

DESIGN-BUILD WORKSHOPS IN ARCHITECTURAL EDUCATION. A CASE STUDY; ADOBE BUS STOP IN NORTHERN CYPRUS

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Abstract

The design-build workshops became a significant pedagogical tool to expand student learning experiences in practice environment. The aims of the workshop are to apply theory-practice and design-build as whole process, to understand design, building techniques, material and to improve student practical skills.

The workshop was organised by Istanbul Medipol University, the school of fine arts, design and architecture in the education year of 2015-2016. After the second semester twenty first-year students, four lecturers from architecture and interior architecture programmes worked in the design-build teams.

At first a research seminar was organised to develop a clearer understanding of the project objectives such as the need of project for community of Northern Cyprus, the usage of adobe which is a traditional building material of region, sustainable design, resource conservation etc. The design opportunities from ideas to building were explored with the second seminar and the team developed the design project for construction. Before construction a local specialist made another seminar to explore the material of adobe, features, techniques etc.

The workshop was an example in which students design and built an adobe bus stop. Besides understanding of design, adobe as building material and the all process another important feature of our design-build workshop was the exploration of sustainable design which includes cultural and historic preservation.

Thus, the paper will have all of the details regarding to the design-build workshop the predesign, design, build process and student approaches on learning outcomes.

Keywords: design-build, architectural education, adobe, sustainable design.

1 INTRODUCTION

The design-build workshops including both design and build in architectural education became a training method in architecture schools all over the world in recent years.

The design-build workshops offer an educational environment that allows students to gain building experience and learn the construction area, structure, material and processing material, details etc. in practice besides design. In these workshops, the construction is a part of design process and the main purpose is to understand the building techniques and the process by consolidating the learning in architectural design studio with the knowledge that students will acquire by touching, seeing and experiencing during workshop. In this respect, design-build workshops are studio methods in which the construction of designed project is articulated into design studios in architectural education.

The design-build workshops mostly are held for communities with low income affected by political and natural disasters living in rural areas that are not accessible to architectural services. In these workshops usage of sustainable, recyclable or salvaged materials that can be obtained locally, easily and cheaply is also emphasized to subject of sustainability which is one of the aims of architecture

Design-build workshops includes a number of complex projects requiring long time and some infrastructure besides outdoor, interior, renovation or additional projects that can be done in a short time. However, in these workshops, the size of the projects done is not important; the projects are tools to reach the targeted pedagogical and social goals. The social and pedagogical goals of the design-build workshops are as follows [1];

- Testing the ideas produced in design studio in practice and gaining the building experience,
- Developing of decision making skills in design and construction,

- Understanding of experiential learning, material, processing of material, details, construction and scale of 1:1,
- Underlining that design and build work is a team work and working as a team,
- Producing of environment-friendly projects using passive energy methods,
- Providing resource and assistance through students to the communities which have not resource or cannot reach the professional design services, creating the social responsibility awareness for students,

In this study in order to understand the structure and process of design-build workshops and its contribution to architectural education, the project of a bus stop made of adobe, which is a local and sustainable material in Büyükkonuk Ecovillage in Northern Cyprus is examined as an example of design-build workshops and learning outcomes through the observations, experiences and comments of the participant executives and students are revealed.

2 METHODOLOGY

The lecturers from the architecture and interior architecture programmes of the school of fine arts, design and architecture at Istanbul Medipol University aimed students to apply theory-practice and design-build as whole process, to understand design, building techniques, material and experience the various requirements of construction process, to improve student practical skills, to understand the social benefit of the project and experience the creativity and energies of the workshop.

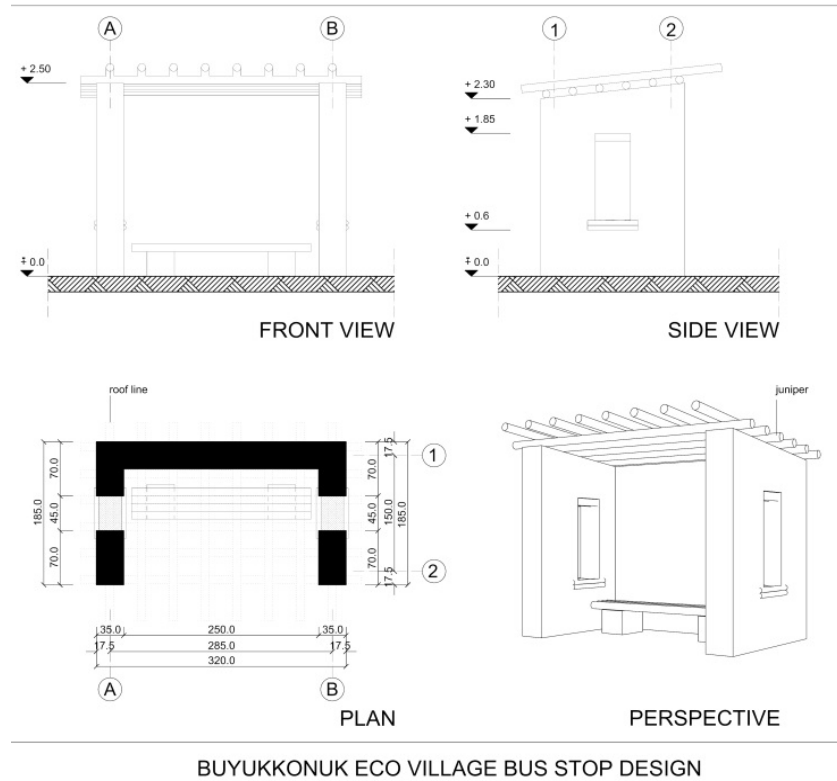
Büyükkonuk Ecovillage in Northern Cyprus was selected as the study area, in where architectural services cannot be easily reached but a local sustainable material such as adobe can be used. Regarding the subject, firstly the evaluation works have been conducted together with an expert who has expertise in adobe material and building technique in the region and who has carried out repairing etc. works especially in historical buildings with adobe and also has an active role in the village society. As a result of the meetings held with the expert, the village society and the Büyükkonuk Municipality for about 3-4 months, an adobe bus stop was demanded for the village.

