MRL Shared Experimental Facilities: SEF Operations During the MIT On-Campus Research Ramp-Up

MRL Staff
Materials Research Laboratory at MIT
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MIT On-Campus Research Ramp-Up Stages

Pre-COVID-19  Critical experiments  Pilots  Ramp up Phase 1  Ramp up Phase 2  Ramp up Phase 3
<table>
<thead>
<tr>
<th>PPE requirement</th>
<th>MIT Phase RR1 (Date range TBD) ≤ 25% capacity on campus</th>
<th>MIT Phase RR2 (Date range TBD) ≤ 50% capacity on campus</th>
<th>MIT Phase RR3 (Date range TBD) New normal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. All users must wear gloves in the facility, as well as facemasks that meet MIT guidelines.</td>
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<td>1. PPE policy will conform to MIT recommendations and regulations.</td>
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</tr>
<tr>
<td>2. Used PPE must be properly disposed of in the designated trash bin.</td>
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<td>2. Safety glasses are not shared. PI’s required to issue individual safety glasses.</td>
<td></td>
</tr>
<tr>
<td>3. Replace the plastic covering on the computer workstation peripherals after your session.</td>
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<td>4. Safety glasses are not shared. PI’s required to issue individual safety glasses.</td>
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<tr>
<td>5. Replace gloves upon finishing tasks involving chemical residues to avoid contamination of equipment.</td>
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<tr>
<th>Cleaning policy and protocol</th>
<th>MIT Phase RR1 (Date range TBD) ≤ 25% capacity on campus</th>
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<th>MIT Phase RR3 (Date range TBD) New normal</th>
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<td>1. Users must use provided alcohol to wipe down contacted surfaces on the instrument and inside the room before and after each session.</td>
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<td>1. Lab staff to wipe down high touch surfaces in morning upon arrival and afternoon before leaving.</td>
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<tr>
<td>2. Lab staff to wipe down high touch surfaces in afternoon prior to leaving facility.</td>
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<tr>
<td>3. Periodic decontamination services will be scheduled to ensure clean high traffic areas.</td>
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<th>Instrument training protocol</th>
<th>MIT Phase RR1 (Date range TBD) ≤ 25% capacity on campus</th>
<th>MIT Phase RR2 (Date range TBD) ≤ 50% capacity on campus</th>
<th>MIT Phase RR3 (Date range TBD) New normal</th>
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<tr>
<td>1. In-person training must be suspended during RR1, except in cases of exceptional need (requiring pre-approval by the CF Leader, the user’s PI and their DLC head).</td>
<td>1. Group training for new users of SEF instrumentation will be limited to small groups. Remote instruction augmented by hands-on training with social distancing protocols.</td>
<td>1. Group training for new users of SEF instrumentation will be in small groups yet more often to minimize the close-contact interactions amongst users and staff.</td>
<td></td>
</tr>
<tr>
<td>2. Efforts will be made to provide virtual instrument refresher training on a case by case basis for trained novice users.</td>
<td>2. Training sessions for data analysis software packages will continue as scheduled, but will be performed using remote videoconferencing tools.</td>
<td>2. Training sessions for data analysis software packages will continue as scheduled in small groups.</td>
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# Phased plan for MRL SEFs (2)

<table>
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<tr>
<th>Phase</th>
<th>Date range TBD</th>
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<th>≤ 50% capacity on campus</th>
<th>New normal TBD</th>
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<tr>
<td>RR1</td>
<td></td>
<td>ASEF – Surface (2 rooms)</td>
<td>Max 2 user per room</td>
<td>ASEF – Surface (2 rooms)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ASEF – OTC (2 rooms)</td>
<td>Max 2 users per room</td>
<td>ASEF – OTC (2 rooms)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EMSEF (entire suite)</td>
<td>6 users (1 per bay) (+1 user in Bldg 24)</td>
<td>EMSEF (entire suite)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>XRDSEF (one room)</td>
<td>Max 4 users</td>
<td>XRDSEF (one room)</td>
</tr>
</tbody>
</table>

## Lab occupancy limits at any one time

### Phase RR1
- **ASEF** – Surface (2 rooms): Max 2 user per room
- **ASEF** – OTC (2 rooms): Max 2 users per room
- **EMSEF** (entire suite): 6 users (1 per bay) (+1 user in Bldg 24)
- **XRDSEF** (one room): Max 4 users

