

# Carleton University MicroFabrication Facility

## **Industrial** User Rates

April 2024

### Single self user

- Lab Fee hourly rate: \$45/hr + equipment fees and technical help charges.
- Daily access rate : \$280/day per day (based on an 8hr day)(includes Group 2/3 Equipment fees only)
- Weekly rate: \$1300/week based on 40hr week (Includes Group 2/3 Equipment fees and up to 2hrs/wk technical support)
- Any work requiring technical help will be charged at an additional \$80/hr.
- Equipment use charges will apply as per the Equipment Rate schedule at bottom of page.
- Equipment time limitations will be set up in any Access agreements.

### Project rates

- Project rates completed by Lab Staff: Labour(\$80/hr)+Lab fee (\$45/hr)+Equipment fees+ Material costs

### Materials Costs

Access Fees include the cost of “basic” materials in the small quantities required for typical research projects. Basic materials include standard positive photoresist and developer (S1811 is currently used), aqueous HCl, NH<sub>4</sub>OH and HF for RCA cleans, isopropanol and acetone, chemicals for photomask making, oxygen and HCl gas for furnaces, and aluminum for metallization. The rationale for not accounting for the consumption of these basic materials by individual users is that the costs involved are usually small and that almost all users require these materials.

Aside from the “basic materials” listed above, all users are responsible for the cost of other materials they consume. This includes silicon substrates, photomasks, specialty gases (in particular silane), and precious metals for deposition.

In the case that a user requires very large amounts of basic materials (for example, if a user is coating dozens of wafers with photoresist), additional basic materials charges may be levied.

### Standard Equipment Rates

#### Group 1 Equipment

- Atmospheric Furnace tubes: \$125/hr for hydrogen/inert gas anneals, extra charges will apply for oxidations/diffusions.
- LPCVD furnace runs : typically \$220 per run/Trion PECVD 220/hr - plus gas costs. (ie. Silane, Dichlorosilane,etc).

#### Group 2 Equipment

- Prefurnace clean (RCA): \$90 (2”wafers), \$110 (4”wafers) if required.
- SEM use \$40/hour (\$100/hour if assisted)
- Mask Aligner(MA6): \$70/hr (includes use of photoresist spinner and development bench)
- Balzers Ebeam/Thermal Evaporator/Varian/MRC PVD: \$90/run (plus source material costs)
- Semicore inline sputtering system: \$160/run (plus source material costs)
- Trion ICP etcher: \$80/hr
- MRC RIE etcher: \$65/hr
- AG RTA : \$75/hr

#### Group 3 Equipment

- Wet benches: \$60/hr
- Profilometers/Ellipsometers: \$40/hr
- Optical Microscopes: \$40/hr
- Table top etchers (March, Technics,PlasmaPreen): \$55/hr