Architectural Principles for MIT Undergraduate Residences

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Division of Student Life

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UNDERGRADUATE HOUSING AT MIT

MIT's approach to learning is guided by the understanding that one learns best by doing, and then by sharing what they learn with others.[1] The residence halls are anchored in this mission, and are places where peer-to-peer relations, student-faculty engagement, and student-staff interaction have a profound effect on student development.

As MIT looks to its future, we embrace the importance of residential living communities to our educational model. Several students, faculty, and staff have developed the architectural principles herein (Appendix A: group charge), imagining undergraduate residential halls that are warm and inviting places where students learn together, socialize, and develop lifelong friendships.

A unique aspect of MIT's residential system is its commitment to shared governance as a means of strengthening students' involvement in campus life, developing positive relations with faculty and administrators, furthering their skills and knowledge, and promoting peer-to-peer interaction. Faculty-student engagement in residential life is a high-impact educational practice that has been well established. The *2004 National Study of Living Learning Programs* surveyed more than 24,000 students on 34 American campuses, with a follow-up study in 2007, and identified attributes that contribute most to students' growth, well-being, and sense of belonging: faculty involvement (usually in the form of teaching or advising), an emphasis on study groups in residence, peer engagement in community service activities, residence-based advising, recreational programs, social outings and events, cultural and intellectual programming, and team-building. [2]

MIT's residential living communities complement students' academic life, offering unique opportunities for learning and leadership. MIT students are actively involved in every aspect of dorm life and engage in residence hall governance, the room assignment process, and community building. It is worth noting that the vast majority of MIT undergraduate students live in residence halls throughout their four years, and many stay in the same residence hall they lived in their first year on campus. These factors help make residence hall affiliation one of the strongest community bonds among undergraduates.

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[1] *Institute-wide Task Force on the Future of MIT Education Preliminary Report*. Rep. Massachusetts Institute of Technology, 21 Nov. 2013. Web. Appendix 5 of the Final Report, p.23

[2] *National Study of Living-Learning Programs*. Rep. National Science Foundation, Association of College and University Housing Officers International, ACPA: College Student Educators International, and NASPA: Student Affairs Administrators in Higher Education (NASPA), 2007. Web. http://drum.lib.umd.edu/handle/1903/8392.

A review of published student housing research, recent MIT student surveys and housing and dining studies, and input from students, faculty, and staff across MIT have informed these recommendations.[3]

I. STUDENT SPACES

The Cluster Concept

The organizing principle of an MIT residence hall is a cluster of approximately 30 students and one graduate residence tutor (GRT). Though minor fluctuation up or down is acceptable if design constraints make it necessary, ideally, the cluster size would be 30 students. Each cluster would also have common space nearby.

The Critical Path

The path each student takes from the entrance to his or her room is that student's "critical path." How they travel through a building helps them interact with others and their environment. Ideally each resident's path would lead them past community-building spaces and through hallways bustling with activity: students engaged in cooking, music and dance rehearsals, projects under development, meetings, workouts, and games. The spaces where such activities take place should be highly visible and easily accessible. Ultimately, the critical path encourages peer-to-peer interaction.

Building Capacity

MIT has a goal of adding 700 new beds to the undergraduate housing system; however, building one large residence hall for all 700 students is neither desirable nor in keeping with the importance of fostering personal ties and building community.

A review of literature on residence hall design indicated that high-rise configurations resulted in a perception of crowding and social density. Further, high-rise buildings negatively influenced patterns of interaction and sense of community, and increased feelings of isolation. Likewise

[3] Sources include the *Housing Capacity Review* (2015), *Met Warehouse Schematic Design* (2015), *MetX Student Advisory Group Report* (2015), *Department of Facilities MIT Residences Thematic Folder* (2016), Student Housing Advisory Council presentation to the DSL Visiting Committee (2015), Student Housing Advisory Group focus sessions (2015-16), and recent student surveys.

residents reported being less satisfied with long corridors, which felt more crowded and led to development of fewer relationships.[4]

A mix of long and short corridors in a "U-shape" or "double-tower" configuration would be optimal, with an ideal size of about 350 students, configured in smaller clusters of approximately 30. They would be supported by a faculty head of house, approximately 12 GRTs, one area director (AD), and a house manager in addition to mechanics and custodians. In circumstances where there are more than 350 residents, an associate head of house may be added to the house team.

