

Health Impact Assessment of the Harvard Kennedy School

Conducted by “Healthy Places” at the Harvard Graduate School of Design

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Source: Harvard Kennedy School

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Source: Harvard Kennedy School

01

Introduction and Recommendations

Jane Philbrick and Dana McKinney

Students in the Fall 2015 seminar “Healthy Places,” led by Professor Ann Forsyth at the Harvard Graduate School of Design, conducted a Health Impact Assessment (HIA) of the Harvard Kennedy School (HKS) in collaboration with the Harvard Office of Sustainability. The HIA aligns with forward-looking objectives stated in the recently released “HKS Sustainability Plan: Fiscal Year 2016-20.”

Asserting its leadership platform to expand the criteria of sustainability beyond conventional definitions of “greening,” HKS seeks to highlight the overall community’s health and well-being in its sustainability awareness and goals:

[The HKS Sustainability Plan] proposes the adoption of a set of strategic recommendations for advancing the well-being of the HKS community over the next five years and supports the development of metrics to continually monitor the assets under the control of HKS. These metrics should be designed to support forecasting of the well-being of future generations. (HKS Sustainability Plan, 2015, p. 3)

Adapting the widely recognized and persuasive rhetoric of cost-saving energy efficiencies in the discourse on sustainable practice to champion the emerging cause of human health and wellness initiatives, Heather Henriksen, Director, Harvard Office of Sustainability, succinctly makes her case, “A building’s most valuable asset is the people inside it” (Henriksen, 2015).

The physical site of the HKS HIA includes the four anchor buildings of the school’s core campus -- Belfer, Taubman, Rubenstein, and Littauer-- located at the corner of Eliot Street and John F. Kennedy Boulevard in Cambridge, Massachusetts, as well as the nearby 124 Mt. Auburn Street and 1 Brattle Square facilities. The subject of the HIA is the diverse academic community of HKS students, faculty, and staff.

The HIA focuses on ten key categories of health and well-being: access to services, safety and security, physical accessibility and wayfinding, ambient environment, ergonomics,

food, green space, mental health, social capital, and aging and retirement in the workplace. Each topic is contextualized within the broader scope of current health and wellness scholarship, explored in the particular condition of HKS, and analyzed through the lens of field data in discrete chapters by individual “Healthy Places” seminar students. Each chapter concludes with recommendations for short-, medium-, and long-term implementation (highlighted below).

We gleaned the results through four formal research methods, conducted with advice from HKS administration and the Office of Sustainability (further discussion of Methods below, p. 207):

- A voluntary, online school-wide student survey
- Individual staff and student interviews
- Three HKS tabling sessions held in the school’s social hub, the John F. Kennedy Forum in the Littauer Center
- Field observations and measurements

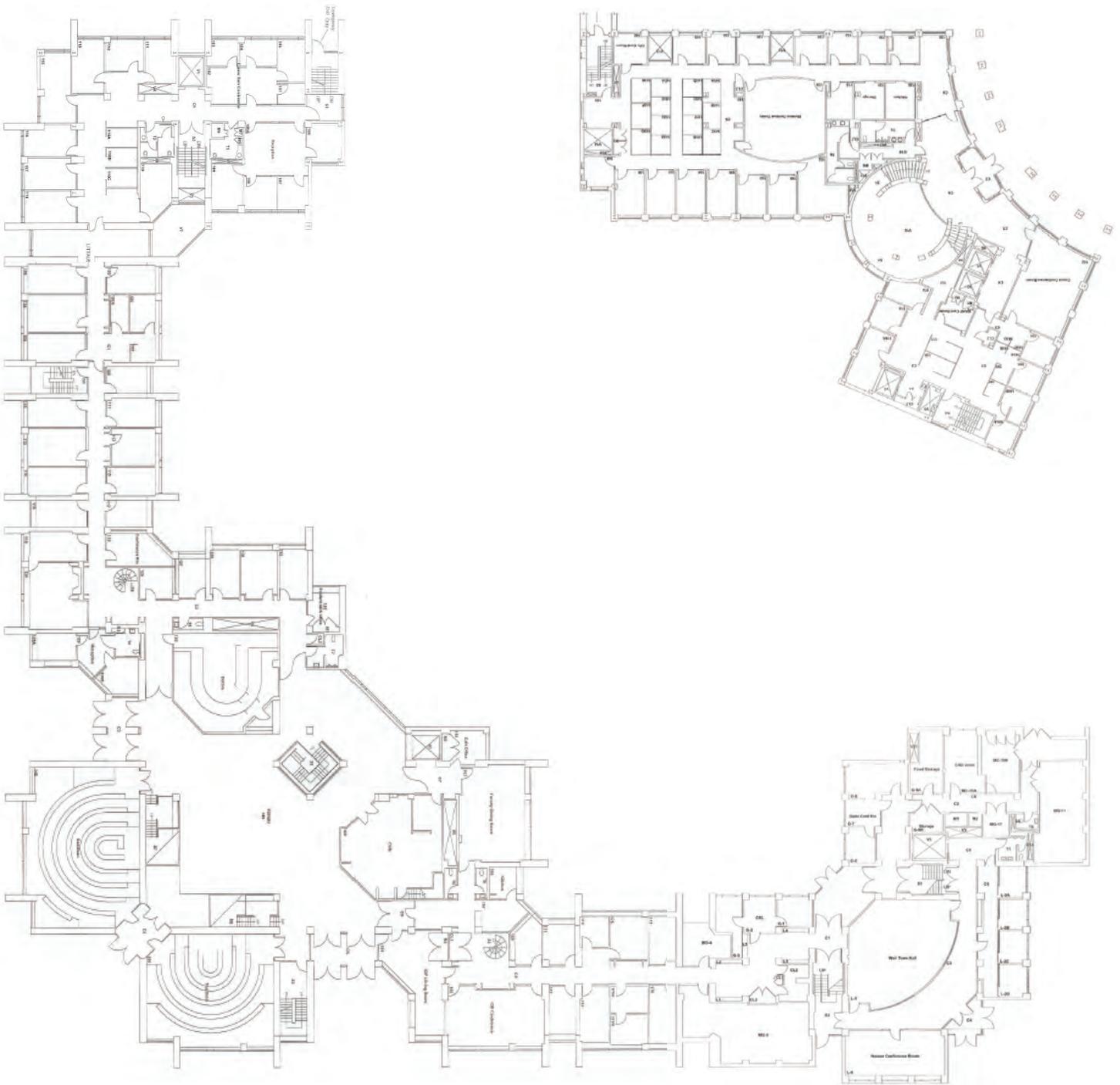
Survey responses indicate that overall HKS students enjoy good health, and that health and well-being are important to them. A slim majority of survey respondents were female, although official HKS demographics record a higher ratio of male to female students, 59% to 41%, respectively.

Community-wide, HKS contends with the challenges of limited physical space on campus and its maze-like configuration of buildings. Both conditions exacerbate the already-present pressure of a high-achieving leadership community working at the forefront of critical global issues. As a diversely international academic community-- time limited at HKS by degree program or faculty appointment -- having a securely located, distinctive sense of place at school, to feel welcomed, comfortable, and well-resourced, with a mix of public and private settings available conducive to multiple tasks, is key to fostering and sustaining community identity, an essential attribute of individual and community health and wellness.

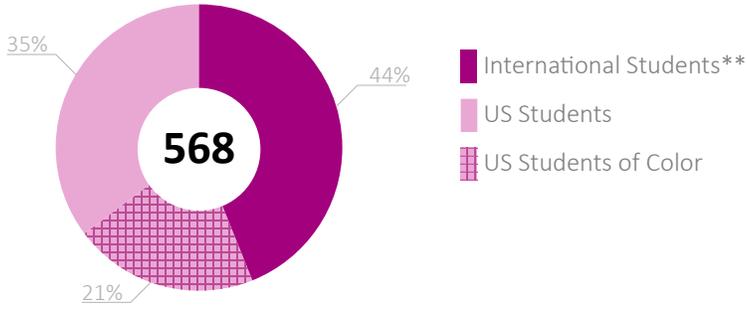
The timing of the study is fortuitous. HKS is in the midst of a major campus renovation and expansion. The findings serve to support initiatives underway in current construction as the school seeks to address such present and on-going challenges as overcrowding, the dearth of student-dedicated spaces, and poor wayfinding that undermines campus legibility. The HIA also captures insight on student and staff perspectives and identifies opportunities for linkages toward innovative solutions (e.g. temporary re-zoning of spaces from public to quiet zones for study during exam periods). Action taken on these findings in the near term can ease community strain during construction as well inform the redevelopment process as it unfolds for medium- and long-term impact.

HKS aspires to leverage its international visibility as a premier training ground for global leadership to model a world-class campus of health and well-being. “Healthy Places” students at the Graduate School of Design appreciate this opportunity to apply their design and research skills and expertise in assisting HKS to pilot a forward path, one that supports the intrinsic integration of exceptional learning, health, and wellness for Harvard-wide and the Kennedy School’s global community.

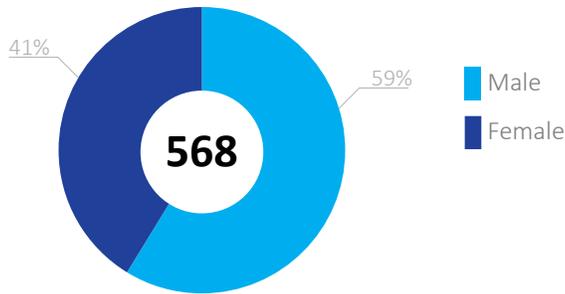
HKS MAIN CAMPUS GROUND FLOOR PLAN



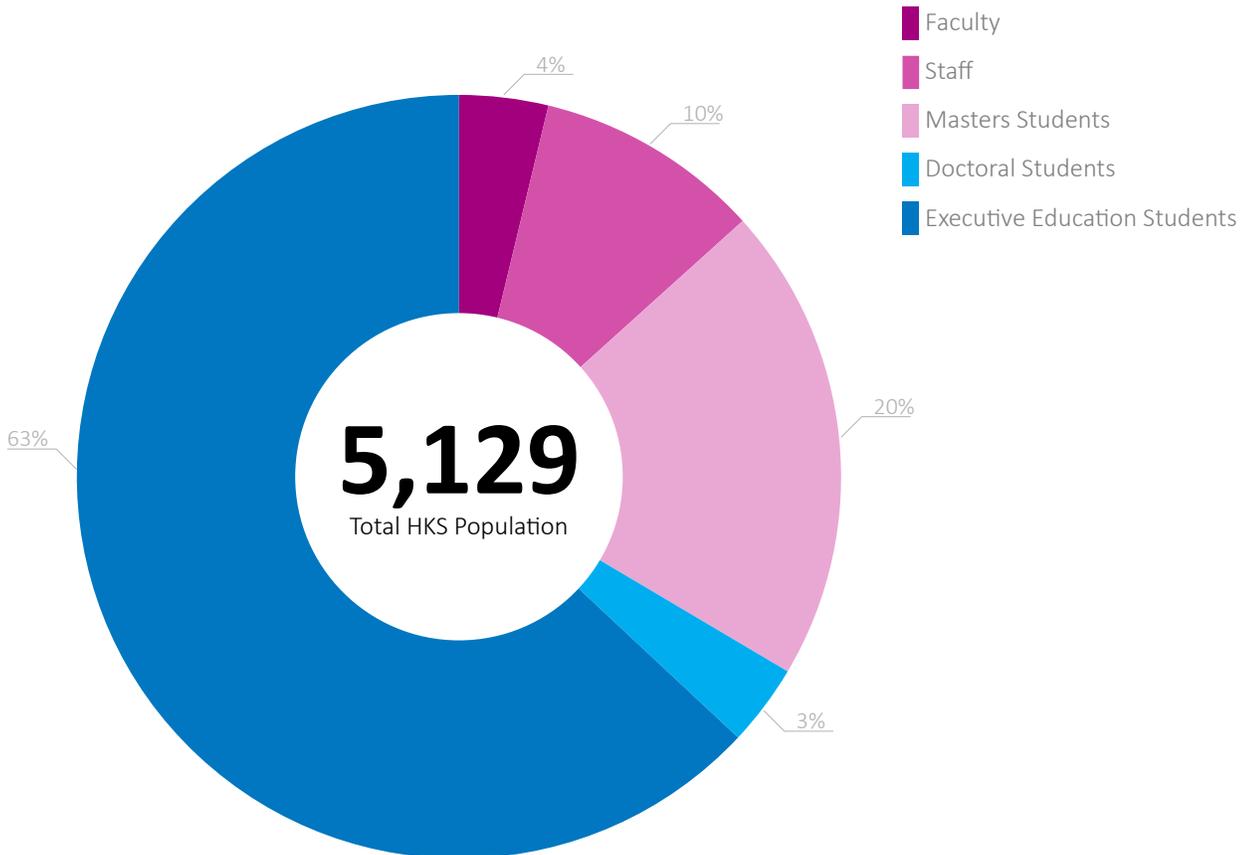
HKS DEMOGRAPHICS



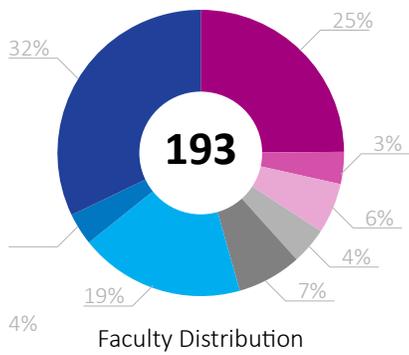
Class Profile Background Distribution*



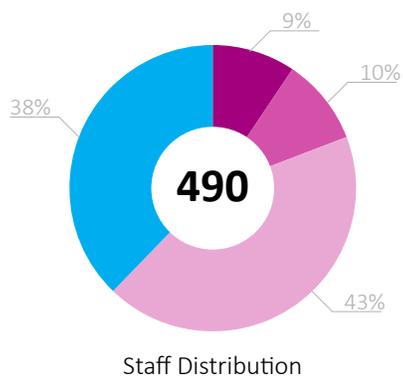
Class Profile Gender Distribution*



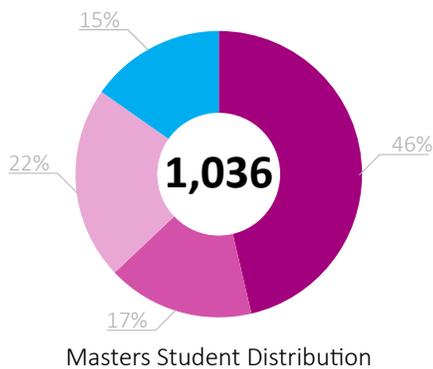
*Based on five-year average
 **Defined as non-resident aliens



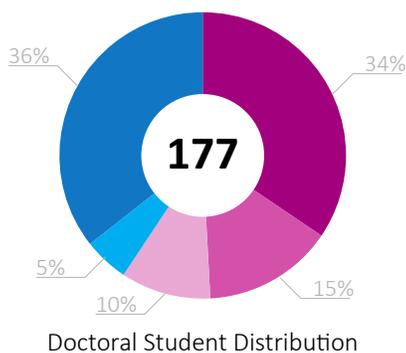
- Tenured Professors
- Emeritus Professors
- Public Service Professors / Professors of Practice
- Associate Professors
- Assistant Professors
- Lecturers and Senior Lecturers
- Visitors
- Part-time Adjunct Faculty



- Executive Programs
- Degree Programs
- Research Programs
- Administrative / Operations



- Master in Public Policy
- Master in Public Administration
- Mid-Career Master in Public Administration
- Master in Public Administration in International Development



- Public Policy
- Political Economy and Government
- Sociology and Social Policy
- Government and Social Policy
- Health Policy

Source: Harvard Kennedy School

RECOMMENDATIONS



Recommendations that repeat those in the 2015 HKS Draft Sustainability Plan are marked with a shield.

TOP RECOMMENDATIONS

- Create a set of permanent welcome stations, including greeting desks, coat rooms, and coffee stations. These would provide social connections as part of daily routines.
 - Add a set of gathering points and activities that change time and locations, for example apples in the Belfer Center on Tuesdays, food trucks, a community garden, or in the long run a staffed community service center.
 - Post maps and signage that everyone can read. Also use better methods of color coding different spaces.
 - Add interior planting throughout all of the campus' buildings.
 - Identify quiet zones at certain times of the day and year.
 - Close off Elliot Street for safety. Begin with temporary closures for specific times or events, but eventually close off permanently.
 - Create a food delivery program through HKS Dining Services for faculty and staff at 124 Mt. Auburn and 1 Brattle Square
 - Create a test run program for a new retirement model, allowing part-time work with the possibility of returning as a full-time staffer
-

ACCESS TO SERVICES

- | | |
|-------------|---|
| Short Term | <ul style="list-style-type: none">• Promote the abundance of services to student, faculty, and staff groups. The environment will generate a positive feedback cycle where the HKS members consume more services, and, as a result, more services will flock to the area for business. |
| Medium Term | <ul style="list-style-type: none">• Advocate to maintain stable rental rates for services in the area. The services will be affordable only when their operating cost is low.• Advocate to protect and encourage small to medium-sized businesses, which provide diverse services.• Improve direct access to the school, Eliot Street should be restricted from large truck use. If too substantial a change, perhaps lessen the speed of vehicular flow through the area, or close the street during times of peak pedestrian traffic. |
| Long Term | <ul style="list-style-type: none">• Redesign Eliot Street and JFK Street. Convert the whole area into a pedestrian-friendly park or plaza. A good example would be Science Center Plaza at Harvard. |
-

SAFETY AND SECURITY

- | | |
|-------------|---|
| Short Term | <ul style="list-style-type: none">• Make public evacuation routes more visible as post signage is too small and too few. |
| Medium Term | <ul style="list-style-type: none">• Work in collaboration with other Harvard University departments to improve messageME to more quickly alert subscribers (see timeline of stabbing incident from October 7, 2015). |
| Long Term | <ul style="list-style-type: none">• Improve public safety measures related to cross walks, traffic, and improved bike lanes on Elliot Street.• Improve lighting in JFK Park which will require Harvard University to collaborate with the MA State Park Services.• Work in collaboration with the Park Services in order to get proper signage denoting when JFK Park closes. |
-

AMBIENT ENVIRONMENT

- | | |
|-------------|--|
| Short Term | <ul style="list-style-type: none">• Install additional lighting facilities in the spaces with insufficient lighting such as the corners of the forum and study desks in the library.• Add signs or reminders to inform people to lower their talking voice.• Add signs to indicate where light switches are and encourage people to turn off if unused for energy savings.• Add more gentle lighting bulbs in work/study places of library. |
| Medium Term | <ul style="list-style-type: none">• Install energy conserving doors like revolving doors in the entrance to mitigate wind blasts from the outside.• Add more efficient sound isolation materials between offices and the public spaces.• Change the direction of the outlet of the air conditioners away from places where people might sit.• Replace the sealed windows with operable windows for ventilation control in the library. |
| Long Term | <ul style="list-style-type: none">• Provide students and faculties with designated spaces for group discussion or meeting rather than having long conversations in public spaces.• Relocate offices where people need quieter environments far away from the noisy public spaces.• Re-program offices close to public spaces to provide group discussion spaces or offer additional discussion space.• Plan a quiet space for students who need sleep or rest between classes.• Plan specific places for personal phone calls and on-line conference meetings. |
-

RECOMMENDATIONS

PHYSICAL ACCESSIBILITY AND WAYFINDING

- Short Term
- Improve visibility with brighter bulbs and additional fixtures.
 - Add handrails to staircases currently missing them to improve stability.
 - Create new maps and signage with large fonts, legible graphics, with greater permanence and regularity, to situate an individual within a building and the broader campus. Identify important facilities, such as the nearest restrooms, elevators, classrooms, offices, and exits.
 - Renumber rooms with greater logic to express continuity across buildings.
 - Install signage to identify evacuation routes and procedures.
 - Post signs that denote areas of concern warning occupants of potential hazards, such as slipping.
 - Offer signage and maps in other languages and Braille.
 - Locate printers in more visible, accessible areas with greater distribution.
-

- Medium Term
- Introduce additional daylighting with skylights, light wells, and windows.
 - Replace flooring with materials with greater slip-resistance and lower glare.
 - Construct exterior ramps and level entries to supplement accessibility into the campus.
 - Paint with more differentiated, contrasting colors to better distinguish rooms and features, such as handrails, baseboards, floor surfaces, and walls, without over-stimulating occupants with vivid colors that are distracting and disorienting.
 - Paint the aluminum casing of glass doors and vestibules a contrasting color that readily differentiates the glass from its metal enclosure.
 - Install push buttons to automate doors of all exterior entries and major interior spaces.
-

- Long Term
- Widen the corridors and stairs when feasible.
 - Renovate misaligned floors of buildings to eliminate dependence on stairs.
 - Reconfigure long corridor spans with the insertion of new programs, to lessen their monotony.
 - Reconstruct inaccessible stairs, most significantly, the tread width and depth of egress stairs.
 - Construct additional elevators, with larger capacity in more central locations to provide convenient access for persons with disabilities.
 - Create a welcome station at the main entrance of each building to direct visitors that may need help finding particular rooms across the campus.
 - Construct more and accessible bathrooms on the ground floor and throughout the campus in general.
 - Build private spaces for personal concerns, for example more lactation rooms, resting spaces, and areas to take sensitive phone calls.
 - Conduct an accessibility audit every few years to monitor and propose further changes to advocate for universal design and inclusion on campus.
-

ERGONOMICS

- Short Term
- Consult Harvard's Ergonomics Department for recommendations of corrective work environments.
 - Visit <https://www.ehs.harvard.edu/programs/ergonomics>.
 - Voice concerns immediately upon experiencing any pain or discomfort.
 - Speak up to your professor, your program coordinator, student services, or contact the ergonomics office directly. You should never have to endure pain in the workplace.

- Medium Term
- Make temporary adjustments to work environments for temporary relief until longer-term, more permanent corrections can be made.
 - Eliminate or prevent use of couch desks, where couches act as seating to desks, causing individuals to lift their shoulders and slouch forward.
 - Add single removable work tables/trays to forum couch seating, as well as hallway seating, for students to place their laptops on while resting or working on couch.
 - Lower work surfaces that are too high or raise seating so elbows align with keyboard and tilt computer screens to align with eyes.
 - Replace rigid chairs (with little to no spinal support) with chairs flexible in their height, supported in the back and under the forearms, and on wheels to encourage shifting postures and to accommodate variable heights, weights, and structures.
 - Remove chairs or tables that are not being used to open up more space for circulation.
 - Incorporate more standing work stations with foot rests-
 - Remove barriers below desks that prevent chair from pulling all the way forward.
 - Educate students, staff, and faculty on the advantages of corrective posture and work-station set-up and encourage implementation.
 - Proper ergonomics is nothing but beneficial to the body and the mind. Productivity and efficiency have been proven to increase.
 - Attend Harvard Ergonomics Department "Train the Trainer" classroom sessions to establish more permanent in-house ergonomics team at HKS.
 - Work with Harvard University preferred vendors to order the correct ergonomics equipment for offices and classrooms.
 - Change isn't necessarily good if the proper changes aren't made.

- Long Term
- Conduct regular ergonomics evaluations to confirm students, faculty, and staff are comfortable and are performing optimally.
 - Situations change, as do work behaviors. The work place needs to be able to respond and adapt to new needs and desires for comfort.
 - Introduce in-house ergonomics program at HKS, responsible for establishing a worker's station prior to their arrival, and the monitoring concerns and adjusting environments as necessary.
 - Ergonomics should always be considered during the design phase, rather than later, as to enhance more positive impacts than to

RECOMMENDATIONS

Long Term
(Continued)

mitigate negative ones

- Design more flexible work stations, that can change in venue (conference room) or readjust in layout, to open up or close off space when not in use.
 - Optimize the space already in the building (as in done in the Forum bleachers).
 - Once more space is established, designate study zones and quiet space distinct from collaboration social space.
 - Right now, all of these spaces are interchangeable, which does not accommodate the variety of students and their work preferences. The library does a good job of distributing spaces outward from central or main areas as quieter zones.
-

FOOD

Short Term

- Establish lunch order menus and a delivery program (on a weekly ordering basis) through Harvard Dining Services for faculty and staff of 124 Auburn Street and 1 Brattle Square.
 - Renew contracts with dining services providers that prioritize healthy and sustainable foods.
 - Develop labeling and notifications in HKS Café that help purchasers discern healthy combinations of food items that create a nutritious meal .
 - Host HKS Catering sample stations to showcase healthier snack recipes to encourage students and faculty to revise catering selections.
-

Medium Term

- Develop food preparation skills workshops and revitalize kitchen units for external campus buildings so that faculty and staff may bring nutritious meals.
 - Assess the affordability of healthy food choices at HKS and consider subsidizing some options.
 - Install or replace current vending machines with “Healthy Option” vending machines in Rubenstein and Belfer and Littauer respectively.
 - Gather current HKS academic institutions and groups working on food and policy at HKS to brainstorm pragmatic opportunities the Kennedy School might be able to engage in.
 - Investigate opportunities to reduce the use of highly processed and packaged food and beverages. Examples include installing water filtering stations, increasing fresh vegetable purchases, etc.
 - Incentivize healthy catering items for students by reducing the price of nutritious catering options.
-

Long Term

- Establish portable food stations or secondary HKS Café locations on main campus to increase food access and create additional space to cultivate community and congregate.
 - Establish permanent water, kitchenette and/or supplementary nutritious food access on the 5th floor of Rubenstein.
 - Further expand the featured food supplier signage for meat and produce providers and implement a nutritious and sustainable food literacy campaign.
 - Reassess recipes for requested sugary or unhealthy food items to use alternative healthy ingredients or supplement with healthy grains and seeds.
-

GREEN SPACE

Short Term

- Provide plants to those who lost their view to construction.
- Designate a few rooms with exterior windows for student use.
-  “Increase the number of indoor plants and/or installing indoor water features or green walls”.
- Adding to the above recommendation, target areas heavily used by students and service staff first for increases in vegetation (i.e. vines/hanging plants in the Forum), as well as those rooms without windows (consider low light or artificial plants).
-  “Promote events and programs that increase access to nature or biodiversity” including during the HKS Day of Service.
- Consider supporting a club or wellness group that takes weekly walks by the river or visits to local nature with the characteristics of a “refuge,” for example, the Harvard Forest, Arnold Arboretum, Middlesex Fells Reservation, and the Blue Hills Reservation.
- Add green space recommendations to the Tactical Health & Wellness Recommendations in the HKS draft sustainability plan.
-  Make sure access to exterior windows (for all) is part of the Tactical Recommendations for Building Design
- Include access to nature in school-wide Wellbeing assessments.

Medium Term

-  Prioritize planting “vegetation that stays verdant all year long” and species “that are likely to be robust to future environmental change or help mitigate those effects”.
- Adding to the above recommendation, also prioritize species that enhance and invite outdoor experiences.
- Work with the State Park Service to ensure access to grassy areas for those with limited mobility in JFK Park.
- Choose plant species not just for biodiversity or habitat creation, but also for their ability to improve health by removing particulates from the air or create pleasing views.
-  “Prioritize construction of features that enhance opportunities to engage with the outdoor environment as the Pavilions project is completed: Water fill stations, Benches, Shade structures”.
- Consider Student Orientation as an additional opportune time to engage students in nature, but to focus on engagement on a regular basis, instead of only at selected events.
-  Combine the “natural capital plan” in the draft HKS sustainability plan with recommendations for increasing “interactions with natural environment” and carry out as one.

Long Term

- Plan future construction with more exterior window/view access for students and service workers.
- When “utilizing the WELL Building Standard as a reference to inform future activities following construction of the Pavilions project” and other future construction (HKS Sustainability Plan 2015, p. 39), consider where interior plantings and exterior windows are located in relation to the use patterns of

RECOMMENDATIONS

Long Term
(Continued)

- various user groups.
- Consider shifting the focus of creating “active environments” (p. 26) and “external exercise spaces” (p. 39) presented in the HKS Sustainability Plan (2015) to include mental health and well-being spaces like quiet rooms and social spaces with view of nature and interior vegetation.
 - Build private spaces for personal concerns, for example more lactation rooms, resting spaces, and areas to take sensitive phone calls.
 - Conduct an accessibility audit every few years to monitor and propose further changes to advocate for universal design and inclusion on campus.
-

MENTAL HEALTH AND THE BUILT ENVIRONMENT

Short Term

- Clarify room programming via signage and appropriate activities. For example, the student lounge could be designated a quiet study space while the central stair could become a center for social activity. Recreational elements, such as the Ping-Pong table, television, and piano, could be distributed into the carrels to create nodes of activity and relaxation.
 - Increase student access to natural lighting by designating certain classrooms and offices as open workspaces.
-  Add simple restorative elements to spaces associated with stress. For example, a picture wall with photos of natural assets from the native lands of students, faculty, and staff, as outlined by the HKS Sustainability Plan.
-

Medium Term

- Increase the capacity of library and quiet spaces, to prevent overflow of studying students into social areas.
 - Relocate the offices surrounding the student lounge and expand the lounge space to reach the exterior windows.
 - Develop and diversify restorative elements across multiple program types. Fireplaces can complement quiet study spaces, while fountains and aquariums can complement social spaces.
-

Long Term

-  Develop new program spaces that cater to unmet student needs, such as the wellness space outlined by the HKS Sustainability Plan.
 -  Align with WELL Building Standards when planning new construction, with particular attention to natural lighting requirements.
 -  Ensure new construction incorporates restorative features. For example, by aligning with WELL Building Standards and implementing a “biophilia plan.”
-

SOCIAL CAPITAL

- Short Term
- Provide more comfortable furnishings for rest/relaxation/study and for student parent facility (with a bigger room, if possible).
 - Provide better storage facilities for student personal effects.
 - Raise awareness of stress management resources and existing programs such as Koru Mindfulness courses.
 - Provide more greening in well-lit spaces such as the Student Forum to compensate for temporary loss of the central courtyard.
 - Set up welcome/information stations to greet students and visitors and provide assistance with campus navigation and programming.
 - Intersperse coffee kiosks and breakfast/lunch carts throughout the HKS campus to ease crowding in HKS Café and encourage more informal, small-scale social interaction around (healthy) snack breaks and morning and midday meals.

- Medium Term
- Create a dedicated cloakroom for students and visitors with staffed attendant to provide social connection as part of daily routines.
 - Implement better wayfinding signage to help circulation throughout the campus, supplemented by student guides stationed throughout the four school buildings to assist navigation.
 - Develop a “ready-to-go” strategy for mindfulness programming and implement pilot programs.
 - Increase student-dedicated spaces by temporarily re-zoning public spaces during high-demand periods such as mid- and end-of-term exams to relieve strain of inadequate space for quiet study.
 - Initiate programming focusing on intra-community bonds through activities such as community gardening in the Winter Garden and “green gym” workouts that combine physical activity with gardening.
 - Assign fewer students per Student Services staff to facilitate stronger connections and more individualized interaction.

- Long Term
- Improve campus access for HKS community members and visitors with disabilities.
 - Provide telecommuting facilities for expatriate families and community members.
 - Increase offerings, raise awareness, and fully implement mindfulness programming across HKS community.
 - Select interior finishes that are calming such as wood and soft flooring materials (carpet, rubber) for acoustic dampening.
 - Create a staff-supported, Phillips Brooks Association-like center for intra-community volunteerism and social action.
 - Implement flexible scheduling to support staff-student-faculty programs and events.
-

RECOMMENDATIONS

AGING AND RETIREMENT IN THE WORKPLACE

- | | |
|-------------|--|
| Short Term | <ul style="list-style-type: none">• Increase awareness of existing programming, such as the Harvard University Retirees Association and the Harvard Institute for Learning in Retirement.• Evaluate skills and interests on a personal level to prepare for the implications of retirement beyond the financial considerations.• Institutional recognition that the existing retirement age is outdated now that lifespans have increased, which means that older people are now able to work and contribute productively for much longer, so an effort can be made to benefit from their skills and experience.• The aging and retirement in the workplace recommendations could potentially be embedded into the following HKS Sustainability Plan opportunities:<ul style="list-style-type: none"> Fast track manager participation in the Universal Managers Training (required for all managers by 2020), which covers well-being, sustainability, and work/life balance. Provide guidelines on acceptable uses of work time towards sustainability and wellness. Host a “coffee connection” focused on sharing the available well-being resources with the community. (e.g. Healthy Harvard, Harvard Gym Discount, Wellness Center, Employee Assistance Program (EAP), Meditation call-in line (free), etc.) Utilize Faculty Assistant meetings to share wellness offerings at Harvard. Educate the community on existing health and wellness offerings that they can begin taking advantage of immediately. |
| Medium Term | <ul style="list-style-type: none">• Institutionalize skill and interest evaluations.• Provide workplace flexibility, such as working from home, working from more than a single location.• Provide work hour flexibility, such as part time work.• Provide work schedule flexibility, such as a flex schedule or compressed week.• Create a Retirement Test Run program e.g. allowing part-time work with the possibility of returning to full time. Flexible work or retirement test runs will allow people to transition into a new type of lifestyle rather than losing a meaningful part of their life all at once. They will have time to prepare for more than just the financial implications of retirement.• Institutionalize objective evaluations in order for workplace to become an ability determined space rather than age determined. |
| Long Term | <ul style="list-style-type: none">• Institutionalize new roles that use older employees’ experience and skill sets (e.g. the Mix and Match recommendation, where older faculty are brought from different departments to discuss potential opportunities and overlaps between fields).• Expand the Retirement Test Run program to provide multiple test options as well as a variety of opportunities to return to, such as part time work related to the program recommendation in the social capital chapter. |

Long Term
(Continued)

- Shift societal stigmas around age. A balance of empathy and empowerment can lead to people feeling safe and happy during old age without feeling isolation from the rest of the community. A long term goal for HKS and Harvard is to set new levels of expectations and opportunities for the aging population.
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St. Williamson Square

Williamson Square

WILLIAMSON SQUARE
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WILLIAMSON SQUARE

02

Access to Services on the HKS Campus

Peng Dong

OVERVIEW OF FINDINGS

The following study examines seven aspects of services around the main campus of Harvard Kennedy School. The services studied for this assessment include health and personal care related services (i.e. beauty, eye care, dental, etc.), food and beverage, religious places, entertainment, shopping, financial services, and public transportation. The analysis focuses on the safety involved with accessing these services.

Notably, it can be said that, within 0.25 mile radius of the HKS main campus, services are generally accessible in proximity, diverse in their offering, and affordable. A survey consisting of 140 students and faculty from HKS supports this conclusion.

Nevertheless, because popular services generally attract abundant traffic flow, safety issues that arise from with accessing these services could use more attention. Based on the resources from Cambridge Open Data 2010-2013, an online governmental database, the number of accidents involving motor vehicles, pedestrians, and bicycles is considerable. It may therefore be necessary to reexamine the current system of circulation and to redesign the road system to become more pedestrian friendly.

WHY THIS TOPIC MATTERS

Access to services, whether for food, entertainment, or transportation, is critical to health. According to the Health and Places Initiative at Harvard, a key question connecting health and place is whether people have community resources available, and within convenience, to live a healthy life. On the other hand, a lack of community resources has an indirect effect on health, through shaping the availability and convenience of health resources and habits that support healthy behaviors (Health and Places Initiative, 2014, 3). Assessment should focus on the proximity, density and diversity of the available services, as well as the speed, safety, and convenience.

The main campus of Harvard Kennedy School is a five minute walk from Harvard Square, the transportation hub of Harvard, which attracts a variety of services, such as restaurants, bars, cafes, churches, book stores, shops, and banks. While the availability of services and their convenience is favorable, the safety issue is not.

THE SITUATION AT THE HARVARD KENNEDY SCHOOL

SURVEY

Are the services below important to you?	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Null
Health related services (e.g. pharmacy, healthcare center, spa)	2	3	20	49	43	23
Gym or exercise location	0	4	13	43	56	24
Food & beverage (e.g. restaurant, bar, cafe, desserts)	0	0	5	41	71	23
Religious places (e.g. church, temple)	24	24	47	16	5	24
Arts & entertainment (e.g. gallery, fine arts, theatre, museum)	6	20	34	47	9	24
Shops	8	17	28	48	16	23
Financial services (e.g. bank, insurance)	0	6	19	67	25	23
Public Transportation (e.g. Hubway, subway, bus)	0	0	2	46	69	23

Chart 01 | Are the services below important to you?

A survey was conducted to assess user satisfaction of services around the HKS campus. Below, 140 effective records were collected, and the findings are as illustrated.

In general, the participants noted that most services are important to them, and that most services were very accessible. However, some of the students reflected apprehension for the relatively high cost of gym membership.

Do you feel convenient access to?	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Null
Health related services (e.g. pharmacy, health-care center, spa)	1	3	19	59	34	24
Gym or exercise location	12	14	14	54	21	25
Food & beverage (e.g. restaurant, bar, cafe, desserts)	2	18	11	57	28	24
Religious places (e.g. church, temple)	3	11	74	25	3	24
Arts & entertainment (e.g. gallery, fine arts, theatre, museum)	4	20	40	42	9	25
Shops	3	15	31	55	12	24
Financial services (e.g. bank, insurance)	1	9	17	67	22	24
Public Transportation (e.g. Hubway, subway, bus)	1	5	5	60	45	24

Chart 02 | Do you feel convenient access to?

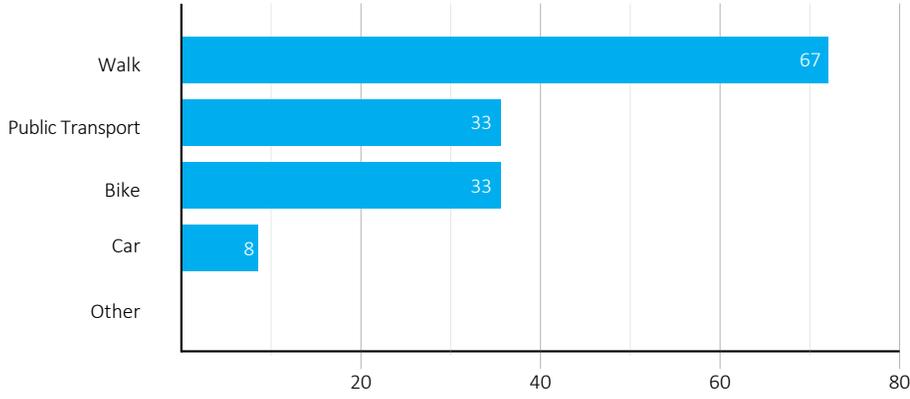


Chart 03 | Based on the survey of the commute options, 67 choose to walk; 33 choose public transport and bike respectively; only 8 choose car.

GEOGRAPHIC DATA ANALYSIS

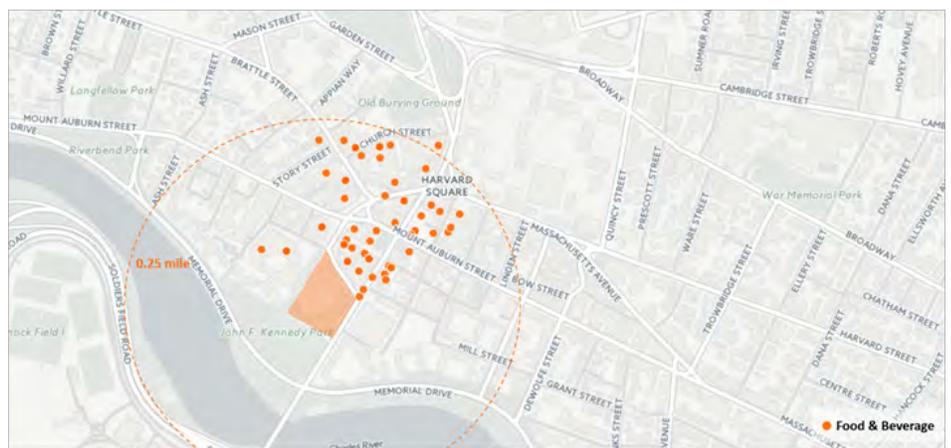
To better assess the situation of services immediately relevant to the HKS campus, an area radius of approximately four blocks was utilized for data collection. The data was collected through online public sources, such as Yelp and Google Maps. The data was then translated to geographic data, which can be easily analyzed by geographic software.

Figure 01 | Health and Personal Care Related Services contain 26 records, which are sub-categorized as follows:

1. Health & Medical, such as: Harvard University Health Services, eye care, optical, doctor, and physical therapy.
2. Pharmacy, which includes 3 CVS.
3. Active Life, including: Bikram Yoga Boston, Hemenway Gymnasium, Malkin Athletic Center, and Cambridge Common Park which is a popular place for physical exercise.
4. Beauty & Spa, such as: salon and spa, skin care, nail care, hairstyle and barber shop, tattoo, body piercing, etc.



Figure 02 | Food and Beverage
Food and beverage contains 68 records, which include: restaurants, bars, night clubs, cafes, fast food, desserts, etc. The price level is shown as follows, which indicates the food options are generally affordable:



Price Level	Inexpensive (under \$10)	Moderate (\$11-30)	Expensive (\$31-60)	Ultra High-End (above \$61)
Number of Records	28	34	6	0



Figure 03 | Religious Places
 Religious places contain 5 churches, among which 2 have the same address.

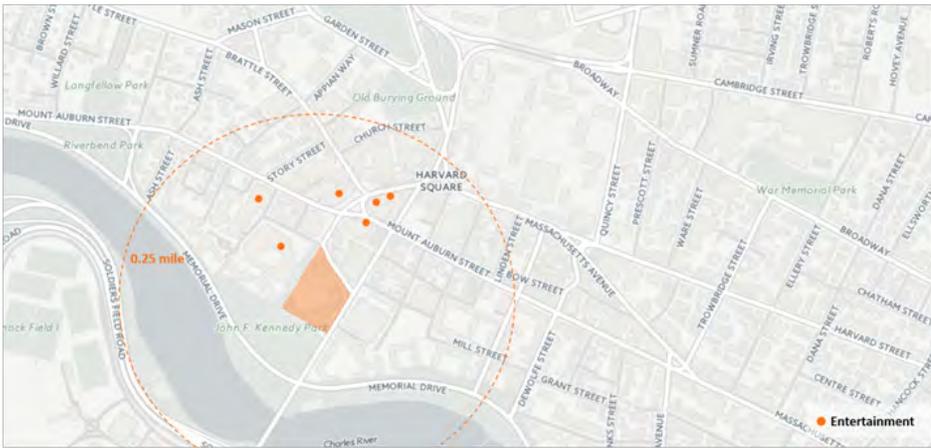


Figure 04 | Entertainment
 Entertainment contains 8 records, such as: gallery, art studio, designer shop, music club, and reading club.

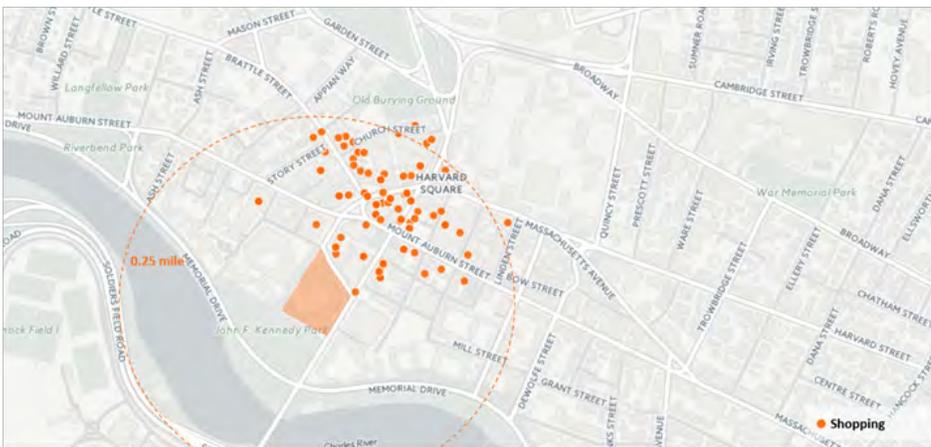


Figure 05 | Shopping
 Shopping contains 108 records, such as: fashion, book stores, sports shops, stationery, mobile phone & electronic device, flower shops, etc.

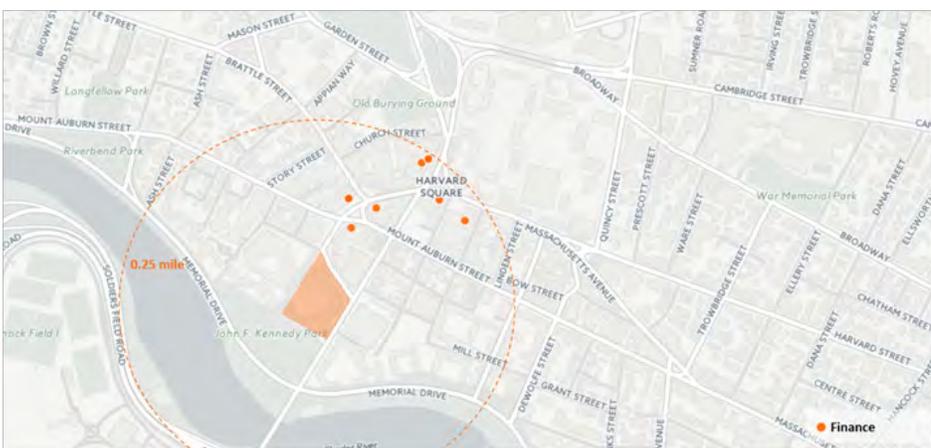


Figure 06 | Financial Services
 Financial services contains 9 records, such as: Harvard University Employees Credit Union, Cambridge Trust Company, an insurance agency, and 6 banks.

Figure 07 | Public Transportation
Public transportation includes 4 bus stop and 1 subway station. 11 bus lines, the red line subway, and a Harvard shuttle bus are within 0.25 mile radius.

