Real Estate Development + Facilities
Design Guidelines

NYU Langone
MEDICAL CENTER
# TABLE OF CONTENTS

## Preface

Letter from the Vice Dean and Senior Vice President ....................................... 5  
Introduction ........................................................................................................... 7

## Section 1: Architectural Guidelines

Master Plan Guiding Principles ............................................................................. 11  
Design Principles .................................................................................................. 12  
General Project Requirements .............................................................................. 13  
Project Delivery Process ....................................................................................... 15  
Cad Documentation Standards .............................................................................. 19  
Presentation Materials .......................................................................................... 21  
Room Numbering, Signage & Wayfinding .............................................................. 25  
Arts Program ......................................................................................................... 27  
Paint Colors ........................................................................................................... 29  
Finishes .................................................................................................................. 31  
Finish Booklet ....................................................................................................... 60  
Environmental Health and Safety ......................................................................... 64  
Information Technology ....................................................................................... 66  
Security .................................................................................................................. 85  
Door Hardware ....................................................................................................... 88  
Dos and Don’ts ...................................................................................................... 111  
Close-Out Package ................................................................................................ 115

## Section 2: Engineering Guidelines

Table of Contents ................................................................................................... 121  
General .................................................................................................................. 127  
Mechanical ............................................................................................................. 128  
Electrical ................................................................................................................. 159  
Plumbing .................................................................................................................. 174  
Fire Protection ....................................................................................................... 185  
Fire Alarm ............................................................................................................... 190
NYULMC Design Guidelines

LETTER FROM THE VICE DEAN AND SENIOR VICE PRESIDENT

This is an especially exciting time for NYU Langone Medical Center, as we set out to fulfill an ambitious new vision as a world-class, patient-centered, integrated academic medical center.

The transformation of our campus is key to achieving this vision. Building upon a legacy of excellence, we are creating a uniquely seamless environment in which patient care, research, and education blend synergistically across all areas of our institution. Our researchers will have state-of-the-art laboratories built to encourage collaboration, which in turn will speed the translation of scientific discoveries to the patient bedside; and, our students and faculty will work together in modern educational facilities equipped with the latest technological tools. This integration culminates in our paramount focus—to set new standards of excellence in providing for the health and comfort of patients and their families.

In line with these goals is adherence to a set of comprehensive design standards, shaped by a set of guiding principles for the built environment:

- Design Quality
- Construction Quality
- Cost Effectiveness
- Schedule Compliance
- Design Flexibility
- Efficiency, Functionality and Practicality
- Intuitive Wayfinding
- Durable Materials
- Attention to Detail
- Collaborative Process

The mission of the Real Estate Development and Facilities (RED+F) department at NYU Langone is to plan, develop, operate and maintain the campus of the Medical Center and, in doing so, to provide the foundation for its growth and success in the 21st century. The design guidelines put forth here will enable RED+F to work efficiently and successfully with its partners in the design community to play a vital role in translating our vision into the physical reality.

Vicki Match Suna, AIA
Vice Dean and Senior Vice President
Real Estate Development and Facilities
INTRODUCTION

Purpose

With over 5 million square feet in its various New York City locations, NYU Langone Medical Center leases, owns and operates an enormous variety of buildings. These design guidelines have been created to assist architects, interior designers, engineers and project managers by providing direction regarding the Medical Center’s requirements and design goals, as we continue to upgrade existing facilities and build new ones.

Goals

- **Efficiency**

  A principal goal is to improve the efficiency of the design process by clarifying requirements and improving operations and maintenance by creating a commonality of systems and products across the Medical Center’s expanding portfolio. Where appropriate, approved materials and products are indicated in the guidelines. The aim is not to limit design expression but to guide the architects and engineers toward solutions that are in conformance with Medical Center construction and maintenance practices. Improving efficiency in design, construction and operations will be of substantial financial benefit to the Medical Center.

- **Design Excellence and Quality Construction**

  NYU Langone Medical Center is committed to design excellence, and stands by the premise that intelligent planning, inspired design, meticulous documentation, and quality construction are all indispensable to this effort, and will bring added value to the Medical Center. These guidelines have been created in support of this goal.

Access, Updates, Revisions and Exceptions

Access to the most current version of the Design Guidelines will be made available on the website of Real Estate Development and Facilities. The date of a signed contract determines the version of the Design Guidelines that will govern a particular project. These guidelines will be updated periodically. If designers suggest alternatives or additions to the guidelines they must take these suggestions to the RED+F Project Manager. Proposals for significant changes to the Guidelines should be made in writing to the RED+F Project Manager who will forward such requests and proposals to the RED+F Design Department for review. The architect may seek minor deviation(s) from compliance with the Guidelines on an individual project by written request to the project manager. The project manager will advise the architect in writing whether or not an exception to the Guidelines will be permitted.
NYU Langone Medical Center has developed master plan guiding principles to help direct our collective efforts in the transformation of our campus. All projects undertaken at NYU Langone shall be planned in accordance with these master plan guiding principles.

1. All future facility improvement and development should redefine and reposition NYU Langone in the New York metropolitan region.

2. NYU Langone will be a leader in patient centered care.

3. The physical environment should support efficient, LEAN-based operations in all enterprises of the campus.

4. All programs and facilities should foster clinical and translational research that:
   - is integrated into programs and facilities
   - promotes collaboration in care delivery and research
   - can support NYU Langone to broaden sources of funding for research

5. The physical environment should encourage flexibility and an adaptive environment.

6. NYU Langone will be a premier “service” organization that is:
   - safe
   - supportive of faculty, clinicians, students, patients and visitors
   - disease-focused
   - innovative
   - responsive to market forces and dynamics

7. The faculty response to clinical needs must be fiscally responsible and provide clear direction for expansion over time, as funds become available.

8. Consistent with the NYU Langone mission and as they support strategic areas, innovative methods and technologies will be anticipated and incorporated into clinical programs and practices.

9. All facilities should provide space in support of the educational and training mission of the Medical School and the University.

10. The care that we provide at NYU Langone results from a team effort working on behalf of the patient and family.

11. All facilities should embrace sustainable and evidence-based parameters in design, materials, equipment and technology.
NYULMC Design Guidelines

DESIGN PRINCIPLES

NYU Langone Medical Center is committed to design excellence and demands the highest quality built environment. We stand by the premise that intelligent planning, inspired design, meticulous documentation and quality construction are all indispensable to this effort. As part of our mission of becoming a world-class medical center, we have developed the following design principles:

1. Design Quality
   - Design solutions must be timeless with a clearly organized concept, developed and reinforced with appropriate materials and details.
   - Provide innovative solutions that create safe, secure and supportive environments and improve work-flow.
   - Develop design solutions that strengthen the NYU Langone brand.

2. Construction Quality
   - The built environment must have the highest possible quality of construction appropriate to the project scope, budget and schedule.

3. Cost Effectiveness
   - Design solutions must be cost effective and fiscally responsible.

4. Schedule Compliance
   - Design and construction schedules must be maintained.

5. Design Flexibility
   - The physical environment should encourage flexibility and adaptability and provide clear direction for expansion over time.

6. Efficient, Functional and Practical
   - Designs should look to improve work flow, support efficient, LEAN-based operations, and create environments that are easily maintained.

7. Intuitive Way-finding
   - The circulation pattern from point of entry to final destination must be clearly visible and easily understood.

8. Durable Materials
   - Materials and finishes must last over time and be easily maintainable.

9. Attention to Detail
   - It is critical that details are thoughtfully designed, thoroughly documented and carefully constructed.

10. Collaborative Process
    - NYU Langone promotes an integrated team approach in the development and construction of projects. It is essential that all stakeholders have input in the process.
GENERAL PROJECT REQUIREMENTS

- **Architects Agreement**

Architects are required to execute NYULMC’s standard Master Owner–Architect Agreement (the “Standard Agreement”); no exception may be taken to the terms and conditions of the Standard Agreement. In the event of any inconsistency between these Design Guidelines and the provisions of the Standard Agreement, the provisions of the Standard Agreement shall govern.

- **Communication and Approach**

NYU Langone Medical Center promotes a team approach in the development and construction of projects. We believe it is essential that all stakeholders have input into the process. This includes the User, Real Estate Development + Facilities (RED+F), Medical Center Information Technology (MCIT), Environmental Health & Safety (EHS), Security, Building Services, etc. The NYU Langone project manager (PM) will act as the main contact on the project to ensure all elements are coordinated.

The Architectural/Engineering team (A/E team) is encouraged to initiate and sustain open communications throughout the project. All communication with the A/E team will be handled through their primary contact the PM. Other contacts listed in this document should only be contacted at the direction of the PM.

- **Roles and Responsibilities**

The following is a list of key project participants with whom the A/E team will likely have regular contact during the planning, design and construction process:

1. **Real Estate Development + Facilities (RED+F)** - RED+F is the client. They provide architectural design review and planning information for projects. This includes information on related or concurrent projects, NYU Langone practices, policies and space standards. RED+F has a staff of in-house architects, engineers and interior designers that oversee the design of all NYU Langone capital projects. In order to provide the Medical Center with a consistent vision for the built environment, RED+F is responsible for approving the final finish selections.

2. **Sponsor** - The Sponsor for a capital project is the department or group that is funding the project.

3. **User** - The User is the department or group that will occupy the project after it is constructed. They have an important responsibility to provide feedback on the functional, programmatic needs, work-flow and to sign-off on the plan. The plan sign-off is a critical schedule milestone that determines when Construction
Documents begin and when the Users will be able to move in. The Users will be shown the proposed materials and finishes for the project and be allowed to provide input on functional issues. The aesthetic approval of the finishes will be the sole responsibility of RED+F.

4. **RED+F Project Manager (PM)** - The PM is the primary contact for all aspects of the project. They act as the central point of contact for collecting and disseminating information, project schedule, project budget and all communication. PMs utilize resources within the NYU Langone community as needed to support the project objectives.

4. **Medical Center Information Technology PM (MCIT PM)** – The MCIT PM will assist the PM with coordinating the IT, telecommunication, audio-visual and the associated cabling requirements for capital construction projects. Refer to the Information Technology section in these Design Guidelines for further detailed information.

5. **Environmental Health and Safety Project Manager (EHS PM)** – The EHS PM will assist the PM with various aspects of health and safety including asbestos abatement, hazardous waste removal and OSHA safety requirements. Refer to the Environmental Health & Safety section in these Design Guidelines for further detailed information.

6. **Clinical Engineering** – Clinical Engineering coordinates the ordering and installation of medical equipment.

- **Adherence to Budget and Schedule**

Cost and schedule control are of paramount concern to NYU Langone. As per the Architects Agreement, the architect is responsible to meet the project’s budget and schedule goals. Evaluations of the architect’s work and consideration for future projects will be made based on meeting these budget and schedule goals, adherence to the Design Principles, and overall RED+F and the User satisfaction.
PROJECT DELIVERY PROCESS

RED+F’s project delivery process falls into three major categories: formulation and planning; project development; and, project implementation.

Typically, projects are formulated for approval and are then guided through Design and Construction by an assigned project manager (PM). Each PM formulates and implements construction projects based on time and budget to meet the goals and needs of all stakeholders. The project implementation follows a defined process that ensures projects are completed within the specified scope, schedule and budget.

- **Formulation & Planning**
  - **Formulation** - To ensure that the Medical Center’s resources are utilized in the most effective manner, most projects are initiated through Senior Administration. Individual departments can also initiate small department-funded projects by contacting RED+F directly. These requests are then reviewed by Senior Administration and, if approved, authorized to proceed. Requests are evaluated based on their importance in supporting the Medical Center’s vision and strategic goals, space requirements, staffing requirements, potential impact on other programs, and funding sources. If the administration believes the project merits further investigation, RED+F will begin a planning study which will specifically identify the project objectives, scope, budget, and schedule requirements.
  - **Planning** - When Senior Administration determines that an individual project request merits further investigation, RED+F begins an iterative planning process, which attempts to balance project requirements with available resources. Throughout this process, RED+F provides professional assistance to define the primary objective of the project, the specific needs of the user department and the potential solutions. Working with Senior Administration, RED+F then analyzes the options in a campus-wide context and establishes target budgets. The best options are then re-examined and re-analyzed until a viable solution can be found. By identifying key relationships, such as adjacencies to public spaces, utility connections, and potential future uses of the site, broad facility issues can be addressed one project at a time.

For mid- to large-size projects, RED+F will often contract outside consulting firms to work with the client group through a process of defining the project goals, developing the space program, identifying and analyzing options, and budgeting. Throughout this process, RED+F will review the progress with Senior Administration. At the conclusion of the planning study, a formal report is prepared to document the project scope, budget, and schedule for approval by Senior Administration.

For smaller projects, the planning process is similar to the major projects, except the process is not as complex and may not involve an outside consultant.
During the Formulation process, RED+F develops a clear statement of project objectives. This statement is incorporated into a final report along with the space program, schedule, and project budget for approval by Senior Administration and to serve as a guide throughout the design process.

- **Approvals** - All projects move through an approval process to ensure that the Medical Center's resources are managed effectively. The parties involved in the approval process and the number of approvals required varies depending on the project category, the size of the budget, and other considerations.

As projects are planned, they are incorporated into a comprehensive capital plan, either as a specific line item or as a broad allowance (pools). The capital plan is developed within the framework of a long-term financial plan. Both the capital plan and the financial plan are updated regularly to ensure that the future costs of any planned capital investments are accounted for in the long-term financial plan.

As projects become more defined, capital and operating budget implications are considered and the capital and financial plans are updated, reviewed and prioritized by NYU Langone senior leadership and approved by the Medical Center’s Finance Committee. The planning studies prepared in the previous phase not only identify each project’s objective, scope, budget, and schedule, but they also include a Project Authorization Form with signature lines for each of the parties responsible for approval. When all signatures are received the project account is established and the design process begins.

- **Project Development and Design**
  
  A project manager (PM) is assigned to the project and a project user group is established. The PM will coordinate a series of meetings between the Users and the Design Team for information gathering. This group is responsible for guiding the project through the planning and design process and is comprised of representatives from the user group, Facilities Management, Senior Administration, the architect and engineering consultants, and the construction manager, if applicable. Facilities Management and other Medical Center departments are brought into the Planning and Design meetings as required for the specific project. These meetings provide a forum for coordination of the various aspects of the project during the design process.

- **Schematic Design (SD)** - In this first phase of the design process the Design Team generates schemes based on information gathered from Users and its own field investigation. Schemes are reviewed by all stakeholders and refined accordingly. This phase of the project defines the design parameters and the overall layout including:

  - Scope, Schedule and Budget
  - Equipment requirements
  - Furnishings
  - IT and phone requirements
An estimate will be prepared at the end of the SD phase to verify that the project remains within budget. The budget must be reconciled with scope prior to proceeding with the next phase of design.

A/E Deliverables:
- Meeting Minutes
- Program Analysis
- Scope narrative
- Floor plans (w/FFE, material notes, etc.)
- Elevations
- CAD Renderings of major spaces
- Sample materials

- Design Development - In this phase, the agreed upon layout in Schematic Design is developed in greater detail with all major design components of the project defined and developed. There is often heavy User involvement to be sure that the design meets all needs. The PM brings in other Medical Center departments (Facilities O&M, IT, Infection Control, EH&S, Security, etc.) to provide input and inform the design. All key design decisions are made and agreed upon by the end of this phase.

The PM will work with the design team during the Design Development phase to keep scope in line with the initial approval, as well as with any additional changes incorporated during Schematic Design. Any changes to the agreed upon and authorized scope of the project must be approved by the PM. Since changes in the scope and schedule of a project have an impact on the project budget, an estimate is prepared at the end of the Design Development phase to verify that the project remains within budget. The budget must be reconciled with scope prior to proceeding with the next phase of design. Also, the User must sign-off on the floor plan(s) in a timely manner in order for the Design Team to proceed into the Construction Document phase and maintain the overall project schedule.

A/E Deliverables:
- Meeting Minutes
- Program Analysis
- Outline Specification
- Floor plans (w/FFE, dimensions, partition tags, RED+F room numbers, etc.)
- Enlarged floor plans (of typical and major spaces)
- Reflected Ceiling Plan
- Elevations
- Typical Room Finish and Door Schedules
- Typical and Major Details
- CAD Renderings of major spaces
Construction Documents - This phase takes the design as developed and finalized during Design Development, and documents it for construction. Details are further refined as construction issues are addressed. The main emphasis of this phase of work is to verify that all the information is on the drawings and in the specifications so that the project can be bid for construction. Typically, fewer meetings in the Construction Documents Phase require the involvement of the users because the focus in this phase is the documentation of the design decisions already made during Design Development.

The agreed upon and authorized scope, schedule and budget during Construction Documents must be adhered to. The Project Manager will work with the Design Team during the Construction Documents phase to keep scope in line with the initial approval, with the addition of any changes incorporated during previous phases. At the end of this phase the Construction Project Manager will put the project out to bid.

A/E Deliverables:
- Meeting Minutes
- Full Specification
- Floor plans (fully developed and coordinated with furniture and equipment.)
- Enlarged floor plans (of typical and major spaces)
- Reflected Ceiling Plan (fully developed)
- Final Elevations
- Final Room Finish and Door Schedules
- Details (all details fully developed)
CAD DOCUMENTATION STANDARDS

The Space Planning and Management group of RED+F is responsible for space reporting, assessment and planning for NYU Langone Medical Center. In order to fulfill its responsibilities, the group maintains an inventory of all owned and leased properties. Keeping all floor plans and space information current is important to the operations of the medical center. Staff and consultants involved in capital projects that impact the space inventory are expected to provide appropriate documentation to the Space Planning and Management group in a timely manner.

Drawings are to be delivered to NYU Langone Medical Center on the completion of each of the following phases: design, construction documentation, and construction. Drawings shall be delivered in DWG format. All X-ref drawings must be bound and inserted into the drawings. All 3D and BIM drawings must be converted to 2D-compatible DWG files.

Drawing List Standards

A-000 General Information
A-100 Floor Plans
A-200 Elevations
A-300 Exterior Details
A-400 Interior Details
A-500 Vertical Transportation
A-600 Reflected Ceiling Plans
A-700 Finish Plans
A-800 Schedules

Note: Consultants Drawings should follow the same format (i.e. M-000 General Information, M-100 Floor Plans, etc.)

CAD Layer Standards

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<th>RED+F Layer Name</th>
<th>Description</th>
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<td>Default</td>
<td>Center</td>
</tr>
<tr>
<td>Telecomm</td>
<td>T-JACK</td>
<td>Data/telephone jacks</td>
<td>3-green</td>
<td>Default</td>
<td>Continuous</td>
</tr>
</tbody>
</table>
PRESENTATION MATERIALS

In communicating the design to NYU Langone Medical Center, the Design team shall provide presentation materials that are clear and easy to understand. Plans, Reflected Ceiling Plan (RCP), Material/Finish Diagrams, Perspective Renderings, Material samples and Furniture cut sheets are to be presented during the design phases, with any additional or supplemental information as may be necessary to clearly communicate the quality of the space. Below are some examples of acceptable presentation materials:

- **Plans and RCP**

  Plans and RCP’s shall be presented to NYU Langone during the design phases. Rooms shall be labeled, furniture drawn, and the drawings shall be to a scale. They shall be rendered when materials and finishes are being reviewed. Below are acceptable examples:
• **Perspective Renderings**

CAD Perspective renderings shall be presented to NYU Langone during the design phases. The quality level shall be sufficient for NYU Langone to understand the scale, material, color and lighting of the space. Single line or freehand perspectives are to be used sparingly and only as additional or supplemental information. Below are acceptable examples of such renderings:

![Perspective Rendering Example 1](Image1)

![Perspective Rendering Example 2](Image2)
**Material/Finish Diagrams**

A Finish Diagram shall be presented to NYU Langone during the design phases. The purpose is to clearly identify the locations of the various materials and finishes in the project. The drawing can be a plan or axonometric. The diagram should be color coded and have a legend identifying the different materials and finishes. The actual material samples shall be presented simultaneously. Below are acceptable examples:
- **Material/Finish Samples**

Actual samples of Materials/Finishes shall be presented to NYU Langone during the design phase. The architect shall provide sizes that are appropriate to both the scale and scope of the material in the project. For example, a large sample of the base color must be presented if it is being used in the majority of spaces. Samples such as wood and terrazzo shall be large enough to show the pattern, grain, color variation, etc. The materials should be keyed into the Finish Diagrams and/or Renderings. Below is an acceptable example:
ROOM NUMBERING, SIGNAGE & WAYFINDING

The architect is required to use RED+F’s assigned room numbers and provide full design services related to signage and way-finding. The NYU Langone Wayfinding and Communications Standards Manual is available to the design team. The manual specifies each signage type approved for use at NYULMC facilities located at the main campus. For off-campus projects, the design team shall follow these guidelines in conjunction with any building landlord requirements.

- **Architects Responsibilities**
  
  - The architect shall submit the signed-off floor plans to the Space Planning and Management group at RED+F who shall assign the room numbers. The architect shall insert these room numbers on the drawings. RED+F will not accept any other room numbers shown on the documents.
  - Present signage design options to the Signage and Wayfinding group at RED+F.
  - Produce signage documents that include sign types and message schedules for review and approval by the Signage and Wayfinding group at RED+F.
  - Review and approve shop drawings. Shop drawings are also to be forwarded to the RED+F signage and Wayfinding group for their review and approval.
  - Punchlist signage
  - Final acceptance of the signage in conjunction with the Wayfinding group at RED+F.

The signage design package can be created by the Architect, a pre-approved signage consultant or one of the NYULMC approved signage vendors.
**Sign Planning and Programming Process**

There are five groups of signs comprising the NYU Langone system: identification, directional, informational, regulatory, and pageantry. Before programming a facility’s signs, the complete sign typology (contained within the NYULMC Wayfinding and Communications Standards Manual) should be understood by the Signage programmer. The following outlines a step-by-step approach for sign planning and programming.

- **Analysis**
  The programmer should keep in mind two distinct points of view when planning and programming signs: the literal activities of the end-users, and the perspective of first-time visitors. It is essential that a programmer not only know the architectural layout, but imagine day-to-day operations and activities within the space. It is highly recommended that the sign programmer(s) meet with end-users to review and learn how the facility will function. The programmer should explore and examine various visitor scenarios, and locate wayfinding decision points (both clear and obscure) along arrival and departure routes. Consider the route distances and turns from start to end point. Typical questions to ask: where are the restricted-access areas, and for what reasons? Who are the visitors, and for what purposes? What kind of sign types are needed, and where? Typical deliverables should include: a list of assumptions and observations, a preliminary location diagram, sorted by sign type.

- **Visualization of the space**
  The programmer should imagine a “visitor-eye-view” through the department. The programmer should build comprehension of the architectural character of the visitor experience, of walking the hallways, facing inhibited site lines or seeking visual landmarks. High and low-ceiling space should be noted, along with wall position and angle, both on first entry and closer approach. The programmer should visualize the look and feel of the spaces, and identify optimum sign locations for decision points, avoiding obstacles. If possible, the programmer should suggest the architect revisit particular design details to accommodate sign locations. Typical questions to ask: are doors or walls opaque or transparent? What color is the wall finish behind reception, and how tall? Typical deliverables should include: preliminary message schedule, sign location diagram, and mock elevation renderings (for high-profile sign types located in the lobbies).

- **Programming Documentation & Clarification**
  The programmer should issue documents for sign vendors to produce message layouts and shop drawings. Draft documents should be submitted to both the end-user representative, and RED+F Wayfinding team for approval and comments. A unique sign number shall designate: floor/location ID (if applicable) - designation ID - sign type ID. Typical questions to ask, for example: What is proper name of the facility? Are there any donor recognition signs? Typical deliverables should include: message schedule, signage location plan, sign quantity list, and site specific custom signage detail elevations (if requested).
ARTS PROGRAM

NYULMC has embarked on a comprehensive visual arts program of the highest quality consistent with our vision of being a world class academic medical center. The NYU Langone Medical Center Art Program and Collection is integrated into the daily life of the Medical Center providing a life affirming, healing and supportive environment for patients, families, caregivers, students, faculty and staff. This is achieved through acquisitions, exhibitions, donations of art and other related visual arts programming. Acquisitions meet overall quality standards with the aim that the art collection appreciates in value over time.

- **Importance of Art in a Healthcare Environment**
  Over the past decade, art has become an integral component in healthcare environments. As indicated in the State of the Field Report: Arts in Healthcare/2009 survey, nearly half of all healthcare institutions reported having arts in health care programs with the majority of these in hospital settings. Studies have shown that these programs improve patients overall health outcomes, treatment compliance and quality of life, and foster a positive environment for caregivers that reduces stress and improves work place satisfaction and employee retention.

- **Means of Selecting Art**
  Art is identified and acquired through gallery visits, studio visits, recommendations as provided by museum curators, art critics and contemporary art historians and Calls to Artists as posted on visual art websites (New York Foundation for the Arts, Public Arts Network, etc.)
- **Capital Construction Projects**
  Many capital construction projects provide excellent opportunities to integrate art into the design of these new facilities.
  
  - Emphasis will focus on public spaces with higher visibility resulting in greater impact.
  - For patient areas, the inclusion and placement of artwork will be a calming distraction.
  - Placement of artwork will also support way-finding efforts.
  - Goal is to create a singular vision and identity throughout an individual project through selection and placement of artwork.
  - Selection of site-specific artwork will involve input from user groups occupying the space.
  - Art will be selected from a range of artists, from emerging to established.

- **Architects responsibilities**
  The design team has certain responsibilities pertaining to the location and placement of art in a project including but not limited to the following:
  
  - At the conclusion of Design Development, the architect will work with the Arts Manager, Project Manager and users to identify potential locations for art.
  - The design team shall provide drawings sufficient to identify proposed art locations including plans, elevations and perspectives.
  - The design team will be responsible for keeping any walls that have been identified for the artwork integration, free and clear of any and all electrical devices, room and directional signage, or other potentially distracting items. This includes electrical outlets, telephone/data outlets, light switches, thermostats, fire strobes, furniture, equipment, etc.
  - The design team shall ensure the art has proper lighting.
In order to create and maintain a consistent brand and allow appropriate maintenance at NYU Langone spaces, there are specific paint colors we utilize. The list below will give the Design team a sense of the preferred color palettes at NYU Langone and also help inform the interior finish selections. The typical wall colors and ceiling colors must be from the list below (i.e. “Off-Whites” and “Ceiling White”). Accent colors other that those listed will be considered if it is deemed necessary by RED+F Design Department. Only Benjamin Moore, no VOC shall be used (e.g. Natura, Eco Spec, etc.)

**Typical Logo and Pathway colors**

<table>
<thead>
<tr>
<th>NYU Purple:</th>
<th>Mystical Grape</th>
<th>2071-30</th>
<th>(Pantone # 2597 C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green Pathway:</td>
<td>Cat’s Eye</td>
<td>2036-10</td>
<td></td>
</tr>
<tr>
<td>Yellow Pathway:</td>
<td>Jack o’Lantern</td>
<td>2156-30</td>
<td></td>
</tr>
<tr>
<td>Blue Pathway:</td>
<td>Santa Monica Blue</td>
<td>776</td>
<td></td>
</tr>
</tbody>
</table>

**Typical Paint Colors**

<table>
<thead>
<tr>
<th>Ceiling White</th>
<th>Decorator’s White</th>
<th>PM-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off Whites</td>
<td>Seapearl</td>
<td>961</td>
</tr>
<tr>
<td>White Sand</td>
<td>964</td>
<td></td>
</tr>
<tr>
<td>White Down</td>
<td>970</td>
<td></td>
</tr>
<tr>
<td>Putnam Ivory</td>
<td>HC-39</td>
<td></td>
</tr>
<tr>
<td>Revere Pewter</td>
<td>HC-172</td>
<td></td>
</tr>
<tr>
<td>Brandy Cream</td>
<td>1030</td>
<td></td>
</tr>
<tr>
<td>Glacier White</td>
<td>OC-37</td>
<td></td>
</tr>
<tr>
<td>Blue Greens</td>
<td>Beach Glass</td>
<td>1564</td>
</tr>
<tr>
<td>Boca Raton Blue</td>
<td>711</td>
<td></td>
</tr>
<tr>
<td>Blue Echo</td>
<td>AF-505</td>
<td></td>
</tr>
<tr>
<td>Greens</td>
<td>Spa</td>
<td>AF-435</td>
</tr>
<tr>
<td>Ivy Lane</td>
<td>523</td>
<td></td>
</tr>
<tr>
<td>Jojoba</td>
<td>AF-460</td>
<td></td>
</tr>
<tr>
<td>Blues</td>
<td>Smoke</td>
<td>2122-40</td>
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<tr>
<td>Winter Lake</td>
<td>2129-50</td>
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<tr>
<td>Santorini Blue</td>
<td>1634</td>
<td></td>
</tr>
<tr>
<td>Normandy</td>
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<td>Color</td>
<td>Code</td>
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<tr>
<td>------------</td>
<td>----------------</td>
<td>--------</td>
</tr>
<tr>
<td>Reds</td>
<td>Hot Apple Spice</td>
<td>2005-20</td>
</tr>
<tr>
<td></td>
<td>Moroccan Spice</td>
<td>AF-285</td>
</tr>
<tr>
<td>Purples</td>
<td>Stormy Monday</td>
<td>2112-50</td>
</tr>
<tr>
<td></td>
<td>Sea Life</td>
<td>2118-40</td>
</tr>
<tr>
<td>Yellows</td>
<td>Filtered Sunlight</td>
<td>2154-60</td>
</tr>
<tr>
<td></td>
<td>Straw</td>
<td>2154-50</td>
</tr>
<tr>
<td></td>
<td>Dorset Gold</td>
<td>HC-8</td>
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<tr>
<td>Earth Tones</td>
<td>Wheatfield</td>
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<tr>
<td></td>
<td>Etruscan</td>
<td>AF-355</td>
</tr>
<tr>
<td></td>
<td>Satchel</td>
<td>AF-240</td>
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<tr>
<td></td>
<td>Alexandria Beige</td>
<td>HC-77</td>
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<tr>
<td>Grays</td>
<td>Chelsea Gray</td>
<td>HC-168</td>
</tr>
<tr>
<td></td>
<td>Whale Gray</td>
<td>2134-40</td>
</tr>
</tbody>
</table>
FINISHES

In accordance with both our Mission Statement of creating a world class medical center and our Design Principles of providing timeless designs that are cost effective, efficient, functional and practical, RED+F has developed a palette of typical materials and finishes that we have found to be successful for various spaces at NYU Langone Medical Center.

Our goals in listing these materials and finishes are to:

- Streamline the design process
- Assist the Architect and Interior Designer with specifying materials
- Create spaces that are timeless, durable, easily maintainable and cost-effective
- Create a consistent NYU Langone brand

The Architect and Interior Designer should use this as a guide for specifying the finishes on NYULMC capital projects. This information does not relieve the Architect or Interior Designer of specifying materials that are appropriate and code compliant for specific spaces. Also, the Architect and Interior Designer may suggest other materials and finishes if they believe those proposed materials and finishes will support our Mission Statement, Design Principles, as well as the design intent of the project.

We have provided this information for both clinical and non-clinical areas in the following subsections:

A. Room Finishes for Clinical Spaces
B. Material Legend for Clinical Spaces
C. Room Finishes for Non-clinical Spaces
D. Material Legend for Non-clinical Spaces
### A. ROOM FINISHES for CLINICAL SPACES

The following finishes are recommended for *Clinical Spaces*.

