Site Preparation Service for existing and to-be-built facilities

Electron microscope lab planning service and support

Thermo Scientific site preparation offerings support both existing and new facilities, troubleshooting and recommending solutions to resolve potential disruptions caused by environmental factors

Site prep goals

When selecting an EM product, there are many elements to consider. The physical location and environment surrounding your system are fundamental to achieving your desired outcomes. Even slight variations can mean the difference of staying within, or straying from, ever-tightening system specifications.

With the Thermo Scientific™ Site Preparation Service portfolio, you will gain a competitive advantage by optimizing your system's environment. Whether you are debating the placement of one specific system in your lab or developing a brand-new facility from the ground up, our environmental engineering experts will provide analysis and recommendations to minimize environmental interference and maximize system performance.

Note that Site Prep does not replace construction management or design functions such as HVAC (heating, ventilation, and air conditioning) and MEP (mechanical, electrical, and plumbing).

Project flow and milestones

The following flow diagram is an example of the major milestones of a typical Site Prep project. Since every project is different, this is just an estimate.

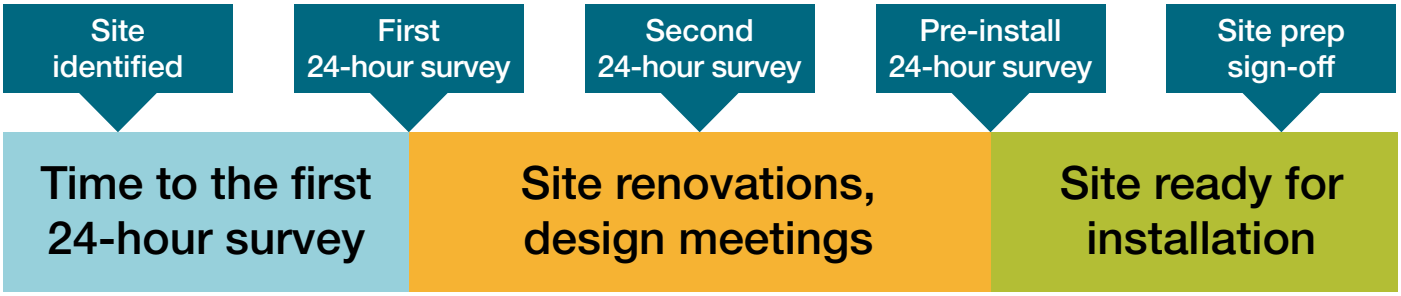
Key benefits

Visual inspection and site measurements. Includes in-person inspection of the site and measurement of inputs potentially causing system issues, such as vibration, EMI, temperature, and humidity

Site surveys and reports. Reports generated from two 24-hour surveys and one pre-install survey, to expose areas of concern

Corrective action plan. Provided by environmental engineering experts to address environmental issues and improve system performance

CAD drawing. Customized CAD drawing that reflects system installation requirements, safety regulations, and required working areas to minimize performance interruption and to maximize system performance and uptime



First 24-hour survey

The first 24-hour survey is conducted to understand the site's environmental conditions at the start of the project, creating a baseline. If you have more than one room to survey, each room will be surveyed for 30 to 60 minutes to select the best candidate. The 24-hour survey will then be conducted in the selected room.

The survey measures the following:

- Acoustic noise in dB SPL
- Floor vibration in three axes in g's RMS
- Tri-axial AC EMI in two locations along the column in nTesla
- Tri-axial DC EMI in two locations along the column in nTesla
- Temperature (deg C) and humidity (%RH), including average and stability

Thermo Scientific proprietary software is used to generate a report from the raw data collected. This report will provide visibility as to which parameters the site passed and any areas of concern (failures). The results summary will contain:

- Measurement data (explanation of data formats and what they represent)
- Transport route and pictures of the site
- Environmental recommendations on:
  - Mechanical vibration mitigation
  - EMI Cancellation
  - Acoustic noise mitigation
  - Humidity control (vendor recommendation only)
  - Temperature control

After discussion with the AM and with your acceptance, the report may also contain items to future-proof the microscope lab. Note that Thermo Fisher Scientific does not provide system sensitivities, only floor vibration and acoustic design guidelines.

Transport route

The transport route is mapped out to ensure that the system can be transported from the loading dock to the microscope room without any issues related to:

- Door clearances (height and width)
- Hallway clearances (height and width)
- Corners (turning radius)
- Floor slopes (<5 degrees)
- Floor transitions and thresholds
- Elevator accessibility and capacity (if applicable)
- Distance between elevator and microscope column in consideration of EMI impact/influence. Any impact will be highlighted in the site survey report.

In some select cases, special transport handling requirements will be needed. These special requirements will be pointed out during the walkthrough and will be included in the report.