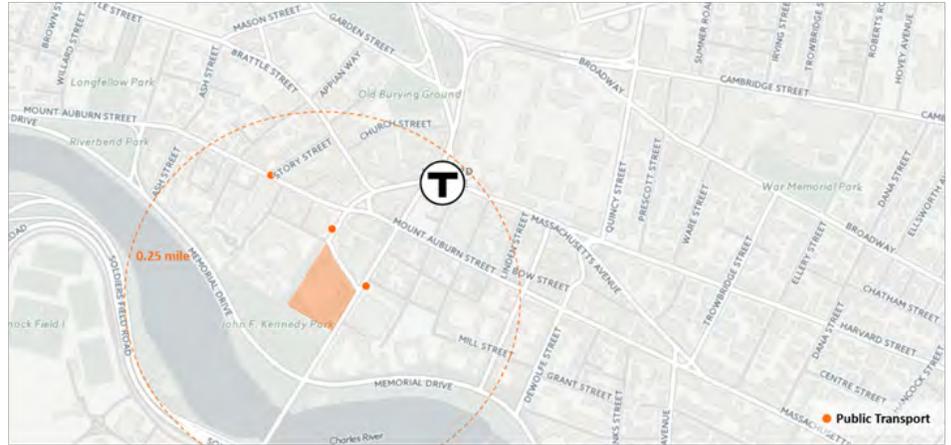
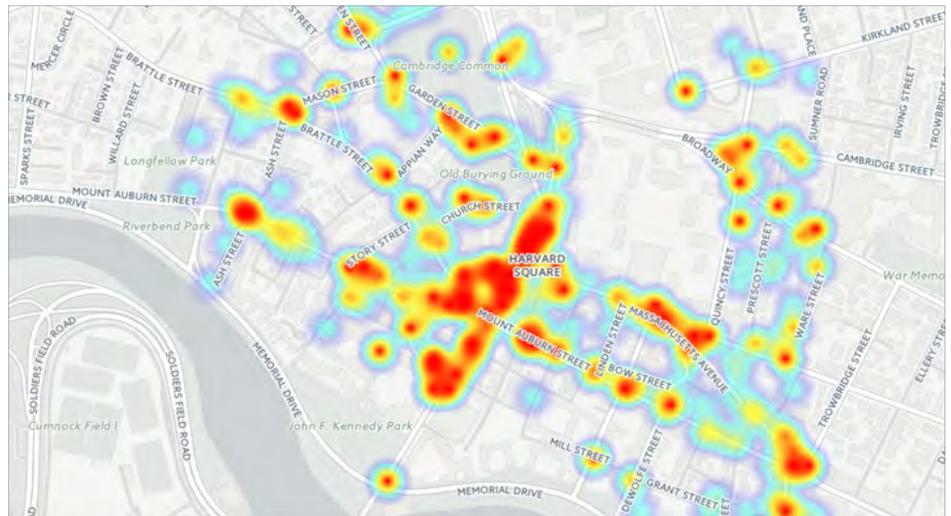


Figure 08 | Heat Map of Accident 2010-2013

In order to analyze the accident, the study defines a rectangular area around the campus as follows:

- Coordinate (42.368997, -71.126818)
- Coordinate (42.368997, -71.112780)
- Coordinate (42.377661, -71.112780)
- Coordinate (42.377661, -71.126818)



For this area, 620 records of accidents were found from Cambridge Open Data. The analysis demonstrates:

- In terms of involved object, most of the accidents included vehicles, such as: auto, taxi, truck, bus, and motorcycle. Although pedestrians were not directly injured in the accidents, they may feel unsafe and conceive this area as a dangerous zone.
- In terms of day of week, most of the accidents occurred from Monday to Saturday when the traffic was busy.
- In terms of time, most of the accidents were occurred 8:00-18:00, during class hours. Students, faculties and staff are vulnerable when they need to come to the campus.

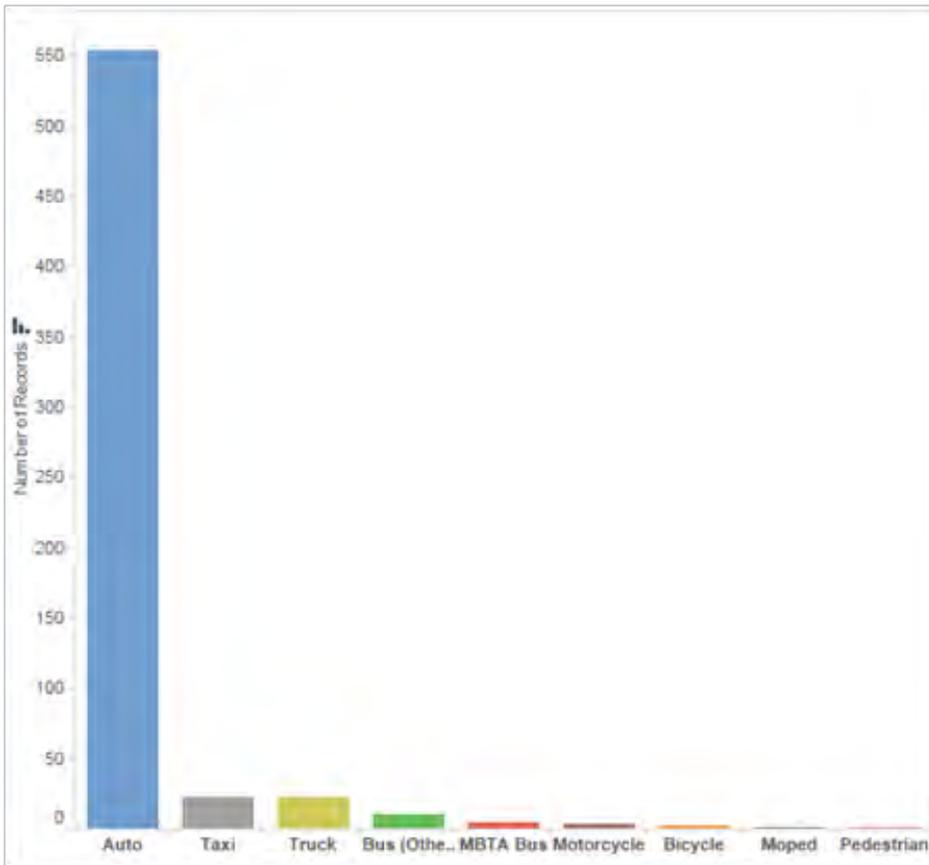


Figure 09 | Accident Involved Object

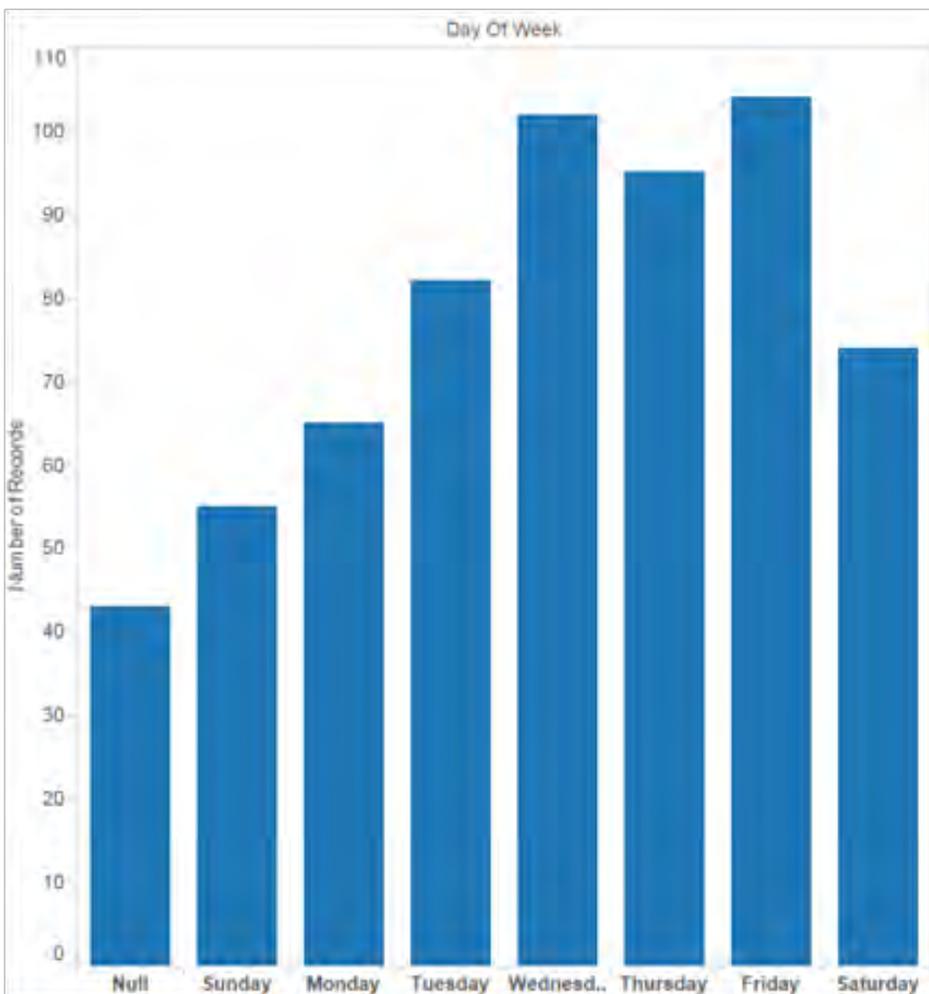


Figure 10 | Accident Occurred on Day of Week

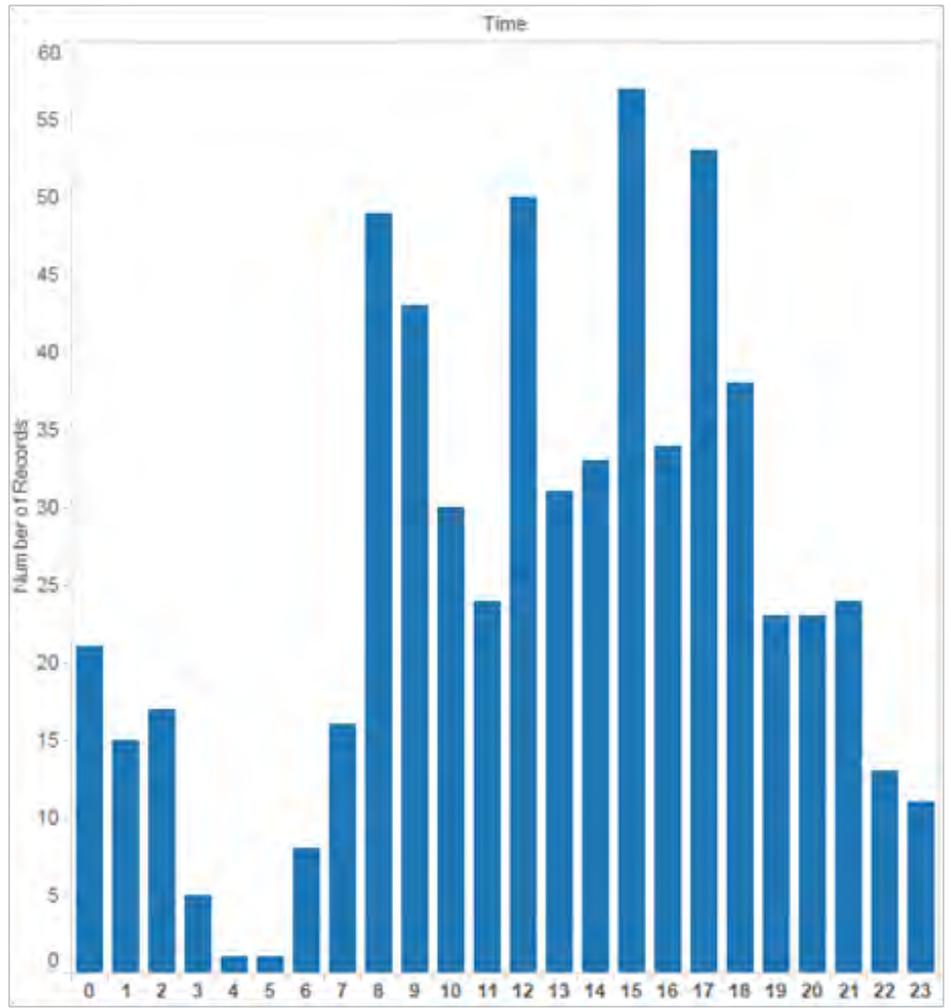


Figure 11 | Accident Occurred at Time



Figure 12 | Photo of Eliot Street



Figure 13 | Photo of Eliot Street and John F. Kennedy Street intersection

POTENTIAL IMPACTS

HEALTH ISSUE	POSITIVE OR NEGATIVE	LIKELIHOOD OF IMPACT
Services		
Diverse services		
Affordable options of food and beverage		
Services are densely concentrated		
Accessibility		
Convenient access in 10 minutes' walk		
Unsafe traffic for pedestrian		

-  Strongly Positive
  Mildly Negative
-  Moderately Positive
  Moderately Negative
-  Mildly Positive
  Strongly Negative
-  Neutral
  Unknown

DIFFERENTIAL IMPACTS	DISTRIBUTION OF IMPACT	MEASURABLE INDICATOR	SUPPORTING EVIDENCE
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		Yes	     
		Yes	     
		Yes	     
		Yes	     
		Yes	     

 Speculative

 Probable

 HKS

 Harvard

 Metro

 National

 Research

 Measurement

 Observation

 Interview

 Survey

 Tabling

RECOMMENDATIONS

IMPROVE ACCESS TO SERVICES

- | | |
|------------|--|
| Short Term | <ul style="list-style-type: none">• Promote the abundance of services to student, faculty, and staff groups. The environment will generate a positive feedback cycle where the HKS members consume more services, and, as a result, more services will flock to the area for business. |
|------------|--|
-

- | | |
|-------------|---|
| Medium Term | <ul style="list-style-type: none">• Advocate to maintain stable rental rates for services in the area. The services will be affordable only when their operating cost is low.• Advocate to protect and encourage small to medium-sized businesses, which provide diverse services.• Improve direct access to the school, Eliot Street should be restricted from large truck use. If too substantial a change, perhaps lessen the speed of vehicular flow through the area, or close the street during times of peak pedestrian traffic. |
|-------------|---|
-

- | | |
|-----------|---|
| Long Term | <ul style="list-style-type: none">• Redesign Eliot Street and JFK Street. Convert the whole area into a pedestrian-friendly park or plaza. A good example would be Science Center Plaza at Harvard. |
|-----------|---|
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1857

SECURITY

03

Safety and Security

Scott Valentine

OVERVIEW OF FINDINGS

Overall, safety hazards in both the interior and exterior of Harvard Kennedy School (HKS) campus pose a relative low risk to faculty, students, and staff. HKS Security Staff already undertake a number of public safety measures.

- Collaborations are in place with the HUPD and federal agents (MDPH 2013, p. 6 and Critcheon 2006)
- Highly structured protocols are available when incidents occur both inside and outside the HKS campus.
- Required security orientation is well organized and communicated to staff, faculty and students alike and available online through Knet (Kennedy Internet).
- Systems are monitored daily, tested through monthly drills with feedback.
- Chemical hazards have an above average safety rating, when compared to other Harvard University schools.
- Custodial staff use green friendly solvents to clean and sanitize bathrooms and public spaces (Acingo and Black 2014).

In general, safety as a cause of anxiety or mental distress was not perceived to be a key factor or concern of staff and students alike (Survey Results, appendix 1, Critcheon 2006 and CDC 2015). An exception was the Elliot Street environment where the HKS community all voiced concern about traffic being stressful and dangerous to both pedestrians and cyclists, particularly during the current construction (Participatory Mapping Exercise, Appendix 1).

While this report addresses other topics in addition to public safety measures, the primary safety hazards on campus observed included inadequate lighting on the border of the John F. Kennedy Park, a lack of posted signage of hours to the park, and in collaborating with other Harvard Departments room to improve digital alert systems like messageME (see appendix 3).

WHY THIS TOPIC MATTERS

BACKGROUND

It is a widely accepted matter that a broad range of factors determine safety requirements (Montante, 2011 and NPHPS, 2011). The greatest scope for improving the public's health related to safety involves a conscious approach to evaluate the many connections among what could appear to be disparate influences (NRCNA, 2006; Forsyth and et al 2010). Risk and safety expert William Montante suggests, "...[safety is] no more and no less than a condition or judgment of acceptable control over hazards and risk inherent to what one is doing at a point in time or chooses to do at some future point. That state of being can be personal or a reflection of the culture [one is a part of]." (Montante 2006, p.36). When we think about the various hazards existing in buildings, we often relate them to occupational hazards (physical health and safety), giving little value to their possible mental health effects on those inhabiting the built environment. In the context of Health Impact Assessments, the built environment's relationship to safety is rarely addressed or discussed (Keem 2012); often we assess safety in terms of public safety, not well-being, of those occupying and using a specific facility. Safety measures should target socially and physically vulnerable populations who would be most severely affected and the spaces utilized en-route to the facility (Grant Et al. 2001).

Security and safety at HKS has been made a priority because of the schools international status (Frankish and et al 1996). HKS often hosts prominent individuals of significant global status. Therefore, necessary precautions and extra security measures have been developed, tested, and put in place in order to create the best practical solutions allowing the HKS community to feel secure from any perceived threat of attacks.

However, to have a broader view this section on safety and security focuses on several additional concerns. Two were identified in the 2015 HKS Sustainability Plan,

- possible exposure to toxic chemicals used by the cleaning staff members how they can be environmentally friendly and
- the physical and programing tactics used to prevent physical harm in HKS (Ellen and et al 2001; Daggett and et al, 2007, and Fish 2000).

To better align this HIA with the Harvard University Sustainability Plan (HUSP) (Harvard University 2014) the author has extended this report's discussion to include the recently released Report on the AAU Campus Climate Survey on Sexual Assault and Sexual Misconduct as the perception of fear and distrust of campus reporting were areas of concern by the students of Harvard University. (Cantor et al, 2015, p. 20-34). The Harvard University Sustainability Plan calls for, "a strong vision for a more vibrant community,"(HUSP 2014, p. 12) and by addressing and suggesting improvements in public safety measures in particular communication, HKS can improve psychological health by mitigating any fear or anxieties stemming from perceived notions of physical harm (Grant al. 2001, p.1).

<https://www.kickstarter.com/projects/850705174/project-targeted/description>
<https://www.kickstarter.com/projects/850705174/project-targeted/description>

THE SITUATION AT HARVARD KENNEDY SCHOOL

FACILITIES AND ENVIRONMENTAL

Two in-person interviews were conducted with the HKS Facilities manager and Head of Security. An online correspondence was carried out with the head of the Custodial Staff to complete a safety audit regarding facilities safety and cleaning chemical safety. Mark Nystrom, HKS Facilities Director, gave positive feedback on all relevant aspects of safety in the building. In all cases, HKS showed a high level of being prepared to resolve any issues that may arise (See appendix 2 for responses). The questionnaire is the standard practice survey used by the University of Queensland Occupational Health and Safety Department. Overall, HKS strictly follows green cleaning protocol (HFMO 2013, p. 1, RIRRC 2015, p. 1-4) and Harvard Energy and Facilities 2015, p. 1) and follows the GS-42 certification system to acquire new products. This rating system requires products to be both environmentally friendly as well as have low possibility of physical harm to people who come in contact with them (Harvard Energy and Facilities 2015, p.1-3). However, it was observed several obstacles were placed within hallways throughout the building: which included a collapsible bike, fedex boxes and recyclable materials that had yet to be discarded never several trashcans.

PUBLIC SAFETY

For this section, an interview and a walk through were conducted with the Head of Security of HKS, Brian Conroy. Harvard Kennedy School (HKS) is located on the southwestern quadrant Elliot Square just south of the main commercial district at Harvard Square. The campus borders the JFK Park which is controlled by the State's Department of Parks and Recreation. This area was cited by Harvard University Police Department (HUPD) officials as an area of minor incidents related to trespassing and episodes of late night, non-violent attacks, primarily robberies, involving Harvard Students. However, when compared to Cambridge Police Department (CPD) reports of incidents none were reported. What was discovered was the high rate of robberies of \$250 and above on the two blocks moving north on Massachusetts Ave. .

In general, 2014-2015 has seen a large decline of individual robbery, with a trend in the CPD's 2014 report showing a decline in Cambridge crime overall (CPD 2014, p. 4 and CPD Crime Map 2014, (see below):

Street robbery declined by 41% in 2014 to unprecedented levels. The 52 reported incidents is the lowest total for this crime in over 50 years. This total is also 53% below the five-year average of 111 incidents. No street robbery patterns developed anywhere in Cambridge in 2014.
(Cambridge Police Department 2014, p.9).

HKS is located on the border of Cambridge's West Cambridge and Riverside neighborhoods , these areas did see above average activities, as "most robberies in 2014 were Cambridgeport, Riverside, and West Cambridge, each with ten incidents. These neighborhoods accounted for 58% of all street robberies reported in 2014."
(Cambridge Police Department 2014, p.26).



Figure 1 |
Cambridge Neighborhood Divisions

HKS has been marked on the map, showing its location in Zone 10(West Cambridge) and on the border of Zone 7 (Riverside).

Source: http://www.cambridgema.gov/~media/Files/policedepartment/AnnualCrimeReports/2014AnnualReport_FINAL.pdf

Figure 2 |
2014 Street Robbery Hotspot Map

Map shows how HKS is situated between Zones 10 and 7(see Map 1) on the Cambridge Neighborhoods map. When you cross reference its location with this above map, the Robbery Hotspot Map, HKS is located in the most dense area of crimes.

Source: http://www.cambridgema.gov/~media/Files/policedepartment/AnnualCrimeReports/2014AnnualReport_FINAL.pdf



PUBLIC SAFETY (CONTINUED)

A review of the Harvard University Police Department's police logs (<http://www.hupd.harvard.edu/public-police-log>, Harvard University Police Department 2015) showed few incidents indicating security measures in place are working well though it was unclear if the community shares these sentiments (Harvard University Police Department 2015).

In addition, there are a number of features that HKS currently uses to maintain a campus free of violent incidents:

- Outdoor lighting is abundant on the Massachusetts Ave, Elliot Street, and Elliot Path sides. Limited lighting is available on the path bordering JFK Park.
- There are emergency call boxes located on each order of the main campus; in addition, one is visible when standing at another emergency box
- The main campus complex that includes: Taubman, Belfer, Rubenstein and Littauer, all have windows adjacent to walkways to provide informal surveillance.
- A Closed Circuit Surveillance system is in place. Though it is used as an investigative tool only, there are mixed reports suggesting the presence of cameras do actually decrease the rate of incidents (Welsh 2009, 716 and La Vigne 2013, 1).
- After 6pm all students, staff, and faculty must pass through security check points. Campus buildings have the same protocol during the weekends.
- HKS security staff are a specialized private security unit contracted by the University. They work closely with Harvard University, Cambridge Police Department and the Boston Police Departments to ensure current and accurate information are used to decide a course of action if an incident were to arise (Interview, Nystrom 2015).

DIGITAL AND PHYSICAL SAFETY PROTOCOLS

Harvard Kennedy School utilizes several technological approaches to reach their students, faculty and staff in the event of an emergency. These systems have proven effective in multiple instances. Safety measures may increase the perceived feeling of safety for the campus community and could alleviate the anxieties often felt when there are perceived threats. HKS overall had a low risk for a security breach as many best practice systems and protocols are in place.

DIGITAL

- Security Alerts are sent out over two major digital channels, to personal email and the service messageME, a text based application both staff and students must opt into receiving campus wide alerts (Facilities Incident Notification System 2015).



Image 1 | Closed Circuit Camera along with security beacons at Belfer entrance



Image 2 | Magnetic door release allows security to lock down parts of building

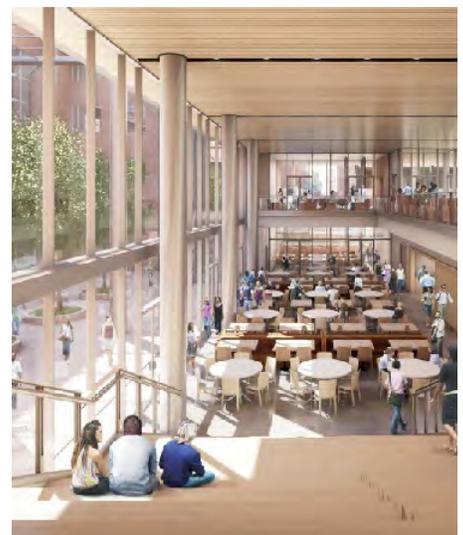


Image 3 | Rendering of New Building overlooking the JFK Park Path (Source: HKS, accessed 2015)

- Protocol for major national disasters is made public online and has been taught during orientation.
- All information can be found on the Kennedy School's Knet, provided one has an HKS account.

PHYSICAL

- Active Shooter Protocol is taught twice a year, and a video produced by Homeland Security is posted on Knet, an exclusive web portal for HKS faculty, Staff and Students (interview).
- In an event requiring a full lockdown of the HKS campus, a self sheltering protocol would be used, which was taught during all new faculty and students orientation
- An evacuation plan is in place which uses trained, volunteer staff and faculty members to help guide fellow community members to safety.
- Evacuation routes are posted on most way finding signage throughout the building.

OTHER PROTOCOLS

- Security of foreign dignitaries is accomplished in collaboration with Harvard University Police Department, State or Federal Law Enforcement and said dignitaries Security personnel.

Image 4 | Harvard University Police Officer directing traffic during an event (Source: <http://www.hupd.harvard.edu/>, accessed 2015)





Image 5 | Cyclist without a helmet on Elliot Street

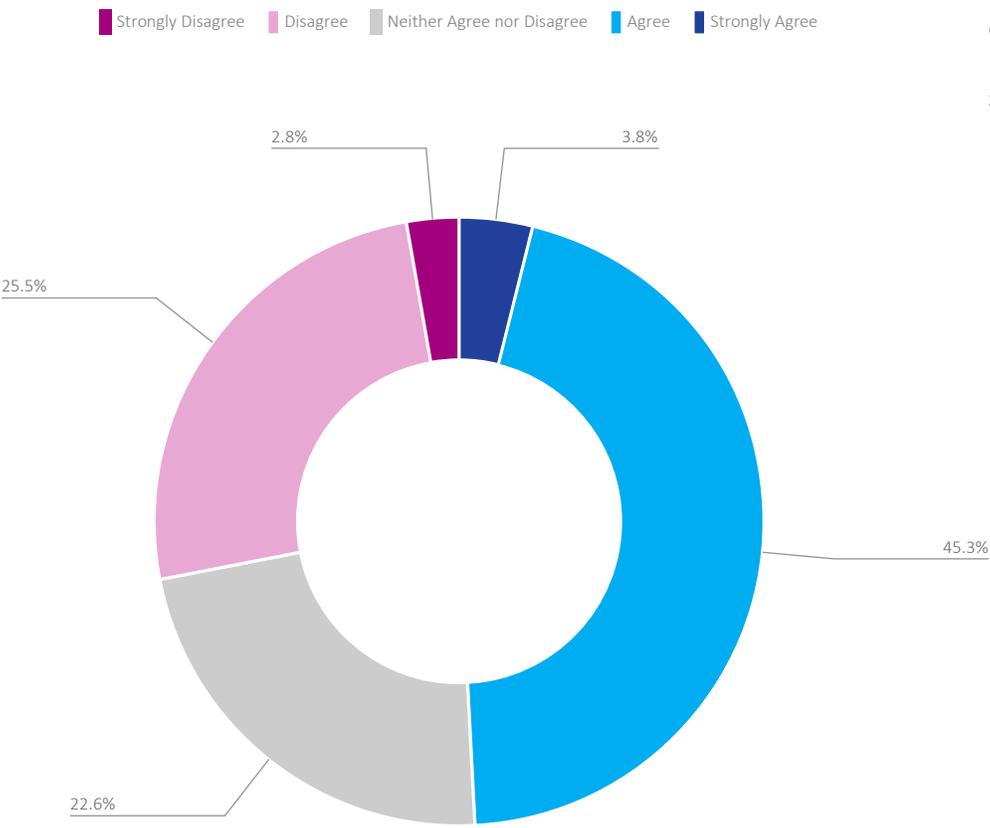


Figure 3 | If there were an emergency on campus I would know what to do. Response from survey asking whether students know safety procedures

If there were an emergency on campus I would know what to do.

Image 6 | JFK Park and HKS boundary has a clear delineation at night, and could be a possible vulnerable area for pedestrians

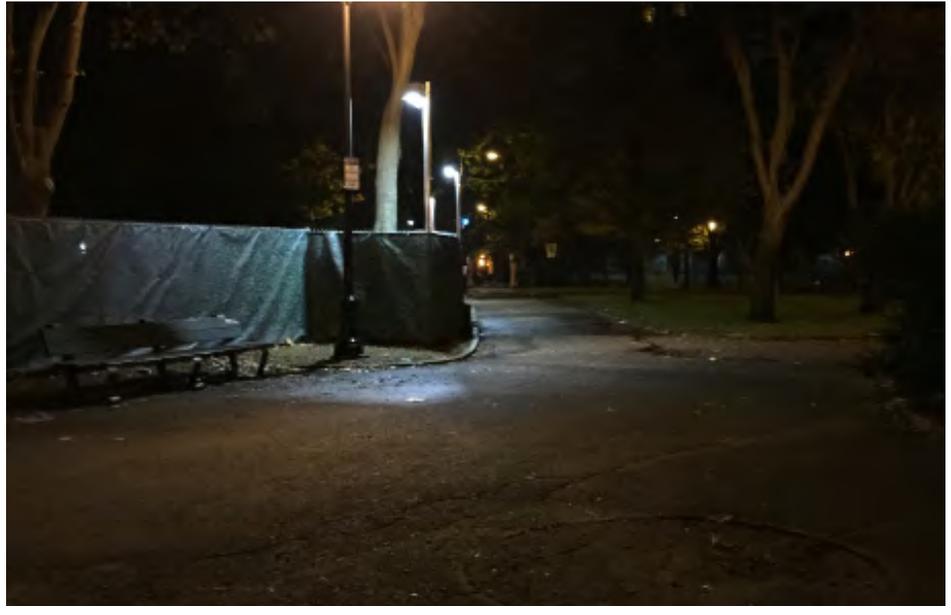


Image 7 | JFK Park sign does not list hours of park



Image 8 | Walkway between HKS and the Charles Hotel is clearly lit, and from both sides informal surveillance through the use of windows





Image 9 | Throughout HKS several work areas did not have enough space to store shipping boxes. Several recycling areas were overflowing with cardboard as well.

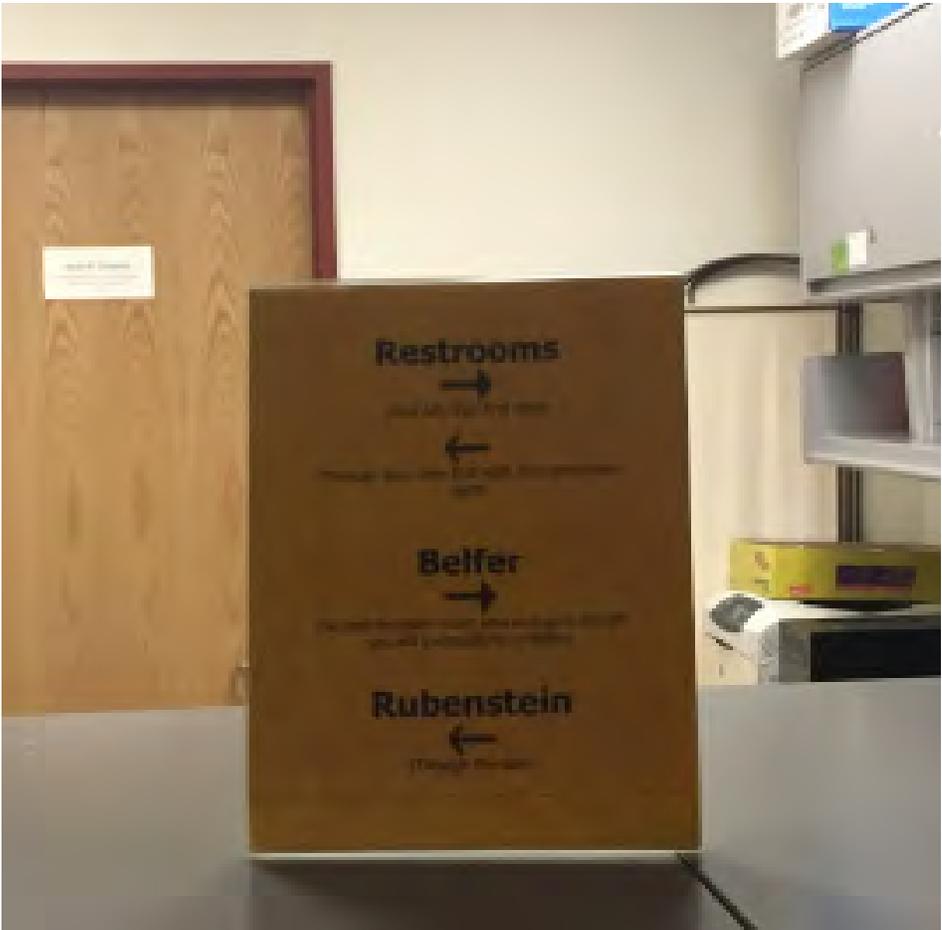


Image 10 | A single sign in a poorly lit hallway was placed on top of a filing cabinet

POTENTIAL IMPACTS

HEALTH ISSUE	POSITIVE OR NEGATIVE	LIKELIHOOD OF IMPACT
Anxiety		
Allergies		
Physical Wellbeing		

 Strongly Positive

 Moderately Positive

 Mildly Positive

 Neutral

 Mildly Negative

 Moderately Negative

 Strongly Negative

 Unknown

DIFFERENTIAL IMPACTS	DISTRIBUTION OF IMPACT	MEASURABLE INDICATOR	SUPPORTING EVIDENCE
Students, Faculty, Staff, Vulnerable Persons		Continue to inquire as to potential anxiety causes in future surveys	
Students, Faculty, Staff, Visitors, Vulnerable Persons		Continue to monitor AMA, CDC, EPA and OSHA for best allergen-free products	
Students, Faculty, Staff, Disabled Persons, Visitors		Continue monthly checks on hallway obstructions, promote best biking and pedestrian safety practices	

Speculative

Probable

HKS

Harvard

Metro

National

Research

Measurement

Observation

Interview

Survey

Tabling

RECOMMENDATIONS

Short Term	<ul style="list-style-type: none">• Make public evacuation routes more visible as post signage is too small and too few.
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Medium Term	<ul style="list-style-type: none">• Work in collaboration with other Harvard University departments to improve messageME to more quickly alert subscribers (see timeline of stabbing incident from October 7, 2015).
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Long Term	<ul style="list-style-type: none">• Improve public safety measures related to cross walks, traffic, and improved bike lanes on Elliot Street.• Improve lighting in JFK Park which will require Harvard University to collaborate with the MA State Park Services.• Work in collaboration with the Park Services in order to get proper signage denoting when JFK Park closes.
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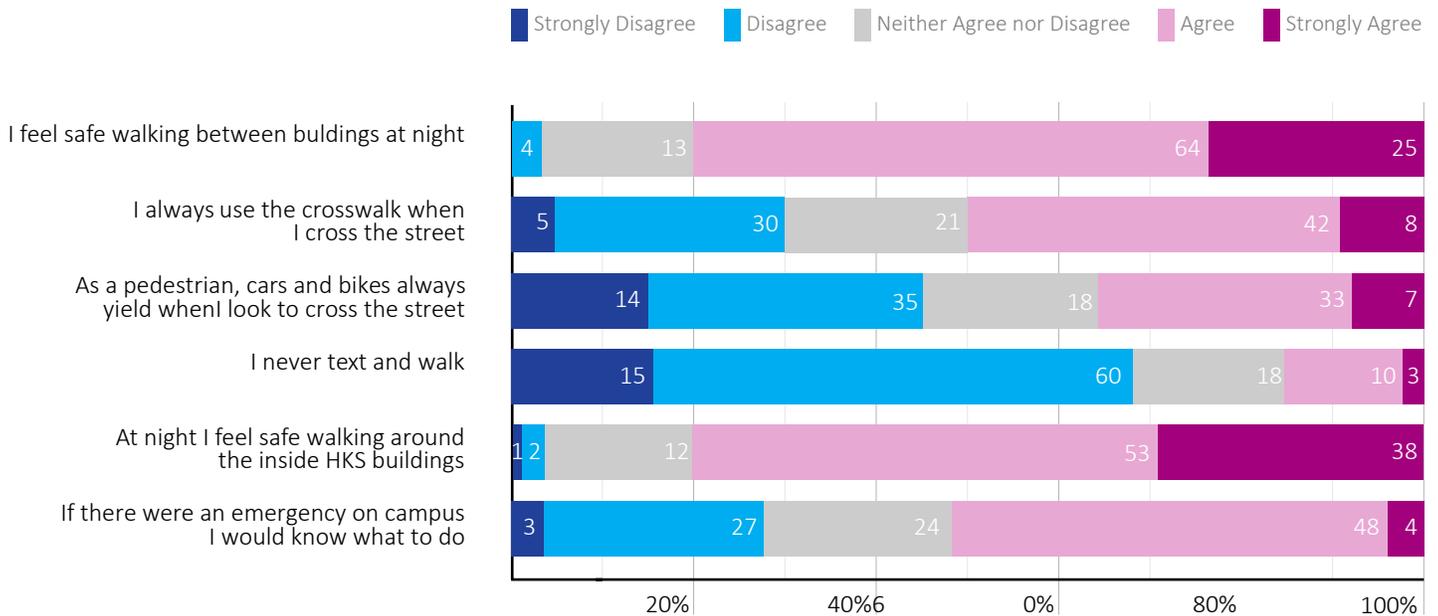
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APPENDIX

SURVEY QUESTION REGARDING PUBLIC SAFETY AT HKS

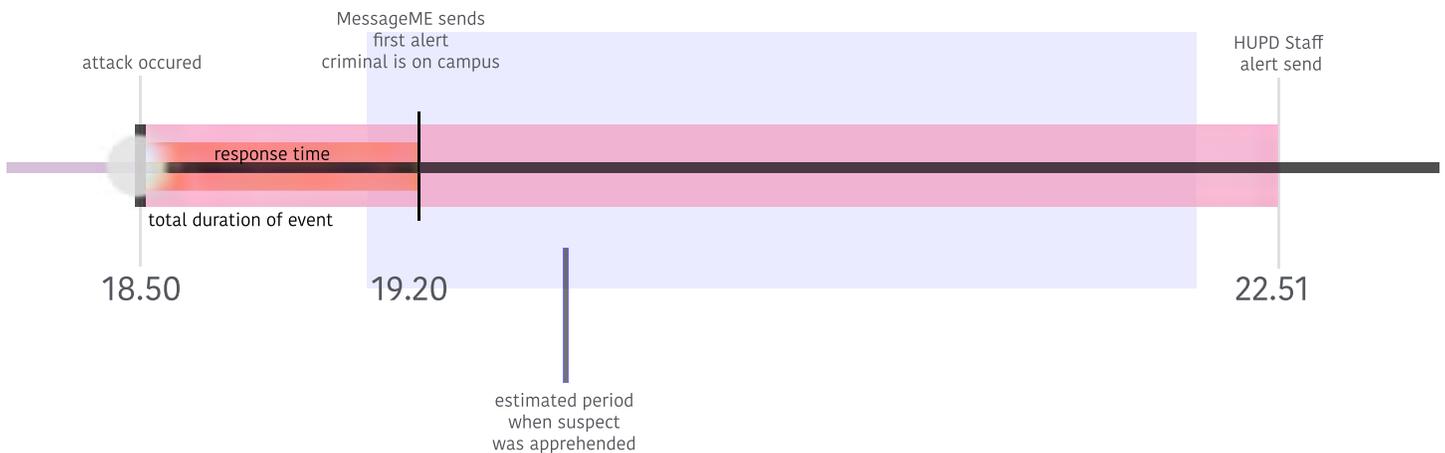
The survey presented a positive outcome for Harvard University’s Kennedy School of Government related to public safety. Students did not share any fear or anxiety concerning walking around both on the interior or exterior of the HKS campus as seen in both in the responses to statement 1 (89 of the 106 responses were positive) and in statement 5 (91 of 106 responses were positive). Where the survey did point to concerns, was the use of cellular phones and a firm understanding of what to do during the event of an emergency. Where all responses for to statements 3, 4 and 8 showed room for improvement or at least allowing for more information to be presented. In the case of Statement 4 and statement 8, we can assume a high percentage of students do frequently use there cell phones, therefore more development could be possible for creating a better interface for emergency protocols or at least having the ability to capitalize of student’s frequency of use of their phones.



APPENDIX

TIMELINE OF MESSAGEME SYSTEM IN ACTION

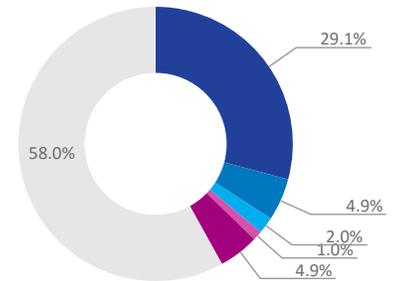
MessageME is an opt in digital alert system that manages to be an effective digital solution in our technologic reliant culture. It is not specific to HKS but is part of a campus wide alert system. However, what could be improved is a continued effort in realtime reporting that could decrease anxiety of students. On October 7, 2015 at 7:20pm a MessageME alert was sent out letting those who subscribe to the service of a stabbing that took place on the Law School Campus. In the message it suggested all those on campus should self shelter themselves until further notice. As seen below, it took over four hours for MessageMe to alert its users it was now safe as the suspect was apprehended. After the fact, it was observed the stabbing took place at 6:50pm, a 30 minute delay from when the first message was sent.



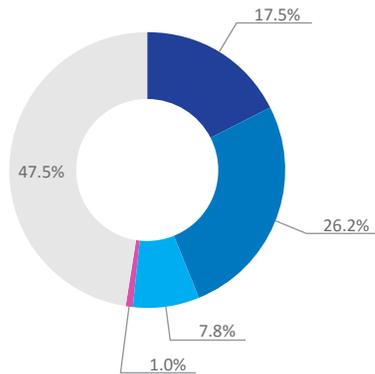
APPENDIX

SURVEY QUESTION ON BIKING SAFETY

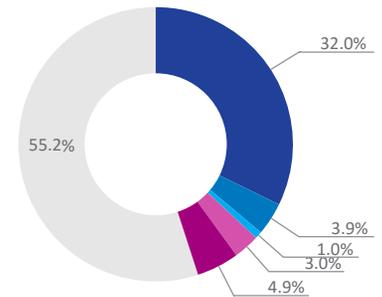
Based on the responses, one can determine there is much to be done about addressing biking safety for in the HKS community as well as the benefits for health that result in biking. It was observed the high percentage of bikes parked outside of HKS almost daily, but was puzzling to see the data not correlate. During the tabling session, several students complained about inadequate bike parking, safety and also not having enough Hub bikes most days.



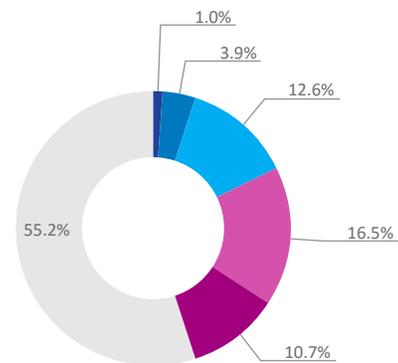
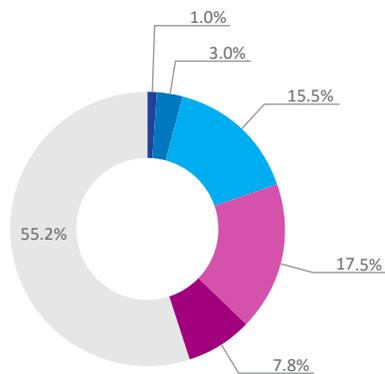
I use my lights on my bike at night.



I follow traffic signs.



I always wear a helmet.



I go the wrong way down the street. I go the wrong way down the street.