#### PATIENT ROOMS

<table>
<thead>
<tr>
<th>Category</th>
<th>Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flooring</td>
<td>Rubber, tile</td>
</tr>
<tr>
<td></td>
<td>Resilient</td>
</tr>
<tr>
<td>Base</td>
<td>Rubber, cove, 6”</td>
</tr>
<tr>
<td>Wall finish</td>
<td>GWB, paint, eggshell finish</td>
</tr>
<tr>
<td>Door type/finish</td>
<td>Wood, clear finish</td>
</tr>
<tr>
<td></td>
<td>Hollow Metal (HM), paint, semi-gloss finish and Stainless Steel Door protection</td>
</tr>
<tr>
<td>Door frame type/finish</td>
<td>HM, paint, semi-gloss finish, Door frame protection</td>
</tr>
<tr>
<td>Door Protection</td>
<td>Stainless Steel</td>
</tr>
<tr>
<td>Ceiling Material</td>
<td>Lay-in, ACT Hzone</td>
</tr>
<tr>
<td>Millwork</td>
<td>Wood, clear finish</td>
</tr>
<tr>
<td></td>
<td>Plastic laminate</td>
</tr>
<tr>
<td>Countertops</td>
<td>Solid Surface</td>
</tr>
<tr>
<td></td>
<td>Engineered stone</td>
</tr>
<tr>
<td>Window Sills/Convector</td>
<td>Solid Surface</td>
</tr>
<tr>
<td>Window treatments</td>
<td>Shade Cloth, 3% opening</td>
</tr>
<tr>
<td></td>
<td>Shade Cloth, black out</td>
</tr>
</tbody>
</table>

#### PATIENT TOILETS/SHOWERS

<table>
<thead>
<tr>
<th>Category</th>
<th>Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flooring</td>
<td>Porcelain, tile</td>
</tr>
<tr>
<td>Base</td>
<td>Porcelain, cove</td>
</tr>
<tr>
<td>Wall finish</td>
<td>Porcelain tile</td>
</tr>
<tr>
<td></td>
<td>Ceramic tile</td>
</tr>
<tr>
<td></td>
<td>Wall covering (non wet walls)</td>
</tr>
<tr>
<td>Door type/finish</td>
<td>HM, paint, semi-gloss finish</td>
</tr>
<tr>
<td>Door frame type/finish</td>
<td>HM, paint, semi-gloss finish</td>
</tr>
<tr>
<td>Door Protection</td>
<td>Stainless Steel</td>
</tr>
<tr>
<td>Ceiling</td>
<td>GWB, paint, flat finish</td>
</tr>
<tr>
<td></td>
<td>Lay-in, ACT Hzone</td>
</tr>
<tr>
<td>Countertops</td>
<td>Solid Surface</td>
</tr>
<tr>
<td></td>
<td>Engineered stone</td>
</tr>
<tr>
<td>Window Sills/Convector</td>
<td>Solid Surface</td>
</tr>
<tr>
<td>Window treatments</td>
<td>Shade cloth, 1% opening</td>
</tr>
</tbody>
</table>
### PATIENT FLOOR CORRIDORS

- **Flooring**: Rubber, tile
- **Base**: Rubber, cove, 6”
- **Wall finish**: GWB, paint, pearl finish
- **Wall protection**: Handrail, C/S
- **Door type/finish**: HM, paint, semi-gloss finish, Wood, clear finish
- **Door frame type/finish**: HM, paint, semi-gloss finish
- **Door Protection**: Stainless Steel
- **Ceiling**: Lay-in, ACT Hzone

### FAMILY LOUNGES

- **Flooring**: Resilient, Rubber, tile
- **Base**: Rubber, cove with recess, 4”
- **Wall finish**: GWB, paint, eggshell finish (allow 1 accent wall), Wall covering
- **Door type/finish**: Wood, clear finish, HM, paint, semi-gloss finish
- **Door frame type/finish**: HM, paint, semi-gloss finish
- **Ceiling Material**: Lay-in, ACT Hzone
- **Millwork**: Plastic Laminate
- **Countertops**: Solid Surface, Engineered stone
- **Window Sills/Convector**: Solid Surface
- **Window treatments**: Shade Cloth, 3% openness

### NURSE STATIONS

- **Flooring**: Rubber, tile, Resilient
- **Base**: Rubber, cove 6”
- **Wall finish**: GWB, paint, eggshell finish
- **Ceiling Material**: Lay-in, ACT Hzone
- **Millwork**: Plastic laminate, Specialty material
- **Countertops**: Solid Surface, Engineered stone
# NYULMC Design Guidelines

## CLEAN UTILITY

<table>
<thead>
<tr>
<th>Component</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Flooring</strong></td>
<td>Rubber, sheet (heat welded seams)</td>
</tr>
<tr>
<td><strong>Base</strong></td>
<td>Rubber, Integral, 6”</td>
</tr>
<tr>
<td><strong>Wall finish</strong></td>
<td>GWB, paint, semi-gloss finish</td>
</tr>
<tr>
<td><strong>Door type/finish</strong></td>
<td>HM, paint, semi-gloss finish</td>
</tr>
<tr>
<td><strong>Door frame type/finish</strong></td>
<td>HM, paint, semi-gloss finish</td>
</tr>
<tr>
<td><strong>Door Protection</strong></td>
<td>Stainless Steel</td>
</tr>
<tr>
<td><strong>Ceiling Material</strong></td>
<td>Lay-in, ACT, Clean Room</td>
</tr>
<tr>
<td></td>
<td>GWB</td>
</tr>
<tr>
<td><strong>Millwork</strong></td>
<td>Plastic laminate</td>
</tr>
<tr>
<td><strong>Door Protection</strong></td>
<td>Stainless Steel</td>
</tr>
<tr>
<td><strong>Door Frame Protection</strong></td>
<td>Acrovyn</td>
</tr>
<tr>
<td><strong>Countertops</strong></td>
<td>Solid Surface material / Corian</td>
</tr>
</tbody>
</table>

## SOILED UTILITY

<table>
<thead>
<tr>
<th>Component</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Flooring</strong></td>
<td>Rubber, sheet (heat welded seams)</td>
</tr>
<tr>
<td><strong>Base</strong></td>
<td>Rubber, Integral, 6”</td>
</tr>
<tr>
<td><strong>Wall finish</strong></td>
<td>GWB, paint, semi-gloss finish</td>
</tr>
<tr>
<td><strong>Wall protection</strong></td>
<td>Corian, Rubber</td>
</tr>
<tr>
<td><strong>Door type/finish</strong></td>
<td>HM, paint, semi-gloss finish</td>
</tr>
<tr>
<td><strong>Door frame type/finish</strong></td>
<td>HM, paint, semi-gloss finish</td>
</tr>
<tr>
<td><strong>Door Protection</strong></td>
<td>Stainless Steel</td>
</tr>
<tr>
<td><strong>Ceiling Material</strong></td>
<td>Lay-in, ACT, Clean Room</td>
</tr>
<tr>
<td><strong>Millwork</strong></td>
<td>Plastic laminate</td>
</tr>
<tr>
<td><strong>Countertops</strong></td>
<td>Solid Surface</td>
</tr>
</tbody>
</table>

## STORAGE ROOMS

<table>
<thead>
<tr>
<th>Component</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Flooring</strong></td>
<td>Rubber, tile</td>
</tr>
<tr>
<td><strong>Base</strong></td>
<td>Epoxy,</td>
</tr>
<tr>
<td></td>
<td>Rubber, cove, 6”</td>
</tr>
<tr>
<td><strong>Wall finish</strong></td>
<td>GWB, paint, semi-gloss finish</td>
</tr>
<tr>
<td><strong>Door type/finish</strong></td>
<td>HM, paint, semi-gloss finish</td>
</tr>
<tr>
<td><strong>Door frame type/finish</strong></td>
<td>HM, paint, semi-gloss finish</td>
</tr>
<tr>
<td><strong>Door Protection</strong></td>
<td>Stainless Steel</td>
</tr>
<tr>
<td><strong>Ceiling Material</strong></td>
<td>Lay-in, ACT Hzone</td>
</tr>
<tr>
<td><strong>Millwork</strong></td>
<td>Plastic laminate</td>
</tr>
<tr>
<td><strong>Countertops</strong></td>
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</tr>
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</table>
### EXAM ROOMS

<table>
<thead>
<tr>
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<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flooring</td>
<td>Resilient</td>
</tr>
<tr>
<td>Base</td>
<td>Rubber, 6”</td>
</tr>
<tr>
<td>Wall finish</td>
<td>GWB, Paint, Eggshell paint finish</td>
</tr>
<tr>
<td>Door type/finish</td>
<td>HM, Paint, Semi-gloss paint finish</td>
</tr>
<tr>
<td>Door frame type/finish</td>
<td>HM, Paint, Semi-gloss paint finish</td>
</tr>
<tr>
<td>Door Protection</td>
<td>Stainless Steel</td>
</tr>
<tr>
<td>Ceiling Material</td>
<td>GWB, Paint, Flat Paint finish</td>
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</tbody>
</table>

### PROCEDURE ROOMS

<table>
<thead>
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</thead>
<tbody>
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<td>Rubber, sheet (heat welded seams)</td>
</tr>
<tr>
<td>Base</td>
<td>Integral rubber, 6”</td>
</tr>
<tr>
<td>Wall finish</td>
<td>GWB, Epoxy, Semi-gloss paint finish</td>
</tr>
<tr>
<td>Door type/finish</td>
<td>HM, Epoxy, Semi-gloss paint finish</td>
</tr>
<tr>
<td>Door frame type/finish</td>
<td>HM, Epoxy, Semi-gloss paint finish</td>
</tr>
<tr>
<td>Door Protection</td>
<td>Stainless Steel</td>
</tr>
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<td>Door Frame Protection</td>
<td>Acrovyn</td>
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<tr>
<td>Ceiling Material</td>
<td>GWB, Epoxy, Semi-gloss Paint finish</td>
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<td>Millwork</td>
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### PSYCHIATRIC CLINICAL ROOMS

<table>
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<th>Material</th>
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<tbody>
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</tr>
<tr>
<td>Base</td>
<td>Integral rubber, 6”</td>
</tr>
<tr>
<td>Wall finish</td>
<td>GWB, Epoxy paint finish</td>
</tr>
<tr>
<td>Door type/finish</td>
<td>HM, Epoxy paint finish</td>
</tr>
<tr>
<td>Door frame type/finish</td>
<td>HM, Epoxy paint finish</td>
</tr>
<tr>
<td>Door Protection</td>
<td>Stainless Steel</td>
</tr>
<tr>
<td>Ceiling Material</td>
<td>GWB, Epoxy, Eggshell Paint finish</td>
</tr>
<tr>
<td>Millwork</td>
<td>Stainless Steel</td>
</tr>
<tr>
<td>Countertops</td>
<td>Solid Surface material / Corian</td>
</tr>
</tbody>
</table>
B. MATERIAL LEGEND for CLINICAL SPACES

The following is a list of manufacturers and products recommended for Clinical Spaces.

FLOORING

- RESILIENT FLOORING

Tile
- **Patcraft**, Stratified, 2.5mm. x 12” x 24”
  [http://www.patcraft.com/ProductSpecHS/Show/I700V](http://www.patcraft.com/ProductSpecHS/Show/I700V)

- **Johnsonite**, Cortina Grande, 1/8” x 16” x 16”

- **Johnsonite**, Space, 4mm x 19.68” x 19.68”

- **Armstrong**, Striations, 1/8”x 12” x 24”

- **Amtico**, Abstraction

Wood Plank
- **Amtico**, Wood, 2.5mm. x 3.5” x 36”
  [http://www.mannington.com/commercial/assets/pdfs/Amtnco](http://www.mannington.com/commercial/assets/pdfs/Amtnco)

- **Centiva**, Event or Contour, 3mm. x 4” x 36”

- **Mannington**, Nature’s Path

- **Patcraft**, Stratified
  [http://www.patcraft.com/ProductSpecHS/Show/I700V](http://www.patcraft.com/ProductSpecHS/Show/I700V)

- **Parterre**, In-grained

  (Note: All wood planks are to be non-beveled)

Sheet
- **Mannington**, Biospec MD, .080” x 6ft.

- **Armstrong**, Medintech, .080” x 6ft.

- **Johnsonite**, IQ Optima/Acoustiflor
  [http://www.johnsonite.com/FlooringProducts/RubberFlooring.aspx](http://www.johnsonite.com/FlooringProducts/RubberFlooring.aspx)

Wood Sheet
- **Mannington**, Realities, .080” x 6ft., 9ft., or 12ft.
Debolon, Comfort, 3.3mm. x 6’-7” x 65’-7”
http://matsinc.com/debolon-comfort.html

Centiva, Contour or Event, 3mm. x 7.2’” x 48”
http://centiva.com/products/contour/

Mannington, Nature's Path
http://www.mannington.com/commercial/default.aspx

Johnsonite, Acczent wood, .080”Tx 6’-6”W

Resilient Sheet

Oscada Plastics, Protect All, watertight, 5’ x 5’ or 5’ x 8’ x ⅛”T

For food service areas: provide Protect All as a system using Protect all flooring adhesives, fusion base, welding rods. Aluminum/stainless steel cove base caps, drain rings and transition strips, steel fasteners, anchors and all other materials required and provided by Oscada for a complete installation.

▪ RUBBER FLOORING

Tile

Nora, Environcare, 2mm. x 24” x 24” tile

Sheet

Nora, Environcare, 2mm. x 49.2 ft. x 48”

▪ STATIC DISSIPATIVE TILE

Armstrong, Static Dissipative SDT, 12” x 12”

For IDF rooms: provide Static Dissipative tile (SDT) installed as a system using tile, S-202 Adhesive, copper grounding strips packaged with the adhesive, and S-392 polish.

▪ PORCELAIN

Dal Tile, Veranda Tones, 3/8” x 20” x 20”, 13” x 20”
http://products.daltile.com/series.cfm?series=377

Dal tile, Fabrique, 3/8” x 12” x 12”, 12” x 24”,
http://products.daltile.com/series.cfm?series=228&

Dal tile, Keystones Color Body Porcelain (janitors closets)
http://products.daltile.com/series.cfm?series=238&
NYULMC Design Guidelines

ASI, Eco-porcelain, 3/8” x 12” x 12”, 12” x 24”
http://www.archsystems.com/ecoporcelain.aspx

Stone Source, Tranquility, 3/8” x 12” x 24”, 24” x 24”
http://www.stonesource.com/porcelain-selector/tao-ci-tranquility

- **QUARRY TILE**
  
  Dal Tile, Quarry Tile, 1/2” x 6” x 6”

- **STONE TILE**
  
  varies

- **TERRAZZO**
  
  Poured Terrazzo
  
  Custom mix, thin set epoxy with zinc dividers, ¼”, 3/8”, ½” Thick

  Tile
  
  Mats Inc., Floorazzo, 3/16” x 24” x 24”, 24” x 48”
  (operating rooms)

- **CONCRETE COATINGS**
  
  Poured Epoxy
  
  Tenemc, epoxy coating
  http://www.tenemc.com/

  Dudick, epoxy coating
  http://www.dudick.com/products/protecto-coat/

  Stonehard, Stontec ERF, 2mm. T
  http://www.stonhard.com/

  Stonehard, Stonclad UT, 6mm. T
  http://www.stonhard.com/

  Static Dissipative Coating
  
  Sherwin Williams, Static Dissipative Coating
  http://www.generalpolymers.com/drop/18sd.pdf

  Poured Waterproofing
  
  Kemper, Kemperol 2K PUR
  (at Mech Rooms - provide 20 year warranty)
BASE

- **RUBBER BASE**
  - Cove: Johnsonite, tightlock cove base, 1/4” x 4-3/8” or 6-3/8”
  - Straight: Johnsonite, tightlock cove base, 1/4” x 4-1/4” or 6-1/4”
  - Cove (with recess): Johnsonite, Perceptions Recess RWDC Toe, 1/8” x 4.25”H
  - Straight (with recess): Johnsonite, Perceptions Recess toeless, 1/8” x 4.25”
    Comparable Roppe products are acceptable
  - Specialty: Johnsonite, Equalibrium Bio Base, height tbd
    (Roppe is acceptable substitute)

- **STAINLESS STEEL BASE**
  - 18Ga, non-directional Stainless Steel, height tbd

- **PORCELAIN BASE**
  - To match floor or wall tile

- **INTEGRAL COVE BASE**
  - To match floor material- backer to prevent puncture

WALL FINISH

- **GWB/PAINT**
  - Benjamin Moore, EcoSpec Silver, finish as scheduled

- **WALL-COVERING**
  - Carnegie, Xorel
    http://www.carnegiefabrics.com/Ads/Xorel
  - Knoll, vinyl, breathable back
    http://www.knoll.com/knolltextileproductdetail
  - Knoll, http://www.knoll.com
  - Design Tex, vinyl, breathable back
    http://www.designtex.com
  - Innovations, breathable back
NYULMC Design Guidelines

- **CERAMIC TILE**
  - *Dal Tile*, Modern Dimensions, 4- 1/4 x 8- 1/2 Field Tile
    http://products.daltile.com/series.cfm?series=231
  - *Nemo*, Cross Colors
    http://www.nemotile.com/porcelain/cross-colors-solids

- **GLASS TILE**
  - *Dal Tile*, Color Wave, Accent Tile
    http://products.daltile.com/series.cfm?series=426
  - *Stone Source*, Glacier, Accent Tile
    http://www.stonesource.com/glass-selector/glacier

- **PORCELAIN TILE**
  - *ASI*, Eco-porcelain I and II, 3/8" x 12" x 12", 12" x 24"
    http://www.archsystems.com/ecoporcelain.aspx
  - *Silitanium*, Color bond and applied sealant
    For restoring existing tiles

- **SPECIAL FINISHES**
  - *DFB*, Vitruv or Visari, seamless concrete applied finish

- **WALL PROTECTION**
  - **Crash Rails**
    - *CS/Group*, Rub Strip Acrovyn 4000 Series RS-60N, .060” Finish, Chameleon Faux wood or metal
      http://www.c-sgroup.com/acrovyn/crash-rails/rubstrip
    - *C-S/Group*, Crash Rail ECR 32A/325/60A
      http://www.c-sgroup.com/acrovyn/metal-rails/ecr-32a_ecr-32s_ecr-60a
    - *C-S/Group*, Crash Rail SCR 1655V
      http://www.c-sgroup.com/acrovyn/metal-rails/scr-16ssv_scr-16ssp
  - **Handrails**
    - *CS/Group*, Model P-RWS Stainless Steel crash rail, with wood handrail
      http://www.c-sgroup.com/acrovyn/platform-handrails/p-rws_p-ows
  - **Sheet**
    - *3-form*, Varia Eco Resin, 1/8”T with eased top edge
      http://www.3-form.com/materials/varia_ecoresin/
  - **Corner Guards**
    - *C-S/group*, Stainless Steel full height, Model CO-8
      http://www.c-sgroup.com/acrovyn/corner-guards/co-8_co-8m_sco-8
  - **Chair rail**
    - *Johnsonite*, Millwork Rampart, 4”H x 3/8”
NYULMC Design Guidelines

DOORS

- **HM DOOR**  
  *Benjamin Moore*, EcoSpec Silver, Semi-gloss finish

- **WOOD DOOR**  
  Clear finish  
  Species include: Cherry, Anigre, Walnut, Sycamore, Bamboo, Macore, Maple

- **ACROVYN DOOR**  
  *C-S Group*, faux wood/metal finish  

- **DOOR PROTECTION**  
  Stainless Steel  
  *CS/Group*, Stainless Steel Kick plate, Model KP-SS, #304  
  16ga Stainless steel  

DOOR FRAMES

- **HM DOOR FRAME**  
  *Benjamin Moore*, Natura, No VOC Semi-gloss finish

CEILINGS

- **LAY IN CEILING**  
  **ACT**  
  *Armstrong*, Health zone, Ultima Health zone 3/4” x 24” x 24” Grid: Super  
  *Armstrong*, Clean Room VL, Unperforated, square lay in, 5/8” x 24” x 24”  
  *Armstrong*, Ultima, 3/4” x 24’ x 24’  

  **Standard Grid**  
  *Armstrong*, Interlude XL, color white  

  **Wood**  
  *Armstrong*, Woodworks, Linear, Grille, Vector  
  [http://www.armstrong.com/commceilingsna/products/ceilings/wood/wood/_/N-cZ1z141tmZ1z141cj](http://www.armstrong.com/commceilingsna/products/ceilings/wood/wood/_/N-cZ1z141tmZ1z141cj)  
  *Decoustics*, Solo-M Type 8 wood ceiling panel, Beech veneer, Clear Lacquer finish, Fully grooved. Custom sizes as per plans.  
  *Decoustics Ceilencio suspension System*  
Faux Wood

Lindner, USA LMD-E Hook on System with custom upturned panel lengths throughout. 24 ga steel panel micropierforated with RG 0, 7-4 with mineral wool lined 0.5" aluminum honeycomb core. Typical panel size 2'x3'. 1/8" black neoprene gasket joint on all sides.

Finish: Custom Makore
Direct printed metal faux wood veneer
http://www.lindnerusa.com/

GWB

Benjamin Moore, EcoSpec Silver, flat finish

MILLWORK

- PLASTIC LAMINATE
  Wood grain and Solid
  Wilsonart
  http://www.wilsonart.com/
  Formica
  Pionite
  http://www.pionite.com/
  Nevamar
  http://www.nevamar.com/

- SPECIALTY MATERIAL
  3-form, Acrylic Resin, Ecovaria, Chroma, Stone
  http://www.3-form.com/materials/varia_ecoresin/
  Lightblocks, Acrylic Panels, gauge varies- 1/16"-2" panel thickness available. Standard Panel size 48" x 96"

GLASS PANELS

Bendheim
http://www.bendheim.com/
Skyline Design
http://www.skydesign.com/
Forms and Surfaces
https://www.forms-surfaces.com/

COUNTER TOPS

- SOLID SURFACE
  Corian,
  http://www.dupont.com/

- ENGINEERED STONE
  Caesarstone,
  http://www.caesarstoneus.com/products/
WINDOW SILLS

- **SOLID SURFACE**
  - Corian,

- **PTD METAL**
  - Painted Aluminum. Gauge and reinforcing to withstand a 200 LB. person standing on it.

WINDOW TREATMENTS

- **SHADE CLOTH**
  - **Phifer**, Sheerweave, Style 2500, 1% openness
  - **Phifer**, Sheerweave, Style 2410, 3% openness
  - **Phifer**, Sheerweave, Style 2390, 5% openness
  - **Phifer**, Sheerweave, Style 4800, Sun Control, 1% openness
  - **Phifer**, Sheerweave, Draper Sunbloc
  - **Mechoshade**, Ecoveil, 0950 Series, 1% openness
    - [http://www.mechoshade.com/shadecloth/ecoveil.cfm](http://www.mechoshade.com/shadecloth/ecoveil.cfm)
  - **Mechoshade**, Ecoveil, 1550 Series, 3% openness
    - [http://www.mechoshade.com/shadecloth/ecoveil.cfm](http://www.mechoshade.com/shadecloth/ecoveil.cfm)
  - **Mechoshade**, Ecoveil, 1350 Series, 5% openness
    - [http://www.mechoshade.com/shadecloth/ecoveil.cfm](http://www.mechoshade.com/shadecloth/ecoveil.cfm)
  - **Mechoshade**, Equinox, 0100 Series, black out

- **SHEERS**
  - **Knoll**, trevira
  - **Carnegie**
    - [http://www.carnegiefabrics.com/creation-baumann](http://www.carnegiefabrics.com/creation-baumann)
  - **Maharam**
CUBICLE TRACK

1. Cubicle Tracks: C/S Cubicle Curtains #6062 surface-mounted tracks of heavy extruded aluminum alloy 6063-T5, 1 ¾" x ¾", slotted to receive roller carriers, compete with accessories and components required for complete and secure installations including splicers, end caps and corner bends.

   - Corner Bends: Shall have a 12" radius fabricated in one continuous “L” shape.
   - Finish: Clear anodized aluminum.

2. Qwik Switch Safety Loading Unit: Tracks are to be provided with a Qwik Switch safety loading unit, hinged unit of track, to allow for safe removal of curtains from the track without the use of a ladder or step stool. Hinge unit of track, when lowered, is to bring the track end and curtains down to four feet above the finished floor so curtain can be removed from the carriers.

   - Provide one Qwik Switch unit for each run of track.
   - Qwik Switch unit to include: Hinge, Locking unit, and Latch.
   - Provide one Qwik Switch Release Wand for every 20 units of track.

3. Carriers: C/S Cubicle Curtains 1062N, virgin nylon axle with nylon wheels complete with nickel-plated brass bead-chain and hook assembly.

   - Provide one carrier for each 6" of cubicle curtain width

CUBICLE CURTAINS (provide 100% attic Stock)

- STANDARD FABRICS

  Tisch Hospital and HJD Patient Rooms
  Arc Com
  Nami AC# 33101
  Color: Surf# 2

  Tisch Hospital 12 West
  Carnegie
  Canopy 42382
  Color: 2
Pediatric Areas
Maharam
Progression
Color: 009 Kaleidoscope
ED Adult treatment Areas
Arc Com
Woodland # AC-32762
Color: Spring #3

ED Pediatric Treatment Areas
Arc Com
Papillion-X
AC-33190
Color: Spring

- **FABRICATION**

  Top hem to be 1 ¼” wide triple thick & reinforced with permanent, washable type buckram. Side and bottom hems to be ½” wide double thick. Nickel plated brass grommets to be machined 6” on center. Vertical seams to be double needle lock stitched. Where mesh is specified, mesh to finish 20” high. All curtain widths are expressed in feet, height in inches. In addition, all curtain widths are cut size. Finished width after side hems and vertical seams will be smaller. Length specified is finished length including mesh, if any. Fabric joined to mesh with double hem stitch construction. Matching fabric ½” band where mesh and curtain are joined in back. Sides of curtains to have matching fabric on edges. Curtains are supplied with weights in the bottom. Curtains are to come tagged with size and location for ease of maintenance when removing for cleaning.

**SHOWER CURTAINS** (provide 100% attic stock)

- **STANDARD FABRICS**

  TBD
ROOM FINISHES for NON-CLINICAL SPACES

The following finishes are recommended for Non-Clinical Spaces.

CONFERENCE ROOMS
Flooring
- Carpet, broadloom
- Carpet, tile
Base
- Rubber, straight with recess, 4”
Wall finish
- GWB, paint, eggshell finish
- Wall covering
Door type/finish
- Wood, clear finish
- Hollow Metal, paint, semi-gloss finish
Door frame type/finish
- HM, paint, semi-gloss paint
Ceiling Material
- GWB, paint, flat finish
- Lay-in, ACT
- Lay-in, Wood
Millwork
- Wood, clear finish
- Plastic laminate
Countertops
- Solid Surface
- Engineered stone
Window Sills/Convectors
- Solid Surface
Wall Panels
- Wood
- Specialty material
Window treatments
- Shade Cloth, 3% openness
- Trevira sheers
Storefront
- Demountable Partitions

CORRIDORS
Flooring
- Rubber, tile
- Resilient Flooring
Base
- Rubber, cove with recess, 4”
Wall Finish
- GWB, Paint, Eggshell Finish
- Specialty Finish
- Wall Covering
Door type/finish
- HM, paint, semi-gloss finish
Door frame type/finish
- HM, paint, semi-gloss finish
Ceiling
- Lay-in, ACT
- GWB, paint, flat finish

WAITING AREAS
Flooring
- Resilient
Base
- Rubber, cove with recess, 4”
Wall finish
- GWB, paint, eggshell finish or Specialty finish
Door type/finish
- HM, paint, semi-gloss finish
Door frame type/finish
- HM, paint, semi-gloss finish
Ceiling Material
- Lay-in, ACT/ Hzone
NYULMC Design Guidelines

Millwork
- Wood, clear finish
- Plastic laminate

Countertops
- Solid Surface
- Engineered stone

Window Stools/Convector
- Solid Surface

Wall Panels
- Wood
- Specialty material

Window treatments
- Shade Cloth, 3% opening

PUBLIC LOBBIES

Flooring
- Terrazzo
- Porcelain tile

Base
- Rubber, cove with recess, 4”

Wall finish
- GWB, paint, eggshell finish
- Wall covering
- Specialty finish

Door type/finish
- HM, paint, semi-gloss finish
- Wood, clear finish

Door frame type/finish
- HM, paint, semi-gloss finish

Ceiling Material
- GWB, paint, flat finish
- Lay-in, ACT/ Hzone

Millwork
- Wood, clear finish
- Plastic laminate

Countertops
- Solid Surface
- Engineered stone

Window Sills/Convector
- Solid Surface

Wall panels
- Wood
- Specialty materials

Window treatments
- Shade Cloth, 3% opening

PUBLIC ELEVATOR LOBBIES

Flooring
- Terrazzo, Porcelain tile
- Rubber, cove with recess, 4”

Base
- GWB, paint, eggshell finish
- Specialty finish

Wall finish
- HM, paint, semi-gloss
- Wood, clear finish

Door type/finish
- HM, paint, semi-gloss finish

Door frame type/finish
- HM, paint, semi-gloss finish

Ceiling Material
- GWB, paint, flat finish
- Lay-in, ACT Hzone

Millwork
- Wood, clear finish
- Plastic laminate

Countertops
- Solid Surface or Engineered stone

Window Sills/Convector
- Solid Surface

Wall panels
- Wood or Specialty material

Window treatments
- Shade Cloth, 3% opening
### PUBLIC TOILETS

<table>
<thead>
<tr>
<th>Component</th>
<th>Material/Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flooring</td>
<td>Porcelain Tile</td>
</tr>
<tr>
<td>Base</td>
<td>Porcelain, cove</td>
</tr>
<tr>
<td>Wall finish</td>
<td>Porcelain tile, Ceramic tile</td>
</tr>
<tr>
<td>Door type/finish</td>
<td>Wallcovering (non-wet walls)</td>
</tr>
<tr>
<td>Door frame type/finish</td>
<td>HM, paint, semi-gloss finish</td>
</tr>
<tr>
<td>Ceiling</td>
<td>GWB, paint, flat finish</td>
</tr>
<tr>
<td>Countertops</td>
<td>Solid Surface</td>
</tr>
<tr>
<td>Engineered stone</td>
<td></td>
</tr>
<tr>
<td>Window Sills/Convector</td>
<td>Solid Surface</td>
</tr>
<tr>
<td>Window treatments</td>
<td>Shade cloth, 1% opening</td>
</tr>
</tbody>
</table>

### CAFETERIAS

<table>
<thead>
<tr>
<th>Component</th>
<th>Material/Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flooring</td>
<td>Terrazzo, Porcelain tile, Rubber Floor tile</td>
</tr>
<tr>
<td>Base</td>
<td>Resilient Sheet, watertight</td>
</tr>
<tr>
<td>Wall finish</td>
<td>Rubber cove with recess, 4”, resilient fusion base</td>
</tr>
<tr>
<td>Door type/finish</td>
<td>GWB, paint, eggshell finish</td>
</tr>
<tr>
<td>Door frame type/finish</td>
<td>HM, paint, semi-gloss finish</td>
</tr>
<tr>
<td>Door Protection</td>
<td>HM, paint, semi-gloss finish</td>
</tr>
<tr>
<td>Ceiling Material</td>
<td>Stainless Steel</td>
</tr>
<tr>
<td>Millwork</td>
<td>GWB, paint, flat finish</td>
</tr>
<tr>
<td>Countertops</td>
<td>Lay-in, ACT Hzone</td>
</tr>
<tr>
<td>Window Sills/Convector</td>
<td>Plastic Laminate</td>
</tr>
<tr>
<td>Window treatments</td>
<td>Solid Surface</td>
</tr>
<tr>
<td>Solid Surface material</td>
<td>Solid Surface</td>
</tr>
<tr>
<td>Shade cloth, 3% opening (Electric)</td>
<td></td>
</tr>
</tbody>
</table>

