

# DSGN 617 Energy Efficient Building Design Strategies

## Assignment 2

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### **Background Reminder:**

Green buildings are; energy and resource efficient, non-wasteful and non-polluting, sustainable enough that helps minimise broad environmental impacts (e.g. ozone depletion), highly flexible and adaptable for long-term functionality, easy to operate and maintain (lower running costs), supportive of the productivity and well-being of the occupants.

One of the basic aspects of green building design is to achieve energy efficient design strategies which are listed below:

- ▶ Minimise thermal loads & energy requirements  
e.g. by reducing heat gains from equipment
- ▶ Optimise window design & fabric thermal storage
- ▶ Use of heat recovery & free cooling methods
- ▶ Total energy approach (e.g. district cooling)
- ▶ Energy efficient lighting design & control
- ▶ High-efficiency mechanical & electrical systems

### **Requests:**

#### 1. Report:

It is expecting from you to consider the information above and prepare a report which introduces one of the system that was given to you on the list below.

1. Double Skin Facades
2. Photovoltaic Systems used on buildings
3. Light Shelves and light tubes
4. Solar chimneys and Venturi effect

The report should have a title page stated your name, lecture's title, building's title, and date.

Explain the system's main idea briefly. Define main physical background of the system operation clearly. The explanations should be supported by case studies. The site, climate, function, space organisation, building envelope, etc. of the case buildings should be introduced clearly by drawings, sketches, etc.

The report should include a conclusion and discussion part. Criticise the system and its application to buildings from the energy efficiency perspective.

The reports will be written on an A4 paper in a good structured technical English.

**Deliver the report not late than 13 May 2016.**

## 2. Presentation:

On 6<sup>th</sup> of May, you are going to present the systems, its efficiency and case buildings with the technical definitions. This 10 minute presentation should include a brief outline of your report and should not have more than 10-12 slides.