APPENDIX

Appendix 2

Healthy Places Safety and Security:
Harvard Kennedy School of Government in
Collaboration with the Graduate School of Design

OH&S WORKPLACE ASSESSMENT INSPECTION CHECKLIST

Organisational Unit / Workplace:	Harvard Kennedy School		
Person undertaking inspection:	Scott Valentine	Date inspected:	20 October 2015

1. Management

	Yes	No	n/a	Comments / Actions
Is the OH&S Policy for the University prominently displayed on a local noticeboard?	X			
Is there a designated Safety Coordinator?	X			
Is the work group represented on an OH&S Committee?			X	
Are there written safe operating procedures or risk assessments?	X			
Is the area aware of specific safety guidelines & procedures?	X			
Are key safety rules displayed in work areas?		X		
Are checks made on qualifications & training of operators?	X			
Are incidents and accidents reported and recorded on the UQ online Injury, Illness, and Incident Reporting System?	X			
Is there an effective system for reporting & correcting hazards?	X			

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2. Training

	Yes	No	n/a	Comments / Actions
Are all workers required to complete the UQ online "General Workplace Safety Induction"?	X			
Are all workers required to complete Annual Fire Safety Training?	X			
Are all new workers required to participate in a local site induction, and complete the UQ "New Worker OH&S Induction Checklist"?		X		
Is training provided specific to the individual workplace?	X			

3. Work Environment

	Yes	No	n/a	Comments / Actions
Do the general ventilation provisions appear sufficient?			X	
Are local exhaust systems installed to remove harmful gases, vapours, fumes & dusts?			X	
Are local exhaust systems regularly tested?			X	
Is exposure to noise prevented?			X	
If workers are exposed to noise, are they on the Hearing Testing Program?			X	
Are workers protected from vibration risk?			X	
Is lighting sufficient? (General purpose and task specific)			X	

4. Ergonomics

	Yes	No	n/a	Comments / Actions
Is layout of work area suitable for tasks?			X	

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4. Ergonomics	Yes	No	n/a	Comments / Actions
Are appropriate manual handling controls in place?			X	
Are excessively repetitive tasks avoided?			X	
Is appropriate mechanical handling equipment provided?			X	

5. Amenities	Yes	No	n/a	Comments / Actions
Are separate & clean meal-rooms provided?	X			
Is drinking water readily available?	X			
Are washing facilities adequate?	X			
Are toilets sufficient?	X			
If required, are lockers or hangers provided for work-clothes?			X	
Are staff amenities kept clean?	X			

6. Personal protective equipment (PPE)	Yes	No	n/a	Comments / Actions
Has the need for personal protective equipment been assessed?	X			monthly
If PPE is required, has it been provided?	X			
Is training provided on the use of PPE?	X			
Is PPE maintained and stored correctly?	X			

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Occupational Health & Safety Division

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7. Housekeeping & waste management	Yes	No	n/a	Comments / Actions
Are sufficient storage, racks and bins provided?	X			
Is there a system for the safe disposal of general waste?	X			
Is there a system for the safe disposal of chemical waste?	X			
Is training provided on waste disposal procedures?	X			
Are fume cupboards kept uncluttered?	X			

8. Floors & aisles	Yes	No	n/a	Comments / Actions
Is the flooring structurally sound?	X			
Is the floor surface even?	X			
Is the floor clear of waste, oil & water?	X			
Is the area free of tripping hazards?	X			
Are aisles of sufficient width?	X			
Are aisles marked? e.g. workshops, walkways?	X			

9. Special work procedures	Yes	No	n/a	Comments / Actions
Is there a permit & induction procedure for outside contractors?			X	
Is specific OH&S advice provided to cleaners & maintenance personnel entering biological or chemical laboratories?			X	

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9. Special work procedures	Yes	No	n/a	Comments / Actions
Are special procedures in place for hot work?			X	
Are special procedures in place for confined spaces?			X	
Are special procedures in place for working at heights?			X	
Are there procedures for out-of-hours work or working alone?			X	

10. Mechanical & heat hazards	Yes	No	n/a	Comments / Actions
Is machine guarding adequate?			X	
Are there adequate guard rails on ramps & walkways?	X			
Do ladders and steps appear adequate?	X			
Is pressure equipment installed?			X	
Are pressure relief valves, gauges and other safety systems regularly tested?			X	
Is electrical work carried out in accordance with the Electrical Safety Management Plan (ESMP)?	X			

11. Electrical equipment	Yes	No	n/a	Comments / Actions
Do multi-outlet boards have residual current devices?	X			
Do multi-outlet boards have individual switches?	X			
Are trailing leads eliminated?	X			

11. Electrical equipment	Yes	No	n/a	Comments / Actions
Has electrical equipment been safety tested in accordance with legislative and UQ requirements?	X			

12. Chemicals (general)	Yes	No	n/a	Comments / Actions
Is there a register of hazardous chemicals?	X			
Are Safety Data Sheets (SDS) available for all chemicals? e.g. via Chemwatch	X			
Are containers and their labels complete & in good condition?	X			
Have decanted substances been labelled in accordance with legislative and UQ requirements?	X			
Is the use of chemicals subject to risk assessment?	X			all chemicals adhere to the Green-42 standard
Is general storage for chemicals sufficient, including security?	X			
Is there segregation of incompatible classes of chemicals?			X	
Is there a procedure for dealing with chemical spills?	X			

13. Flammable liquids	Yes	No	n/a	Comments / Actions
Are quantities of flammable liquids kept to within the storage limit?	X			
Are flammable liquids cabinets provided? Are they correctly used?	X			
Is flammable liquid use & storage well away from heat & ignition sources?	X			

APPENDIX

14. Compressed & fuel gases	Yes	No	n/a	Comments / Actions
Is the number of cylinders inside rooms kept to a storage limit?			X	
Are incompatible gases segregated?			X	
Are cylinders securely restrained?			X	
Are gas systems periodically pressure & leak tested?			X	

15. Biological hazards (general)	Yes	No	n/a	Comments / Actions
If your laboratory requires physical containment e.g. PC2, are permits and certifications current?			X	
Has the need for vaccinations been assessed?			X	
If vaccinations are required, are they provided prior to the commencement of activities?			X	
Are staff aware of access issues for non-laboratory staff?			X	
Is there a current IBC or OGTR number for Genetic Manipulation work?			X	
Are Biological Safety Cabinets tested annually?			X	
Have staff been trained in transport requirements for infectious, diagnostic or genetically modified material?			X	
Is there an autoclave register of maintenance and faults?			X	
Are AQIS permits current?			X	

16. Emergency equipment	Yes	No	n/a	Comments / Actions
Are emergency procedures available?	X			but are only accessible to staff, faculty and students via Knet (Kennedy Network)
Are emergency contact telephone numbers displayed?		X		is available online but not displayed throughout the building
Is a safety shower and appropriate eye-wash unit provided?	X			
Are people provided with regular training in the use of safety equipment?	x			
Is all safety equipment periodically tested?	x			
Is a first aid kit available and regularly checked?	x			
Are there trained first aid officers?	x			

17. Egress & evacuation	Yes	No	n/a	Comments / Actions
Are evacuation procedures displayed?		X		
Are emergency floor plans displayed?	X			
Are emergency wardens appointed?	X			they are on a volunteer basis and must undergo yearly training
Is fire & emergency training provided?	X			
Are regular emergency practices conducted?	X			
Are emergency exits kept clear?	X			
Is there emergency lighting?	X			

APPENDIX

18. Fire protection	Yes	No	n/a	Comments / Actions
Are fire extinguishers provided?	X			
Is there a fire detection system?	X			
Is the fire alarm audible in all rooms?	X			
Is the push-button alarm accessible?	X			
Is there clear access for the Fire Service?	X			



04

Physical Accessibility and Wayfinding

Dana McKinney

OVERVIEW OF FINDINGS

Undergoing an immense construction project, the Harvard Kennedy School's (HKS) campus is radically changing through its expansion and the completion of its main campus quadrangle. With such, it is important to understand the state of the campus' existing physical accessibility and wayfinding as it relates to the health, well-being, and experience of students, faculty, staff, and visitors. Accessibility throughout the campus is of concern, for occupants with disabilities, but also for the broader community as they circulate, interact with, and use the built environment daily.

In its current state, the HKS campus demonstrates numerous barriers to and concerns of accessibility, particularly those pertaining to mobility and wayfinding throughout the campus. There are many overcrowded, sinuous hallways, narrow, dark stairwells, ineffective signage, poor visibility, and few resources supporting persons with disabilities, many of which are difficult to locate. Despite admiration of the campus and its atmosphere, participants frequently countered these sentiments with negative observations related to one's ability to navigate the campus comfortably. Through further observations, survey of the school's population, and analysis of the buildings, it is apparent that many improvements can address and advance all users' experience of the campus. Specifically, HKS can focus on improved wayfinding, with frequent and legible maps and signage to orient its occupants, particularly those unfamiliar with its campus. Additionally adjustments to existing staircases, such as the installation of handrails, painting with contrasting colors, and retrofitting brighter lighting, can ameliorate the safety and comfort of vertical circulation. Moreover, these changes among other would create an environment with enhanced universality, regardless of one's abilities or disabilities.

WHY THIS TOPIC MATTERS

ACCESSIBILITY AND THE PROMOTION OF AN INCLUSIVE HKS CAMPUS

While the majority of HKS students, faculty, and staff appear able-bodied, the school does have a population affected by their disabilities and thus require accommodations. Disabilities occur across a wide spectrum, in which impairments prevent some individuals from participating in daily activities that the majority can experience (Null and Cherry 1996, 6). They include both physical and mental health impairments, more broadly understood as any personal attribute that limits one's ability to engage in traditional activities. Using this wider definition, one's illness, both temporary and chronic, such as cancer, HIV/AIDS, immune disorders, and compromised reproductive functions, in addition to race and ethnicity, all serve as potential handicaps (ADA 2011, "ADA of 1990, as Amended"). Nearly one in five people classify as disabled, as revealed by the 2010 U.S. Census, "About 56.7 million people — 19 percent of the population — had a disability in 2010, according to a broad definition of disability, with more than half of them reporting the disability was severe..." (United States Census Bureau 2015). As the majority of the HKS community is the young adult, student population, 60.2% during the 2014-2015 school year, one would imagine that less than one fifth of the school's population qualifies as disabled, as many disabilities relate to aging and degenerative conditions (Harvard 2015, "Facts and Figures"). Nonetheless, the school should remain cognizant that there is a population that requires accommodations to promote their access throughout and occupation of the campus.

AMERICANS WITH DISABILITIES ACT (ADA)

President George H.W. Bush passed the Americans with Disabilities Act (ADA) of 1990 as an extension of the Civil Rights Act of 1964 and the Rehabilitation Act of 1973 to make accommodations for persons with disabilities, particularly confronting their exclusion from the built environment (Null and Cherry 1996, 2). Historically accommodations for accessibility promote separate programs, infrastructure, and design mechanisms than traditionally used for able-bodied occupants; these interventions include ramps, handrails, elevators, handicapped bathroom stalls, and braille signage. ADA made significant efforts to accommodate persons with disabilities, but in the twenty-year review of the legislation, it was stated, "Despite the progress identified, it is clear the ADA has had, at this point, a limited effect" (Turk 2010, 256). In response to this critique and numerous others, ADA was most recently amended in 2010, expanding efforts to prevent discrimination because of one's disabilities, promoting accommodations for a larger spectrum of disabilities with more integrated accessibility strategies (ADA 2011, "ADA of 1990, as Amended"). In addition to ADA, the International Building Code (IBC) also serves to regulate accessibility, including its definition of vertical circulation, egress, and programmatic requirements, increasing the rigorous standards of building codes further fortifying access throughout the built environment (IBC 2015).

EFFECTS OF INACCESSIBILITY

Accessibility interventions are localized accommodations and considerations intrinsically linked to place, allowing all users equal engagement with a space. The exclusion of disabled populations from an environment or

restriction from participating in desired activities may result in their lowered self-esteem and worsened mental health, than their able-bodied counterparts may otherwise experience (Heymann, Stein, and Moreno 2014, 175). The authors of *Disability and Equity at Work* describe that exclusion often results in stigmatization and discrimination further precluding persons with disabilities from actively engaging and participating in activities – they become even further disadvantaged, creating a cycle of segregation and self-exclusion. Further, this separation from the able-bodied population can result in the physical and mental reaction of stress and anxiety. Additionally, persons with disabilities also demonstrate higher rates of secondary health concerns, including multiple chronic diseases, often necessitating further accommodations (Reichard, Stolze, and Fox 2011, 65). Lastly, aging populations are of particular concern as their health often depends on how actively they engage with space; elderly who remain sedentary, particularly as they are restricted by their environments, commonly exhibit poorer health than those with accessibility and are more active (Null and Cherry 1996, 34). Improvements to HKS’s accessibility can benefit health, but more broadly promote inclusivity, self-esteem, mental health, and general engagement throughout the campus.

UNIVERSAL DESIGN

In conjunction with ADA and the growing concern of America’s aging Baby Boomer population there has been increased interest and investment in universal design as a more integrated, holistic design approach that makes accommodations for all, not just a select few. “‘Universal design’ means the design of products, environments, programs and services to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design” (Preiser and Smith 2011, 1.3). Designers are taking a greater initiative to build integrated solutions, so that able-bodied and disabled occupants use the same systems, infrastructure, and resources. Universal design utilizes multi-dimensional design interventions to accommodate disabled populations without inconveniencing able-bodied people, ultimately lessening feelings of restriction, isolation, and prejudice. More significantly, these strategies effectively improve accessibility as determined by the architecture and promote one’s health and well-being across abilities as standards deviate from the “normal” to new, quantitatively determined metrics and innovative physical accommodations (Goldsmith 2000, 11). These design strategies are pertinent to HKS and its diverse population, particularly in the wake of its construction project. The campus is open to all, but the experience of it significantly differs based on one’s abilities, such that persons with disabilities are frequently inconvenienced and isolated by the school itself.

THE SITUATION AT THE HARVARD KENNEDY SCHOOL

An evaluation of HKS’ state of accessibility investigated the relationship of mobility, both horizontal and vertical, wayfinding, and other general concerns of access throughout the school. The assessment utilized varying methods, most notably field notes, measurements of stairs, commentary provided during the tabling sessions in the JFK Forum, and an analysis of the campus’ floor plans. Mobility stood as the principal focus of the assessment as the campus’

construction largely occurred before ADA's enactment in 1990 and thus falls short of current regulations protecting persons with disabilities. Each of the main campus buildings, in particular present concerns of compliance as they were constructed and renovated without the codes prescribed by ADA – Littauer Center was constructed in 1978, with renovations through 1989, and the construction of the Belfer Center, David Rubenstein, and Taubman Buildings were completed in 1983, 1986, and 1990 respectively (EPA 2015, 8). Similarly, constructed in 1985, 124 Mount Auburn Street demonstrates several obstacles relating to accessibility. One Brattle Square, completed in 1991, is the only building on the HKS campus that adhered to ADA legislation during its construction. Many features throughout the other five buildings fail to comply with the current legislation that protects those with disabilities. Overall, the HKS campus has many barriers of mobility and general accessibility.

When speaking with students, staff, and faculty, many noted two specific buildings that pose a threat to those with disabilities and inconvenience the broader HKS population, the Belfer and Littauer Centers. To move between the two buildings, one must traverse multiple levels, most readily accessed by stairs. Additionally, entrances of both buildings fail to provide ramps and mechanisms easing access, such as push button doors and handrails, worsening their overall accessibility. While tabling at the JFK Forum, one student used a comment card to describe the overall state of accessibility at HKS as poor and further specified, "I believe the design of the Belfer Center is difficult for people with disabilities. There are too many stairs and the elevator requires planning to get to the floor

Figure 1 | Horizontal and vertical circulation of the HKS main campus



they need in a timely fashion if they have mobility issues” (Student, comment card). Similarly, another student described mobility in Littauer Center writing, “I don’t know how to move around the building, much less with a wheelchair” (Student, comment card). Numerous participants reinforced these concerns – regardless of one’s ability, the circulation around these particular buildings proves problematic.

HORIZONTAL AND VERTICAL CIRCULATION

In general, poor mobility of the HKS campus largely relates to the configuration of its horizontal and vertical circulation (Figure 1). Several corridors of the main campus flanked by classrooms, study spaces, offices, and facilities stand as barriers to accessibility. Many commented that the hallways throughout the building are narrow, winding, and dark, making them congested, uninviting (Figures 2 and 3). Views down the corridors are frequently obstructed by the configuration of its walls, making it hard to see people coming from the other end. Specifically, the ground floor corridors were frequently critiqued for their crowding in-between classes and during lunch hours. When polling students, staff, and faculty about spaces that supported and disadvantaged health with green and red dots respectively on a map, several specified the hallways as particularly detrimental. One student placed four consecutive red dots on the hallway connecting the Belfer and Littauer Centers and when probed why mentioned, “The hallways in Belfer are like a jigsaw puzzle, like stacked Tupperware boxes. I

Figure 2 | Curvilinear 1st floor hallway of the Belfer Center

Figure 3 | Narrow, dark hallway on the 1st floor of the Littauer Center

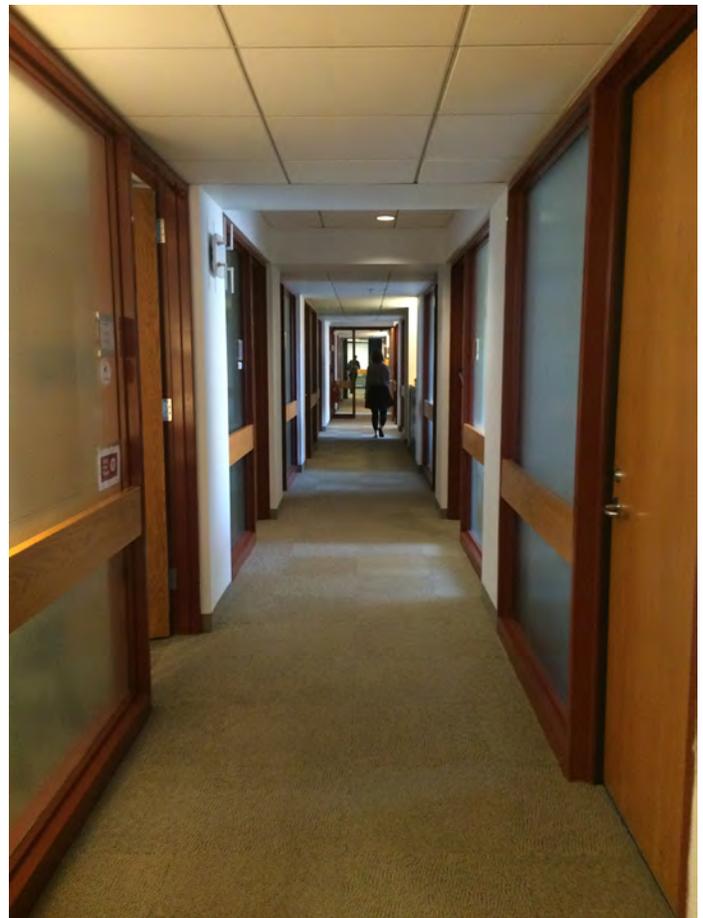
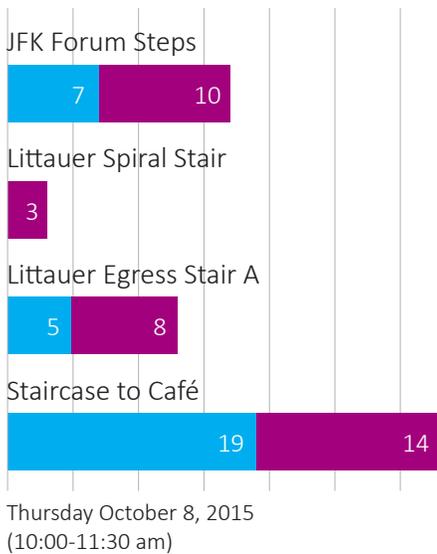


Figure 4 | Direction and frequency of movement up and down staircases in 10 minute increments



just want to reorganize the space to make it easier, but I can't because it is part of the built environment" (Student, testimony, 10/20/2015). As such, the buildings' corridors serve as the arteries throughout the campus, but are often inaccessible and uncomfortable, even to able-bodied occupants.

In addition to compromised horizontal circulation throughout the corridors, HKS demonstrates concerns of vertical accessibility. While strung across the campus, elevators are not readily accessible as they are difficult to find. Frequently tucked away in remote corners, little signage indicates their location. Furthermore, the stairs throughout the main campus are too narrow, heavily trafficked, and frequently lack handrails (Figure 4). Additionally, the egress stairs, in particular, fail to comply with current ADA and IBC regulations (See Figures 4 and 5). Those in Littauer, Taubman, Belfer and Rubenstein are narrower than the 48" required by code (IBC 2015, 1009.7.4). Furthermore, the treads in the Belfer and Taubman egress stair treads are too shallow, 10 ¼" and 10 ¾" respectively, instead of the required 11" (ADA Compliance 2010). While these differences appear marginally less than the code requirements, these inconsistencies create a tripping hazard and are ill-equipped to handle the congestion from heavy, daily traffic and more seriously, that resulting from an emergency.

Other staircases throughout the Kennedy School pose a similar threat of congestion. The JFK Forum steps are too narrow and receive significant traffic, aggravated by a single handrail adjacent to the study pods (Figure 6). Many commented on the difficulty of traversing the staircase due to this width and heavy usage, resulting from its central, public location. When two people try to

Figure 5 | Staircase rise, run, width, and handrail diameter by location

LOCATION	RISE	RUN	WIDTH	DIAMETER
Egress Stair by Code*	4" - 7"	11" min.	48" min.**	1.25" - 2" (on both sides)
Belfer Egress Stair	7"	10.25"	44.75"	2"
Littauer Egress Stair A	7.125"	11.25"	47.5"	2.25"
Rubenstein Egress Stair A	7.5"	11"	47.625"	1.5"
Taubman Egress Stair East	7"	10.75"	43"	2"
Egress Stair Average	7.156"	10.813"	45.719"	1.938"
Non-Egress Stair by Code*	4" - 7"	11" min.	44" min.**	1.25" - 2" (on both sides)
Belfer Center Entry	4.89"	15.75"	64.875"	2"
JFK Forum	6.5"	11.5"	39"	2"
Littauer Spiral Stair	6.5"	12.25"	35.375"	1.25"
Staircase to Café	7"	10.25"	44.75"	2"
Taubman Entry Stair	6.5"	13"	62"	1.875"
Non-Egress Stair Average	6.278"	12.55"	49.2"	1.825"

* ADA and the IBC require the same rise, run, and handrail diameter for both egress and non-egress stairs, but ADA does not make a requirement for stair width, unlike the IBC

**Stair width determined by occupancy load, 0.3" per person, but no less than value given (IBC2015, 1009.7.4 and 1011.2)



Figure 6 | Narrow staircase of JFK Forum with single handrail

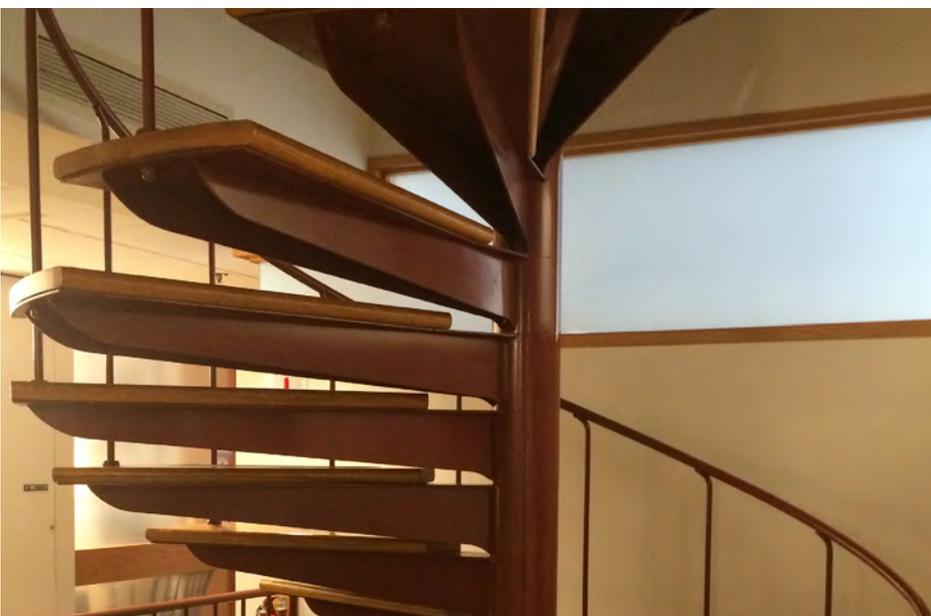


Figure 7 | Open treads of spiral staircase in the Littauer Center

Figure 8 | Belfer Center exterior entry stairs' rise

TREAD NUMBER	RISE
Rise by code	4" - 7"
1	3.75"
2	5.375"
3	5.25"
4	5"
5	4.875"
6	4.75"
7	5.25"
Average	4.89"

Figure 9 | Belfer Center exterior stair with single handrail and shallow steps

Figure 10 | Low color contrast of Belfer Center aluminum frame door

pass one another, one often has to stop and even move into a study pod, to make room for the other (Field notes, 10/8/2015). Additionally, the spiral staircase adjacent to office suites of the Littauer Center exhibits a similar concern of dimensions, conflated by poor visibility resulting from its mast obstructing sight lines, open-faced treads creating a tripping hazard, and thin handrails provide little stability (Figure 8). One student described their discomfort when using the staircase stating, "I always feel like I am going to fall when I go down them" (Student, testimony, 10/19/2015). Despite the dynamic visual created by stairs throughout the HKS campus, the design sacrifices accessibility and practicality at the expense of a strong design aesthetic.

The campus' exterior circulation poses similar concerns as those of the interior spaces. Many entries lack handicap access, without ramps or automatic push button door openers (Field notes, 10/7/2015). Stairs stepping to the entry doors are highly inconsistent; each stair slightly differs from the next with different runs and rises (See Figure 9). These stairs only have one handrail, often poorly anchored in the ground. Enclosed in gray aluminum frames, the glass entry doors provide little visual contrast and serve as an obstacle and threat to those with vision impairments (Figure 10). The entryways into the HKS campus are indicative of the state of accessibility inside, such that numerous obstructions and irregularities conflate to create a broader restriction of mobility, access, and safety.

Overall, the navigation of the HKS campus, both horizontally and vertically, interior and exterior, is met with frequent obstacles (See Figure 11).

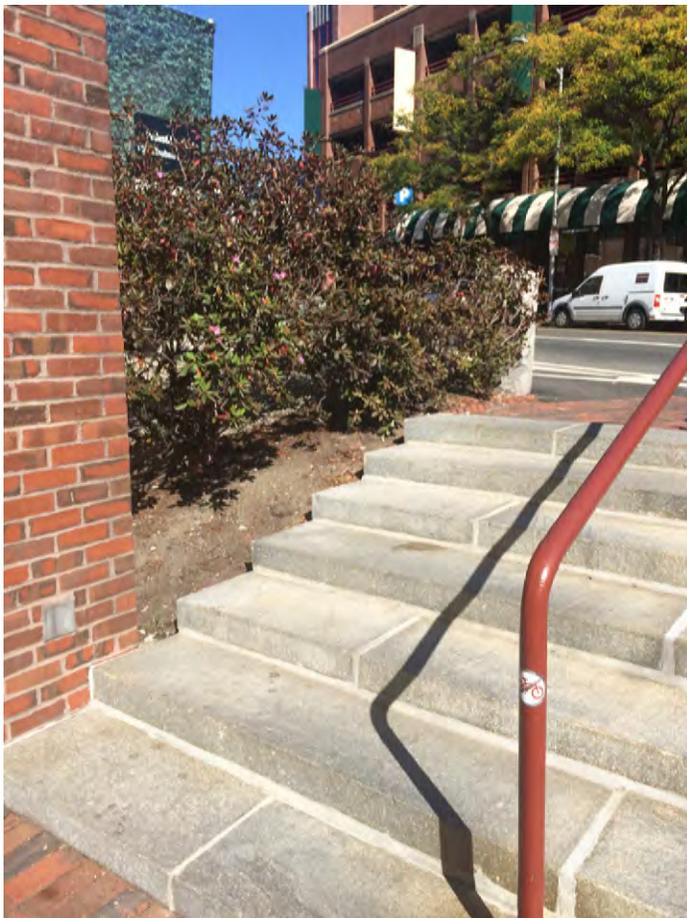
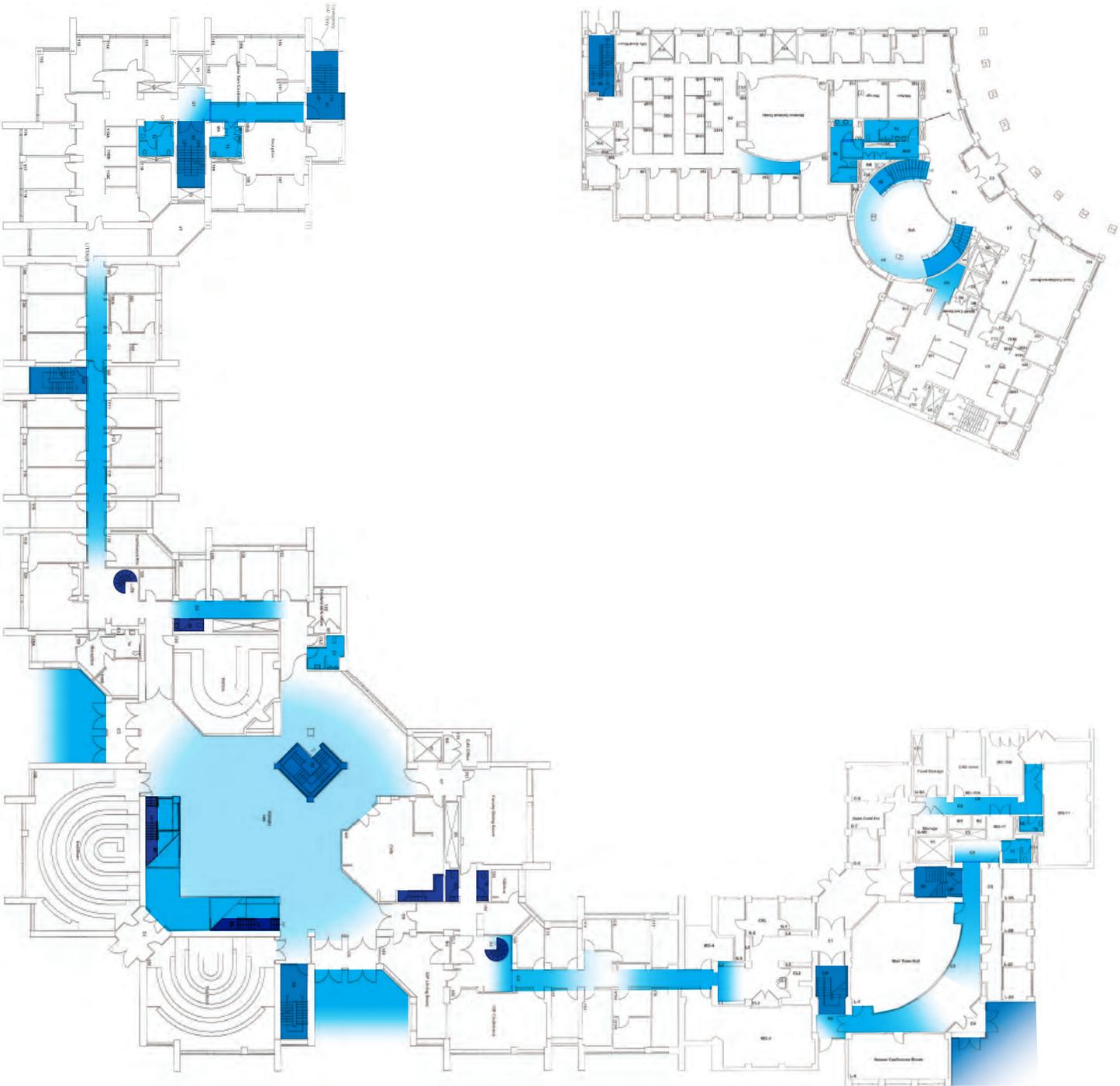


Figure 11 | Areas of poor accessibility within the main campus



- Zone of Concern
- Low Inaccessibility
- Medium Inaccessibility
- High Inaccessibility

Furthermore, the numerous level changes with and between buildings, conflate other constraints of mobility resulting in inconvenient and confusing circulation. The campus stands as a barrier for all of its occupants, but particularly for those with disabilities. One student identified one population affected stating, “About a dozen students that are handicapped have big issues moving around the building” (Student, testimony, 10/20/2015). Severely inconvenienced by the design of the buildings, these individuals are unable to occupy the campus comfortably, from the individual tread of a stair to the broader organization of the quadrangle – the architecture in itself serves as a mechanism of exclusion. More broadly, compromised mobility throughout each of the HKS buildings affects all of its inhabitants.

WAYFINDING

Aggravating concerns of mobility, the HKS campus demonstrates poor wayfinding, making it difficult for students, staff, faculty, and visitors to navigate its buildings. The maps and signs that are sparsely available frequently employ small fonts and low contrast, and are difficult to read from a distance (Figures 12 and 13) (Field notes, 10/8/2015). Throughout the school, there are sparsely located maps with indistinguishable graphics, frequently printed on small sheets of letter-sized copy paper, taped to the wall with little concern of their necessity. At times, it is difficult to differentiate these maps from event posters. During discussions with students while tabling in the JFK Forum, several specified that the maps

Figure 12 | Belfer Center wayfinding and signage

Figure 13 | Belfer Center room directory sign

Figure 14 | Taubman Center wayfinding map

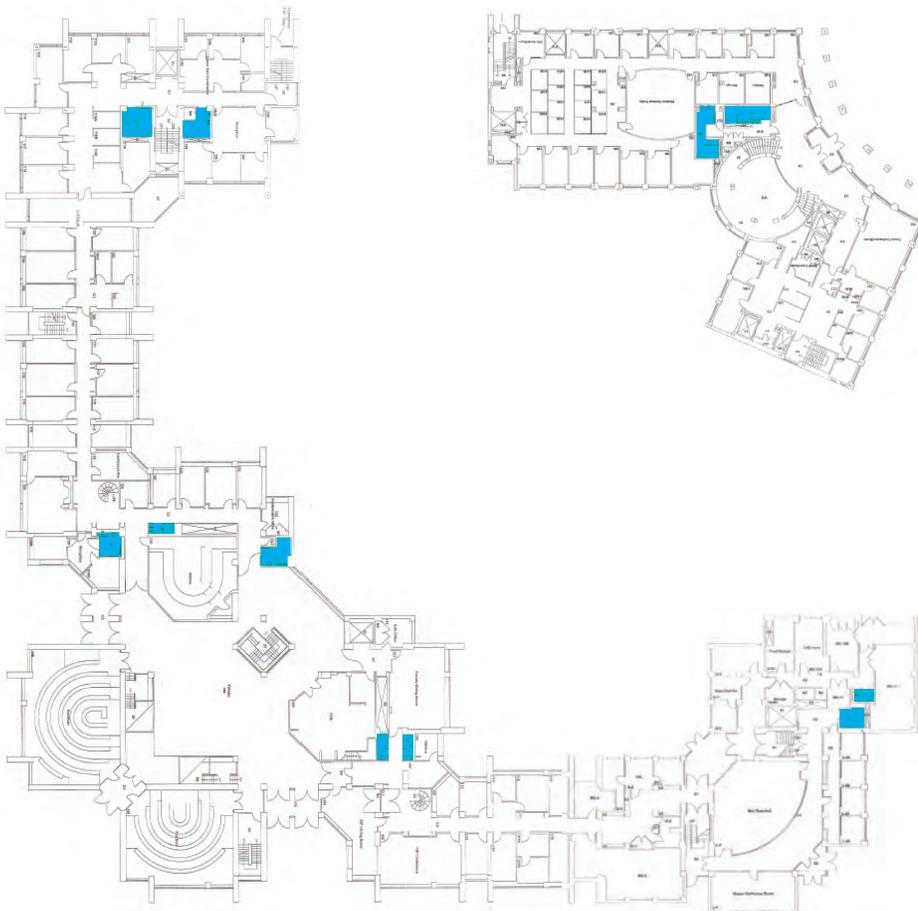


were unclear, illegible, and too few to adequately direct those unfamiliar with the campus (Student, testimony, 10/19/2015). There are some colorful, large format maps mounted on poster board, most readily found throughout the Taubman Center, but they similarly lack specificity and clarity (Figure 14). Additionally, individual rooms offer poor signage that is difficult to read from a distance and lack accommodations for persons with vision impairment and language barriers. Moreover, the campus' wayfinding efforts fail to quickly identify frequently used or essential programs. Finding a bathroom, elevator, classroom, office suite, or exit with the school's poor signage is a chore. Most concerning, the maps and signage poorly indicate evacuation routes within the buildings, creating serious concerns of instruction and direction in the event of an emergency (Field notes, 10//2015). Meager wayfinding conflated with the congested system of circulation, lend to a disorienting and uncomfortable occupation of the HKS campus.

ADDITIONAL CONCERNS

There are numerous additional concerns of accessibility across the HKS campus. Poorly distributed, many essential programs throughout the campus are difficult to find. For example, printers sparsely located throughout the building largely inconvenience students, while faculty and staff have printers in their respective office suites (Student testimony, 10/20/2015). Similarly, there are insufficient restrooms, particularly on the ground floor with too few toilets relative to the school's occupancy. In the 2014-2015 academic year, HKS had

Figure 15 | Location of main campus ground floor bathrooms

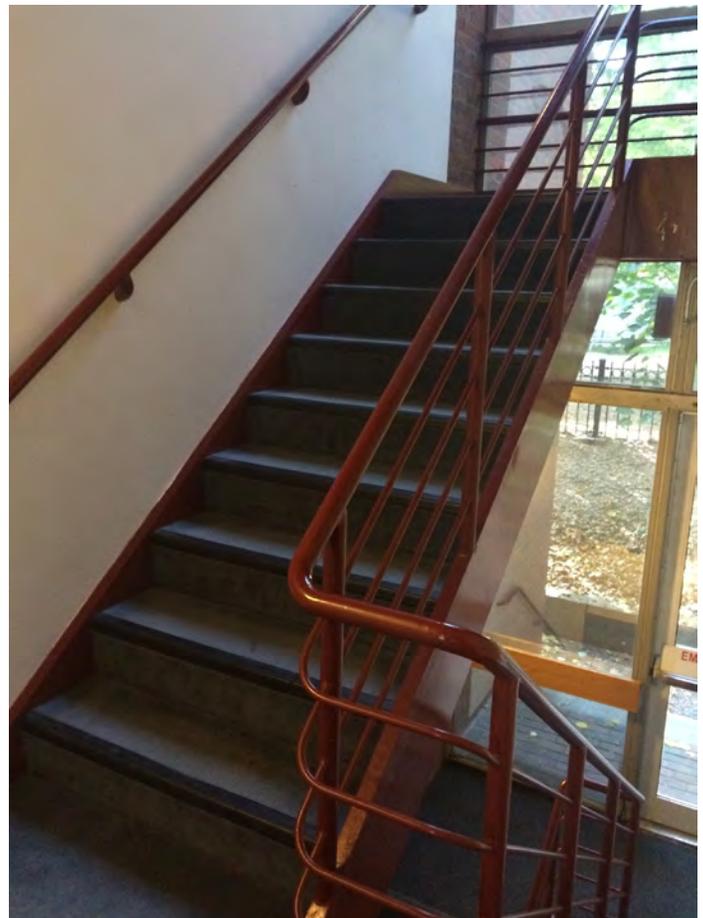


a population of 1,719 students, faculty, and staff, but the ground floor of the main campus only has eleven restrooms, totaling thirteen toilets and four urinals (Figure 15) (HKS 2015). For institutional buildings, the International Building Code requires one toilet for every twenty-five occupants, with such HKS would need approximately sixty-nine toilets for its students, staff, and faculty alone, not accommodating for the school's visitors (IBC 2015, 2901.1). If there is the same number of toilets for five full main campus floorplates, there are approximately 65 toilets. Although a simplified calculation, one can extrapolate that the campus fails to meet the required number of restrooms. Additionally, there are not enough private spaces for those with disabilities that might require such accommodations. For example, a student commented that there was no spaces for naps, making them feel disadvantaged, as they are someone suffering from narcolepsy. Similarly, one small and dark lactation room with an uncomfortable chair on the fifth floor of the Littauer Center is unwelcoming to new mothers. One woman described that others like herself do not want to feel sequestered to a closet to perform necessary duties as a mother – she felt that the inhospitable environment stigmatizes the act of lactation (Staff, testimony, 10/19/2015). Spaces like a lactation room, afford persons with disabilities and sensitive needs the accommodation of privacy to alleviate the burden and discomfort that they otherwise experience.

Figure 16 | Littauer Center staircase with glossy, ceramic tiles and open-faced treads

Figure 17 | Littauer Center egress stair with contrasting, slip-resistant nosing

The materials and colors utilized throughout the buildings also compromise the accessibility of the HKS campus. While much of the flooring provides appropriate traction, several spaces utilize a smooth, ceramic tile that



poses a slipping hazard, especially when wet (Figure 16) (Field notes, 10/8/2015). This flooring is also glossy, creating a glare causing discomforting when traversing its surface. Conversely, the school offers effective, rubber slip-resistant nosing on stairs that is a contrasting color from the remaining stair tread, providing both visibility and safety (Figure 17). Overall, the buildings' color palette provides an appropriate contrast between the floor, walls, handrails, and wood trim, with shades of tan, brown, and crimson, but their consistency does not provide enough differentiation among buildings to distinguish individual spaces. In rooms absent of and lacking natural light, these colors further darken the space impeding visibility. The materiality and color of spaces throughout HKS can easily enhance or aggravate the school's overall accessibility.

CONCLUSIONS

The Harvard Kennedy School is a campus with a tremendous diversity of programs and extraordinary students, faculty, and staff, but the campus falls short of the activity it supports. Congested and confusing, the schools' buildings offer poor accessibility for the entire HKS community, particularly for persons with disabilities. In the coming years, the school should focus on interventions to get its buildings up to accessibility codes and further, promote universal design, so that everyone experiences improved occupation of and mobility throughout the campus. With such, there would be lessened congestion of the hallways and stairs and thus improved comfort and ease. Further, it is crucial that the school progresses one's ability to navigate the space through improved wayfinding. Regardless of one's abilities and disabilities, the signage and identity across the school must be legible, frequent, and consistent. The school's built environment should be accessible to every population. Lastly, HKS must be considerate of those who do suffer from health conditions and disabilities and provide accommodations that support these circumstances. Their disability should not create a barrier to their occupation of the school – they are not inferior to the able-bodied community and deserve fair treatment. The Harvard Kennedy School is an environment that could benefit from improved accessibility, such that each person, regardless of circumstance, enters the campus and experiences the same, inclusive institution.

POTENTIAL IMPACTS

HEALTH ISSUE	POSITIVE OR NEGATIVE	LIKELIHOOD OF IMPACT
Hallways		
Stairs and Ramps		
Elevators		
Level Changes		
Maps and Signage		
Surface Materiality		
Colors		
Lack of Private Space		
Proximity of Printers		

Strongly Positive

Moderately Positive

Mildly Positive

Neutral

Mildly Negative

Moderately Negative

Strongly Negative

Unknown

DIFFERENTIAL IMPACTS	DISTRIBUTION OF IMPACT	MEASURABLE INDICATOR	SUPPORTING EVIDENCE
Persons with Disabilities Elderly First-time Occupants		Length + Width	
Persons with Disabilities Elderly First-time Occupants		Length + Width	
Persons with Disabilities Elderly		Distance	
Persons with Disabilities Elderly		Distance	
First-time Occupants		NA	
Persons with Disabilities Elderly		NA	
Persons with Disabilities Elderly		NA	
Persons with disabilities Elderly New Mothers		NA	
Students		Distance	

Speculative

Probable

HKS

Harvard

Metro

National

Research

Measurement

Observation

Interview

Survey

Tabling

RECOMMENDATIONS

IMPROVE CIRCULATION

Short Term	<ul style="list-style-type: none">• Improve visibility with brighter bulbs and additional fixtures.• Add handrails to staircases currently missing them to improve stability.
Medium Term	<ul style="list-style-type: none">• Introduce additional daylighting with skylights, light wells, and windows.• Replace flooring with materials with greater slip-resistance and lower glare.• Construct exterior ramps and level entries to supplement accessibility into the campus.
Long Term	<ul style="list-style-type: none">• Widen the corridors and stairs when feasible.• Renovate misaligned floors of buildings to eliminate dependence on stairs.• Reconfigure long corridor spans with the insertion of new programs, to lessen their monotony.• Reconstruct inaccessible stairs, most significantly, the tread width and depth of egress stairs.• Construct additional elevators, with larger capacity in more central locations to provide convenient access for persons with disabilities.

IMPROVED WAYFINDING AND SIGNAGE

Short Term	<ul style="list-style-type: none">• Create new maps and signage with large fonts, legible graphics, with greater permanence and regularity, to situate an individual within a building and the broader campus. Identify important facilities, such as the nearest restrooms, elevators, classrooms, offices, and exits.• Renumber rooms with greater logic to express continuity across buildings.• Install signage to identify evacuation routes and procedures.• Post signs that denote areas of concern warning occupants of potential hazards, such as slipping.• Offer signage and maps in other languages and Braille.
Medium Term	<ul style="list-style-type: none">• Paint with more differentiated, contrasting colors to better distinguish rooms and features, such as handrails, baseboards, floor surfaces, and walls, without over-stimulating occupants with vivid colors that are distracting and disorienting.
Long Term	<ul style="list-style-type: none">• Create a welcome station at the main entrance of each building to direct visitors that may need help finding particular rooms across the campus.

GENERAL ACCESSIBILITY IMPROVEMENTS

Short Term

- Locate printers in more visible, accessible areas with greater distribution.
-

Medium Term

- Paint the aluminum casing of glass doors and vestibules a contrasting color that readily differentiates the glass from its metal enclosure.
 - Install push buttons to automate doors of all exterior entries and major interior spaces.
-

Long Term

- Construct more and accessible bathrooms on the ground floor and throughout the campus in general.
 - Build private spaces for personal concerns, for example more lactation rooms, resting spaces, and areas to take sensitive phone calls.
 - Conduct an accessibility audit every few years to monitor and propose further changes to advocate for universal design and inclusion on campus.
-

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05

Ambient Environment and Health

Longfeng Wu

OVERVIEW OF FINDINGS

The following study looks at the Littauer Forum and the Littauer Library as a case study of how the ambient environment affects the health of Harvard Kennedy School's students, faculty, and staff. For the purposes of this study, the ambient environment has been categorized by five factors, including noise, illumination, temperature, relative humidity, and air quality (ventilation).

Overall, the ambient environment is healthy for the temporary occupation of space; however, for long-term use, the space may begin to pose more negative health impacts than would be preferred. Excessive ambient noise would be the first issue to be addressed, followed by the lighting conditions in some of the public spaces of the Littauer Building. The temperature and relative humidity are stable and comfortable in most spaces of Littauer's Forum and Library.

NOISE

The average noise level measured in the spaces of the Forum ranged from 60 to 72dB (See Figure 17), which could be considered distracting for students trying to study. The sources of the noise included voice conversations between individuals, phone conversations, staff discussions, and presentation preparations. The noise levels varied according to the placement of the space in relation to the larger open atrium, as well as on the various times of the day.

On a weekday, for example, during the break hours of classes, the noise rose to a rather "loud" level of 70dB, largely due to the students' conversations as they exited the classrooms and convened in the public space. In the afternoon, if there is a public lecture in the forum, HKS staff will reorganize the layout of the forum and start to test the audio equipment (microphone

and illumination, etc.), causing loud noises that often exceed 72dB (See Figure 17).

The location and surrounding installations of space also affect the level of the noise (See Figure 17). Open study spaces and the offices that are located within proximity of a noise source, such as a classroom, are most at risk for adverse effect. Aside from the acoustic profile of the noise, the content of the sound, like the actual dialogue of the people on the phone call, is highly distracting. This problem escalates on the third floor, where the open discussion section contributes the most conversational noise to the public space. The Library, however, provides quieter space for individual study with the average noise level falling within 50 to 60dB (See Figure 18).



Figure 01 | The Littauer Forum is a multi-function space

ILLUMINATION

The lighting condition of the Littauer Forum varies due to its mixed-use program. The direct brightness intensity ranges from 99 to 391(Unit: Lux) and reflected brightness intensity rests steady between 10 and 197(Unit:lux)(See Figure 17). The factor of difference between direct and reflected intensity is within 2-11. Switches are accessible for turning on the lights in most spaces such as HKS_LF_2, 3, 4. Areas like HKS_LF_6 on the second floor have poor lighting conditions whose direct and reflected lighting intensity is 35 and 10(lux), which is not suitable for long-term working or studying (See Figure 17). On the third floor, in the study areas and over the computer desks, lighting is not sufficient for work. Although some places have installed the switchable lights, it is hard to find how to turn them on and when the light will turn on for the uncontrollable lights.

The library, though, has enough lighting for the purposes currently present and the lighting has controllability. The carousel study area, however, could use improvement due to the excessive light intensity (See Figure 18).

TEMPERATURE

The average temperature of the sample spaces in the Forum falls between 20 to 25C, which is considered comfortable (See Figure 15). The space located right below the air outlet of the air conditioner has a low temperature that could pose a negative impact on individuals with respiratory sensitivity. In the entrance areas of the Forum, there are frequent wind gusts from the outside, and the temperature is below 20C.

