

PLANNING OF THE LANDSCAPE DESIGN OF “MULS COMPLEX”

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ABSTRACT

There has come an urgent necessity to reconstruct the university building and dormitory on the basis of detailed planning and researches as well as to plan the landscape architecture specifically dedicated to teachers, employees and students step by step according to the standard of higher education organizations.

We aim to implement the project taking accounts of not only designs of university campuses in developed countries but also higher education trends in our own country and the mission of Mongolian State University of Agriculture /MULS.

The significance of landscape planning is immense. But there is a lack of green environment, convenience, recreation fields, appropriate design etc. at universities and colleges in Mongolia where students, teachers and employees gather in a large number. Therefore, the rationale behind choosing this subject lies in planning and implementing it properly.

OBJECTIVE AND GOALS OF THE SUBJECT

The objective of this subject is to turn the campus of MSUA into the comprehensive one (MSUA Complex) where the balance of teaching, research and production is maintained, where teaching and learning environment is provided and where the standard of universities in developed countries is met. In other words, the aim is to create a new design of university which demonstrates

the information-provided and knowledge-based economy as well as the development of global market by investigating world top universities. The following goals are proposed so as to reach the objective:

1. To plan the design after investigating its possible features
2. To plan the land art and work out the most effective alternative

METHODOLOGY OF THE STUDY

Schools within MULS served as subjects separately.

The following commonly used scientific methods were applied during the study:

- Testing methods (observation, classification)

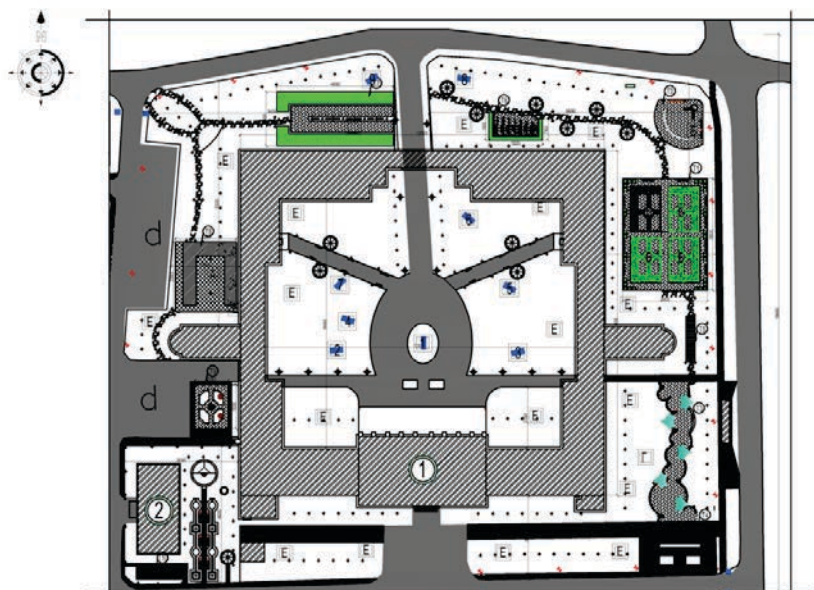
- Methods used at theoretical and experimental level (analyses, induction, deduction, designing etc.)
- Theoretical research methods (hypothesis, prediction, formulating theory etc.)
- Use of software (AutoCAD, Photoshop, 3d max, ArchCAD)

What is planned	Methods applied
Landscape design	<ul style="list-style-type: none"> • Selection method /color, appearance design, material/ • Sketch method /styles of modern characteristic designs, design of main structure of elements etc/

RESULTS OF THE STUDY

Composition means to arrange an artistic work systematically combining its main elements or parts and to form a whole and show it through artistic expressions. Issue of composition which indicates the skills to arrange composition work of art relates to artist’s ability to form a whole by combining distinct elements.

Issues of usage and aesthetic technique play significant role in the composition of a work. One of the important factors of compositional development is the forming process and we planned the following compositions using this regulation in our study:



Picture 1. Composition planning of the surrounding around the main building

The Alps planning

Stones of wide variety of forms and sizes make up the Alps, which serves as the ornamental elements of architectural system in the landscape, thus enhancing the aesthetic value of the object. The Alps hill composition was

included in the planning of field beyond the field with flags in the left side of the university building. Providing such environment in this field will give the feeling of travelling in the range of high mountains full of natural beauty.

