

Regulations

The Newmark Structural Engineering Laboratory (NSEL) is under the umbrella of Department of Civil and Environmental Engineering with the goal of providing the Illinois community with a state of the art structural and material testing facility. The intent of this section is to define the regulations and insure equal access for all researchers, while not placing a financial burden on the Department of Civil and Environmental Engineering. The following items also protect the scientific integrity of ongoing experiments and safety of all individuals in the laboratory.

- 1) **General.** The overall objective of NSEL has been and will continue to be to maintain a state-of-the-art materials and structures testing laboratory. Since the very beginning, the high quality of the tests performed has been possible thanks to a regular upgrade process of instrumentation, sensors, actuators, and hydraulic power supplies. Scheduled maintenance of lab equipment guarantees that reliable testing can take place. Well-trained staff, together with talented undergraduate and graduate students, have been essential to the success of NSEL.
- 3) **Users.** Both staff and students who have completed the training program, which is provided by the lab coordinator, can operate the NSEL equipment. The training program is provided for a user on an as needed basis. This training program also includes safety in NSEL for users who did not have it before. Prior to any activity in the lab, the user shall provide an account number to the lab coordinator.
- 3) **New experimental projects.** The NSEL coordinator chairs a working committee, which meets every other week. Each new project coming to the NSEL must be discussed during the committee meeting. The meeting assigns space in the lab, instrumentation, and servo-hydraulic equipment, required to execute the project. Lab coordinator makes sure that the NSEL working committee recommendations are implemented.
- 4) **Scheduling.** The NSEL coordinator, using an on-line scheduling procedure, schedules the use of all NSEL equipment (http://cee.uiuc.edu/nsel/facility/equip_reserv.htm). Upon a request from a user, the lab coordinator approves the request via e-mail. The lab coordinator may not approve the request when there is either a conflict or a testing procedure is not clear. If this situation occurs, an additional meeting will be scheduled to resolve the problem.
- 5) **Cost.** Fees are assessed on a daily, monthly, and annual basis; see Table 1. There are three fee schedules in the NSEL:
Research testing using servohydraulic equipment. The basic intent of the research fee structure is to cover maintenance costs of equipment, but not discourage more formidable

experiments. If the NSEL personnel are involved in the setup and testing activities associated with the research programs, the hourly rates will apply according to the individual hourly rate. Short-term projects are charged according to daily rates; one day is defined as a period of time less than 24 h, during which the equipment is being used. Long-term projects are charges according to either monthly or annual rates. The monthly rate assumes 60% of a dollar value obtained from multiplication of daily rate times 30. The same rule applies to a yearlong testing program; 12 and 0.6 multiplies monthly rate. Research rates will be charged to the research contracts of the University of Illinois.

Table 1. User fees for testing equipment at the Newmark Structural Engineering Laboratory.

| Equipment | Commercial testing | | | Research testing | |
|--------------------|--------------------|------------|-------------------|------------------|------------|
| | (\$/day) | (\$/month) | Idle time, \$/day | (\$/day) | (\$/month) |
| 11 kip frame | 220 | 3,960 | 22 | 44 | 792 |
| 20 kip frame | 220 | 3,960 | 22 | 44 | 792 |
| 50 kip frame | 275 | 4,950 | 28 | 55 | 990 |
| 100 kip frame | 385 | 6,930 | 39 | 83 | 1,485 |
| 100 kip b-x frame | 578 | 10,935 | 61 | 110 | 1,980 |
| 600 kip frame | 578 | 10,935 | 61 | 110 | 1,980 |
| Shake table | 550 | 9,900 | 55 | 110 | 1,800 |
| Floor, 1 actuator | 385 | 6,930 | 39 | 83 | 1,485 |
| Floor, 2 actuators | 550 | 9,900 | 55 | 110 | 1,980 |
| Floor, add. act. | 110 | 1,980 | 11 | 28 | 495 |
| 300 kip frame | 440 | 7,920 | 44 | 88 | 1,584 |
| HPS (pump) | 132 | 2,376 | 11 | 28 | 495 |

Remarks:

1. The minimum time of rental for commercial testing is 2 h. The daily rate for commercial testing is executed after 8 h. Rate does not change after 8h of usage.
2. Daily rate is fixed for research.

