

School of Architecture  
University of Southern California  
ARCH 481: FURNITURE DESIGN (Metal Working)  
Fall 2013  
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### Course Description:

This hands-on studio course will focus on furniture design and metal furniture fabrication. Lectures will provide a foundation for student work by studying the relationships of architecture, art and design during four influential movements taking place at the beginning of the 20th century: futurism, neo-plasticism, modernism, and constructivism. These movements, its artists and architects, explored ideas relating to the changing nature of society, technology, industrialization, the greater influence of machines, new discoveries, and invention. Steel and metalworking were at the forefront of this exploration. These artists and architects were interested in utilizing the newest materials, construction and joining methods as well as innovative finishing techniques.

This course will look closely at the furniture and building design of Pierre Chareau, the work of Carlo Scarpa, and furniture designed by architects and artists including: Eileen Gray, Le Corbusier, Ludwig Mies van der Rohe, Otto Wagner, Adolf Loos, George Nakashima, Jean Prouve, Charles and Ray Eames, Charlotte Perriand, among others.

This is a hands-on class that requires attendance and class participation. The first few lectures will explore shop safety, the general properties of steel, how to order it, and the basics of welding and metal working tools. Simultaneous workshops will be held to gain familiarity with shop procedures and working with steel. Subsequent lectures may include guest speakers and/or field trips to artist's studios and production shops.

### Course format:

1. Class will be held once a week for 3 hours –Thursday, 3 to 6 PM, plus occasional field trips. The class will be approximately 35% lecture/field trips and 65% shop time.
2. Attendance is crucial to final grade - more than two "unexcused" classes (as defined by USC guidelines) will result in a grade penalty.
3. The final evaluation will be based upon attendance (20%), concept exploration (20%), execution (15%), craft (15%), participation (10%), teamwork (10%), safety test (5%), case study report (5%)
4. Field Trips and Guest Lectures may change.





### Revised Course Schedule:

**Week 1 Aug 30:** - CLASSROOM: Course Description/Overview, Shop/Equipment Overview, initial familiarity with tools, steel properties and ordering steel, safety procedures, Introduction to welding (theory of metal inert gas welding), Required Materials/Purchases, Photography, **Safety Test Assignment given out, Group Case Study Project Assigned** (split into groups),  
- SHOPTIME: Introduction to the shop and welding.

**Week 2 Sept 6:** - CLASSROOM: **Safety Test Due, Case Study Project Review** (Bring CAD Drawings to scale and Material "Buy" Lists)  
- SHOPTIME: Welding practice/coupons (wear appropriate attire)

**Week 2 Sept 8:** - DAVID MARTIN'S HOUSE IN RUSTIC CANYON: Lecture - 19th and 20th century steel architecture and related furniture design. Hands-on experience with bending, cutting and welding (wear appropriate attire)

**Week 3 Sept 13:** - SHOPTIME: Case Study Project (work in teams)

**Week 4 Sept 20:** - SHOPTIME: Case Study Project (work in teams)

**Week 5 Sept 27:** - SHOPTIME: Case Study Project (work in teams)

**Week 6 Oct 4:** - CLASSROOM: **Case Study Project Due** (scale drawings, sketches, process photography, presentation), **Individual Project Assigned**

**Week 7 Oct 11:** - CLASSROOM: **Individual Project Report & Mockette Review** (scale drawings, sketches, material list, mockettes)  
- SHOPTIME: PROJECT 3 Individual Project (scale mockettes, testing, planning)

**Week 8 Oct 18:** - SHOPTIME: PROJECT 3 Individual Project

**Week 9 Oct 25:** - SHOPTIME: PROJECT 3 Individual Project

**Week 10 Nov 1:** - SHOPTIME: PROJECT 3 Individual Project

**Week 11 Nov 8:** - SHOPTIME: PROJECT 3 Individual Project

**Week 12 Nov 15:** - SHOPTIME: PROJECT 3 Individual Project

**Week 13 Nov 22: (Recess) – Thanksgiving**

**Week 14 Nov 29:** - SHOPTIME: PROJECT 3 Individual Project

**Week 15 Dec 6:** - SHOPTIME: **Individual Project Drawings Due** (scale drawings, process photography, scans, files, etc.)

**FINALS Dec 18?: Individual Project Presentation & Final Review (presentation, scale drawings, process photography, sketches, mockettes, etc.)**

**Required Dress Code:**

Every one must wear long sleeves, long pants and close-toed shoes, hard toe if possible -- **absolutely no sandals.** Shop is dirty, dress appropriately for every class.

**Required / Suggested Purchases:**

Required: Welder's Handbook: A Complete Guide to Mig, Tig, Arc & Oxyacetylene Welding by Richard Finch  
(Available at on Amazon, Kindle and posted on Blackboard)



Required: Mechanics Gloves for most shop practices



Required: Safety Goggles



Required: 12" wooden mannequin



Required: camera for documentation (any camera will do)



Suggested (may be required): Green Welding Jacket – very stylish



Suggested: Gauntlets and a Welding Mask for Welding

**RESOURCES:**

- McMaster-Carr [www.mcmaster.com](http://www.mcmaster.com) -- Santa Fe Springs (they deliver)
- Industrial Metal Supply [www.industrialmetalsupply.com](http://www.industrialmetalsupply.com) -- Sun Valley/Irvine
- Sims Welding Supply [www.simswelding.com](http://www.simswelding.com) -- Culver City
- Harbor Freight [www.harborfreight.com](http://www.harborfreight.com) Pasadena

### Recommended Resources/ Reading:



**The Measure of Man and Woman: Human Factors in Design**  
by Alvin R. Tilley



**Designing for People**  
by Henry Dreyfuss, Earl Powell



**Jean Prouvé Highlights 1917-1944**  
by Peter Sulzer, Erika Sulzer-Kleinemeier



**Eileen Gray: Architect/Designer (Hardcover)**  
by Peter Adam



**Pierre Chareau: Designer and Architect (Big) (Hardcover)**  
by Brian Brace Taylor, Pierre Chareau



**Short Stories: An Architect's Portfolio of Furniture (Hardcover)**  
by David C. Martin