### LABORATORIES

<table>
<thead>
<tr>
<th>Component</th>
<th>Material/Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flooring</td>
<td>Resilient Tile</td>
</tr>
<tr>
<td>Base</td>
<td>Rubber, cove 4”</td>
</tr>
<tr>
<td>Wall finish</td>
<td>GWB, paint, eggshell finish</td>
</tr>
<tr>
<td>Door type/finish</td>
<td>HM, paint, semi-gloss finish</td>
</tr>
<tr>
<td>Door frame/finish</td>
<td>HM, paint, semi-gloss finish</td>
</tr>
<tr>
<td>Ceiling Material</td>
<td>Lay-in, ACT Hzone</td>
</tr>
<tr>
<td>Lab Casework</td>
<td>Countertops: Epoxy</td>
</tr>
<tr>
<td>Cabinets: Wood/Metal</td>
<td></td>
</tr>
<tr>
<td>Tack panel: Carnegie Xorel</td>
<td></td>
</tr>
</tbody>
</table>
### VIVARIUM
Flooring
- Seamless Urethane flooring, (clean, soiled, sterile cage)
- Seamless Epoxy flooring (typical rooms)

Base
- Integral cove base

Wall finish
- Glass-fiber reinforced plastic panel
- GWB, paint, epoxy

Door type/finish
- Stainless Steel, Armor plate

Door frame/finish
- Stainless Steel

Ceiling Material
- Glass-fiber reinforced plastic tile
- GWB, paint, epoxy

### STAFF OFFICES
Flooring
- Carpet, broadloom; resilient flooring
- Rubber, straight, 4”

Base
- GWB, paint, eggshell finish

Wall finish
- Wood, clear finish (8’-0” door ht. typ)
- HM, paint, semi-gloss finish

Door type/finish
- HM, paint, semi-gloss finish

Door frame type/finish
- Lay-in, ACT Hzone

Ceiling Material
- Wood, clear finish, Plastic laminate

Millwork
- Solid Surface

Countertops
- Solid Surface

Window Sills/Convector
- Shade cloth, 3% opening

Window treatments
- Demountable partitions

### STAFF LOUNGES
Flooring
- Resilient, wood

Base
- Rubber
- Rubber, cove, 4”

Wall finish
- GWB, paint, eggshell finish

Door type/finish
- HM, paint, semi-gloss finish

Door frame type/finish
- HM, paint, semi-gloss finish

Door Protection
- Stainless Steel

Ceiling Material
- Lay-in, ACT Hzone

Millwork
- Plastic laminate

Countertops
- Solid Surface

Window Sills/Convector
- Solid Surface

Window treatments
- Shade cloth, 3% opening

### LOCKER ROOMS
Flooring
- Rubber, tile

Base
- Rubber, cove, 4”

Wall finish
- GWB, Epoxy paint, eggshell finish

Door type/finish
- HM, paint, semi-gloss finish

Door frame type/finish
- HM, paint, semi-gloss finish

Door Protection
- Stainless Steel

Ceiling Material
- Lay-in, ACT Hzone
### MILLWORK
- Countertops: Plastic laminate
- Window Sills/Convector: Solid Surface
- Window treatments: Shade cloth, 3% opening

### SECURITY
- Flooring: Resilient, wood
- Base: Rubber, cove, 4”
- Wall finish: GWB, paint, eggshell finish
- Door type/finish: HM, paint, semi-gloss finish
- Door frame type/finish: HM, paint, semi-gloss finish
- Ceiling Material: Lay-in, ACT Hzone
- Millwork: Plastic laminate
- Countertops: Solid Surface
- Window Sills/Convector: Solid Surface
- Window treatments: Shade cloth, 3% opening

### MECHANICAL/ELECTRICAL ROOMS
- Flooring: Waterproofing (grey color)
- Concrete Pads: Waterproofing to match floor (red color)
- Base: Waterproofing turned up 8”
- Wall finish: CMU preferred (GWB alt), paint, eggshell finish
- Door type/finish: Metal clad wood core door/ paint, semi-gloss finish
- Door frame type/finish: HM (welded frame)/ paint, semi-gloss finish
- Ceiling Material: Exposed to underside of slab, painted, matte finish or GWB, paint, matte finish

### ELECTRICAL ROOMS
- Flooring: Epoxy Paint (red color)
- Concrete pads: Epoxy paint (yellow color)
- Base: Rubber, cove, 6”
- Wall finish: GWB/ paint, eggshell finish
- Door type/finish: Metal clad wood core door/ paint, semi-gloss finish
- Door frame type/finish: HM (welded frame)/ paint, semi-gloss finish
- Ceiling Material: Exposed to underside of slab, painted, matte finish or GWB, paint, matte finish

### SHOPS
- Flooring: Poured floor, ACT
- Base: Rubber, cove, 6”
- Wall finish: GWB, paint, eggshell finish
- Door type/finish: HM, paint, semi-gloss finish
- Door frame type/finish: HM, paint, semi-gloss finish
- Door Protection: Stainless Steel
- Ceiling Material: Lay-in, ACT Hzone
FOOD PREPARATION
Flooring
- Quarry tile
- Epoxy
- Resilient watertight vinyl
Base
- Quarry tile, coved, 6”
- Integral, Epoxy, 6”
- Resilient fusion base
Wall finish
- GWB, paint, semi-gloss finish
Door type/finish
- HM, paint, semi-gloss finish
Door frame type/finish
- HM, paint, semi-gloss finish
Door Protection
- Stainless Steel
Ceiling Material
- Lay-in, ACT Hzone
Millwork
- Stainless Steel
Counter tops
- Solid Surface

SERVICE ELEVATOR LOBBY / SERVICE CORRIDORS
Flooring
- Rubber floor tile, ACT
Base
- Rubber, cove, 4”
Wall finish
- GWB, paint, eggshell finish
Wall Protection
- Aluminum plate
Door type/finish
- HM, paint, semi-gloss finish
Door frame type/finish
- HM, paint, semi-gloss finish
Door Protection
- Stainless Steel
Ceiling Material
- Lay-in, ACT Hzone

BUILDING SERVICES
Flooring
- Rubber, tile
Base
- Rubber, cove, 4”
Wall finish
- GWB, paint, eggshell finish
Door type/finish
- HM, paint, semi-gloss finish
Door frame type/finish
- HM, paint, semi-gloss finish
Ceiling Material
- Lay-in, ACT Hzone (Washable)

TELECOM ROOMS
Flooring
- Static Dissipative Tile
Base
- Rubber, cove, 6”
Wall finish
- GWB, paint, eggshell finish
Door type/finish
- HM, paint, semi-gloss finish
Door frame type/finish
- HM, paint, semi-gloss finish
Ceiling Material
- Exposed, underside of slab painted
C. MATERIAL LEGEND for NON-CLINICAL SPACES
The following is a list of manufacturers and products recommended for Non-Clinical Spaces.

FLOORING

- RESILIENT FLOORING
  Resilient Tile
  
  **Patcraft**, Stratified, 2.5mm. x 12” x 24”
  http://www.patcraft.com/content/static_pdfs/I700V_

  **Johnsonite**, Cortina Grande, 1/8” x 16” x 16”

  **Johnsonite**, Space, 4mm x 19.68” x 19.68”

  **Armstrong**, Striations, 1/8”x 12” x 24”
  http://www.armstrong.com/commflooringna/products/biobased-tile/striations

  **Amtico**, Abstract
  http://www.amtico.com/flooring/abstract

  **Mohawk**, Stonewalk Tile, non pvc tile
  12” x 12” or 18” x 18”

  Wood Plank
  
  **Amtico**, Wood, 2.5mm. x 3.5” x 36”

  **Centiva**, Event or Contour, 3mm. x 4” x 36”
  http://centiva.com/products/event/

  **Mannington**, Nature’s Path
  http://www.mannington.com/commercial/default.aspx

  **Patcraft**, Stratified
  http://www.patcraft.com/ProductSpecHS/Show/I700V

  **Parterre**, In-grained
  http://parterreflooring.com/products
  (Note: All wood planks to be non-beveled)

  Resilient Sheet
  
  **Oscada Plastics**, Protect All, watertight, 5’ x 5’ or 5’ x 8’
  x ¼”T

  For food service areas: provide Protect All as a system using Protect All flooring adhesives, fusion base, welding rods Aluminum/stainless steel cove base caps, drains rings and transition strips, steel fasteners, anchors and all other materials required and provided by Oscada for a complete installation.
- **RUBBER FLOORING**
  Rubber Tile
  - *Nora*, Environcare, 2mm. x 24” x 24” tile

- **STATIC DISSIPATIVE TILE**
  - *Armstrong*, Static Dissipative, 12” x 12”
  
  For IDF rooms: provide Static Dissipative tile (SDT)
  Installed as a system using tile, S-202 Adhesive, copper grounding strips packaged with the adhesive, and S-392 polish

- **CARPET**
  - Broadloom Carpet
  
  Carpet Tile

- **WALK‐OFF MAT**
  - *Tandus*, Abrasive Action

- **PORCELAIN TILE**
  - *Dal Tile*, Veranda Tones, 3/8” x 20” x 20”, 13” x 20”
  
  *Dal tile*, Fabrique, 3/8” x 12” x 12”, 12” x 24”
  
  *ASI*, Eco-porcelain II, 3/8” x 12” x 12”, 12” x 24”
  
  *Stone Source*, Architech,
  
  *Stone Source*, Tavolo di Legno,
  
  *Stone Source*, Provenza Ceramiche in Essence
  
  *Stone Source*, Atlas: Style
**QUARRY TILE**

- **Dal Tile**, Quarry Tile, 1/2” x 6” x 6”

**STONE TILE**

- varies

**TERRAZZO**

- Poured Terrazzo
  Custom mix, thin set epoxy with zinc dividers, ¼”, 3/8”, ½” Thick

- Terrazzo Tile
  **Mats Inc.**, Floorazzo, 3/16” x 24” x 24”, 24” x 48”

**CONCRETE COATINGS**

- Poured Epoxy
  **Tenemc**, epoxy coating
  http://www.tnemec.com/
  **Dudick**, epoxy coating
  http://www.dudick.com/products/protecto-coat/
  **Stonehard, Stontec ERF**, 2mm. T
  http://www.stonhard.com/
  **Stonehard**, Stonclad UT, 6mm. T
  http://www.stonhard.com/

- Static Dissipative Coating
  **Sherwin Williams**, Static Dissipative Coating
  http://www.generalpolymers.com/drop/18sd.pdf

- Poured Waterproofing
  **Kemper**, Kemperol 2K PUR
  (at Mech Rooms - provide 20 year warranty)

**BASE**

- **RUBBER BASE**
  - Cove
    **Johnsonite**, tightlock cove base, 1/4” x 4-3/8”H or 6-3/8”H

  - Straight
    **Johnsonite**, tightlock cove base, 1/4” x 4-1/4” or 6-1/4”H
NYULMC Design Guidelines

Cove, (with recess)  
Johnsonite, Perceptions Recess RWDC Toe, 1/8” x 4.25”H  

Straight, (with recess)  
Johnsonite, Perceptions Recess toeless, 1/8” x 4.25”H  

Specialty  
Johnsonite, Equalibrium Bio Base, height tbd  
(Note: Comparable Roppe products are acceptable)

- STAINLESS STEEL BASE  
  18Ga, non-directional Stainless Steel

- PORCELAIN  
  Cove, to match floor or wall tile

- QUARRY  
  Cove, to match floor tile

- INTEGRAL  
  Cove, seamless, 6” to match floor

WALL FINISH

- GWB/PAINT  
  Benjamin Moore, EcoSpec Silver, finish as scheduled  

- WALL COVERING  
  Carnegie, Xorel-  
  http://www.carnegiefabrics.com/Ads/Xorel
  Knoll, Vinyl, breathable back, Alias  
  http://www.knoll.com/knolltextileproductdetail/Filter

- CERAMIC TILE  
  Dal Tile, Modern Dimensions, 4- 1/4 x 8- 1/2 Field Tile  
  (or size approved by Owner)

- GLASS TILE  
  Dal Tile, Color Wave, Accent Tile  
  http://products.daltile.com/series.cfm?series=426
  Stone Source, Glacier, Accent Tile  
  http://www.stonesource.com/glass-selector/glacier

- PORCELAIN TILE  
  ASI, ASI, Eco-porcelain I and II, 3/8” x 12” x 12”, 12” x 24”  
  http://www.archsystems.com/ecoporcelain.aspx
NYULMC Design Guidelines

Stone Source, Tranquility, 3/8” x 12” x 24”, 24” x 24”, http://www.stonesource.com/porcelain-selector/tao-ci-tranquility

- **SPECIALTY FINISHES**
  - **DFB**, Vitruv and Visari, seamless concrete applied finish

- **ACOUSTIC PANELS**
  - **DFB**, Panel Tex, ¾”T Fabric/Carnegie Xorel or Owner approved fabric
  - **Ceilings Plus**, Wall forms, Arboreal wood, perforated panels, Species vary
    http://www.ceilingsplus.com/

- **GLASS/FIBER REINFORCED PANEL**

- **WALL PROTECTION**
  - **Corner Guards**
    - **CS/Group**, Stainless Steel full height, Model CO-8
      http://www.c-sgroup.com/acrovyn/corner-guards/CO-8_co-8m_sco-8
  - **Aluminum Plate**
    - **Grainger**, Diamond Plate

- **DEMOUNTABLE PARTITIONS**
  - **Dirtt**, http://www.dirtt.net/
  - **Clipper Wall**

**DOORS**

- **HM DOOR**
  - **Benjamin Moore**, EcoSpec Silver Semi-gloss finish

- **WOOD DOOR**
  - **Dooge Veneers**, http://www.doogeveeners.com/
  - Species include: Cherry, Anigre, Walnut, Sycamore, Bamboo
NYULMC Design Guidelines

- **ACROVYN DOOR**
  - C-S Group, faux wood/metal finish

- **DOOR PROTECTION**
  - Stainless Steel
  - CS/Group, Stainless Steel Kick plate, Model KP-SS, #304
  - 16ga Stainless steel

**CEILINGS**

- **LAY-IN CEILING**
  - **ACT**
    - Armstrong, Ultima, #1912, 9/16” beveled tegular, 3/4” x 24’ x 24’
    - Armstrong, Health zone, Ultima Health zone, #1936, 9/16” beveled tegular ¾ x 24” x 24”

  - Grid
    - Armstrong, Interlude XL, color white

- **LAY-IN CEILING**
  - **Wood**
    - Armstrong, Woodworks, Linear, Grille, Vector
    - Decoustics, Solo-M Type 8 wood ceiling panel, Beech veneer, Clear Lacquer finish, Fully grooved. Custom sizes as per plans
    - Suspension System: Decoustics Ceilencio suspension system
    - http://www.decoustics.com/

  - Faux Wood
    - Lindner, USA LMD-E Hook on System with custom upturned panel lengths throughout. 24 ga steel panel microperforated with RG 0, 7-4 with mineral wool lined 0.5” aluminum honeycomb core. Typical panel size 2’x3’. 1/8” black neoprene gasket joint on all sides.
    - Finish: Custom Makore
    - Direct printed metal faux wood veneer
    - http://www.lindnerusa.com/
NYULMC Design Guidelines

- **GWB/PAINT**
  - Benjamin Moore, Natura, flat finish

- **GLASS/FIBER REINFORCED TILE**
  - Arcoplast, http://www.arcpoplast.com

**MILLWORK**

- **PLASTIC LAMINATE**
  - Wood grain Laminate
  - Pionite, Wilsonart, Formica, Nevamar
  - Solid Plastic Laminate
  - Pionite, Wilsonart, Formica, Nevamar

- **STAINLESS STEEL**
  - #4 finish

- **WOOD**

**COUNTER TOPS**

- **SOLID SURFACE**
  - Corian, http://www.dupont.com/

- **ENGINEERED STONE**
  - Pionite, http://www.pionite.com/

**WINDOW SILLS**

- **SOLID SURFACE**
  - Corian, http://www.dupont.com/

- **PTD METAL**
  - Painted Aluminum. Gauge to withstand a person standing on it.

**WALL PANELS**

- **WOOD**
  - Robin Reigi, Plyboo Strand Plyboard
  - Species: Cherry, Anigre, Walnut, Sycamore, Bamboo
- **SPECIALTY MATERIALS**
  - 3-form, Varia EcoResin, Chroma, Stone
    - [http://www.3-form.com/materials/varia_ecoresin/](http://www.3-form.com/materials/varia_ecoresin/)
  - Lightblocks, Acrylic Panels, gauge varies- 1/16”-2” panel thickness available. Standard Panel size 48” x 96”

- **GLASS PANELS**
  - Bendheim
  - Skyline Design
  - Forms and Surfaces
    - [https://www.forms-surfaces.com/](https://www.forms-surfaces.com/)

- **WINDOW TREATMENTS**

  - **SHADECLOTH**
    - Phifer, Sheerweave, Style 2500, 1% openness
    - Phifer, Sheerweave, Style 2410, 3% openness
    - Phifer, Sheerweave, Style 2390, 5% openness
    - Phifer, Sheerweave, Style 4800, Sun Control, 1% openness
    - Phifer, Sheerweave, Draper Sunbloc

    - Mechoshade, Ecoveil, 0950 Series, 1% openness
      - [http://www.mechoshade.com/shadecloth/ecoveil.cfm](http://www.mechoshade.com/shadecloth/ecoveil.cfm)
    - Mechoshade, Ecoveil, 1550 Series, 3% openness
      - [http://www.mechoshade.com/shadecloth/ecoveil.cfm](http://www.mechoshade.com/shadecloth/ecoveil.cfm)
    - Mechoshade, Ecoveil, 1350 Series, 5% openness
      - [http://www.mechoshade.com/shadecloth/ecoveil.cfm](http://www.mechoshade.com/shadecloth/ecoveil.cfm)
    - Mechoshade, Equinox, 0100 Series, black out,

  - **SHEERS**
    - Knoll, trevira
    - Carnegie
      - [http://www.carnegiefabrics.com/creation-baumann](http://www.carnegiefabrics.com/creation-baumann)
    - Maharam
FINISH BOOKLET

As part of the project closeout, the Architect shall submit to the RED+F Design Department, a Finish Booklet in both pdf format and hard copy. The booklet shall have an 11”x17” floor plan and RCP, as well as all material information used on the project. The Finish Booklet shall include information on the final installed material including product name and number, color, finish, size, manufacturer, contact information, room/location, and any other pertinent information.

- **Finish Booklet items**

  **Floors:**
  - Resilient Flooring (Resilient Tile, Wood Plank, Sheet Flooring, Wood Sheet)
  - Rubber Flooring (Rubber Tile, Rubber Sheet)
    - Carpet (Carpet, Carpet Tile)
  - Tile (Ceramic, Porcelain Tile, Quarry Tile)
  - Stone
  - Terrazzo
  - Walk-off Mat
  - Concrete Coatings

  **Base:**
  - Rubber Base (Cove, Straight)
  - Stainless Steel Base
  - Porcelain Base
  - Integral Cove Base

  **Walls:**
  - Paint
  - Wall Covering
  - Tile (Ceramic, Porcelain Tile, Quarry Tile)
  - Stone
  - Wall Protection (Crash Rails, Handrails, Sheet, Corner Guards)

  **Doors:**
  - Wood (Specialty Doors)
  - Hollow Metal

  **Ceilings:**
  - Paint
  - Lay in Ceiling (Acoustic Ceiling Tile, Wood lay in)
  - Grid System

  **Others:**
  - Millwork (Wood, Plastic Laminate, Decorative Metal)
  - Countertops (Solid Surface, Engineered Stone)
  - Glass Panels
  - Window Sills (Solid Surface, Ptd. Alum)
  - Window Treatments (Shade Cloth, Sheers)
- **Format for the Finish Booklet**

Below is the format to be used for the Finish Booklet. The first pages of the Finish Booklet shall contain 11”x17” floor plans and RCP of the project. This should be followed by the Material and Finish data on 8 ½” x 11” as formatted below. A template will be provided by the RED+F Design Department.

**FLOORS:**

<table>
<thead>
<tr>
<th>TERRAZZO</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TER-1</strong></td>
<td><strong>Manufacturer:</strong> KrisStone</td>
</tr>
<tr>
<td><strong>Description:</strong></td>
<td>Thin-set epoxy custom mix with zinc dividers, KLLC1211E</td>
</tr>
<tr>
<td><strong>Thickness:</strong></td>
<td>3/8”</td>
</tr>
<tr>
<td><strong>Contact:</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RESILIENT FLOORING: RESILIENT TILE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RT-2</strong></td>
<td><strong>Manufacturer:</strong> Nora</td>
</tr>
<tr>
<td><strong>Product Style:</strong></td>
<td>Nora Environcare</td>
</tr>
<tr>
<td><strong>Product Color:</strong></td>
<td>Lace Vine 2945</td>
</tr>
<tr>
<td><strong>Size:</strong></td>
<td>24” x 24”</td>
</tr>
<tr>
<td><strong>Thickness:</strong></td>
<td>2 mm thick</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FLOOR TILE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TILE-1</strong></td>
<td><strong>Manufacturer:</strong> Fritz Tile</td>
</tr>
<tr>
<td><strong>Product Style:</strong></td>
<td>Classic Terrazzo Collection</td>
</tr>
<tr>
<td><strong>Product Color:</strong></td>
<td>C521515, Dusk</td>
</tr>
<tr>
<td><strong>Size:</strong></td>
<td>12” x 12”, 3/16” thick</td>
</tr>
</tbody>
</table>
### WALLS:

#### WALL TILE

<table>
<thead>
<tr>
<th>TILE-2</th>
<th><strong>Manufacturer:</strong></th>
<th>Nemo Tile</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product Style:</strong></td>
<td>Embarcadero Porcelain</td>
<td></td>
</tr>
<tr>
<td><strong>Product Color:</strong></td>
<td>Mission Beige</td>
<td></td>
</tr>
<tr>
<td><strong>Grout:</strong></td>
<td>Laticrete Spectralock Pro, 23 Antique White</td>
<td></td>
</tr>
<tr>
<td><strong>Size:</strong></td>
<td>12” x 24”</td>
<td></td>
</tr>
<tr>
<td><strong>Contact:</strong></td>
<td>Nic Jennings <a href="mailto:njennings@nemtile.com">njennings@nemtile.com</a>/212-505-0009</td>
<td></td>
</tr>
</tbody>
</table>

#### WALL COVERING

<table>
<thead>
<tr>
<th>WC-01</th>
<th><strong>Manufacturer:</strong></th>
<th>Carnegie Xorel</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product Style:</strong></td>
<td>Strie W, 6423W</td>
<td></td>
</tr>
<tr>
<td><strong>Product Color:</strong></td>
<td>Color 136</td>
<td></td>
</tr>
<tr>
<td><strong>Size:</strong></td>
<td>Width: 52”</td>
<td></td>
</tr>
<tr>
<td><strong>Contact:</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### WALL AND CORNER PROTECTION

<table>
<thead>
<tr>
<th>CG-4</th>
<th><strong>Manufacturer:</strong></th>
<th>Construction Specialties, or approved</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product No.:</strong></td>
<td>CO-8</td>
<td></td>
</tr>
<tr>
<td><strong>Finish:</strong></td>
<td>Stainless Steel</td>
<td></td>
</tr>
<tr>
<td><strong>Legs:</strong></td>
<td>2 ½”</td>
<td></td>
</tr>
<tr>
<td><strong>Height:</strong></td>
<td>Full height</td>
<td></td>
</tr>
<tr>
<td><strong>Corner:</strong></td>
<td>90 degree corners</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Surface mounted</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HR-1</th>
<th><strong>Manufacturer:</strong></th>
<th>Construction Specialties, or approved</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product No.:</strong></td>
<td>P-RWS</td>
<td></td>
</tr>
<tr>
<td><strong>Finish:</strong></td>
<td>Stainless Steel, Wood Handrail, stain to match WD-1</td>
<td></td>
</tr>
</tbody>
</table>
### BASE:

<table>
<thead>
<tr>
<th>WALL BASE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RB-1</strong></td>
</tr>
<tr>
<td><strong>Manufacturer:</strong> Johnsonite</td>
</tr>
<tr>
<td><strong>Product Style:</strong> Tightlock Cove Base, Resilient Floors</td>
</tr>
<tr>
<td><strong>Product Color:</strong> Pewter, 38</td>
</tr>
</tbody>
</table>

### DOORS:

<table>
<thead>
<tr>
<th>WOOD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WD-1</strong></td>
</tr>
<tr>
<td><strong>Manufacturer:</strong> Dooge Veneers Inc.</td>
</tr>
<tr>
<td><strong>Product Color:</strong> Anegre, Qtd Figured</td>
</tr>
<tr>
<td><strong>Log No.:</strong> #77/30 FSC, stained to match architect’s sample</td>
</tr>
</tbody>
</table>

### CEILINGS:

<table>
<thead>
<tr>
<th>ACOUSTICAL LAY-IN CEILINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ACT-1</strong></td>
</tr>
<tr>
<td><strong>Manufacturer:</strong> Armstrong</td>
</tr>
<tr>
<td><strong>Product Style:</strong> Healthzone Ultima</td>
</tr>
<tr>
<td><strong>Product Color:</strong> White</td>
</tr>
<tr>
<td><strong>Size:</strong> As Noted</td>
</tr>
</tbody>
</table>
ENVIRONMENTAL HEALTH AND SAFETY

NYULMC’s Environmental Health and Safety (EH&S) division develops and manages programs that (1) protect personnel in all departments and on all levels from health and safety hazards, (2) ensure waste is discarded in an environmentally sound manner and (3) facilitate compliance with regulatory requirements for environmental and occupational health and safety. EH&S’s programs cover a broad spectrum of health and safety issues, including but not limited to: asbestos, biosafety, bulk storage tanks, chemical safety, ergonomics, fire safety, formaldehyde, hazard communication, hearing conservation, indoor air quality, laboratory and animal safety, mold prevention and remediation, and waste management.

- Architects Responsibilities
  The A/E design team, to the best of their ability, shall incorporate Best Management Practices for environmental and occupational health and safety into the design of the space. The responsibilities include:

  o Anticipating, identifying and eliminating potential health and safety hazards (e.g., ergonomics; hazardous materials; noise) associated with the proposed use of the space, to the extent reasonably practical.

    Note: Eliminating hazards is not intended to limit creativity, but to ensure the designer minimizes foreseeable risks to the health and safety of those who:

    • Carry out construction work, including demolition.
    • May be affected by the project, including customers and the general public.
    • Occupy the space post-construction.
    • Clean and maintain the space.

  o Specifying the least toxic and flammable/combustible products available for construction and renovation.

  o Where health and safety hazards cannot be eliminated, proposing alternate engineering controls to minimize or eliminate the risk.

  o The A/E design team shall use and comply with the design and safety regulations, guidelines and references listed in References below, as well as other health and safety guidelines received from NYULMC’s Project Manager or division of EH&S. The A/E team shall utilize the latest editions of the references available at the time of the design contract award.

  o If the design does not incorporate Best Management Practices for environmental and occupational health and safety, and comply with the references listed below, the A/E design firm shall obtain approval from NYULMC’s division of EH&S.
The A/E design firm shall not specify any of the following without approval from NYULMC’s division of EH&S:
- Chemicals that are known (IARC group 1) or probable (IARC group 2a) human carcinogens.
- Hazardous substances listed in OSHA 1910 subpart Z.
- Products containing volatile organic compounds (VOCs) in excess of 50 grams/liter.
- Products whose Safety Data Sheet (SDS) rates health, fire and/or reactivity as exceeding “1” on a scale of 0 to 4.
- Products emitting strong odors.

In order to minimize potential delays associated with asbestos abatement, the A/E design team shall submit a set of Design Development Drawings that identify the scope of work. The Design Development drawings shall include 100% complete Demolition Drawings. The Demolition Drawings shall provide sufficient information to initiate an asbestos investigation and pull a demolition permit. The Demolition Drawings submitted shall be the same drawings that are filed with the DOB.

**References**

- **Federal Regulations**
  - US DHHS
  - US DOL OSHA 1910 and 1926
  - US EPA
  - US FDA
  - US NRC
- **State Regulations**
  - NYS DEC
  - NYS DOH
- **Local Regulations**
  - FDNY
  - NYC DEP
  - NYC DOH
- **NYULMC Standards**
  - Safety Policy Manual
  - Radiation Safety Manual
- **Consensus Standards**
  - ACGIH
  - ANSI
  - ASHRAE
  - ASTM
  - BOCA
- **Ergonomics**
  - NFPA
  - NIH Design Requirements Manual
  - NIOSH
- **Noise**
  - NSF
  - TJC
INFORMATION TECHNOLOGY

NYULMC’s MCIT (Medical Center Information Technology) division is responsible for the planning, design, construction, implementation, and operational aspects of all information technology systems, inclusive of both clinical and non-clinical systems. Our mission is to ensure technology systems are deployed in a manner to improve patient outcomes, increase patient safety, and provide state-of-the-art platforms to conduct world-class medical research initiatives. MCIT is responsible for all aspects of IT spaces, including data center, BDF/IDF, and TER’s as well as the following IT systems: networking, cabling, telephony, audio/visual, electronic medical record, nurse call, telemetry, end-user devices, and real-time location services (RTLS).

The standards listed below are for IDF Rooms and other miscellaneous items that are typically found in capital improvement projects. The information is a subset of a much larger technology design standards document (NYULMC Technology Design Standards) and should be used in conjunction with the latest version. This document can be provided by MCIT upon request.

The purpose of NYULMC Technology Design Standards is to provide specific criteria in the design and planning of technology spaces. It is intended to be used by internal and external project management administrators, project architects and engineers, as well as facility managers. This document is to be referenced for specific guidelines, standards and specifications for the design, construction, and commissioning of technology spaces and/or facilities.

- Standards Conformance and Variance

For each project, a review of the criteria must be performed by the design team to verify conformance with this document. The IT design professional must submit to NYULMC MCIT, a checklist which denotes either conformance with, or variance from, the NYULMC Technology Design Standards.

The checklist is a tool for tracking design conformance and variances in design criteria as established in this document. This document lists the minimum design requirement for each technology space classification. It is understood by NYULMC MCIT that each site will have unique circumstances which may necessitate a variance from the criteria listed in this document. Due to the possibility of such variances, the checklist provides a means of documenting and substantiating each variance.

An “exception” is a formal sign-off by the project team and by NYULMC MCIT to utilize a criteria that is less than the standards set forth in this document, for each class of facility.

It is recognized by NYULMC MCIT that there may be projects where the existing base of technology infrastructure will be assumed by NYULMC, if a total re-build is not to occur. These types of projects will require deviation from these standards, and accordingly, a waiver should be sought through MCIT for record purposes.
**IDF’s - Planning Requirements**

An IDF is a technology space on a floor in an NYULMC building from which all horizontal services to users are served. On a floor, (1) one or more IDF Rooms will be provided, depending on the size of the floor, location of the IDF and size of the IDF. An IDF can serve approximately 20,000 sq ft of floor space if it is properly sized and centrally located in the area being served. IDF Rooms will converge IT, AV, Security, BMS, RF, Nurse Call, Telemetry, Public Address, etc., into one room, with the majority of these systems migrating to Ethernet.

- **Location of IDF’s**
  IDF’s (and BDF Rooms providing IDF functionality) should be positioned to be within 250 feet of horizontal distance from the farthest outlet point (using right angle measurements) on non-clinical floors. Final locations of all IDF’s, including the intended primary path(s) of horizontal cabling and the associated 250 foot rule must be presented to and approved by MCIT prior to the architectural layout being approved by the NYULMC project management.

IDF Rooms should stack to maintain a vertical adjacency, as a minimum between major MER or building occupancy transitions.