Rooms and Sizes

Research suggested that double rooms off a corridor were an ideal housing design for first-year student housing. This rooming type leads to increased contact among residents and relationship building.[5] Students advising on the MetX project suggested that MIT should avoid triples as they "have a tendency to develop into a two versus one scenario." MIT's newer residence halls were built with fewer singles. In Maseeh, which opened in 2011, 16% of the beds are singles, 64% are doubles, and 20% are triples and quads. In Simmons, which opened in 2002, 45% of the beds are singles and 55% are doubles.[6]

Given the desire for a more efficient design, we recommend that new buildings have a target ratio of approximately 30-40% singles and the balance as doubles, allowing most (if not all) seniors to have a single and providing for accommodation needs. A mix of doubles and singles housing approximately 30 residents (and a GRT apartment) would form the residential cluster with approximately 10 single rooms and 10 double rooms per cluster. Floors should be organized horizontally, and residents should have access to all floors via stairways and ADA-compliant elevators.

The below rooming types and square footage recommendations were guided by a review of the literature, the *2015 Met Warehouse Preliminary Design Study*, the *2015 MIT Undergraduate Housing Capacity Review*, and the *2016 MIT Department of Facilities Thematic Recommendations for Residence Halls*. The *2015 Housing Capacity Review* proposes minimum

[4] Blimling, Gregory S. *Student Learning in College Residence Halls: What Works, What Doesn't, and Why*. 1st ed. San Francisco: Jossey-Bass, 2015. Print. p. 181

[5] Blimling, Gregory S. *Student Learning in College Residence Halls: What Works, What Doesn't, and Why*. 1st ed. San Francisco: Jossey-Bass, 2015. Print.

[6] *MetX Student Advisory Group Report*. Cambridge, MA: Massachusetts Institute of Technology. Unpublished. p. 7

size and ranges for each room type based on Massachusetts sanitary code and MIT's housing needs and practices.

	State Code	Housing Study Guidelines	Proposed Program Design
Single	80-119 square feet	80-149 square feet	90 square feet (min.)
Doubles	120-179	150-224	180 square feet (min.)
Triples	180-239	225-299	270 square feet (min.)*
Quads	240-299	300-443	360 square feet (min.)*

*Triples and quads are not a preferred rooming type; however, if the architecture warrants a limited number of triples or quads, 90 square feet should be added per occupant.

Furniture

Standard residence hall furniture should be used, including XL twin beds (with loftable head- and footboards), wardrobes with drawers and a mirror, dressers incorporating three or five drawers, and 4' and 6' bookshelves, all in oak finish. A couple of desk size options should be made available to suit residents' preferences. All desks should be in oak finish, with multiple drawers, loft bookshelf, and drawer pedestal. The desk chair is a Sauder upholstered armless chair.

Residents should have the flexibility to disassemble and reconfigure some of the standard furniture. Also the building should have sufficient lockable storage space to hold unused or unwanted furniture during the school year.

Specifications call for much of the furniture to be on casters. However student feedback suggested that wheeled furniture may pose a hazard in certain circumstances, and wheel-less furniture can be moved with only a little more difficulty. This matter bears additional discussion as project development gets underway.

Bathrooms

All bathrooms will be compliant with local, state, and federal guidelines on handicap and gender accessibility. They will also be accessible directly by the hallways to allow for ease in maintenance and cleaning. Ideally, each cluster will have three bathrooms to allow for gendering based on the cluster's preference. Standard fixtures consists of a water closet (toilet), lavatories (sinks), and showers. Urinals are not to be used. The student-to-toilet ratio should be 1:6 in new residence halls. This is the Massachusetts code minimum for women, and better than the code minimum for men.

Bathrooms should allow for maximum privacy with lockable floor-to-ceiling doors on toilets and

showers that provide adequate privacy. There should be soap dispensers, hand dryers, adequate shelving, and power outlets near sinks. In shower areas, hooks should be installed to accommodate residents' clothing and toiletries. If space is available, drying areas with a bench might be considered to enhance convenience and privacy.

