

The Landscape Institute
Arnold Arboretum of Harvard University
L00603FA Construction Methods and Materials
Fall 2003
Wednesdays 5:30 to 8:30 PM

Instructor:
Instructor Name
Contact Address

Phone:
Fax:
Email:
Website (if applicable)

Prerequisites

Ex. Design I and Drafting

Description of Course

The information presented in the course stems from my personal belief that “design is in the details”. Design is not complete until the drawings come to life- until the project is constructed. The inter-relationship of forms and their materials make a landscape. As the painter Piet Mondrian wrote in his essay titled “Plastic Art and Pure Plastic Art” published in 1945:

Throughout the history of culture, art has demonstrated that universal beauty does not arise from the particular character of the form, but from the dynamic rhythm of its inherent relationships, or – in a composition- from the mutual relations of forms. Art has shown that it is a question of determining the relations. It has revealed that the forms exist only for the creation of relationships; that forms create relations and that relations create forms. In this duality of forms and their relations neither takes precedence.

This course focuses on the building of landscapes- both the technical and artistic aspects of landscape detailing.

Goals and Objectives

- To understand the methods of assembly of landscape materials for the purposes of describing (in drawings and in words) a design to a contractor
- To gain an understanding of materials used in landscape construction, both physical constraints and aesthetic considerations
- To learn to observe and analyze the built world and to use that knowledge to inform our work

Structure and Format of Course

We will study landscape materials in depth and learn to apply them to landscape detailing through sketching, photographing, drawing/drafting, modeling, writing, and other techniques.

Each class will include some or all of the following; a lecture describing attributes of a particular material and an overview of ways that material is used in the landscape, a quiz of the materials pertaining to the previous week’s lecture, an in-class drawing assignment, and a description of the homework assignment for the following week. The final product will include a mini set of construction documents including a materials plan, details and outline specifications.

Textbook

Harris, Charles W. and Nicholas T. Dines. Timesaver Standards for Landscape Architecture: Design and Construction Data, 2nd Ed. New York: McGraw-Hill Publishing Company, 1998

Note: The 2nd Edition is required. For those unable or unwilling to purchase the textbook, a binder containing photocopies of the pertinent chapters will be available for short term loan from the office. All other required and further readings will be made available to students in class.

Additional References

Dines, Nicholas and Kyle Brown. Landscape Architect's Portable Handbook. New York: McGraw Hill, 2001

Hornbostel, Caleb. Construction Materials; Types, Uses and Applications, 2nd Ed. New York: John Wiley & Sons, Inc., 1991

Kirkwood, Niall. The Art of Landscape Detail: Fundamentals, Practices and Case Studies. New York: John Wiley & Sons, Inc., 1999

Pye, David. The Nature and Art of Workmanship. Cambridge: Cambridge University Press, 1968

Stein, J. Stewart, AIA, FCSI. Construction Glossary, An Encyclopedic Reference and Manual, 2nd Ed. New York: John Wiley & Sons, Inc., 1993

Ramsey, Charles George, Harold Reeve Sleeper, and John Ray Hoke, Jr. Architectural Graphic Standards, 10th Ed. New York: John Wiley & Sons, Inc.

Walker, Theodore D. Site Design and Construction Detailing. West Lafayette, Indiana: PDA Publishers, 1978

Photocopied handouts and a list of further readings will be presented as appropriate.

Materials Required

Drafting supplies (for use at each class): lead holder, lead pointer, "F" leads, roller ruler or portable drafting table with mayline, architectural scale, engineering scale, drafting tape, 8.5 x 11 precut vellum sheets (gridded or non-gridded), erasing shield, white plastic eraser, small drafting brush.

Criteria for Evaluation

Students are required to attend all class meetings, participate in class discussions and complete assignments.

- Homework assignments 10% of grade
- Quizzes/in-class assignments 10% of grade
- Construction Documents (final project) 25% of grade
- Midterm Examination 25% of grade
- Final Examination 25% of grade
- Class participation and attendance 5% of grade

Letter grade numerical equivalents are as follows

A	96-100
A-	91-95
B+	86-90
B	81-85
B-	76-80
C+	71-75
C	66-70
C-	61-65
F	60 or below

There are no grades of A+ or D. A grade of C+ (75 or lower) is considered unsatisfactory and does not count toward a Certificate.

