

### Facility Access Fees

**NOTE:** New registrants wishing to gain access to the QNC Cleanroom will be charged a one-time registration fee of \$200

<b>Tool Type</b>	<b>Badger Tool Name</b>	<b>Academic Rate</b>	<b>Industrial Rate</b>
Lithography - Jeol 100kv E-beam Litho	JEOL-EBL	\$ 120	\$ 360
Lithography - Raith 150TWO 30kv E-beam Litho	RAITH-EBL	\$ 60	\$ 180
Lithography - Suss MA6 front/back UV aligner	SUSS-align	\$ 35	\$ 105
Lithography - Suss SB6 GEN2 wafer bonder	SUSS-bond	\$ 35	\$ 105
Lithography - Heidelberg front/back UV aligner	HEIDELBERG-MLA	\$ 40	\$ 120
Lithography - HMDS oven	YES-HMDS	\$ 25	\$ 75
Lithography - UV semi-auto spin/bake	BREWER-UVspinbake	\$ 30	\$ 90
Lithography - E-beam semi-auto spin/bake	BREWER-Ebeamspinbake	\$ 35	\$ 105
Lithography - PR spin/bake station	REYNOLDSTECH-twincoater	\$ 25	\$ 75
Lithography - atmospheric oven	FISHER-oven	\$ 15	\$ 45
Deposition - E-beam evaporator	ANGSTROM-Ebeam	\$ 35	\$ 105
Deposition - E-beam evaporator	INTLVAC-Ebeam	\$ 35	\$ 105
Deposition - Thermal evaporator for Au/Be films	ANGSTROM-thermal	\$ 35	\$ 105
Deposition - ALD & PECVD cluster tool	OXFORD-cluster	\$ 50	\$ 150
Deposition - PVD for Nb superconducting films	PLASSYS-sputter	\$ 40	\$ 120
Deposition - PVD for Al superconducting films	PLASSYS-Ebeam	\$ 40	\$ 120
Deposition - oxidation/anneal furnace	TYSTAR1-atm	\$ 40	\$ 120
Deposition - LPCVD Nitride furnace	TYSTAR2-nitride	\$ 45	\$ 135
Deposition - LPCVD Poly Si furnace	TYSTAR3-PolySiC	\$ 45	\$ 135
Deposition - LPCVD LTO furnace	TYSTAR4-LTO	\$ 45	\$ 135
Deposition - Twin chamber sputter	AJA-sputter	\$ 40	\$ 120
Deposition - atmospheric RTA/RTP	ALLWIN-RTP	\$ 40	\$ 120
Deposition - atmospheric RTA/RTP	ALLWIN-RTP2	\$ 40	\$ 120
Etch - ICPRIE Cl chemistries	OXFORD-metalRIE	\$ 45	\$ 135
Etch - ICPRIE F chemistries for deep Si etch	OXFORD-SiRIE	\$ 45	\$ 135
Etch - Oxygen plasma asher	YES-ash	\$ 25	\$ 75
Etch - Ion mill with SIMS endpoint detection	AJA-ionmill	\$ 45	\$ 135
Characterization - reflectometer	FILMETRICS-F40	\$ 10	\$ 30
Characterization - reflectometer -auto	FILMETRICS-F50	\$ 10	\$ 30
Characterization - semiconductor microscope	OLYMPUS-scope1	\$ 20	\$ 60
Characterization - semiconductor microscope	OLYMPUS-scope2	\$ 20	\$ 60
Characterization - stylus profilometer	VEECO-profilometer	\$ 20	\$ 60
Characterization - stylus profilometer	BRUKER-profilometer	\$ 20	\$ 60
Characterization - 4-point probe Rs mapper	CDE-4pp	\$ 20	\$ 60
Characterization - film stress measurement tool	TOHO-stress	\$ 30	\$ 90
Characterization - thin film ellipsometer	WOOLLAM-ellip	\$ 40	\$ 120
Characterization - electrical probe station	SUSS-probe	\$ 15	\$ 45
Characterization - electrical probe station	EVERBEING-probe	\$ 15	\$ 45
Characterization - SEM sample coater	LEICA-coater	\$ 40	\$ 120
Characterization - scanning electron microscope	JEOL-SEM	\$ 45	\$ 135
Characterization - atomic force microscope	BRUKER-AFM	\$ 40	\$ 120
Other - critical point dryer	TOUSIMIS-CPD	\$ 30	\$ 90
Wetbenches - for acids & bases (non HF)	ACIDBASEnonHF	\$ 25	\$ 75
Wetbenches - for HF acid solutions	HFACID	\$ 25	\$ 75
Wetbenches - solvents only	SOLVENT1	\$ 25	\$ 75
Wetbenches - solvents only	SOLVENT2	\$ 25	\$ 75