- **Room Size and Layout**
  Since the IDF size varies for each facility and the area that it will serve, one of three options included in the attached sketches at the end of this section will provide a guideline for room size and layout.

  *The room size is to be ultimately confirmed by the final determination of racks and cabinets, which must be identified for use by the Designer and approved by NYULMC MCIT prior to coordination with the Architect.*

- **Equipment Orientation and Clearances within the Room**
  The attached sketches of IDF Rooms at the end of this section provide example layouts.

- **Unacceptable Occupancies or Uses above IDF’s**
  All use types that involve water supply and removal, such as kitchens, locker room showers, toilets, pantries, etc. shall not be permitted to be located above a technology room.

- **Horizontal Pathways**
  Space must be established by the IT designer to account for horizontal cabling distribution, regardless of whether ladder rack is provided or not, as a means of cabling support. Sufficient clearance must be also included to facilitate future cabling changes. This path shall be presented to MCIT when the IDF locations are being submitted for preliminary approval.
Raceways Penetrating Walls and Floors
Where cabling is required to traverse rated walls and/or floors and is not to be routed in conduit, fire-rated EZ-Path must be employed. Non-rated penetrations shall use the Smoke and Acoustical EZ-Path. EZ-Path shall not be filled in excess of 60% fill. 40% spare capacity shall be provided for future use via unused EZ-Path modules.

IDF’s - Electrical Requirements

UPS Power
Preference is for centralized building UPS to support all technology spaces. If no centralized building UPS, each IDF will need its own dedicated UPS to support the IDF equipment. “N+1” (Branch circuit for “2N” power for technology equipment should include surge protection in the power panels for the non-UPS protected circuits).

For planning purposes, assume 4 kW per rack. One (1) 10KW Liebert UPS at minimum is required per IDF. Liebert GXT3 (10kVa per Network Switch). Battery run time shall be calculated to ensure 15 minutes of UPS run-time.

PDU and Distribution Level Capacity
PDU’s may or may not be used. If they are used, capacity shall be 90% of rating. Capacity shall assume total load on a PDU in the event one-half of a circuit in a 2N pair has failed.

Branch Circuit Redundancy
2N” Utility Power shall be wired on surge suppression panel as required.

Branch Circuit Capacity
Capacity shall be 90% of rating. Capacity shall assume total load on a circuit in the event one-half of a circuit in a 2N pair has failed.

Branch Circuit Receptacles or EPDU
Determined by project and technology.

Branch Circuit Monitoring
Not Required

Power Grounding
Normal equipment grounding – no isolated grounds

Clearance
Front of electrical panels should have at least 36” clearance.

EPS - Emergency Power System (Generator) Power
Lighting, power and HVAC for the entire technology space.
- **EPS Redundancy**
  “N+1”

- **EPS System Fuel Oil Storage Time**
  24 hours

- **EPS Feeders to CRAC’s (Computer Room Air Conditioning)**
  CRAC units need only be provided with a single power feed.

- **Convenience (non-UPS Power) – in ceiling.**
  Not required.

- **Convenience (non-UPS Power) – on walls.**
  Provide a normal “non-EPS and non-UPS” outlet on the perimeter of the room, to be located between every CRAC unit or large MEP equipment. See the layout of a typical IDF Rooms at the end of this section. These outlets shall be yellow in color and shall be labeled on the wall with a phenolic nameplate denoting “tool/convenience outlets on normal power.”

- **Lighting**
  45 to 55 fc (450 to 550 lux)

- **Emergency Lighting**
  100%

- **Telecommunication Grounding**
  Telecommunications grounding bar mounted at 7’-6” connected to building steel – specifications by IT. Put this on Electrical plans for electrician to install. The IT contractor shall take care of grounding all equipment in the room to this grounding bar.
- **IDF’s – Mechanical Requirements**
  
  o **Temperature Summer and Winter Conditions**
    
    72°F ±2°F (With temperature at inlet to equipment not to exceed 77°F). Cabinet/rack temperature rise not to exceed 25°F. Relative Humidity shall be 40% – 50%.
  
  o **Cooling Distribution Equipment Capacity**
    
    Each cooling plant distribution device (CRAC, air handler, etc.) shall be selected to continuously support the design load at a set point of 2ºF below the base operating set point criteria defined for the project. Cooling system redundancy shall be “N+1”
  
  o **CRAC Unit Placement**
    
    Units may be located within the room, however, they may not be positioned in the ceiling, nor in a position above technology equipment. In general, the preference is for floor mounted equipment, or for wall mounted, where floor space is limited and where the wall location will not affect the operation and access to technology equipment.
  
  o **Piping Routing**
    
    No piping shall be provided in the technology space unless it is required for equipment within the room. All piping that is in the technology room must not be routed over technology equipment. All valves and metering associated with piping must have a drip pan located underneath with water detection device. Piping shall be black steel schedule 40 welded and shall be single pipe redundancy.
  
  o **Cooling Air Flow Arrangement**
    
    Ducted or direct from CRAC unit.
  
  o **Condensate Removal**
    
    All condensate removal systems in technology spaces shall be pumped systems. The pumps shall include an auxiliary high level float alarm for connection to a BMS system and a check valve for automatic isolation. All condensate shall be pumped to a drain or other indirect collection point outside of the technology space.
  
  o **General Piping**
    
    Not permitted within room, unless to serve the room. Should not be routed above technology equipment, and where possible, drip plans should be provided.
  
  o **Piping Routing**
    
    No piping shall be provided in the technology space unless it is required for equipment within the room. All piping that is in the technology room must not be routed over technology equipment.
IDF’s – Architectural Requirements

- Ceiling Construction
  No hung ceiling – encapsulating fireproofing. All areas above 8 ft. 0 in. to be painted black. No penetrations or sky lights over IT areas.

- Floor Treatment
  Provide Armstrong Static Dissipative Floor Tile (SDT) installed as a system using SDT tile, S-202 SDT Adhesive, copper grounding strips packaged with the adhesive, and S-392 SDT Polish.

  All floors above technology spaces shall be treated in the area of the technology room to provide a waterproof layer in order to prevent the migration of water to the technology room below.

- Fire Rating
  As required by Code. (Perimeter Wall -2 hour minimum. Interior Walls – 1 hour minimum.)

- Windows
  Fenestration (i.e., windows) at exterior walls is not permissible for all critical spaces.

- Finishes
  Acrylic latex paint over vapor barrier primer/sealer.

- Materials
  Insulated stud wall with gypsum board finish. Provide fire-retardant plywood painted with two (2) coats of fire-retardant paint (white in color) on the major wall space.

- Pipes, Duct, Ladder Rack, Cable Tray & Conduit Penetrations
  Fire-sealed at penetrations through rated walls.

- Doors
  36 inches. Doors are to swing out and not have a threshold. Minimum 3 ft. 0 in. width x 7 ft. 0 in. height. Provide Salto card access with electrified mortise lock with transfer hinge.
NYULMC Design Guidelines

- **IDF’s – Miscellaneous Requirements**

  Connectivity to Central Campus BMS system is required. CRAC units within the IDF shall be provided with local water leakage containment and detection. Common alarm points include CRAC units, UPS system, Lead/Lag Control for all pumping equipment, leak detection grid.

  IDF’s shall be pre-action or wet sprinkler. If pre-action is used, heat detection shall activate the fire protection system.

  SALTO card reader required on door. Off Campus locations require remote access through Salto System.

  Provide a wall phone inside the room, adjacent to the door.

- **Miscellaneous IT design requirements**

  Cable trays are to be provided by the electrical contractor. They are to be designed by IT designer and shown on the Electrical drawings. It is critical the cable tray path is coordinated with the MEP systems to assure access to conduit and other MEP systems.

  Coordinate pathway for conduits to building main IT room (BDF). Architects should include some allowance for demolition, temporary protection, patching, firestopping, etc. for conduit runs in the architectural plans.

  Camera locations need to be coordinated with Security and IT PM.

  Card readers are to be automatically deactivated when the Fire Alarm is activated.

  Provide electric locks for single doors and overhead electric strikes for glass doors. No mag-locks are allowed.
SKETCHES

IDF – 3 Rack Room

See Sketch: SKT-IDF3R-3.25.10

A 3-rack IDF shall be utilized when smaller, non-clinical, areas need to be served and convergence of voice and data occurs only with limited Security and no AV needs within the occupied space.

The following systems are represented as the limits of the typical 3 rack IDF.

Voice Networks
- fixed and portable telephones
- fax machines

Data Networks
- Desktop and portable computers (WOWS)
- printers, copiers, and other peripherals

Security Networks
- surveillance, access control, intrusion detection
- Public announcement system (PA)
- Electronic signage
- Fire detection/ alarm/ emergency lighting
- **IDF – 4 Rack Room:**

  See Sketch SKT-IDF4R-3.25.10

  A 4-rack IDF shall be utilized when smaller clinical floors, or mid-size, non-clinical, areas need to be served and convergence of voice and data with limited AV, Security and other specialty low-voltage system needs in the occupied space.

  The following systems are represented as the limits of the typical 4 rack IDF.

  Voice Networks
  - fixed and portable telephones
  - fax machines

  Data Networks
  - Desktop and portable computers (WOWS)
  - printers, copiers, and other peripherals

  Security Networks
  - surveillance, access control, intrusion detection
  - Public announcement system (PA)
  - Electronic signage
  - Fire detection/ alarm/ emergency lighting

  Limited AV

  Special Purpose Networks
IDF – 5 Rack Room

See Sketch  SKT-IDF5R-3.25.10

A 5-rack IDF shall be utilized when clinical areas where convergence of voice, data, AV, Security, RF, BMS, and other specialty low-voltage systems.

The following systems are represented as the limits of the typical 5 rack IDF.

Voice Networks
- fixed and portable telephones
- fax machines

Data Networks
- Desktop and portable computers (COWS)
- printers, copiers, and other peripherals

Security Networks
- surveillance, access control, intrusion detection
- Public announcement system (PA)
- Electronic signage
- Fire detection/ alarm/ emergency lighting

Audio Visual
- Background music
- Satellite or cable television
- Patient entertainment
- Remote classroom

Special Purpose Networks
- Radiology/imaging
- Real Time Locator System (RTLS)
- Nurse Call
- Patient Monitoring

BMS
RF Antenna Systems
- **Telecommunications Grounding Bus (TGB)**

A telecommunications grounding bus bar (TGB) should be provided in all telecommunications spaces. The TGB is the grounding connection point for telecommunications systems and equipment. The TGB should be a pre-drilled copper bus bar provided with holes for use with standard-sized lugs. It should have minimum dimensions of 0.25 inch thick by 2 inches wide, and can be any appropriate length. The TGB may be connected to building structural steel or an already established telecommunications ground.

- **Bonding conductors**

  Bonding conductors connect the telecommunications system components to the TGB.

  Conductors should consist of #6 green insulated stranded copper grounding cables.

  Each end should be fitted with two-hole lugs with irreversible compression-type connections.

  Nuts and bolts of appropriate size should be used to connect the conductor to the TGB and the equipment. Sheet metal screws are not acceptable. Each bolt must be secured with a star washer behind each nut. Each 2-hole lug must be secured with 2 bolts.

  Before attaching a lug to equipment, paint should be removed with an appropriate tool behind where the lug will press against the equipment.

  Connect lugs where they are clearly visible for purposes of inspection.

  Run a separate conductor for each cabinet; daisy-chaining is not acceptable.

  Run a separate conductor for overhead ladder rack; individual pieces of ladder rack can be daisy chained.

  Lugs should not overlap (i.e. share bolts/holes); create separate connections for each 2-hole lug.
- Power Flow Diagram
SECURITY

Given its location in the heart of New York City, NYULMC pays special attention to security in its facilities and operations. Since the security needs vary from building to building, and since the range of existing conditions and occupancy types is similarly large, the principal means to achieving acceptable security design is the direct and timely involvement of NYULMC Security Department representatives at key points during the design and construction process. The following are required milestones for meetings with NYULMC to determine security needs, develop scope and coordinate final recommendations:

- **Schematic Design**

  During Schematic Design a meeting with the Design team, Security Department, RED+F’s PM, User group leadership and any additional stakeholder of the new space. The purpose of the meeting is to review security needs as it pertains to the proposed layout. The RED+F PM will coordinate comments from the design team and schedule follow-up meetings as necessary with the Security Department and its approved Security vendor.

- **Design Development**

  During the Design Development Phase, the Architect shall provide (through the RED+F PM) Floor plans, Furniture plans, Reflected Ceiling Plans and Door Hardware information to the Security PM and Security vendor. The Security PM and Security vendor will review and propose a security system design that incorporates User group requests, Stakeholder requests, NYULMC security standards and industry security standards.

- **Construction Documents**

  During the Construction Document phase a meeting with the Design team, Security Department and RED+F’s PM will be held in order to review the proposed security solutions. The Security vendor will provide the Design team with equipment cut sheets, cabling and rough in requirements. The Design team will incorporate this information into the Construction documents. A final meeting will be held with the Design team, Security Department, RED+F’s PM, User group leadership and any additional stakeholder of the new space to present the final coordinated security design. The decision for systems cabling responsibility will also be determined at this time.

- **“As-Built” Documentation**

  The Architect shall provide the Security vendor with electronic copies of the finalized “As-Built” in electronic forms acceptable for import into the NYULMC Security software. The Security vendor and or the Systems Technology manager will provide information on acceptable formats that are compatible with the security software being used at that point.
**General notes about security design**

- Any code issues, such as fire and life safety, that affect security operations must be addressed by the Architect.

- Security access control and alarm systems on the superblock must be compatible and integrated with the existing system at the NYULMC Security Operations Center. Systems off the superblock will be evaluated on a case by case basis as to their need to be tied into the existing system or if they can be stand-alone and tied into a central station for monitoring and subsequent response.

- Cameras are required at all lobbies, laundry rooms, elevators, stairs and entrance and egress doors, as well as any other areas as recommended by NYU Langone Medical Center.

- All window screens should be lockable.

- Design team should alert NYU Langone Medical Center to security conditions that are not immediately apparent but would have operational impact, such as emergency egress doors that are on hold-opens.

- Areas of high security risk generally entail where cash, narcotics, or retail operations are planned, as well as areas housing behavioral health (i.e. Psychiatry), Infants/Pediatric areas, Emergency department, TBI (Traumatic Brain Injury) or ICU patients. These areas require greater access control, panic alarms and camera coverage. In some cases, specialized systems, such as Infant/Patient tracking & monitoring systems need to be incorporated into the design.

- IDF closets require SALTO security systems. Access will be controlled by the MCIT department.

**Some General Security Design Guidelines**

NYPD has published security guidelines entitled *Engineering Security, Protective Design for High Risk Buildings*. Where applicable these guidelines are to be referenced & utilized as necessary.

1. Exterior
   A. Lighting design must carefully consider appropriate light levels without compromising security.
   B. Employ “passive” security design strategies such as avoiding dead-end spaces and blind corners, and areas that are isolated from foot traffic or out of sight.
   C. Consider relationship of ground floor spaces to the exterior for sight lines and access to open windows and doors.
NYULMC Design Guidelines

D. Where security officer posts are required, consider issues of congestion, sight lines, ADA compliance and the physical comfort (furniture and HVAC) of the personnel.

2. Interior
   A. Common spaces should not be isolated from entrances or stairs.
   B. Consider location of permanent staff in multiple locations within spaces to limit possibility of unoccupied spaces that cannot be monitored.
   C. Consider use of interior glazing and other strategies to improve visibility and accessibility.
   D. If a security officer post is included in the design, consider sight lines from the seated position.
DOOR HARDWARE

Instructions to Architects for preparing a hardware specification.

A. It shall be the Architect’s responsibility to follow these NYULMC door hardware guidelines with no exceptions on all projects located on the main campus. For projects that are located off-campus, the architect shall follow these guidelines in conjunction with the building landlord’s requirements (if any).

B. It shall be the Architect’s responsibility to coordinate all work with the NYULMC Security, Fire Alarm, and Infant Abduction System (if applicable) Vendors and associated NYULMC personnel. Where power and control is required to electrical hardware that is not being furnished by the Security Vendor, the Architect and or the Electrical Engineer shall provide wiring diagrams for all hardware specified in the Finish Hardware Section of the Specification. It shall also be the Architect’s responsibility to provide a sequence of operations for all automatic doors for all scenarios (ie: daytime, nighttime, upon activation of fire alarm, etc).

C. Where automatic operators are specified, it shall be the Architects responsibility to coordinate all power and control to the automatic operators and accessories (proximity readers, paddles, intercom systems, etc), including logic for tie-in to fire alarm and infant abduction systems. The Architect and/or the Electrical Engineer shall provide wiring diagrams that show all wiring and power requirements to the automatic operator and accessories. The Architect shall include in the specifications that the automatic operator shall be furnished and installed by an authorized Stanley distributor. The same automatic operator provider & installer shall also furnish and install all electronic locking hardware, as may be required, for all automatic operated doors.

D. The Architect shall include in the specification a paragraph stating that the GC is responsible for setting up a pre-installation meeting between the hardware installer, the automatic door vendor and the security vendor to coordinate installation of all trades.

E. The standard specifications listed below are a guideline only. It shall be the Architects responsibility to conform to all appropriate building code requirements.
CONTENTS

1.1 Hanging Doors
   A. Full Mortise Hinges
   B. Swing Clear Hinges
   C. Lead Lined Pivots
   D. Center Pivots
   E. Continuous Hinges
   F. Full Mortise Hinges

1.2 Locking and Latching Devices
   A. Mortise Locks and Latches
   B. Cylinders & Keying
   C. Cylindrical Locks at Existing Doors
   D. Combination Locks
   E. Hospital Push Pull Latches
   F. Exit Devices
   G. Electric Locks

1.3 Door Closing Devices
   A. Surface Mounted Door Closers
   B. Floor Closers
   C. Coordinating Door Closers

1.4 Door Stops
   A. Wall and Floor Stops
   B. Overhead Stops

1.5 Protection Plates
   A. Kick Plates
   B. Mop Plates
   C. Armour Plates

1.6 Flush Bolts
   A. Manual Flush Bolts
   B. Automatic Flush Bolts

1.7 Automatic Operators

1.8 Card Access Doors
   A. Mortise Locks and Latches
   B. Cylinders & Keying
   C. Cylindrical Locks at Existing Doors

2.1 Typical Hardware Sets

2.2 Typical Electrical Hardware Sets
1.1 HANGING DEVICES

A. FULL MORTISE HINGES:

1. Unless otherwise noted, all doors shall be hung on full mortise five knuckle ball bearing type, template hinges, with non-rising loose pins. All out-swing doors shall be furnished with non-removable pins (NRP).

   a. All hinges for 1-3/4" thick doors shall be 4-1/2" wide in the open position. For other thickness doors, hinges shall be of a width to permit unobstructed swing of the doors.

   b. Size and weight of hinges shall conform to the following:

      Up to 36" -----------4-1/2" heavy weight
      Over 36" to 46" ------5" heavy weight
      Over 46" -----------Zero Continuous Hinges 910DBAA

   c. Quantity of hinges shall be provided to conform to the following:

      Doors up to 60" in heights ------------2 hinges
      Doors 60" to 90" in height -----------3 hinges
      Doors 90" and over -------------------1 hinge every 30" in height

   d. Approved Manufacturers: No other manufacturer’s products are approved.

      PBB: Standard Duty BB81/51 series and Heavy Duty 4B81/51 series.


      McKinney: Standard Duty TA2714/2713 series and Heavy Duty T4A3786/T4A3386.

B. SWING CLEAR HINGES:

1. Unless otherwise noted, all patient room doors and doors that will receive heavy cart traffic shall be furnished with heavy weight full mortise five knuckle ball bearing type, template swing clear hinges.

   a. Size and weight of hinges shall conform to the following:

      All Doors -----------5" heavy weight

   b. Quantity of hinges shall be provided to conform to the following:

      Doors up to 60" in heights -----------2 hinges
NYULMC Design Guidelines

Doors 60” to 90” in height --------------3 hinges
Doors 90” and over ----------------------1 hinge every 30” in height

c. Approved Manufacturers: No other manufacturer’s products are approved.

PBB: Heavy Duty SC4B81-5”
Stanley: Heavy Duty FBB268-5”
McKinney: Heavy Duty T4B3795-5”

C. LEAD LINED PIVOTS:

1. Unless otherwise noted all lead lined doors shall be furnished with lead lined top and bottom pivots including lead lined intermediate pivots.

a. Quantity of intermediate pivots shall be provided to conform to the following:

Doors up to 84” in heights ----1 intermediate pivot
Doors 84” and over -----------1 intermediate pivot every 30” in height

b. Approved Manufacturers: NO SUBSTITUTIONS.
   Rixson ML 19-26D.

D. CENTER HUNG PIVOTS:

1. Unless otherwise noted all patient toilet doors that swing into the toilet and requires emergency hardware shall be furnished with a top and bottom center pivot. The bottom pivot leg shall be mortised into the frame. Where marble saddles are being installed, the bottom pivot shall be installed on top of the marble saddle.

a. Approved Manufacturers: NO SUBSTITUTIONS.
   Rixson: 127 ¾ x US26D.

E. CONTINUOUS HINGES:

1. Unless otherwise noted all continuous hinges shall be heavy gauge aluminum alloy with self lubricating bearings.

a. Approved Manufacturers: NO SUBSTITUTIONS.
   Roton-780 series
1.2 LATCHING AND LOCKING DEVICES

A. MORTISE LOCKS AND LATCHES:

1. Unless otherwise noted, all latchsets and locksets shall be heavy duty mortise type conforming to ANSI A156.13 Grade 1. Furnish a wrought steel box strike and a curved lip strike with each unit. All locksets are to be ordered less cylinder.

   a. Approved Manufacturers: NO SUBSTITUTIONS.
      Sargent: 8200 series x LL lever and rose x US26D.

   b. Lock Functions are as follows:

      Office Function: Sargent 8205 x LL x US26D.

      Passage Function: Sargent 8215 x LL x US26D.

      Privacy Function: Sargent 49-8265 x LL x US26D. (Specify at all single gang public toilets, staff toilets and all patient toilets).

      Privacy Function: Sargent 8265 x LL x US26D. (Specify at all single gang patient toilets within patient bedrooms).

      Classroom Function: Sargent 8237 x LL x US26D.

      Storeroom Lock: Sargent 8204 x LL x US26D.

B. CYLINDERS AND KEYING:

1. Unless otherwise noted, all cylinders shall be keyed to the existing ASSA large format interchangeable core keying system. The hardware supplier shall furnish all cylinders and temporary brass construction cores. The NYULMC Lock Shop will furnish and install all permanent cores. The hardware supplier shall furnish 5 control keys and 5 construction keys to be used during construction. It shall be the GC/Hardware supplier’s responsibility to return the temporary cores to the manufacturer.

   ***Contractor shall provide and install temporary cores as work requires; NYULMC locksmith shall provide all permanent ASSA cylinders upon completion of work. ***

   a. Approved Manufacturers: NO SUBSTITUTIONS.
      ASSA: Keyed to the existing NYULMC key system.
C. CYLINDRICAL LOCKS AT EXISTING DOORS:

1. Unless otherwise noted, where new locksets/passage sets are to be installed in existing doors that have a cylindrical lock preparation. Furnish a Yale AU5400 series x US26D. Lock function is to match existing lock function.

   a. Approved Manufacturers: NO SUBSTITUTIONS.
      Yale: AU5400 x1210-less core series x US26D.

D. COMBINATION LOCKS:

1. Unless otherwise noted, furnish combination locks at all soiled and clean utility rooms, staff locker and staff work rooms, on call rooms and other spaces as requested by the user of the space. Key as directed by the NYULMC Lock Shop.

   a. Approved Manufacturers: NO SUBSTITUTIONS.
      ALARM LOCK: DL2700-T2 x Schlage C Keyway x US26D.

E. HOSPITAL PUSH PULL LATCHES:

1. Unless otherwise noted, furnish hospital push pull latch at all patient bedroom doors and other spaces as requested by the user of the space. Mount both paddles down (except for OR’s). Backset to be 2 ¾”.

   a. Approved Manufacturers: NO SUBSTITUTIONS.
      Glynn Johnson: HL6 x US26D.

F. EXIT DEVICES:

1. Unless otherwise noted, all exit devices to be Von Duprin 98 series, rim, mortise or surface vertical rod. Concealed vertical rod devices will not be permitted.

2. Where electrified exit devices are required for interface with security or automatic operators, furnish Von Duprin EL (electric latch retraction), Quiet Electrified Latch (QEL) and RX (request to exit) features. The use of a Von Duprin EPT10 (power transfer) and a PS873 series (power supply) is required.

   a. Approved Manufacturers: NO SUBSTITUTIONS.
      Von Duprin: 98 series x US26D.
G. ELECTRIC LOCKS:

1. Unless otherwise noted, electric locks shall be specified at all card access doors. Electric strikes may be permitted in certain applications. Electric locks shall be mortise type complying with 1.2A as listed above. Electric locks shall be specified to have a built in request to exit switch.

2. The Architect shall include in their documents all wiring, power and control required to the electric lock and interface to other electrical equipment.

3. The Architect shall specify a fail secure lock typically (with a manual key over-ride). When a door is required to unlock in a fire condition or loss of power, specify a fail safe electric lock.

   a. Approved Manufacturers: NO SUBSTITUTIONS.
      Sargent: 8270RX (Fail Safe) x LL x 24VDC x US26D.
      Sargent: 8271RX (Fail Secure) x LL x 24VDC x US26D.

1.3 DOOR CLOSING DEVICES:

A. SURFACE MOUNTED DOOR CLOSERS:

1. Unless otherwise noted, all surface mounted door closers shall meet ANSI A156.4 Grade 1 requirements. All closers shall be barrier free with a delayed action feature. Furnish all required brackets, filler plates and any others items required to insure proper installation and operation.

2. All surface mounted door closers shall be installed so that closer bodies are positioned on room-side of doors to and from corridors, (i.e., in-swing doors shall be regular arm). Out-swing doors shall have a parallel arm. Regular arm shall be used in connecting doors between rooms.

   a. Approved Manufacturers: NO SUBSTITUTIONS.
      LCN 4040XP-RW PA-689 and LCN 4040XP-HW PA 689 HOLD OPEN. LIFE SAFETY CLOSER SHALL BE LCN 4040SE-24V.

   b. Surface Mounted Door Closers shall be specified as follows:

      Regular Arm Mount: used on doors that swing into a space. The door closer will mount on the pull side of the door, 4040XCP.

      Parallel Arm Mount: used on doors that swing out of a space. The door closer will mount on the push side of the door, 4040XP.
Regular Arm Mount with built in stop: used on doors that swing into a space, where an auxiliary stop cannot be used. The door closer will mount on the pull side of the door, 4040XP.

Parallel Arm Mount with built in stop: used on doors that swing out of a space, where an auxiliary stop cannot be used. The door closer will mount on the push side of the door, 4040 XP.

B. FLOOR CLOSERS:

1. Floor closers shall only be used where it is virtually impossible for a surface mounted closer to be used. Approval from NYULMC must be received before specifying floor closers. Floor closers may be used without approval on all glass doors.

   a. Approved Manufacturers: NO SUBSTITUTIONS.
      RIXSON 28 AHO/NHO 26D

C. COORDINATING DOOR CLOSERS:

1. Furnish coordinating door closers at all doors where a standard coordinator would be used with automatic flush bolts or constant latching flush bolts. Standard coordinators will not be permitted.

   a. Approved Manufacturers: NO SUBSTITUTIONS.
      GLYNN JOHNSON FB 31P-26D

1.4 DOOR STOPs:

A. WALL AND FLOOR STOPs:

1. Unless otherwise noted, all door stops shall be wall mounted type, Trimco 1270WV series. Furnish appropriate concealed fasteners as required. Where wall stops cannot be installed, furnish Trimco W1211 floor stops.

   a. Approved Manufacturers: No other manufacturer’s products are approved.
      Trimco, Rockwood and Ives.

B. OVERHEAD STOPs:

1. Unless otherwise noted, furnish overhead stops at doors where wall or floor stops will not work. Furnish a Rixson 2 series x US32D for all hollow metal doors and Rixson 1 series for all heavy duty doors.
1.5 PROTECTION PLATES:

A. KICK PLATES:

1. Unless otherwise noted, furnish kick plates on all doors, with the exception of closet doors within rooms. Kick plates shall be 16” high x 2” less than door width x .050 thick x beveled three sides.

   a. Approved Manufacturers: No other manufacturer’s products are approved. Rixson, and Glynn Johnson.

B. MOP PLATES:

1. Unless otherwise noted, furnish mop plates on all doors, with the exception of closet doors within rooms. Mop plates shall be 6” high x 2” less than door width x .050 thick x beveled three sides.

   a. Approved Manufacturers: No other manufacturer’s products are approved. Trimco, Rockwood and Ives.

C. ARMOUR PLATES:

1. Unless otherwise noted, furnish armour plates on all doors that are subject to heavy abuse. Armour plates shall be 34” high x 2” less than door width x .050 thick x beveled three sides. Armour plates furnished on fire rated doors must have a UL listing.

   a. Approved Manufacturers: No other manufacturer’s products are approved. Trimco, Rockwood and Ives.

1.6 FLUSH BOLTS:

A. MANUAL FLUSH BOLTS:

1. Unless otherwise noted, furnish manual flush bolts to secure the inactive leaf on pairs of doors leading to spaces that are considered non-occupied spaces (Mechanical Rooms, Electrical Rooms, Closets, and Boiler Rooms, etc.). Furnish Trimco W3917 for all metal doors. Top bolts shall be furnished with proper extensions to allow for easy operation. Furnish
Trimco W3913 for all wood doors. A dustproof strike by IVES must be used.

a. Approved Manufacturers: No other manufacturer’s products are approved.
   Trimco, Rockwood and Ives.

B. AUTOMATIC FLUSH BOLTS:

1. Automatic Flush Bolts shall be installed on all other pairs of doors where manual flush bolts cannot be installed per appropriate building codes. Furnish Trimco 3810 x 3810 for all metal doors and IVES for all wood or composite doors. A dustproof strike IVES must be used.

a. Approved Manufacturers: No other manufacturer’s products are approved.
   Trimco, Rockwood and Ives.

1.7 AUTOMATIC OPERATORS:

1. Unless otherwise noted, all Automatic Operators shall be Stanley Magic Force surface mounted. Specify all associated products required to meet ANSI A156.10.

2. The Architect shall specify all automatic operators be furnished and installed by a Stanley authorized installer. The same automatic operator provider and installer shall also furnish and install all electronic locking hardware, as may be required, for all automatic operated doors.

3. The Architect shall include in their documents all wiring and power and control required to the automatic operator and accessories.

a. Approved Manufacturers: No other manufacturer’s products are approved.
   Stanley; Magic Force x Alum.

1.8 CARD ACCESS DOORS:

1. The Architect shall coordinate all security and electrical requirements with the security consultant and the electrical engineer. Where card readers are furnished, an electric lock with built in request to exit switch shall be installed (see 1.2.H above). The Architect shall indicate which doors are required to have door and frame preparation for door contacts.
2.1 TYPICAL HARDWARE SETS

1. The following is a general listing of hardware requirements and is not intended for use as a final hardware specification. It shall be the responsibility of the Architect to specify any items of hardware required by established standards or practices, or to meet state and local codes or proper door operation. Coordinate final door hardware requirements with user groups.