CAD drawing

Site Prep will provide a CAD drawing of the microscope in your proposed space, based on your input CAD file(s). This CAD drawing will have the exact system layout as per the Order Planner, to include:

- Microscope components
  - Microscope main console
  - Cabinets, HT tank, LN2 dewar
- Safety distances
- Service clearances
- Service room, operator room, and server room
- Deviations from "standard" layout (if applicable)

The Thermo Fisher Scientific Site Prep team will then discuss potential deviations and make action plans to address those deviations. Note that the CAD drawing is not a construction or shop drawing and should not be interpreted as such. Our Site Prep team is not a General Contractor (CG) and does not provide advice on construction and design methods.

Proposed room locations

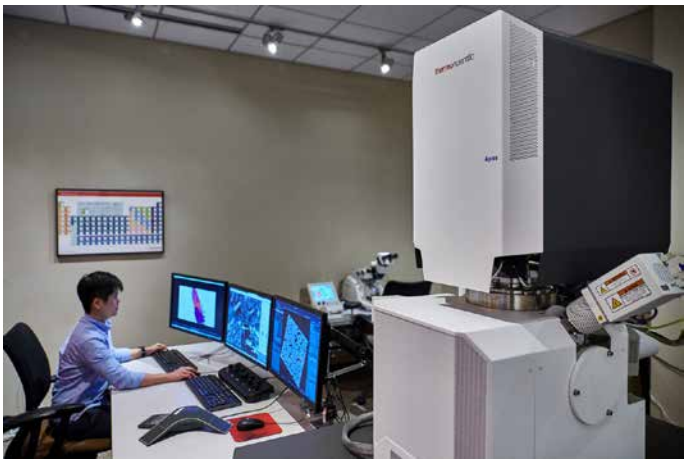
We will perform an initial check to ensure that systems will fit in the proposed rooms. Details pertaining to safety and service clearances are provided in the CAD drawings.

System room: Primary location of the system

Service room: Chiller, transformer, UPS, compressor, and acoustic server cabinet (if applicable)

Operator room: Operator workstation/desk

Server room: Acoustic server enclosure



Third-party suppliers

Based on the environmental recommendations and your acceptance, the Site Prep team will connect you with Thermo Fisher Scientific-qualified third-party suppliers if requested. We have worked with these suppliers for several years, and we have tested their equipment to ensure compatibility and performance. The Site Prep team will remain the interface between you and the third-party supplier to ensure your success. Note that Thermo Fisher Scientific cannot influence or negotiate on your behalf when it comes to pricing and lead times of these items, such as:

- EMI cancellation systems
- Radiant cooling panels
- Vibration isolation systems
- Acoustic noise mitigation methods
- Humidity and temperature advice limited to vendor recommendations only

The customers also have the option to choose their own suppliers. Then the customers will work directly with their suppliers. The Site Prep team will remain available to answer any technical questions.

Architects, designers, and MEP

The Site Prep team will work with your design and/or renovation teams to ensure that the design team is following the environmental recommendations. Site Prep personnel will do their best to attend project meetings.

Design review

The Site Prep team will take part in design reviews as you schedule them. The Site Prep team will provide input whenever necessary for the lab environment. Our part in the design reviews will be limited to HVAC duct placement, air flow, radiant cooling panels, noise mitigation in the EM room, lighting, and electrical conduit layout. The Site Prep team will not review construction methods or techniques, except acoustic wall construction as needed.

Support for the duration

The Site Prep team will remain engaged with you throughout the project and will be your single conduit for preparation questions. Wherever applicable, the Site Prep team will involve the Installation FSE, GTS, or the factory.

Second 24-hour survey

The Site Prep team will provide a second 24-hour survey that is identical to the first 24-hour survey, if applicable, and is usually performed midway through renovations. This survey will also identify if any new issues have arisen during renovation.

It will be requested that no construction activity takes place during the survey.

A report similar to the one delivered during the first 24-hour survey will be generated and reviewed with you.

Pre-install survey

Once the lab is finished and the system is ready to be installed, the Site Prep team will perform a pre-install survey. This survey will be a detailed, 24-hour survey. Once the results have been analyzed, the Site Prep team will provide a detailed report and review it with you to ensure that:

- Renovations did not introduce any new issues in the environment.
- Issues identified during the first and second surveys have been resolved.
- If new issues are identified, the Site Prep team will work with you and your team to resolve them.

Pre-install manual

We will conduct a familiarization review of the PIM (pre-install manual) with you and your team, so you know where to find specific data or information.

Signoff

Once the pre-install survey has passed and we have discussed the results with you, the Site Prep team will review the Site Prep package deliverables checklist (part of the Order Planner) with you and ask you to sign off on the Site Prep acceptance sheet. The signed Site Prep package deliverables checklist indicates that all the above tasks have been fully completed unless otherwise noted.