A research seminar was held at the university in Istanbul with a group of twenty first-year students from architecture and interior architecture programmes in May 2016. Some topics including the aim of the project, the necessity of bus stop demanded by the village, adobe material, its importance as a local and sustainable material etc. have been examined in this seminar.

In the second seminar held after the research seminar, design ideas were created with both two and three-dimensional drawings and perspectives. The design and drawings were shared with the expert, the village society and the municipality. After a brief evaluation process, a common project was selected for implementation by all parties. The design and drawings are shown in drawing 1.



Drawing 1. Buyukkonuk Ecovillage bus stop design



Due to the one week time limit set for construction in accordance with the work schedule, foundation works of bus stop were carried out by the expert and three construction workers from the municipality in June 2016 before the rest of workshop team moves to Northern Cyprus.

The workshop team (shown in figure 1) was united with the participation of four lecturers and 11 volunteer students from Istanbul Medipol University, a local expert who has expertise in adobe material and building technique and three construction workers from Büyükkonuk Municipality in July 2016. Before starting the construction process, a seminar was given by the expert about adobe material, contents, building technique etc. and then the workshop in scale of 1:1 has been started.



Figure 1. The design-build workshop team

Firstly adobe work area was introduced to students and the material content, features, adobe mud area (mud, pouring into the wooden moulds, removing from the wooden moulds, leaving to drying under the sun, processing the material, cutting etc.) have been explained practically by the expert with the participation of students.

Adobe wall construction, forming of window opening, lintel installation, wall plastering, roof construction have been described practically with the traditional method during the construction process, and students have been involved in every step of the process alternately and experienced the construction. The construction process is shown in figures 2-3-4-5-6-7-8-9-10.



Figure 2. Before construction



Figure 3. Adobe work area and material content (soil, straw, water)



Figure 4. Adobe mud area (mud, pouring into the wooden moulds, removing from the wooden moulds, leaving to drying under the sun)



Figure 5. Processing the material, cutting



Figure 6. Adobe wall construction, forming of window opening, lintel installation



Figure 7. Making measurements and dimensional adjustments



Figure 8. Roof construction



Figure 9. Wall plastering



Figure 10. Completion of adobe bus stop

Regarding the design-build workshop, general information such as the users, size and contents of the project, the number of participants, duration, material is shown in table 1.

Table 1. General information

Project type:	Design-build project
Project name:	Adobe bus stop
Users:	Büyükkonuk Ecovillage people
Project size and content:	3.20 x 1.85 mt (5.92 m2)
Number of participants:	4 lecturers, 11 students, 1 local expert, 3 construction workers
Duration:	1 week
Material:	Adobe
Participants:	The lecturers of architecture and interior architecture programmes of the school of fine arts, design and architecture at Istanbul Medipol University Ass. Prof. Aysun Ferrah Güner Ass. Prof. Gülhan Benli Ass. Prof. Pelin Karaçar Ass. Prof. Mustafa Adil Kasapseçkin The students of architecture and interior architecture programmes of the school of fine arts, design and architecture at Istanbul Medipol University

3 RESULTS

As aimed, for students, understanding design, building techniques, material and experience the various requirements of construction process, improving student practical skills in scale of 1:1, understanding the social benefit of the project and experiencing the creativity and energies of the workshop have been realised.

Students participating in the design-build workshop expressed the reasons for participation as particularly gaining practical experience and working in an innovative and free learning environment. In this respect, students' expectations have been met.

Since the design-build workshops require voluntary involvement and working as a team, social dimensions such as communication and team work have been particularly emphasized during this process. In addition to experiential learning, students stated that they were aware of the importance of the project in terms of social responsibility and their sense of responsibility was developed.

It was seen that the design-build workshop offered a different learning environment with different dynamics as predicted, and students were able to learn boundaries and details of the material in particular. For example, through a questionnaire study, students were asked about the design-build workshop. In the questionnaires filled out before and after the design-build workshop, it was stated

that the best learned issue by the students in general was the material, while the most difficult one for the students was the processing and cutting the material.

It was stated that another issue that students had difficulty was the air temperature. Workshop executives also observed that some participants had difficulties in working under these conditions due to both their inexperience in building issue and the atmospheric temperature.

4 CONCLUSIONS

This study is planned to continue with statistically evaluating the student questionnaires conducted within the scope of design-build workshop and to demonstrate statistically the contribution of design-build workshops to learning outcomes in architectural education.

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