The Library's temperature is ideal during the day, with an average of 23C. Still, there are some areas, such as the study room and the sofa reading area right under the air conditioner outlet, that consistently have lower temperatures (See Figure 16).

HUMIDITY

The humidity of the working space lies in the optimum zone, between 40%-60%, the average reading space is 44%-48% in the Forum, and the Library has a lower relative humidity of 27% during the open hours (See Figure 15 & 16). The entrance area of the first-floor Forum, reaching a relative humidity of 23% is far from the optimum level. The cause of this is likely the frequent blasts of wind from entering and exiting the Forum. The space located under the air outlet of the air conditioner has a high relative humidity.



Figure 02 | First floor Littauer Forum

AIR QUALITY(VENTILATION)

The air quality and ventilation ratio is measured by CO2 concentration. Most spaces in both the Library and the Forum have an ideal level of CO2 concentration (ASHARE, 2011) (See Figure 19).

WHY THIS TOPIC MATTERS

Since up to 90 percent of the average individual's time is spent indoors, the indoor environment is critical to health and well-being (Chen et al., 1998). Furthermore, the quality of the indoor environment affects people's working efficiency and their productivity. Assessing the health impacts of indoor environments on people involve various aspects and factors. Current research explores the sub-topics of acoustics, vibration, illumination, thermal comfort, indoor air quality, water quality, vegetation and electromagnetic fields and their impact on individuals' wellness (Chiang & Lai, 2002).

At HKS, many faculty and researchers are working in an office or in a study group setting, exposing themselves to the indoor ambient environment during most of their daily hours. In the Littauer Building, the most populated areas are the public spaces with chairs and desks for studying or group discussion, the library, and offices. The public spaces connecting different private offices and classrooms are always mixed-use, which means different working or studying activities merge together (See Figure). Although the diverse programs make the Forum more usable, it leads to potential conflicts among the different groups and influence the periphery spaces. A large number of students are studying and discussing for successive hours in the Littauer Forum, which is the one of the most dynamic and interactive spaces in HKS and is adjacent to more than 30 classrooms and offices (according to the current HKS campus plan). It is an ideal space to measure the ambient condition to find out how they might affect the different uses and what needs to make better indoor environment.

NOISE

In the office environment, noise is among the most prevalent of disturbances to productivity (Becker, 1981). Studies has shown the open-office noise elevates workers' urinary epinephrine levels, and it produces behavioral aftereffects (fewer attempts at unsolvable puzzles) indicative of motivational deficits (Evans et al., 2000). Also, in the workplace, non-acoustical factors have a large effect on the actual noise annoyance on an individual and a population level. These factors include the meaning and information content of the noise (telephone conversations and discussions among colleagues score high), predictability, availability, controllability, task demands, and attitudes toward the noise source (Passchier-Vermeer et al., 2000). Such impact of noise would happen mostly in open offices, as well as public spaces where people frequent. In HKS settings, many indoor public spaces are mixed-use, like the Littauer Forum where people who are studying or working are exposed to the large volume of "open-office noise," making noise one of the critical indicators of the ambient condition.

ILLUMINATION

The amount of illumination in the environment could affect the mood of people, as well as cause physical fatigue. An experiment shows that exposure to decreased illumination would lead to depression, whereas small increases in light exposure have been found to improve mental well-being in people (Espiritu et al., 1994). Also, studies have found that indoor workers who hardly went outside of the office and were exposed only to office light during the daytime tend to have problems with insomnia (Kozaki et al., 2012).

TEMPERATURE AND HUMIDITY

Thermal comfort has a lot to do with environmental factors, including air temperature, the temperature of the surrounding surfaces, air movement, the relative humidity, and the rate of air exchange (ventilation)(Ormandy et al., 2012). It also depends on the activity and the clothing worn by the individual, as well as on age, health status, gender, and on adaptation to the local environment and climate of the individual and the household (WHO, 1984). Though people could react to the perceivable changes of thermal changes, unperceivable factors lead to accumulative effects on people's health.

A review of the health effects of relative humidity in indoor environments suggests that relative humidity can affect the incidence of respiratory infections and allergies in both direct and indirect ways(Arundel et al., 1986). Maintaining

Figure 03 | Littauer Forum is prepared for a public lecture



temperature at the low end of the comfort zone tends to reduce Sick Building Syndrome's (SBS) symptoms (Musa et al., 2012). Similarly, individuals perceive the quality of indoor air to be better when temperature and humidity are toward the lower end rather than the higher end of the comfort zone (Fang et al. 1998). Lying in the non-optimum zone, temperature and relative humidity would increase the amount of bacteria, viruses, fungi, mites, and chemical reactions that might harm people's health, which is typically applicable in HKS's situation where campus is constantly crowded.

AIR QUALITY (VENTILATION)

Although ventilation rates, SBS symptom types, and findings have varied among studies, most studies have found that occupants of office buildings with lower rates of ventilation (outdoor air supply) per person have statistically significantly higher prevalence rates of SBS symptoms (Seppanen et al. 1999; Wargocki et al. 2002).

THE SITUATION AT THE HARVARD KENNEDY SCHOOL

THE AUTHOR'S OBSERVATION ON HKS CAMPUS

The direct on-site observation by the author reveals five measurable

Figure 04 | Three floors are connected to the Forum



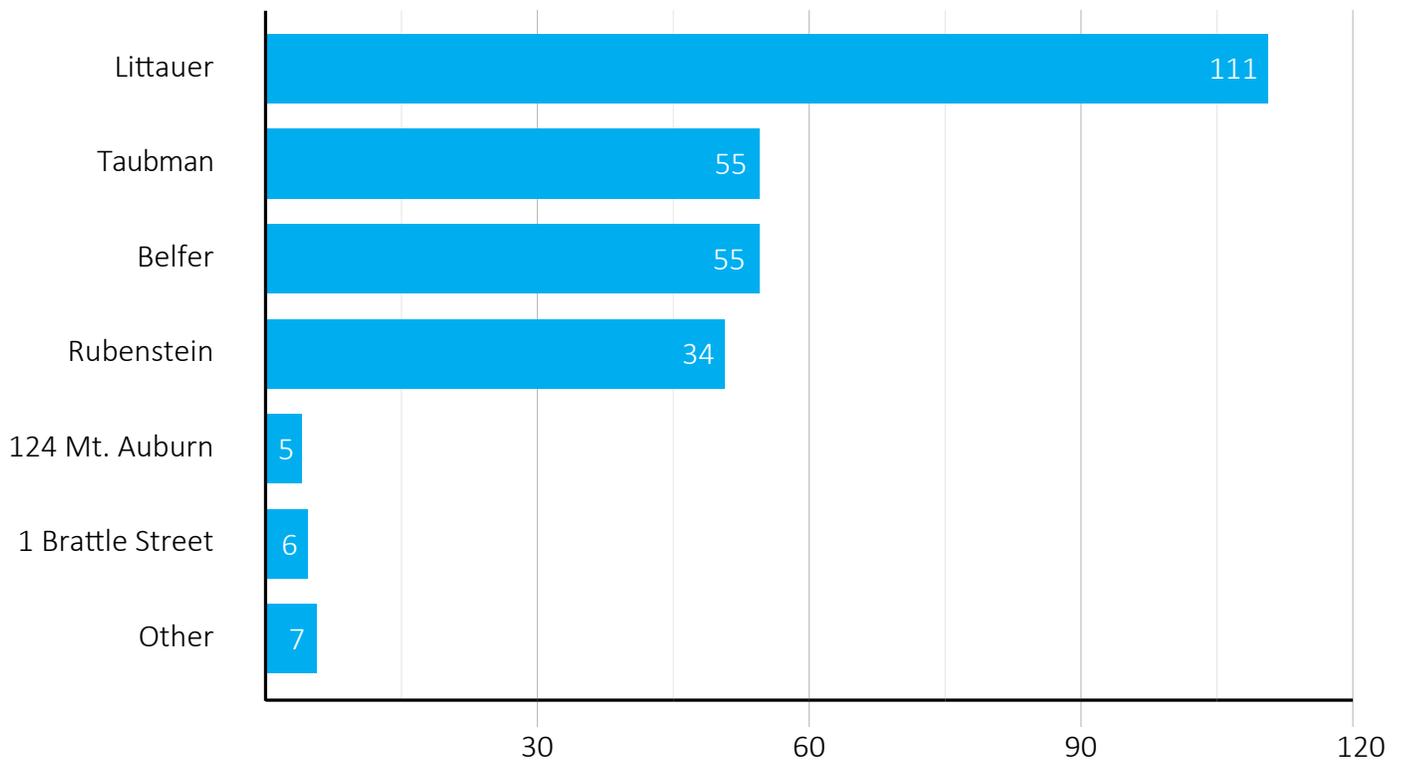
issues of ambient condition. The author spent 11 hours in total during three weeks on HKS campus and identified that the Littauer Center, including the Forum Space and Littauer Library, frequently occupied by students and staff. Sixteen sample sites were measured and monitored (See Figure 07 & 08). The main function of the Forum is for hosting lectures, having meals, interactions, rest, and studying. The mixed-use program that the Littauer Center offers brings great social opportunities, but such diverse use of the open space also leads to some conflicts, such as between those who are working on their laptops and those having conversations or discussions (See Figure 01&02). Since everyone on the three floors is sharing one public space, they are equally exposed to the undesirable noise. This reflects the need of individual working spaces and gathering space for the public that the HKS should offer to the students and faculty.

The lighting in the public spaces should meet the basic needs of the people, but currently the lighting condition is insufficient in some of the small spaces with sofas. After typing and staring the laptop screen for one hour, the investigator’s eyes felt heavy and uncomfortable, thus decreasing work efficiency and causing fatigue. The allocation of lighting is not balanced in the Forum. During observation, almost all of the spaces were occupied by the students or staff. The control of turning on or off some of the lights is decided by the staff, which might not make for the most sustainable use of energy.

Figure 05 | Responses to the question “In what building is your primary office, work/study space or classroom...”

OUTCOME OF TABLING RESPONSE

According to the tabling suggestions by staff and student, 6 out of 73 responses asked for quieter and separated spaces for studying or relaxing, 1 out



of 73 mentioned the proper control of the indoor thermal environment, and 3 out of 73 suggested more natural light or more windows. From the low numbers, it can be concluded that ambient environments are not currently at the forefront of students and faculty's concerns.

OUTCOME OF ONLINE SURVEY

In the survey, 140 effective responses incorporated the voices of 98 students, 2 staff, and 2 faculty; the remaining responses did not identify their affiliation. Most responses, 111 out of 132, use Littauer as their primary work and studying place in HKS (See Figure 05). Twenty-three of 129 effective responses indicated an inadequate lighting condition in the work and study space. Twenty-four of 129 effective responses responded about the inadequacy of ventilation in the work/study space. Thirty-nine out of 128 effective responses complained about the noise in the work/study space. Fifty-seven of 127 have an issue about the indoor temperature. Nine of 128 responded about the uncomfortable humidity condition in the work/study place. Nineteen of 128 think the sanitation service needs improvement. Eighty-eight of 129 complained they could not personally control the lighting and ventilation in the work/study space (See Figure 06).

Figure 06 | Responses to the question “My office, work/study space or classroom has adequate...”

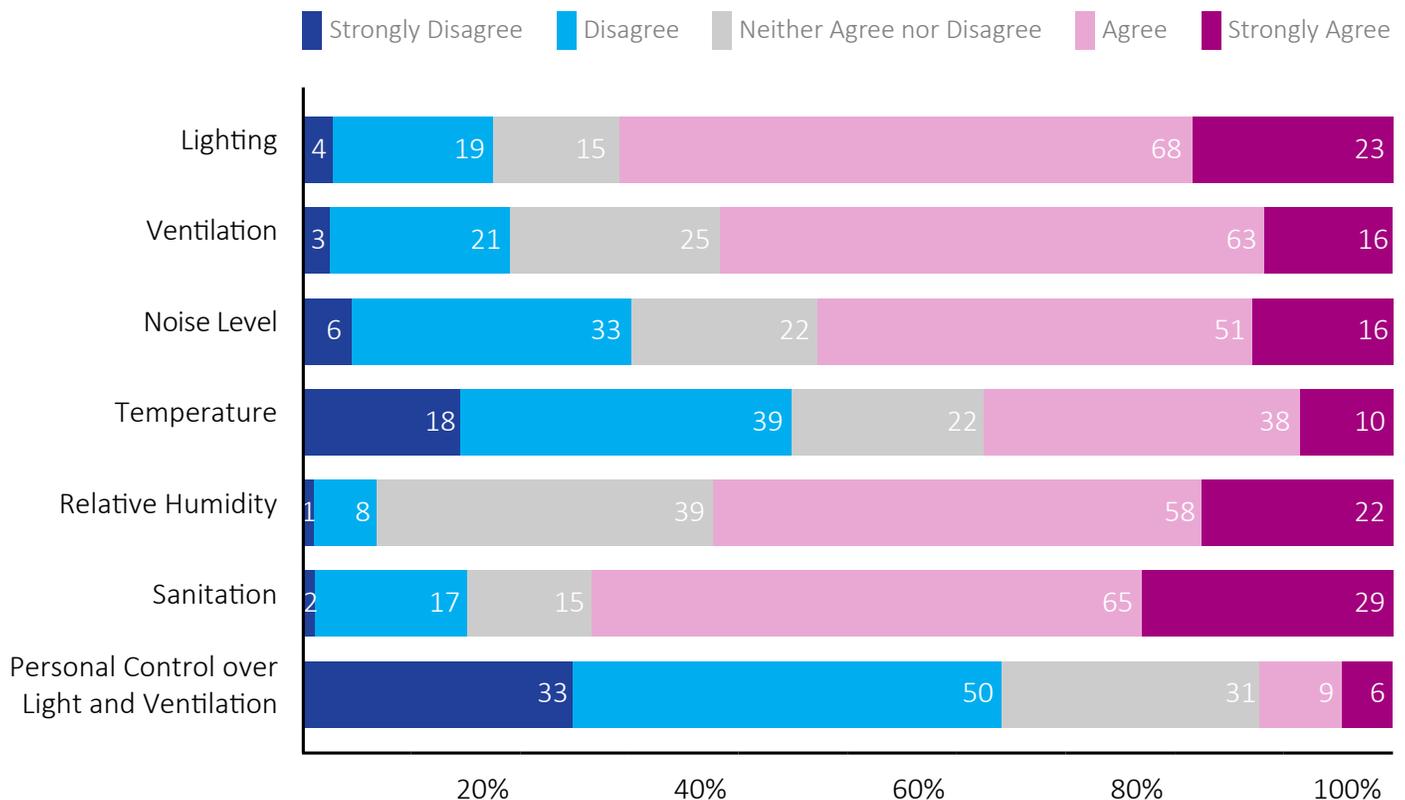
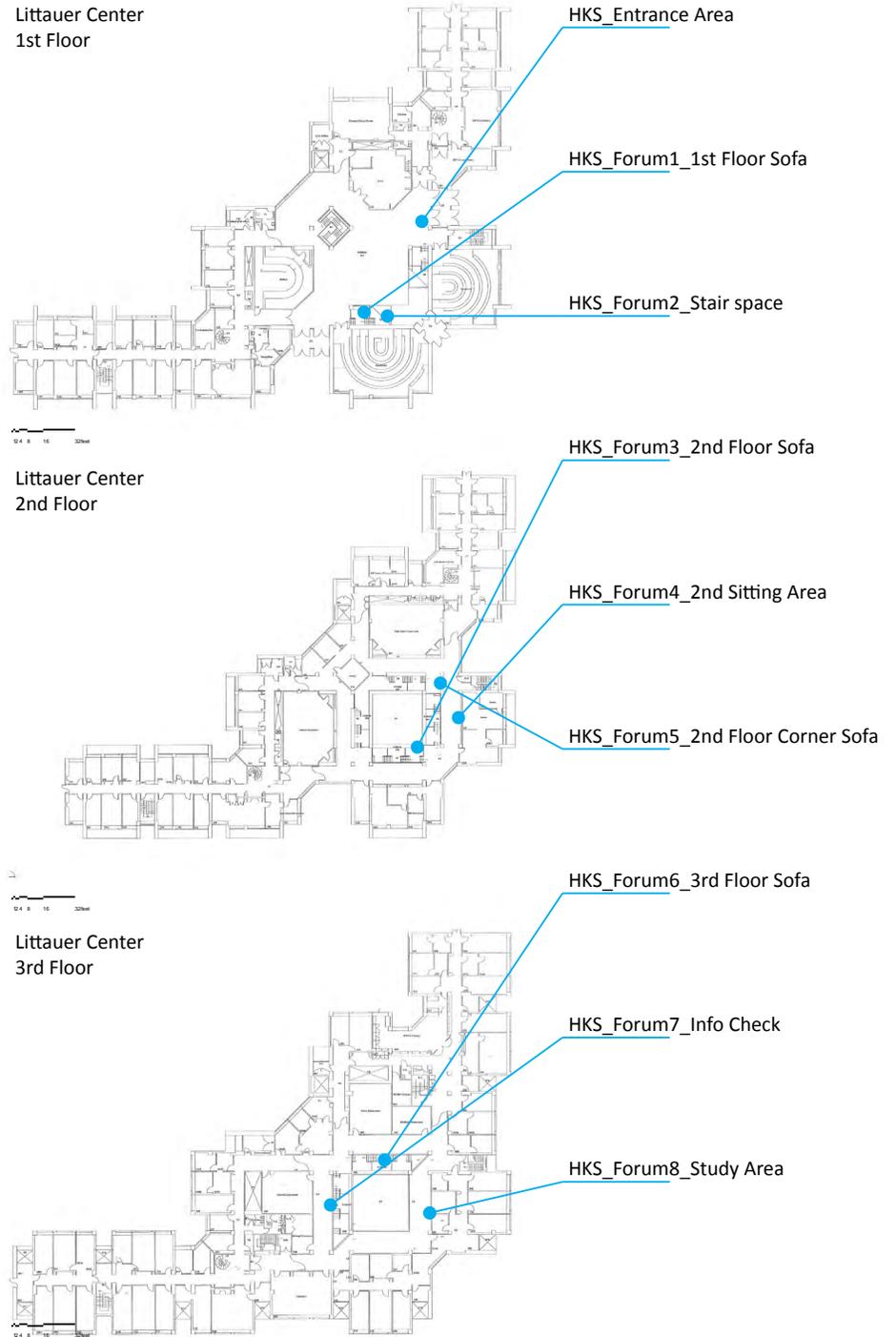


Figure 07 | Sample test sites in Littauer Forum



Littauer Center Library

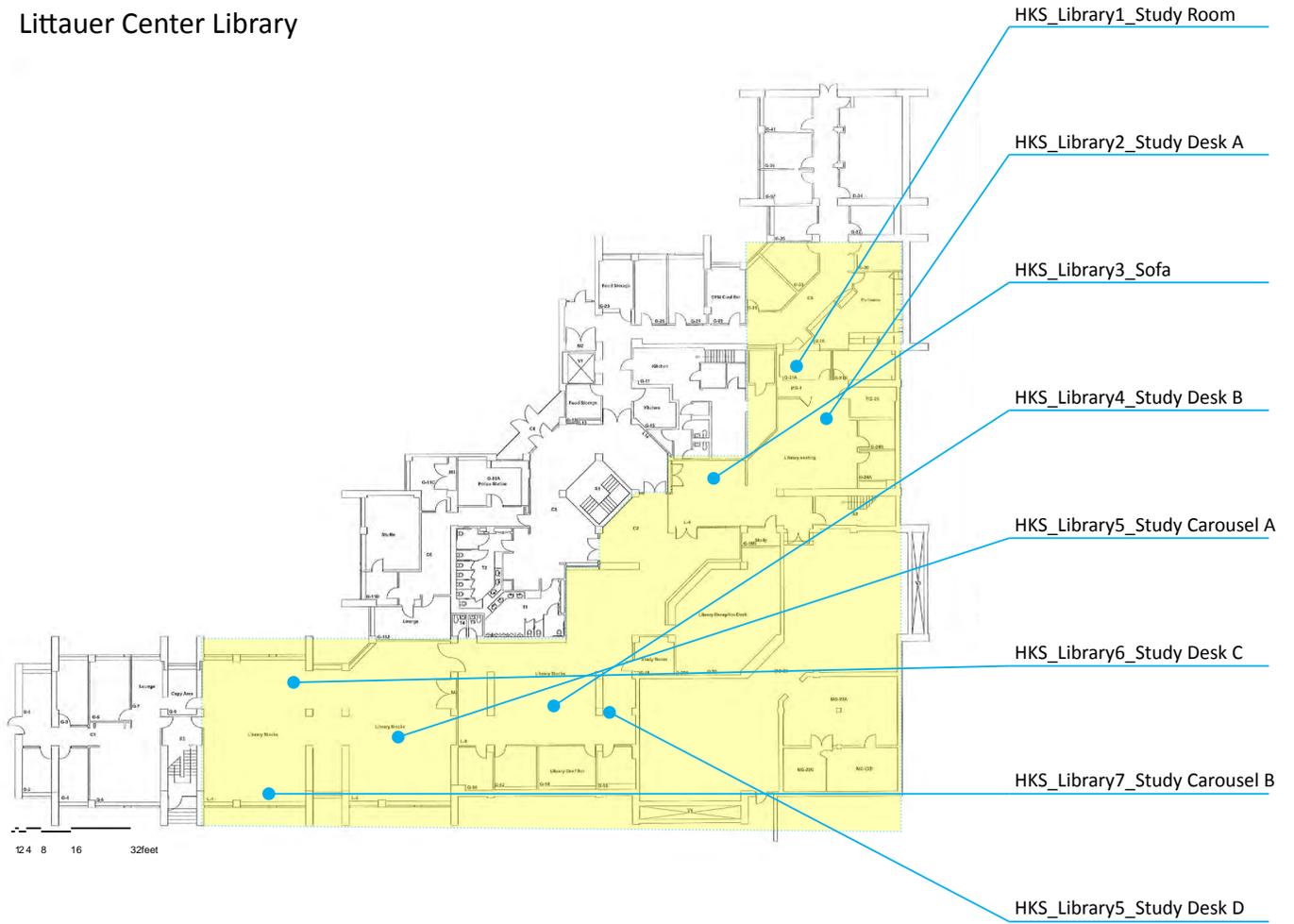


Figure 08 | Sample test sites in Littauer Library



HKS_Forum1_1st Floor Sofa



HKS_Forum2_Stair space



HKS_Forum3_2nd Floor Sofa



HKS_Forum4_2nd Sitting Area



HKS_Forum5_2nd Floor Corner Sofa



HKS_Forum6_3rd Floor Sofa



HKS_Forum7_Info Check



HKS_Forum8_Study Area

Figure 09 | Photos of Sample test sites in Littauer Forum



HKS_Library1_Study Room



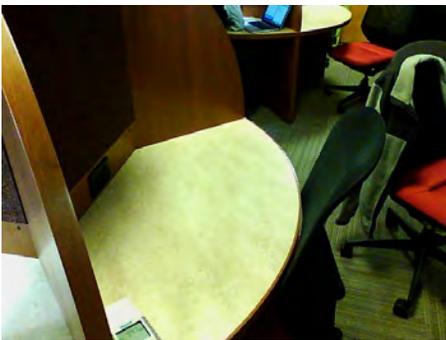
HKS_Library2_Study Desk A



HKS_Library3_Sofa



HKS_Library4_Study Desk B



HKS_Library5_Study Carousel A



HKS_Library6_Study Desk C

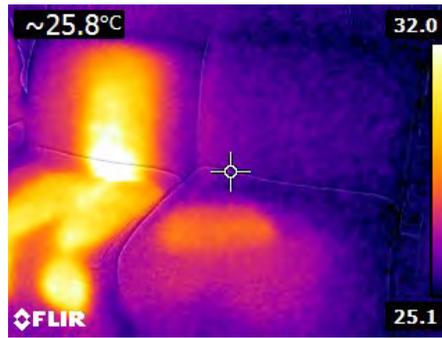


HKS_Library7_Study Carousel B



HKS_Library8_Study Desk D

Figure 10 | Photos of Sample test sites in Littauer Library



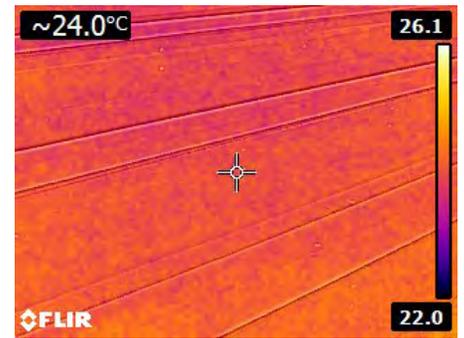
HKS_Forum1_1st Floor Sofa



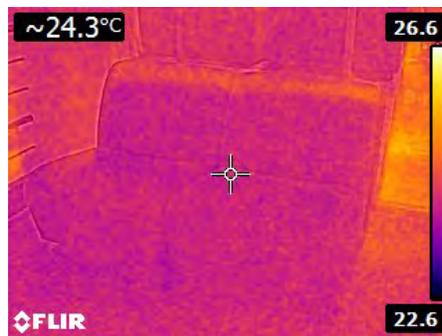
HKS_Forum2_Stair space



HKS_Forum3_2nd Floor Sofa



HKS_Forum4_2nd Sitting Area



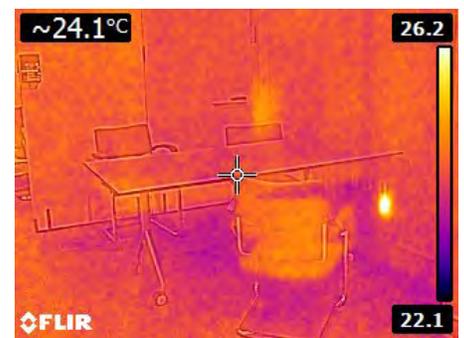
HKS_Forum5_2nd Floor Corner Sofa



HKS_Forum6_3rd Floor Sofa

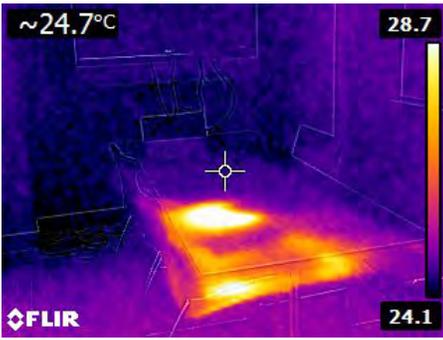


HKS_Forum7_Info Check

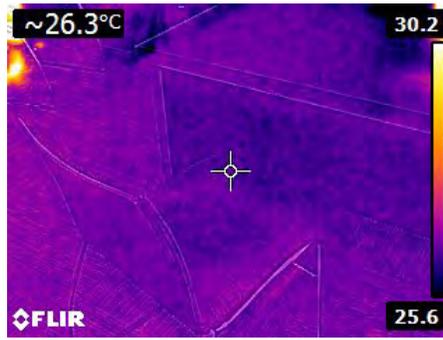


HKS_Forum8_Study Area

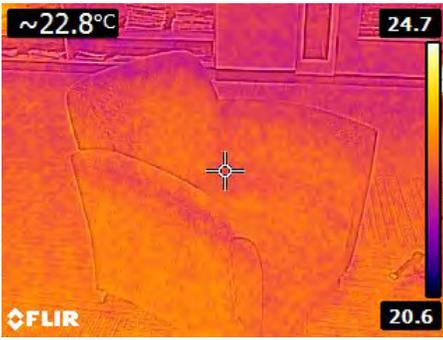
Figure 11 | Thermal photos of sample test sites in Littauer Forum indicate the general thermal condition of work/study spaces is comfortable



HKS_Library1_Study Room



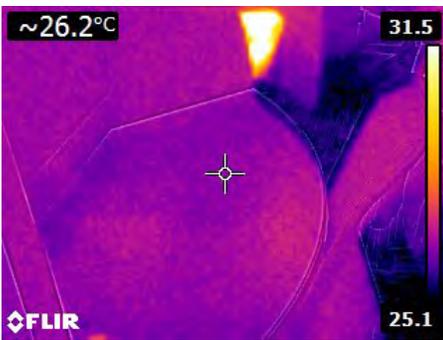
HKS_Library2_Study Desk A



HKS_Library3_Sofa



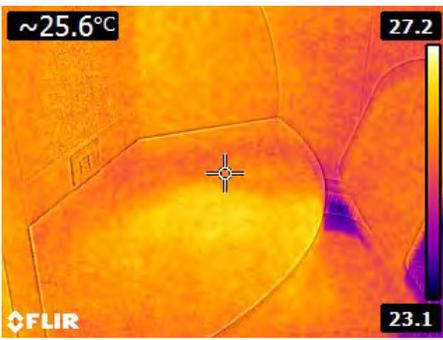
HKS_Library4_Study Desk B



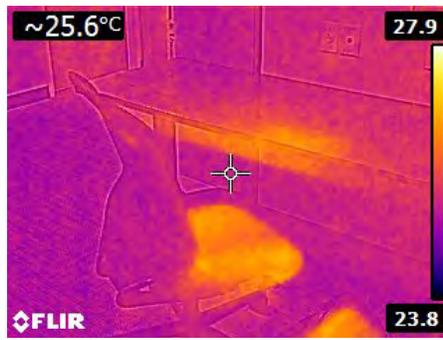
HKS_Library5_Study Carousel A



HKS_Library6_Study Desk C

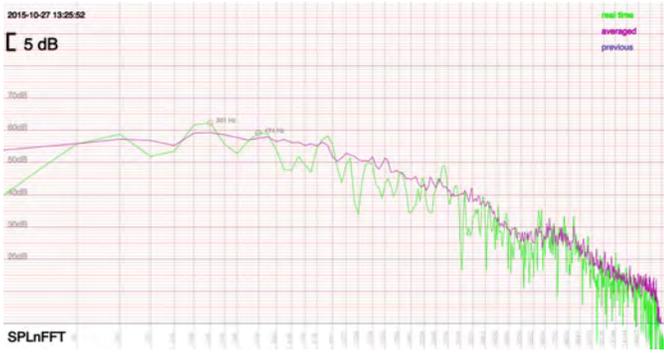


HKS_Library7_Study Carousel B

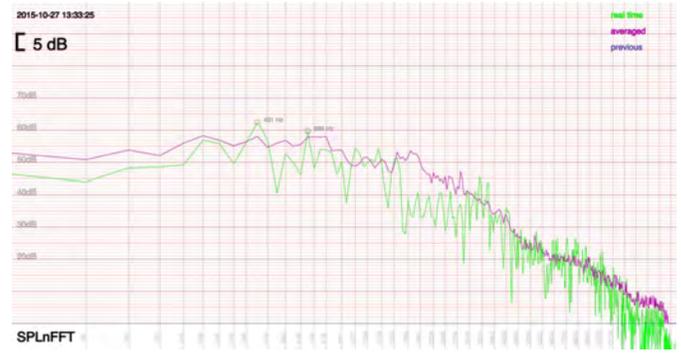


HKS_Library8_Study Desk D

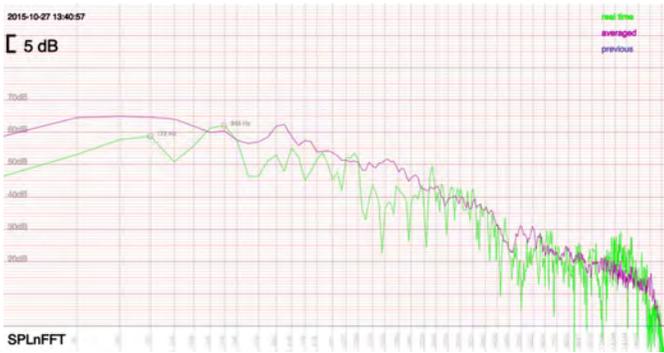
Figure 12 | Thermal photos of sample test sites in Littauer Library indicate the spaces under the outlet of air conditioners are cooler such as “Library3 sofa” and the study room



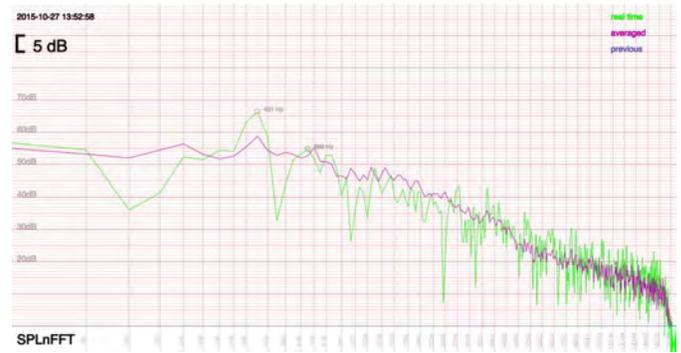
HKS_Forum1_1st Floor Sofa



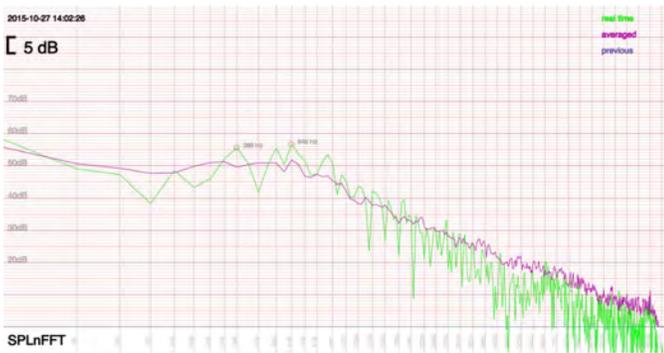
HKS_Forum2_Stair space



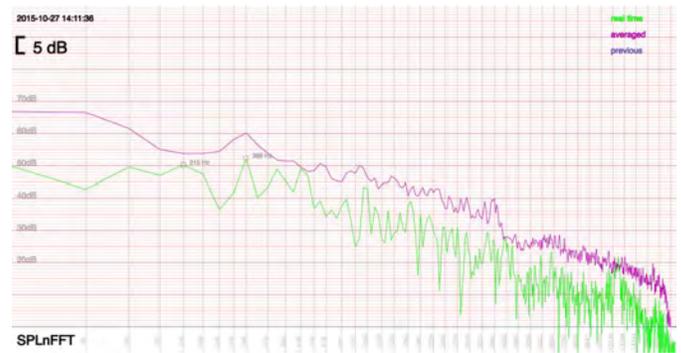
HKS_Forum3_2nd Floor Sofa



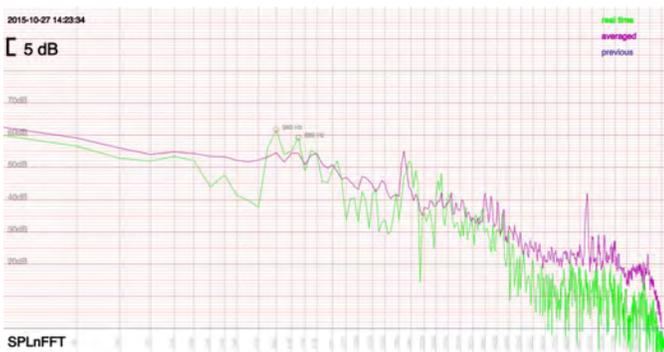
HKS_Forum4_2nd Sitting Area



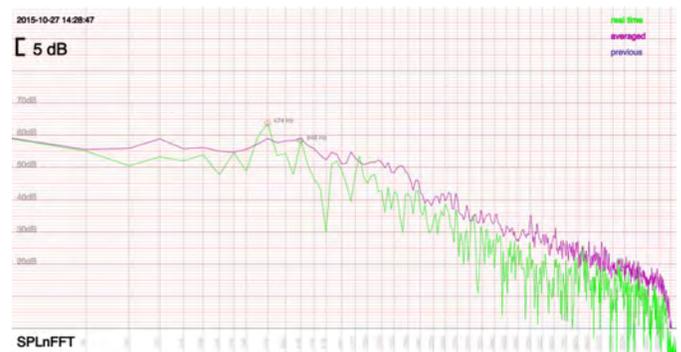
HKS_Forum5_2nd Floor Corner Sofa



HKS_Forum6_3rd Floor Sofa

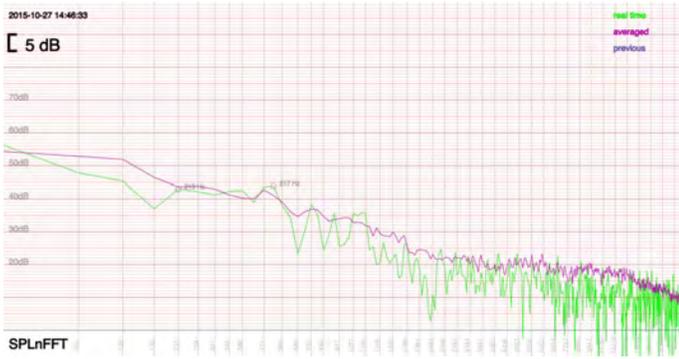


HKS_Forum7_Info Check

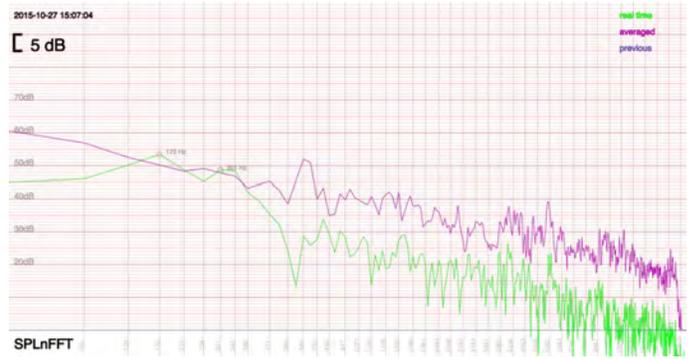


HKS_Forum8_Study Area

Figure 13 | The acoustic profile of Littauer Forum indicates the noise increases during the re-organization of he space.



HKS_Library1_Study Room



HKS_Library2_Study Desk A



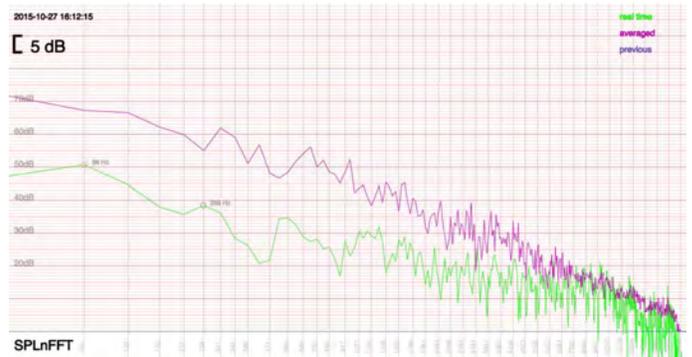
HKS_Library3_Sofa



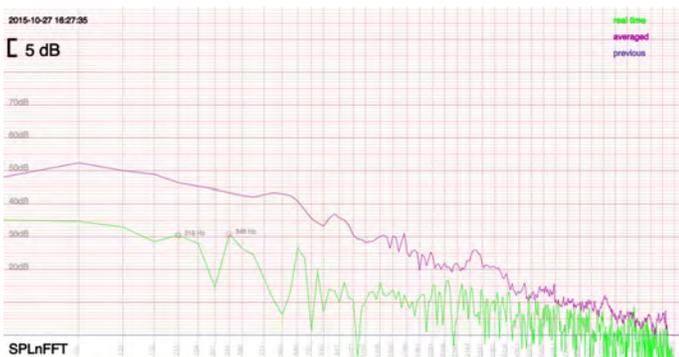
HKS_Library4_Study Desk B



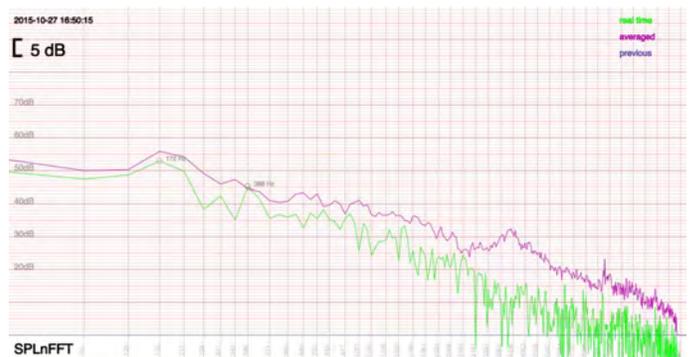
HKS_Library5_Study Carousel A



HKS_Library6_Study Desk C

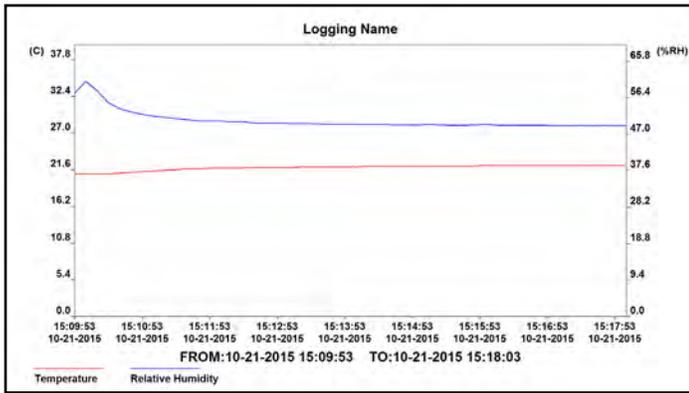


HKS_Library7_Study Carousel B

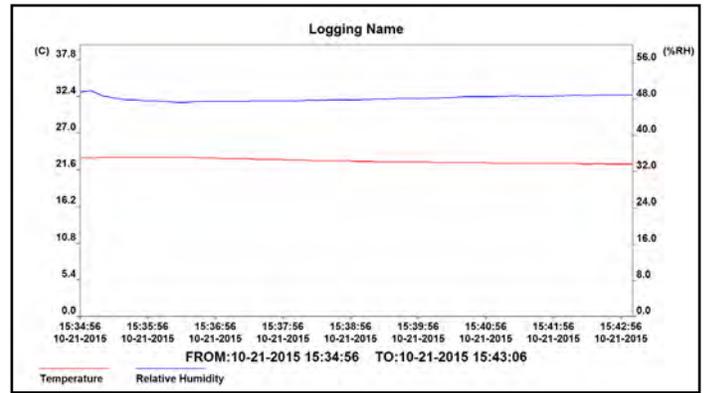


HKS_Library8_Study Desk D

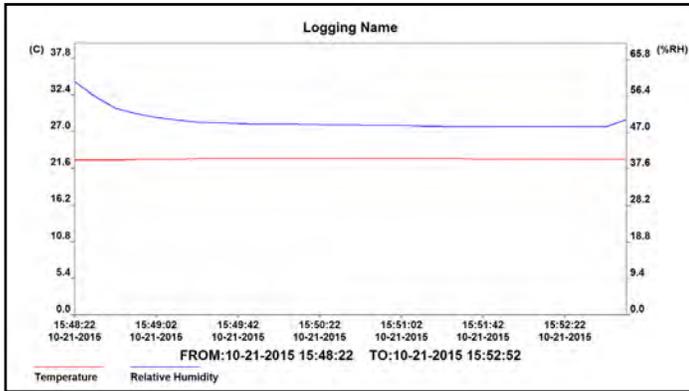
Figure 14 | The acoustic profile of library in Littauer Center indicates the place is generally quiet for studying.