II. EATING AND FOOD

Food and eating are fundamental to building a positive residential experience and are important to all students whether they live in dining dorms or cook-for-yourself communities. Dining spaces create opportunities for socialization such as meeting a professor over a meal, studying in a group while cooking, or hosting community gatherings and events. *MIT's 2015 Enrolled Student Survey* showed:

- 64% of students "agree" or "strongly agree" that "Meals are an important part of my residential experience."
- 56% of students "agree" or "strongly agree" that "Eating meals together is important to members of my eating group."
- 79% of students "agree" or "strongly agree" that "I have the opportunity to socialize with other students when I eat meals.

How students eat in the context of their residential community generally falls into two categories:

House Dining - There are five undergraduate residences with dining halls. These facilities each incorporate a full kitchen and dedicated dining room. Some dining rooms have removable furniture, which allows those spaces to be used in other community building activities. All students who live in residences with dining halls are required to be on an MIT dining plan. Since its introduction in 2011, participation in the dining plan has grown significantly.

Cook-for-Yourself - As the name suggests, students who choose to cook for themselves prepare their own meals in kitchens spread throughout residences without dining halls. Kitchens help foster community, are used as social spaces, and promote healthy living and self-reliance. In recent surveys, more than half of new students report they like to cook often or sometimes, and nearly one third would like to learn how to cook.[7]

[7] Division of Student Life. *Class of 2019 Freshman Housing Survey* and *Class of 2020 Freshmen Housing Survey*. Cambridge, MA: Massachusetts Institute of Technology. Unpublished.

Deciding whether a new residence hall should have a dining hall or be a cook-for-yourself community is outside the scope of this document. The design of spaces where students eat should be considered and ultimately tailored to each community's needs.

Dining Halls

A dining hall should incorporate a full commercial kitchen and seating for up to 75% of the building's total residential population, with additional space considerations for students from cook-for-yourself communities who are on dining plans. The space should be partitionable into smaller spaces suitable for 30-40 people, which could be used for meals shared by affinity groups or student organizations. Furniture should not be fixed to the floor, allowing students to reconfigure the space and enable social and academic interactions. The furniture should be removable and stackable to allow the dining hall to double as community-building space suitable for events.

Dining halls should have separate exterior entrances to simplify access for non-resident and faculty diners, and for functions hosted by the community. Adequate gender-inclusive restrooms should be located near the dining hall and accessible to all diners without a card swipe.

Kitchens

The 2016 MetX Student Advisory Group noted that kitchens were an important part of the residence hall living experience. All new residence halls—both dining and cook-for-yourself—should have kitchens that incorporate a four-burner cooktop, oven, microwave, large refrigerator with a sizeable freezer, and dishwasher. Each should have ample counter space for ingredient preparation, and numerous cabinets for storing food, utensils, and small appliances. Kitchens should also incorporate nearby seating for groups of 8-10 people.

The ratio of kitchens to clusters should be different for dining dorms and cook-for-yourself communities. For a dining dorm, there should be a minimum of one kitchen for every 50 students; alternatively, three clusters could share an expanded kitchen with two cooktops, ovens, and large refrigerators. This ratio is similar to current campus dining dorms.

In cook-for-yourself dorms, there should be kitchens with a minimum ratio of one cooktop, oven, microwave, and large refrigerator for approximately 10 students. This could be designed as multiple smaller kitchens with one cooktop, oven, microwave, and refrigerator, or fewer larger kitchens with multiple cooktops, ovens, microwaves, and refrigerators. This is in keeping with the design of existing cook-for-yourself communities.

Additionally both dining and cook-for-yourself communities ideally would have "country kitchens" that can be used as a teaching kitchen, and a place to cook with friends and to share

meals. These facilities would incorporate multiple full kitchens with the same complement of appliances and as much preparation and storage space as cluster kitchens. Adjacent to the kitchens would be seating for up to 50 people, which could be a multi-purpose space. The furniture in this space would also be movable and stackable, to allow the space to be used in other capacities.

All kitchens should be easy to clean, incorporate floor drains, and have durable appliances that can stand up to frequent use.

Teaching and Shared Dining Kitchen Concepts

In light of students' desire to learn how to cook, where "country kitchens" are used in both dining and cook-for-yourself communities for this purpose, local chefs could be commissioned to teach a range of classes, from safe food-handling techniques, to basic food preparation, to advanced cooking methods.

