

SEESL-UB-NEES RECHARGE RATES AND USER FEE POLICIES

Introduction:

The Structural Engineering and Earthquake Simulation Laboratory (SEESL) at University at Buffalo hosts a series of services for research clients such as planning organizations (i.e. MCEER, NSF/NEES, etc), for industry and industry partners, for faculty and students at Department of Civil Structural and Environmental Engineering at University at Buffalo, and others. SEESL hosts among other services (i) the UB-NEES site of the George E Brown Jr. Network for Earthquake Engineering Simulation, which provides services to the NEES research community. The UB-NEES services are operated with support from NEES Inc. which in turn is supported with a grant from the Division of Civil and Mechanical Systems of National Science Foundation (NSF); (ii) the MCEER structural engineering testing services part of the MCEER users network of experimental facilities; (iii) the CSEE instructional and research testing services on earthquake engineering and structural dynamics; (iv) the research services for other research sponsoring agencies and (v) the services to industry and other investigative agencies.

SEESL operates equipment developed with funding from NSF and other sources. The equipment developed with funding from NSF / NEES initiative is provided free of charges for users performing research approved by NEES Inc. (defined below as NEES research). SEESL operates the other equipment purchased with other funds that will be available to all researchers (NEES or non-NEES) for a fee as posted below. All SEESL equipment is available for any non-NEES research for fees as indicated in the recharge fees schedule.

Information: UB-Structural Engineering and Earthquake Simulation Laboratory (SEESL):

This section provides a list of facilities, a brief description of equipment available to researchers, either free or for a fee, at SEESL. A more detailed description of equipment can be found at <http://nees.buffalo.edu/>

(I) Facilities, equipment and services available to **NEES researchers without fees:**

- (a) Two six-degree of freedom earthquake simulators, each with a payload of 50 tons (100 tons combined); for a complete performance description visit <http://nees.buffalo.edu/>.
- (b) Three high-performance dynamic actuators (1000 kN capacity, ± 500 mm stroke, 1 m/s velocity, 800 gpm servo-valves), equipped with load cells and displacement transducers.
- (c) Two static actuators (± 2000 kN capacity, ± 500 mm stroke), equipped with displacement transducers.
- (d) Data acquisition systems consisting of up to 250 channels streaming and additional 100 channels local.
- (e) An advanced Krypton 3D coordinate tracking system with up to 15 LED targets.
- (f) A 285m² (300 sq.ft) new strong floor with 610 x 610 mm (2 x 2 ft) tie-down grid.
- (g) A 19.5 x 9 m (60 x 30 ft) strong reaction wall with 610 x 610 mm (2 x 2 ft) tie-down grid.
- (h) A 6 x 2.5 m plan x 6 m high (20 x 8 x 20 ft) laminar box which can be mounted on shake table(s) – for complete performance and users guide visit <http://nees.buffalo.edu/>
- (i) A 40 ton crane to move equipment and specimens anywhere within the 900 m² of the building housing the two shake tables, the strong floor, and the strong reaction wall.
- (j) 50 m², 9 person capacity collaboration room with tele-observation and tele-participation capabilities (subject to the constraints presented [below](#)).
- (k) Room with videoconference capabilities (prior scheduling required: [calendar](#))
- (l) Office space for students (subject to the constraints presented below: scheduling will be done with the [Site Operation Manager](#)).
- (m) Office space for faculty members (subject to the constraints presented below: scheduling will be done with the [Site Operation Manager](#)).
- (n) All computational facilities of the UB-NEES node.

Note that these facilities and equipment are unique and may not be available due to use on other projects. Careful planning and scheduling is required.

(II) *Facilities, equipment, and services available to all (including NEES) researchers for a fee consist of:*

- (a) Accelerometers (total of 63), displacement transducers (total of 70 with capacities ranging from 100 mm to 300 mm), and load cells (total of 34 with 5 multi-component cells with 200kN axial load capacity and 90kN shear load capacity). - Several instruments will be free of charge for NEES researchers as indicated in the website [LAB MANUAL](#).
- (b) A third 5 degree of freedom earthquake simulator with a maximum payload of 50 tons with performance capabilities similar to the simulators described on page 1 above. .
- (c) A small isolation bearing testing machine with 600 kN vertical load capacity, ± 150 mm stroke and 0.4 m/sec velocity.
- (d) A large isolation bearing testing machine with 7000 kN axial load capacity, ± 125 mm stroke and .25 m/sec velocity.
- (e) Ten hydraulic actuators with 10 to 1000 kN load capacity, ± 50 to ± 300 mm stroke and maximum velocity of 1.75 m/sec.
- (f) Manifolds, controllers, and all equipment needed for the control of the actuators in item (e) above.
- (g) Two portable data acquisition systems, each with a capacity of 12 channels.
- (h) X-Y recorders, frequency analyzers, portable measuring devices, oscilloscopes, digital multimeters, borescopes, thickness measuring devices, roughness measuring instruments, etc.
- (i) A 30 m³ environmental chamber capable of sustaining temperatures in the range of -40°C to 50°C.
- (j) A quarter length scale six-story steel model structure with 200 kN weight for use in earthquake- simulator testing.
- (k) A quarter length scale steel bridge model with 150 kN weight and featuring flexible or stiff piers for use in earthquake-simulator testing.
- (l) A versatile, quarter length scale steel model that can be configured in a variety of configurations, including 3-bay, 3-story building and one-bay, 6-story building.
- (m) Welding equipment, hydraulic jacks, forklifts, rigging equipment, etc.
- (n) Heavy hand and machine tools.
- (o) Technical services for assembly of specimens.
- (p) Instrumentation modification and calibration services.
- (q) The University at Buffalo library facilities during the duration of stay (subject to the limitations listed [below](#)).
- (r) Parking space at the University at Buffalo parking facilities for a nominal fee (typically less than \$5 per year) during the duration of (subject to the limitations listed [below](#)).