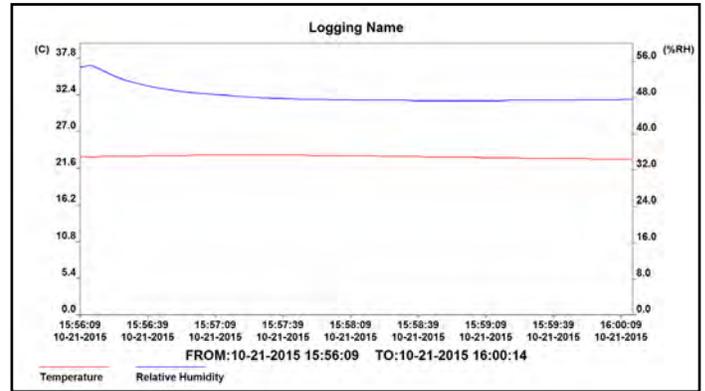
HKS_Forum1_1st Floor Sofa



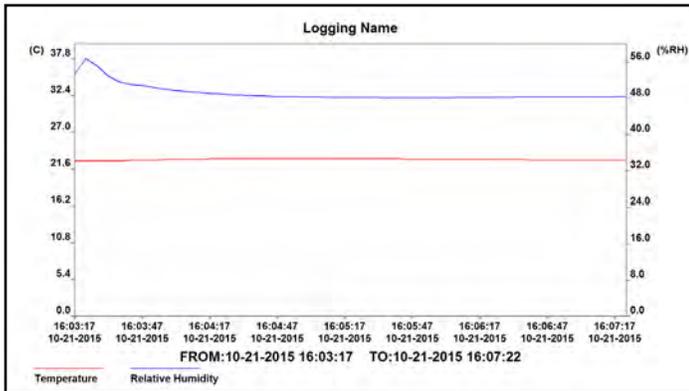
HKS_Forum2_Stair space



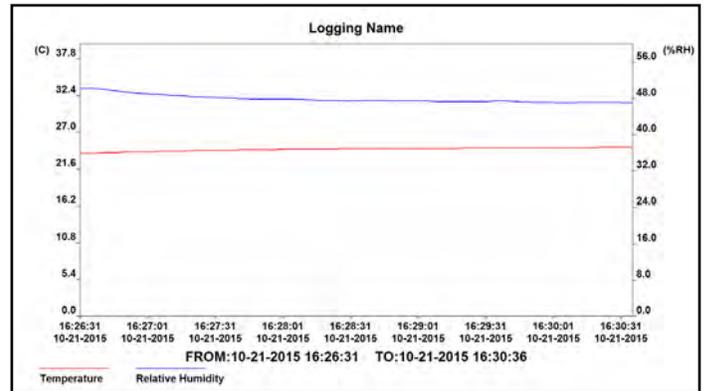
HKS_Forum3_2nd Floor Sofa



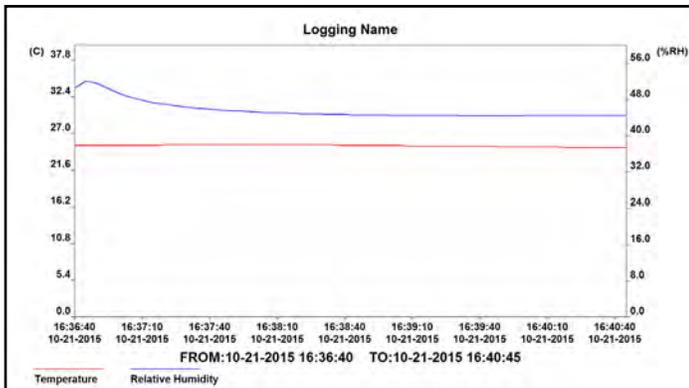
HKS_Forum4_2nd Sitting Area



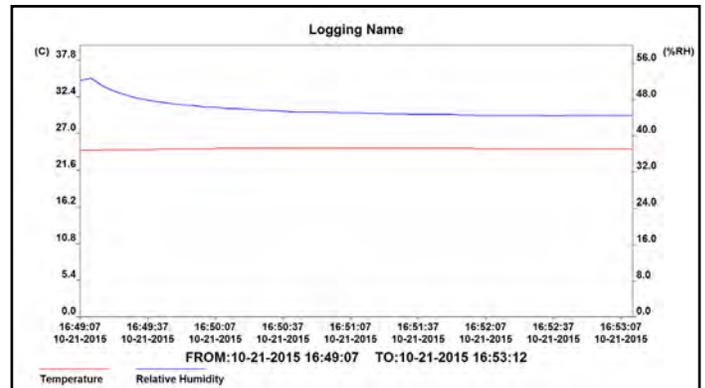
HKS_Forum5_2nd Floor Corner Sofa



HKS_Forum6_3rd Floor Sofa

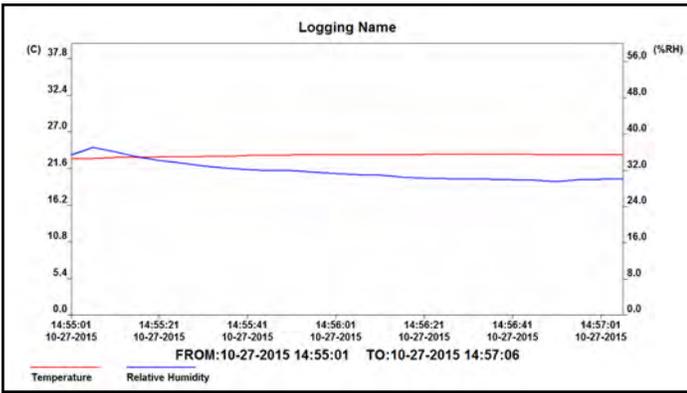


HKS_Forum7_Info Check

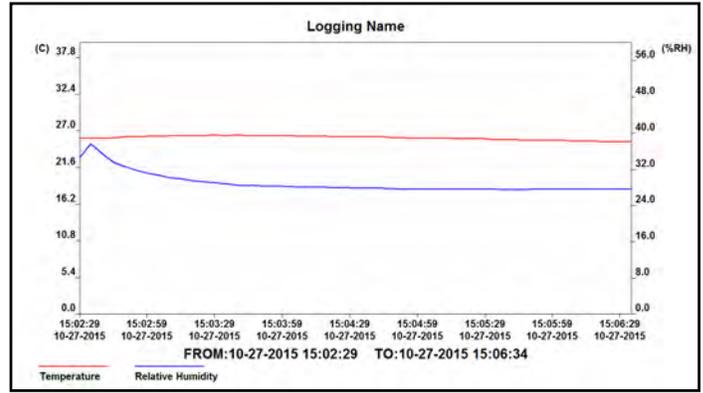


HKS_Forum8_Study Area

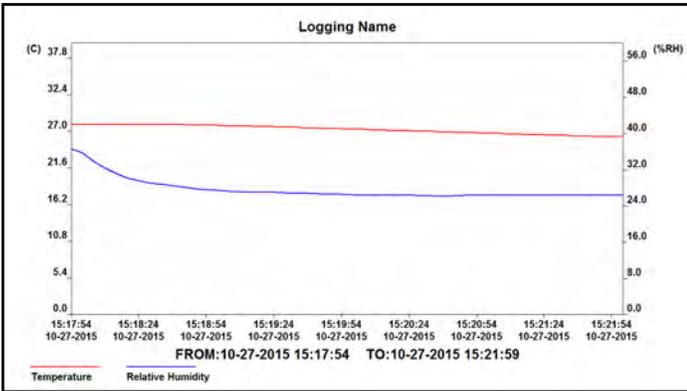
Figure 15 | The temperature and relative humidity of Littauer Forum (Short-term measurement)



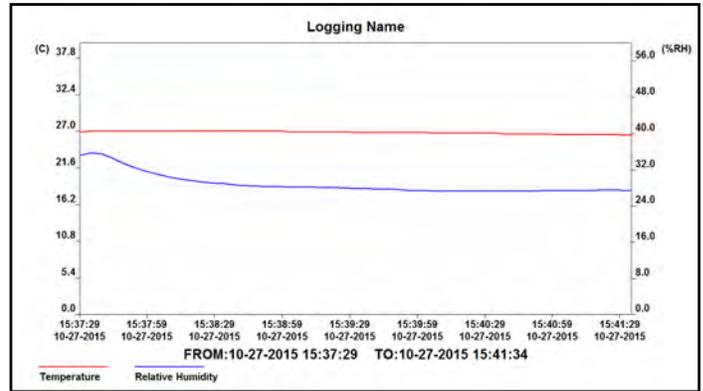
HKS_Library1_Study Room



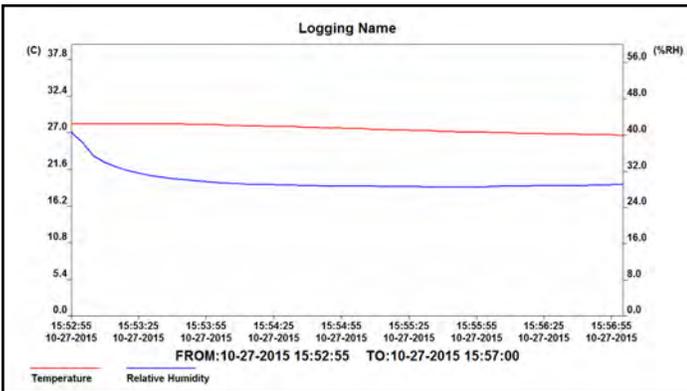
HKS_Library2_Study Desk A



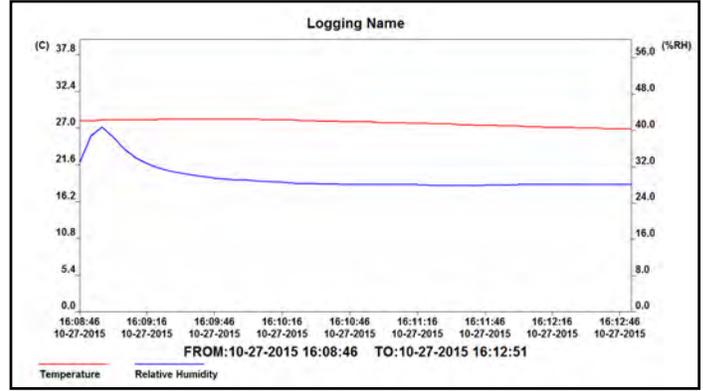
HKS_Library3_Sofa



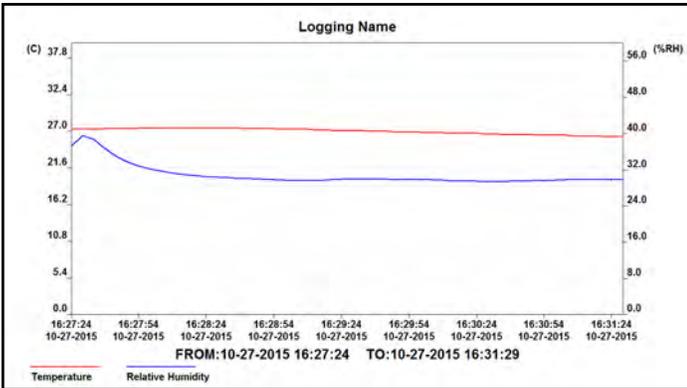
HKS_Library4_Study Desk B



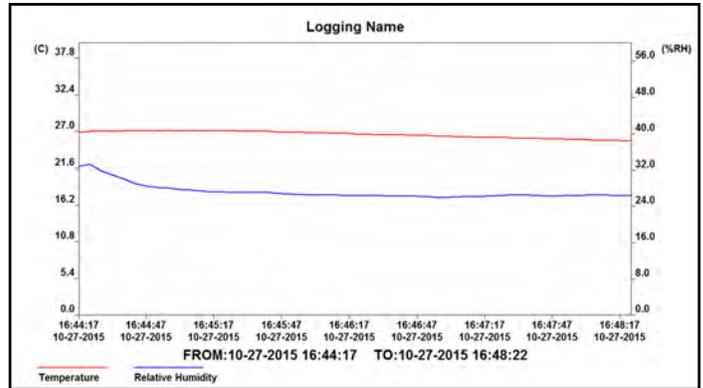
HKS_Library5_Study Carousel A



HKS_Library6_Study Desk C



HKS_Library7_Study Carousel B



HKS_Library8_Study Desk D

Figure 16 | The temperature and relative humidity of Littauer Library(Short-term measurement)

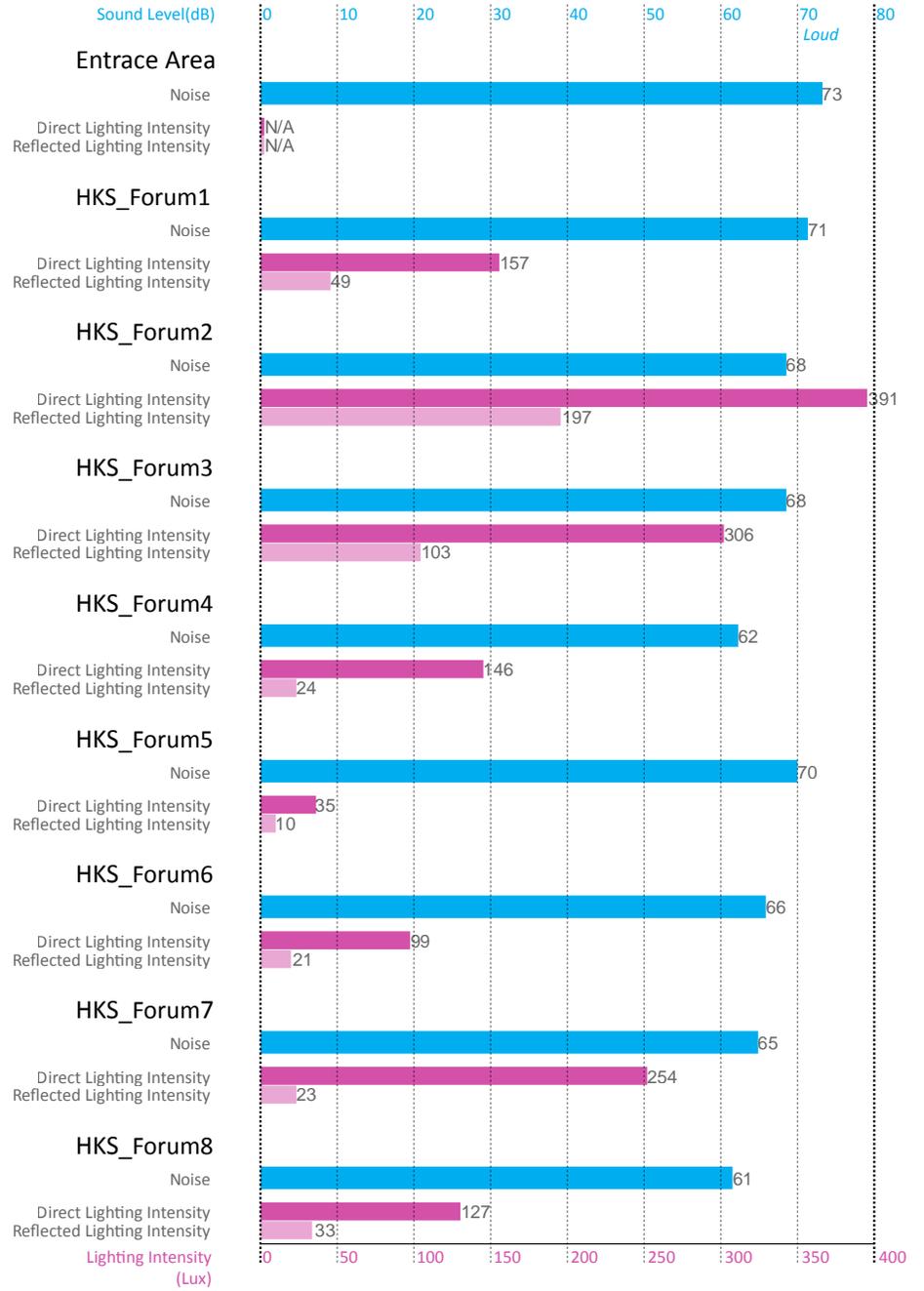


Figure 17 | Lighting and noise level in Littauer Forum

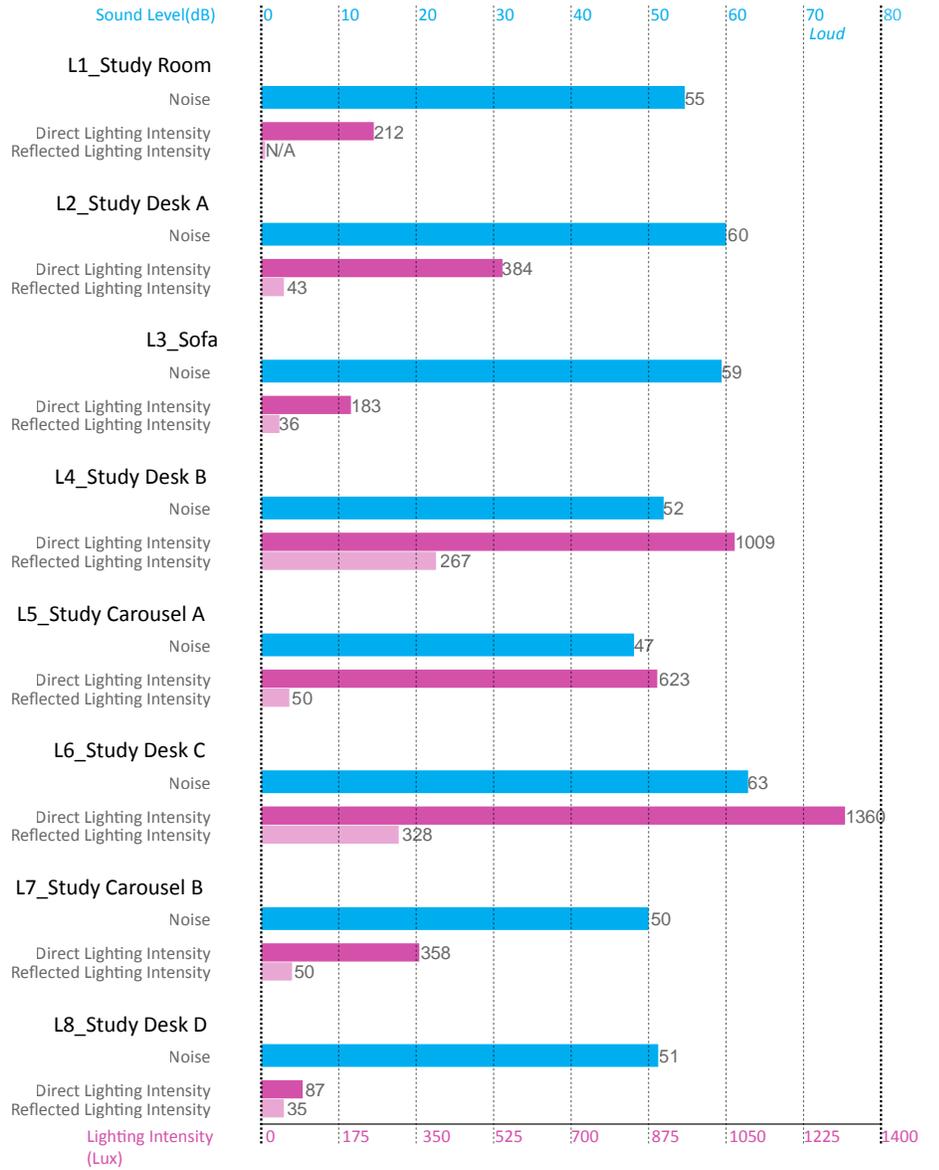
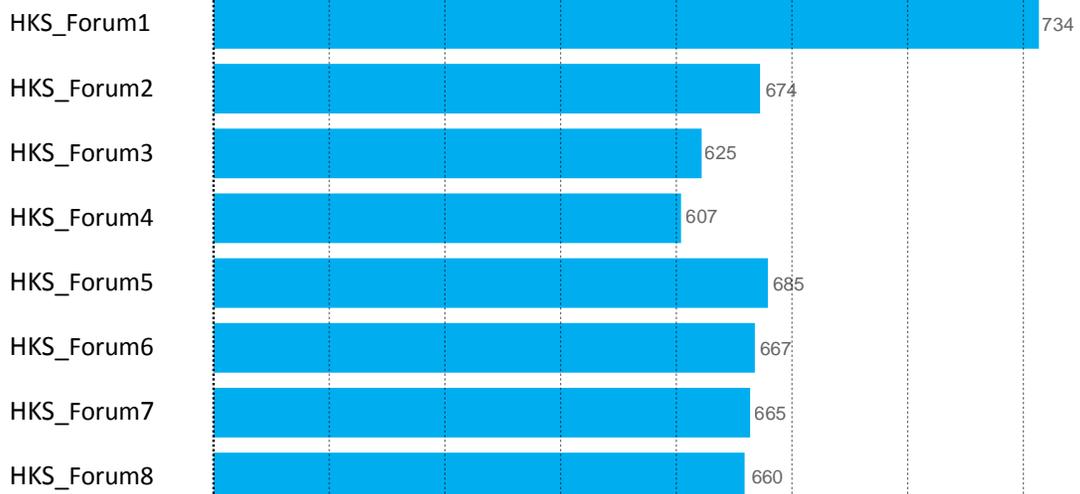


Figure 18 | Lighting and noise level in Littauer Library

Littauer Center Forum



Littauer Center Library

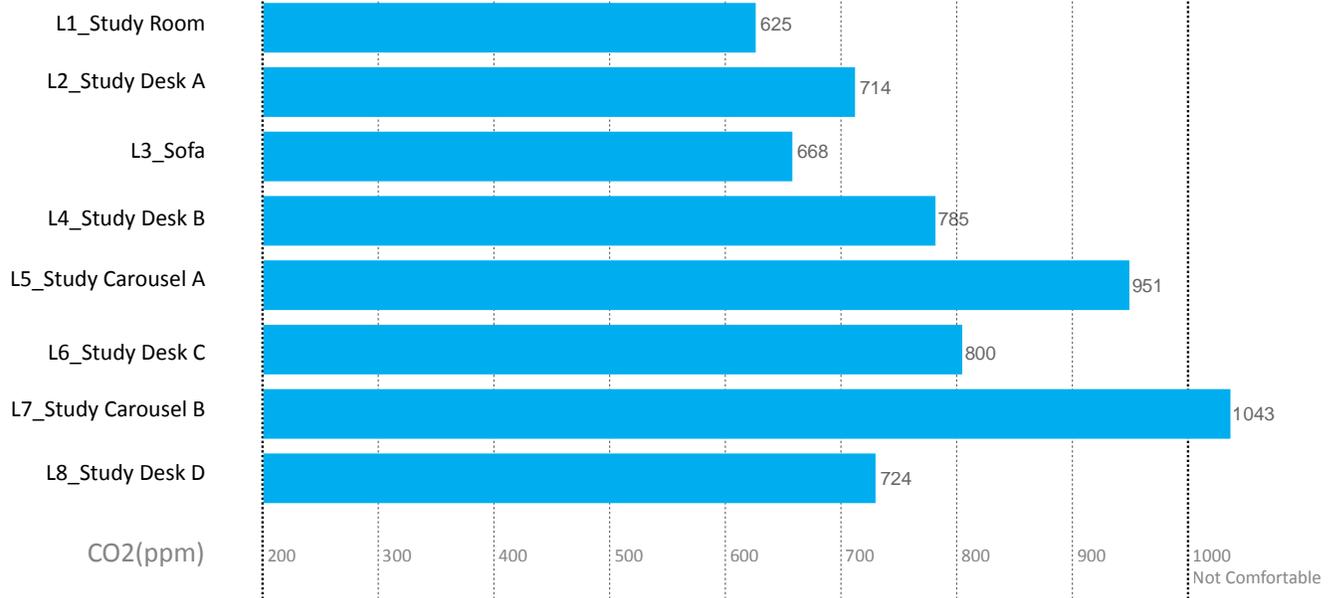
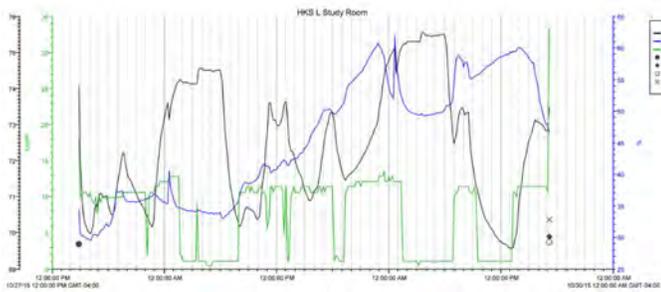
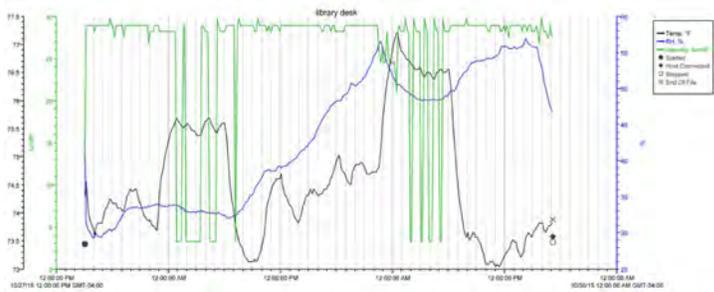


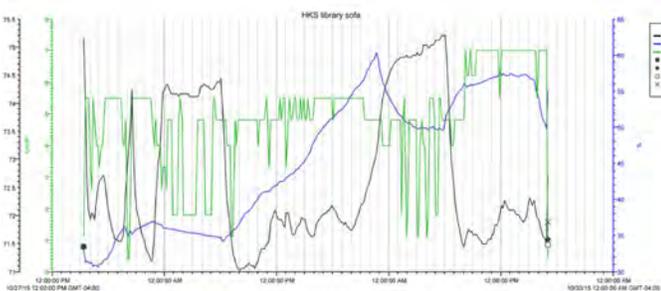
Figure 19 | CO2 concentration in Littauer Forum and Library



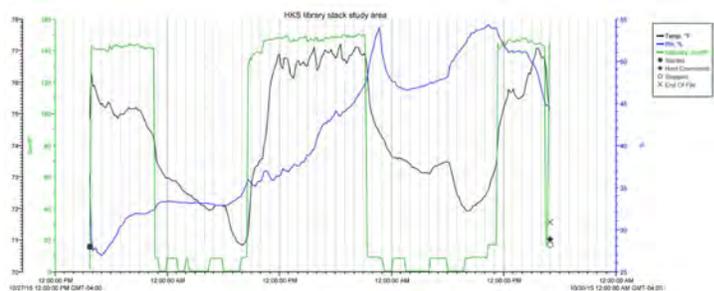
HKS_Library1_Study Room



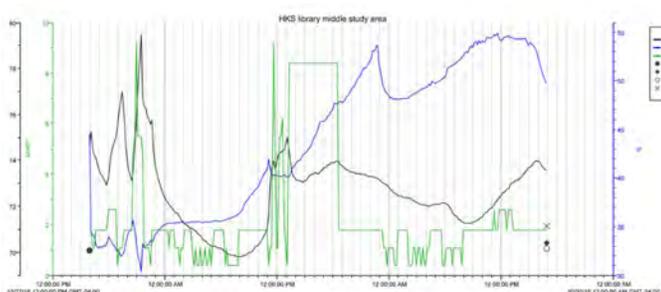
HKS_Library2_Study Desk A



HKS_Library3_Sofa



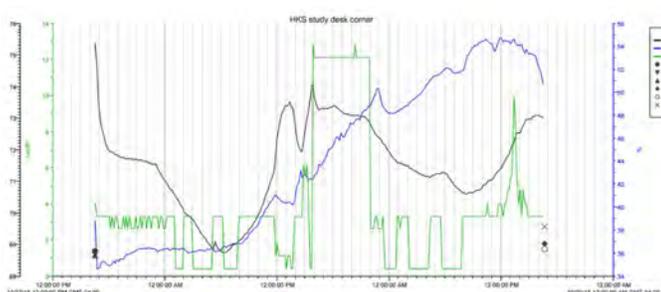
HKS_Library4_Study Desk B



HKS_Library5_Study Carousel A

NO DATA

HKS_Library6_Study Desk C



HKS_Library7_Study Carousel B

NO DATA

HKS_Library8_Study Desk D

Figure 20 | Long-term monitoring of light intensity, temperature, and relative humidity in Littauer Forum and Library, which indicate a general comfort condition during the open hour.

POTENTIAL IMPACTS

HEALTH ISSUE	POSITIVE OR NEGATIVE	LIKELIHOOD OF IMPACT
Noise		P
Noise Content		S
Lighting Intensity		P
Accessibility to Lighting Control		S
Humidity		P
Temperature		P
Accessibility to Temperature Control		P
Air Quality/Ventilation		P
Accessibility to Ventilation Control		P

 Strongly Positive

 Moderately Positive

 Mildly Positive

 Neutral

 Mildly Negative

 Moderately Negative

 Strongly Negative

 Unknown

DIFFERENTIAL IMPACTS	DISTRIBUTION OF IMPACT	MEASURABLE INDICATOR	SUPPORTING EVIDENCE
Children; People have chronically ill; the elderly; People wearing headphone; People with hearing impairment or wearing hearing device.		Noise (dB)	
People are studying/working individually		Hearable content Noise(dB)	
People using laptop; People reading books and paper materials.		Direct and reflected Intensity (lux) Direct/reflected light ratio	
N/A		Possibility to control Distance, Reminding Sign	
People with dry skin, allergy or with respiratory issues.		Relative Humidity(%)	
People with dry skin, allergy or with respiratory issues.		Dry Bulb Temperature (C°)	
N/A		Possibility to control Distance, Reminding Sign	
People with dry skin, allergy or with respiratory issues.		CO2 Concentration Ventilation Rate(ppm)	
N/A		Possibility to control Distance, Reminding Sign	

Speculative

Probable

HKS

Harvard

Metro

National

Research

Measurement

Observation

Interview

Survey

Tabling

RECOMMENDATIONS

IMPROVE LIGHTING CONDITION

Short Term	<ul style="list-style-type: none">• Install additional lighting facilities in the spaces with insufficient lighting such as the corners of the forum and study desks in the library.• Add signs to indicate where light switches are and encourage people to turn off if unused for energy savings.• Add more gentle lighting bulbs in work/study places of library.
Medium Term	<ul style="list-style-type: none">• NA
Long Term	<ul style="list-style-type: none">• N/A

DECREASE NOISE

Short Term	<ul style="list-style-type: none">• Add signs or reminders to inform people to lower their talking voice.
Medium Term	<ul style="list-style-type: none">• Add more efficient sound isolation materials between offices and the public spaces.
Long Term	<ul style="list-style-type: none">• Provide students and faculties with designated spaces for group discussion or meeting rather than having long conversations in public spaces.• Relocate offices where people need quieter environments far away from the noisy public spaces.• Re-program offices close to public spaces to provide group discussion spaces or offer additional discussion space.• Plan a quiet space for students who need sleep or rest between classes.• Plan specific places for personal phone calls and on-line conference meetings.

IMPROVE THERMAL COMFORT

Short Term

- NA

Medium Term

- Install energy conserving doors like revolving doors in the entrance to mitigate wind blasts from the outside.
- Change the direction of the outlet of the air conditioners away from places where people might sit.
- Replace the sealed windows with operable windows for ventilation control in the library.

Long Term

- N/A
-

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06

Ergonomics in the Workspace

Lauren Friedrich

OVERVIEW OF FINDINGS

After observational study, detailed analysis, and participatory surveying, it is my belief that the Harvard Kennedy School is adequately addressing the ergonomic needs of its current population. However, considering the ratio of students, faculty, and staff to the amount of space the building provides, the school is undoubtedly overcrowded, and as a result, work spaces are scattered, sparse, and ill-equipped to handle the versatility of students' work preferences. More specifically, several work stations within the school are designed to accommodate the average individual rather than the graduate student who ranges in height, weight, and posture. Seating is often rigid, immobile, and spinal support is minimal, putting individuals at risk for injury, pain, and discomfort, or longer term musculoskeletal disorders.

Despite its overall care for the physical wellbeing and comfort of its academic residents, the Kennedy School still falls victim to the sedentary tendencies of the average individual. Repeated behaviors of writing, typing, slouching, and sitting create measurable consequences and have visible impact. The current renovation of HKS provides notable opportunity for an ergonomic upgrade.

WHY THIS TOPIC MATTERS

“Ergonomics: (n) the practice of designing products, systems, or processes to take proper account of the interaction between them and the people who use them.”

- American Heritage Dictionary

Figure 01 | Lecture hall, first floor Littauer, said to feel “cramped”



Figure 02 | Work station positioned to the side of main public Forum



WHAT IS ERGONOMICS

In a century where technological advancements are occurring exponentially, design is pushing the bounds of possibility, and products are growing ever more conscious, aware and attentive to consumers’ needs, wants, and expectations, one has to question why we are still sitting in chairs and working at desks that are not only uncomfortable, but that cause us injury and inhibit work performed. The answer is unclear, but what is clear is that the way we work, move, sit, stand, and occupy our offices and schools has a direct relationship to the amount of pain and discomfort we experience. Measuring whether an individual is well fit to their work space is possible. Quantifying an individual’s performance in that work space is possible. And providing a system for feedback and communication of health, safety and support is possible. Work-related musculoskeletal disorders (MSDs) are, in fact, preventable, and the field of *Ergonomics* examines how.

According to the American Heritage Dictionary, ‘Ergonomics’ is the practice of designing products, systems or processes to take proper account of the interaction between them and the people who use them. Also known as comfort design, functional design, user-friendly systems, biotechnology, and human factors engineering among others, ergonomics can be applied to any individual in every profession anywhere in the world. Whether lifting heavy items, bending, reaching, pushing and pulling heavy loads, working in awkward postures for prolonged periods of time, or performing repetitive tasks, workers are at risk for the same types of musculoskeletal exposure. Notably, work-related MSDs, or damage to the muscles, nerves and tendons of the neck, upper extremities, and lower back, are one of the leading causes of repetitive stress injury (RSI) and illness in the work place (*Occupational Safety and Health Administration Website, accessed 2015*).

ERGONOMICS IN THE WORKPLACE

THE NECESSITY OF MOVEMENT

Today, though ergonomics continues to affect the lives of workers, students, and individuals in just about every occupation and place, an attention to its opportunity is largely unrecognized. In schools and offices, workers are expected to sit for 9+ hours with little to no movement. Chairs, desks, and tables are rigid, work stations are poorly fit, and the environment, like the individuals working in it, is predominately sedentary.

Within a 24 hour period, the average individual spends the majority of their day sitting, which the body was never meant to do. We sit to eat breakfast, sit on the bus to campus, and we sit through lectures and to work on projects; we sit in front of computers and at desks only to move to the table to sit and eat dinner or to sit and watch TV as the day comes to a close. When we sit, we increase risk of disease, but we also inhibit learning. Though sitting has been the dominant model in classrooms for centuries, research from Kelly Starrett’s *Stand Up Kids* now shows that in order for people to learn, they need to be able to move. Students who engage in physical activity daily show not only superior motor skills, but better academic performance, attention, and attitude toward school than students who do not (*Stand Up Kids, 2015*).

THE QUIET CONSEQUENCES

With consideration for the staggering number of hours spent sedentary, it is no surprise that health is being impacted. Improper sitting can cause lack of blood circulation, rounding of the back, tense shoulders, neck and back muscles, constricted digestive organs and excessive spinal cord pressure. Sitting also slows metabolism, leading to higher chances of diabetes, heart disease and obesity (Neighmond, 2011).

Furthermore, staring at screens for prolonged periods of time creates strain on the eyes, interrupts sleep patterns, causes headaches, and blurs vision. Laptops, specifically, encourage the user to lean forward and look down, both of which stress the neck and shoulders. Such discomfort also leads to distraction from learning, an inability to pay attention, and a loss of efficiency in production (Khan, Surti, Rehman, and Ali, 2012).

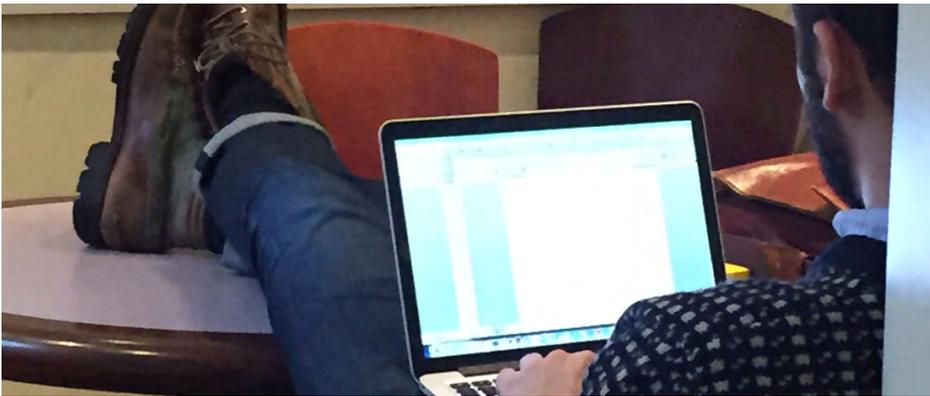
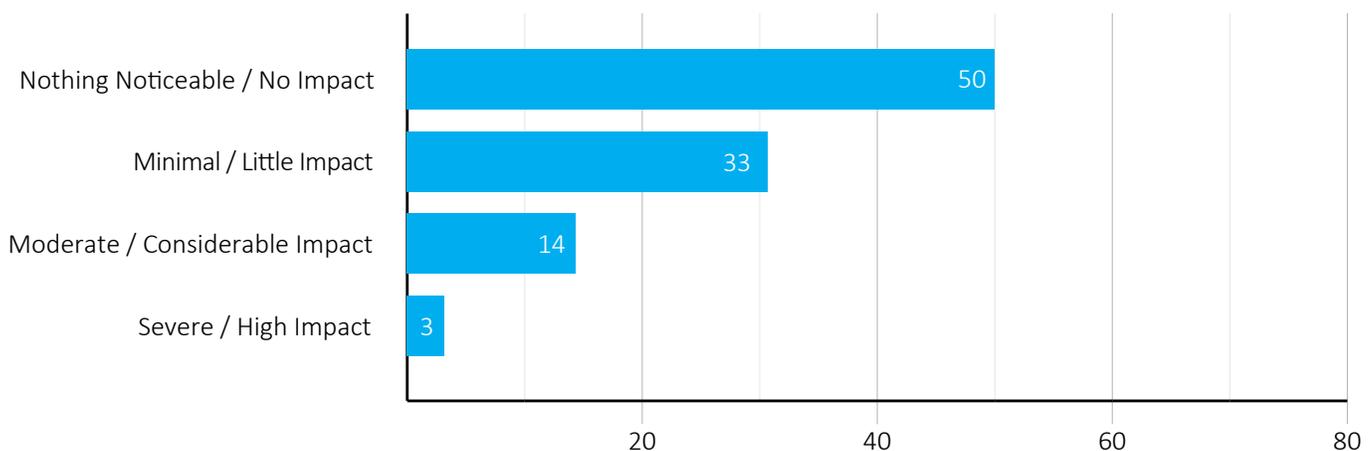


Figure 03 | Student uses table as foot rest to create comfortable working height for laptop

Figure 04 | Students of survey claim work relatively unaffected by any discomfort at HKS

HOW MUCH PAIN DO YOU EXPERIENCE DURING THE DAY AND HOW DOES IT AFFECT YOUR PERFORMANCE?



EFFECTS VISIBLE OVER TIME

Figure 05 | The negative feedback loop associated with repeated behaviors



THE HARM OF REPETITIVE BEHAVIOR

Most important to note is that any one position or task or movement is not necessarily 'unhealthy' or 'harmful' to perform on its own. It is when these tasks become repetitive that health risk becomes a concern. To illustrate, a computer technician who spends their day sitting to type on a computer, only to break to slouch over their cellphone, may experience strain in the shoulders and neck, whereas a factory worker who stands for most hours of the day, throwing bags onto a conveyor belt, may experience pain in their shoulders, knees, feet and back.

Unfortunately, when a part of the body receives more stress or more of a load than it can handle, it strains, causing pain and discomfort. When that muscle strains, the muscles alongside it try to compensate, thus changing posture and often, causing injury.

MUSCULOSKELETAL DISORDERS

Excessive hours of repetitive tasking and faulty posture can increase the chance of injuries that develop over time, and may even lead to more long term disabilities. Musculoskeletal disorders include tendonitis (from repetitive wrist or shoulder motions, prolonged load on shoulders, and sustained hyper extension of the arms), carpal tunnel syndrome (from repetitive wrist motion), thoracic outlet syndrome (from prolonged shoulder flexion, carrying loads, and extending arms above the shoulder), epicondylitis (forceful rotation of the forearm and bending of the wrist), and tension neck syndrome (prolonged restricted posture) (*National Institute for Occupational Safety and Health, Occupational Safety and Health Administration*).

With technology advancing and workers growing more attached to their devices, the role of ergonomics will play a growing role in the future of design. Comfort, good health, and efficiency of production will never be outdated.

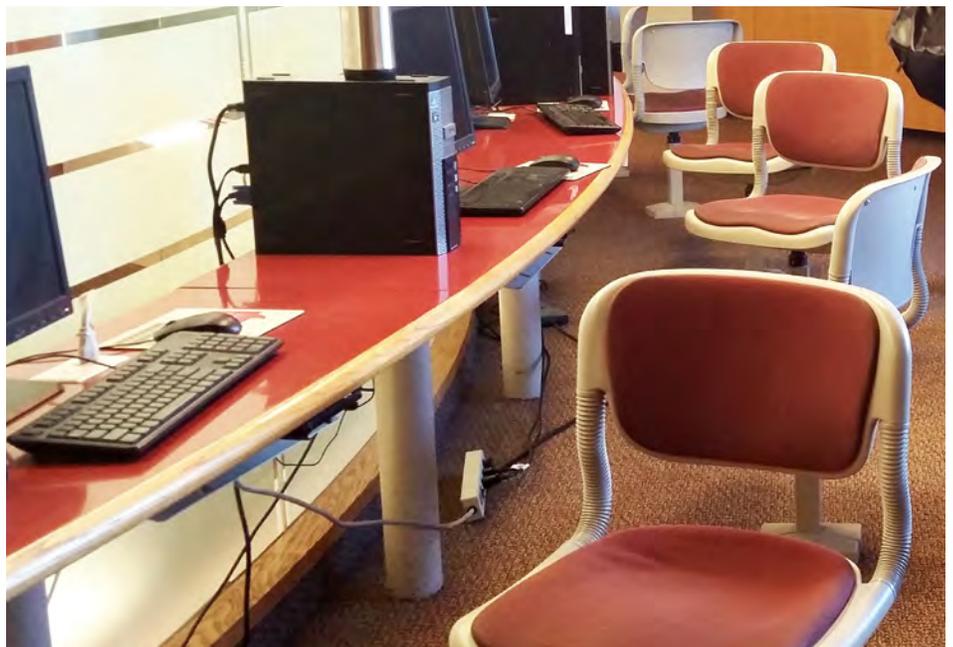


Figure 06 | Work station positioned to the side of main public Forum

THE SITUATION AT THE HARVARD KENNEDY SCHOOL

CROWDED ABOVE COMFORT

Considering the number of programs being offered at the Harvard Kennedy School, there are a reasonable number of students utilizing the space. In the prime of the day, when students, faculty, and staff are traveling about, rushing to and from class, socializing, eating, and working, the school's main facilities are overwhelmingly crowded.

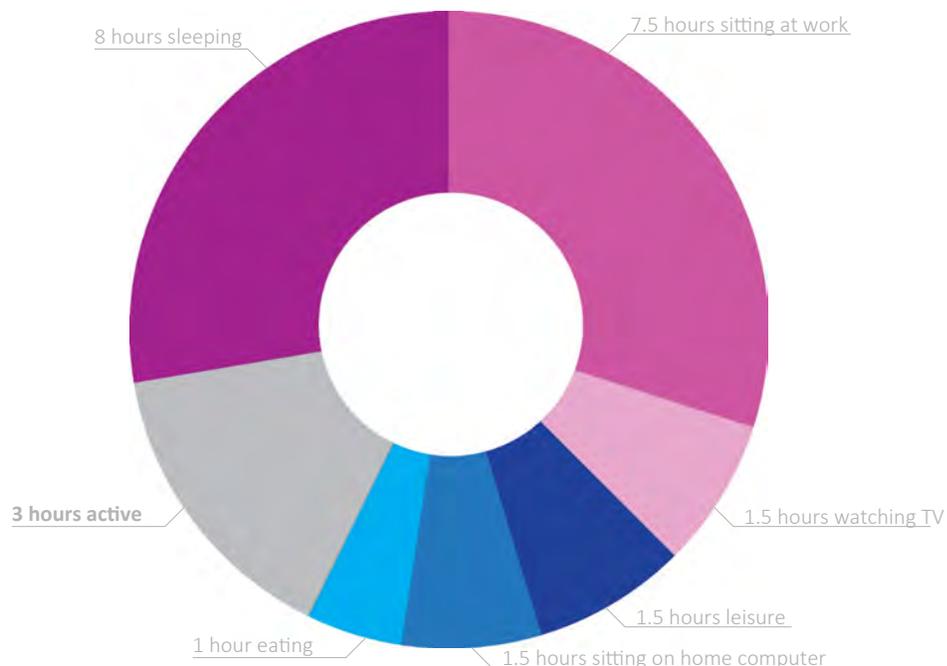
A VARIETY OF WORK SPACES

The Littauer Building, the School's most populated setting, consists of a variety of different work spaces. Mainly, there are classroom lecture halls, some small and others large, there are offices, conference rooms, a library, and then a random assortment of lounges and tables scattered in every available nook of the building. These work stations are fitted tightly into hallways and corners, and though informal in their setup, all were being used formally, and frequently, for typing, writing, and reading by the students.

The Kennedy School is being efficient with the available space they have, but to the student trying to focus, to sit, rest, or relax in privacy, these spaces are not adequate. Even in the evening, when the population of the school lessens, there were students sitting on the stairs and in the window to work.

Figure 07 | The average individual spends 21 hours sedentary during the day, and only 3 hours up and active

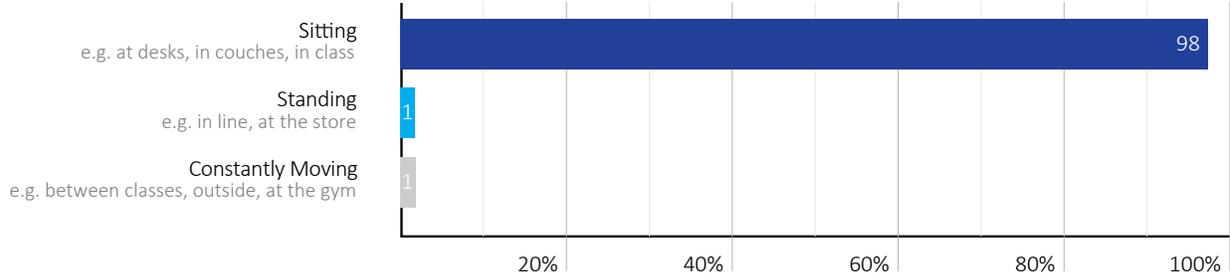
- 8 hours sleeping
- 7.5 hours sitting to work
- 1.5 hours watching TV
- 1.5 hours leisure
- 1.5 hours home computer
- 1.5 hours sitting on home computer
- 3 hours standing or active
- 1 hour eating



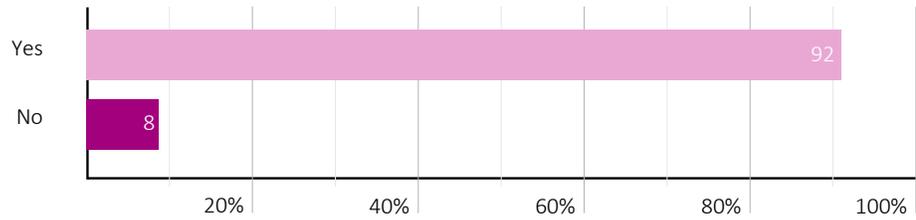
THE SEDENTARY WAY OF THE AVERAGE 24 HOUR DAY

Figure 08 | Responses from student survey indicate that sitting is popular among students' daily activities, but also that breaks to take a walk are common

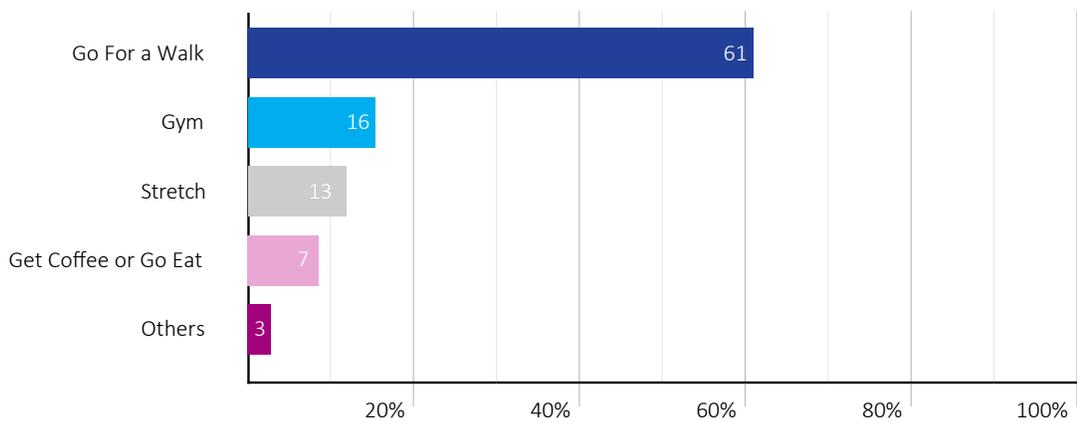
HOW DO KENNEDY SCHOOL STUDENTS SPEND MOST OF THEIR TIME?



