

STUDIO AREA REPORT

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JEWELRY & METALSMITHING

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I. Description of Facilities and Equipment

The Jewelry & Metalsmithing area comprises approximately 2600 square feet of floor space on the second floor of the Saisselin Art Building. The primary *metals studio* (room 207) is adjoined by a *machine shop* (room 209), and two small, specialized laboratory rooms: a chemical lab for pickling, etching, and related processes (known as *the acid room*), and the *special process lab* where CNC work, anodizing, and enameling are performed. A faculty office also adjoins the primary studio. In addition, a 150 square foot, freestanding *forge room*, located adjacent to the first floor loading dock, houses a multipurpose gas-fired casting/smithing furnace. Access to the main *metals studio* is controlled by a key-pad lockset. Only students who are currently enrolled in Jewelry & Metalsmithing courses are permitted access to the studio. For reasons of safety, access to the *machine shop*, *special process lab*, and *forge room* is strictly controlled by the faculty/instructor (see Safety Issues, below). At present, Skidmore College policy permits students twenty-four (24) hour-a-day, seven (7) day-a-week access to the Saisselin Art Building and its studios.

The primary metals studio is designed to accommodate classes of up to eighteen (18) students, at levels from introductory to advanced. A cluster of special-purpose workbenches (constructed of eastern rock maple) provides students with individual work space and a secure drawer for storing small tools. For students working at the advanced (i.e. independent study) level, a separate cluster of seven (7) custom-made, hardwood jeweler's benches provides an independent working environment with increased work space. Students at all levels are provided with a metal storage locker for securing larger items. A large, thirty-two (32) square foot table provides additional space for demonstrations, critiques, and similar class activities. A bank of three (3) locking display cases are located against the large windows on the north side of the studio, enabling student work to be exhibited in a manner accessible to those both inside and outside the studio.

The area immediately adjacent to the main workbenches is arranged to provide efficient access to the most essential tools and processes. In this area are racks for organizing common hand-tools (files, hammers, pliers, etc.), two small drill presses, four flexible shaft machines, a dual-spindle buffing machine, and a

smithing pier (with mounted bench vises and anvils). Also nearby are two steel benches with refractory surfaces for soldering and other torch processes. Two torch systems are currently utilized at these benches: *natural gas/ compressed air* and *acetylene/atmosphere*. Both benches are equipped with slot hoods to provide localized exhaust ventilation. Separating the primary work area and the advanced student benches is the *smithing area*, where most of the metal forming, forging, and raising work is done. Equipment located in this area includes anvils, bench vises (mounted to custom-made *smithing piers*), forming stumps, plate shears, rolling mills, various forming tools, a large dual-spindle buffing machine, and a complement of specialized silversmithing stakes and hammers. Flanking this area is the *casting area*, in which both lost wax and sand techniques are practiced. The studio is equipped with a casting centrifuge, natural gas/oxygen melting torch, a vacuum investing/casting unit, burnout kilns, a mold vulcanizer, a wax injector, and a variety of other specialized tools used in waxwork and casting. Overhead exhaust ventilation is provided for the burnout and melting processes. A twelve (12) square foot stainless steel sink is also located in this area. The adjacent *advanced student area* is equipped with a precision highspeed drill press, a small belt/disc sander, a polishing and grinding bench, and a high-density tool storage bench. Each of the six advanced student work stations are equipped with a freedom flexible shaft machine, and three lockable drawers for personal storage.

The *acid room* (88 square feet) provides a dedicated facility for storing and using acids, and other potentially hazardous chemicals. The *acid room* is equipped with locking chemical storage cabinets, acid-resistant countertops with four (4) seamless sinks, an eye-wash station, and overhead exhaust ventilation. Minor equipment and materials required for pickling, patination, electroforming, and etching are also stored and used in this room. For reasons of safety, access to much of this equipment and material is strictly controlled by the faculty/instructor (see Safety Issues, below).

The *special process lab* (88 square feet) provides a minimal, secure space for performing supplemental processes practiced only occasionally (i.e. anodizing, enameling), as well as serving as the studio's primary storage space.

The *machine shop* (980 square feet) houses larger machine tools which, for reasons of safety and practicality, must be isolated from the main studio. The shop is equipped with a complement of basic woodworking machines (i.e. table saw, bandsaw, belt/disc sanders, floor drill), metalworking machines (i.e. grinder, sander, bandsaw, lathe, milling machine), and other specialized shop tools (i.e. sandblasters, pneumatic press) which greatly enhance the offerings of the Jewelry & Metalsmithing area. In addition to serving as an instructional resource, the *machine shop* serves as the support facility for the area, providing an essential resource for maintaining and repairing tools and equipment, as well as modifying and producing unique tools of a specialized nature.