Commercial testing using servohydraulic equipment. The basic intent of commercial testing fee structure is to cover both maintenance and amortization costs associated with pieces of equipment used for testing. The person conducting commercial tests is responsible for any unpaid charges. Other universities and government agencies will also be charged the commercial testing rate plus the hourly operator rate. Commercial rates will be charged to the commercial testing contracts of the University of Illinois. One day is defined as a period of time less than 24 h and more than 8 h during which the equipment is being used. For a

period of time less than 8 h, 2 h increment rule is applied: e. g. if the equipment was used for 5 h, a daily rate, multiplied by 0.75, would be applied.

Accessories. Testing accessories such as: extensometers, load cells, x-y recorders, computer data acquisition systems, power supplies, signal conditioners, etc., are available for the NSEL researchers. If these accessories are used as part of instrumentation associated with the testing setup, no usage fee applies. If, however, any accessories are used on an individual basis, daily and monthly rates will apply (Table 2). The replacement cost for a reasonable amortization period (50% utilization over 5 years) is utilized to calculate these rental rates. The borrower is responsible for the cost of replacement or repair should the item be damaged due to negligence or operator error.

Table 2. User fees for accessories at the Newmark Structural Engineering Laboratory.

| Equipment | Commercial testing | | | Research testing | |
|--------------------|--------------------|------------|-------------------|------------------|------------|
| | (\$/day) | (\$/month) | Idle time, \$/day | (\$/day) | (\$/month) |
| MM 2100, 4-ch | 28 | 504 | 6 | 6 | 108 |
| Macro-Sensor, 8-ch | 28 | 504 | 6 | 6 | 108 |
| DC power supply | 17 | 306 | 5 | 6 | 108 |
| HP DAQ | 28 | 504 | 6 | 6 | 108 |
| Computer DAQ | 28 | 504 | 6 | 6 | 108 |
| Transducers | 11 | 198 | 6 | 6 | 108 |

- 6) **Lifting heavy loads.** Structural testing requires usage of lifting equipment for specimens, fixture, and loading actuators. Two cranes 20 T and 40 T, as well as four forklift trucks, are available for that purpose. A scissor lift is also available. Lifting equipment is primarily maintained and operated by CEE machine shop. Both cranes and scissor lift are also available, on limited bases, to the NSEL coordinator within the entire testing area. The NSEL coordinator supervises one forklift truck. That truck is available to undergraduate and graduate students. CEE machine shop personnel provide training.
- 7) **Hours of operation.** NSEL operates on 24 h per day and 7 days per week bases. The lab coordinator provides services during hours of operation. The lab users are trained to be independent with their projects. There are, however, situations when there is a need for NSEL equipment and lab coordinator expertise, while he is away from NSEL and the user is not able to continue his/her testing program. Below are the rules to follow in these situations:

Hydraulic Power Supply (HPS). If there is a need for HPS contact either Tim PRUNKARD at 217 333 6913, prunkard@illinois.edu, or John Szkolka at 630 973 6515, jszkol2@illinois.edu, Denglin Wu at 415 261 7024, wu34@illinois.edu, or Joseph Rudd at 224 558 0900, jrudd2@illinois.edu.

Instrumentation, sensors, and data loggers. If there is a need for any piece of instrumentation, contact John Szkolka at 630 973 6515, jszkol2@illinois.edu, Denglin Wu at 415 261 7024, wu34@illinois.edu, or Joseph Rudd at 224 558 0900, jrudd2@illinois.edu.

Student Instrumentation Workshop (SIW). If there is an issue with SIW contact either jszkol2@illinois.edu, Denglin Wu at 415 261 7024, wu34@illinois.edu, or Joseph Rudd at 224 558 0900, jrudd2@illinois.edu, or Tim PRUNKARD 217 333 6913, prunkard@illinois.edu.