DO HKS STUDENTS TAKE BREAKS DURING THEIR WORK DAY?

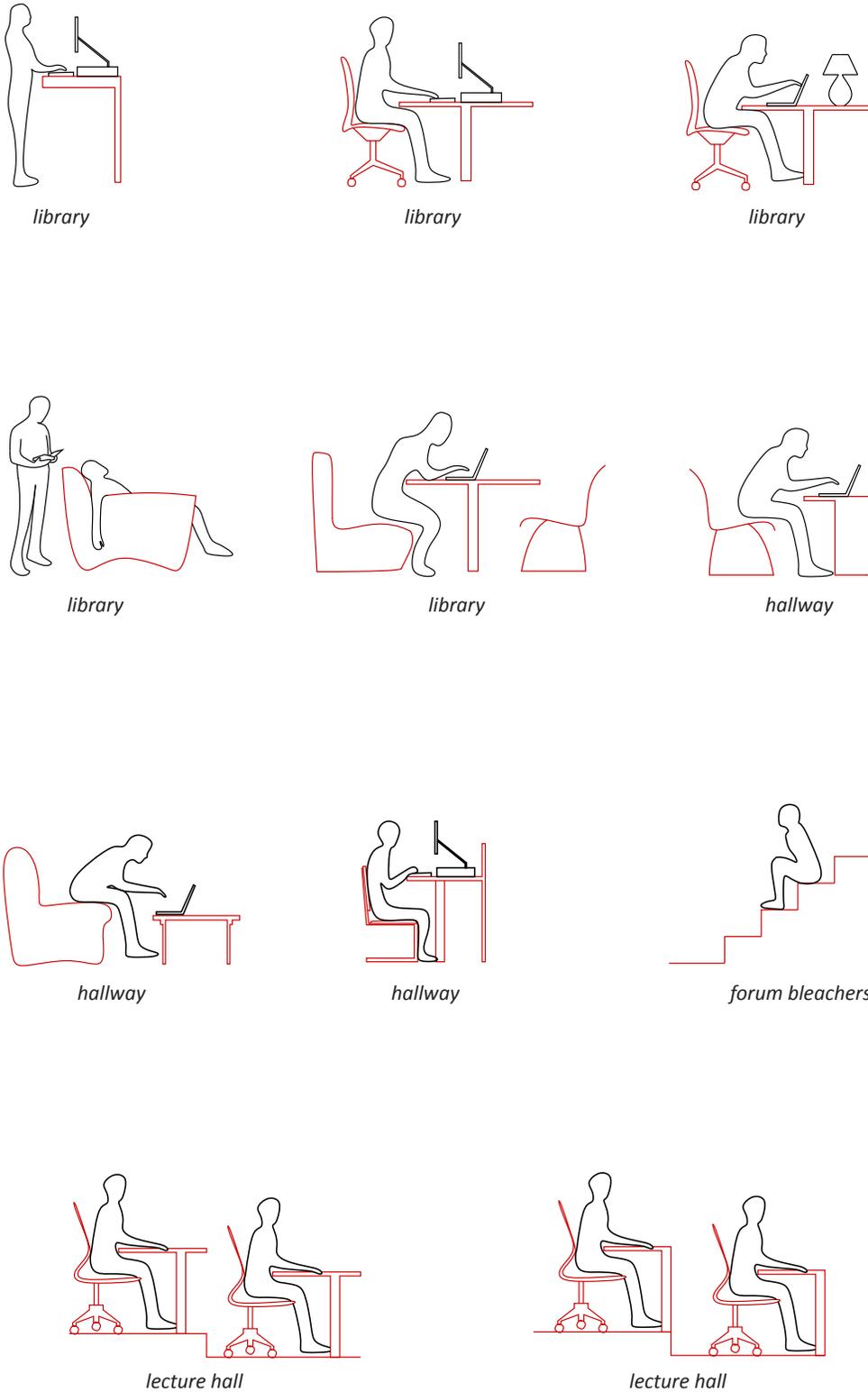


WHAT DO HKS STUDENTS DO ON THEIR BREAKS?



A CATALOGUE OF KENNEDY POSTURES

Figure 09 | Observations of students at HKS indicate common, and often problematic postures at the various work stations



“As an Ergonomist, ideally I would like to see ergonomic design considerations as a part of the initial design, before any new projects or renovations.”

*- Mary Tomey-Streeto,
Harvard Environmental
Health and Safety*

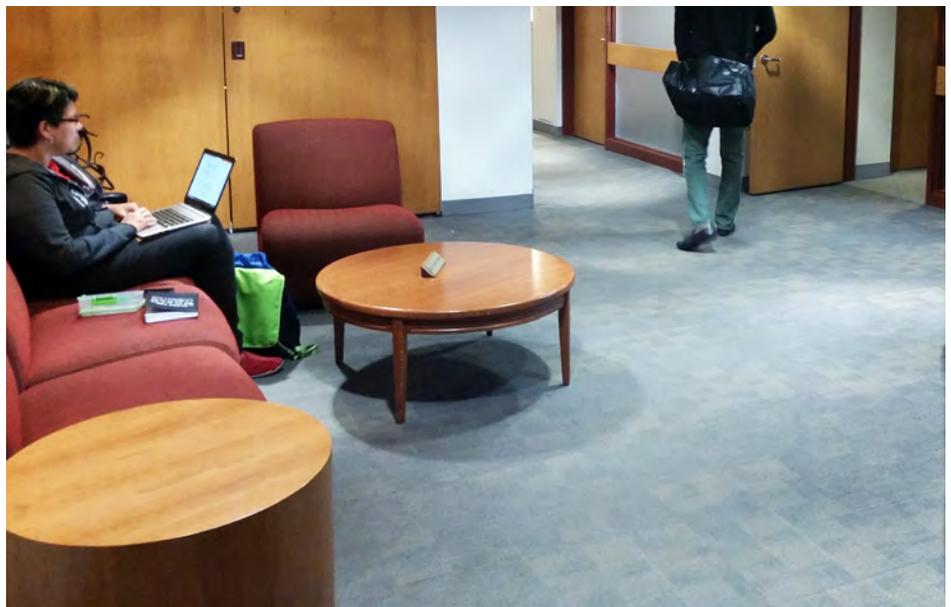
Figure 10 | Student works in hallway, using coffee table as foot stool



Figure 11 | Students meet for collaborative work in the hallway of Littauer



Figure 12 | Student working in hallway hunches over laptop, using lap as table



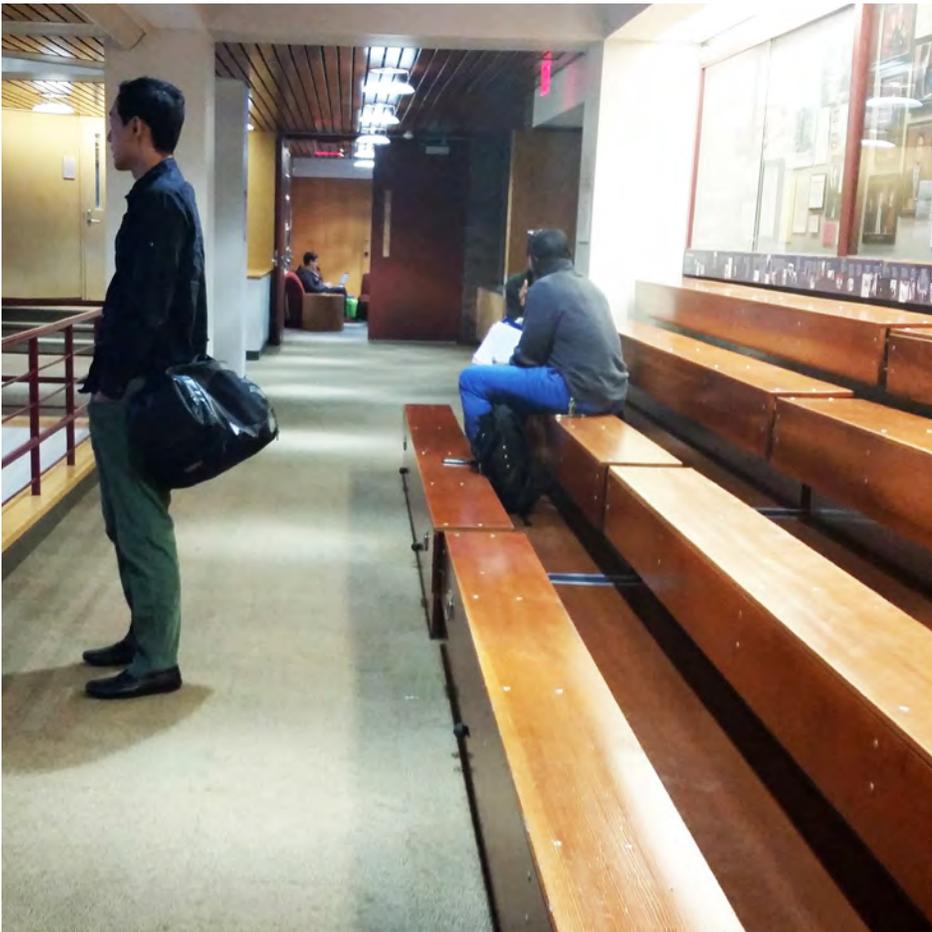


Figure 13 | Students begin to gather on temporary bleacher seating for Forum lecture

“There is a tremendous return of investment in efficiency and production when someone is set up correctly at their work station.”

*- Mary Tomey-Streeto,
Harvard Environmental
Health and Safety*



Figure 14 | Students make use of Forum seating to work, read, socialize, eat, and sleep, in between classes

POTENTIAL IMPACTS

“What we hear most often at the Kennedy School are complaints about being generally uncomfortable at computer work stations, and having back shoulder and neck strain.”

- Mary Tomey-Streeto,
Harvard Environmental
Health and Safety

HEALTH ISSUE	POSITIVE OR NEGATIVE	LIKELIHOOD OF IMPACT
Pain in the neck, shoulders, and lower back	⊖ ⊖ ⊖ ⊕ ⊕ ⊕	P
Decreased efficiency, productivity or concentration	⊖ ⊖ ⊖ ⊕ ⊕ ⊕	P
Increased risk of injury	⊖ ⊖ ⊖ ⊕ ⊕ ⊕	S
Long-term postural deformation or musculoskeletal disorder	⊖ ⊖ ⊖ ⊕ ⊕ ⊕	S
Increased stress	⊖ ⊖ ⊖ ⊕ ⊕ ⊕	S

⊕ ⊕ ⊕ Strongly Positive

⊕ ⊕ ⊕ Moderately Positive

⊕ ⊕ ⊕ Mildly Positive

⊕ ⊕ ⊕ Neutral

⊖ ⊖ ⊖ Mildly Negative

⊖ ⊖ ⊖ Moderately Negative

⊖ ⊖ ⊖ Strongly Negative

⊕ ⊕ ⊕ Unknown

DIFFERENTIAL IMPACTS	DISTRIBUTION OF IMPACT	MEASURABLE INDICATOR	SUPPORTING EVIDENCE
Individuals unaccustomed to remaining in one position or repeating movement over time	S	Voiced concerns, Observation	     
Tolerance for discomfort will determine degree of impact	S	Voiced concerns, Observation, Production Reports	     
Individuals who continue to repeat harmful movements in high risk work spaces	S	Voiced concerns, Observation, Reported Injuries	     
Bodies that are still growing and taking shape; Individuals who perform in poor conditions over time	S	Voiced concerns, Observation over time	     
Tolerance for discomfort will determine degree of impact	S	Voiced concerns, Observation	     

 Speculative

 Probable

 HKS

 Harvard

 Metro

 National

 Research

 Measurement

 Observation

 Interview

 Survey

 Tabling

RECOMMENDATIONS

EDUCATE AND VOCALIZE

- | | |
|------------|--|
| Short Term | <ul style="list-style-type: none">• Educate students, staff, and faculty on the advantages of corrective posture and work station set-up and encourage implementation.• Consult Harvard's Ergonomics Department for recommendations of corrective work environments (https://www.ehs.harvard.edu/programs/ergonomics).• Voice concerns immediately upon experiencing any pain or discomfort. |
|------------|--|
-

IMPLEMENT IN-HOUSE PROGRAM

- | | |
|-------------|--|
| Medium Term | <ul style="list-style-type: none">• Introduce in-house ergonomics program at HKS, responsible for establishing a worker's station prior to their arrival, and then monitoring concerns and adjusting environments as necessary.• Attend Harvard Ergonomics Department "Train the Trainer" classroom sessions to establish more permanent in-house ergonomics team at HKS. |
| Long Term | <ul style="list-style-type: none">• Work with Harvard University preferred vendors to order the correct ergonomics equipment for offices and classrooms.• Conduct regular ergonomics evaluations to confirm students, faculty, and staff are comfortable and are performing optimally.• Design more flexible work stations, that can either change in venue (conference room) or readjust in layout (Forum bleachers), to open up or close off space when not in use.• Designate study zones and quiet space distinct from collaboration social space once more space is established by school. |
-

5 TIPS TO MOVE MORE AND HURT LESS!

1. Get face-to-face

Instead of emailing or calling colleagues, walk to their part of the building for an in-person chat

2. Take the stairs

Elevators are a convenience that we don't always need to use. Climbing stairs gets your blood flowing, burns calories, and keeps the lungs healthy

3. Alternate between sitting and standing

No one position is good in excess. Consider standing by shifting your weight from one leg to the other, then sit

4. Take breaks

Work when you feel focused. As soon as you lose focus or start to feel your body fatigue, get up, take a break, and move

5. Stretch

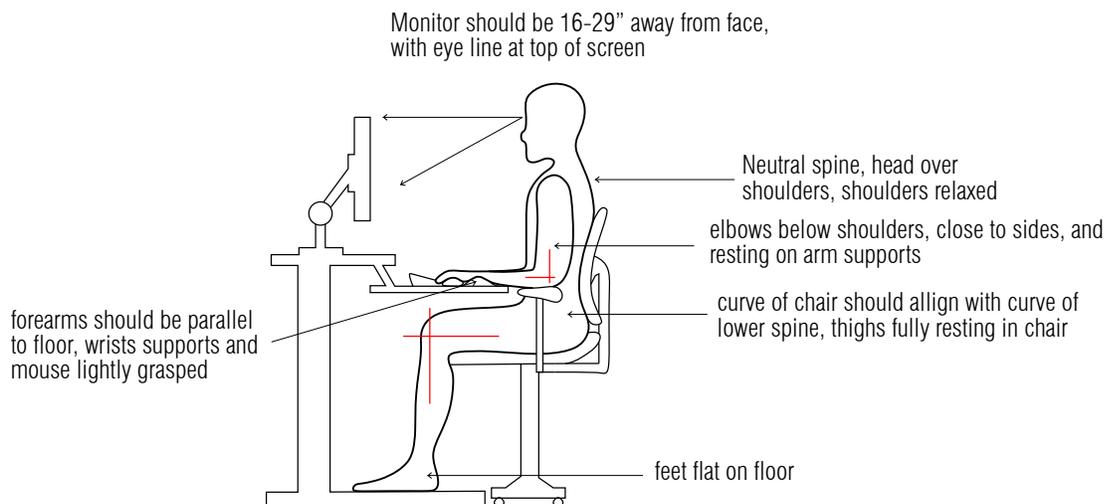
Whatever movements you are required to repeat during the day, find their counter-mobility movements. Muscles tighten and atrophy from lack of blood flow, but stretching gets them the oxygen and blood they need

IMPROVE WORK STATION SETUP

Short Term	<ul style="list-style-type: none">Lower work surfaces that are too high or raise seating so elbows align with keyboard and tilt computer screens to align with eyes.Remove chairs or tables that are not being used to open up more space for circulation.
Medium Term	<ul style="list-style-type: none">Add single removable work tables/trays to forum couch seating, as well as hallway seating, for students to place their laptops on while resting or working on couch.Replace rigid chairs (with little to no spinal support) with chairs flexible in their height, supported in the back and under the forearms, and on wheels to encourage shifting postures and to accommodate variable shape and size.
Long Term	<ul style="list-style-type: none">Eliminate or prevent use of couch desks, where couches act as seating to desks, causing individuals to lift their shoulders and slouch forward.Incorporate more standing work stations with foot rests.Remove barriers below desks that prevent chair from pulling all the way forward.

5 QUICK FIXES!

- LEGS** 1. Seat should be adjusted for height
- EYES** 2. Screen should be adjusted to eye line
- ARMS** 3. Keyboard should sit in parallel to elbow or work surface is too high
- BACK** 4. Spine should have support at lower curvature
- NECK** 5. Spine neutral with neck straight over shoulders



Harvard Ergonomics

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Labels for condiments and food items, including one for 'Santitas'.



07

Food

Maggie Krueger

OVERVIEW OF FINDINGS

The Harvard Kennedy School (HKS) main campus is exposed to a diverse food environment due to its proximity to local restaurants, cafés and bars, a seasonal Friday farmers market and an internal café in Littauer Building. Moreover, due to the robust resources Harvard Kennedy School provides in the form of lectures, workshops, seminars and networking opportunities, faculty, students and visitors are also exposed to food through catered events, with menus developed and food provided in-house, through the Harvard Kennedy School Dining Services. As a result, the food exposure for the HKS population is multifaceted.

The greatest concerns for HKS's development of a more equitable food environment elevated through this assessment include:

1. Food accessibility outside of the operation of the HKS Café
2. Awareness campaigns addressing food nutrition, sustainability and social justice issues
3. Encouragement of catering options consistent with Harvard School of Public Health's Healthy Eating Plate

Nevertheless, HKS already has strengths in food and sustainability, as it excels in its commitment to provide transparency and opportunity in its options and its display. The HKS Café, for example, makes accessible to its customers all of the labels, nutrition and general sustainability information pertaining to foods. It also incorporates vegetarian, vegan, nutrition and local sourcing into its selection, and provides opportunity for staff to access more fresh local food through hosting two Community Support Agriculture (CSA) pick-up locations. Moreover, in partnership with the Harvard School of Public Health, HKS Dining Services' chefs receive guidance on culinary trends and nutrition information, while the renovations to the HKS Café will provide a renovated cooking space that will foster food safety, improved environmental impact, logistical support and food efficiency. The Harvard University Dining Services also offers a part-time fellowship program to two students who serve as Food Fellows in conjunction with the Food Literacy Project, providing participants the opportunity to explore food systems experientially and academically.

This assessment provides insight on Harvard Kennedy School’s primary food environments internal to the campus – including the HKS Café, HKS Catering, vending available in the Littauer, Taubman and 124 Mt. Auburn, and water access – through direct observation, survey data, canvassing, qualitative interviews and HKS Dining Services nutrition and ordering records.

WHY THIS TOPIC MATTERS

As is reflected through media and public discourse, food is primarily a topic of national concern due to its implications for obesity, a rising epidemic in the United States. According to the collaborative study published by Joint Center for Political and Economic Studies and PolicyLink, (2004), institutions that strive to create economic and social equity, we live in a country where almost 2/3 of adults now suffer from obesity or are categorized as overweight, associated with such health risks as “type 2 diabetes, heart disease, osteoarthritis, asthma, cancer, high blood cholesterol and increased surgical risk.” As asserted in one study published in *Eat Behaviors* in 2003, for those attending college, a 2013 study weight gain can range from 4 to 9 pounds in the first two years, compared to a gain of about 2 pounds per year for American adults.

Nevertheless, it is important for us to begin by recognizing that fostering nutritious eating habits comes from the culmination of multiple levels of influence, which the Harvard Graduate School of Design’s Health and Places Initiative (2015) recognizes as including (but not limited to): “personal preferences, social norms, the larger food system (supply and distribution), prices, seasons, transportation infrastructure, health education and local availability.” Moreover, in addition to health, it has become increasingly evident, as highlighted by the Natural Resource Defense Council’s “Eat Green” campaign (2010) that the influence of food habits extends beyond ramifications for individuals to affecting global warming and localized economies.

Food environments on college campuses frequently serve a captive consumer base where habits are influenced further by time, accessibility and financial restraints. Specifically, socioeconomic status, according to the Joint Center for Political and Economic Studies and PolicyLink (2004), “is probably the greatest determinant of a person’s ability to maintain a healthy diet,” where the most vulnerable populations susceptible to food inequity are lower income, ethnic minorities and children, particularly in the United States. This vulnerability not only speaks to issues of access, but – even in public environment where nutritious options are available – can also result in a lack of healthy food choices due to familiarity and food habit. Statistically speaking, Policy Link (2004) found that “less than one-fourth of adults eat the recommended daily five or more servings of fruits and vegetables; and fruit and vegetable consumption is lower for African Americans and Latinos than whites.”

Additional studies have also found that gender and ethnicity may influence food perception and impact the likelihood of a nutritious meal choice. One study conducted through survey data collected from 405 California Statue University students (2012) for that, “males were significantly more likely to choose cost, taste, and poor quality over poor nutrition as determinants of food dislikes” in comparison women are more likely to consider health when purchasing campus food. Likewise, in the California Statue University study, “students of races/ethnicities other than white were significantly more likely than white students to choose cost, inconvenience, and taste over poor nutrition as determinants of food dislikes.”

Moreover, food exposure during campus hours can also be important

“Something which is strange and I think is a major problem is that the unhealthy options are so much cheaper than the healthy. A slice of pizza costs less than a large cup of coffee.”

- HKS Food Fellow

according to one study (2013) which cited that “prior research found only 21% of young adults had high food preparation scores, and one-third (33%) had a moderate score,” referring to a student’s capability to cook and prepare nutritious meals from raw food materials. This study evaluated food stores in a 1.5-mile radius of 15 post-secondary education institutions’ campuses most frequented by students to assessing the availability and pricing of nutritious and non-nutritious foods, as well as student food shopping experiences. As a result, the survey (2013) found that higher preparation skills correlates to a tendency to eat out less and have significantly higher exposure to fruits, vegetables, calcium, whole grains, and fat.

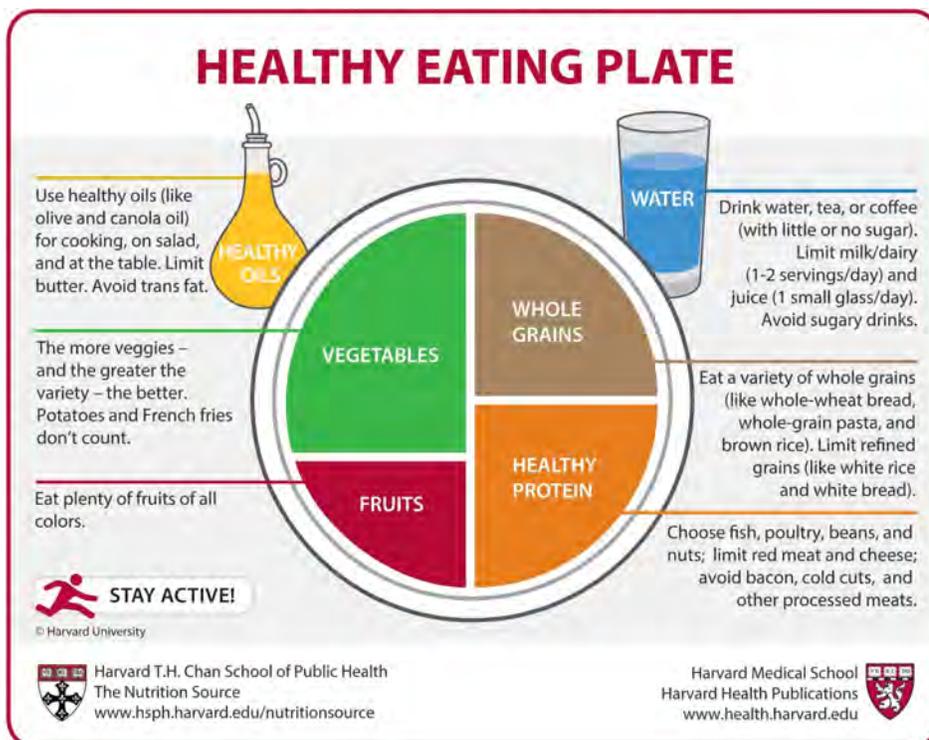
THE SITUATION AT THE HARVARD KENNEDY SCHOOL

Established in 2015 in the Harvard Kennedy School (HKS) Sustainability Plan, HKS envisions its greatest impact in the food sector undertaken through research, training and practice pertaining to three key avenues. The HKS Sustainability Plan (2015) states, “the first is to directly offer foods in HKS café that are healthier for those who eat them, have lower environmental impacts, and are raised and harvested humanely. The second is to encourage consumption of such diets. The third is to create opportunities for students to interact with food policy on HKS campus and utilize HKS business practices as a case study for understanding global implications of our food choices for sustainable development.” As a result, this assessment considers how HKS approaches these goals, as well as reflects on what issues of food concern may be neglected or overemphasized.

HKS CAFÉ

The HKS Café remains the campus’s primary food environment located in the Littauer Building, adjacent to the HKS Forum and is run under the management of Harvard University Dining Services. According to Harvard University Dining Services, students may access a “range of hot and cold breakfast selections” from 7:00 AM until 10:30 AM, while lunch service runs from 11:30 AM until 2:00

Figure 3.1 | Harvard School of Public Health’s “Healthy Eating Pate”



PM. While preparation of hot food ends at 2:00 PM, the kitchen and HKS Café registry remains open until 3:00 PM, giving students access to any remaining food from the day, as well as any snacks, sushi or drinks stored in the refrigerated compartments of the Café. Additionally, light snacks are available during interim periods between 7 AM and 3 PM. Following the HKS Café's closure, students and faculty are limited to the offerings available in vending machines including coffee, tea, soda and sweet and savory non-nutritious snacks on Littauer's bottom floor.

The HKS Café generally categorizes its lunchtime food options within the areas of made-to-order deli sandwiches, salad bar options, "from the grill" choices, "world cuisine" options and "healthy eating plate" selections, referencing the Harvard School of Public Health's "Healthy Eating Plate" established in 2011 (Figure 3.1). Moreover, according to the Harvard Kennedy School Sustainability Plan (2015), the HKS Café provides an array of vegetarian and vegan offerings, fruit and vegetable choices, an emphasis on lean proteins, healthy fats and oils, and lower sodium as well as some organic snack offerings. While students have the opportunity to utilize microwaves for home-brought meals, upon observation approximately 80 percent of those eating in the HKS Forum purchased their food in the Café. HKS Café Manager Serie DeMelo expresses that Harvard Dining Services menus are developed with nutrition and food trends in mind to enhance the food's reception.

Most striking about the HKS Café's food presentation is its emphasis on sustainability literacy, with reminders about reusable container options (Figure 3.2) or local sourcing highlights, such as information about the local fishery that provided the fish available (Figure 3.3). Additionally, nutrition facts, allergy/food restriction information (with the exception of religious dietary denotations of kosher and/or halal options) and distributed waste collection are visibly apparent. (Figure 3.4).

Nevertheless, while HKS Café offers resources to foster a sustainable food environment, Manager DeMelo reflects that there is seemingly a lack of

Figure 3.2 | HKS Café offers free reusable containers for students to utilize.



understanding in the community’s comprehension of “green initiatives” for faculty, staff and students. In this regard, she has found many of the reusable green containers the Café provides free of charge in the trash. As a result, Harvard Kennedy School may benefit from a more intentional sustainability campaign and acculturation of incoming students, staff and faculty to alter the culture. Such a campaign is further supported by the fact that over 55 percent of survey respondents shared that they agreed or strongly agreed, that “resources about the sustainability of my food choices are important to me.” (Figure 3.6).

While HKS Café shares its dining space with the most prominent meeting location on the HKS campus – the Forum – tabling surveys identified the Forum as an enjoyable location to inhabit, and dining can be observed in this space as a particularly social activity. Nevertheless, while the HKS Forum is well received as a space to eat, survey data illustrated that over 65 percent of respondents disagreed or strongly disagreed that “The layout of the HKS Café is intuitive and welcoming,” asserting that a more clear, yet flexible food purchasing experience may be desired (Figure 3.6).

HKS CAMPUS WATER AND SECONDARY FOOD ACCESS

Including HKS’s external campus spaces – 124 Mount Auburn and 1 Brattle Square – clean water access is available at least in one location on almost every floor in every building, commonly located near the building’s stair or elevator system. Nevertheless, some gaps do exist including the 5th floor of Rubenstein, as well as inside HKS library, where students, faculty and staff must travel to another floor or area to gain access. Moreover, while water access is widely available, in building such as Rubenstein, such access primarily takes the

Figure 3.3 | HUDS features sourcing information on local fisherman that catch the seafood featured in the HKS Café.

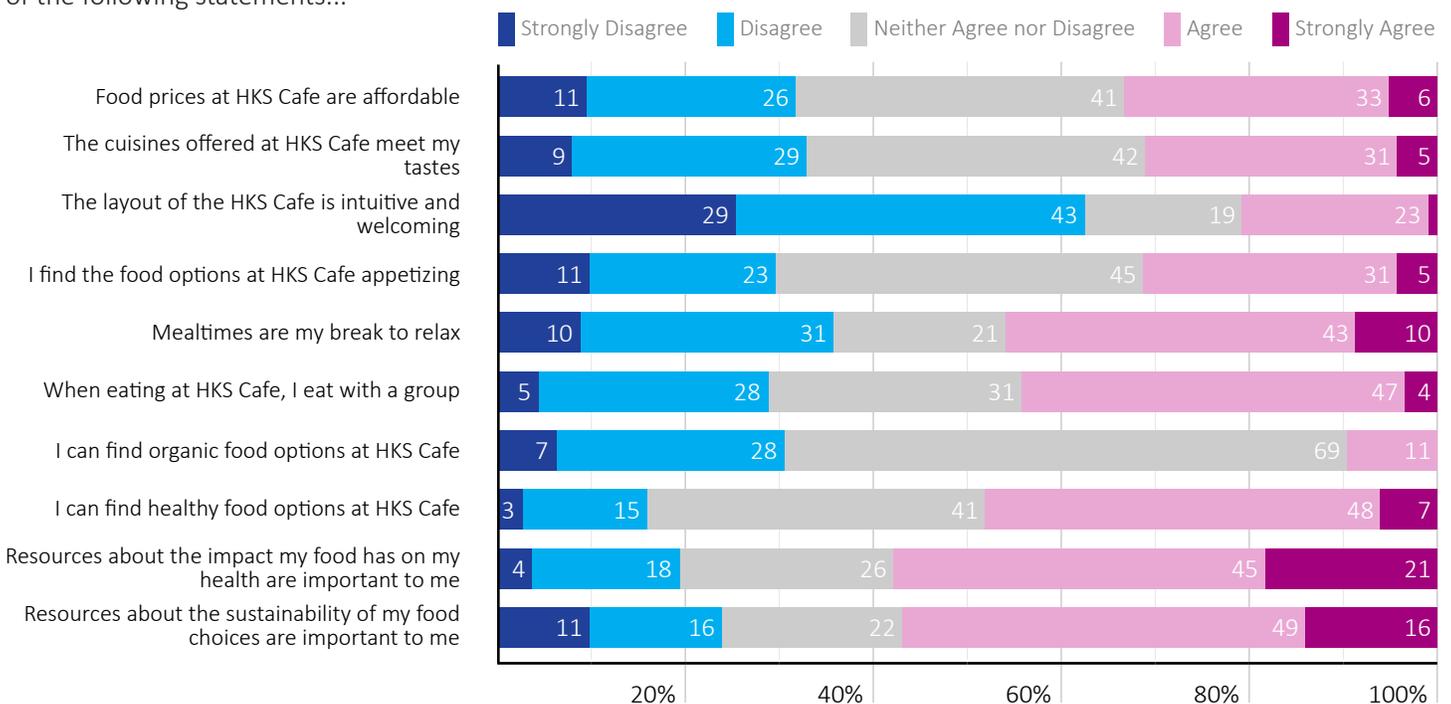
Figure 3.4 | Each food item has a nutrition label visible.



Table 3.5 | Food options and pricing within walking distance of the campus’s three main locations

NEAR HKS MAIN CAMPUS	NEAR 1 BRATTLE SQUARE	NEAR 124 MT. AUBURN
Dunkin Donuts \$	Chipotle \$	Noir \$\$
Park Restaurant \$\$	Café Algiers \$\$	Regattabar \$\$
Legal Sea Food \$\$	Alden & Harlow \$\$\$	Henrietta’s Table \$\$\$
IHOP \$	Flat Patties \$	Au Bon Pain \$
Wagamama \$\$	Crema Café \$\$	
Maharaja \$\$	Felipe’s Taqueria \$	
Shake Shack \$\$	Falafel Corner \$	
Tanjore Indian Cooking \$\$	The Red House \$\$	
Charlie’s Kitchen \$	Noir \$\$	
	Regattabar \$\$	
	Henrietta’s Table \$\$\$	
	Grendel’s Den Restaurant & Bar \$\$	
	Pinocchio’s Pizza & Subs \$	
	9 Tastes Thai Cuisine \$\$	
	The Maharaja \$\$	

Figure 3.6 | Responses to the question “Please share your ranking of the following statements...”



form of a water dispenser, through which, when no cup is available or thermos on hand, water is not easily accessible. While this system does have the capacity to encourage sustainable practices, it is unclear whether this may also prohibit water access for some people.

Because floors and buildings within the HKS campus are distinctly compartmentalized into areas for specific departments, research institutions or organizations, many offices, particularly in Littauer Building, contain a kitchen with a sink, refrigerator, and a microwave. However, many of these units appeared infrequently utilized, which may relate to restraints of time and food preparation skills experienced by students, faculty and staff, preventing them from bringing food to eat.

In addition to the HKS Café, the HKS main campus currently has two vending machine areas in the bottom floors of Littauer and Taubman, directly serving only two of the four buildings on the main campus. While the Littauer vending machines offer traditionally savory and sweet snacks from candy to chips, as well as a soda and coffee machine, the area posts notifications that “Healthy vending options are available at Taubman, lower level.” This indicated vending machine provides more nutritious alternatives such as snacks with less salt and sugar content, as well as bottled water or Polar Seltzer beverages as a substitute to soda. Additionally, the purchasing display monitor also rotates an image of the “Healthy Eating Place,” reiterating conscientiousness of healthy choices. Following analysis on the frequency of use of this vending machine, while less than ideal options are still present, additional placements of such vending machines might be considered.

External to HKS’s main campus, 124 Mount Auburn contains a secondary food environment in the maintenance of a small Au Bon Pain kiosk, though availability of complete, nutritious meals is limited, as the kiosk provides the basic sale of pastries, soup and prepackaged sandwiches. As a result, food access for primarily faculty and staff in the external location of 124 Mount Auburn as well as 1 Brattle Square which contains no internal food environment is rather limited and poses a significant challenge. As shown in Table 3.5, HKS main campus and external buildings have some access to food options in the walking vicinity (within 0.25 miles), however, these choices primarily straddle two extremes of being potentially nutritious but expensive and time-intensive or primarily unhealthy but less costly (Price distribution is taken from Google Maps on a scale of \$ to \$\$\$). Moreover, considering the wage gap between students and staff in comparison to faculty, as a temporary solution it may be advisable to create discounted offers for local food vendors that offer nutritious alternatives to staff hindered by the lack of access and cost of surrounding locations.

HKS DINING SERVICES CATERING

Because of HKS’s position as one of the leading research institutions of politics and civic leadership, the campus hosts many diverse events around meals that serve students, faculty, staff as well as visitors. Nearly all of such events are catered by HKS Dining Services who develop and implement menus based on budget, food interest or other indicated themes (such as a “fall” cuisine). Student organizations, due to limited funding, have access to a prescribed list of food options ranging from nutritious to more dessert and alcohol oriented.

Incentivize more nutritious food options as HKS catering has agency through their development and planning done internally. While catering needs are exceedingly diverse, a sampling of two monthly itemized lists of all catering orders placed by the Harvard Kennedy School was collected. Item types with a quantity over 300 orders for both these months of September and October 2015

were recorded in Table 3.8. While this analysis highlights the frequency of more nutritious ordering of fruit salad, hummus and pita chips and traditional crudités, particularly sugary items such as soda, mini cookies, brownies and beer also ranked frequently on the list. While it is unrealistic to limit the catering of sugary desserts and more social snacking food, it may be possible particularly in the case of students, to incentivize healthier options through financial subsidies, or utilize alternative dessert and d’oeuvres recipes that minimize sugar and saturated fats.

In considering the current food culture at Harvard Kennedy School, it is important to note that academic awareness around this issue exists with the work of the “Private and Public Science, Academic, and Consumer Food Policy Group,” as well as the “Maine Food Cluster Project,” which may be useful in propelling education campaigns on food options and healthy eating. Moreover, as illustrated by groups of students that congregate around reception tables sponsored weekly by institutes and organizations, food is an agent of community development and can be fostered in such a manner in other locations outside of HKS Café. Through creating weekly norms and portable food station locations that offer free healthy snacks (for example: apples slices in Belfer basement Monday mornings), students and faculty can become more exposed to healthy food options, as well as gather to cultivate social cohesion. Moreover, to elevate pressure from the Harvard Kennedy School’s single food environment – the HKS Café – the University may consider creating supplementary café options in other regions of the school, as exemplified at Harvard Business School in Aldrich Hall.

Table 3.8 | HKS catering food orders that exceed a quantity of 300 during the months of September and October 2015

FOOD DESCRIPTION	QUANTITY
Assorted Juices	974
Assorted Mini Cookies	948
Assorted Sodas	2065
Brownies	329
Coffee, Tea, Decaf	4380
Cookies and Brownies	527
Domestic Beer	615
Fruit Salad	582
Hummus and Pita Chips	607
Imported & Domestic Cheese Platter	548
Fruit Assortment (or varying titles)	370
Traditional Crudites	467



Figure 3.9 | HKS Café provides freshly prepared sandwiches with a variety of meat and vegetable options.



Figure 3.10 | The HKS Forum is a multifunctional space that serves as the primary dining area and meeting spot on the HKS campus.



Figure 3.11 | Along with reusable containers, HKS Café offers free travel cups for beverages.

POTENTIAL IMPACTS

HEALTH ISSUE	POSITIVE OR NEGATIVE	LIKELIHOOD OF IMPACT
HKS Café Food Sustainability	⊖ ⊖ ⊖ ⊕ ⊕ ⊕	Ⓢ
HKS Café Nutritious Food Options	⊖ ⊖ ⊖ ⊕ ⊕ ⊕	Ⓟ
HKS Café Food Labels	⊖ ⊖ ⊖ ⊕ ⊕ ⊕	Ⓢ
HKS Café Food Sustainability Messaging	⊖ ⊖ ⊖ ⊕ ⊕ ⊕	Ⓢ
Limited Food Access in External Buildings	⊖ ⊖ ⊖ ⊕ ⊕ ⊕	Ⓟ
Campus Water Availability	⊖ ⊖ ⊖ ⊕ ⊕ ⊕	Ⓟ
Nutritiously Catered Events	⊖ ⊖ ⊖ ⊕ ⊕ ⊕	Ⓟ
Kitchen/ Kitchenettes	⊖ ⊖ ⊖ ⊕ ⊕ ⊕	Ⓢ
Vending Machines	⊖ ⊖ ⊖ ⊕ ⊕ ⊕	Ⓢ

⊕ ⊕ ⊕ Strongly Positive

⊕ ⊕ ⊕ Moderately Positive

⊕ ⊕ ⊕ Mildly Positive

⊕ ⊕ ⊕ Neutral

⊖ ⊖ ⊖ Mildly Negative

⊖ ⊖ ⊖ Moderately Negative

⊖ ⊖ ⊖ Strongly Negative

Ⓢ ⊕ ⊕ ⊕ Unknown

DIFFERENTIAL IMPACTS	DISTRIBUTION OF IMPACT	MEASURABLE INDICATOR	SUPPORTING EVIDENCE
Affects lower income custodial staff responsible for cleanup and maintenance of trash			
Students without food preparation skills and persons of lower income without access to higher quality food		Menu Nutrition Records	
Positive impact for those with dietary restrictions or health concerns			
Lack of understanding for students, faculty and staff unexposed to other green initiatives			
Faculty and staff, particularly with lower incomes unable to purchase food from surrounding areas			
Faculty and staff on lowest and highest floors on main campus and spaces within the extended campus			
Faculty and students more regularly attending events		Menu Nutrition Records	
Students, faculty and staff without food preparation skills (lower income)			
Lower income people unable to purchase in surrounding areas			

Speculative

Probable

HKS

Harvard

Metro

National

Research

Measurement

Observation

Interview

Survey

Tabling

RECOMMENDATIONS

FOOD ACCESSIBILITY

- | | |
|-------------|---|
| Short Term | <ul style="list-style-type: none">• Establish lunch order menus and a delivery program (on a weekly ordering basis) through Harvard Dining Services for faculty and staff of 124 Auburn Street and 1 Brattle Square.  <ul style="list-style-type: none">• Renew contracts with dining services providers that prioritize healthy and sustainable foods. (HKS Sustainability Plan 2015) |
| Medium Term | <ul style="list-style-type: none">• Develop food preparation skills workshops and revitalize kitchen units for external campus buildings so that faculty and staff may bring nutritious meals  <ul style="list-style-type: none">• Assess the affordability of healthy food choices at HKS and consider subsidizing some options. (HKS Sustainability Plan 2015)• Install or replace current vending machines with “Healthy Option” vending machines in Rubenstein and Belfer and Littaurer respectively. |
| Long Term | <ul style="list-style-type: none">• Establish portable food stations or secondary HKS Café locations on main campus to increase food access and create additional space to cultivate community and congregate• Establish permanent water, kitchenette and/or supplementary nutritious food access on the 5th floor of Rubenstein |
-

FOOD NUTRITION AND SUSTAINABILITY EDUCATION

- | | |
|-------------|--|
| Short Term | <ul style="list-style-type: none">• Develop labeling and notifications in HKS Café that help purchasers discern healthy combinations of food items that create a nutritious meal |
| Medium Term | <ul style="list-style-type: none">• Gather current HKS academic institutions and groups working on food and policy at HKS to brainstorm pragmatic opportunities the Kennedy School might be able to engage in  <ul style="list-style-type: none">• Investigate opportunities to reduce the use of highly processed and packaged food and beverages. Examples include installing water filtering stations, increasing fresh vegetable purchases, etc. (HKS Sustainability Plan 2015) |
| Long Term | <ul style="list-style-type: none">• Further expand the featured food supplier signage for meat and produce providers as well as implement a nutritious and sustainable food literacy campaign |
-

HEALTHIER HKS CATERING ALTERNATIVES

- | | |
|-------------|--|
| Short Term | <ul style="list-style-type: none">• Host HKS Catering sample stations to showcase healthier snack recipes to encourage students and faculty to revise catering selections |
| Medium Term | <ul style="list-style-type: none">• Incentivize healthy catering items for students by reducing the price of nutritious catering options |
| Long Term | <ul style="list-style-type: none">• Reassess recipes for requested sugary or unhealthy food items to use alternative healthy ingredients or supplement with healthy grains and seeds |
-

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08

Green Space and Health

Erica Fine

OVERVIEW OF FINDINGS

Situated next to JFK Park, amid avenues of tall trees and a short walk from the Charles River, the Harvard Kennedy School is in a prime location for providing the mental and physical health benefits associated with exposure to green space. The majority of offices have exterior windows and many interior spaces are designed to maximize natural light. Moreover, students value the surrounding green space, especially JFK Park, the main courtyard, and outdoor seating areas, and recognize its importance to their well-being. In the survey that went out to HKS as part of this project, 89% of respondents stated “having access to or views of green space is important to me.”

There are important opportunities to improve green space access at HKS, particularly to ensure equal access to green infrastructure and views across sub-groups. The Pavilions construction will do some of this work, particularly through the addition of a Winter Garden. In addition, based on research on mental and physical benefits of green space, the HKS Sustainability Plan for “providing access to nature campus-wide, both indoors and outside” (HKS Sustainability Plan, 2015, p. 26) may benefit from more focus on cognitive and social-emotional benefits of access to green space, in addition to physical benefits.

WHY THIS TOPIC MATTERS

Although the biologic pathways are still unclear (Jackson et al. 2013), it is certain that green infrastructure has an impact on many aspects of health and well-being. Green infrastructure is a combination of aspects of the built environment with forests, parks, waterways, lawns, green roofs, and other spaces that provide ecosystem services (Demuzere et al. 2014). The research presented in the rest of this section describes how access to this infrastructure can help mitigate physical and mental health issues, as well as improve work place satisfaction. This matters as much for staff as for students, many for whom campus also serves as their primary work place. Jackson et al. (2013) describe four prevailing theories about how these connections between exposure to greenery and health work, in part based on how exposure response is measured:

- Exposure to nature produces a reduction in stress that can be measured through the response of various physiologic indicators.
- Exposure to nature stimulates or allows for “recovery from directed attention fatigue” as measured by changes in cognitive functioning.
- One’s preferences and opinions surrounding nature confer cognitive and emotional benefits themselves.
- The social interactions that come through time spent in nature and through physical activity drive the benefits from exposure.

PHYSICAL HEALTH

A number of studies have found an increase in perceived health and a decrease in disease rates for those living near green space. The effects are often stronger or only apparent in the most vulnerable populations, including children, the elderly, and those of low socioeconomic status (Maas et al. 2006; Mass et al. 2009). Some research shows higher effects in men than in women (Richardson & Mitchell 2010). Ecosystem services provided by green space including heat mitigation and clean air and water act as buffers against potential environmental stressors of health like air pollution (Jackson et al. 2013; Demuzere et al. 2014.)

The evidence for an association between green infrastructure and physical activity is uncertain. The Physical Activity Brief by the Health and Places Initiative describes “recreation or leisure physical activity” as having only a neutral or mild positive association with proximity to parks in the studies it reviewed (HAPI Physical Activity Brief 2014.) A systematic review by Hunter et al. (2015) found that physical activity is not significantly affected by a change in the physical environment but that both physical activity and use of green space increased when a change in the environment was combined with a physical activity program.

MENTAL HEALTH

Even in small doses, such as a view of green space through a window, exposure to green space has been shown to be beneficial for mental health (HAPI Mental Health Brief 2014.) In a study of records from 200 physicians in the Netherlands, rates for numerous diseases were found to be lower for those living within 3km of green space, with the effects being strongest on instances of anxiety and depression (Maas et al. 2009). A larger study of 4,500 Dutch respondents found that living within 3km of green space buffered people from the effects of stressful life events; however the same benefits were not found for those living within 1km of green space. This may be because farther away nature is often larger and has

more characteristics of a “refuge” (van den Berg, et al. 2010). In general, the types of favorite places that people choose to help “regulate their mood” are often natural ones (Tzoulas et al. 2007, 171). Exposure to green space has also been correlated with less feelings of loneliness and lack of social support (Maas, van Dillen, Verheij, Groenewegen, 2009). Exposure to green space has the potential to aid those at HKS in building resilience, not only in the face of daily stressors, but when grappling with the large scale shocks and stressors to society, like climate change, that their work often addresses (Demuzere et al. 2014). Lastly, although implications for adults are unknown, initial research on young children shows an increase in cognitive development with a decrease in air pollution in green spaces (Dadvand et. al. 2015).