Table 1

Calculation of ingredients for the Alps hill composition

No	Ingredient material	Measuring unit	Num-ber	Description	Unit cost, tugrugs	Total cost thousand tugrugs
1	Sand	tn	2		1 tn=70000	140
2	Gravel	0.5-0.1 mm, m ³	50	To pave with 10cm of thickness	13000	650
3	Calcified gravel	m ³	40	White colored, to create stripe	15000	600
4	Smooth river rock	tn	4	To bring from river bank	80000	240
5	Flat rock	tn	1	-	90000	90
6	Granite	m ³	25	-	60000	1500
7	Crushed rock	tn	2	From mountain	250000	500
8	Boulder	m ³	35	-	35000	1225

9	Precious stone	kg	100	-	5000	50
10	Log	200-700 mm long	-	To use dried or sapless trees around the object as logs		
11	Bark of a tree	kg	-	To gather it from mountain, classify it and then pave		
12	Moss	m ³	3	To collect from mountain	5 tn=130000	390
13	Black earth	tn	3	To form hillocks	5 tn=130000	390
TOTAL					5775.0	

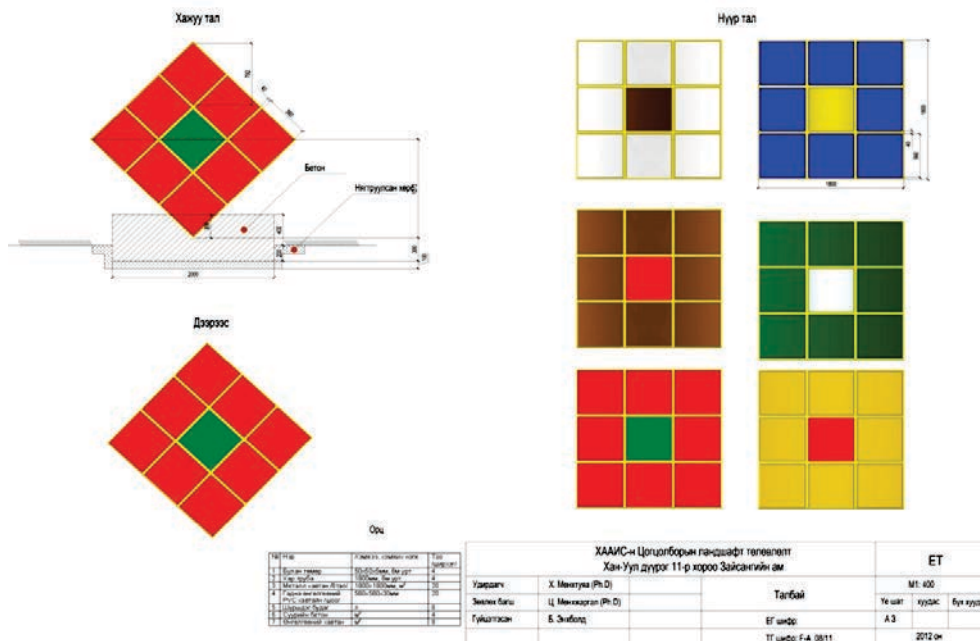
Rubik’s cube composition

Rubik’s cube, also called ‘magic cube’ is the challenging mechanical puzzle. It was invented by Hungarian sculptor and professor of architecture Ernő Rubik and consists of 26 small cubes /or cube lets/of white, red, blue, orange, green, and yellow colors with pivot mechanism. The main purpose of Rubik’s cube

is to use various variations of algorithm to cover each face with one color.

All cubes can be disassembled and an angle of each cube let is attached to the center of the cube so that cube lets can rotate freely.

We planned Rubik’s cube composition choosing the mathematical composition in our study [4].



