ECO-Solar modular homes), implementing self-engineered Ecocell® building elements.

Company founder is innovator and entrepreneur Fredy Iseli. His architecture and general contractor enterprise Fredy Iseli Unternehmens-Gruppe has completed more than 250 properties and building complexes to date. In 1989, Fredy Iseli took over the packaging company Victor Traber AG that became the starting-point for the development and

fabrication of innovative products based on recycled paper. The extensive know-how was implemented in the development of Ecocell® modular building system and patented Ecocell® technology.

**ECOCELL- materials from renewable resources**

Ecocell® building panels are sustainable and made of 100% renewable resources: wood, fibres, raw paper recovered from recycled paper and cardboard packaging.

Recovered paper is available in almost limitless supplies via raw material cycles. Cardboard packaging and corrugated cardboard carton made of raw paper rank among the most produced materials per volume worldwide. After usage, the material is collected and recycled into raw paper and corrugated cardboard packaging carton in paper factories.

ECOCELL is a partner of the Hill City project initiated by Erich Chiavi. In this context the Design Project will evaluate the applicability of ECOCELL panels as construction materials for the visionary projects such as Hill City or the “Zeppelin house”:

More information about ECOCELL: www.ecocell.ch
http://www.ecocell.ch/index.php/en/en-m-hills
http://www.ecocell.ch/index.php/en/en-m-zepellin

**Objectif**

The main objective for the students in this “Design 2018 project” is to study Ecocell building materials and its potential applicability in different contexts.
One focus is on the implementation of ECOCELL buildings for refugees. Goal is to give refugees the possibility to be involved in the construction of their own homes and buildings. Motivation is to increase their living standards by avoiding slum like tent towns and giving the people work and hope for the future in their cultural context. As a positive effect this may reduce the flows of refugees to Europe.
However, there are many obstacles and constrains to overcome to make the implementation of such a vision possible. Besides political, cultural and social aspects there are also

practical-technical challenges which have to be considered. This Design Project will focus on the regional siting as well as the selection of materials for the constructions.

**Descriptif tâches**

After studying and researching the Ecocell- building material, students make a summary which indicates benefits and challenges of the materials. A further emphasis will be put on the feasibility of the implementation in large constructions, such as the hill city or the Zeppelin house (see Ecocell homepage). Their suitability in context of a developing country context will be discussed and other constructions proposed and evaluated. Students will suggest different potential locations for large constructions, new districts or even entire villages. The size of the population to be considered, “the pros and cons” of the building materials concerning their availability as well as ecological performance in context of the siting will be evaluated in this project.

**Divers**

The creating process of both, the Hill City project or the Zeppelin project needs many competences from different disciplines, such as civil engineering, structural engineering, electric engineering, logistic expertise, information technology. Also special expertise in aerodynamics, meteorology, architecture, sociology, and ecology will be needed to implement such a visionary project. This Design Project is very interdisciplinary, focusses on building materials, but is taking into account all other areas of expertise, their needs and their restrictions imposed, as well as the different locations and availability for the different materials. The locations for potential future projects will be selected and justified by the students.