This hardware set is used for doors to suite offices that are non fire rated.
Each to have:

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hinges</td>
<td>(see description)</td>
<td>x US26D</td>
</tr>
<tr>
<td>Office Lock</td>
<td>Sargent 8205 x LL x LC x US26D</td>
<td></td>
</tr>
<tr>
<td>Cylinder</td>
<td>Assa (see description)</td>
<td>x US26D</td>
</tr>
<tr>
<td>Temporary Core</td>
<td>Assa (see description)</td>
<td>x US26D</td>
</tr>
<tr>
<td>Permanent Core</td>
<td>(by NYULMC Lock Shop)</td>
<td></td>
</tr>
<tr>
<td>Stop</td>
<td>(see description)</td>
<td>x US32D</td>
</tr>
<tr>
<td>Silencers</td>
<td>Trimco 1229A</td>
<td></td>
</tr>
</tbody>
</table>

This hardware set is used for doors to offices that are fire rated.
Each to have:

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hinges</td>
<td>(see description)</td>
<td>x US26D</td>
</tr>
<tr>
<td>Office Lock</td>
<td>Sargent 8205 x LL x LC x US26D</td>
<td></td>
</tr>
<tr>
<td>Cylinder</td>
<td>Assa (see description)</td>
<td>x US26D</td>
</tr>
<tr>
<td>Temporary Core</td>
<td>Assa (see description)</td>
<td>x US26D</td>
</tr>
<tr>
<td>Permanent Core</td>
<td>(by NYULMC Lock Shop)</td>
<td></td>
</tr>
<tr>
<td>Closer</td>
<td>LCN</td>
<td></td>
</tr>
<tr>
<td>Stop</td>
<td>(see description)</td>
<td>x US32D</td>
</tr>
<tr>
<td>Kick Plate</td>
<td>(see description)</td>
<td>x US32D</td>
</tr>
<tr>
<td>Silencers</td>
<td>Trimco 1229A</td>
<td></td>
</tr>
</tbody>
</table>

This hardware set is used for doors to public or staff toilets that are non fire rated and fire rated.
Each to have:

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hinges</td>
<td>(see description)</td>
<td>x US26D</td>
</tr>
<tr>
<td>Privacy Set</td>
<td>Sargent 49-8265 x LL x US26D</td>
<td></td>
</tr>
<tr>
<td>Closer</td>
<td>LCN</td>
<td></td>
</tr>
<tr>
<td>Stop</td>
<td>(see description)</td>
<td>x US32D</td>
</tr>
<tr>
<td>Kick Plate</td>
<td>(see description)</td>
<td>x US32D</td>
</tr>
<tr>
<td>Silencers</td>
<td>Trimco 1229A</td>
<td></td>
</tr>
</tbody>
</table>
This hardware set is used for doors to patient toilets within a patient room that swing out of the toilet.
Each to have:

- **Hinges** (see description) x US26D
- **Spring Hinge** (to match) x US26D
- **Privacy Set** Sargent 8265 x LL x US26D
- **Stop** (see description) x US32D
- **Kick Plate** (see description) x US32D
- **Mop Plate** (see description) x US32D
- **Silencers** Trimco 1229A

This hardware set is used for doors to patient toilets within a patient room that swing into the toilet.
Each to have:

- **set Pivots** Rixson 127 ¾ x US26D
- **Privacy Set** Sargent 8265 x LL x US26D
- **Emergency Release** Stanley ES-1 x US26D
- **Double Lip Strike** Stanley DLS series x US26D
- **Stop** (see description) x US32D
- **Kick Plates** (see description) x US32D
- **set Sight Seals** Zero 335A @ wood doors
- **set Sight Seals** Zero 137P @ metal doors

Note:
- Sight seals to be installed at pivot side and lock side of door only.
- Where marble saddles are used, mount pivot set on top of the marble saddle.

This hardware set is used for doors to conference rooms, consulting rooms, and lounges that are non fire rated.
Each to have:

- **Hinges** (see description) x US26D
- **Classroom Lock** Sargent 8237 x LL x LC x US26D
- **Cylinder** Assa (see description) x US26D
- **Temporary Core** Assa (see description) x US26D
- **Permanent Core** (by NYULMC Lock Shop)
- **Stop** (see description) x US32D
- **Silencers** Trimco 1229A
This hardware set is used for doors to conference rooms, consulting rooms, and lounges that are fire rated.
Each to have:

- Hinges (see description) x US26D
- Classroom Lock: Sargent 8237 x LL x LC x US26D
- Cylinder: Assa (see description) x US26D
- Temporary Core: Assa (see description) x US26D
- Permanent Core: (by NYULMC Lock Shop)
- Closer: LCN
- Stop: (see description) x US32D
- Silencers: Trimco 1229A

This hardware set is used for doors to utility type rooms that are non fire rated and fire rated and do not require access control.
Each to have:

- Hinges (see description) x US26D
- Storeroom Lock: Sargent 8204 x LL x LC x US26D
- Cylinder: Assa (see description) x US26D
- Temporary Core: Assa (see description) x US26D
- Permanent Core: (by NYULMC Lock Shop)
- Closer: LCN
- Stop: (see description) x US32D
- Kick Plate: (see description) x US32D
- Silencers: Trimco 1229A

This hardware set is used for double doors to utility type rooms that are non fire rated and fire rated and do not require access control.
Each to have:

- Hinges (see description) x US26D
- Flush Bolts: (see description) x US26D
- Storeroom Lock: Sargent 8204 x LL x LC x US26D
- Cylinder: Assa (see description) x US26D
- Temporary Core: Assa (see description) x US26D
- Permanent Core: (by NYULMC Lock Shop)
- Closer: LCN
- Stop: (see description) x US32D
- Kick Plate: (see description) x US32D
- Silencers: Trimco 1229A
This hardware set is used for doors to **closets** with rooms that are non fire rated.

Each to have:

- Hinges (see description) x US26D
- 1 Storeroom Lock Sargent 8204 x LL x LC x US26D
- 1 Cylinder Assa (see description) x US26D
- 1 Temporary Core Assa (see description) x US26D
- 1 Permanent Core (by NYULMC Lock Shop)
- 1 Stop (see description) x US32D
- 3 Silencers Trimco 1229A

This hardware set is used for doors to **patient rooms**.

Each to have:

- Swing Clear Hinges (see description) x US26D
- 1 Hospital Push Pull Latch GJ (see description) x US26D
- 1 Friction OH Stop Rixson 1 or 9 series x US32D
- 1 Armour Plate (see description) x US32D
- 1 Mop Plate (see description) x US32D
- 3 Silencers Trimco 1229A

This hardware set is used for doors to **patient isolation rooms**.

Each to have:

- Swing Clear Hinges (see description) x US26D
- 1 Hospital Push Pull Latch GJ (see description) x US26D
- 1 Closer LCN
- 1 Stop (see description) x US32D
- 1 Armour Plate (see description) x US32D
- 1 Mop Plate (see description) x US32D
- 3 Silencers Trimco 1229A

This hardware set is used for all **staff lounges, medication rooms, on-call rooms, soiled and clean linen rooms, break rooms and any other space that is user required**.

Each to have:

- Hinges (see description) x US26D
- 1 Combination Lock (see description) x US26D
- 1 Cylinder Schlage (see description) x US26D
- 1 Closer LCN
- 1 Stop (see description) x US32D
- 1 Kick Plate (see description) x US32D
- 3 Silencers Trimco 1229A
This hardware set is used for all lead lined doors
Each to have:

1   set Pivots          Top Pivot Rixson  L-180 /  
     |                          Center Pivot if needed ML-19 /  
     |                          Top and Bottom Rixson Pivot set L-1471

1   Classroom Lock       Sargent 8237 x LL x LC x US26D
1   Cylinder             Assa (see description) x US26D
1   Temporary Core       Assa (see description) x US26D
1   Permanent Core       (by NYULMC Lock Shop)
1   Closer               RIXON
1   Stop                 (see description) x US32D
1   Kick Plate           (see description) x US32D
3   Silencers            Trimco 1229A

Note:
- If doors are non-fire rated, furnish hold open closers.
2.2 TYPICAL ELECTRICAL HARDWARE SETS

1. The following is a general listing of electrical hardware sets. Coordinate with electric engineer, security vendor and fire alarm vendor.

This hardware set is used for all single doors with automatic operators no latching (see wiring diagram E1)
Each to have:

1  Continuous Hinge      Zero 910DBAA x CE4 (CE4 is for Presence Sensor)
1  set Push Pulls        Trimco 1894-4B x US32D
1  Automatic Operator    Stanley Magic Force x Alum
2  Presence Sensors      BEA Super Scan
2  Wall Actuators        WIKK x 4 x 4-2 x US32D
1  Door Stop             Trimco (as required) x US26D
1  Armour Plate          Rockwood (see description) x US32D
1  Mop Plate             Trimco (as required) x US32D
3  Silencers             Trimco 1229A

Operation: Wall actuator on either side signals automatic operator to open door.
Free egress at all times.

OPERATION: Push Plate on either side of the door signals automatic operator to open door. Safety sensors prevent door from opening when someone is standing in front of door.
This hardware set is used for all double doors with automatic operators no latching (see wiring diagram E2).

Each to have:

2 Continuous Hinge Zero 910DBAA x CE4
   (CE4 is for Presence Sensor)
1 set Push Pulls Trimco 1894-4B x US32D
1 Automatic Operator Stanley Magic Force x Alum
2 Presence Sensors BEA Super Scan
2 Wall Actuators WIKK x 4 x 4-2 x US32D
2 Door Stop Trimco (see description) x US26D
2 Armour Plate Trimco (see description) x US32D
2 Mop Plate Trimco (as required) x US32D
2 Silencers Trimco 1229A

Operation: Wall actuator on either side signals automatic operator to open door. Free egress at all times.
This hardware set is used for all single doors with card access (see wiring diagram E3)
Each to have:

- **Hinges**: PBB (as required) x US26D
- 1 **Electric Hinge**: PBB 4 wire (to match) x US26D
- 1 **Electric Lock**: Sargent RX8271 x LL x US32D
- 1 **Door Closer**: LCN
- 1 **Door Stop**: Trimco (see description) x US26D
- 1 **Kick Plate**: Trimco (see description) x US32D
- 3 **Silencers**: Trimco 1229A
- 1 **Door Contact**: (by security vendor)
- 1 **Card Reader**: (by security vendor)

**Operation:**
- Non Secure Side: Card reader unlocks electric lock.
- Secure Side: Free egress. RX switch in electric lock shunts alarm.

**Emergency Operation:**
- Non Secure Side: Door remains locked.
- Secure Side: Free egress.

---

**Diagrams and Descriptions**

- Junction Box by electrical sub contractor
- To Card Access Controller by security vendor
- 4 wire by security vendor
- Von Duprin EPT10
  - Power Transfer by hardware supplier
  - In door conduit by door manufacturer
- Sargent RX8271 x LL Electric Lock with Request to exit switch by hardware supplier

**Operation:** Card reader outside unlocks electric lock. Free egress inside, request to exit switch in lockset shunts alarm

---

**Table**

<table>
<thead>
<tr>
<th>PROJECT: NYULMC</th>
<th>DRW##</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Card Reader-Electric Lock with Request to Exit Switch</td>
<td>E3</td>
<td>6-20-10</td>
</tr>
</tbody>
</table>
This hardware set is used for all double doors with card access (see wiring diagram E4)

Each to have:

- **Hinges**: PBB (as required) x US26D
- **Electric Hinge**: PBB 4 wire (to match) x US26D
- **Electric Lock**: Sargent RX8271 x LL x US32D
- **Automatic Flush Bolts**: Trimco (see description) x US26D
- **Coordinating Door Closer**: Dorma TS93GSR series x Alum
- **Door Stop**: Trimco (see description) x US26D
- **Kick Plate**: Trimco (see description) x US32D
- **Silencers**: Trimco 1229A
- **Door Contact**: (by security vendor)
- **Card Reader**: (by security vendor)

Operation:
Non Secure Side: Card reader unlocks electric lock.
Secure Side: Free egress. AE switch in electric lock shunts alarm.

Emergency Operation:
Non Secure Side: Door remains locked.
Secure Side: Free egress.
This hardware set is used for all double egress doors with card access (see wiring diagram E5)
Each to have:

2 Continuous Hinge Zero 910DBAA x CE4 x EPT
Note: CE4 is for the Presence Sensor and the EPT cutout is for the Electric Power Transfer
2 Electric Exit Devices Von Duprin ELRX 9827EO-F x LBR x US26D
2 Automatic Operators Stanley Magic Force x Alum
1 Wall Actuator (Inside) WIKK x 4 x 4-2 x US32D
4 Kick Plates Trimco (see description) x US32D
2 Silencers Trimco 1229A
2 Magnetic Locks Deltrex 810-DS x Alum
1 Power Supply Von Duprin PS873-2
1 Relay Module Deltrex 530-2ARCM2
2 Door Contacts (by security vendor)
1 Motion Sensor (by security vendor)
1 Card Reader (by security vendor)

Operation:
During normal operation, electric exit devices are electrically dogged to allow for automatic operators to open doors freely. Magnetic locks secure doors. When signaled from the fire alarm system, or loss of power, electric exit devices latch, automatic operators are shut off and magnetic locks unlock.

Non Secure Side: Card reader unlocks magnetic lock and signals automatic operator to open both doors.

Secure Side: Free egress. Wall actuator unlocks magnetic lock and signals automatic operator to open both doors.

Emergency Operation:
Non Secure Side: Door remains locked.
Secure Side: Free egress.
This diagram indicates all components of the system. See drawing E5-1 and E5-2 specific wiring information.

The wiring shown on this diagram is only for the electric exit device system.
The wiring shown on this diagram is only for the automatic operator and card access interface.

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>NYULMC</th>
<th>DRWG#</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross Corridor Automatic Doors with Card Readers and Magnetic Locks</td>
<td>E5-2</td>
<td>8-20-18</td>
<td></td>
</tr>
</tbody>
</table>
This hardware set is used for all single locked stair doors (see wiring diagram E6)
Each to have:

- Hinges: PBB (as required) x US26D
- 1 Electric Hinge: PBB 4 wire (to match) x US26D
- 1 Electric Lock: Sargent RX8270 x LL x US32D
- 1 Closer: LCN
- 1 Door Stop: (see description) x US32D
- 1 Kick Plate: Trimco (see description) x US32D
- 1 Power Supply: Deltrex 551CCM-ERI
- 3 Silencers: Trimco 1229A

Operation:
Stair Side: During normal operation, doors are locked electrically from the stair side. When signaled from the fire alarm system, or loss of power, electric lock unlocks automatically.
Egress Side: Free Egress at all times.

END OF SECTION
NYULMC Design Guidelines

**DOS and DON’TS**

As part of our approach to continually improve the Design and Construction process, we at RED+F maintain a running list of Dos and Don’ts. This is a detail list of items that we have found to work well (or not work well) for NYULMC capital construction projects. We have listed these items in the following order:

Architectural  
Engineering  
Construction  
Interior Design  
Medical & Lab Equipment  
AV/IT & Design Team Coordination  
Security

**ARCHITECTURAL**

<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Make sure patient room saddles have no lip (not even code allowable 1/4&quot;). Patients cannot negotiate with IV pole.</td>
</tr>
<tr>
<td>2</td>
<td>Make sure there are bed stops.</td>
</tr>
<tr>
<td>3</td>
<td>Place soap dispensers above countertops instead of above floors, so any dripping go on the counter. Also, Use wall mounted dispensers provided by Building Services; do not specify counter mounted soap dispensers in toilets. Building Services does not stock liquid soap for the countertop soap dispensers.</td>
</tr>
<tr>
<td>4</td>
<td>For Article 28 facilities do not specify storage cabinets under sinks; use ADA-compliant panels instead. The area under sinks should be clear. It will fail DOH survey if storage is located underneath.</td>
</tr>
<tr>
<td>5</td>
<td>Provide the construction budget to the A/E team before start of design. The A/E team needs to design within budget. They can’t do that without a budget.</td>
</tr>
<tr>
<td>6</td>
<td>Obtain user equipment and determine infrastructure requirements, (ie. power requirements) lists ASAP so that test fit can be performed.</td>
</tr>
<tr>
<td>7</td>
<td>Floating ceilings might require sprinkler coverage ON TOP of them. Check it.</td>
</tr>
<tr>
<td>8</td>
<td>Be sure that room numbering adheres to NYULMC standards. Device schedules need to match (for FA Programming).</td>
</tr>
<tr>
<td>9</td>
<td>Do not specify direct-ducted bio-safety cabinets. Canopy connected A-2’s with 70/30 Air Circulation are preferred. There are exceptions. Please review with EH&amp;S before specifying.</td>
</tr>
<tr>
<td>10</td>
<td>The Tisch Ancillary building is a balloon frame construction. There is no fire stopping between the slab and curtain wall. Design dwgs to address this. Millhauser is similar.</td>
</tr>
<tr>
<td>11</td>
<td>Do not 'float' HIPPA divider panels between desks. Sandwich the panels tight to the desks with no gaps for added stability and to prevent pens, papers, etc. from falling through.</td>
</tr>
<tr>
<td>12</td>
<td>Add card readers to all clean supply rooms.</td>
</tr>
<tr>
<td>13</td>
<td>Make sure mounting height of ADA mirrors is specified for the reflective edge to be 40” AFF, not the mirror frame.</td>
</tr>
<tr>
<td>14</td>
<td>Camera locations need to be coordinate with the Security PM, Security vendor and the MCIT</td>
</tr>
<tr>
<td>No.</td>
<td>Item</td>
</tr>
<tr>
<td>-----</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>15</td>
<td>The Architect should do a file/storage survey during planning to make sure adequate file and storage space is factored into the design.</td>
</tr>
<tr>
<td>16</td>
<td>Provide electric locks for single doors and overhead electric strikes for glass doors. No maglocks are allowed.</td>
</tr>
<tr>
<td>17</td>
<td>All interior finish drawings and specifications are to be forwarded to our Design Department upon closeout.</td>
</tr>
<tr>
<td>18</td>
<td>MER doors to have Trilogy keypad locksets with T2 keyway. Must coordinate with NYULMC locksmith.</td>
</tr>
<tr>
<td>19</td>
<td>All firestopping must be performed by a certified tradespersons in firestopping, contracted under either the GC/CM. Making individual trades responsible for firestopping their own penetrations is not acceptable. They must use only STI products (unless otherwise allowed in the Design Guidelines), and must use UL approved systems. It also requires a Special Controlled Inspection by NYC DOB and NYULMC Facility Operations.</td>
</tr>
<tr>
<td>20</td>
<td>Cable trays are not to penetrate smoke or fire barriers. Cable trays are to stop at wall with cables traversing through EZ Path devices, then resume with cable trays past penetration. Coordinate with MCIT PM.</td>
</tr>
<tr>
<td>21</td>
<td>Consideration must be given to additional data drop conduits and back boxes (with drag lines) to all rooms. Furniture layouts change, oftentimes during construction, and the only drops in the room are behind furniture. This is especially the case with wall mounted computer work stations. Similarly, additional wall grounds are to be provided on a second wall in the event this location changes as well to avoid tearing open newly created walls.</td>
</tr>
<tr>
<td>22.</td>
<td>Avoid ceiling tile slivers less than 6” wide. Spec larger tile for that wall location where this may occur and cut the tile. For example, if 2’x2’ ACT is specified and it will end up with some spaces with slivers of less than 6” cut tile, they should consider specifying larger 2’x4’ ACT for that wall location and cutting the larger tile down. Therefore, instead of a 2’x 0’-6” sliver, we end up with 2’ x 2’-6” ACT. This will look more consistent.</td>
</tr>
</tbody>
</table>

**ENGGINEERING**

<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Do not substitute Terminal Reheat Units for Induction Units and vice versa without a Facilities Operations engineering review.</td>
</tr>
<tr>
<td>2</td>
<td>Provide power for Lighting Circuits from lighting panels/receptacles and convenience outlets from utility panels and receptacle panels.</td>
</tr>
<tr>
<td>3</td>
<td>Give the construction budget to the design team before start of design</td>
</tr>
<tr>
<td>4</td>
<td>NYULMC’s main campus does not provide natural gas to lab benches. Do not design for this service, and include removal of same on the demolition plans.</td>
</tr>
<tr>
<td>5</td>
<td>Define that power tie in’s to furniture are to be performed by the electrical contractor. Engineer to include on the &quot;E&quot; drawings. PM to confirm with the GC/CM.</td>
</tr>
<tr>
<td>6</td>
<td>Do not locate IT room HVAC equipment in ceilings of the rooms. This brings water in. Locate outside the rooms and duct in. Or use a split system and hang the evaporator on the wall and drain outside the room. Reference the Information Technology section in the Design Guidelines.</td>
</tr>
<tr>
<td>7</td>
<td>Use only concealed sprinkler heads, not recessed.</td>
</tr>
<tr>
<td>8</td>
<td>Specify tamperproof receptacles in all waiting rooms, regardless of the clinical function of the practice.</td>
</tr>
</tbody>
</table>
### NYULMC Design Guidelines

<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>For laboratory equipment rooms, provide exhaust registers directly above heat generating equipment.</td>
</tr>
<tr>
<td>10</td>
<td>Existing HVAC systems to be investigated prior to completing design to ensure base systems can meet design requirements.</td>
</tr>
<tr>
<td>11</td>
<td>Be sure to specify duct arrival at the site be cleaned &amp; wrapped. To many times we install dusty duct.</td>
</tr>
<tr>
<td>12</td>
<td>Include U/L approved pass-thru sleeves for future use in all smoke/fire partitions to prevent non-firestopped penetrations resulting from future cable pulls. Refer to the Information Technology for EZ Path sleeves in the Design Guidelines.</td>
</tr>
<tr>
<td>13</td>
<td>Thought must be given to redundancy for critical MEP systems. If a system loss will result in compromised patient safety or revenue loss to the institution, redundant systems need to be included in the design (i.e. emergency power, UPS, etc.)</td>
</tr>
<tr>
<td>14</td>
<td>DO NOT USE USG Sheetrock Acoustical Sealant at medical gas copper pipe penetrations. It corrodes the pipes. Use an alternate.</td>
</tr>
<tr>
<td>15</td>
<td>Include Hands-on Training for maintenance staff for all MEP equipment.</td>
</tr>
</tbody>
</table>

### INTERIOR DESIGN

<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Coordinate power/data drops with under-counter pedestal files, etc.</td>
</tr>
<tr>
<td>2</td>
<td>Make best efforts to marry up to a column or wall to reduce core drilling for power and data.</td>
</tr>
<tr>
<td>3</td>
<td>Specify wardrobe closets in workstations whenever possible.</td>
</tr>
<tr>
<td>4</td>
<td>No visible whips are allowed when connecting to workstations.</td>
</tr>
<tr>
<td>5</td>
<td>Coordinate cable management with furniture (V30 training room - cables hanging from desktops and visible).</td>
</tr>
<tr>
<td>6</td>
<td>Purchase construction cores on wall/door systems, not pre-keyed cores. The main campus locksmith will provide final cores. For off-campus facilities, engage a locksmith.</td>
</tr>
<tr>
<td>7</td>
<td>Get signage requirements early to have permanent signage at opening. PM to provide the Signage PM the project schedule.</td>
</tr>
<tr>
<td>8</td>
<td>Specify and install door hooks on both offices and systems furniture.</td>
</tr>
<tr>
<td>9</td>
<td>Make best efforts to not specify products that require overseas delivery.</td>
</tr>
</tbody>
</table>

### MEDICAL / LAB EQUIPMENT

<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Do not provide UV lights as an option when ordering new Bio-Safety Cabinets for a lab or other type of project.</td>
</tr>
<tr>
<td>2</td>
<td>Do not specify direct-ducted bio-safety cabinets. Canopy connected A-2’s with 70/30 air circulation are preferred. There are exceptions. Please review with EH&amp;S before specifying.</td>
</tr>
</tbody>
</table>
### AV / IT & DESIGN TEAM COORDINATION

<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A/E Team shall fully coordinate with the IT consultant engaged directly with NYULMC. Refer to the Information Technology Section for further information.</td>
</tr>
<tr>
<td>2</td>
<td>IT Engineer infrastructure specification need to be placed on the &quot;E&quot; drawings so that the EC can buy and install.</td>
</tr>
<tr>
<td>3</td>
<td>No MEP Services should pass through the IDF rooms that are</td>
</tr>
<tr>
<td>4</td>
<td>Cable trays to be shown on all A/E drawings and coordinated appropriately with MCIT and the contractors. &quot;Coordinate in field&quot; is not acceptable.</td>
</tr>
<tr>
<td>5</td>
<td>Define who will buy the server UPS, Electrical or Low Voltage contractor PRE-BID.</td>
</tr>
<tr>
<td>6</td>
<td>Determine the power requirement at the rack early in the project.</td>
</tr>
<tr>
<td>7</td>
<td>Define AV equipment credenza ventilation requirements.</td>
</tr>
<tr>
<td>8</td>
<td>Coordinate light fixture locations to avoid racks/ladder racks. Wall mounted lights are acceptable.</td>
</tr>
<tr>
<td>9</td>
<td>Multiple outlets mounted above rack. Specifications should come from IT designer. Place the information on the Electrical plans for electrician to install.</td>
</tr>
<tr>
<td>10</td>
<td>Provide UPS to the rack. IT designer to specify the UPS. Electrical drawings shall show the UPS to be bought.</td>
</tr>
<tr>
<td>11</td>
<td>Each IDF room gets its own electrical panel. Power panels are to have surge suppressors.</td>
</tr>
<tr>
<td>12</td>
<td>Security panels typically go in IDF rooms. They require power and data connection. Coordinate requirements with the MCIT PM.</td>
</tr>
<tr>
<td>13</td>
<td>Cable Trays are to be designed by the IT designer, shown on the Electrical drawings and bought by the electrical contractor. It is critical that the cable tray path is coordinated with the MEP systems.</td>
</tr>
<tr>
<td>14</td>
<td>Coordinate pathway for conduits to building main IT rooms (BMS). Architects should include some allowance for demolition, temporary protection, patching, firestopping, etc. in the architectural plans.</td>
</tr>
</tbody>
</table>
# CLOSE-OUT PACKAGE

At the end of a project, a close-out package is to be completed and submitted to RED+F per the Final Payment Checklist. Below is a list of many of the required items. The goal is to have all projects closed 120 days after the first user has moved in. The design team shall request from the RED+F PM they provide the latest version of this checklist.

<table>
<thead>
<tr>
<th>Resp Party</th>
<th>Date Rec’d</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A/E</td>
<td>Letter(s) of substantial completion for all permits (Mech, Plumb, Struct, Fire Protection, General Construction).</td>
</tr>
<tr>
<td>2</td>
<td>A/E</td>
<td>Construction documents in AutoCad or DXF format, to SPM Plan room. Transmittals to close-out binder.</td>
</tr>
<tr>
<td>3</td>
<td>A/E</td>
<td>DOB Signed and Sealed drawings.</td>
</tr>
<tr>
<td>4</td>
<td>A/E</td>
<td>NYC Department of Buildings and FDNY inspections completed.</td>
</tr>
<tr>
<td>5</td>
<td>A/E</td>
<td>As-built AutoCad or DXF format documents received and forwarded to SPM to update Archibus file.</td>
</tr>
<tr>
<td>6</td>
<td>C</td>
<td>MEP as built drawings (3 CD copies of pdf files).</td>
</tr>
<tr>
<td>7</td>
<td>C</td>
<td>Completed close out matrix by trade.</td>
</tr>
<tr>
<td>8</td>
<td>C</td>
<td>NYC Filing and Final permits (Electrical, Plumbing, Fire, etc.).</td>
</tr>
<tr>
<td>9</td>
<td>C</td>
<td>Equipment use permits.</td>
</tr>
<tr>
<td>10</td>
<td>C</td>
<td>Contractor’s Warranty and Approval for Final Payment letter.</td>
</tr>
<tr>
<td>11</td>
<td>C</td>
<td>Material, equipment and systems warranties/guarantees received for work completed or installed, including service contracts.</td>
</tr>
<tr>
<td>12</td>
<td>C</td>
<td>Medical Gas Certifications.</td>
</tr>
<tr>
<td>13</td>
<td>C</td>
<td>Copies of all test data for work completed, received.</td>
</tr>
<tr>
<td>14</td>
<td>C</td>
<td>Electrical Panel Schedules and Keys (3 copies of each).</td>
</tr>
<tr>
<td>15</td>
<td>C</td>
<td>Final Lien Waivers.</td>
</tr>
<tr>
<td>16</td>
<td>C</td>
<td>Final progress photos.</td>
</tr>
<tr>
<td>17</td>
<td>C</td>
<td>Keys and valve tag charts.</td>
</tr>
<tr>
<td>18</td>
<td>C</td>
<td>Close Out Penetration Permit.</td>
</tr>
<tr>
<td>19</td>
<td>C</td>
<td>All operation and maintenance manuals.</td>
</tr>
<tr>
<td>20</td>
<td>C, A/E, RED+F</td>
<td>All finish samples and spec books (relevant wood finish samples, ceiling tile and grid specifications, glazing, paint colors and finishes, flooring colors/specs, specialty items model number and manufacturers).</td>
</tr>
<tr>
<td>21</td>
<td>A/E, EHS, RED+F</td>
<td>Consultants and NYULMC project team to perform a walk through inspection of the work to ensure satisfactory completion. Punch list sign-off by A/E consultants and RED+F.</td>
</tr>
<tr>
<td>22</td>
<td>C, RED+F</td>
<td>Coordinate maintenance, engineering orientation with in-house staff for training and ongoing maintenance operations.</td>
</tr>
<tr>
<td>23</td>
<td>C, A/E</td>
<td>Coordinate inspections conducted by the New York State Department of Health. Deliver complete DOH survey binder to RED+F.</td>
</tr>
<tr>
<td>24</td>
<td>C, RED+F</td>
<td>All completed Application of Interim Life Safety Measure Forms, signed off by EH&amp;S.</td>
</tr>
<tr>
<td>25</td>
<td>RED+F</td>
<td>Signed off commissioning log.</td>
</tr>
</tbody>
</table>

**DOH CLOSE OUT FOR ALL PROJECT UNDER (Article 28)**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>A/E</td>
<td>Certificate of Substantial Completion (AIA G704)</td>
</tr>
<tr>
<td>27</td>
<td>C</td>
<td>Affidavit of Release of Liens (AIA G706A)</td>
</tr>
<tr>
<td>28</td>
<td>C</td>
<td>Affidavit of Payment of Debts and Claims (AIA G706)</td>
</tr>
<tr>
<td>29</td>
<td>C</td>
<td>Final(Requisition) Certificate of Payment (AIA G702)</td>
</tr>
<tr>
<td>30</td>
<td>P, RED+F</td>
<td>Permanent Certificate of Occupancy</td>
</tr>
<tr>
<td>31</td>
<td>P, RED+F</td>
<td>Temporary Certificate of Occupancy (NA-if in receipt of PCO)</td>
</tr>
<tr>
<td>32</td>
<td>P, RED+F</td>
<td>DOH Final Inspection (Pre-Occupancy Report)</td>
</tr>
<tr>
<td>33</td>
<td>RED+F</td>
<td>Facility Letter of Project letter of Acceptance and Completion</td>
</tr>
</tbody>
</table>
Instructions to Engineer for preparing a design and specification:

I. It shall be the Engineers responsibility to follow these NYULMC guidelines on all projects located on the main campus. For projects that are located off-campus, the Engineer shall follow these guidelines in conjunction with the building landlord’s requirements.

II. The information listed below is a guideline only. It shall be the Engineers responsibility to conform to all appropriate building code requirements.