Picture 2. Technical drawing of Rubik’s cube composition planned around the School of Economics and Business

Table 2

Calculation of ingredient for Rubik’s cube composition

№	Material	Measuring unit	Measurement, mm	Number	Unit cost	Total cost, thousand, ₮
1	Angle iron	piece	50x50x5	8	4700	18.8
2	Black pipe, d40 mm	piece	1800	24	3900	15.6
3	Metal board	piece	1800x1800	6	55000	1100
4	PVC board	piece	560x560x30	36	28000	560
6	Spray paint	l	-	6	4500	27
5	Base concrete	m ³	-	2	1m ³ =104800	419.2
6	Colored celluloid	piece	560x560	36	12500	100
TOTAL					2240.0	

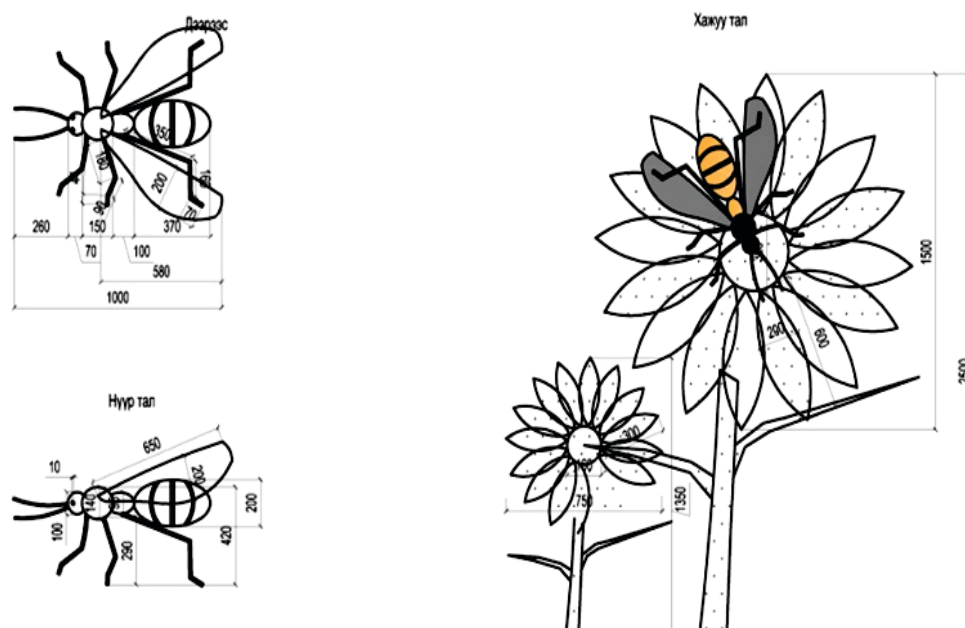
Planning of beehive composition

Upon finding a flower, bees inform others the location of honey by dancing. Worker bee that brought honey passes it to a honey-keeper bee. So, worker bees gather in a large number where honey of good quality is available. Beehive present in nature is called honeycomb consisting of six foundation sheets. The number of comb varies depending on bee types [1, 2].

The method of spatial composition was applied in the planning of Beehive composition. Spatial composition refers to any space created by interdependent locations of three-dimensional objects that form architectural environment. Planning of beehive composition specifically planned for the recreational field of the School of Veterinary Science and Biotechnology demonstrates the feature of the school.

Table 3

Beehive composition							
№	Name, shape	Material	Structure	Measurement	Number	Description	Unit cost, tugrugs
1	Bee	Cedar, pine	Trunk /main body/	686	Three parts	To carve	350000
			Wing	646	2		
			Horn	260	2		
			anterior	300	2		
			Leg medium	310	2		
			posterior	560	2		
2	Sunflower	Cedar, pine, willow	petal	200x600	16	To carve	780000
			Stem	2000	3		
3	Tree wax	-	1		1	To stick	4500
4	Tree lacquer	-	1		2	To paint	7370
5	Screw	-	kg		1	To attach	4500
TOTAL						1.146.370	



Picture 3. Technical drawing of Beehive composition planned around the School of Veterinary Science and Biotechnology

Planning of monumental decoration composition

Artistic expression of three dimensional object is defined by composition of volume.