**Facility Access Fees (continued)**

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Wetbenches - for RCA clean solutions	RCACLEAN	\$ 25	\$ 75
Wetbenches - for KOH based bulk Si etch	REYNOLDSTECH-bulkSi	\$ 12	\$ 36
Wetbenches - for Piranha organic cleans	PIRANHA	\$ 25	\$ 75
Wetbenches - for UV develop processes	DEVELOPUV	\$ 25	\$ 75
Wetbenches - EBL develop processes	DEVELOPEBL	\$ 25	\$ 75
Packaging Lab 1706 - LWD opt microscope	OLYMPUS-scope3	\$ 15	\$ 45
Packaging Lab 1706 - Dicing saw	DISCO-saw	\$ 40	\$ 120
Packaging Lab 1706 - wirebond pull tester	WESTBOND-pulltest	\$ 10	\$ 30
Packaging Lab 1706 - Manual wirebond	WESTBOND-wirebond1	\$ 40	\$ 120
Packaging Lab 1706 - Semi-auto wirebond	WESTBOND-wirebond2	\$ 40	\$ 120
Packaging Lab 1706 - Flip chip die bonder	TRESKY-diebond	\$ 20	\$ 60
Packaging Lab 1706 - epoxy dispenser robot	NORDSON-epoxy	\$ 15	\$ 45
Packaging Lab 1706 - H2 plasma cleaner	LFC-plasmaclean	\$ 30	\$ 90
Packaging Lab 1706 - epoxy cure oven	Cureoven	\$ 15	\$ 45
Packaging Lab 1706 -Ultron wafer cleaner		no charge	no charge
Sample Prep Lab 1508 - Cont. ang. goniometer	RAMEHART-contactangle	\$ 15	\$ 45
Sample Prep Lab 1508 - diamond scribe tool	OEG-scriber	\$ 30	\$ 90
Sample Prep Lab 1508 - Solvents hood	FUMEHOOD-north	\$ 10	\$ 20
Sample Prep Lab 1508 - Acids/Bases hood	FUMEHOOD-south	\$ 10	\$ 20
SW Lab B211 - Beamer EBL software	BEAMER	no charge	TBD
SW Lab B211 - Layout Editor SW	LayoutEditor	no charge	TBD
SW Lab B211 - Ellipsometry SW	CompleteEASE	no charge	TBD
SW Lab B211 - Raith GDSII editor	RAITH-GDS	no charge	TBD
QNC TEM LAB - JEOL F200 S/TEM	JEOL-TEM	\$ 75	\$ 225
QNC TEM LAB - SEM-FIB	ZEISS-SEMFIB	\$ 100	\$ 300
QNC TEM LAB - Sample prep tool # 1	TBD	TBD	TBD
QNC TEM LAB - Sample prep tool # 2	TBD	TBD	TBD
QNC TEM LAB - Sample prep tool # 3	TBD	TBD	TBD
QNC TEM LAB - Sample prep tool # 4	TBD	TBD	TBD
QNC TEM LAB - Sample prep tool # 5	TBD	TBD	TBD
RAC1 - Crystal cutter (disc)	ALLIED-xtal-cut-R1	\$ 20	\$ 60
RAC1 - Wire cutter	WIRETEC-wire-saw-R1	\$ 20	\$ 20
RAC1 - Polisher	ALLIED-polish-R1	\$ 20	\$ 20
RAC1 - Lapper	Lapper-R1	\$ 20	\$ 60
RAC1 - Leitz microscope	LEITZ-scope-R1	\$ 20	\$ 60
RAC1 - Evovision stereo microscope	EVOVISION-scope-R1	\$ 20	\$ 60
RAC1 - Mitutoyo microscope	MITUTOYO-scope-R1	\$ 20	\$ 60
RAC1 - Manual wirebond	WESTBOND-wirebond-R1	\$ 40	\$ 120
RAC1 - Rofin welder	ROFIN-welder-R1	\$ 25	\$ 75
RAC1 - Wetbench for HF acid solutions	WB-HFACID-R1	\$ 25	\$ 75
RAC1 - Wetbench - for acids & bases (non HF)	WB-ACIDBASEnonHF-R1	\$ 25	\$ 75
RAC1 - Wetbench - for solvents only	WB-SOLVENT-R1	\$ 15	\$ 45
RAC1 - TestEquity thermal chamber	TESTEQUITY-Tchamber-R1	\$ 2	\$ 6
RAC1 - Assembly station 1	AssemblyStation1-R1	\$ 1	\$ 3
RAC1 - Assembly station 2	AssemblyStation2-R1	\$ 1	\$ 3
RAC1 - BRUKER optical profilometer	BRUKER-contour-R1	\$ 20	\$ 60