### Phase RR2
- **ASEF** – Surface (2 rooms): Max 2 user per room
- **ASEF** – OTC (2 rooms): Max 2 users per room
- **EMSEF** (entire suite): 6 users (1 per bay) (+1 user in Bldg 24)
- **XRDSEF** (one room): Max 4 users

### Phase RR3
- **ASEF** – Surface (2 rooms): TBD
- **ASEF** – OTC (2 rooms): TBD
- **EMSEF** (entire suite): TBD
- **XRDSEF** (one room): TBD

## Reservation policies

1. High demand tools have limits on total reservation time in a 2 week horizon.
2. 1 hour delays between users in electron microscope rooms.
3. No walk up usage. Must make reservations 24 hrs in advance.
4. Reservations will be monitored by staff for spatial and temporal distancing.

## Facilities schedule and accessibility

### 9A-5P Mon-Fri
1. Trained users. Staff will be on campus and on call via Zoom. All user interactions will be virtual except in exceptional circumstances.

### Afterhours, weekends, holidays
1. Trained users with after hours access privileges. On call contact available for emergency safety situations.
2. No in-person assisted users.
3. No outside users.

### Access restrictions
1. No in-person assisted users.
2. No outside users.
3. No walk up usage. Must make reservations 24 hrs in advance.
4. Reservations will be monitored by staff for spatial and temporal distancing.

## High demand tools

1. Trained users. Staff will be on campus and on call via Zoom. In-person user interactions will be limited based on social distancing guidelines.
2. Trained users with after hours access privileges. On call contact available for emergency safety situations.
3. Access to all users subject to MIT policies.
### Phase RR1: Ramp up to RR1 steady state

<table>
<thead>
<tr>
<th>Activity</th>
<th>Phase RR1 (Week 1-2) Staff only</th>
<th>Phase RR1 (Week 2-3+) Virtual staff + trained users</th>
<th>Phase RR1 C (steady state) Virtual staff + trained users</th>
</tr>
</thead>
</table>
|          | 1. Staff access only to bring tools online  
2. Monitor tool status  
3. Implement safety protocols and place signage  
4. Inventory and restock supplies  
5. Implement and test remote access capabilities | 1. Troubleshoot tools that may need attention after idling  
2. Open daytime reservations to users as tools come online  
3. Evaluate and troubleshoot remote access user experience | 1. Transition to steady state RR1 access and reservation policies  
2. Evaluate and update access and reservation policies based on user needs and demands. |

### Steady state tool reservation policies in Phase RR1

<table>
<thead>
<tr>
<th>Lab specific reservation policy</th>
<th>XRDSEF</th>
<th>EMSEF</th>
<th>ASEF - Surface</th>
<th>ASEF - OTC</th>
</tr>
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| Users can only have one standing reservation at a time per tool. New reservations can be made after existing reservation is used. The maximum length of reservation is detailed below. | One hour delays between users in electron microscope rooms.  
Users can only have one standing reservation at a time per tool. New reservations can be made after existing reservation is used. The maximum length of reservation is detailed below. | Users can only have one standing reservation at a time per tool. New reservations can be made after existing reservation is used. A daytime reservation cannot exceed 4 hours without permission from the lab supervisor. | No modification of Coral restrictions. |

| Tool specific reservation total time limits in 2 week horizon | Smartlab thin film XRD: 4 hrs  
Panalytical PXRD: 4 hrs | Zeiss Merlin HRSEM: 3 hrs  
FEI Helios FIB/SEM: 5 hrs  
JEOL 2010 HRTEM: 4 hrs  
FEI Tecnai TEM: 4 hrs  
JEOL 2010F TEM: 4 hrs  
JEOL 2011 TEM: 8 hrs  
ION MILL: 8 hrs | No tools with specific total time limit restrictions. | SQUID MPMS VSM: 48 hrs |

| SEF-wide policies | 1. Only users currently engaging the instruments can be present inside the facility.  
2. Users must indicate on the room’s occupancy door board that they are in the room and remove that indication when they leave the room.  
3. No walk up usage. Users must make reservations 24 hrs in advance.  
4. Reservations will be monitored by staff for spatial and temporal distancing. | | | |