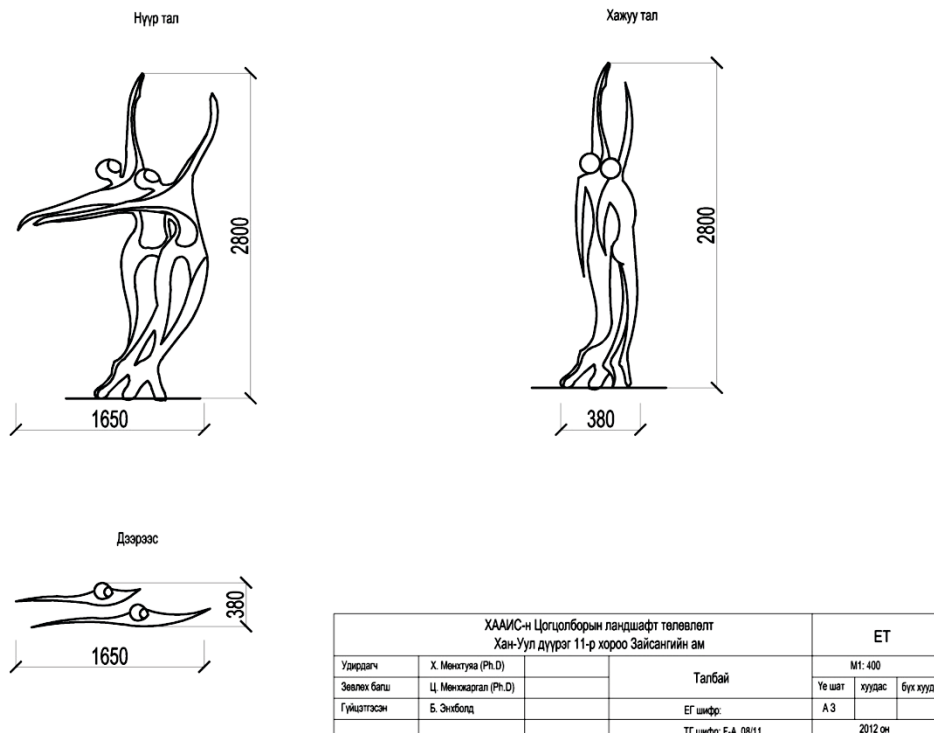
Although seen as simple geometric shapes in appearance, it is the harmonic combination of

various elements indicating the features of internal composition and the ratio of angles. These dimensional shapes or figures are shown up in various features in architectural environment, thus defining the compositional feature [3, 6].

Table 4

Calculation of ingredients for monumental decoration composition

№	Material	Measurement, mm	Shape	Number	Unit cost, thousand tug.	Impact	Durability
1	Iron	6.8	Dance move	4	42000	Positive	Good
2	Stone	6.8		4	16000	Positive	Good
3	Concrete	6.8		4	12000	Positive	Moderate
TOTAL				12	280.000 million tugrugs		



Picture 4. Technical drawing of monumental decoration, variation A

Natural granite was used based on the material-factor feature of architectural composition. Usually, granite is a heavy rock with coarse-grained texture and is often grey or greenish. It is used for memorials either being carved or

without being changed. Such stone environment gives a majestic impression. With this feature, it clearly shows the structure of main compositional elements resulting in the vivid idea it is trying to convey.