II. Safety Issues

A variety of common health and safety risks have been recognized and addressed in this area. As with all studio and laboratory classrooms, common sense precautions (i.e. safety glasses) provide the best defense against common accidents and injuries (i.e. cuts and bruises). Students are advised to seek medical attention for minor injuries at the college's Health Services Center. The Studio Art area prints and disseminates its *Health and Safety Guidelines*, to all students taking studio courses in the department. Students are required to read and adhere to these guidelines when working in any studio. In addition, specific policies and practices have been developed to address those concerns which are particular to the Jewelry & Metalsmithing area. To date, no serious injury has occurred in this studio. Students are advised that minor injuries (such as cuts, blisters, abrasions, etc.) are routine in studio practices of this kind.

Local exhaust ventilation is provided at those areas where potentially hazardous fumes may be generated; include the soldering benches, casting and burnout area, and the acid room. Other respiratory hazards include inhaling plaster dust (from casting investment), and inhaling dust and fibers from buffing, and abrasive finishing. Supplemental dust extraction is provided to minimize airborne plaster (silica) during investing procedures. Similarly, both of the studio's large, dual-spindle buffing machines are equipped with dust extraction cabinets, to minimize airborne particles. Students are advised to wear particle masks and/or face shields, as they deem necessary, when working with flexible shaft machines. *Note: eye protection is required whenever rotary tools are being used!*

The Jewelry & Metalsmithing area makes use of a variety of common chemicals for cleaning, etching, electroplating, and patinating metal. Chemicals of particular concern (i.e. concentrated acids) are stored in locked cabinets. The faculty/instructor alone has access to these cabinets. Only those chemicals which are required for routine processes and which are deemed not to pose a significant health and safety risk (i.e. sodium bisulfate, "pickle") are available for student use outside of class. Before being granted permission to use specified chemicals, students are informed about safety risks and proper practices. An eyewash station is located in the acid room, as is localized exhaust ventilation.

Given the nature of this studio, the risk of burns from direct contact with flames and/or contact with hot metal is always present. Common sense and conscientious instruction have proven highly effective in neutralizing this risk. The risk of injury from exposure to ultraviolet and infrared radiation, produced by the torch flame, is also present but minimal due to the relative low intensity of the soldering flame and limited duration of exposure. Nevertheless, students are advised of the potential risks and encouraged to wear protective eyewear as deemed appropriate.

The risk of hearing damage from some studio operations (i.e. forging) is, at times, significant. This is, however, generally the result of poor studio practices, and can be greatly reduced by minor corrections in working technique (i.e. forging on the anvil face rather than the horn). Hearing protectors are available in the studio, and students are encouraged to use them as they deem necessary. Related to this, individual student preference for listening to loud music poses a risk both to hearing and to physical safety. Music played at a level which exceeds normal speech is ill-advised. Reasonable efforts are taken to minimize this risk during, and outside of, classes.

III. Brief Description of Curricular Goals

Courses in the Jewelry and Metalsmithing curriculum are organized sequentially. The knowledge and skill acquired in one course is designed to provide the foundation upon which the next experience builds. At all levels, the fundamental goals are three-fold: students should develop sound *technical skills*, *define* and *refine* their *aesthetic sensibilities*, and acquire effective *creative problem solving* skills.

At present, there are three (3) courses in the Jewelry and Metalsmithing curriculum. Jewelry and Metals I (AR 219) provides an introduction to metal as a medium, focusing upon a study of material properties, traditional techniques in fabrication, and formal design principles. Jewelry and Metals II (AR 320) builds upon this experience while introducing students to casting processes. Metalsmithing (AR 319) furthers the investigation of metal as a plastic medium through a focused study of traditional smithing processes. Upon successfully completing all three (3) courses, students should possess a broad base of technical skills, effective problem solving abilities, and a solid understanding of ideas related to aesthetics and criticism. Additional advanced course work (i.e. Independent Study and Internships) enables students to explore processes and ideas at greater depth and sophistication.

IV. Description of Student Competencies Gained in Courses

Knowledge: Students who complete course work in Jewelry and Metalsmithing should acquire a body of knowledge which, although derived from a discrete experience and tradition, offers multiple points of connection with other studio disciplines and other fields of inquiry.

Students who successfully complete a course in Jewelry and Metalsmithing should possess knowledge of:

1. the principles of visual organization (composition), with particular emphasis on spacial proportion and planar structure.
2. requisite studio practices (appropriate to the course of study).
3. the requisite vocabulary (verbal) for describing physical forms and the visual properties of objects and images.

4. fundamental strategies for creative problem solving (including visualization and risk-taking).
5. the means by which haptic objects are perceived and interpreted through the interaction of visual, tactile, and auditory senses.
6. the process of critical thinking as it relates to the interpretation and evaluation of one's own work and the work of others (including an understanding of criteria, vocabulary, and the practice of critical discourse).

In addition, Studio Art majors who pursue an emphasis in Jewelry and Metalsmithing (successfully completing a *minimum* of three semesters in the area) should possess knowledge of:

7. the history of metalsmithing within the broader context of the visual arts, with particular emphasis upon the influence and lineage of the Design Reform (Arts and Craft) Movement.
8. the relationship of contemporary metalsmithing to other visual arts traditions (including shared and conflicting ideologies and histories).
9. requisite studio practices in fabrication, casting, smithing and other appropriate "advanced" processes.