Also we encourage architects to investigate an approach to dining halls at the California Institute of Technology (Caltech) which features a central kitchen shared by four residence halls. The kitchen prepares meals which are shared through serveries to four separate dining rooms, one in each residence hall. Such an approach would be in keeping with MIT's sustainability efforts, and allow for multiple communities to bond over shared meals while maintaining their own distinctiveness.

III. SHARED SPACES

Entryways – Building entrances should be situated conveniently in relation to the campus and in context to the building's overall design. Entryway common areas should also accommodate large numbers of residents, be suitable for families during move-in and move-out, and allow easy access to and egress from the building.

While security is a necessity for each residence hall, the security desk should not dominate the entryway. Instead, the entryway should be both welcoming and representative of the community's culture.

A student worker desk separate from the security desk should be situated near the entrance, adjacent to the mailboxes. Student workers should have ample space for storing packages, small appliances (e.g., vacuum cleaners, sewing machines, irons), DVDs, video games, and other amenities. They would also be responsible for distributing mail to mailboxes.

Community-Building Space - *The 2016 Department of Facilities MIT Residence Thematic Folder* notes "all Houses should include space for music practice, a game room, floor lounges for study

and TV/movie watching, multiple meeting/study rooms, exercise/activity space, bicycle storage, large event/dining space, and community kitchens/efficiencies."

An increasing number of students are athletes, artists, or musicians, with more than a quarter of recent incoming undergraduate classes identifying as engaging in a range of these activities. While it is recognized that some rooms should be "hard-coded" single-function rooms (such as art studios, music rehearsal rooms, and gyms), the majority of community-building spaces should be flexible enough to support a wide variety of activities, from social gatherings to academic sessions—such as recitations, tutoring, and mentoring sessions—to private meetings. Many of these spaces should be available by reservation only, while some should be open to any residents for spontaneous use. It should be noted that while flexibility is ideal, the ventilation, power, and AV requirements for some of the aforementioned functions may not be interchangeable.

Whiteboards should be available in all community-building spaces, hallways, and other strategic locations where students congregate. Where necessary, glass walls will help increase visibility into the spaces, and provide writing surfaces.

Additionally each cluster should have its own lounge for informal social gatherings and shared academic work in addition to the gathering space adjacent to the kitchen. These spaces should not have doors (where practical) to communicate a sense of the activities going on inside as students travel along their critical paths.

Per the *2016 Met Warehouse Schematic Design Study*, the average undergraduate housing common space is 52 square feet. In keeping with the existing average, on a per-student basis, community building space should account for approximately 45-50 square feet per resident.

Project Spaces - *The 2015 Final Report on the Institute-wide Taskforce on the Future of MIT Education* calls for a system of makerspaces that will help to hold "our educational principles and values steady given an anchor in experiential learning and practical arts." The report notes, "Makerspaces are places for communities of people who have a passion for making things, and who want to share that passion by making with others."[8]

Given their community focus, makerspaces in residence halls could be ideal and should be integrated into a building design, reinforcing the *mens et manus* ethos. That said, makerspaces will add to the planning schedule and project costs given the need for space and ventilation; hence, the design should be relatively simple. A makerspace in the residence hall should have an appropriate scope that would not require dedicated on-site personnel to oversee the safety

[8] *Institute-wide Task Force on the Future of MIT Education Preliminary Report*. Rep. Massachusetts Institute of Technology, 21 Nov. 2013. Web. Appendix 5 of the Final Report, p.38

and maintenance or to provide training. Consideration should be given to security and access for residents and non-residents, and the types of equipment in the space to ensure good air quality and overall student safety. For more complex tools or for training, MIT's Mobius App is available to help the students gain access to other campus makerspaces. The new Victor and William Fung makerspace in the Metropolitan Warehouse will be one of these options. Typical makerspace should be large and well lit with high ceilings and appropriate ventilation. The spaces would accommodate numerous workbenches, and lockable storage of various sizes for storing hand tools, materials, and work in progress.

Makerspace should be designed to get dirty—imagine paint-splatters and use marks on the floors, walls, and benches—but be very easy to clean. And, since such space usually generates significant noise, dust, and fumes, it should be situated away from living spaces. Project work, however, is not restricted to just a fixed makerspace. A flexible approach to community-building space should allow students to do projects in multiple locations around the building.

Approximately 25-30% of total makerspace square footage should be counted as community-building space.