III. All FA equipment shall comply with all requirements of the most current New York City Fire Alarm Code and NFPA.

IV. All HVAC equipment shall comply with all requirements of the most current New York City Energy Conservation Code.

V. These Guidelines will be updated periodically and suggestions for updates may be made to the NYULMC Project Manager. Requests and proposals for significant changes to the guidelines should be made in writing to a NYULMC Project Manager who will forward such requests and proposals to the RED+F Design Department or to the RED+F Facilities Operations, as appropriate for review. The Engineer may seek minor deviation(s) from compliance with the Guidelines on an individual project by written request to the project manager. The project manager will advise the Engineer in writing whether an exception to the Guidelines will be permitted or not.
# Table of Contents

1. **GENERAL** 127  
   A. End of Project Requirements ................................................................. 127  

2. **MECHANICAL** 128  
   A. Codes, Regulations and Design Standards ........................................... 128  
   B. Design Criteria ........................................................................................ 128  
   C. Mechanical Naming Convention ............................................................ 133  
   D. Various .................................................................................................... 134  
   E. Equipment ................................................................................................ 134  
      1. Access Doors ......................................................................................... 134  
      2. Air Compressors .................................................................................. 135  
      3. Air Curtains .......................................................................................... 135  
      4. Air Filters ............................................................................................. 135  
      5. Air Handling/Conditioning Units ......................................................... 135  
      6. Air Outlets ........................................................................................... 137  
      7. Air Volume Regulators ......................................................................... 137  
      8. Baseboard Radiation (Steam/Water) .................................................... 137  
      9. Building Automation ........................................................................... 137  
     10. Building Automation Controllers/Sensors .......................................... 137  
     11. Clean Steam Generators ...................................................................... 138  
     12. Chillers .................................................................................................. 138  
     13. Condensate Pumps ............................................................................ 139  
     14. Cooling/Heating Coils .......................................................................... 139  
     15. Cooling Towers .................................................................................... 140  
     16. Controllers (Water Level) .................................................................... 141  
     17. Dampers (ALD's) ................................................................................ 141  
     18. Dampers (Dynamic Fire/Smoke) .......................................................... 141  
     19. Expansion Compensation .................................................................... 141  
     20. Expansion Tanks ................................................................................ 142  
     21. Fans ...................................................................................................... 142  
     22. Fan-Powered Boxes ............................................................................ 143  
     23. Fan Coil Units ..................................................................................... 143  
     24. Firestopping Products ......................................................................... 143  
     25. Flow Measuring Devices ..................................................................... 144  
     26. Fuel Oil Pumping Systems ................................................................... 144
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>27.</td>
<td>Fuel Oil Specialties</td>
<td>144</td>
</tr>
<tr>
<td>28.</td>
<td>Fuel Oil Tanks</td>
<td>144</td>
</tr>
<tr>
<td>29.</td>
<td>Fuel Oil Tank Gauging and Leak Detection Systems</td>
<td>145</td>
</tr>
<tr>
<td>30.</td>
<td>Freezestats</td>
<td>145</td>
</tr>
<tr>
<td>31.</td>
<td>Hangers, Anchors and Guides</td>
<td>145</td>
</tr>
<tr>
<td>32.</td>
<td>Heat Exchangers</td>
<td>146</td>
</tr>
<tr>
<td>33.</td>
<td>Humidifiers</td>
<td>146</td>
</tr>
<tr>
<td>34.</td>
<td>Insulation (Duct and Pipe)</td>
<td>147</td>
</tr>
<tr>
<td>35.</td>
<td>Insulation Adhesives</td>
<td>148</td>
</tr>
<tr>
<td>36.</td>
<td>Insulation Pipe Shields</td>
<td>148</td>
</tr>
<tr>
<td>37.</td>
<td>Meters and Gauges</td>
<td>148</td>
</tr>
<tr>
<td>38.</td>
<td>Motors</td>
<td>149</td>
</tr>
<tr>
<td>39.</td>
<td>Motor Starters</td>
<td>150</td>
</tr>
<tr>
<td>40.</td>
<td>Motor Control Centers</td>
<td>150</td>
</tr>
<tr>
<td>41.</td>
<td>Motor Controllers Variable Speed (VFD)</td>
<td>150</td>
</tr>
<tr>
<td>42.</td>
<td>Orifice SteamTraps</td>
<td>151</td>
</tr>
<tr>
<td>43.</td>
<td>Pipe and Fittings</td>
<td>151</td>
</tr>
<tr>
<td>44.</td>
<td>Pressure-Regulating Valves</td>
<td>152</td>
</tr>
<tr>
<td>45.</td>
<td>Pumps</td>
<td>152</td>
</tr>
<tr>
<td>46.</td>
<td>Radiant Heating Systems</td>
<td>153</td>
</tr>
<tr>
<td>47.</td>
<td>Refrigerant Monitoring Systems</td>
<td>153</td>
</tr>
<tr>
<td>48.</td>
<td>Sound Traps</td>
<td>153</td>
</tr>
<tr>
<td>49.</td>
<td>Steam Traps – See also Orifice steam traps</td>
<td>153</td>
</tr>
<tr>
<td>50.</td>
<td>Strainers</td>
<td>154</td>
</tr>
<tr>
<td>51.</td>
<td>System Identification</td>
<td>154</td>
</tr>
<tr>
<td>52.</td>
<td>Unit Heaters</td>
<td>155</td>
</tr>
<tr>
<td>53.</td>
<td>Valves</td>
<td>155</td>
</tr>
<tr>
<td>54.</td>
<td>Variable Air Volume</td>
<td>157</td>
</tr>
<tr>
<td>55.</td>
<td>Variable Frequency Drives</td>
<td>157</td>
</tr>
<tr>
<td>56.</td>
<td>Vibration Isolators</td>
<td>158</td>
</tr>
<tr>
<td>57.</td>
<td>Water Filtration</td>
<td>158</td>
</tr>
<tr>
<td>58.</td>
<td>Waterproof Sleeves</td>
<td>158</td>
</tr>
<tr>
<td>59.</td>
<td>Water Treatment</td>
<td>158</td>
</tr>
</tbody>
</table>

3. ELECTRICAL 159
A. Codes, Regulations and Design Standards ................................................................. 159
B. Design Criteria .............................................................................................................. 159
C. Electrical Naming Convention .................................................................................... 161
D. Various .......................................................................................................................... 165
E. Equipment ...................................................................................................................... 165
   1. Automatic Transfer Switches ....................................................................................... 165
   2. Busway and Accessories ............................................................................................ 165
   3. Cable Pulling Lubricants ............................................................................................ 165
   4. Cable Tray and Fittings ............................................................................................... 166
   5. Clocks .......................................................................................................................... 166
   6. Dry-type Transformers ............................................................................................... 166
   7. Electric Heating Cable Systems .................................................................................. 166
   8. Electrical Conductors, Copper, 600 Volt or Less ...................................................... 166
   9. Electrical Metallic Tubing (EMT) ................................................................................. 167
  10. Electronic Fluorescent Ballasts .................................................................................. 167
  11. Electronic Fluorescent Dimming Ballasts .................................................................. 167
  12. Electronic Dimming System ....................................................................................... 167
  13. Enclosed Switches ....................................................................................................... 167
  14. Exit Signs ...................................................................................................................... 167
  15. Fire Detection, Alarm and Communication ............................................................... 167
  16. Flexible Metal Conduit ............................................................................................... 168
  17. Flexible Metal Conduit Fittings .................................................................................. 168
  18. Fluorescent Lamps ....................................................................................................... 168
  19. Fuses ............................................................................................................................. 168
  20. Generator ...................................................................................................................... 168
  21. High Intensity Discharge Lamps ................................................................................ 168
  22. Lamp Sockets ............................................................................................................... 169
  23. LED Light Fixtures .................................................................................................... 169
  24. Line Voltage Switches, Wall Plates, and Coverplates ................................................. 169
  25. Liquid-tight Flexible Metal Conduit .......................................................................... 169
  26. Liquid-tight Flexible Metal Conduit Fittings ............................................................... 169
  27. Motor Control Centers ............................................................................................... 169
  28. Motor Controllers Variable Speed (VFD) ................................................................. 169
  29. Multioutlet Assemblies ............................................................................................... 170
30. Outlets and Boxes.................................................................................................................. 170
31. Overcurrent Protective Devices ............................................................................................. 170
32. Panelboard .............................................................................................................................. 170
33. Receptacles............................................................................................................................... 170
34. Rigid Aluminum Conduit and Fittings ...................................................................................... 171
35. Rigid Nonmetallic Electrical Conduit and Fittings................................................................. 171
36. Rigid Steel Conduit and Fittings (exposed to the weather) ..................................................... 171
37. Rigid Steel and Intermediate Metal Conduit ........................................................................... 171
38. Rigid Steel and Intermediate Metal Conduit Fittings .............................................................. 172
39. Service Switch Assemblies and Distribution Switchboards .................................................. 172
40. System Identification ............................................................................................................... 172
41. Transient Voltage Surge Suppression...................................................................................... 172
42. Type "AC" (Armored Cable) Conductor Cables, 600 Volts or Less ........................................ 172
43. Vibration Isolation Devices and Seismic Restraints............................................................... 173
44. Wall Dimmers .......................................................................................................................... 173
45. Wire Connectors and Lugs ....................................................................................................... 173
46. UPS (Central) .......................................................................................................................... 173
47. UPS (Rack Mounted) ............................................................................................................... 173

4. PLUMBING  174
A. Codes, Regulations and Design Standards: .......................................................................... 174
B. Design Criteria ......................................................................................................................... 174
C. Equipment ............................................................................................................................... 175
   1. Acid Neutralization .................................................................................................................. 175
   2. Backflow Preventers............................................................................................................... 175
   3. Baseboard Radiation (Steam/Water) ...................................................................................... 175
   4. Drains ...................................................................................................................................... 175
   5. Electric Water Coolers .......................................................................................................... 175
   6. Fixture Supports ...................................................................................................................... 175
   7. Gauges and Thermometers ................................................................................................... 175
   8. Hot Water Heaters ............................................................................................................... 176
   9. Insulation ............................................................................................................................... 176
  10. Medical Air Compressors ...................................................................................................... 177
  11. Medical Gas Equipment ........................................................................................................ 177
  12. Medical Gas Outlets .............................................................................................................. 177
13. Motors .................................................................................................................. 177
14. Motor Starters .................................................................................................... 178
15. Motor Controllers Variable Speed (VFD) ....................................................... 178
16. Orifice Steam Traps .......................................................................................... 178
17. Pipe and Fittings ............................................................................................... 179
18. Pipe Hangers and Supports ............................................................................. 180
19. Pipe Joint Compound ....................................................................................... 180
20. Plumbing Fixture Trim ..................................................................................... 181
21. Plumbing Fixtures ............................................................................................ 181
22. Purified Water System Equipment .................................................................. 181
23. Safety Showers/Eyewashes ............................................................................. 181
24. Seismic Restraints .......................................................................................... 181
25. Sump Pumps and Ejectors ................................................................................ 182
26. System Identification ........................................................................................ 182
27. Toilet Seats ...................................................................................................... 182
28. Vacuum Pumps .................................................................................................. 182
29. Valves ............................................................................................................... 183
30. Water Supply Pumps ....................................................................................... 183

5. FIRE PROTECTION 185
   A. Codes, Regulations and Design Standards. ..................................................... 185
   B. Design Criteria .................................................................................................. 185
   C. Equipment ......................................................................................................... 185
      1. Anchors and Inserts ..................................................................................... 185
      2. Motor Starters .............................................................................................. 186
      3. Motors ........................................................................................................... 186
      4. Pipe Hangers and Supports ......................................................................... 186
      5. Piping .............................................................................................................. 186
      6. Preaction Control Panel/Equipment ............................................................. 186
      7. Preaction/Dry Pipe Valves .......................................................................... 186
      8. Pressure-Reducing Valves .......................................................................... 187
      9. Pumps .............................................................................................................. 187
     10. Standpipe System Equipment ...................................................................... 187
     11. Seismic Restraints ........................................................................................ 187
     12. Sprinkler Heads, Valves, Alarms, Etc. .......................................................... 187
13. System Identification ........................................................................................................ 188
14. Tamper Switches ............................................................................................................... 188
15. Valves .................................................................................................................................. 188
16. Vibration Isolators ............................................................................................................ 189
17. Water Flow Switches .......................................................................................................... 189
18. Water Proof Sleeves ........................................................................................................... 189

6. FIRE ALARM 190
A. Codes, Regulations and Design Standards ........................................................................ 190
B. Design Criteria .................................................................................................................. 190
C. Equipment ......................................................................................................................... 190
   1. Fire Alarm System ............................................................................................................. 190
   2. Heat Detectors .................................................................................................................. 190
   3. Strobe/Speaker ................................................................................................................ 190
   4. Strobe/Horn ....................................................................................................................... 191
   5. Strobe .................................................................................................................................. 191
   6. Smoke Detector ................................................................................................................ 191
   7. Duct Detector .................................................................................................................... 191
   8. Manual Pull Station ............................................................................................................ 191
1. **GENERAL**

A. **End of Project Requirements**
   As part of the design fee, the design engineer shall confirm in field and redraw the following based on actual installed conditions for every project at project closeout. The engineer shall confirm the collaborated as-builts are correct and complete. To create these collaborated as-builts the design engineers shall use the contractor as-builts as a reference. These items shall be included as a CAD file with all requested items on separate layers.

   I. **Single Line Diagrams**
      Steam Distribution
      CHW Distribution
      CW Distribution
      Domestic Water Distribution
      Sanitary and Storm Drainage Distribution
      Medical Gas Distribution
      Medical Vacuum Distribution
      Electrical Distribution (Normal and Emergency)
      Controls System

   II. **Floor plans for HVAC and Controls**

   III. **Life Safety Drawings** which include the following but not limited to:
      Sprinklers
      Fire Standpipe
      Strobes
      Pull stations
      Smoke doors
      Magnets for doors
      Smoke compartments
      Egress paths
      Flow tamper switches
      Exit Signs

   IV. **Fire Damper Drawings**

   V. **Pressurization Room Floor Plans**

   VI. **Campus Wide Equipment Schedules**
      a. All major MEP/FP/FA equipment removed and installed (in excel format).

**END OF GENERAL SECTION**
2. **MECHANICAL**

   A. **Codes, Regulations and Design Standards**

      Comply with all current New York City Building Codes, Joint Commission Standards, National Institutes of Health and all authorities having jurisdiction and applicable national, state and local codes, laws and regulations governing or relating to any portion of this work.

      Laboratory and Hospital environmental conditions, air filtration, air change rates and pressurization relationships will be in accordance with the requirements set forth in American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE), American Institute of Architects (AIA), National Institute for Occupational Safety and Health (NIOSH), National Fire Protection Association (NFPA), Centers of Disease Control and Prevention (CDC), and all other applicable governmental Codes.

      If any design standard within this document contradicts codes or regulations, the design engineer shall notify NYULMC.

   B. **Design Criteria**

      I. **Chilled Water**

         General Chilled Water Supply and Return Temperatures: 45°F/57°F

         Operating Room Chilled Water Supply and Return Temperatures:

         Contact Facilities Operations for proper values.

         If Chilled Water will be decoupled from main campus Chilled Water system with a heat exchanger, higher design temperatures shall be used and approved by Facilities Operations

         2-way control valves shall be used

      II. **Condenser Water (campus)**

         a. Condenser Water Supply Temperature: 85°F

            Condenser Water Return Temperature: 95°F

            2-way control valves shall be used

      III. **Condenser Water (process)**

         a. Condenser Water Supply Temperature: 80°F

            Condenser Water Return Temperature: 90°F

      IV. **Steam**

         a. Working pressure of steam is 200 psi.

         b. Clean steam generation shall be used for humidification.

      V. **Perimeter Heating**

         Non potable hot water shall be designed to an Outside Air Temperature reset control scheme.
VI. Outside Design Conditions

The mechanical systems shall be selected to serve a facility as specified within the New York City Building Code.

VII. Internal Design Conditions

a. Offices, Conference Rooms, Classrooms, Student Areas and Similar Areas

1) Occupied:
   a) Heating: 68-74°F D.B. with a minimum of 35% R.H ±5%
   b) Cooling: 68-75°F D.B. with a maximum of 50% R.H.

2) Unoccupied Setback:
   a) Heating: 65°F D.B.
   b) Cooling: 85°F D.B.
   c) Airflow Setback (non-critical only): 50% of design. Control shall be on a room-by-room basis with a local over-ride at the respective temperature sensor.

b. Laboratories, Lab Support Areas and Similar Areas

1) Occupied:
   a) Heating: 68°F D.B. with a minimum of 35% R.H ±5%
   b) Cooling: 75°F D.B. with a maximum of 50% R.H.
   c) Air Changes Per Hour shall be 6 unless an air sampling system is being used (ex: Aircuity).

2) Unoccupied Setback:
   a) Heating: 65°F D.B.
   b) Cooling: 85°F D.B.
   c) Airflow Setback (non-critical only): pressurization shall be maintained with reduced airflow. Methodology shall be reviewed with facilities operation prior to design.
   d) Air Changes Per Hour shall be 4 unless an air sampling system is being used (ex: Aircuity).

c. Health Care Facility Areas

a) Operating Rooms: 68-78°F D.B. depending on function of Operating Room. Temperature shall be discussed with Facilities Operations

b) All other Health Care Facility Areas shall be designed to the data listed within the latest edition of the ASHRAE Handbook – HVAC Applications; Health Care Facilities Specific Design Criteria chapter.
d. Vivarium and Support Areas

The data within this section shall be superseded by the most current version of ASHRAE Handbook – Applications; Laboratories Chapter.

1) Occupied:
   a) Holding (Rodent-Mice) 64-79°F D.B., 35% R.H. winter, 50% R.H. summer
   b) Large Animal (Dog-Cat) 64-84°F D.B., 35% R.H. winter, 50% R.H. summer
   c) Rabbit Room 61-72°F D.B., 35% R.H. winter, 50% R.H. summer
   d) Procedure Room 72°F D.B., 35% R.H. winter, 50% R.H. summer
   e) Surgery 68°F D.B., 35% R.H. winter, 50% R.H. summer
   f) Recovery-Isolation Cubicles 72°F D.B., 35% R.H. winter, 50% R.H. summer
   g) Vivarium Support Spaces 75°F D.B., 35% R.H. winter, 50% R.H. summer
   h) Necropsy 72°F D.B., 35% R.H. winter, 50% R.H. summer
   i) Cagewash 75°F D.B., 35% R.H. winter, 75%‐80% R.H. summer
   j) Cagewash Support Spaces 75°F D.B., 35% R.H. winter, 50% R.H. summer

2) Unoccupied Setback:
   a) Areas with animal habitats shall not be allowed a temperature or airflow setback.
   b) Holding, procedure rooms and similar areas shall have an airflow setback of 50% of design. Control shall be on a room-by-room basis with a local over-ride at the respective temperature sensor.

Electrical Closets
   3) Ventilated to 80°F D.B. average, 85°F D.B. maximum

Switchgear Rooms
   4) Air Conditioned to 78°F D.B.; 20% R.H.

Communication Closets
   5) Heating: 65°F D.B. minimum
   6) Cooling: 75°F D.B. average, 80°F D.B. maximum, 20-50% R.H.
Storage/mechanical areas:
7) Ventilated

Elevator machine rooms:
8) Air conditioned to 78°F dry bulb minimum, 20-50% R.H.

VIII. **Outside Air Quantity**

a. All areas shall be provided with outside air in accordance with the most current New York City Mechanical Code.
   1) Health Care Facilities shall conform to the latest edition of the, National Institutes of Health (NIH), Association for Assessment and Accreditation of Laboratory Animal Care (AALAC), Facility Guidelines Institute (FGI), ASHRAE Handbook – HVAC Applications; Health Care Facility Chapter. Conform to the Ventilation Requirements for Areas Affecting Patient Care in Hospitals and Outpatient Facilities table.
   2) Vivarium, Laboratories and Support Spaces shall be 100% outside air and shall have a minimum of 15 Air Changes/Hour.
   3) Cagewash space shall have a minimum of 10 Air Changes/Hour.

Conference rooms, libraries, study halls and similar spaces shall have the following:
4) CO2 monitoring
5) Demand ventilation control

IX. **Internal Load Criteria**

The data within this section shall be superseded by the most current version of ASHRAE Handbook – Fundamentals; Nonresidential Cooling and Heating Load Calculations Chapter and ASHRAE Handbook – Applications; Laboratories Chapter and Health Care Facilities Chapter

<table>
<thead>
<tr>
<th>Area Type</th>
<th>Metabolic Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sensible BTU/hr</td>
</tr>
<tr>
<td>Laboratories</td>
<td>275</td>
</tr>
<tr>
<td>Offices</td>
<td>250</td>
</tr>
<tr>
<td>Support Areas</td>
<td>275</td>
</tr>
<tr>
<td>Conference/Break Rooms</td>
<td>245</td>
</tr>
<tr>
<td>Vivarium</td>
<td>250</td>
</tr>
<tr>
<td>Operating Room</td>
<td>250</td>
</tr>
<tr>
<td>Hospital Floor (Adult)</td>
<td>250</td>
</tr>
</tbody>
</table>
## Lighting and Equipment Heat Gains

### Base design on data listed within ASHRAE Handbook

**Fundamentals; Nonresidential Cooling and Heating Load Calculations Chapter** and **ASHRAE Handbook – Applications; Laboratories Chapter and Health Care Facilities Chapter.**

### Hours of Operation

- **Offices:** 12hrs/day, 5 days/week
- **Laboratories/Support Areas:** 12-24hrs/day, 7 days/week (this is a case by case basis to be discussed with end user)
- **Health Care Facility/Support Areas:** 24 hrs/day, 7 days/week
- **Vivarium:** 24 hrs/day, 7 days/week

### Vivarium

<table>
<thead>
<tr>
<th>Animal</th>
<th>Weight (lbs)</th>
<th>BTU/hr/Animal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mouse</td>
<td>0.046</td>
<td>1.11</td>
</tr>
<tr>
<td>Small Dog</td>
<td>22.7</td>
<td>105.0</td>
</tr>
<tr>
<td>Large Dog</td>
<td>50.0</td>
<td>231.0</td>
</tr>
<tr>
<td>Rabbit</td>
<td>5.41</td>
<td>39.2</td>
</tr>
<tr>
<td>Cat</td>
<td>6.61</td>
<td>45.6</td>
</tr>
<tr>
<td>Guinea Pig</td>
<td>0.90</td>
<td>10.2</td>
</tr>
<tr>
<td>Nonhuman Primate</td>
<td>12.0</td>
<td>71.3</td>
</tr>
<tr>
<td>Hamster</td>
<td>0.260</td>
<td>4.02</td>
</tr>
</tbody>
</table>
C. **Mechanical Naming Convention**
   
   I. **Naming Scheme**

   Example: AHU-TH-1-2

<table>
<thead>
<tr>
<th>AHU</th>
<th>TH</th>
<th>Floor #</th>
<th>Unit #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Type</td>
<td>Building Name (Location of Unit)</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>AC – Air Conditioning Unit (cooling only)</td>
<td>ALH – Alumni Hall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AF – Air Filter</td>
<td>BRG – Berg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AHU – Air Handling Unit</td>
<td>EB – Energy Building</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B – Boiler</td>
<td>GBH – Greenberg Hall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAV – Constant Air Volume Unit</td>
<td>HCC – Health Care Center</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH – Chiller</td>
<td>KP – Kimmel Pavilion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CP – Condensate Pump</td>
<td>MSB – Medical Science Building</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSG – Clean Steam Generator</td>
<td>SB – Science Building</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CT – Cooling Tower</td>
<td>SKB – Skirball</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CWP – Condenser Water Pump</td>
<td>SRC – Smilow Research Center</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ET – Expansion Tank</td>
<td>TH – Tisch Hospital</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EX – Exhaust Fan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FCU – Fan Coil Unit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FOP – Fuel Oil Pump</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GX – General Exhaust Fan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HWP – Hot Water Pump</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KEF – Kitchen Exhaust Fan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCHP – Primary CHW Pump</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PFHX – Plate and Frame Heat Exchanger</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRV – Pressure Reducing Station</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RAF – Return Fan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAF – Supply Fan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCHP – Secondary CHW Pump</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STHX – Shell and Tube Heat Exchanger</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SX – Smoke Exhaust Fan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TX – Toilet Exhaust Fan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UH – Unit Heater</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAV – Variable Air Volume Box</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VFD – Variable Frequency Drive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WSHP – Water Source Heat Pump</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
D. Various

I. Testing and Balancing –
   All projects shall have a TAB baseline taken of space prior to design/demo to confirm existing conditions.
   All Testing and Balancing values shall be within +5% / -10% of design values on a per outlet basis.
   All Medium Pressure duct systems shall be duct leak tested.
   All hydronic piping shall be hydrostatically tested to 1.5 working pressure but not less than 100psi for a minimum of 4 hours. All tests to be witnessed by owner.

II. All equipment shall be cleaned prior to starting/turnover.

III. Piping systems shall be chemically cleaned prior to connection to existing.
   a. Chemical cleaning shall meet all EPA standards and NYULMC Environmental Health and Safety requirements.
   b. NYULMC house chemical company will provide chemical types for cleaning.

IV. Heat Recovery systems shall be enthalpy wheels, hydronic glycol based systems or air to air heat exchangers. These shall be designed on a case by case basis and will need to be reviewed and approved by Facilities Operations.

V. Controls: Temperature and humidity shall have cascaded loop control or Master/Sub-Master Control.

VI. Pressure dependent rooms shall always have a schedule shown on drawings indicating location, room name, room use and pressures required to meet code criteria. Testing and Balancing reports for these rooms shall always indicate design pressure and actual pressure of room.

E. Equipment

1. Access Doors
   Access doors shall be provided in any spaces where maintenance of any system (air or water) will need to be provided. A minimum size of 24x24 shall be provided, if smaller size is requested, obtain permission from Facilities Operations. Access shall be provided to all piping trim, dampers, actuators, shut off valves, BMS Sensors, equipment both sides of reheat preheat and cooling coils and any other equipment required maintenance access. The doors shall not be blocked by piping, electrical conduit, ceiling support iron or hangers.
Approved Manufacturers:
  A. Finished Construction:
     a. Karp
     b. Mil-Cor
  
  B. Sheetmetal (doors):
     a. Duct Mate
     b. Flexmaster
  
  C. Sheetmetal (hardware):
     a. Arlan
     b. Duro Dyne
     c. Ventlok

2. Air Compressors
   Medical air compressors – see plumbing design guidelines.

   Approved Manufacturers:
   A. Sullair
   B. Quincy
   C. Gardener Denver

3. Air Curtains
   Air curtains shall be provided with a door switch to operate only when doors are open.

   Approved Manufacturers:
   A. Berner International Corp.
   B. King
   C. Mars Air Door
   D. Powered Aire Inc.

4. Air Filters
   Approved Manufacturers:
   A. Viledon
   B. Flanders
   C. Fiber Bond

5. Air Handling/Conditioning Units
   Units shall be furnished with unit controls to comply with the requirements of the most current New York City Energy Conservation Code (NYCECC).

   Fan wall technology shall be used on all Air Handling Units. Provide one VFD per fan motor.
Non-Ducted filter boxes shall have a minimum of 1 foot clearance. Ducted intake filter boxes shall have removable panels.

If unit is provided with factory mounted controls; the unit shall have ability for read/write access to the existing BMS system through BACnet or Modbus protocol.

Motor section shall have doors or removable panels that are 25% larger than the motor for maintenance access. All floor plating inside each compartment shall be diamond plated. Provide hoist type access for maintenance purposes.

If a unit is a double stack unit with access doors/panels on an upper level of the unit, the unit shall be provided with a permanent walkway/catwalk for maintenance access. Ladders without a walkway/catwalk are not allowed.

Units are to be provided with access windows for each unit section. Lighting shall also be provided in each section. If unit is outdoors, lighting suitable for outdoor use (flood light type) shall be provided to illuminate all walkways/catwalks and access points.

Approved Manufacturers:

A. Factory Assembled Custom Air Handling Units
   a. Air Enterprise
   b. Buffalo Air Handling
   c. Climatecraft
   d. Temtrol
   e. Ventrol

B. Packaged Roof-Mounted Air Handling Units
   a. Enviro-Tec
   b. Trane
   c. York

C. Packaged Roof-Mounted DX Air Handling Units
   a. Trane
   b. York
   c. Liebert

D. Packaged Self-Contained Chilled Water Air Handling Units
   a. Buffalo Air Handling
   b. Trane
   c. Ventrol

E. Packaged Self-Contained Computer Room Air Conditioning Units
   a. Data Aire
   b. Liebert
   c. APC
F. Packaged Self-Contained Air Conditioning Units (Ceiling-Mounted)
   a. Data Aire
   b. Enviro-Tec
   c. Liebert

G. Packaged Self-Contained DX Air Conditioning Units (Ceiling-Mounted)
   a. Data Aire
   b. Liebert
   c. Mammoth

H. Spot Coolers (Data Closets)
   a. Movin Cool

6. Air Outlets
   Any outlets that are to be installed in labs, Operating Rooms or any specialized medical space shall be specific to the usage of the room. Standard outlets are not allowed in these areas.

   Approved Manufacturers:
   A. Anemostat
   B. Krueger
   C. Nailor Industries
   D. Titus

7. Air Volume Regulators
   Approved Manufacturers:
   A. Anemostat
   B. Krueger
   C. Nailor Industries
   D. Titus

8. Baseboard Radiation (Steam/Water)
   Approved Manufacturers:
   A. Rittling
   B. Slantfin
   C. Sterling Radiator
   D. Vulcan Radiator

9. Building Automation
   Approved Manufacturers:
   A. Alerton

10. Building Automation Controllers/Sensors
All controllers and sensors shall be compatible with main campus main BMS which is an Alerton system and have ability for read/write access through BACnet or Modbus protocol. Off campus controllers and sensors shall be compatible with existing BMS however these controllers shall be approved by Facilities Operations.

Most equipment and control points shall be trended. Facilities Operations shall review and approve all trending.

Process variables (sensors that are controlling an element of a system) shall have capabilities of viewing all the control points and outputs associated with the process variable.

Control scheme shall always be reviewed with Facilities Operations prior to any design.

Double actuators are not allowed. Actuators shall be size to provide proper torque via one actuator.

Approved Manufacturers:
   A. Alerton

11. Clean Steam Generators
    Clean steam generators shall be steam to steam type. Screen control panels with PLC shall be provided. Shell shall be pitched to completely drain the condensate.

Approved Manufacturers:
   A. Diversified Heat Transfer DHT.
   B. Patterson-Kelley, Company.
   C. Acme Engineering Products, Inc.
   D. Precision Boilers, Inc.

12. Chillers
    Chillers shall be provided with a minimum of 25% spare capacity. All new chillers shall be reviewed and approved by Facilities Operations. Provide hoist type access for maintenance purposes.

    Chillers located outdoors shall have capabilities of operating low ambient temperature conditions.

Approved Manufacturers:
   A. Centrifugal
      a. Carrier
      b. York
      c. Trane
B. Absorption
   a. York
   b. Carrier
   c. Trane

C. Modular Air Cooled
   a. ArcticChill
   b. Carrier
   c. Multistack
   d. York
   e. Trane

D. Modular Water Cooled
   a. ArcticChill
   b. Multistack
   c. York

E. Packaged Air Cooled
   a. Carrier
   b. York
   c. Trane

13. Condensate Pumps
    Approved Manufacturers:
    A. Cold Condensate
       a. Federal
       b. Hartell
       c. Little Giant
    
    B. Hot Condensate (Low Pressure Steam Return)
       a. Armstrong International
       b. Bell & Gossett
       c. Federal Pump
       d. Weinman

14. Cooling/Heating Coils
    All coils shall be Copper/Copper/Stainless with a minimum 0.035” wall thickness. Dielectric fittings shall be installed between all dissimilar metals. Fins shall be copper and 6 fins per inch. Maximum rows of coils shall be 6.