Tool Type	Badger Tool Name	Academic Rate	Industrial Rate
RAC2 - LPCVD carbon nanotubes	ANGSTROM-LPCVD-R2	\$ 40	\$ 120
RAC2 - Pulsed Laser Deposition system	TSST-PLD-R2	\$ 40	\$ 120
RAC2 - Atomic force microscope	VEECO-AFM-R2	\$ 35	\$ 105
RAC2 - Automated Glass Processing Station	VYTRAN-splicer-R2	\$ 20	\$ 60
RAC2 - Zeiss microscope	ZEISS-scope-R2	\$ 20	\$ 60

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### Additional Fees:

- 1) For Academic Users, cleanroom consumables costs are recovered via a charge of \$1.84 per each equipment "enable"  
For Industrial Users, the cleanroom consumables fee is \$5.52 per equipment enable.
- 2) For Academic Users, equipment training is completed by facility staff and is charged at \$25 per hour.  
For Industrial Users, equipment training is charged at \$75 per hour.
- 3) For Academic Users, general support provided by facility staff is charged at \$50 per hour.  
For Industrial Users, general support is charged at \$150 per hour.

### Inventory Prices

Item	Description	Unit of Measure	Rate
Pd_evap	Palladium evap. material	/0.01g	@ QNFCF cost
ZEP520a	ZEP E-beam resist	ml	@ QNFCF cost
Beaker-kit	Kit of beaker solvents	ea	@ QNFCF cost
Glass-petri-100mm	Glass petri dish	ea	@ QNFCF cost
Acid-kit	Kit of beakers for acids	ea	@ QNFCF cost
Ag-evap	Silver evap. material	/0.01g	@ QNFCF cost
Pt-evap	Platinum evap. material	/0.01g	@ QNFCF cost
Small-petri	Polystyrene petri dish	ea	@ QNFCF cost
Large-petri	Polystyrene petri dish	ea	@ QNFCF cost
4-prime	4" prime Si wafer	ea	@ QNFCF cost
3-prime	3" prime Si wafer	ea	@ QNFCF cost
6-prime	6" prime Si wafer	ea	@ QNFCF cost
Au-evap	Gold evap material	/0.01g	@ QNFCF cost
1in-holder	wafer tray set 1"	ea	@ QNFCF cost
2in-holder	wafer tray set 2"	ea	@ QNFCF cost
3in-holder	wafer tray set 3"	ea	@ QNFCF cost
4in-holder	wafer tray set 4"	ea	@ QNFCF cost
4in-holder-BlkPoly	conductive wafer carrier 4"	ea	@ QNFCF cost
6-fluoro-tray	Fluoroware tray 6"	ea	@ QNFCF cost
6-fluoro-cover	Fluoroware cover 6"	ea	@ QNFCF cost
6-fluoro-spring	Fluoroware spring 6"	ea	@ QNFCF cost
Small-petri-x	Sectioned PS petri dish	ea	@ QNFCF cost
Diamond-lap-film	For use on Allied Polisher (RAC1)	ea	@ QNFCF cost
Red-cloth-disk	For use on Allied Polisher (RAC1)	ea	@ QNFCF cost