Pathways and Corridors - The act of getting from one place to another in a residence hall should be an educational experience for students, utilizing all aspects of the structure and environment. *The 2016 MetX Student Advisory Group* noted, for example, that location of the stairwells can "improve the flow of people through the building and help to increase the usage of the central common areas and thus a larger sense of community in the dormitory." In this example, utilizing automatic fire doors would allow egress stairwells to remain open and be more inviting. This would extend the stairs' value beyond simple utility and encourage socialization among floors. Even the corridors and floors can offer work and hangout space given comfortable carpeting, furniture, and other amenities.

Exterior Spaces – Like other community-building spaces, exterior space should be flexible and useable all year, even in winter. For example, students like to grill in the BBQ pits in winter, but care must be taken to ensure grills comply with code requirements for outdoor flames, and that residents using the exterior spaces do not track the weather in with them. Installation of metal gratings over catch-basins that allow residents to shake off rain, snow, and mud from their clothing and boots by doors leading to exterior spaces is advisable.

One large, well-positioned exterior courtyard is preferred over multiple small, disjointed areas. The courtyard should be closed to passersby, but with a gate that can be opened in a way that allows the community to host outdoor events safely and securely.

Some landscaping and permanent fixtures (such as grills) should be incorporated, but pushed to the margins of the space, leaving the majority open for flexible use. When situating the

courtyard in the context of the building itself, the designers should be mindful of weather patterns (e.g., where does the sun rise and set), and the building's effect on wind in particular. Other communities' exterior spaces are positioned in a way that makes them very windy under certain conditions, which should be avoided.

Laundry - *The 2016 MetX Student Advisory Group Report* states, "Many of the dormitory presidents that we spoke with told us that, at ratios of approximately 30 students per washer, the laundry systems present in residence halls now is inadequate for the needs of students." They recommend that the laundry facilities be in a convenient location, but far enough away to minimize disturbing residents with noises and odors.

Laundry facilities should be well lit with an adequate number of machines, at a ratio of about one washer and dryer per 20 residents. The laundry room doors should be automatic or operated by push-button, allowing residents to open the door without dropping their laundry.

The laundry rooms should incorporate floor drains, a slop sink, folding tables, and space for ironing clothes. To prevent neglected loads of laundry from taking up washers or dryers, laundry rooms should include cubby holes or baskets. Loads of laundry that have been forgotten can be loaded into these storage areas, freeing up the machine for others to use.

Flooring – Carpeting is suitable for corridors, common areas, and some community-building spaces. The selected carpet should be durable, but soft enough for bare feet and comfortable to sit on. Wall-to-wall carpeting should be avoided in residents' rooms to prevent against particulate contamination leading to allergic reactions.

Walls and Lighting – Walls in multi-use and academic areas should have whiteboards or glass panels that allow users to write in marker during meetings.

The building design should incorporate large windows in key places to allow for copious natural light to get deep into the building. All lightbulbs should be energy efficient and easy to change. As much as possible, lights in student rooms, common spaces, and community-building spaces should be locally controllable with dimmer switches to permit flexible use. For the sake of sustainability, they may also be put on timers or motion detectors but should not be controlled by remote or secured systems that require disturbing house team members to use.

Other Utilities – Technology design should be included early in the building design process to ensure the proper configuration of the network and power infrastructure needed to support all specified, technology-enabled systems. Amenities such as flat panel displays, AV systems in community-building space, online room reservation systems, room signage displays, keyless locking systems, and perimeter security requirements should be established up front to ensure proper design of physical requirements (e.g., wiring chaseways) and hardware requirements (e.g., network cabling, Wi-Fi transmitters). Also any building systems that require network

access (e.g., HVAC, plumbing) should be incorporated in the technology design as early as possible.

At minimum the pillow-to-port ratio should be 1:1, but higher is better in the event that a student's Ethernet connection is malfunctioning. The WIFI signal should be strong and even throughout the building. Additionally, care must be taken to ensure consistent and strong cellular reception in the building to accommodate the multitude of mobile devices used by residents.

Power outlets should be plentiful in all rooms. In larger community-building spaces, jacks should be built into floors to allow for the setup of AV systems for events. Power backups should also be incorporated to ensure continuous operation of critical building systems and emergency lighting during outages.