Prior to Week One

Assignment for October 1:

Required Reading

Kirkwood, Niall. The Art of Landscape Design; Fundamentals, Practices, and Case Studies. New York: John Wiley & Sons Inc., 1999. pp 12 through 44

Harris, Charles W. and Nicholas T. Dines. Timesaver Standards for Landscape Architecture: Design and Construction Data, 2nd Ed. New York: McGraw-Hill Publishing Company, 1998. pp 110-1 through 110-10 (Construction Documents), pp 130-1 through 130-16 (Site Construction Operations)

Week One, October 1

Introduction to Course

Introduction to Construction Documents

Assignment for October 8:

Required Reading

Harris, Charles W. and Nicholas T. Dines. Timesaver Standards for Landscape Architecture: Design and Construction Data, 2nd Ed. New York: McGraw-Hill Publishing Company, 1998. pp 820-1 through 820-24 (Asphalt)

Week Two, October 8

Material: Asphalt

Assignment for October 15:

Sketch Problem #1: Drafting Details in Plan and Section

Required Reading

Harris, Charles W. and Nicholas T. Dines. Timesaver Standards for Landscape Architecture: Design and Construction Data, 2nd Ed. New York: McGraw-Hill Publishing Company, 1998. pp 830-1 through 830-21 (Concrete)

"Notes Upon The Sizes of Steps Required for Comfort." Landscape Architecture, January 1911, pp. 84 through 90

Further Reading

"Custom Precast Paving." Landscape Architecture, June 1993, pp 84 through 85

"Grass Paving Systems." Landscape Architecture, June 1994, pp 31 through 33

Week Three, October 15

Review Sketch Problem #1: Drafting Details in Plan and Section

Material: Concrete

Assignment for October 22:

Sketch Problem #2: Drafting Details in Section and Elevation

Required Reading

Harris, Charles W. and Nicholas T. Dines. Timesaver Standards for Landscape Architecture: Design and Construction Data, 2nd Ed. New York: McGraw-Hill Publishing Company, 1998. pp 840-1 through 840-9 (Masonry)

Flexible Brick Paving, Pedestrian and Light Traffic Applications. Reston, VA: Brick Industry Association

"Element: Tile." Land Forum, 07, pp. 98 through 105

Further Reading

"Interlocking Concrete Pavers, Guidelines for Design and Installation." Landscape Architecture, August 1991, pp. 72 through 74

Week Four, October 22

Review Sketch Problem #2: Drafting Details in Section and Elevation

Material: Clay and Concrete Masonry

Assignment for October 29:

Sketch Problem #3: Paving Patterns

Required Reading

Harris, Charles W. and Nicholas T. Dines. Timesaver Standards for Landscape Architecture: Design and Construction Data, 2nd Ed. New York: McGraw-Hill Publishing Company, 1998. pp 840-9 through 840-24 (Masonry)

"Element: Stone." Land Forum, 01, pp. 68 through 75

"Limestone and Granite: Texture and Finish." Landscape Architecture, October 1992, pp. 114 through 117

"Cobbles and Other Stones." Landscape Architecture, March 1992, 84 through 87

"A Solid Foundation." Landscape Architecture, December 2001, pp. 74 through 76

Further Reading

"Making Space: An Engaging Garden Wall Unveils a New Attitude Toward Bluestone." Landscape Architecture, December 2001, pp. 26 through 27

"Construction: The Use and Reuse of Granite Curbing." Landscape Architecture, January 1981, pp. 97 through 100

"Notes of the Construction of Ha-Ha Walls." Landscape Architecture, April 1930, pp. 221 through 224

"Create a Pebble Mosaic." Fine Gardening, November-December 2001, pp. 60 through 65

Week Five, October 29

Review Sketch Problem #3: Paving Patterns

Material: Stone Masonry

Review for Midterm Examination

Assignment for November 5:

Study for Midterm Examination

Week Six, November 5

Midterm Examination

Assignment for November 12:

Sketch Problem #4: Wood Construction

Required Reading

Harris, Charles W. and Nicholas T. Dines. Timesaver Standards for Landscape Architecture: Design and Construction Data, 2nd Ed. New York: McGraw-Hill Publishing Company, 1998. pp 850-1 through 850-24 (Wood), and 460-1 through 460-21 (Wood Decks and Boardwalks)

Week Seven, November 12

Review Midterm Examinations

Review Sketch Problem #4: Wood Construction

Material: Wood

Introduction to Construction Documents

Assignment for November 19:

Pin-Up #1: Cover Sheet and Title Block

Required Reading

Harris, Charles W. and Nicholas T. Dines. Timesaver Standards for Landscape Architecture: Design and Construction Data, 2nd Ed. New York: McGraw-Hill Publishing Company, 1998. pp 860-1 through 860-27 (Metals)

"Ornamental Metals." Landscape Architecture, December 1988, pp. 121 through 125

"Ornamental Metal- Wrought Iron." Landscape Architecture, March/April 1987, pp. 97 through 100

"Ornamental Iron, Part II: Cast Iron." Landscape Architecture, July/August 1987, pp. 93 through 95

Note: November 14- course withdrawal deadline

Week Eight, November 19

Review Pin-Up #1: Cover Sheet and Title Block

Material: Metal

Assignment for December 3:

Pin-Up #2: Materials Plan

Required Reading

Harris, Charles W. and Nicholas T. Dines. Timesaver Standards for Landscape Architecture: Design and Construction Data, 2nd Ed. New York: McGraw-Hill Publishing Company, 1998. pp 870-1 through 870-6 (Plastic), and pp 870-6 through 870-8 (Glass)

"Element: Plastics." Land Forum, 03, pp. 94 through 103

"A Touch of Glass." Landscape Architecture, June 1995, pp. 25 through 27

Note: Thanksgiving Observance November 26 through 28- no classes

Week Nine, December 3

Review Pin-Up #2: Materials Plan

Material: Plastic and Glass

Assignment for December 10:

Pin-Up #3: Details

Required Reading

Harris, Charles W. and Nicholas T. Dines. Timesaver Standards for Landscape Architecture: Design and Construction Data, 2nd Ed. New York: McGraw-Hill Publishing Company, 1998. pp 540-1 through 540-14 (Outdoor Lighting) and pp. 110-10 through 110-16 (Specifications).

"New Light on the Landscape." Landscape Architecture, August 1993, pp. 106 through 109

"Neon: Drawing With Fire." Landscape Architecture, June 1994, pp. 28 through 30

Further Reading

"Lighting Water Features." Landscape Architecture, September 1992, pp. 72 through 76

Week Ten, December 10

Review Pin-Up #3: Details

Material: Light

Subject: Outline Specifications

Assignment for December 17:

Finalize Construction Document problem

Required Reading

Harris, Charles W. and Nicholas T. Dines. Timesaver Standards for Landscape Architecture: Design and Construction Data, 2nd Ed. New York: McGraw-Hill Publishing Company, 1998. pp 550-1 through 550-20 (Plants and Planting)

Harris, Charles W. and Nicholas T. Dines. Timesaver Standards for Landscape Architecture: Design and Construction Data, 2nd Ed. New York: McGraw-Hill Publishing Company, 1998. pp. 530-1 through 530-30 (Pools and Fountains)

"Element: Fountains." Land Forum, 02, pp. 88 through 99.

Further Reading

"Waterworks." Fine Gardening, November-December 2001, pp. 31 through 35

"Defying Gravity: An Infinite-Edge Pool in New England." Landscape Architecture, October 2001, pp. 32 through 34

"Water Features Make A Splash." Landscape Architecture, September 2001, pp. 54 through 56

"Expressive Water: The Work of WET Design." Land Forum, 09, pp. 42 through 51, 92 through 107

"Like a Lotus." Fine Gardening, June/July 2002, pp. 96

Week Eleven, December 17

Construction Document problem due

Material: Vegetation

Material: Water

Review fro Final Examination

Assignment for January 7:

Study for Final Examination

Week Twelve, January 7

Final Examination

Note: Winter Recess December 24 through January 2- no classes

Week Thirteen, January 14

Party at Sasaki Associates

Construction Document problem and Final Examinations returned