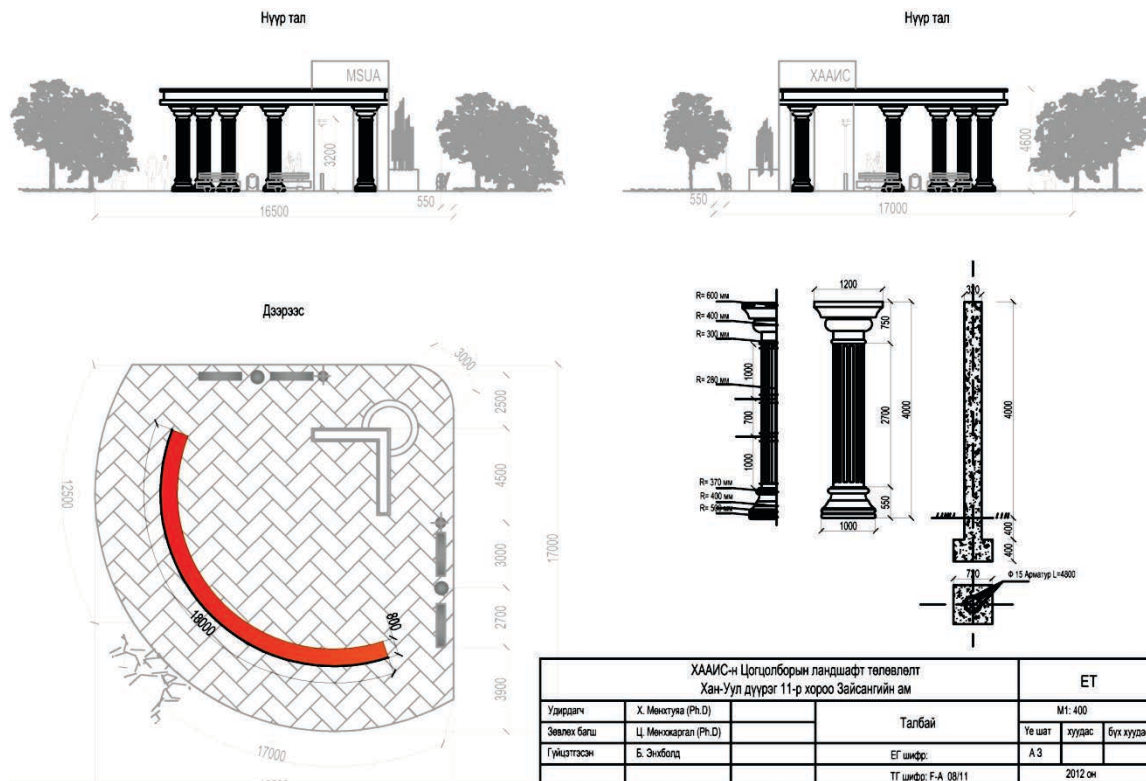
Planning of Order composition

Main elements of order are column and architrave, both of which serve as shelters from sun and precipitation in addition to creating

different artistic style of architecture and giving artistic (aesthetic) feeling.

Order is classified into Doric, Ionic and Corinthian orders. The Doric order was adopted in our study and is attractive by its

organizational system having solid columns and big entablatures [5, 7].



Picture 5. Technical drawing of the Doric order composition

Floated concrete is commonly used in this type of construction and the budget of 100 million

tugrugs is estimated based on the calculation of building ingredients.

Table 5

Overall study of the compositions

№	Location	Name of composition	Impact on the environment and people	Planned number	Covering area, m ²
1	School of Economics and Business	Cube	Positive	1	4
2	School of Veterinary Science and Biotechnology	Beehive	Positive	1	2
3	Main school building	Order (column)	Positive	5	5
		Monumental decoration	Positive	4	6.8

CONCLUSION

1. There established the based design version including choose and design methods relation with all decision to solve the aesthetics, financial, technical, liability and social problems on basin of ideology of landscape design. Here individually

projected 4 monumental decoration, a honey design, 5 shaft design (order), a Alpha's hill, a ankle design and cubic Rubic design.
2. The green area planned with articulate base axle produced constant model arc

- type separated plant basket (basket) in 156m² area under the purpose to collect the artificiality landscape to combine the compliance of direct line isolated law in alpha's hill or stone design.
3. Here projected a one six-sided cubic Rubic model by frontal design on basin of numerical or measurement ratio and side measurement or ratio.
 4. In planning of bee hive design decided to make by space design method, any object based on any location and the sunflower and bee made by made by wooden graving.
 5. The 4 types monumental decoration choose on basin of bacterial handle characteristics of cubature design that the detection of internal space content namely the three sided geometrical figure detected in art characteristics of object here used the natural granite.
 6. The detection of cross beam with column in tectonic system of landscape design projected relation with locations of Corinth order figure by constant, cubature and open space type.

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