Sustainability – MIT aspires to create sustainable, high-performance buildings and responsible site strategies. All new construction and renovation projects should comply with the "Sustainable Design Standards" section of *The MIT Building Systems Design Handbook*. These standards require all new construction and major renovation projects to earn the US Green Building Council's Leadership in Energy and Environmental Design (LEED) gold certification, version 4. Partial renovation and limited-scope projects are also encouraged to pursue LEED certification in the commercial interiors program, version 4.

In addition to these standards, each project team should evaluate and implement project and site-specific sustainability strategies to address the following sustainable design principles:

- Energy Efficiency
    - Provide a project environmental impact statement that will include a feasibility analysis of renewable energy potential for this project and an assessment of this project's anticipated greenhouse gas emissions impact.
    - Evaluate passive and active design strategies to optimize energy efficiency, including but not limited to design options for building massing, building envelope systems, natural and mechanical ventilation strategies, heating and cooling systems, daylighting, and lighting design.
    - Coordinate the project's measurement and verification strategy with Campus Construction's Systems Performance and Turnover Group, and Systems Engineering Group.
- Water Use Reduction
    - Exceed the LEED prerequisite baseline for interior water use reduction (>20%

reduction).

  - Provide a feasibility study of innovative ways to reduce, track, manage, and reuse water on site.
  - Evaluate integrated landscape and stormwater strategies for their environmental and human health impacts.

- Waste Management
  - Consider site and building design strategies to optimize materials flow and reduce waste streams.
  - Comply with the LEED MR credit for construction and demolition waste management (75% diversion or <2.5 lbs. of waste per square foot of floor area).
  - Coordinate with MIT's Office of Sustainability to consider how the building design can support zero-waste behavior by occupants.
  - Incorporate secondary waste utilization methods for kitchen and dining hall waste.
- Healthy Indoor Environment
  - Comply with the LEED MR credit for building life-cycle impact reduction as a tool to optimize the environmental performance of products and materials specified for the building project.
  - Document the "green cleaning" program that will be used in the building, including products and protocols.
  - For projects with dining facilities, coordinate with MIT's Office of Sustainability to explore a sustainable approach to the design of food systems on campus.
- Occupant Engagement and Learning
  - Conduct a study of occupant behavior in existing residence halls in order to inform strategies for energy-efficient design in new buildings.
  - Include an interactive system to make building performance data accessible to building occupants in order to encourage energy-efficient behaviors.
  - Coordinate with MIT's Office of Sustainability to explore how the building can be designed as a "living lab" with educational opportunities for building occupants and visitors.

While striving to meet these goals, new residences should include air conditioning with zoned temperature controls. Students currently install or jury-rig portable and window-unit air conditioners in their rooms, which have a significant impact on the environment and are notoriously inefficient. There is significant subjective data on the prevalence of window AC units in residence halls that suggests widespread use across campus. With central air, the need for window AC units is negated, and the net decrease in energy usage and various types of pollution would likely offset the environmental impact of a full HVAC system. This would also allow buildings to be used for summer conferences. The design should include passive energy reduction techniques, such as windows set into deeper walls to shield the interior from direct rays during the hottest part of the day.

Beyond environmental controls, buildings should have facilities for other environmentally friendly pursuits, which influence student well-being as well as sustainability goals. These may include gardening, green roofs, and bee- and bat-keeping.

V. RESIDENTIAL STAFF LIVING SPACES

Based on historical practice and program needs, the *2016 Department of Facilities Design Standards* recommends that each undergraduate residential hall has space for the faculty head of house, area directors (ADs), visiting scholars, and GRTs. Some houses also have resident-peer mentors (RPMs) who would reside in singles and live among their mentees. This document also recommends adding an associate head of house for communities larger than 350 residents.

Average head of house accommodations should be 1,600 - 2,000 square feet, incorporating three bedrooms, two-and-a-half baths, a living room, dining room, kitchen, office, and laundry. Associate heads of house should be 800 - 1,200 square feet minimum, with two bedrooms, one-and-a-half to two baths, living room, dining room, kitchen, office, and laundry. Area directors and visiting scholars should be 550 - 700 square feet minimum, incorporating two bedrooms, one bathroom, living/dining room, and kitchen.