IN THE WORKPLACE

Workplace green infrastructure is usually defined in studies as indoor plants and windows that provide visual access to green space. In a study of office workers in the United States, Dravigne et al. found job satisfaction to be higher among workers who’s work space included plants and windows or just plants, compared to those with just windows or neither plants nor windows (2008). Indoor plants have also been found to have a positive effect on similar measures like productivity, amounts of sick leave taken (Bringslimark, Hartig, & Patil 2007), and attitudes towards work. A randomized study of over 2,000 individuals in nine Swedish cities found lower stress and better attitudes towards work for men with physical and visual access to green space, while for women attitudes towards work, but not stress, were affected (Lottrup, Grahn, & Stigsdotter 2013).

DIFFERENTIAL IMPACTS

A number of studies have found that exposure to green infrastructure is different across subgroups, most notably, gender, age, and socio-economic status (Dravigne 2008; Lottrup 2013; Richardson & Mitchell 2010.) For example, as described above, physical and visual access to green space positively affected men and women’s attitudes towards work, but only affected stress levels in men (Lottrup, Grahn, & Stigsdotter, 2013). There are also questions around differences in benefits based on proximity to the green space (how close or far is ideal) (Bringslimark et al. 2007), agricultural or natural green spaces versus urban green space (Maas et al. 2006), and conditions in green space (weather, congestion, etc.) (Jackson et al. 2013.) The amount or quality of time necessary for achieving maximum benefits have not been verified or specified by most studies (van den Berg 2010; Richardson & Mitchell 2010.) Neither have the potential side effects of improving green infrastructure, for example an increase in insects or animals that are viewed as pests resulting in an increase in use of pesticides and decrease in health, or the decrease in the movement of air and people with the addition of trees (Demuzere et al. 2014).

THE SITUATION AT THE HARVARD KENNEDY SCHOOL



Figure 1 | Trees along the path between HKS & the Charles Hotel



Figure 2 | Intersection of Eliot Street and Bennet Street



Figure 3 | View from 4th floor of 1 Brattle Square

To assess the situation at HKS, data was collected through a combination of in-person observations and interviews, an online survey of 140 HKS staff, faculty, and students (almost all were students), reviewing maps, and tabling in the Forum. Tabling included questions about general suggestions and specific issues around aging and disabilities, as well as a mapping activity. The observations were conducted at JFK Park and the adjacent enclosed seating area on September 29, 2015, in addition to walk-throughs in and around HKS buildings, independently and with Facilities staff member, Alan Lopez, on October 22, 2015. Maps assessed included aerial images from Bing and Google, site plans pre- and post-construction, and floor plans.

GREEN SPACE –AMENITIES

The green space surrounding the main campus of HKS is actually quite plentiful. Besides being a few minutes' walk from the Charles River, the main campus is bordered on two sides by rows of tall, mature trees (fig. 1) and on the third side by JFK Park. The interior courtyard was and will be a primary location for green space access, but is currently devoid of any greenery during the construction phase of the Pavilion project. Elliot Street has the least in the way of greenery, particularly the intersection of Eliot Street and Bennet Street by the Charles Hotel (fig. 2). 124 Mt. Auburn has a bit more vegetation surrounding it (fig. 4) and 1 Brattle Square has much less, with the exception of a small park across from the main entrance, which is too low to have a strong effect on the views from the 4th and 5th floor windows, where the HKS offices are located (fig. 3). In addition, over 75% of survey respondents state that they pass or sometimes pass through green space during their commute to campus.

JFK Park is spacious enough to provide distance from the noise and fumes of traffic and the effects of the many cigarette smokers who use the park. The traffic noise and air pollutants seem to be even less in the enclosed seating area behind Rubenstein, though talking noise was more. In addition, the ways in which people use and value the green space may change with the seasons. Since it doesn't appear that any of the trees were evergreen, the space will become less green as the leaves fall, but will also let in more sunlight during colder seasons. If it is cold and/or wet, people may be less likely to use the outdoor spaces to meet and eat, which seems to be their main function currently.

Outdoor seating is available at the main campus, though is somewhat limited compared to demand, especially during construction. There are benches along two sides of JFK Park and in the alley between HKS and the Charles Hotel (fig 1, 5). The seating that was in the main courtyard will be added back in the new Pavilion plan, and is currently being replaced with a temporary seating area behind Rubenstein. The area is fenced, causing one survey respondent to comment,

"I used to work outside, but found the tables out the back of Rubenstein strange given they are penned in so you can't actually see the park."

There is also outdoor seating on JFK Street, outside of Littauer. What little outdoor seating there is at Mt. Auburn and Brattle Square is on pavement and in close proximity to traffic, not in green space.

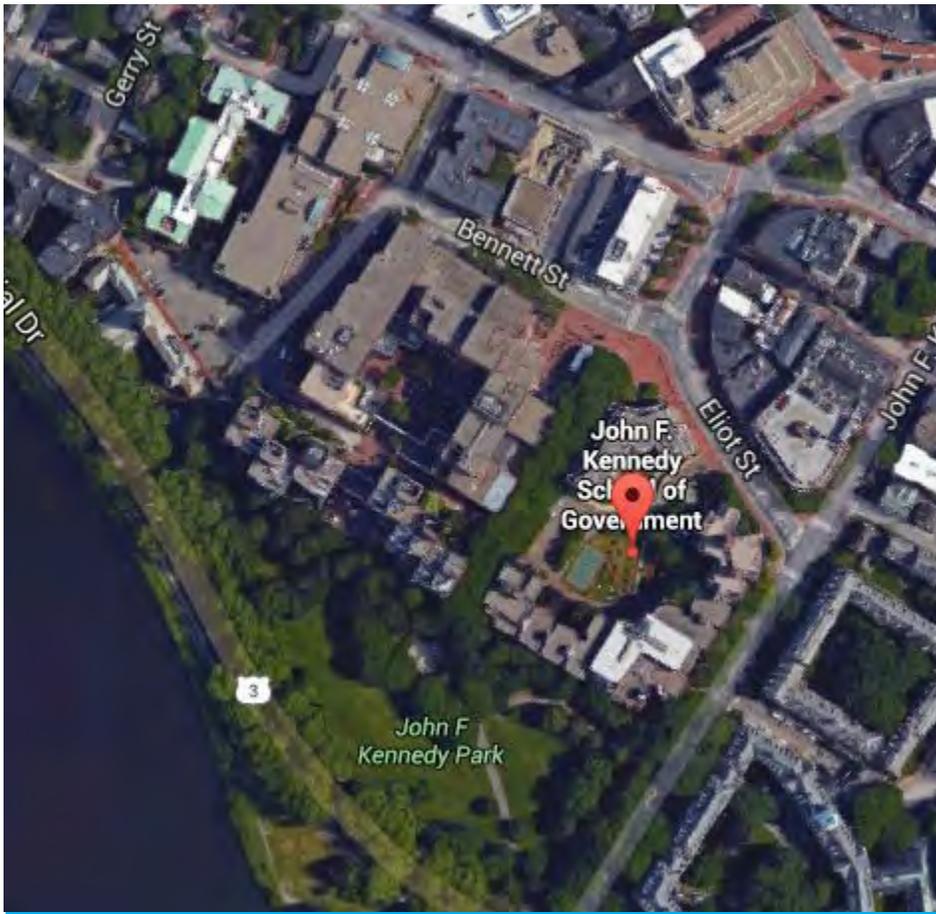
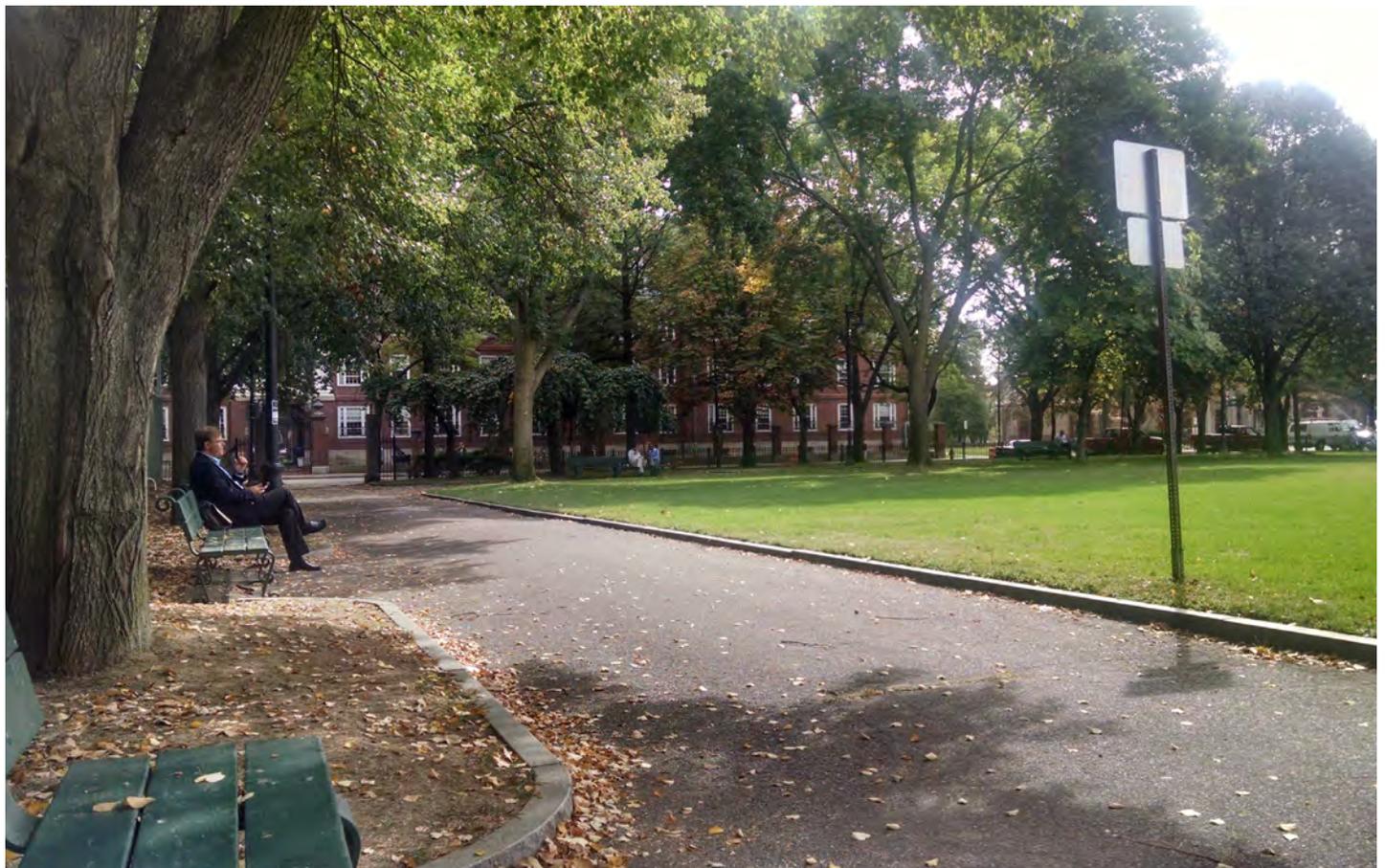


Figure 4 | Googlemap view of green space surround HKS main campus, 124 Mt. Auburn, and 1 Brattle Sq.

Figure 5 | Benches in use at JFK Park



VIEWS OF NATURE

Though observations and floor plans reveal plenty of spaces with exterior windows, interviews and collected comments reveal a different perception of access to views of nature. Observations and floor plans show the narrow design of Belfer, Littaurer, and Rubenstein ensure a high window to space ratio with only a few interior rooms. Many offices have exterior windows with views of sky or vegetation (fig. 6, 15), though this again may change with the seasons: foliage may block the view of the sky or of another building. As leaves fall off in the Fall, the view of green foliage will decrease, while the views of the sky and/or other buildings may increase. Some spaces have windows below ground level (fig. 16). In addition, many windows that would have views of green space are currently blocked by fencing or other construction materials (fig. 17), or simply look out on to the construction site, which is devoid of greenery (fig. 7).

Every building contains at least a small number of spaces without exterior windows (fig. 8). The interior or windowless rooms that do exist appear to be most often classrooms, student work spaces (fig. 9), or rooms with service functions like storage or bathrooms – spaces what service workers spend most of their time in. Data from the Survey confirms this – 74% of respondents disagreed or strongly disagreed that they had adequate views of nature while only 14% agreed or strongly agreed. Also, 49% of respondents said they did not have access to windows with views of nature, while 45% said sometimes and only 6% said yes (Chart 1). In addition, the majority of comments on the survey in relation to views of nature referenced a lack of windows, especially in study spaces (See quotes on next page).

The windowless rooms are sometimes due to expansion – as more space was needed, service rooms were turned into offices (A. Lopez, personal communication, October 22, 2015). An effort has clearly been made to let natural light into these interior spaces – many interior rooms have frosted glass wall sections or clear windows that let in natural light from adjoining rooms or hallways that have exterior windows (fig. 10). However, natural light does not mean views of green space, especially when sitting down (fig.11).

Chart 1 | Level of agreement with statements in a survey question about access to green space

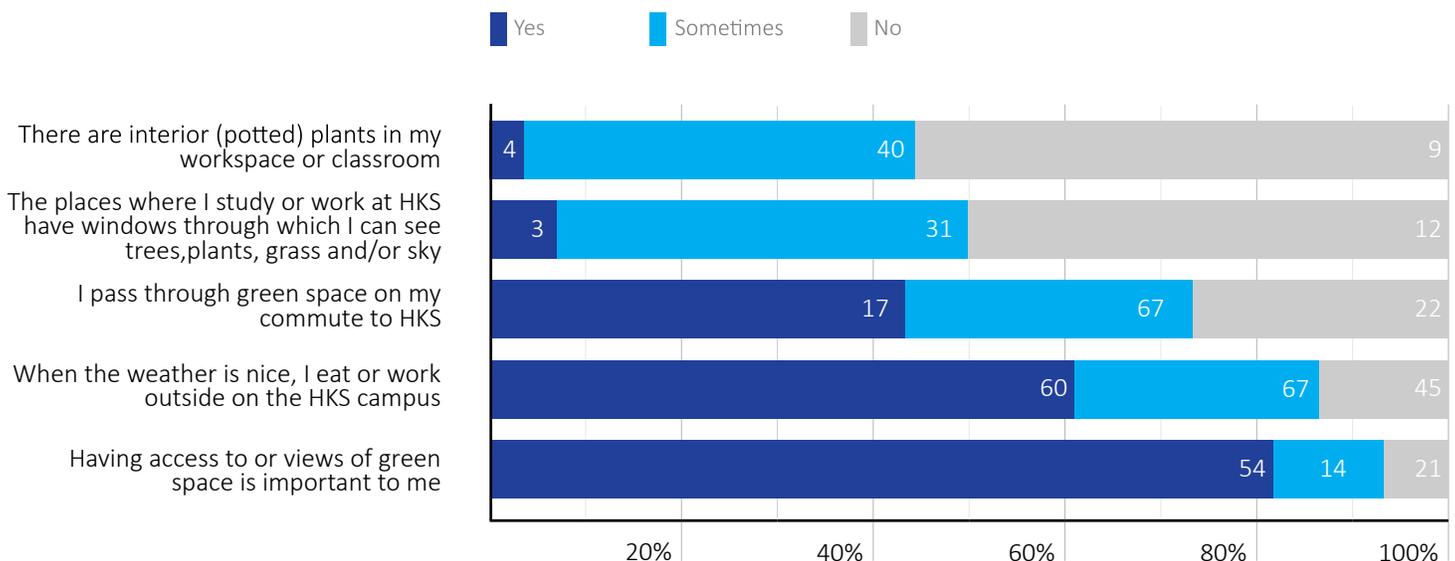




Figure 6 | View from office in Rubenstein

“One doesn’t see the outside world all day.”



Figure 7 | View from office in Littauer

“More office space for PhD students with windows. We spend years in rooms with no outside view.”



Figure 8 | Windowless office at 124 Mt. Auburn

“I’d like to sit in a sofa, look at the leaves and brainstorm or relax my mind. But so far the only windows I found are in Belfer, and the view is not even that great. (Constructions!!)”



Figure 9 | Student lounge in Taubman

“Most study areas have no natural light or views of the outside at all...The library is an underground dungeon.”



Figure 10 | Classroom with interior windows in Belfer

“Also there are very few windows so views of nature are rare.”



Figure 11 | Cubicles in Mt. Auburn

Quotes | Responses to various survey questions

INTERIOR PLANTINGS

According to survey data, 71 % of respondents said they do not have interior (potted) plants in their workspace or classroom, while 26% said sometimes, and only 3% said yes (Chart 1). All told, over 70% of the respondents for each major building (Littauer, Tuabman, Belfer, Mt. Auburn, and Brattle Square) said that they did not have potted plants in their work space or classroom. It is important to remember that almost all of the respondents were students, so this reflects the experience of students. Observations and interviews revealed a number of spaces do have plants, but most are personal and not maintained by Facilities (fig. 13, 14). The HKS Sustainability Report (2015, p. 27) says, "Initial research into HKS practices indicates that interior landscaping is not managed centrally and does not reflect a campus wide set of goals. Indeed, at least six separate vendor contracts operating within the existing campus provide interior planting services and maintenance with little coordination or common objectives." It appears that most spaces (offices, entry ways, etc.) with potted plants are also spaces with windows or more natural light. Interior planting will change significantly with the addition of a Winter Garden. This will affect students more than staff most likely, as students spend more of their time in common spaces, as staff have offices.



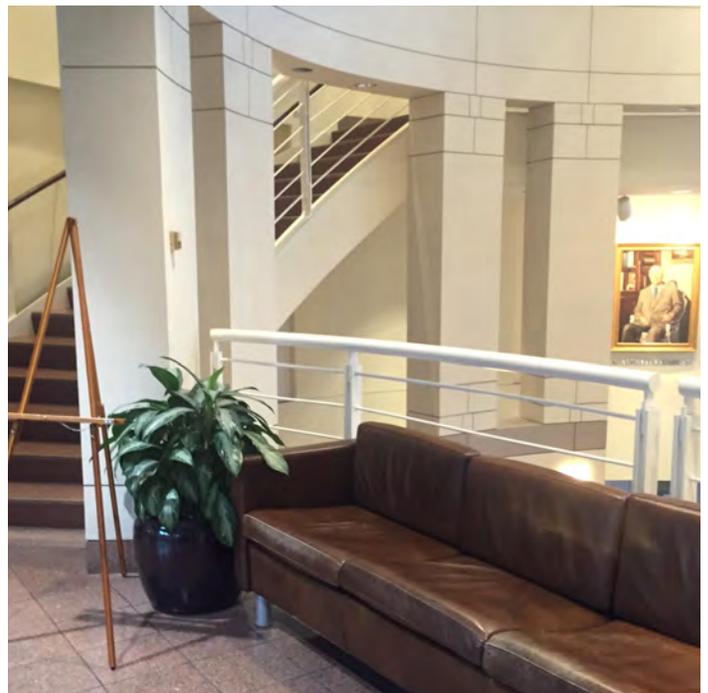
Figure 12 | Students working and eating during lunch in temporary courtyard behind Rubenstein

Figure 13 | Plant at a personal desk

Figure 14 | Plant in Taubman

USES

Of the available green space on campus, students' prefer to visit JFK Park, followed by the main courtyard (or would if it weren't under construction), the Charles River and the Rubenstein courtyard, the Littauer courtyard, and the path between HKS and the Charles Hotel, in that order (Chart 2). Observation did show heavy use of the Rubenstein courtyard, as well as the benches and paths of JFK Park, though the main grassy areas of the Park were almost entirely empty. (HKS does use this for organized sports and other social events). 62% of respondents said they eat or work outside in nice weather, while only 24% said sometimes and 14% said no (Chart 1). In the courtyard, the shadier areas/tables seemed to fill up more, as well as those closer to the building entrance, especially for groups (fig. 12).



Observations also show the most frequent activities in the Park were: phone calls, smoking cigarettes, and eating in small groups or alone. Most smoking and all eating in the Park took place on the benches, whereas phone calls were often conducted while walking or pacing a particular stretch of sidewalk. The Rubenstein courtyard was similarly used mostly for eating – though more people seemed to be studying or working while eating in this space than those in the park, suggesting the park is more of a break space. Survey data backs this up; of the spaces that are good for socializing, outdoor spaces are tied in popularity with the student lounge. Outdoor spaces rank fifth in preferred spaces for working alone as well as for working in groups (Chart 3).

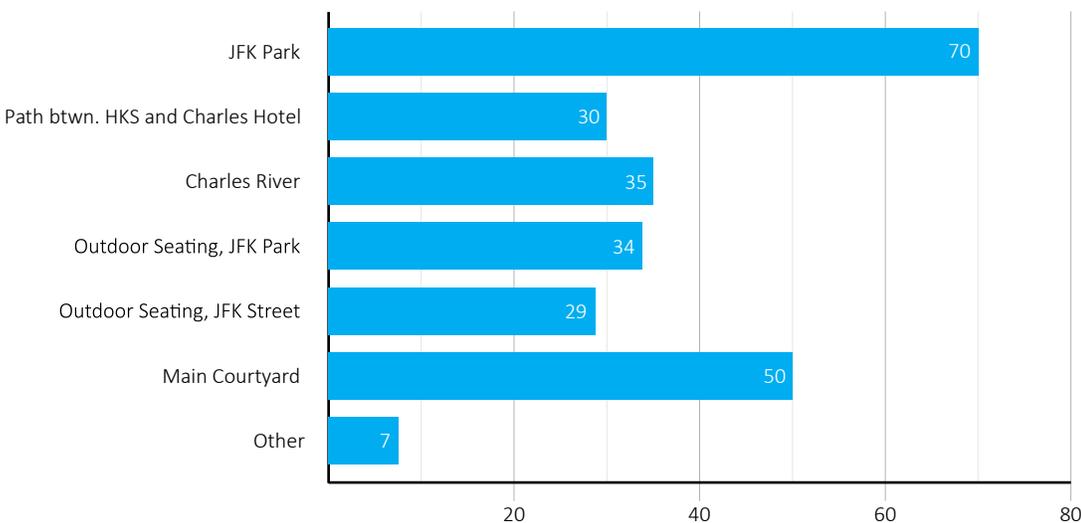


Chart 2 | Responses to the survey question, “Which green space do you visit most often (or would if it weren’t under construction)?”

OPINIONS & VALUES

In general, data from tabling and survey show students and staff do care about their access to green space. Of the 45 general improvement comments we received during the three days of Forum tabling, four were about views/windows and three were about green or outdoor space – a combined 7 out of 45 or 15.5 % of the responses. This made up for the biggest section of responses, others main categories being about gym access, mental health, food, and navigation of the campus. In the mapping activity conducted as part of tabling showed JFK Park, the Charles River, and the Rubenstein courtyard received a combined 24% of the 145 positive data points, compared to Littauer with 29% and Taubman at 19%. Outdoor spaces were also spaces the most frequent identified as “calm and relaxing,” ahead of the library, Taubman, and the student lounge. One survey respondent specifically stated, “having access to green spaces positively affects my mood.”

Though it is important to them, survey respondents prioritized green space slightly lower than things like the temperature of spaces and natural light. When asked to identify the three most important factors in wellbeing, green space came out in the middle across respondents, below having good physical health, having good mental health, strong sense of community, low levels of stress, and opportunities to learn and develop, but above job satisfaction, feeling safe and secure, spiritual purpose, lack of outdoor air pollution and noise, and satisfying income. Their comments also show that they do think about the side-effects of green space: “Great to have plants, but better to be potted in water and pebbles to avoid mold from soil.” “I would love more access to green spaces- for instance, when working outside behind the school in the mornings, the leaf-blowers are often on duty and make the space impossible to work in.”

Chart 3 | Responses to survey question about the characteristics of various locations on campus

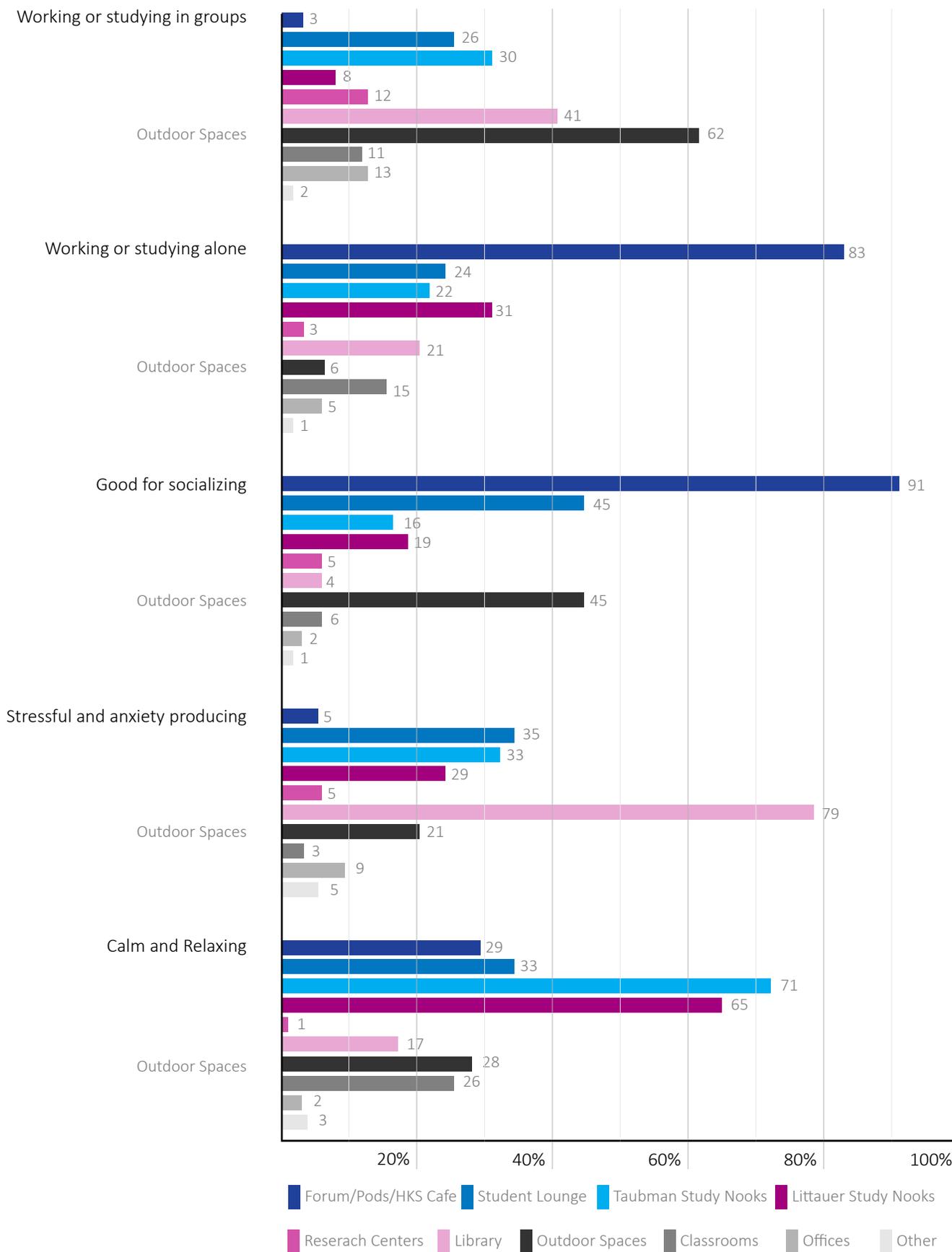




Figure 15 | Greenery by HKS windows that face the Charles Hotel

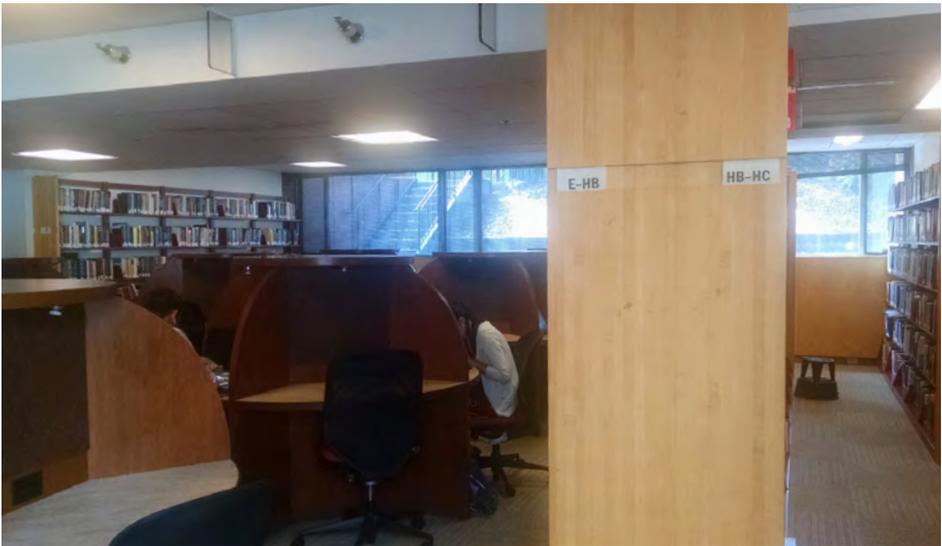


Figure 16 | Below ground-level windows in the library



Figure 17 | Construction fencing between HKS and JFK Park

POTENTIAL IMPACTS

HEALTH ISSUE	POSITIVE OR NEGATIVE	LIKELIHOOD OF IMPACT
Mental Health & Cognitive Function		P
Productivity: Staff/Faculty		P
Productivity: Students		S
Physical Health		S

 Strongly Positive

 Moderately Positive

 Mildly Positive

 Neutral

 Mildly Negative

 Moderately Negative

 Strongly Negative

 Unknown

DIFFERENTIAL IMPACTS

DISTRIBUTION OF IMPACT

MEASURABLE INDICATOR

SUPPORTING EVIDENCE

Smaller impact on low SES, students (vs. staff/faculty), age, women



Self-reported, cortisol



Sick days, attitude toward work



Lower SES, women (less impact)



Self reported, medical records



Speculative

Probable

HKS

Harvard

Metro

National

Research

Measurement

Observation

Interview

Survey

Tabling

RECOMMENDATIONS

PHYSICAL ENVIRONMENT

Short Term

- Provide plants to those who lost their view to construction.
- Designate a few rooms with exterior windows for student use.
-  “Increase the number of indoor plants and/or installing indoor water features or green walls” (HKS Sustainability Plan 2015, p. 39)
- Adding to the above recommendation, target areas heavily used by students and service staff first for increases in vegetation (i.e. vines/hanging plants in the Forum), as well as those rooms without windows (consider low light or artificial plants).

Medium Term

-  Prioritize planting “vegetation that stays verdant all year long” (p. 39) and species “that are likely to be robust to future environmental change or help mitigate those effects” (p. 28) (HKS Sustainability Plan, 2015).
- Adding to the above recommendation, also prioritize species that enhance and invite outdoor experiences.
- Work with the State Park Service to ensure access to grassy areas for those with limited mobility in JFK Park.
- Choose plant species not just for biodiversity or habitat creation, but also for their ability to improve health by removing particulates from the air or create pleasing views.
-  “Prioritize construction of features that enhance opportunities to engage with the outdoor environment as the Pavilions project is completed: Water fill stations, Benches, Shade structures” (HKS Sustainability Plan 2015, p. 28).

Long Term

- Plan future construction with more exterior window/view access for students and service workers.
-  When “utilizing the WELL Building Standard as a reference to inform future activities following construction of the Pavilions project” and other future construction (HKS Sustainability Plan 2015, p. 39), consider where interior plantings and exterior windows are located in relation to the use patterns of various user groups.

PROGRAMMING

- | | |
|-------------|---|
| Short Term |  “Promote events and programs that increase access to nature or biodiversity” including during HKS Day of Service (HKS Sustainability Plan 2015, p. 28). <ul style="list-style-type: none">• Consider supporting a club or wellness group that takes weekly walks by the river or visits to local nature with the characteristics of a “refuge,” for example, the Harvard Forest, Arnold Arboretum, Middlesex Fells Reservation, and the Blue Hills Reservation. |
| Medium Term | <ul style="list-style-type: none">• Consider Student Orientation as an additional opportune time to engage students in nature, but to focus on engagement on a regular basis, instead of only at selected events. |
-

POLICY

- | | |
|-------------|--|
| Short Term | <ul style="list-style-type: none">• Add green space recommendations to the Tactical Health & Wellness Recommendations in the HKS draft sustainability plan.  Make sure access to exterior windows (for all) is part of the Tactical Recommendations for Building Design (HKS Sustainability Plan 2015, p. 22). <ul style="list-style-type: none">• Include access to nature in school-wide Wellbeing assessments. |
| Medium Term |  Combine the “natural capital plan” in the draft HKS sustainability plan with recommendations for increasing “interactions with natural environment” (HKS Sustainability Plan 2015, p 27-28) and carry out as one. |
| Long Term |  Consider shifting the focus of creating “active environments” (p. 26) and “external exercise spaces” (p. 39) presented in the HKS Sustainability Plan (2015) to include mental health and well-being spaces like quiet rooms and social spaces with view of nature and interior vegetation. |
-

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JOHN F. KENNEDY SCHOOL OF GOVERNMENT

RICHARD AND NANCY FISHER FAMILY ROTUNDA

09

Mental Health and the Built Environment

Lilian Taylor

OVERVIEW OF FINDINGS

This chapter evaluates the relationship between the Harvard Kennedy School's built environment and the mental wellbeing of its students. The current situation is assessed using evidence from an electronic survey, tabling questionnaires, and on-site observations, as well as peer-reviewed literature and case studies. This same evidence is also used to outline recommendations for creating positive impacts and mitigating negative impacts over a range of time-scales.

The survey and questionnaire results suggest there are numerous student needs that are not being met by the built environment at HKS. The observational assessment supported the students' claims and revealed certain issues in more detail. The issues discussed in this chapter have been proven to negatively affect mental health, and must be addressed by the administration in both the short-term and long-term.

The HKS was evaluated at an individual-room scale, with individual rooms chosen based on level of use and prominence in the community. The criteria for assessing these rooms was developed based on recent, peer-reviewed research into the built environment and mental health. It is currently accepted that the built environment influences mental health in two primary ways – directly through physiological stressors, and indirectly through psychosocial stressors. Characteristics of these are outlined in the chapter, along with their effects on wellbeing. Through the investigation, it was found that the built environment at the HKS is negatively impacting student health due to lack of natural lighting, incompatible noise levels, over-crowding, lack of access to restorative elements, and lack of spatial diversity.

Recommendations focus on the three areas deemed most important in terms of severity of problem, ease of improvement, and extent of potential positive impact. Increasing spatial diversity has the added effect of reducing noise and crowding. Increasing natural lighting addresses a critical physiological stressor and has potential to increase access to natural elements. Increasing access to restorative elements improves mental health when access to nature is not feasible.

WHY THIS TOPIC MATTERS

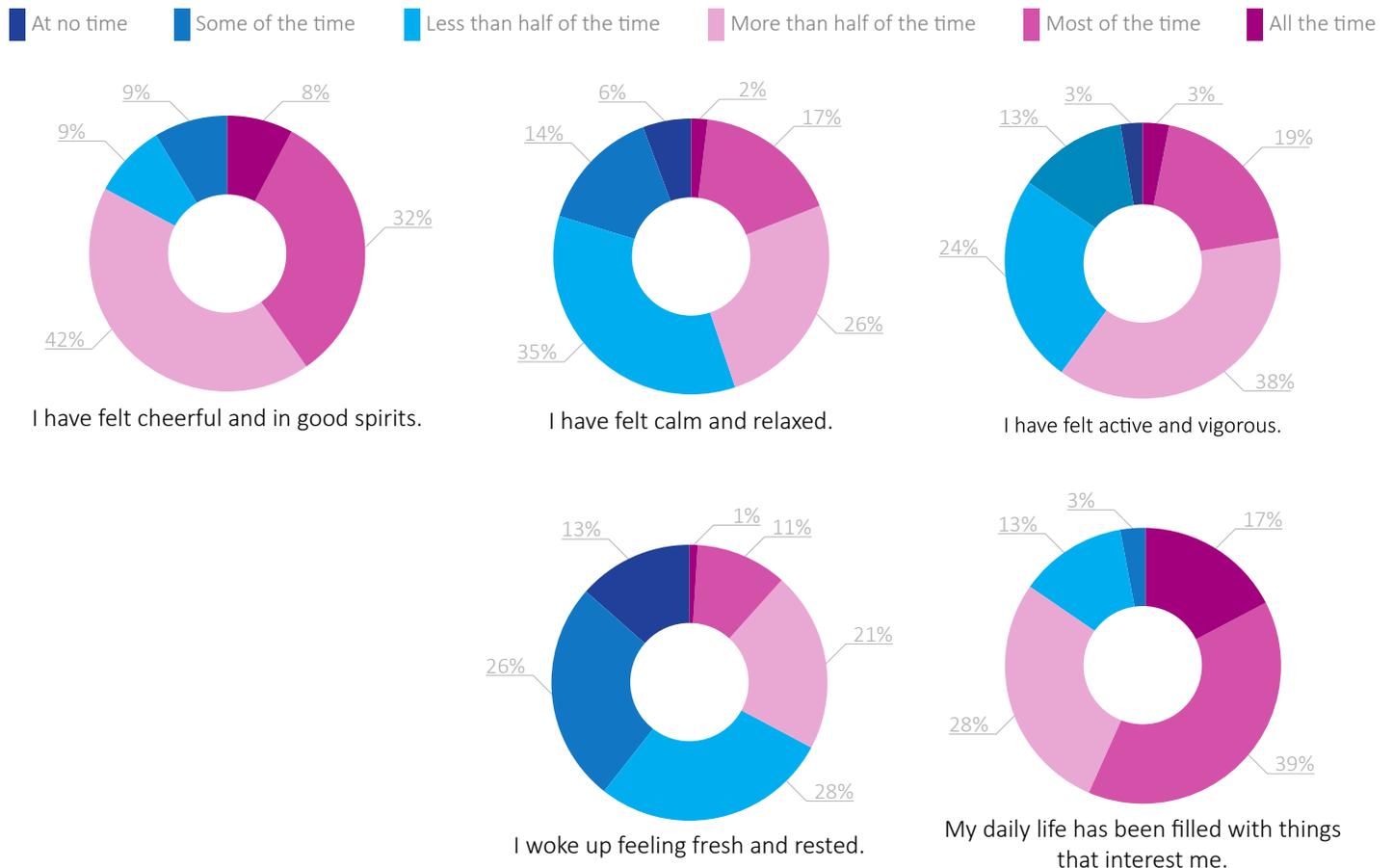
GLOBALLY

Mental illness accounts for a vast number of hospitalizations, and results in billions in lost productivity. The World Health Organization (WHO) predicts that by 2020, depression will be the second greatest contributor to the global burden of disease for all ages and both sexes (Schmidt 2007, 409). The WHO global burden of disease (GBD) measures burden using the disability-adjusted-life-year (DALY), which is a time-based measure that combines years of life lost due to premature death and years of life lost due to time lived in states of less than full health (WHO 2015).

Despite this enormous problem, the mental health budget in most countries constitutes less than 2 percent of total public sector health expenditure. Of this already insufficient amount, the bulk goes to services that serve relatively few people. According to the Assistant Director-General of Noncommunicable Diseases and Mental Health at WHO, "...nearly 70 percent of mental health spending goes to mental institutions. If countries spent more at the primary care level, they would be able to reach more people, and start to address problems early enough to reduce the need for expensive hospital care" (Chaib and Hartl 2011). Omnipresent in peoples' lives, the built environment has the potential to address mental health on a widespread, day-to-day level.

A better understanding of how environment affects wellbeing is necessary to advance prevention and treatment of mental illness. Mental health is an especially significant area for policy research, as disorders of the mind often exacerbate other health problems. Depression, for example, increases health

Figure 01 | Responses to the question "Over the last two weeks, share the amount of time..."



risks for heart failure patients, and excessive anger in children has been linked to compromised lung function (Schmidt 2007, 409).

AT THE HARVARD KENNEDY SCHOOL

As a leader in the global community, the HKS has both the opportunity and responsibility to increase awareness about mental health and student life, and to design their spaces to improve mental wellbeing. Much of the research on mental health in academic settings focuses on undergraduates. Yet despite their ostensibly similar conditions, undergraduates and graduate students face different challenges. Graduate students have bigger responsibilities, longer-term commitments, and families who depend on them (Arnold 2014).

Results from the American College Health Association's National College Health Assessment paint a dismal picture. Of the 1600 graduate students surveyed, 40% reported feeling hopeless during the previous year, 78.5% said they had felt overwhelmed, 27.2% said they had felt depressed, and 54.5% said they had experienced stress ranging from "more than average" to "tremendous" (Arnold 2014). Studies of full-time graduate students have shown that they routinely work 60-plus hours per week. Under this workload, self-care and mental health tend to plummet.

If the HKS wishes to promote wellbeing amongst its 1000+ students, it must approach mental health from myriad angles. The built environment is a critical factor in student happiness and health, yet little is understood about this relationship. This chapter relies on existing literature and data collection to assess the relationship between students and the Harvard Kennedy School buildings, and how adjustments in the built environment might improve student wellbeing.

As Figure 01 shows, students often do not feel calm or relaxed, nor do they feel fresh and rested. The built environment could help rather than exacerbate feelings of calm and wellbeing. Furthermore, the built environment can address wellbeing in ways that students find most valuable. As Figure 02 shows, survey takers responded that good physical health, good mental health, a strong sense of community, and a lack of stress were the most important components of their wellness.

THE SITUATION AT THE HARVARD KENNEDY SCHOOL

ASSESSMENT METHODS

The built environment at HKS, as it relates to mental health, was assessed based on an investigation of six primary spaces. The spaces chosen were those deemed most critical to student wellbeing, based on frequency of use, severity of issues, and relative importance to students. Survey results concerning building use (Figure 03), along with observational data, pointed to the Littauer Building, the Taubman Center, and the Belfer Center as most appropriate for analysis, with particular focus on study and lounging spaces.

Much of the research into the built environment and mental health focuses on residential and urban characteristics. While there is less information on the interior environments of academic and work settings, much of the literature is still applicable. Figure 04 provides an overview of the manner in which the built environment of the Harvard Kennedy School could impact the

mental health of its students. While some of the outlined impacts are supported by extensive research, others remain speculative. For the purposes of this Health Impact Assessment, only the elements most likely to influence mental health were investigated, based on a 2006 systematic review of the topic (Clark, Candy, and Stansfeld). The distilled, room-specific checklist is shown in the data collection summaries (Figures 05-10). For more in-depth information regarding the remaining characteristics, see the following chapters: for air quality see Chapter 02; for circulation see Chapter 04; for cohesion see Chapter 10; for natural elements see Chapter 08.

Figure 02 | Responses to the question “What do you think are the three most important factors that define ‘wellbeing’?”

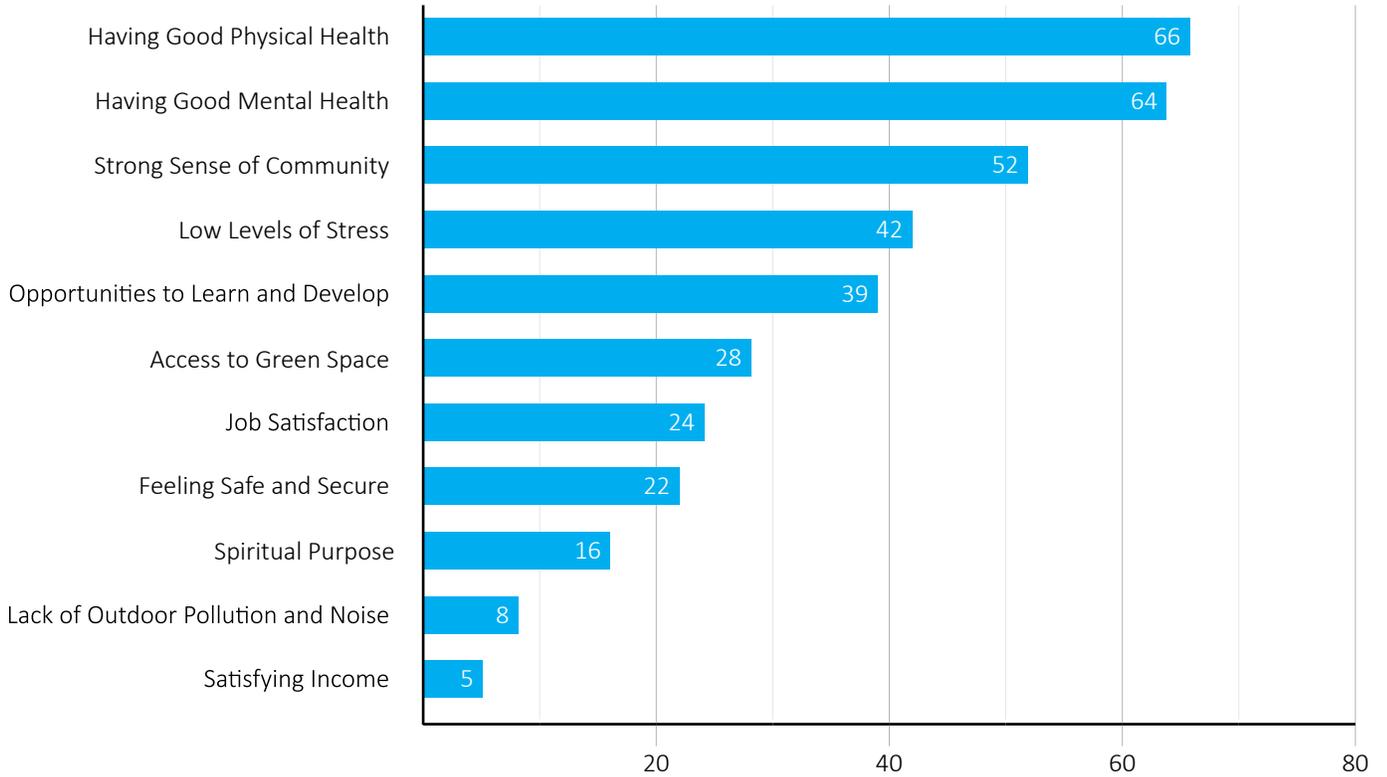


Figure 03 | Responses to the question “In what building is your primary office, work/study space or classroom?”