    All coils shall be drainable (drain downs downstream of isolation valve ¾” hose bib) and have means of removal for service or replacement. Coils shall be pitched to a low point for draining purposes. If coils have different levels, all levels shall have separate drain pans. Coils shall have capability to be removed without removing any piping trim. All coils shall have clear access for removal.
Multi coils shall be staggered for ability to be removed on the same side of unit. Provide hoist type access for maintenance purposes.

Cooling Coils must have a stainless steel condensate pan pitched in three directions toward drain. Drain pan nipples shall be stainless steel with dielectric fittings connecting to a drain plug.

If return air is coming from the top, the coils shall be designed to have a top and bottom section. If return air is coming from the side, the coils shall be designed to have a left and right section.

Separate Freezestats shall be provided on EACH section of coil within a unit. If a unit has multiple coils, each coil section shall be provided with its own control valve.

Double actuators are not allowed. Actuators shall be sized to provide proper torque via one actuator.

Freeze type plug valves are not allowed.

Coils to be provided with a full size manual bypass ball or gate valve.

Approved Manufacturers:
A. Water/Steam
   a. Aerofin
   b. Heat Craft
   c. Temtrol

15. Cooling Towers
All towers shall have accessible fan motors for removal. Catwalks shall be provided for fan motors that are installed on the outside of the unit. Provide means of removal of fan motor. Railings shall always be provided on top of the unit. Ladders shall be provided for access to the top of the unit. Freeze protection (steam or electric) shall be provided on towers that will not be drained down during the winter season – freeze protection pump shall be provided on a case by case basis as secondary protection.

Major cooling towers shall be induced draft type and have stainless steel basins with PVC piping inside. If towers have multiple cells, each cell shall have means of walking between each cell. Catwalks shall be installed inside all cells for maintenance. Catwalks/platform shall be installed around entirety of cooling tower at the level of the bottom of the basin.

Minor cooling towers shall be force draft type and have stainless steel basins with PVC piping inside. Catwalks/platform shall be installed around entirety of cooling tower at the level of the bottom of the basin.

¾” hose bib shall be installed for cleaning purposes.
All cooling towers shall be reviewed and approved by Facilities Operations.

Approved Manufacturers:
A. Marley
B. Baltimore Aircoil Company
C. Evapco

16. Controllers (Water Level)
Controllers shall be floats or digital type. Design shall be discussed with Facilities Operations.

Approved Manufacturers:
A. McDonnell Miller
B. B&W
C. Magnatrol International, Inc.

17. Dampers (ALD's)
Shafts of dampers shall be notched to indicate the position of the damper blade. Damper adjustment hardware and actuators shall extend past ductwork insulation.

Provide Access Doors for damper blades and actuator (if access is an issue). If actuator has to be installed inside ductwork due to size requirements, the design shall be reviewed and approved by Facilities Operations.

Approved Manufacturers:
A. Arlan
B. Imperial
C. Ruskin (preferred)

18. Dampers (Dynamic Fire/Smoke)
All fire smoke dampers to be full throat and shall not obstruct the air stream or reduce the area of the duct in any manner. Shafts of dampers shall be notched to indicate the position of the damper blade.

Fire Smoke Dampers shall be provided with limit switches.

Approved Manufacturers:
A. Arlan
B. Imperial
C. Ruskin (preferred)

19. Expansion Compensation
Expansion compensators shall be designed and shown on drawings with proper guiding and anchors.

Approved Manufacturers:
A. Ball Type Expansion Joints  
   a. Advanced Thermal Systems  
   b. Hyspan-Barco  

B. Braided Type Expansion Loops  
   a. Metraflex  

C. Corrugated Type Expansion Joints  
   a. Hyspan-Barco  
   b. Keflex  
   c. Metraflex  

D. Slip Type Expansion Joints  
   a. Hyspan-Barco  
   b. Metraflex  

20. Expansion Tanks  
   Expansion tanks shall have waterside and airside gauges on bladder type tanks. Drain points shall be provided on waterside section.  

   Approved Manufacturers:  
      A. Adamson  
      B. Amtrol  
      C. Bell & Gossett  
      D. John Woods  
      E. RECO  
      F. TACO  

21. Fans  
   Spring type vibration isolators shall always be provided. Neoprene type isolators can be provided for fans less than 100lbs. If neoprene is used, the design shall be reviewed and approved by Facilities Operations.  

   Motors which are located on the outside of the fan housing shall have an internal access point to provide access to internal sheave. Provide hoist type access for maintenance purposes.  

   Patient isolation rooms shall have a dedicated exhaust fan.  

   Fumehood chemical exhaust shall be stainless steel welded ductwork. All fume hood risers shall be pitched back to the chemical fume hood.  

   Bearings shall have a life grade of L5 with a minimum of 50,000 hours.
Approved Manufacturers:
A. Howden-Buffalo
B. Strobic Air
C. Woods
D. Greenheck (preferred)
E. Cook
F. PennBarry
G. Twin City
H. Aerovent

22. Fan-Powered Boxes
Fan-Powered Boxes shall have pressure independent control. Units shall be designed with a local disconnect switch.

Approved Manufacturers:
A. Anemostat
B. Nailor Industries
C. Titus

23. Fan Coil Units
Provide with 2-way controls and condensate pump (or gravity drain). Separate stainless steel drain pan shall be installed underneath unit.

Approved Manufacturers:
A. Enviro-Tec
B. International
C. York
D. Liebert
E. Data Aire

24. Firestopping Products
The following shall not be specified without approval from NYULMC’s division of EH&S:

- Chemicals that are known (IARC group 1) or probable (IARC group 2a) human carcinogens.
- Hazardous substances listed in OSHA 1910 subpart Z.
- Products containing volatile organic compounds (VOCs) in excess of 50 grams/liter.
- Products whose Safety Data Sheet (SDS) rates health, fire and/or reactivity as exceeding “1” on a scale of 0 to 4.
- Products emitting strong odors.
Approved Manufacturers:
A. Specified Technologies, Inc.

25. Flow Measuring Devices
Approved Manufacturers:
A. Air Systems
   a. Air Monitor Corporation
   b. Ebtron, Inc.
   c. Tek-Air Systems, Inc.
B. Water Systems (Permanently Installed Clamp On Ultrasonic)
   a. Flexim
C. Steam Systems (Insertion Turbine or Vortex or Clamp On Ultrasonic)
   a. Flexim
   b. Spirax Sarco

26. Fuel Oil Pumping Systems
Pumping system shall be installed in a space that will provide access for periodic maintenance including removal of motors, impellers, and accessories. In flood prone area (refer to Facilities Department for flood prone locations) provide water tight enclosure that will allow the pumps to operate during a flood. Controls and all power conduits to be within water tight installations until outside of flood zone.

Approved Manufacturers:
A. ISP
B. IMO
C. Deval
D. Viking

27. Fuel Oil Specialties
Approved Manufacturers:
A. ISP
B. Preferred Utilities Mfg. Corp.

28. Fuel Oil Tanks
Fuel oil tank shall be bolted to the structure to prevent floating in case of a flood. All preventable flood requirements shall be analyzed if fuel oil tank is to be installed in a flood prone area (refer to Facilities Department for flood prone locations).

Approved Manufacturers:
A. Fiberglass
   a. Xerxes Corp.
   b. Cardinal Fiberglass Industries
c. Containment Solutions

B. Steel
   a. ISP
   c. Adamson Global Technology Corporation
   d. Cardinal Tank Corporation

29. Fuel Oil Tank Gauging and Leak Detection Systems
   Approved Manufacturers:
   A. ISP
   B. Veeder-Root

30. Freezestats
   Freezestats shall cover entire length of coil vertically and horizontally (leaving 6” from each edge of coil). The maximum vertical distance between each pass of freezstat coils shall be 6”. All freezestats that are installed in interior spaces shall have a test coil. Vertical steel hanger straps shall be used every three feet for mounting. The element must be supported at all changes in direction with radial bend mounting bracket. The freezestat shall be installed on the leading face of the cooling coil. At no times shall the freezestat be supported by other sensing elements.

31. Hangers, Anchors and Guides
   All exposed threaded rods shall be capped with an orange protective cap either rubber or plastic. All threaded rods shall be cut down to an inch of final nut – rods shall not be left at full length for safety reasons.

   Approved Manufacturers:
   A. Cable Support Systems for Ducts
      a. Duct Mate (Gripple)
      b. Erico Caddy Speed Link

   B. Hangers
      a. Anvil International
      b. Bee-Line
      c. Carpenter Patterson
      d. Empire Industries, Inc.
      e. Erico, Michigan Hanger
      f. Hilti
      g. National Pipe Hanger Corporation
      h. Piping Technologies, Inc.

   C. Inserts
      a. Bee-Line
      b. Carpenter Patterson
      c. Erico, Michigan Hanger
d. Fee & Mason  
  a. F & S Central  
  b. Grinnell  
  c. Piping Technologies, Inc.  
  d. Simpson StrongTie

D. Mechanical Anchors (Undercut Type Only)  
Powder or power actuated devices, grip nails, expansion nails and adhesive anchors are permitted.  
  a. Hilti

32. Heat Exchangers  
Relief valves shall be located on the hot and cold side of heat exchanger and sized to the working pressure of the system. Heat exchangers shall be located on a housekeeping pad. No equipment shall be installed on the plate side of the heat exchanger – proper access for removal of plates shall always be maintained.  
Heat exchangers shall be provided with strapped or clipped removable shrouds.

Approved Manufacturers:  
A. Plate-and-Frame  
  a. Alpha-Laval  
  b. Plate Concepts

B. Shell-and-Tube  
  a. Bell & Gossett

33. Humidifiers  
Humidifiers shall be supplied with Humidistat and also an airflow switch for preventing humidifier operation without airflow. Humidistat shall be designed to be controlled via a cascaded loop. Humidifiers shall be resistive type not electrode type.

Approved Manufacturers:  
A. Steam  
  a. Armstrong  
  b. Dri Steam  
  c. Nortec

B. Water Spray (can not be used in Article 28 spaces)  
  a. Armstrong  
  b. Herrmidifier  
  c. Cold Fog
34. **Insulation (Duct and Pipe)**

All supply ductwork shall be insulated on the outside. No acoustic insulation is allowed inside the ductwork unless encapsulated with a mylar type membrane. Insulation shall not cover any damper adjustment hardware.

Ductwork located outside shall have proper weatherproofing for use outdoors.

The following ductwork shall be insulated:

- Supply Air
- Outdoor air.
- Return located in unconditioned space.
- Type I, commercial, kitchen hood exhaust.
- Oven and warewash exhaust.
- Exhaust between isolation damper and penetration of building exterior.
- Supply and return located outdoors.

<table>
<thead>
<tr>
<th>Piping Insulation Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Service</strong></td>
</tr>
<tr>
<td>Low Pressure Steam, All Steam Condensate, Hot Water Systems, Supply and Return Risers, Mains and Branches</td>
</tr>
<tr>
<td>High Pressure Steam (12 psig and higher)</td>
</tr>
<tr>
<td>Secondary Hot Water and Hot Water Radiation</td>
</tr>
<tr>
<td>Primary Chilled Water and Secondary Chilled Water</td>
</tr>
<tr>
<td>Fresh Water Makeup</td>
</tr>
<tr>
<td>Condensation Drains - Risers, Mains and</td>
</tr>
</tbody>
</table>
Piping Insulation Schedule

<table>
<thead>
<tr>
<th>Branches</th>
</tr>
</thead>
<tbody>
<tr>
<td>All piping located outdoors or located in an unconditioned space shall be insulated and heat traced. Outdoor piping shall have a PVC type jacket for weatherproofing.</td>
</tr>
</tbody>
</table>

Generator exhausts located indoors shall be insulated with Calcium Silicate.

Approved Manufacturers:
A. Armacell
B. Armstrong
C. Knauf
D. Johns-Manville
E. Owens-Corning Fiberglas (O-C-F)
F. P.P.G. (Pittsburgh Plate Glass)

35. Insulation Adhesives
The following shall not be specified without approval from NYULMC’s division of EH&S:

- Chemicals that are known (IARC group 1) or probable (IARC group 2a) human carcinogens.
- Hazardous substances listed in OSHA 1910 subpart Z.
- Products containing volatile organic compounds (VOCs) in excess of 50 grams/liter.
- Products whose Safety Data Sheet (SDS) rates health, fire and/or reactivity as exceeding “1” on a scale of 0 to 4.
- Products emitting strong odors.

Approved Manufacturers:
A. Benjamin Foster Company
B. Elgen
C. Venture Tape Corp

36. Insulation Pipe Shields
Approved Manufacturers:
A. Buckaroos, Inc.
B. Pipe Shields Inc.
C. Taylor Pipe Supports

37. Meters and Gauges
Temperature Scale Ranges:
- Chilled-Water Piping: 0 to 100 deg F
- Condenser-Water Piping: 0 to 150 deg F
• Heating, Hot-Water Piping: 20 to 250 deg F
• Steam and Steam-Condensate Piping: 0 to 250 deg F

Pressure Scale Ranges:
Design engineer shall specify proper scales based on operating pressures.

Approved Manufacturers:
A. Instrument Test Ports
   a. Peterson Equipment
   b. Sisco
   c. Watts Regulator

B. Pressure Gauges 1.00% Accuracy
   a. Ashcroft
   b. Trerice
   c. Weiss
   d. Weksler

C. Pressure Switches
   a. Barksdale
   b. Dwyer
   c. Mercoid

D. Thermometers 1.00% Accuracy
   a. Trerice
   b. Weiss
   c. Weksler

38. Motors
Conform to NEMA MG 1. Motors shall not operate continuously at a service factor greater than 1. Design to a service factor of a minimum of 1.15. Provide hoist type access for maintenance purposes.

Motors to be with permanently greased bearings (preferred). If permanently greased bearings are not provided, grease ports shall be provided with adequate access – grease capillaries are not allowed.

Cast iron motors are not allowed.

Bearings shall have a life grade of L5 with a minimum of 50,000 hours.

If motor is part of a VFD system, the motor shall be inverter duty rated.

Approved Manufacturers:
A. Standard Efficiency (Less Than 1 hp)
   a. Baldor
   b. General Electric
   c. Toshiba
   d. AO Smith
   e. U.S. Motors
   f. Dayton
   g. Marathon
   h. Weg

B. Premium Efficiency (1 hp and Above)
   a. Baldor
   b. General Electric
   c. Toshiba
   d. AO Smith
   e. U.S. Motors
   f. Dayton
   g. Marathon
   h. Weg

39. Motor Starters
   Approved Manufacturers:
   A. Asea Brown Boveri (ABB)
   B. ASCO
   C. Allen Bradley
   D. Siemens
   E. Yaskawa Electric America

40. Motor Control Centers
   See Electrical Design Guidelines

41. Motor Controllers Variable Speed (VFD)
   Provide two VFDs – one lead and one lag. VFDs shall be reviewed and approved by Facilities Operations. All conduits in a controlled enclosure or electrical enclosure shall have sealed conduits.

   VFDs shall not be installed under any piping. If VFD is installed under piping due to physical install constraints, NEMA 4 or 6 shall be used. All locations of VFDs that are below piping shall be approved by Facilities Operations.

   Approved Manufacturers:
   A. Asea Brown Boveri (ABB)
   B. Yaskawa Electric America
42. **Orifice SteamTraps**  
Approved Manufacturers:  
A. Steam Gard  
B. Sarco  
C. Armstrong

43. **Pipe and Fittings**  
Dielectric fittings shall be installed between all dissimilar metals.

Approved Manufacturers:  
A. Brass & Copper Pipe & Tube  
a. Elkhart  
b. NIBCO  
c. American Brass Co.  
d. Bridgeport Brass  
e. Chase Brass  
f. Lewin Matheis  
g. Mueller Industries, Inc.  
h. NIBCO  
i. Phelps Dodge  
j. Reading Tube Corp.  
k. Revere  
l. Wolverine Tube Co.  

B. Steel Pipe  
a. Anvil International  
b. Ameri-Forge Corporation  
c. U. S. Steel  
d. Wheatland

C. Steel Pipe Fittings  
a. Capitol Manufacturing Company  
b. Hackney  
c. Phoenix Forging Company  
d. Tube Forgings  
e. Tube Line  
f. Weldbend Corporation
D. Mechanical Couplings for Grooved Pipe
   a. Anvil International (Gruvlok) Figure 7401 Rigidlok Coupling
   b. Grinnell Figure 772 Rigid Coupling
   c. Victaulic
   d. Style 07 Zero Flex Coupling to 12 inches
   e. Style 107 Quick-Vic Rigid Coupling to 12 inches
   f. Style W07 AGS Rigid Coupling 14 to 24 inches

44. Pressure-Regulating Valves
   Approved Manufacturers:
   A. Steam
      a. Leslie
      b. Fairchild
   
   B. Water
      a. Leslie
      b. Cla-Val
      c. Watts

45. Pumps
   All pumps shall be premium efficiency. Pumps shall not be provided with triple-duty valves unless install restrictions require such an install. If triple-duty valves are required, they shall be reviewed and approved by Facilities Operations. Pumps shall be provided with either a strainer or suction diffusers with drain. Pump trim shall not have a balancing valve if pump will be provided with a VFD.

   Piping and pumps are to be independently supported. All piping within 50 feet of pump shall have spring type isolators.

   Install pumps in such a way to allow periodic maintenance which includes removal of motors, impellers and couplings. Pumps are required to be able to be drained down.

   Provide hoist type access for maintenance purposes.

   Bearings shall have a life grade of L5 with a minimum of 50,000 hours.

   Approved Manufacturers:
   A. Horizontal Split, End Suction and In-Line
      a. Armstrong
      b. Aurora
      c. Bell & Gossett
      d. Gould
      e. Paco
      f. Peerless
      g. Weinman
B. Fuel Oil
   a. IMO
   b. Viking
   c. Simplex

46. Radiant Heating Systems
    Unit shall be supplied with a wall thermostat and a manually operated on-off switch.
    
    Approved Manufacturers:
    A. Ceiling
       a. Rittling
       b. Runtal
    B. Floor
       a. Aero Tech
       b. Airtex
       c. Aztec
       d. Oponor

47. Refrigerant Monitoring Systems
    Relay outputs for alarms and control shall be provided to connect to BMS. The unit shall also be provided with visual and audible alarms at the panel. Monitoring system shall have multi point capabilities.
    
    Approved Manufacturers:
    A. Mine Safety Appliances Company (MSA)

48. Sound Traps
    Approved Manufacturers:
    A. I.A.C. (Industrial Acoustics Co.)
    B. Dynasonics
    C. Vibro-Acoustics

49. Steam Traps – See also Orifice steam traps
    Approved Manufacturers:
    A. Armstrong
    B. Sarco
50. **Strainers**

Dielectric fittings shall be installed between all dissimilar metals.

**Approved Manufacturers:**

A. Fabrotech  
B. Hoffman  
C. McAlear Mfg. Co.  
D. Metraflex  
E. Mueller  
F. Sarco  
G. Titan  
H. Yarway

51. **System Identification**

Equipment Labels shall be engraved plastic nameplates with a black surface and white core with engraved letters. Engraved lettering shall be a minimum of 2” in letter height.

Pipe Labels shall be installed every 5 feet in concealed areas and every 10 feet in un-concealed areas and shall be self-adhesive labels with direction-of-flow arrows and the name of the service printed in black letters not less than 1 inch high for pipe 2-1/2 inches and smaller, 2 inches high for 3 inch pipe and larger. Markers shall have backgrounds of different colors for the various service groups. Pipe labels shall be color coded (per ASME A13.1) as follow:

- Fire Quenching Fluids – White on Red
- Toxic and Corrosive Fluids – Black on Orange
- Flammable Fluids – Black on Yellow
- Combustible Fluids – White on Brown
- Potable, Cooling, Boiler Feed and other Water – White on Green
- Compressed Air – White on Blue

Duct Labels shall be installed every 10 feet and shall be self-adhesive labels with direction-of-flow arrows and the name of the service printed in black letters not less than 4 inches high.

Valve Tags: Each valve tag shall be 3 in diameter, brass, aluminum or stainless steel with letters 2in in height. A schedule showing all valve locations, size, and service shall be provided.

Adhesive ceiling labels shall be installed on ceiling grids to locate valves, dampers, air terminal units etc. which are installed above acoustical tile ceilings. Labels shall state unit identification.
Approved Manufacturers:
A. Brimar Industries Incorporated
B. Seton Nameplate Corp.
C. W. H. Brady Co.

52. Unit Heaters
Unit shall be supplied with a unit mounted thermostat.

Approved Manufacturers:
A. Electric
   a. Berko
   b. Brasch
   c. Chromalox
   d. Indeeco
   e. Dayton

B. Steam/Water
   a. Modine
   b. Rittling
   c. Sterling

53. Valves
Dielectric fittings shall be installed between all dissimilar metals.

All chilled water valves to be 300 psi rated. Ball valves (2 ½” maximum) must be used for manual isolation on all chilled water, secondary water, reheat water and radiation water systems. Butterfly valves are to be used for this purpose on larger piping (3” and above).

All valves and piping systems shall be designed to be able to close off to atmospheric pressure on either side of valve.

Any valve that is above 7 feet shall be provided with a chain wheel for manipulation of valve from the floor.

Approved Manufacturers:
A. Balanced Check
   a. Fabrotech
   b. Hager
   c. Mueller

B. Balancing Valves (Water)
   a. T & A
   b. Armstrong
   c. Autoflow
   d. Flow Design
   e. Milliken Valve Company, Inc.
C. Ball Type
   a. Apollo
   b. Jamesbury
   c. Milwaukee
   d. Rockwell

D. Butterfly
   a. DeZurik
   b. Flow Seal
   c. Bray
   d. Jamesbury
   e. Keystone
   f. W.K.M.

E. Pressure Relief Valves
   Provide at each expansion tank, plate-and-frame heat exchanger or any pressurized water vessel, and as required by Code. Relief valve shall match maximum allowable working pressure of piece of equipment. Relief piping shall be sized according to outlet size of relief valve and shall be piped to floor not floor drain.
   a. Apollo
   b. Consolidated
   c. Farris
   d. Fulflo Specialities Co.
   e. Kunkle
   f. Lunkenheimer
   g. Watts

F. Soft-Seated
   a. Bray
   b. DeZurik
   c. Keystone
   d. Milwaukee

G. Swing Check
   a. Crane
   b. Grinnell
   c. Hammond (I.B. Series only)
   d. Milwaukee
   e. Powell
   f. Rockwell-Nordstrom
   g. Stockham
   h. Walworth
H. Globe Valves
   a. Crane
   b. Grinnell
   c. Hammond (I.B. Series only)
   d. Milwaukee
   e. Nordstrom
   f. Powell

I. Plug Valves (Lubricated Type)
   a. DeZurik
   b. Milliken Valve Company, Inc.
   c. Nordstrom
   d. Walworth

J. Plug Valves (Non-Lubricated Type)
   a. DeZurik
   b. Homestead
   c. Milliken Valve Company, Inc.

K. Solenoid Valves
   a. ASCO

54. Variable Air Volume
    Variable Air Volume Boxes shall have pressure independent control. All VAVs shall have a local disconnect switch. Units shall be designed with integral sound attenuators.

    Unit shall be BMS controlled with read/write access through Modbus or Bacnet. Local thermostat shall be provided local manipulation of a +/- 2.5 degree Fahrenheit differential.

    Approved Manufacturers Non Critical Applications:
    A. Anemostat
    B. Nailor Industries
    C. Titus

    Approved Manufacturers Critical Applications:
    A. Phoenix
    B. LCS

55. Variable Frequency Drives
    See Motor Controllers Variable Speed (VFD) section
56. **Vibration Isolators**

Vibration isolators are to be installed on all rotating equipment including fans, air handling units, chillers, cooling towers, pumps, etc. Piping shall have braided vibration isolators unless piping is isolated with spring type isolators within a minimum of 50 feet of pump.

All piping in a mechanical plant shall be isolated with spring type isolators.

Approved Manufacturers:
- A. Mason Industries
- B. Amber Booth
- C. Kinnetics Noise Control, Inc.
- D. Vibration Eliminator Co.
- E. Vibration Mountings and Controls

57. **Water Filtration**

Sand filtration shall be installed on Condenser Water and Chilled Water Systems. Other systems shall have bag type filtration or pot feeders. Sand filters shall have backwash capabilities.

All water filtration to be capable of filtering a minimum of 10% of total flow. Pot feeders to have 5 micron filtration.

All water filtration shall be reviewed and approved by Facilities Operations

Approved Manufacturers:
- A. Ameri Water
- B. Chemworks
- C. Diamond Water Systems, Inc.

58. **Waterproof Sleeves**

Approved Manufacturers:
- A. Link Seal
- B. Zurn

59. **Water Treatment**

The system shall be an automatic chemical feed with integral controls. Water treatment shall be installed on all open and closed hydronic systems. All chemicals are to be recommended by the water-treatment system manufacturer. Chemicals shall be compatible with the piping system and components. A water analysis shall be performed to determine quality of water.

Approved Manufacturers:
- A. Chem-Aqua

**END OF MECHANICAL SECTION**
3. **ELECTRICAL**

A. **Codes, Regulations and Design Standards.**
   
   I. The installation will comply with applicable provisions of the New York State Building Code and New York Electrical Code and all other applicable Codes.

B. **Design Criteria**
   
   I. All connections to the existing electrical distribution systems to be done with double hole lugs and utilize compression type copper connectors. If this is not possible, the design scheme shall be discussed and approved by Facilities Operations.

II. **Emergency Power**
   
   a. Emergency Power shall be provided per NFPA Standards, Joint Commission Standards, CMS Standards and New York Electrical Code requirements. Emergency power to be reviewed with Facilities Operations prior to design.

III. **Design criteria for sizing power risers and (connected load) electric panels**
   
   a. Administration/Office: 5.0 W/sq.ft.
   b. Clinical Office/Exam: 5.0 W/sq.ft.
   c. Storage: 1.5 W/sq.ft.
   d. Laboratories (Basic Research): 50 W/sq.ft.
   e. Support Areas: 12.5 W/sq.ft.
   f. Technology Rooms: 50 W/sq.ft.
   g. Procedure Rooms: 30 W/sq.ft.
   h. Specialty Rooms: 3 W/sq.ft.
   i. Offices: 6 W/sq.ft.
   j. Seminar and Classrooms: 4 W/sq.ft.
   k. Lobby: 6 W/sq.ft.
   l. Mechanical Rooms: 2.5 W/sq.ft. (Lighting and Small Power)
   m. Lounge/Waiting Area: 4 W/sq.ft.
   n. Café/Cafeteria: 15 W/sq.ft.

IV. **Lighting**
   
   a. All lighting above 16’ shall be LED type and shall be by an approved NYSERDA manufacturer.

   b. All lamp sources shall be 3500K color temperature.

   c. Fluorescent tubes shall be T-5 with high efficiency electronic ballasts.

   d. All other lamping should be LED or CFL.
e. Emergency lighting shall be connected to Life Safety Emergency Power. Battery packs shall only be utilized for stairwell, terminal egress lighting, egress for procedure areas, and at least one emergency light with battery pack in a procedure area.

V. Distribution
a. All power loads, such as elevators, motor control centers, etc., shall operate at 480V/277 volts and shall be connected to distribution switchboards with single or multiple conduit and cable feeders.

b. Unless serving specialty equipment/lighting, receptacles as well as fluorescent and incandescent lighting shall be wired to 120 or 277 volt circuits.

c. All conduits to be run concealed in finished areas and exposed in Machine Rooms.

d. All lighting circuits shall emanate from lighting panels and power circuits from power panels. Lighting and Power circuits shall not be mixed in the same panel.
C. Electrical Naming Convention

I. Generator Panel Naming Scheme

Example: PP-G4-HCC-CE1

- PPH - Panel #
- G4 - Generator Plant
- HCC - Location
  - N,S,E,W
  - A,B,C,D
- C - Floor Level
- E - Building Name
  - EB - Energy Building
  - SB - Science Building
  - KP - Kimmel Pavilion
  - TH - Tisch Hospital
  - MSB - Medical Science Building
  - HCC - Health Care Center
  - SKB - Skirball
  - 660 - 660 1st Ave
  - GBH - Greenberg Hall
  - SML - Smilow
  - MIL - Milhauser

- Panel Type
  - DPH - Distribution Panelboard
  - PPH - Power Panel
  - LPH - Lighting Panel
  - LP - Lighting Panel
  - PP - Power Panel
  - RP - Receptacle Panel

- 480V / 277V
- 480V / 277V
- 480V / 277V
- 120V / 208V
- 120V / 208V
- 120V / 208V
II. Normal Power Panel Naming Scheme

Example: SS-T4-HCC-CE1

<table>
<thead>
<tr>
<th>SS</th>
<th>T4</th>
<th>HCC</th>
<th>C</th>
<th>E</th>
<th>1</th>
</tr>
</thead>
</table>

Panel #
Location
N,S,E,W
A,B,C,D

Floor Level

Transformer Vault
Transformer Vault 1 - Tisch
Transformer Vault 2 - Skirball
Transformer Vault 3 - MSB
Transformer Vault 4 - HCC
Transformer Vault 5 - Smilow

Normal Panel Type
SSH - Service Switchboard 460V / 265V
DSH - Disconnect Switch 460V / 265V
DPH - Distribution Panelboard 460V / 265V
LPH - Lighting Panel 460V / 265V
PPH - Power Panel 460V / 265V
SS - Service Switchboard 120V / 208V
DS - Disconnect Switch 120V / 208V
DP - Distribution Panelboard 120V / 208V
LP - Lighting Panel 120V / 208V
PP - Power Panel 120V / 208V
RP - Receptacle Panel 120V / 208V

FED From
EB - Energy Building
SB - Science Building
KP - Kimmel Pavilion
TH - Tisch Hospital
MSB - Medical Science Building
HCC - Health Care Center
SKB - Skirball
660 - 660 1st Ave
GBH - Greenberg Hall
SML - Smilow
MIL - Milhauser
AMB - Ambulatory Surgery
III. UPS Naming Scheme

Example: TPP-2-G5-89-SML-M-B1

<table>
<thead>
<tr>
<th>TPP</th>
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<th>2</th>
<th>G5</th>
<th>61</th>
<th>-</th>
<th>SML</th>
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</table>

**FED From**
- EB - Energy Building
- SB - Science Building
- KP - Kimmel Pavilion
- TH - Tisch Hospital
- MSB - Medical Science Building
- HCC - Health Care Center
- SKB - Skirball
- 660 - 660 1st Ave
- GBH - Greenberg Hall
- SML - Smilow
- MIL - Milhauser
- AMB - Ambulatory Surgery

**ATS #**
- Generator Plant
- G0 - Reserved for Future Use
- G1 - Kimmel Pavilion
- G2 - Skirball
- G3 - Science Building
- G4 - HCC
- G5 - Smilow
- G6 - Energy Building
- G7 - 660
- G8 - GBH
- G9 - Outpatient Surgical Center
- G10 - VZ 30th Street

**UPS System Number**
1 - HCC Cellar
2 - Smilow Ground Floor Telephone Switch Room
3 - Tisch Ground Floor MUX Room
4 - Tisch Ground Floor Communications Room
5 - Future

**UPS Panel Types**
- TDP - Technology Distribution Board
- TPP - Technology Power Panel
### IV. Emergency Panel Naming Scheme

Example: LS-PP-G4-61-HCC-CE1

<table>
<thead>
<tr>
<th>LS</th>
<th>PP</th>
<th>G4</th>
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<td>PPH - Power Panel</td>
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<td>LPH - Lighting Panel</td>
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<td>RP - Receptacle Panel</td>
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<td>G10 - VZ 30th Street</td>
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<table>
<thead>
<tr>
<th>Panel System</th>
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</thead>
<tbody>
<tr>
<td>EM - Standby (Includes Article 517 Required Mechanical Loads)</td>
</tr>
</tbody>
</table>
D. Various
   I. The following is a list of electrical gear that shall have heat runs/burn-ins performed prior to turnover.
      a. Uninterruptible Power Supply (UPS) – 24 hour burn in
      b. Uninterruptible Power Supply Rack Type – 30 minute burn in
      c. Automatic Transfer Switch (ATS) – 4 Hour Burn In
      d. Static Transfer Switch (STS) – 24 hour Burn In

II. Proper wire color schemes shall be used for all panels.

III. Isolated Ground (IG) receptacles are not allowed.

IV. Labelling of source and load shall be every 5’.

V. All emergency power shall be in conduit.

VI. All boxes (splice, pull, etc) shall be labelled with source and load.

E. Equipment

1. Automatic Transfer Switches
   Depending on application, ATS shall be bypass isolation type with load shedding capabilities. This shall be reviewed with Facilities Operations. A full monitoring package on all phases, KW, Voltage and Amperage shall be designed.