Skills and Reasoning Processes: Students who complete course work in Jewelry and Metalsmithing should possess the ability to integrate technical proficiency and critical thinking.

Students who successfully complete a course in Jewelry and Metalsmithing should be able to:

1. demonstrate a requisite proficiency with the studio processes examined in the course.
2. self-direct and develop visual ideas by enlisting effective problem-solving strategies (including visualization, experimentation, and risk-taking).
3. demonstrate competency in visualization and ideation through drawing (requiring, at a minimum, an understanding of the principles of linear perspective).
4. communicate clearly about art in oral and written form.
5. critically analyze one's own work and the work of others, and be equipped to offer and receive critical analysis in critiques.
6. create original works which meet or exceed the minimum standards for technical proficiency, innovation, and aesthetic integrity.

In addition, Studio Art majors who pursue an emphasis in Jewelry and Metalsmithing (successfully completing a *minimum* of three semesters in the area) should be able to:

7. integrate studio practices across disciplines and traditions.
8. Write and speak knowledgeably about contemporary metalsmithing, its history and development, and its relationship to the other prevailing visual arts traditions.

Application: Upon completing course work in Jewelry and Metalsmithing, students will have acquired knowledge, skills, and reasoning abilities to support continued work in this discipline as well as other fields of inquiry.

Students who successfully complete a course in Jewelry and Metalsmithing should be able to:

1. translate their knowledge and skill across studio disciplines and into other fields of academic inquiry.

In addition, Studio Art graduates who successfully complete a *minimum* of three semesters in Jewelry and Metalsmithing should be able to:

2. work effectively and independently as studio artists.
3. apply their knowledge and skill to other pursuits, careers, and fields of inquiry.

IV. Areas for Improvement

Curriculum: The present course structure in the Jewelry and Metalsmithing area was established a decade ago, prior to the implementation of the college's "reconfiguration plan" (2000)*, and the Department of Art and Art History's subsequent curricular revision (2001).

*In "reconfiguring" most of the college's courses from three (3) credit hours to four (4), the typical course load for a student was reduced from five (5) courses per semester to four (4). Despite a one-third increase in credit hours, "reconfigured" courses continued to meet the same number of hours per week as they had prior to "reconfiguration". The challenge, which faculty and students accepted, was that faculty would demand greater engagement and quality, and that students would immerse themselves more fully in their scholarly lives. *Note: in response to "reconfiguration", the Department of Art and Art History was compelled to reduce its major requirement from nineteen (19) courses to sixteen (16).*

Despite individual efforts to rise to the challenge of "reconfiguration", evidence suggests that the quality of student engagement, college wide, remains well below our expectations. This is no less true among Studio Art majors, nor among those students enrolled in Jewelry and Metalsmithing courses, than among their peers in other departments. As such, the academic expectations in Studio Art, and more specifically in Jewelry and Metalsmithing, deserve to be continually re-examined and reinvigorated. This work is ongoing.

Facilities: The Jewelry and Metalsmithing area is well equipped and has been well supported. The following list identifies areas where improvements and/or acquisitions would enhance student learning in Jewelry and Metalsmithing, and improve cross-over with other studio areas:

1) Computer controlled machining: The increasing reliance upon computers in all aspects of art and industry, from design through production, presents a challenge to traditional studio areas such as Jewelry and Metalsmithing. To engage this challenge, the Jewelry and Metalsmithing area should look to acquire one or more computer controlled machine-tools. Of the myriad computer controlled processes available, the two which have been identified as most practical (that is, “affordable”) and as having the greatest potential for applications across disciplines are computer controlled engraving, and CNC machining.

2) Dust Extraction: The studio currently has only minimal dust extraction capabilities. The machine shop area is equipped with a one horsepower two-stage dust collector which has been modified to route exhaust air outdoors (collecting the larger particles in a filter bag). While this has proven adequate for light, intermittent work, it is not satisfactory for larger operations. At present, the main studio area lacks any bona fide dust extraction capabilities. At a minimum the studio should have a dust extraction hood for work with investment plaster (which contains fine silica).

3) Exhaust Ventilation: While the studio is well appointed with exhaust hoods, the volume/velocity of air being moved by the system is clearly inadequate. Additionally, the studio needs a secure fume cabinet in the acid room to provide protection for etching and electroforming processes. The make-shift fume cabinet that once performed this function was removed when the acid room was refurbished (2002) and has yet to be replaced (due to cost).

V. Plans for Addressing Number V

1) Capital requests for the acquisition of CNC machining equipment have been submitted annually, since 1999. Given budget priorities, the College has thus far been unable to fund this request. The Jewelry and Metalsmithing area is currently preparing a new request to be submitted for the upcoming budget year.

2) Research into options for effective dust extraction are currently underway. Once a cost estimate is determined, a capital request will be submitted.

3) Given other priorities with respect to the Saisselin Art building, it is doubtful that an overhaul of the existing exhaust ventilation system would be seen as a priority. Nevertheless, a study of the effectiveness of the existing exhaust ventilation system will be requested.