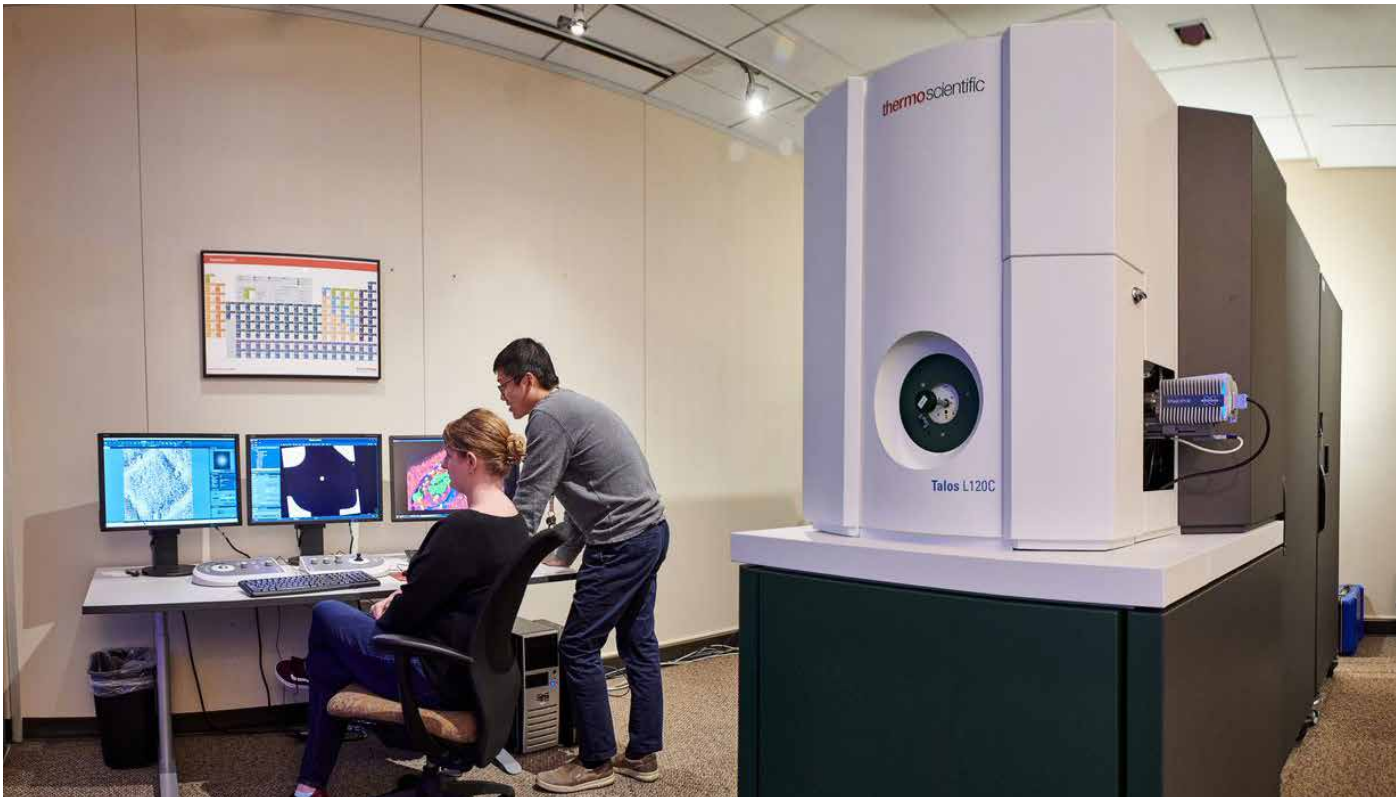
Responsibilities

In-scope

- First visit to your site to perform 24-hour survey and walk the site.
- First survey report and explanation of data and mitigation methods.
- Make recommendation for mitigation measures and interface with vendors on your behalf.
- Provide CAD layout drawings of the system in your space.
- Take part in design meetings and answer questions during the project. Our feedback will be limited to:
  - Radiant cooling panels
  - Noise mitigation in the EM room
  - Lighting
  - Air duct placement
  - Electrical conduit placement
  - HVAC placement
  - Electrical panel location
  - Humidity vendors
  - Vibration and EMI mitigation
  - Review acoustic wall construction, if required
  - Placement of the following, if present:
    - Transformer
    - Chiller
    - Compressor
    - Acoustic server cabinet
- Perform pre-install survey and review the report with you

Out-of-scope

- Design activities typically performed by architects, HVAC/humidity designers, MEP, or electrical designers.
- Construction methods; the Site Prep team is not a GC. (Site Prep does not replace a GC.)
- Shop drawings; the Site Prep team provides only system layout drawings.



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