Each GRT apartment should be located in a student cluster, ensuring adequate oversight and community-building among residents. Their apartments should have 300 - 450 square feet minimum, one bedroom, one bathroom, living/dining room, and kitchen. It is important to note that GRTs often have families with small children. They also frequently cook and share meals with students in their cluster, so groups of up to 10 students should fit comfortably in the GRT's apartment.

For instances when residential staff meet with groups of students and their apartment is either too small or not available, having a dedicated space designed to feel like a homely extension of the head of house, AD, or GRT apartment would be sensible. Because of the sensitive nature of

their work with residents and the potential presence of young children in their apartments, it is recommended that the doors and walls in apartments and facilities for heads of house, ADs, and GRTs be sound-proofed.

VI. SUPPORT STAFF SPACES

The *2016 MIT Department of Facilities Design Standards* note that facilities for support staff should include the following:

1. Lobby security desk high enough to provide unobstructed views of entry points, lobby areas, and guests even while the security staff member is seated. The desk should not, however, dominate the entrance. The desk should include lockable storage drawers to facilitate lock-out key procedures. There should be space for installation of video monitors, a desktop computer or laptop with docking station, and analog or VOIP phones and AIPHONE video console. Space under the desk can be used for installation of a desktop computer, provided there is adequate leg room.

2. Staff break rooms, which incorporate a microwave oven, room for a small dining table and chairs, a bathroom and possibly a shower, and lockers for storing personal belongings.

3. For efficiency, the maintenance mechanic shop should service multiple residences in a zone system. The zone office can be outfitted with office and computer, workshop, supply and tools storage.

4. Storage space for MIT residence hall furniture and cleaning supplies. Bicycle storage will comply with city ordinances, and be located convenient to the building's main entrance.

5. House manager's office on the first floor, with space for meeting with students and a glass window on the lobby to be visible by residents.

6. Area director's office on the first floor, with space for meeting with students.

7. Flexible office space on the first floor for use primarily by Student Support Services, mental health staff, or MIT Medical.

8. "Food bank" space as needed to ensure the availability of food during inclement weather or other emergencies.

Appendix A - Group Charge

The Architectural Principles for MIT Undergraduate Residences Group will develop a document that synthesizes information from various sources—including MIT reports and surveys, regulations, and industry standards—relating to ideals for academic, social, residential, and dining spaces in residence halls. This architectural principles document will inform pre-design of new residence halls at MIT. Other groups of students, faculty, and staff will review increasingly refined building designs later in the process of developing a new student residence.

This group will consider ideal programming for new residence halls, including sustainable design, room types and mix, capacity, dining spaces, affinity housing, house team accommodations, social and academic spaces (such as art-making rooms, advising, and mentoring spaces), and administrative space to support residence hall operations. MIT has undertaken many studies in recent years to learn more about residence hall design and usage. The group will consider these findings, consult with campus stakeholders, and review student housing literature as a means of developing an architectural principles document that will inform the future design of residence halls at MIT.

Group Membership

- Suzy Nelson, *Vice President and Dean for Student Life*, Convener
- Matthew D. Bauer, *Director of Communications and Special Assistant to the Dean, DSL*
- Lilly Chin ’17, *East Campus* (Proxy for Isaac B. Grosof)
- Dennis Collins, *Director of Residential Life for Capital Renewal, Renovation, and Construction, DSL*
- Elizabeth Cox ’18, *Baker House*
- Peter Cummings, *Executive Director for Administration, DSL*
- Stephanie L. Eiler ’19, *New House*
- John Essigmann, PhD, *William R. (1956) & Betsy P. Leitch Professor in Residence, Professor of Chemistry, Toxicology, and Biological Engineering, Head of House for Simmons Hall*
- Kathryn M. Farris ’17, *Simmons Hall*
- Elizabeth Green, *Senior Project Director for Assessment, DSL*
- Isaac B. Grosof ’17, *Random Hall*
- Kim Haberlin, *Senior Communications Officer, Chancellor’s Office*
- Jennifer Hapgood-White, *Associate Director of Housing Assignments, DSL*
- Yuge Ji ’19, *Simmons Hall*
- Clare Keenan ’18, *New House (Proxy for Stephanie Eiler at first meeting)*
- Jag Patel ’97, *Director of Special Projects, Chancellor’s Office*
- Allan E. Sadun ’17, *East Campus*