Complete details of the above equipment and services are listed in the [SEESL Lab Manual](#) available at <http://nees.buffalo.edu/>. The current [fees schedule](#) is posted in the Lab Manual and is attached to this document. A user should contact the [Site Operations Manager for usage fees for equipment not listed in the Manual.](#)

Note that these facilities and equipment may not be available for use. Careful planning and scheduling is required.

Recharge Rates - Fees

The use of the SEESL equipment by either NEES or non-NEES researchers require budgeting according to rates approved by University at Buffalo.

For NEES sponsored projects the majority of operation and maintenance costs are anticipated to be covered by the NEES O&M contract between NEES and the University at Buffalo. The O&M

contract will not be finalized until NSF approves the overall NEES budget request, consequently this may affect the recharge fee for NEES services.

If NEES fully funds our O&M proposal and its amendments, limited recharge fee would be needed for tools and rigging equipment. However if these items are not fully funded the SEESL/UB-NEES will charge a minimum of \$1500 a month for lab space, rigging equipment and tools.

Until budgets are finalized researchers should assemble proposals with a \$1500 a month fee for tool use etc.

If NEES or other non-NEES “fee free” projects exceed the time allocation in the agreed schedule, the researchers will be charged fees as for non-NEES project.

The [Recharge Fees Schedule](#) (see below) for all research users is available also from the webpage <http://nees.buffalo.edu/> and is updated periodically. All fees are subjected to overhead at current rates of University at Buffalo (57% as of October 1, 2004). The overhead rates change periodically. Before completing any budget check this document for updates.

Resources

A service agreement prepared before the work can start at SEESL/UB-NEES, developed between the SEESL and the researchers' HOME INSTITUTION, will establish the NEES resources to be utilized in the laboratory work and the non-NEES resources required for the completion of the research. If the latter are required the agreements will include a detailed description of the fees, and a payment schedule. The agreement will be signed by the authorized representative of the visiting researcher's HOME INSTITUTION and the SEESL representative (a member of the Sponsored Programs Administration of the University at Buffalo)

Agreements

An agreement will be executed between the visiting researcher's HOME INSTITUTION and SEESL represented by a member of the Sponsored Programs Administration. The agreement will incorporate by reference all of the rules and requirements of this document. The list below summarizes the issues to be addressed by the agreement:

- 1) Work Plan (including the requests for equipment, space, personnel)
- 2) Safety requirements
- 3) Insurance and liability
- 4) Access to facilities
- 5) Resources needed and budget recovery mechanism
- 6) Schedules

The agreement can follow a [template](#) available on the website in the Site Access Plan along with additional information and /or modifications will be utilized. The agreement can be developed with the assistance of the [Site Operations Manager](#) and other key Lab Personnel. The agreement must be signed prior to the start of actual work at SEESL/UB-NEES

**FOR COMPLETE INFORMATION ON THE ACCESS RULES AND POLICIES TO UB-NEES
EQUIPMENT SITE CHECK THE WEBSITE OF [HTTP://NEES.BUFFALO.EDU](http://nees.buffalo.edu)**



Budget Worksheet for Operations and Maintenance Usage Fees for SEESL:

Item	Sponsored Research-Non-NEES						Sponsored Research-NEES*					
	Research Fee:											
Fees for Labor / Technical Assistance- per day (minimum 1/2 day,												
PERSONNEL	Daily	Days	Sub-Tot	Hourly	Hours	Sub-Tot	Daily	Days	Sub-Tot	Hourly	Hours	Sub-Tot
Engineering aid*	190		0	25		0	190		0	25		0
Expert Student (grad) Consultant	280		0	35		0	280		0	35		0
Lab Technician (Majewski)	290		0	35		0	290		0	35		0
Lab Specialist (Mechanic, or Instrumentation)	350		0	45		0		0				0
Development engineer / operator (Pitman, Hanley, Albrechcinski)	460		0	60		0		0				0
Expert Testing (Faculty) Consultant	1010		0	125		0	1010		0	125		0
Fees for Equipment Usage:												
EQUIPMENT	Full Usage			Idle Occupancy			Full Usage			Idle Occupancy		
	Basic	Days	Sub-Tot	Basic	Days	Sub-Tot	Basic	Days	Sub-Tot	Basic	Days	Sub-Tot
TESTING SYSTEMS												
Shake Table 1 or 2 (6-DOF)	1750		0	875		0		0				
Shake Table 2 with reaction wall (6-DOF)	1800		0	900		0						
Shake Table 1 and 2 (6-DOF)	3500		0	1750		0						
Extension Frame (single table)	35		0	35		0	35	0	0	35	0	0
Laminar Box (6m high or less)	1400		0	700		0						
Non Structural Components Simulator (NCS)	1400		0	700		0						
Shake Table 5-DOF	1700		0	850		0	1700		0	850		0
Shake Table (Small)	400		0	200		0	400		0	200		0
Bearing Testing Machine (large)	300		0	60		0	300		0	60		0
Bearing Testing Machine (small)	200		0	40		0	200		0	40		0
Reaction Frame (large)	300		0	60		0	300		0	60		0
Reaction Frame (small)	100		0	20		0	100		0	20		0
Reaction Wall	300		0	60		0						
TEST APARATUS												
140 ton - UTM-Tinius Olsen Machine	60		0	10		0	60	0	0	10		0
110 ton -UTM - MTS	100		0	20		0	100		0	20		0
Axial - Torsion MTS apparatus	200		0	40		0	200		0	40		0
ACTUATORS with CONTROLLERS												
Actuators-dynamic high capacity >=100 tons	600		0	120		0						
Actuators-dynamic medium capacity 20<100 tons	300		0	60		0	300		0	60		0
Actuators-dynamic small capacity <20 tons	200		0	40		0	200		0	40		0
Actuators-static high capacity >=140 tons	300		0	60		0						
Actuators-static medium capacity 30<140 tons	200		0	40		0	200		0	40		0
Actuators-static small capacity <20 tons	100		0	20		0	100		0	20		0
HYDRAULIC EQUIPMENT												
Hand Pumps	40		0	20		0	40		0	20		0
Servovalves substitutions	40		0	20		0	40		0	20		0
Hydraulic manifolds - substitutions	90		0	45		0	90		0	45		0
CONTROLLERS												
FlexTest	900		0	180		0						
Hybrid Controller	1200		0	240		0						
PID controllers - substitutions	30		0	5		0	30		0	5		0
MODELS												
Bridge Model - one span ***	100		0	20		0	100		0	20		0
7 Stories Model***	300		0	30		0	300		0	30		0



EQUIPMENT	Full Usage			Idle Occupancy			Full Usage			Idle Occupancy		
	Basic	Days	Sub-Tot	Basic	Days	Sub-Tot	Basic	Days	Sub-Tot	Basic	Days	Sub-Tot
TESTING SYSTEMS												
6 Stories Model***	300		0	30		0	300		0	30		0
5 Stories Model***	300		0	30		0	300		0	30		0
Reconfigurable 1 - 6 stories model***	300		0	30		0	300	0	0	30		0
INSTRUMENTATION (with conditioners)												
Accelerometers, LVDT's, potentiometers - up to 20 sensors	110		0	27.5		0	110	0	0	27.5		0
Accelerometers, LVDT's, potentiometers - additional 5 sensors (m	25		0	5		0	25		0	5		0
Load Cells (uniaxial and multiaxial) - per axis (multiply numbers a	10		0	5		0	10	0	0	5		0
Krypton 3D remote sensing system	200		0	40		0		0				
Digital camera or video	10		0	5		0		0				
VIDEORECORDING AND STREAMING												
Videocamera (multiply numbers and days)	30		0	15		0		0				
Still camera (multiply numbers and days)	30		0	15		0		0				
Conferencing equipment	100		0	25		0		0				
DATA ACQUISITION												
Portable data acquisition - 16 channels	20		0	5		0	20		0	5		0
Data Acquisition - up to 75 channels	210		0	40		0		0				
Data Acquisition - over 75 channels- fee per /channel /day*****	2		0	0		0		0				
OCCUPANCY*												
Floor occupancy per 50 sq.ft** increment /day	180		0				180		0			
Storage of large models / per day***	30		0				30		0			
Small model removal deposit - minimum / model one time fee	1000		0				1000		0			
Large model removal deposit .>=\$1000 one time fee	negotiated						negotiated					
Basic Cost Sub-Totals			0.0			0.0			0.0			0.0
Additional Applicable Costs***			0.0			0.0			0.0			0.0
University Research Overhead****			57%			57%			57%			57%
Basic Costs + Research Overhead			0.0			0.0			0.0			0.0
Budget Total	0											
Fees will not be applied to scheduled NEES projects. For all extra unscheduled time of NEES projects, fees will be charged using Non-NEES rates. Technician time will be charged for activities not supported by NEES maintenance contract.												
* Occupancy charges apply to usage of space beyond the originally scheduled time												
* Enter any additional costs: An additional fee of \$300 should be added for moving test specimen from and to storage.												
*** University Research Overhead Rates are Subject to Change.												