   Approved Manufacturers:
   A. Asco

2. Busway and Accessories
   Approved Manufacturers:
   A. General Electric "Spectra Series"
   B. Siemens

3. Cable Pulling Lubricants
   Cable pulling lubricant shall not be used on isolated power systems.

   The following shall not be specified without approval from NYULMC’s division of EH&S:
   - Chemicals that are known (IARC group 1) or probable (IARC group 2a) human carcinogens.
   - Hazardous substances listed in OSHA 1910 subpart Z.
   - Products containing volatile organic compounds (VOCs) in excess of 50 grams/liter.
   - Products whose Safety Data Sheet (SDS) rates health, fire and/or reactivity as exceeding “1” on a scale of 0 to 4.
   - Products emitting strong odors.
Approved Manufacturers:
  A. American Polywater Corporation - Type "J"
  B. Electro Compound Company - "Poly-Ease" or "Y-ER Ease"
  C. Ideal Industries - "Wire Lube"

4. **Cable Tray and Fittings**
   Approved Manufacturers:
   A. Atlas
   B. Burndy
   C. Cooper B-Line Systems
   D. M.P. Husky Corp.
   E. P-W Industries

5. **Clocks**
   In procedure areas clocks shall be wireless, synchronized, digital, and line voltage

   Approved Manufacturers:
   A. Sapling

6. **Dry-type Transformers**
   Approved Manufacturers:
   A. General Electric
   B. Hammond Power Solutions
   C. Jefferson Magnetek
   D. Siemens
   E. Rex Transformers

7. **Electric Heating Cable Systems**
   Approved Manufacturers:
   A. Chromalox
   B. Raychem

8. **Electrical Conductors, Copper, 600 Volt or Less**
   All shall be UL Listed.

   Approved Manufacturers:
   A. American Insulated Wire
   B. General Cable/Cablec
   C. Pirelli
   D. Rome
   E. Southwire
9. **Electrical Metallic Tubing (EMT)**
   All shall be UL Listed.

   Approved Manufacturers:
   A. Allied Tube & Conduit/Tyco
   B. Republic
   C. Robroy Industries
   D. Triangle
   E. Western
   F. Wheatland

10. **Electronic Fluorescent Ballasts**
   Approved Manufacturers:
   A. Advance
   B. MagneTek

11. **Electronic Fluorescent Dimming Ballasts**
   Approved Manufacturers:
   A. Advance
   B. Lutron
   C. Universal

12. **Electronic Dimming System**
   Approved Manufacturers:
   A. Lutron

13. **Enclosed Switches**
   Approved Manufacturers:
   A. General Electric
   B. Siemens
   C. Square D

14. **Exit Signs**
   Exit signs shall meet the NYC Energy Code wattage requirements

   Approved Manufacturers:
   A. Light Guard Vintage Series edge-lit

15. **Fire Detection, Alarm and Communication**
    See Fire Alarm Guidelines
16. **Flexible Metal Conduit**
   All shall be UL Listed.
   
   Approved Manufacturers:
   A. AFC
   B. ALFLEX
   C. American Metal Molding
   D. Anaconda
   E. Cerro
   F. International Metal Hose

17. **Flexible Metal Conduit Fittings**
   All shall be UL Listed.
   
   Approved Manufacturers:
   A. Appleton
   B. Efcor
   C. Midwest
   D. OZ/Gedney
   E. Raco/Hubbell
   F. Steel City/Thomas & Betts

18. **Fluorescent Lamps**
   All lighting above 16’ shall be LED type and shall be by an approved NYSERDA manufacturer.
   
   Approved Manufacturers:
   A. General Electric 3500°K. T-5

19. **Fuses**
   Approved Manufacturers:
   A. Ferraz –Shawmut – Amp-Trap 2,000 with a fuse window

20. **Generator**
    Generators shall be provided with a generator monitoring system. Base building monitoring system is a Monico System.
    
    Approved Manufacturers:
    A. Caterpillar

21. **High Intensity Discharge Lamps**
    Not allowed.
22. **Lamp Sockets**  
   Approved Manufacturers:  
   A. Bryant  
   B. General Electric  
   C. H&H  
   D. Leviton

23. **LED Light Fixtures**  
   Approved Manufacturers:  
   A. General Electric

24. **Line Voltage Switches, Wall Plates, and Coverplates**  
   Stainless steel finish plates shall be used. Hospital grade type shall be used in all areas of the facility (non-patient and patient areas)  
   Approved Manufacturers:  
   A. Hubbell  
   B. Leviton

25. **Liquid-tight Flexible Metal Conduit**  
   All shall be UL Listed.  
   Approved Manufacturers:  
   A. American Brass Company  
   B. Anaconda (Type “UA”)  
   C. Electri-Flex Company

26. **Liquid-tight Flexible Metal Conduit Fittings**  
   All shall be UL Listed.  
   Approved Manufacturers:  
   A. American Brass Company  
   B. Midwest  
   C. O.Z./Gedney

27. **Motor Control Centers**  
   Pilot lights shall be LED. Lamp test button shall be provided.  
   Approved Manufacturers:  
   A. Allen Bradley  
   B. General Electric  
   C. Siemens

28. **Motor Controllers Variable Speed (VFD)**  
   Provide VFD with a bypass or a backup VFD. VFDs shall be reviewed and approved by Facilities Operations. All conduits in a controlled enclosure or electrical enclosure shall have sealed conduits.
Approved Manufacturers:
   A. Asea Brown Boveri (ABB)
   B. Yaskawa Electric America

29. Multioutlet Assemblies
   Approved Manufacturers:
   A. APC (preferred)

30. Outlets and Boxes
   Approved Manufacturers:
   A. Appleton Electric Company
   B. Midland Ross
   C. Raco
   D. Steel City/Thomas & Betts
   E. Thepitt

31. Overcurrent Protective Devices
   Approved Manufacturers:
   A. Boltswitch
   B. General Electric
   C. Square D
   D. Siemens

32. Panelboard
   All panels shall have a local main breaker, double hinged door and a locking #47 key cover. Panels to have an arc-flash study performed and coordinated. Circuit breakers directories must be populated and accurate.

   Approved Manufacturers:
   A. American Switchboard
   B. All-City Switchboard
   C. Atlas Switchboard
   D. Electrotech
   E. Lincoln Electric Co.

33. Receptacles
   All receptacles shall be hospital grade and illuminated. Coverplates shall be metal, NOT plastic. Receptacles shall be consistent in orientation.

   Normal Power color shall be gray, duplex and illuminated face.
   Emergency power shall be red, duplex and illuminated face.

   Approved Manufacturers:
   A. Hubbell
34. **Rigid Aluminum Conduit and Fittings**
All shall be UL Listed.

Approved Manufacturers:
A. Alcoa
B. Anchor-Harvey
C. Harvey
D. Kaiser
E. Reynolds

35. **Rigid Nonmetallic Electrical Conduit and Fittings**
All shall be UL Listed.

Approved Manufacturers:
A. Carlon/Lamson & Sessions
B. Certainteed
C. Triangle

36. **Rigid Steel Conduit and Fittings (exposed to the weather)**
All shall be UL Listed.

Approved Manufacturers:
A. Ocal Inc.
B. Occidental Coating Company
C. Perma-Cote
D. Robroy Industries "Plasti-Bond-Red"
E. Triangle

37. **Rigid Steel and Intermediate Metal Conduit**
All shall be UL Listed.

Approved Manufacturers:
A. Allied
B. Republic
C. Triangle
D. Western
E. Wheatland
38. **Rigid Steel and Intermediate Metal Conduit Fittings**
   All shall be UL Listed.

   Approved Manufacturers:
   A. Appleton  
   B. Cooper Crouse-Hinds  
   C. Efcor  
   D. Midwest  
   E. O.Z./Gedney  
   F. Raco/Hubbell  
   G. Spring City  
   H. Steel City/Thomas & Betts  
   I. Thomas & Betts

39. **Service Switch Assemblies and Distribution Switchboards**
   Approved Manufacturers:
   A. American Switchboard  
   B. All-City Switchboard  
   C. Atlas Switchboard  
   D. Electrotech  
   E. Lincoln Electric Co.

40. **System Identification**
   Equipment Labels shall be engraved plastic nameplates with a black surface and white core with engraved letters. Engraved lettering shall be a minimum of 2” in letter height.

   Labelling of source and load shall be every 5’ in concealed areas and 10’ in un-concealed areas.

41. **Transient Voltage Surge Suppression**
   Approved Manufacturers:
   A. Current Technology  
   B. General Electric  
   C. Liebert  
   D. United Technologies

42. **Type "AC" (Armored Cable) Conductor Cables, 600 Volts or Less**
   All shall be UL Listed. MC cable is not permitted. Armored Cable shall be hospital grade BX.

   Approved Manufacturers:
   A. AFC  
   B. Alflex  
   C. Southwire
43. **Vibration Isolation Devices and Seismic Restraints**
   Approved Manufacturers:
   A. Amber/Booth Company
   B. Korfund Dynamics Corporation
   C. Mason Industries, Inc.
   D. Vibration Eliminator Company
   E. Vibration Mounting and Controls, Inc.

44. **Wall Dimmers**
   Approved Manufacturers:
   A. Lutron

45. **Wire Connectors and Lugs**
   All shall be UL Listed.
   Approved Manufacturers:
   A. AMP
   B. Anderson/Hubbell
   C. Burndy
   D. Homac
   E. Ideal
   F. ITT-Blackburn
   G. MAC
   H. Thomas & Betts
   I. Tyco Electronics/AMP
   J. Union Connector Co.
   K. 3M

46. **UPS (Central)**
   Approved Manufacturers:
   A. Liebert
   B. Mitsubishi

47. **UPS (Rack Mounted)**
   Approved Manufacturers:
   A. Liebert
   B. APC

END OF ELECTRICAL SECTION
4. **PLUMBING**

A. **Codes, Regulations and Design Standards.**
   The entire installation shall comply with the City of New York Building Codes, NYC Department of Health, Department of Environmental Protection Agency, and all other applicable local Codes.

B. **Design Criteria**
   I. Domestic Hot Water Plant Temperature shall be: 140°F in Kimmel Pavilion, all other spaces shall be 120°F.
   
   II. Patient room maximum domestic water temperature shall be: 110°F.
   
   III. Plumbing fixtures shall be of high efficiency conserving type to comply with the City of New York Water Conservation requirements.
   
   IV. All domestic water piping shall be type “L” copper, unless otherwise dictated by code.
   
   V. Point of use mixing valves shall be provided under all lavatories, hand sinks, pantry sinks and similar fixtures where required by code.
   
   VI. Pressure at fixtures shall be designed to provide a maximum of 85 psi.
   
   VII. Pressure reducing valves shall be installed wherever the water pressure exceeds 85 psi.
   
   VIII. The piping shall be sized to provide a maximum velocity of 6 feet per second (fps) in the mains, and 4 fps in all branch piping.
   
   IX. Hose bibs with ¾ inch male hose threads and vacuum breaker shall be provided in all mechanical spaces.
   
   X. Mechanical rooms and water service rooms shall be provided with floor drains and trap primers.
   
   XI. All sanitary, vent and storm drainage piping above the design flood elevation (DFE) shall be hubless cast iron pipe with heavy-duty couplings or hub and spigot piping with push-on gaskets.
   
   XII. All sanitary, vent and storm drainage piping buried below slab, draining to an ejector or sump pit shall be hub and spigot cast iron with push on gaskets.
   
   XIII. All sanitary, vent, and storm piping below the design flood elevation (DFE) shall be ductile iron with mechanical couplings.
XIV. All natural gas piping with gas pressures \( \frac{1}{2} \) psig and less shall be schedule 40 steel piping with threaded fittings for sizes up to and including 3 inches and natural gas piping larger than 3 inches shall be schedule 40 piping with welded joints.

XV. All natural gas piping with gas pressures greater than \( \frac{1}{2} \) psig shall be schedule 40 steel piping with welded joints.

C. Equipment

1. Acid Neutralization
   Approved Manufacturers:
   A. Town and Country

2. Backflow Preventers
   Approved Manufacturers:
   A. Watts

3. Baseboard Radiation (Steam/Water)
   See Mechanical Section

4. Drains
   Approved Manufacturers:
   A. Josam
   B. JR Smith
   C. Zurn

5. Electric Water Coolers
   Approved Manufacturers:
   A. Elkay
   B. Filtrine
   C. Halsey Taylor

6. Fixture Supports
   Approved Manufacturers:
   A. Jay R. Smith
   B. Josam
   C. Wade
   D. Zurn

7. Gauges and Thermometers
   Temperature Scale Ranges:
   Domestic Hot Water Piping: 20 to 250 deg F
   Steam and Steam-Condensate Piping: 0 to 250 deg F

   Pressure Scale Ranges:
Design engineer shall specify proper scales based on operating pressures.

Approved Manufacturers:
A. Instrument Test Ports
   a. Peterson Equipment
   b. Sisco
   c. Watts Regulator

B. Pressure Gauges 1.00% Accuracy
   a. Ashcroft
   b. Trerice
   c. Weiss
   d. Weksler

C. Pressure Switches
   a. Barksdale
   b. Dwyer
   c. Mercoid
   d. Square D

D. Thermometers 1.00% Accuracy
   a. Trerice
   b. Weiss
   c. Weksler

8. Hot Water Heaters
   Approved Manufacturers:
   A. Patterson-Kelley Company

9. Insulation

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<tr>
<td><strong>Service</strong></td>
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<tr>
<td>Low Pressure Steam, All Steam Condensate, Hot Water Systems, Supply and Return Risers, Mains and Branches</td>
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<tr>
<td>High Pressure Steam (12 psig and higher)</td>
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<tr>
<td>Secondary Hot Water and Hot Water Radiation</td>
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<tr>
<td>Radiation</td>
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<tr>
<td>Fresh Water Makeup</td>
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<tr>
<td>Condensation Drains - Risers, Mains and Branches</td>
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</tbody>
</table>

All piping located outdoors or located in an unconditioned space shall be insulated and heat traced. Outdoor piping shall have a PVC type jacket for weatherproofing.

Approved Manufacturers:
A. Armacell
B. Armstrong
C. Knauf
D. Johns-Manville
E. Owens-Corning Fiberglas (O-C-F)
F. P.P.G. (Pittsburgh Plate Glass)

10. Medical Air Compressors
Compressors shall be oil-less reciprocating compressors and compliant with the latest NFPA-99 standards.

Approved Manufacturers:
A. Beacon-Medaes

11. Medical Gas Equipment
Approved Manufacturers:
A. Beacon-Medaes

12. Medical Gas Outlets
Outlets shall be DISS type, having a minimum pig tail connection point of ½” for all services

13. Motors
Conform to NEMA MG 1. Motors shall not operate continuously at a service factor greater than 1. Design to a service factor of a minimum of 1.15. Provide hoist type access for maintenance purposes.
Motors to be with permanently greased bearings (preferred). If permanently greased bearings are not provided, grease ports shall be provided with adequate access – grease capillaries are not allowed.

Bearsings shall have a life grade of L5 with a minimum of 50,000 hours.

Cast iron motors are not allowed.

Approved Manufacturers:

A. Standard Efficiency (Less Than 1 hp)
   a. Baldor
   b. General Electric
   c. Toshiba
   d. AO Smith
   e. U.S. Motors
   f. Dayton
   g. Marathon
   h. Weg

B. Premium Efficiency (1 hp and Above)
   a. Baldor
   b. General Electric
   c. Toshiba
   d. AO Smith
   e. U.S. Motors
   f. Dayton
   g. Marathon
   h. Weg

14. Motor Starters
    Approved Manufacturers:
    A. Asea Brown Boveri (ABB)
    B. ASCO
    C. Allen Bradley
    D. Siemens
    E. Yaskawa Electric America

15. Motor Controllers Variable Speed (VFD)
    VFDs and VFD bypass shall be reviewed and approved by Facilities Operations.
    Approved Manufacturers:
    A. Asea Brown Boveri (ABB)
    B. General Electric
    C. Toshiba
    D. Yaskawa Electric America

16. Orifice Steam Traps
Approved Manufacturers:
A. Steam Gard
B. Sarco
C. Armstrong

17. **Pipe and Fittings**
   Dielectric fittings shall be installed between all dissimilar metals.

Approved Manufacturers:
A. Brass & Copper Pipe & Tube
   a. Elkhart
   b. NIBCO
   c. American Brass Co.
   d. Bridgeport Brass
   e. Chase Brass
   f. Lewin Matheis
   g. Mueller Industries, Inc.
   h. Phelps Dodge
   i. Reading Tube Corp.
   j. Revere
   k. Wolverine Tube Co.

B. Bronze Fittings
   a. Elkhart
   b. Flagg Co.
   c. Jamesbury
   d. Mueller
   e. NIBCO
   f. N. Y. Brass Foundry
   g. Walworth Co.

C. Cast Iron and Ductile Iron Pipe and Fittings
   a. Charlotte Pipe and Foundry
   b. Tyler Pipe
   c. U.S. Pipe

D. Flanges
   a. Grinnell
   b. Ladish
   c. National Flange
   d. Taylor Forge
   e. Weld Bend

E. Screwed Fittings
   a. Central
b. Grinnell

c. Ward

F. Steel Pipe
   a. Anvil International
   b. Ameri-Forge Corporation
   c. U. S. Steel
   d. Wheatland

G. Steel Pipe Fittings
   a. Capitol Manufacturing Company
   b. Hackney
   c. Phoenix Forging Company
   d. TubeForgings
   e. Tube Line
   f. Weldbend Corporation

H. Mechanical Couplings for Grooved Pipe
   a. Anvil International (Gruvlok) Figure 7401 Rigidlok Coupling
   b. Grinnell Figure 772 Rigid Coupling
   c. Victaulic Zero Flex Couplings to 12 inches.
   d. Victaulic AGS Rigid Coupling 14 inches and larger.

18. Pipe Hangers and Supports
    All exposed threaded rods shall be capped with an orange protective cap either rubber or plastic. All threaded rods shall be cut down to an inch of final nut – rods shall not be left at full length for safety reasons. All components shall be galvanized or red-oxide coated.

Approved Manufacturers:
   A. B-Line
   B. Grinnell
   C. Hilti
   D. Michigan Hanger
   E. PHD
   F. Tolco

19. Pipe Joint Compound
    The following shall not be specified without approval from NYULMC’s division of EH&S:
    
    • Chemicals that are known (IARC group 1) or probable (IARC group 2a) human carcinogens.
    • Hazardous substances listed in OSHA 1910 subpart Z.
• Products containing volatile organic compounds (VOCs) in excess of 50 grams/liter.
• Products whose Safety Data Sheet (SDS) rates health, fire and/or reactivity as exceeding “1” on a scale of 0 to 4.
• Products emitting strong odors.

Approved Manufacturers:
A. LACO
B. Rector-Seal
C. Hercules

20. Plumbing Fixture Trim
   Approved Manufacturers:
   A. Lavatories
      a. American Standard
      b. Chicago
      c. Kohler
      d. Sloan
      e. Toto
      f. Zurn

21. Plumbing Fixtures
   Approved Manufacturers:
   A. American Standard
   B. Kohler
   C. Toto
   D. Zurn

22. Purified Water System Equipment
   Approved Manufacturers:
   A. Siemens
   B. Hydro (except for dialysis)

23. Safety Showers/Eyewashes
   Eyewash stations shall be manual hand type. Showers shall be ball valve pull type.

   Approved Manufacturers:
   A. Encon
   B. Guardian Equipment
   C. WaterSaver Faucet Co.

24. Seismic Restraints
   Approved Manufacturers:
A. Mason Industries
B. Tolco

25. **Sump Pumps and Ejectors**
   Approved Manufacturers:
   A. Flygt
   B. Tsunami
   C. Gorman Rupp

26. **System Identification**
   Equipment Labels shall be engraved plastic nameplates with a black surface and white core with engraved letters. Engraved lettering shall be a minimum of 2” in letter height.

   Pipe Labels shall be installed every 5 feet in concealed areas and every 10 feet in un-concealed areas and shall be self-adhesive labels with direction-of-flow arrows and the name of the service printed in black letters not less than 1 inch high for pipe 2-1/2 inches and smaller, 2 inches high for 3 inch pipe and larger. Markers shall have backgrounds of different colors for the various service groups. Pipe labels shall be color coded (per ASME A13.1) as follow:

   Fire Quenching Fluids – White on Red
   Toxic and Corrosive Fluids – Black on Orange
   Flammable Fluids – Black on Yellow
   Combustible Fluids – White on Brown
   Potable, Cooling, Boiler Feed and other Water – White on Green
   Compressed Air – White on Blue
   Vacuum – White on Green

   Valve Tags: Each valve tag shall be 3 in diameter, brass, aluminum or stainless steel with letters 2in in height. A schedule showing all valve locations, size, and service shall be provided.

   Approved Manufacturers:
   A. Brimar Industries Incorporated
   B. Seton Nameplate Corp.
   C. W. H. Brady Co.

27. **Toilet Seats**
   Approved Manufacturers:
   A. Church
   B. Olsonite

28. **Vacuum Pumps**
   Approved Manufacturers:
29. **Valves**

Dielectric fittings shall be installed between all dissimilar metals. All mixing valves shall be installed with check-valves on the hot and cold water lines.

Ball valves (2 ½” maximum) must be used for manual isolation on all domestic hot and cold water systems. High performance butterfly valves suitable for dead end service shall be used for this purpose on piping 4 in and larger.

All valves used in plumbing systems shall close bubble tight and be suitable for dead-end service designed to be able to close off to atmospheric pressure on either side of valve.

All valves located more than 7 feet above the finished floor, shall be provided with a chain wheel for operation from the floor. All fire protection valves installed 7 feet above floor or stair landing shall be provided with chain wheels and shall be padlocked securely in place.

Approved Manufacturers:

A. **Ball Valves**
   - Apollo
   - Nibco

B. **Butterfly Valves**
   - Apollo
   - Keystone

C. **Pressure Relief Valves**

   Provide at each pressurized water vessel and as required by Code. Relief valves shall meet the maximum allowable working pressure of piece of equipment for which it is installed. Relief valve piping shall be full sized according to outlet size of relief valve and shall be piped to the floor.
   - Apollo
   - Febco
   - Watts

D. **Temperature Mixing Valves**
   - Leonard
   - Powers
   - Holby

30. **Water Supply Pumps**
All pumps shall be provided with premium efficiency motors. Pumps shall not be provided with triple-duty valves unless install restrictions require such an install. If triple-duty valves are required, they shall be reviewed and approved by Facilities Operations. Butterfly valves shall not be used on the pump suction.

Piping and pumps shall be independently supported. All piping within 50 feet of pump shall be supported with hangers having spring type isolators.

Install pumps in such a way to allow periodic maintenance, which includes removal of motors, impellers and couplings. Pumps are required to be able to be drained down.

Bearings shall have a life grade of L5 with a minimum of 50,000 hours.

Provide hoist type access for maintenance purposes.

Approved Manufacturers:
  A. Armstrong
  B. Aurora
  C. Bell & Gossett
  D. Gould
  E. Paco
  F. Peerless
  G. Weinman

END OF PLUMBING SECTION
5. **FIRE PROTECTION**

A. **Codes, Regulations and Design Standards.**
The entire installation shall comply with the current City of New York Building Codes, NFPA, NYC Fire Department, Factory Mutual Global Insurance or another insurance underwriter and all other applicable local Codes.

B. **Design Criteria**
   
   I. Buildouts shall be provided with full sprinkler protection and sprinkler systems shall be hydraulically calculated in accordance with the current City of New York Building Code and NYC Fire Department requirements.

   II. Fire department standpipe connections shall be provided with a 2-1/2 fire hose valve and hose rack on every landing of every required stairway.

   III. Areas without ceilings (storage, mechanical spaces, etc.) shall utilize upright sprinkler heads.

   IV. Areas with suspended ceilings (back of house areas, bathrooms, offices, etc.) shall utilize concealed sprinkler heads.

   V. Areas subject to freezing shall utilize dry sidewall sprinklers or a dry pipe sprinkler system with upright sprinkler heads.

   VI. Generator Rooms shall be provided with dry pipe system or pre-action sprinkler systems. Contact Facilities Operations for review and approval.

   VII. Fuel Oil storage rooms shall be protected with a wet type foam sprinkler system or as reviewed and approved by Facilities Operations.

   VIII. New and retro-fitted sprinkler systems shall have at least a 1-1/2” valve connection for draining.

   IX. Electrical Closets shall be provided with wet side wall sprinkler heads each with protective cages.

C. **Equipment**

   1. **Anchors and Inserts**
      
      Approved Manufacturers:
A. Grinnell
B. Hilti
C. Philips
D. Simpson Strong Tie

2. **Motor Starters**
   Approved Manufacturers:
   A. Allen Bradley
   B. ASCO
   C. General Electric
   D. Gould Westinghouse

3. **Motors**
   Approved Manufacturers:
   A. Baldor
   B. General Electric
   C. Toshiba

4. **Pipe Hangers and Supports**
   Approved Manufacturers:
   A. B-Line
   B. Grinnell
   C. Hilti
   D. Michigan Hanger
   E. PHD
   F. Tolco

5. **Piping**
   Approved Manufacturers:
   A. Flanges
      a. Grinnell
      b. Ladish
      c. National Flange
      d. Taylor Forge
      e. Weld Bend
   B. Screwed Fittings
      a. Central
      b. Grinnell
      c. Ward

6. **Preaction Control Panel/Equipment**
   Approved Manufacturers:
   A. Fenwal
   B. Simplex

7. **Preaction/Dry Pipe Valves**
Approved Manufacturers:
   A. Reliable
   B. Viking
   C. Victaulic

8. Pressure-Reducing Valves
   Approved Manufacturers:
   A. Cla-Val
   B. Watts

9. Pumps
   Approved Manufacturers:
   A. Fire Pump Controllers
      a. ASCO/Firetrol
      b. Joslyn-Clark
      c. Hubbell
   B. Fire Pump Controller Automatic Transfer Switch
      a. ASCO/Firetrol
      b. Eaton
      c. Russelectric
   C. Fire Pumps
      a. Aurora
      b. Patterson
      c. Peerless
   D. Jockey Pumps
      a. Aurora
      b. Groundfos
      c. Peerless

10. Standpipe System Equipment
    (Siamese, fire hose valves, fire hose cabinets, and racks, etc.)
    Approved Manufacturers:
    A. Badger-Powhattan
    B. Croker
    C. Elkhart
    D. Potter-Roemer

11. Seismic Restraints
    Approved Manufacturers:
    A. Mason Industries
    B. Tolco

Approved Manufacturers:
A. Grinnell
B. Reliable
C. Viking

13. System Identification
Equipment Labels shall be engraved plastic nameplates with a black surface and white core with engraved letters. Engraved lettering shall be a minimum of 2” in letter height.

Pipe Labels shall be installed every 5 feet in concealed areas and every 10 feet in un-concealed areas and shall be self-adhesive labels with direction-of-flow arrows and the name of the service printed in black letters not less than 1 inch high for pipe 2-1/2 inches and smaller, 2 inches high for 3 inch pipe and larger. Markers shall have backgrounds of different colors for the various service groups. Pipe labels shall be color coded (per ASME A13.1) as follow:

- Fire Quenching Fluids – White on Red
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- Flammable Fluids – Black on Yellow
- Combustible Fluids – White on Brown
- Potable, Cooling, Boiler Feed and other Water – White on Green
- Compressed Air – White on Blue

Valve Tags: Each valve tag shall be 3 in diameter, brass, aluminum or stainless steel with letters 2in in height. A schedule showing all valve locations, size, and service shall be provided.

Approved Manufacturers:
D. Brimar Industries Incorporated
E. Seton Nameplate Corp.
F. W. H. Brady Co.

14. Tamper Switches
Approved Manufacturers:
A. Acme
B. Grinnell
C. Potter
D. System Sensor
E. Viking

15. Valves
Approved Manufacturers:
A. Butterfly Valves
   a. Grinnell
   b. Jamesbury
   c. Jenkins
   d. NIBCO
   e. Victaulic

B. Check Valves
   a. Crane
   b. Grinnell
   c. Kennedy
   d. Mueller
   e. NIBCO
   f. Victaulic

C. Gate Valves
   a. Crane
   b. Grinnell
   c. Jenkins
   d. Kennedy
   e. NIBCO
   f. Walworth

16. Vibration Isolators
   Approved Manufacturers:
   A. Amber Booth
   B. Korfund Dynamics Corp.
   C. Mason Industries
   D. Vibration Eliminator Co.
   E. Vibration Mountings & Controls

17. Water Flow Switches
   Approved Manufacturers:
   A. Potter Electric Signal Company
   B. System Sensor

18. Water Proof Sleeves
   Approved Manufacturers:
   A. Thunderline Corp. “Link Seal”

END OF FIRE PROTECTION SECTION
6. **FIRE ALARM**

   A. **Codes, Regulations and Design Standards.**

   The entire installation shall comply with the current City of New York Building Codes, NFPA, NYC Department of Fire, Department of Environmental Protection Agency and all other applicable local Codes.

   B. **Design Criteria**

      I. The following buildings have their separate respective EST3 fire alarm systems:

         a. Tisch Hospital
         b. Smilow Research Center
         c. Medical Science Building/Alumni Hall and Coles
         d. Schwartz Health Care Center

      II. All audibles shall be synced.

      III. Chimes shall be installed in all sensitive areas in lieu of horns. Sensitive areas include Operating Rooms, NICU, Anesthesiology, and Pre-Surgical. Contact Facilities Operations prior to designing in sensitive areas. Contractor shall obtain waiver if chimes are used in lieu of horns.

      IV. For Operating Rooms:

         a. During a detected fire/smoke alarm, only the fan/unit serving the Operating Room which the alarm was generated at shall shut down. All other operating room fans shall stay operational.

      V. As part of the contractor scope of work, the contractor shall revise all code cards in the facility. There are approximately 220 code cards that will need to be revised.

   C. **Equipment**

      1. **Fire Alarm System**
         Approved Manufacturers (no substitutes):
         A. Edwards – EST3

      2. **Heat Detectors**
         Approved Manufacturers (no substitutes):
         A. Edwards EST GSA-HFS

      3. **Strobe/Speaker**
         Approved Manufacturers (no substitutes):
         A. Edwards EST 757-8A-RS70
4. **Strobe/Horn**
   Approved Manufacturers (no substitutes):
   A. Wheelock MT-241575W-FR

5. **Strobe**
   Approved Manufacturers (no substitutes):
   A. Wheelock RSS-241575W-FR

6. **Smoke Detector**
   Approved Manufacturers (no substitutes):
   A. Edwards EST GSA-PS

7. **Duct Detector**
   Approved Manufacturers (no substitutes):
   A. Edwards EST GSA-SD

8. **Manual Pull Station**
   Approved Manufacturers (no substitutes):
   A. Edwards EST 270 Series

END OF FIRE ALARM SECTION