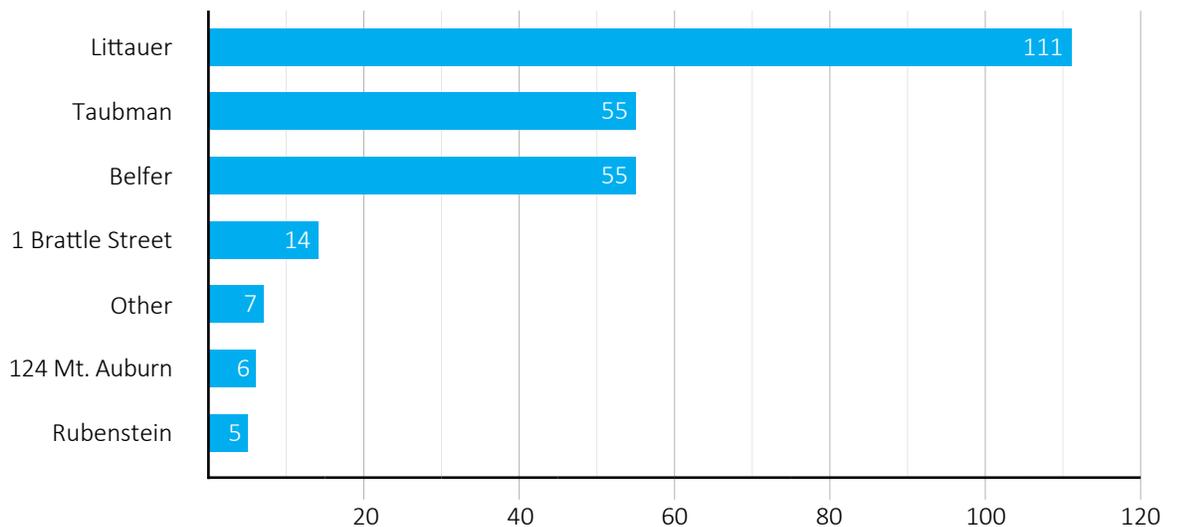


Figure 04 | Potential mental health impacts of the built environment

PHYSIOLOGICAL STRESSORS

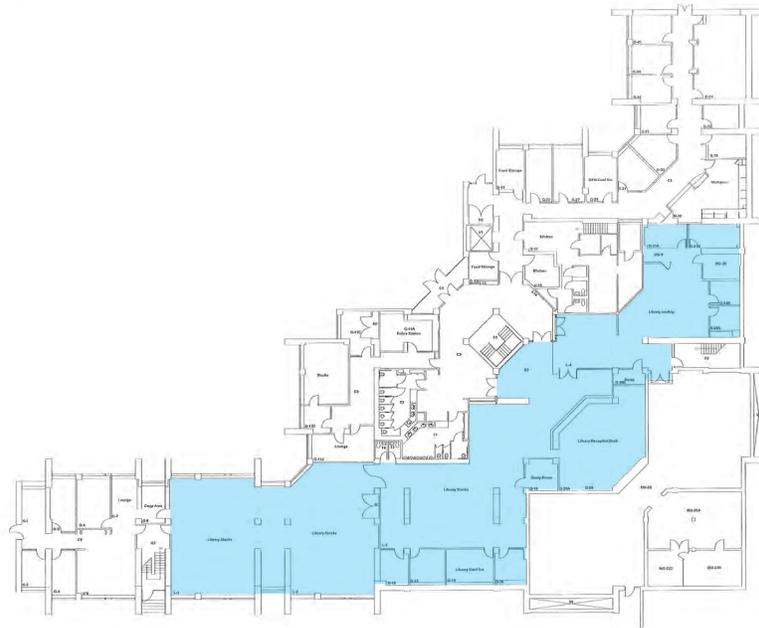
Characteristic	Mental Health Impact	Architectural Implications
Air Quality	Malodorous pollutants linked to negative effect.	Controlled circulation for areas with fumes
Light	Higher illumination levels, particularly daylighting, linked to positive effect.	Increased natural lighting, particularly in stress-prone areas

PSYCHOSOCIAL STRESSORS

	Characteristic	Mental Health Impact	Architectural Implications
Personal Control	Noise	Uncontrollable noise linked to helplessness and thus negative effect.	Diversity of space connectivity Appropriate acoustics
	Crowding	Crowded spaces linked to helplessness and thus negative effect.	Diversity of space sizes Multiple focal points Spaces sized to use and program
	Circulation	Long-corridors linked to negative effect. Suite designs linked to positive effect.	Circulation that allows for control of interactions, visual and physical permeability
	Spatial Hierarchy	Range of spatial types theoretically linked to increased social interaction and thus positive effect.	Range of social interaction spaces, from small and intimate to large and public
Support	Cohesion	Physical proximity linked to unplanned social interaction and thus positive effect.	Multiple focal points Multiple activity generators Interactively-placed furniture
	Crowding	Higher density linked to social withdrawal and thus negative effect.	Diversity of space sizes Multiple focal points Spaces sized to use and program
Restoration	Natural Elements	Nature linked to lower stress and lower cognitive fatigue, and thus positive effect.	Access to natural elements Images of natural elements
	Restorative Elements	Tranquil design elements linked to lower stress and lower cognitive fatigue, and thus positive effect.	Features that inspire fascination, such as fireplaces, fountains, aquariums

Figure 05 | Room evaluation of
Littauer Library

LITTAUER BUILDING - LIBRARY



- Legend**
- ✓ Positive
 - ✗ Problem

Survey Excerpts

“The HKS library is depressing (re ratings of lighting, views of nature, aesthetically pleasing)...I wish our library felt as bright and welcoming as Gutman, and had different areas for different noise levels.”

“The only part of Library that I enjoy is the part where people bring their own laptops and sit in small ‘cubicle.’”

“...there’s too much noise, either from the door or the people typing next to me. I am not sure if the HKS library is supposed to be a quiet environment or not.”

“Library can be stressful b/c too crowded and printers get busy/papers messed up.”

“The Littauer Library feels like a basement dungeon, which is why I leave HKS to come to Widener instead.”

Room Check List

Light

- ✗ No Complaints in Survey
- ✓ Windows to Exterior

Noise

- ✗ No Complaints in Survey
- ✓ Noise regulations in place
- ✓ Complementary Programs

Crowding

- ✗ No Complaints in Survey
- ✓ Seats Available Upon Visit

Furniture

- ✗ No Complaints in Survey
- ✓ Mix of Types
- ✗ Types Support Program

Restorative

- ✗ Exterior Views
- ✗ Element of Delight

Photos



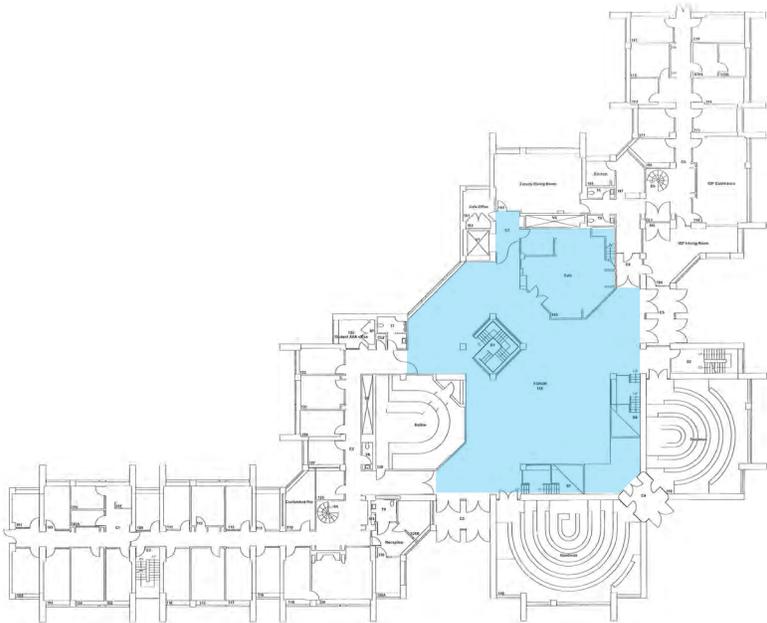
Main work tables, with windows facing courtyard construction



Carrels provide the only source of semi-privacy in the library

Figure 06 | Room evaluation of Littauer forum and cafe

LITTAUER BUILDING - FORUM AND CAFE



- Legend**
 ✓ Positive
 ✗ Problem

Survey Excerpts

“There are not a lot of good work spaces in Littauer, the ambient sound is loud, and lighting is inconsistent.”

“The places in Littauer are horribly loud.”

“It doesn’t have enough room, it is too noisy and the food lines move too slowly and makes everything feel rushed and crowded.”

“It is too small, always packed with so many people, it is stress-inducing and I feel people are always anxious there.”

“The Forum should not act as cafeteria, central thoroughfare, and auditorium for the school. It is a huge hassle that much of the study space in the school is located in a building that is often transformed for a different purpose in the evenings.”

Room Check List

- Light**
- ✗ No Complaints in Survey
 - ✗ Windows to Exterior
- Noise**
- ✗ No Complaints in Survey
 - ✗ Noise regulations in place
 - ✗ Complementary Programs
- Crowding**
- ✗ No Complaints in Survey
 - ✗ Seats Available Upon Visit
- Furniture**
- ✗ No Complaints in Survey
 - ✓ Mix of Types
 - ✗ Types Support Program
- Restorative**
- ✗ Exterior Views
 - ✗ Element of Delight

Photos



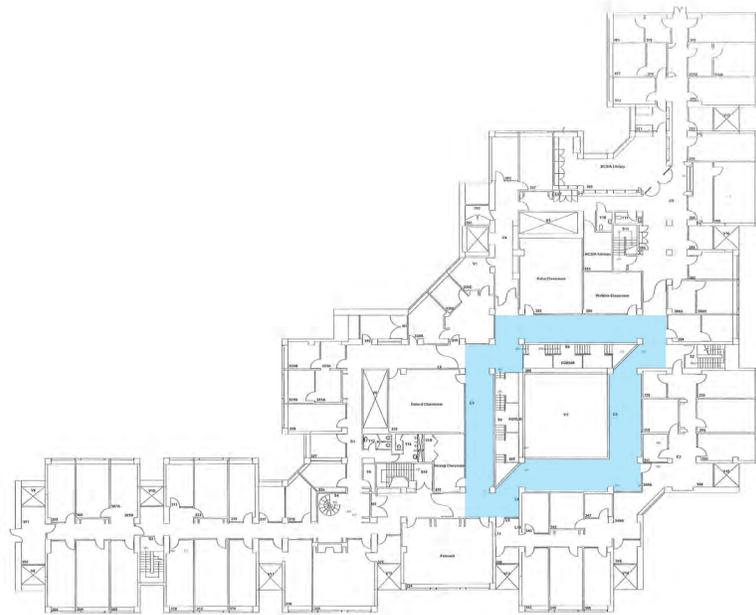
The main forum floor is often crowded and has few windows



Occupied pod overlooking the main forum floor

Figure 07 | Room evaluation of Littauer study spaces

LITTAUER BUILDING - STUDY SPACES



- Legend**
- ✓ Positive
 - ✗ Problem

Survey Excerpts

“The third floor Littauer study spaces are very loud during the day from the forum, and when the forum is being set up towards the end of the day it’s extremely distracting (chairs scraping, etc).”

“The level of noise from the forum when in the classrooms in Littauer is often quite distracting.”

Room Check List

Light

- ✗ No Complaints in Survey
- ✗ Windows to Exterior

Noise

- ✗ No Complaints in Survey
- ✗ Noise regulations in place
- ✗ Complementary Programs

Crowding

- ✗ No Complaints in Survey
- ✗ Seats Available Upon Visit

Furniture

- ✓ No Complaints in Survey
- ✓ Mix of Types
- ✓ Types Support Program

Restorative

- ✗ Exterior Views
- ✗ Element of Delight

Photos



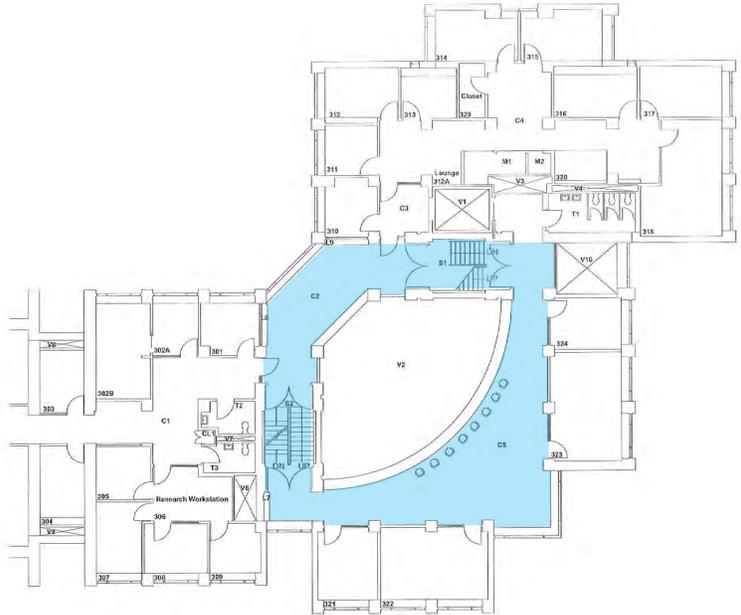
Study area on third floor, overlooking the forum



Computer work stations on third floor, overlooking the forum

Figure 08 | Room evaluation of Belfer study spaces

BELFER CENTER - STUDY SPACES



- Legend**
 ✓ Positive
 x Problem

Survey Excerpts

“There is almost always bad food smell in Littauer as well as Belfer.”

“Some classrooms in Littauer/ Belfer are a good temperature, but there are several that are often too cold (to the point that there’s a noticeable breeze from the vents).”

“[They should] have movable chairs in Belfer three, they’re bolted way too far away from the computers.”

“[I prefer to work in] the top of Belfer, and Malkin Penthouse.”

Room Check List

- Light**
- ✓ No Complaints in Survey
 - ✓ Windows to Exterior
- Noise**
- ✓ No Complaints in Survey
 - x Noise regulations in place
 - ✓ Complementary Programs
- Crowding**
- ✓ No Complaints in Survey
 - ✓ Seats Available Upon Visit
- Furniture**
- x No Complaints in Survey
 - ✓ Mix of Types
 - x Types Support Program
- Restorative**
- ✓ Exterior Views
 - x Element of Delight

Photos



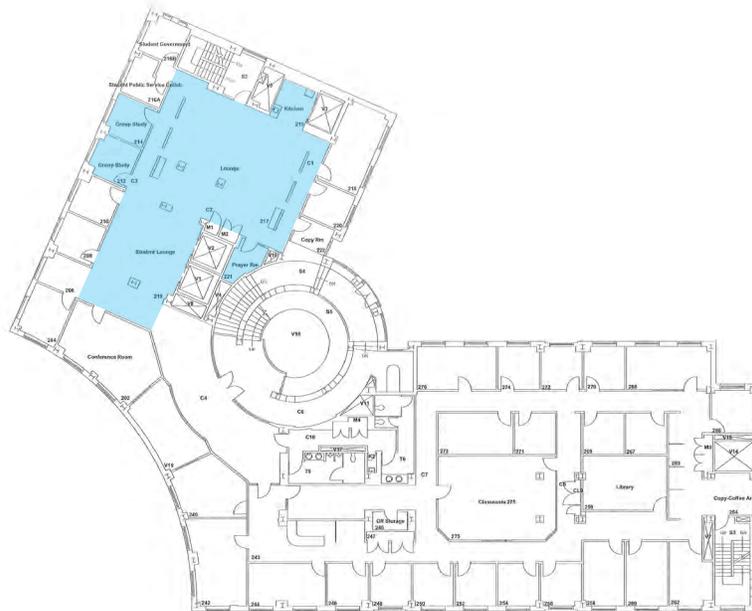
Second floor study space, with windows facing the courtyard.



Fourth floor computer workspace, overlooking a lecture hall.

Figure 09 | Room evaluation of the student lounge

TAUBMAN CENTER - STUDENT LOUNGE



- Legend**
- ✓ Positive
 - ✗ Problem

Survey Excerpts

“The student lounge has coffee (the main draw) and a refrigerator and microwave. However, there’s no natural lightning.”

“The student room has no windows, nor does the library. One doesn’t see the outside world all day.”

“...you can only see a window to get natural light and views of nature if you’re in one of the reserved rooms.”

“Don’t put offices around the student room.”

“There should rest pods and a student lounge that is actually relaxing and not just one of the decent areas to study (meaning it needs to be quiet).”

Room Check List

Light

- ✗ No Complaints in Survey
- ✗ Windows to Exterior

Noise

- ✓ No Complaints in Survey
- ✗ Noise regulations in place
- ✗ Complementary Programs

Crowding

- ✓ No Complaints in Survey
- ✓ Seats Available Upon Visit

Furniture

- ✓ No Complaints in Survey
- ✓ Mix of Types
- ✓ Types Support Program

Restorative

- ✗ Exterior Views
- ✗ Element of Delight

Photos



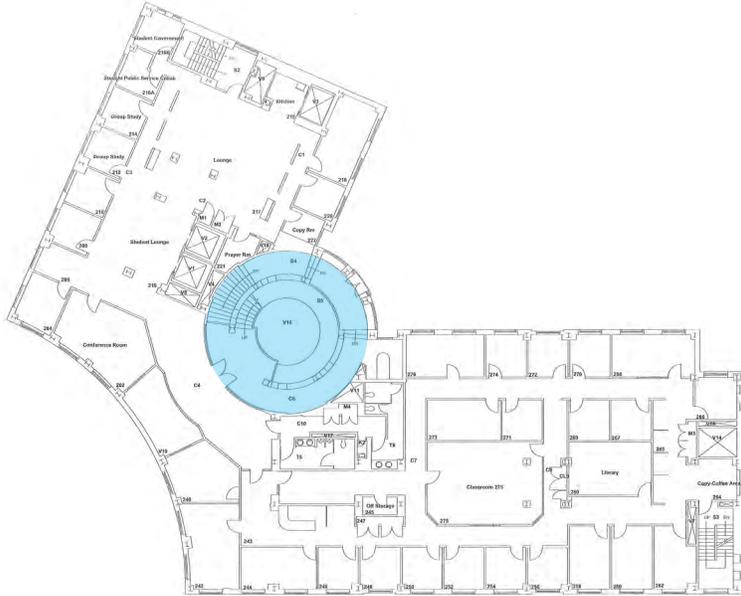
The student lounge has varied furniture types but lacks windows



The entry to the student lounge provides couches and coffee tables

Figure 10 | Room evaluation of Belfer study spaces

TAUBMAN CENTER - STUDY SPACES



- Legend**
- ✓ Positive
 - ✗ Problem

Survey Excerpts

“Taubman is okay in terms of views and ventillation.”

“Taubman is a beautiful building but most of the campus isn’t particularly appealing. Also there are very few windows so views of nature are rare.”

“Taubman has really terrible accoustics for productivity and relaxation.”

“The Taubman carrels are sometimes fine [for group work], but if people are playing ping pong and talking loudly on the ground floor, it’s very distracting.”

Room Check List

- Light**
 - ✓ No Complaints in Survey
 - ✓ Windows to Exterior
- Noise**
 - ✓ No Complaints in Survey
 - ✗ Noise regulations in place
 - ✗ Complementary Programs
- Crowding**
 - ✓ No Complaints in Survey
 - ✓ Seats Available Upon Visit
- Furniture**
 - ✓ No Complaints in Survey
 - ✓ Mix of Types
 - ✗ Types Support Program
- Restorative**
 - ✓ Exterior Views
 - ✓ Element of Delight

Photos



Taubman study spaces have floor-to-ceiling windows



The central stair connects study spaces and lounge spaces

LIGHT

Higher illumination levels, particularly with regard to daylighting, are linked to a positive effect on mental health. The observation and survey data suggest that while overall lighting at the HKS is adequate, access to natural lighting is not. Indeed, while only 23% of survey respondents reported that they did not have adequate lighting in their office, work/study space, or classroom, 74% reported that they did not have adequate views of nature, suggesting an over-reliance on artificial illumination. Observations revealed that while the library, Belfer Center, and Taubman Center study spaces have windows to the exterior, the Littauer forum, Littauer study spaces, and Taubman Center student lounge have only indirect natural lighting. There were several complaints in the survey regarding lack of natural lighting in these areas, as noted in Figures 06, 07, and 09.

NOISE

Four out of the six rooms received noise-related complaints in the survey. Much of the dissatisfaction stems from a lack of complementary programming. The Littauer forum, for example, is regularly used for dining, socializing, and events. The noise from these programs travels up to the Littauer study spaces unimpeded, disrupting students from their work. Similarly, the social space and Ping-Pong table at the base of the Taubman Center's main stair generates noise that travels up to the study carrels. While the student lounge did not receive

Figure 11 | Responses to the prompt "Please state which places have the following characteristics..."



noise-related complaints in the survey, it likewise has discordant programs. Used primarily for studying, the student lounge is not conducive to the recreational activities it promotes. The piano, television, and board games are poorly matched for the current student lounge atmosphere. The Belfer Center study spaces are small and separated from any social programming, allowing students to work quietly.

CROWDING

Littauer received the bulk of crowding-related complaints in the survey. The library, forum, and study spaces located in Littauer were deemed by students to be of inadequate size, and observations supported these conclusions. A visit during a weekday lunch rush revealed the forum to be bustling and crowded, with no dining seats available. The library was also crowded, though there were seats available.

RESTORATIVE ELEMENTS

Features that inspire fascination and curiosity have been found to enhance recovery from mental fatigue (Evans 2003, 546). These features can range from larger elements, such as fireplaces and fountains, to smaller elements, such as aquariums and paintings of landscapes. Aside from the library, Belfer Center, and Taubman Center study spaces, which have views to the exterior, there were no significant restorative elements in any of the six spaces investigated.

SPATIAL DIVERSITY

The availability of a range of social interaction spaces has been shown to increase comfort and wellbeing, because “people feel better and have better mental health when they can control their surroundings” (Evans 2003, 544). The six spaces investigated suggest that the HKS is not providing an adequate range of spaces, both in practical terms and in terms of student wellbeing. In practical terms, there is significant evidence of incompatible programmatic overlap. The student lounge, for example, promotes itself as both a study space and recreational space. The lounge provides tables and whiteboards for group work, while at the same time providing a large television, piano, and board games. Similarly, noise from the forum carries up into the Littauer study spaces, and noise from a Ping Pong table carries up into the Taubman study spaces.

In terms of student wellbeing, there is again evidence of incompatible overlap. Spaces ostensibly designed to promote relaxing and socializing are in actuality stressful and isolating. Figure 11 shows how survey respondents describe five of the investigated spaces. Only 26% of respondents found the student lounge “calming and relaxing,” while a nearly equal percentage found it to be “stressful and anxiety producing.” The library, on the other hand, was found to be more relaxing than stressful, and more relaxing overall than the student lounge. Furthermore, while 91% of survey respondents would describe the Littauer forum as “good for socializing,” 83% would also describe it as stressful and anxiety producing. The results from this survey question indicate that the built environment at the HKS is not fulfilling students’ needs, as the range of available spaces is muddled and contradictory.

POTENTIAL IMPACTS

HEALTH ISSUE	POSITIVE OR NEGATIVE	LIKELIHOOD OF IMPACT
Air Quality	⊖ ⊖ ⊖ ⊕ ⊕ ⊕	Ⓢ
Light	⊖ ⊖ ⊖ ⊕ ⊕ ⊕	Ⓟ
Noise	⊖ ⊖ ⊖ ⊕ ⊕ ⊕	Ⓢ
Crowding	⊖ ⊖ ⊖ ⊕ ⊕ ⊕	Ⓢ
Circulation	⊖ ⊖ ⊖ ⊕ ⊕ ⊕	Ⓢ
Spatial Hierarchy	⊖ ⊖ ⊖ ⊕ ⊕ ⊕	Ⓟ
Furniture	⊖ ⊖ ⊖ ⊕ ⊕ ⊕	Ⓢ
Tranquility	⊖ ⊖ ⊖ ⊕ ⊕ ⊕	Ⓟ

⊕ ⊕ ⊕ Strongly Positive

⊕ ⊕ ⊕ Moderately Positive

⊕ ⊕ ⊕ Mildly Positive

⊕ ⊕ ⊕ Neutral

⊖ ⊖ ⊖ Mildly Negative

⊖ ⊖ ⊖ Moderately Negative

⊖ ⊖ ⊖ Strongly Negative

Ⓢ ⊕ ⊕ ⊕ Unknown

DIFFERENTIAL IMPACTS	DISTRIBUTION OF IMPACT	MEASURABLE INDICATOR	SUPPORTING EVIDENCE
	S	Temperature	     
	S	Percentage natural light	     
	S	Noise level	     
	H	Occupant level vs. capacity	     
	S		     
	H		     
	S		     
	S		     

 Speculative

 Probable

 HKS

 Harvard

 Metro

 National

 Research

 Measurement

 Observation

 Interview

 Survey

 Tabling

RECOMMENDATIONS

INCREASE SPATIAL DIVERSITY

- | | |
|-------------|--|
| Short Term | <ul style="list-style-type: none">Clarify room programming via signage and appropriate activities. For example, the student lounge could be designated a quiet study space while the central stair could become a center for social activity. Recreational elements, such as the Ping-Pong table, television, and piano, could be distributed into the carrels to create nodes of activity and relaxation. |
| Medium Term | <ul style="list-style-type: none">Increase the capacity of library and quiet spaces, to prevent overflow of studying students into social areas. |
| Long Term |  Develop new program spaces that cater to unmet student needs, such as the wellness space outlined by the HKS Sustainability Plan. |
-

INCREASE ACCESS TO NATURAL LIGHTING

- | | |
|-------------|--|
| Short Term | <ul style="list-style-type: none">Increase student access to natural lighting by designating certain classrooms and offices as open workspaces. |
| Medium Term | <ul style="list-style-type: none">Relocate the offices surrounding the student lounge and expand the lounge space to reach the exterior windows. |
| Long Term |  Align with WELL Building Standards when planning new construction, with particular attention to natural lighting requirements. |
-

INCREASE NUMBER OF RESTORATIVE ELEMENTS

Short Term



Add simple restorative elements to spaces associated with stress. For example, a picture wall with photos of natural assets from the native lands of students, faculty, and staff, as outlined by the HKS Sustainability Plan.

Medium Term

- Develop and diversify restorative elements across multiple program types. Fireplaces can complement quiet study spaces, while fountains and aquariums can complement social spaces.
-

Long Term



Ensure new construction incorporates restorative features. For example, by aligning with WELL Building Standards and implementing a “biophilia plan.”

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10

Social Capital

Social Connections/Networks at HKS

Jane Philbrick

OVERVIEW OF FINDINGS

Survey and focus group findings for the Harvard Kennedy School HIA portray a community deeply committed to and inspired by its mission “To train enlightened public leaders and to generate the ideas that provide the solutions to our most challenging public problems” (<http://www.hks.harvard.edu/about/history/hks-facts>). Words such as “leadership,” “passionate,” “influential,” “impactful,” “moral,” “stewardship,” “inspiration,” “pulse” are offered to describe the energetic, aspirational essence of the school (HKS staff and student interviews, October 2015). However, mission-driven communities such as HKS, charged with long-term, large-scale challenges (i.e., human rights, nuclear proliferation, climate change) and the sudden and unpredictable catastrophes of natural disaster and political conflict are uniquely susceptible to emotional, mental, and spiritual strains, which may also manifest themselves physically.

At HKS, a prevalent sense of dislocation is reported across the community. In part this reflects the international, ex-patriot composition of the student body and faculty, many of whom are far from home cultures and familiar networks of support. Term-limited, 10-month-to-two-year residencies of master’s level study, the degree program pursued by the majority of HKS students, perpetuates an evergreen community. Yearly influxes of new students sustain HKS’ spectacular engagement at the forefront of breaking news, championing issues from indigenous peoples in developing countries to global financial regulatory policy – the polar inverse of Ivory Tower elitism. Cyclical turnover nonetheless abrogates bonds of familiarity and the practice of habit that foster community cohesion and stability. In part stress is the price of excellence, a consequence of the school’s global ambition and prestige. HKS community members feel great pressure to measure up and meet the challenges, which are multiple and often dire (witness the current tragedy of Syrian refugees). So much, one warrants, is at stake.

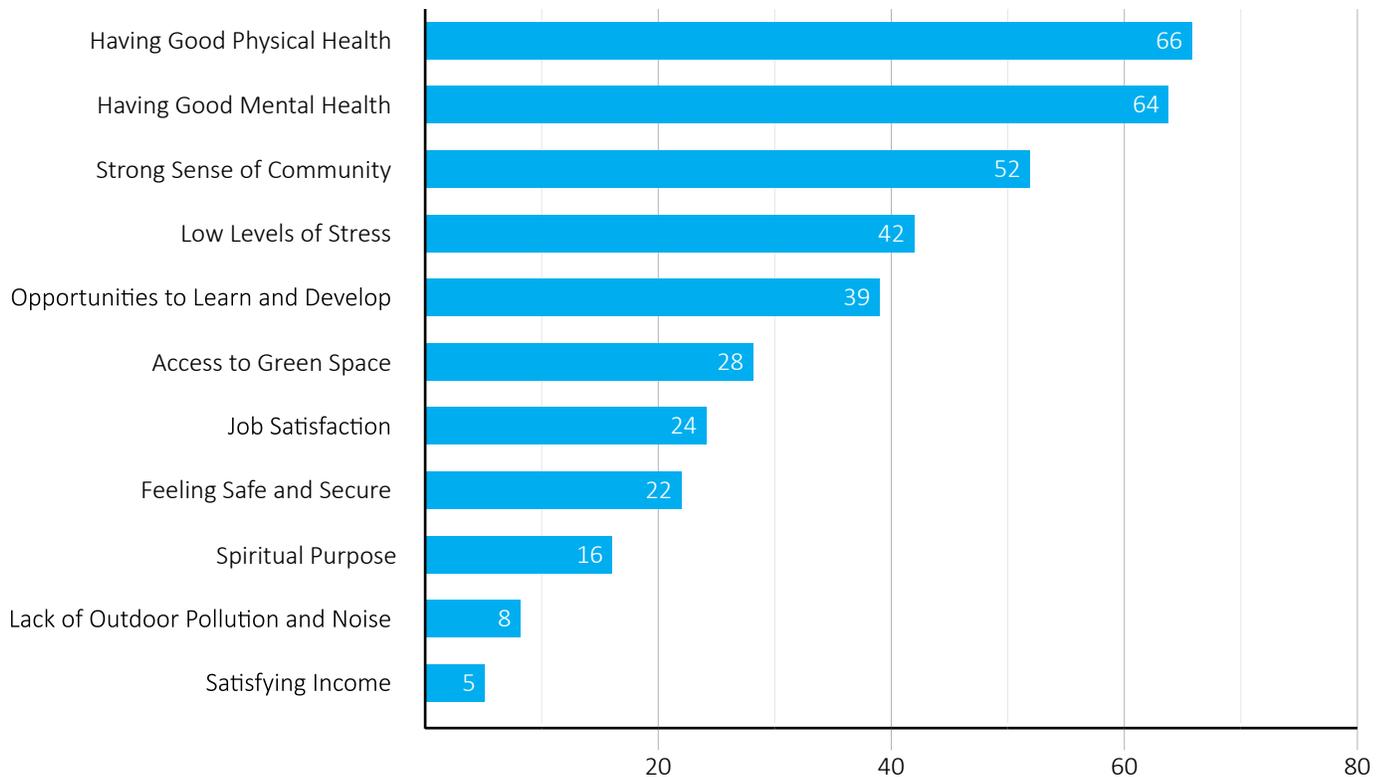
“Ask what you can do,” HKS banners displayed throughout the campus remind us, reprising the iconic refrain from the 1961 inaugural address of the school’s namesake President John F. Kennedy. It is no small challenge for the HKS community to find and sustain a critical balance of self-care and self-service.

As a non-residential academic community, student commuters report an acute lack of personal and quiet space for private study and calm, as well as insufficient provision for student-dedicated collaborative work areas. The mazelike configuration of the four buildings that comprise the campus core – Belfer, Taubman, Rubenstein, Littauer – and their poor way-finding signage make circulation and access difficult for both able-bodied and especially physically challenged HKS community members (see Dana McKinney, Chapter 4, “Physical Accessibility and Wayfinding” for further discussion). Ongoing construction, while promising for the future, currently limits the availability and variety of sites for social gatherings and leisure. The temporary loss during construction of the campus central courtyard, a green oasis for respite or to enjoy from a window view, presents additional strain to community resilience (see Erica Fine, Chapter 8, “Green Space” for further discussion on the positive impacts of green space and interior vegetation on promoting health and well-being).

WHY THIS TOPIC MATTERS

In the preamble to its 1948 constitution, the World Health Organization affirmed the role of “well-being” as a critical component of health, declaring, “Health is a state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity” (Forsyth, et al, 2010, p. 73). Thirty-plus years later, sociologist Pierre Bourdieu is credited with formally introducing

Figure 01 | Survey responses to the question “What do you think are the three most important factors that define ‘wellbeing’?”



the notion of “social capital,” defined as “the aggregate of actual or potential resources linked to possession of a durable network” (Bourdieu, 1986, cited in HAPI, 2014). Harvard political scientist Robert Putnam followed in the 1990s with studies assessing social capital as a key criterion in the health index. The concept gained wider recognition in popular culture with the publication of Putnam’s acclaimed 2000 book *Bowling Alone: The Collapse and Revival of American Community*, in which he chronicled the dissolution and transformation of American social and political institutions and practices – the nation’s evolving social capital – in the twentieth century.

Social capital is variously defined as “political participation, trust, social support, physical interaction or emotional connection” (HAPI, 2014). It is evinced by factors such as attachments fostered by familiarity with a neighborhood, community stability, and the sharing of values and behaviors; i.e., working together toward common cause in a political rally or a community initiative, attending services of worship, and participating in the PTA. Through practice or use, studies indicate, “social capital can accumulate” (Grootaert, et al, 2001, p. 7). Among the advantages of social capital’s network of affiliations is directly improved health (i.e., mental well-being) and the cultivation of indirect systems of support (Design for Health, 2007).

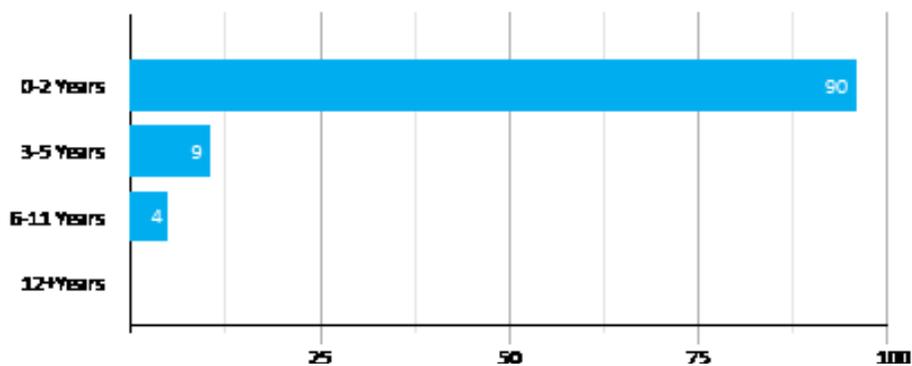
Harvard University’s Sustainability Plan 2014-15 highlights social capital as one of the “important determinants” in achieving “our collective well-being for a more sustainable future” (Harvard Sustainability Plan, 2014-15, p. 5). In customizing its school-wide sustainability initiative, HKS asserts the school’s unique leadership role and responsibility, working at the forefront of global human and environmental health and security, to model best practices through its core commitment to research and pedagogy:

...enhanc[ing] the other assets – natural capital, manufactured capital, the health dimensions of human capital, and social capital – on which the School’s ultimate contribution to sustainable development depends.

(HKS Sustainability Plan, 2015, p. 6)

HKS prioritizes two courses of action in its Strategic Recommendations on Health and Wellness: 1) Develop programs that enable HKS community members to thrive at work/school; 2) Regularly assess the health and wellness of HKS campus community and respond to these assessments with revised programming (HKS Sustainability Plan, 2015, p. 6).

Figure 02 | Survey respondents’ length of time at HKS.



The vivid diversity at HKS offers a living laboratory for exploration of the role of social capital in individual and community wellness. As a case study, it previews in microcosm emerging social networks as forces of globalism drive population migration and integration. Advancing the mission of HKS to “train the leaders of tomorrow,” enhanced social capital increases probability for the serendipity of encounter and exchanges of knowledge that promote discovery and innovation, capturing and growing community intelligence and building enduring professional networks and friendships.

THE SITUATION AT THE HARVARD KENNEDY SCHOOL

Social Capital is often seen as an indicator of health. Those with strong personal and social relationships report better health. Studies have shown that different measures of social capital (e.g., increased levels of trust, political participation, neighborhood familiarity, participation in protests, election voting, etc.) are supported by different built environments. As such, different kinds of environments can facilitate social capital.

(HAPI, 2014)

HKS AT A GLANCE

3 Constituencies
students
faculty
staff

4+ Buildings
Belfer
Taubman
Rubenstein
Littauer
124 Mt. Auburn Street
One Brattle Square

14 Research and Policy
Centers and Programs

70 Student Clubs and
Professional Interest
Councils (PICs)

HKS Serves Community
Service Program

The interrelation of community and context in the creation and accumulation of social capital requires that description of the situation at HKS proceeds from a kaleidoscopic overview of the School’s three dominant population groups of students, faculty, and staff, within the platform/frame of its physical campus – four anchor buildings and two neighboring off-site venues – as well as the robust portfolio of centers, programs, student groups, and community events HKS initiates, administers, and hosts.

COMMUNITY: STUDENTS

Master’s Degrees

- Master in Public Policy (**MPP**)
- Master in Public Administration/International Development (**MPA/ID**)
- Master in Public Administration (**MPA**)
- Mid-Career/Master in Public Administration (**MC/MPA**)
- Edward S. Mason Program (80 Fellows from developing, newly industrial, and transitional economy countries)

(Source: http://www.hks.harvard.edu/ocpa/pdf/HKS_Facts_Current.pdf)

Approximately 1,036 full-time students are enrolled in HKS master’s degree programs. The school also offers joint and concurrent degree programs. Below profiles the entering Master’s Degree class based on a five-year average.

Doctoral Programs

- Public Policy
- Political Economy and Government
- Sociology and Social Policy
- Government and Social Policy

(Source: http://www.hks.harvard.edu/ocpa/pdf/HKS_Facts_Current.pdf)

Approximately 177 full-time students are enrolled in the four HKS doctoral programs, which are administered jointly with Harvard's Graduate School of Arts and Sciences.

Executive Education

- U.S. Federal Government
- International Governments
- State & Local Governments
- Intergovernmental & Multilateral Organizations
- National/International Security & the Military
- The Private Sector
- Nonprofits/NGOs

(Source: http://www.hks.harvard.edu/ocpa/pdf/HKS_Facts_Current.pdf)

HKS Executive Education enrolls 1,841 leaders in the public, nonprofit, and private sectors in over 30 programs, each typically one week or less, addressing current and critical public problems.

COMMUNITY: FACULTY

- Tenured professors: 48
- Emeritus professors: 7
- Public service professors/professors of practice: 11
- Associate professors: 8
- Assistant professors: 14
- Lecturers and senior lecturers: 36
- Visitors: 7
- Part-time adjunct faculty: 62

There are 193 full- and part-time faculty at HKS.

COMMUNITY: STAFF

- Executive programs: 46
- Degree programs: 48
- Research programs: 211
- Administrative/Operations: 185

The staff at HKS number 490.

(Source: http://www.hks.harvard.edu/ocpa/pdf/HKS_Facts_Current.pdf)

HKS JOINT, CONCURRENT, AND DUAL DEGREE PARTNERS

Harvard

Harvard Divinity School
Harvard Graduate School of Design
Harvard Medical School
Harvard School of Dental Medicine

Outside Harvard

Business

MIT Sloan School of Management
Stanford Graduate School of Business
Tuck School of Business at Dartmouth
Wharton School at the University of Pennsylvania

Law

Berkeley Law, University of California
Columbia Law School
Duke University School of Law
Georgetown Law
New York University School of Law
Northwestern University School of Law
Stanford Law School
University of Michigan Law School
University of Pennsylvania Law School
Yale Law School

Medicine

University of California, San Francisco (UCSF) School of Medicine
Other schools on a case-by-case basis.

(Source: <http://www.hks.harvard.edu/degrees/masters>)



Figure 03 | HKS, Littauer entrance.

COMMUNITY: COHESION AND FRACTURE

HKS community numbers 683 faculty and staff. Of the school’s 1,036 full-time master’s degree candidates, 486 are international students representing 94 countries; of the 177 PhD candidates, 48 are international students representing 30 countries. In 2014, 3,233 students enrolled in the summer session Executive Education program, of which 57% (1,841) were international with 145 countries represented (<http://hks.harvard.edu/about/history/hks-facts>).

The rich internationalism of the school’s core student body and faculty is complimented and augmented throughout the year by a changing roster of visiting dignitaries and professionals prominent in domestic and world affairs and in the media; “We’re known as the school where the big speakers come,” an HKS staff member noted with pride (HKS staff interview, October 2015). The school also prides itself on being open to the community at large, “We are not a locked school” (HKS staff interview, October 2015). Much of HKS programming is public, welcoming, integrates Cambridge-Boston residents and visitors into the fabric of school life and work, and promotes community-based learning. Joint, concurrent, and dual master degrees offered by HKS further open up exchange on campus for students from other Harvard schools (business, law, divinity, design, medical, and dental) and select universities from Europe to the west coast. Reciprocally, internships and professional conferences draw students and faculty away from campus, making the international relay between HKS and the world two-way: the school is both host and emissary.

Amidst this abundant, dynamic social, cultural, and economic diversity runs the risk “the centre cannot hold” (Yeats, 1919). HKS student survey results and Student Forum tabling sessions, supplemented by individual interviews with staff from HKS student support resources, including the Center for Wellness, Harvard University Health Services (HUHS); the Office of Life/Work; Harvard Chaplaincy; and HKS Student Services, provide insight into the opportunities and challenges facing this continually renewing, non-resident, broadly international academic population.

“People value being part of something bigger than themselves, something that can make a difference,” reports a HKS staff member, capturing a sentiment expressed by many in the community (HKS staff interview, October 2015). However, space constraints – exacerbated by the current construction – and the relatively short tenure of students’ time at HKS frustrate efforts for them to “own their place” at the school. “Sometimes I have to remind myself,” one staff member explains, “that there’s a trajectory to a student’s experience here.” She continues,

A student’s issue may be due to the fact that he or she is new. It takes time to find your way here and a student’s time to be here is limited. But we’re a small campus, and I’m interested in knowing how we can be better connected and communicate the student experience better.

(HKS staff interview, October 2015)

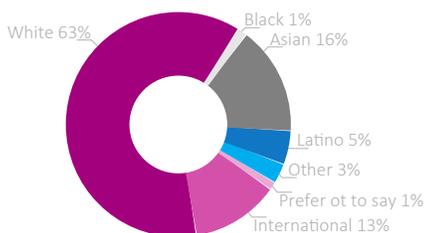


Figure 04 | Survey respondents’ race/ethnicity.

More emphasis on student needs and the teaching role of HKS are recommended to maintain a good balance between student experience and the school’s prestigious and high-profile research operations.

The HKS Edward S. Mason Program is offered as an example of successful

student induction and program-long support. Masons number 80 fellows from developing, newly industrial, and transitional economy countries. They arrive at HKS two-to-three weeks before the official start of term in order to facilitate the transition from home to Cambridge and campus life (a five-week “boot camp” is also offered to MC/MPA students for skills honing and “readiness-preparedness”). Assigning fewer HKS students overall to more support staff, it is suggested, would also foster better connection and sustain community knowledge amidst the turnover cycles of matriculation and graduation.

As part of their HKS experience, many students participate in student-run groups (below) and Professional Interest Councils as well as “HKS Serves,” the school-wide volunteer day for the greater Cambridge community. Students are also able to initiate new clubs. Last year, students from Africa, feeling they lacked a core community of women of color, organized “African Diaspora Women at Harvard Kennedy School.” A casualty of academic turnover, however, the club did not carry over in the current year, which is regrettable as improving race/ethnic diversity at the school is an ongoing objective of the administration. The school population, for all its international diversity, is 63% white. “HKS is not a good environment for domestic students of color,” commented one survey respondent without further elaborating (HKS student survey, October 2015).

Formal occasions fostering social cohesion between staff and faculty are held semi-annually in mid-winter and at the end of term/early summer. Awards for service and tenure (at three- and five-year intervals) are presented and a meal is served, although the events are conceded to be largely staff attended. Increased opportunities for staff and faculty integration is desired and would be helpful in countering balkanization of the school’s three constituencies – students, faculty, and staff.

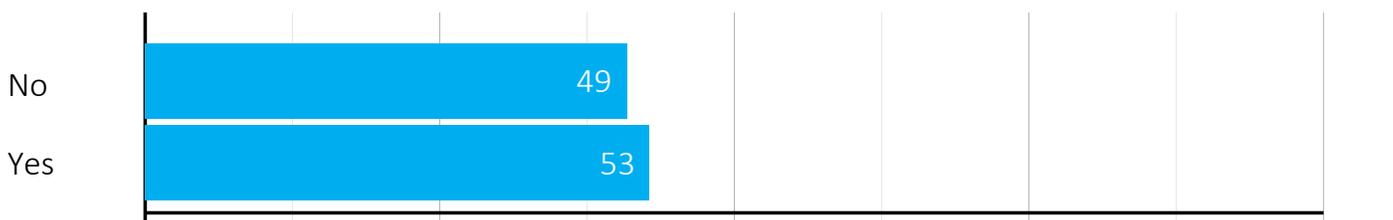
“Silo-ization,” also expressed in familiar Harvard parlance as “Every tub on its own bottom,” is an acknowledged obstacle to social cohesion, not only with the university at large (the “One Harvard” initiative) but critically within the school itself. One student comment recorded during Student Forum tabling spoke to this directly, requesting “More community events” (HKS student comment, Student Forum tabling, October 2015). HKS staff suggested the school form a center for student-staff-faculty collaboration along the model of Harvard

HKS RESEARCH AND POLICY CENTERS AND PROGRAMS

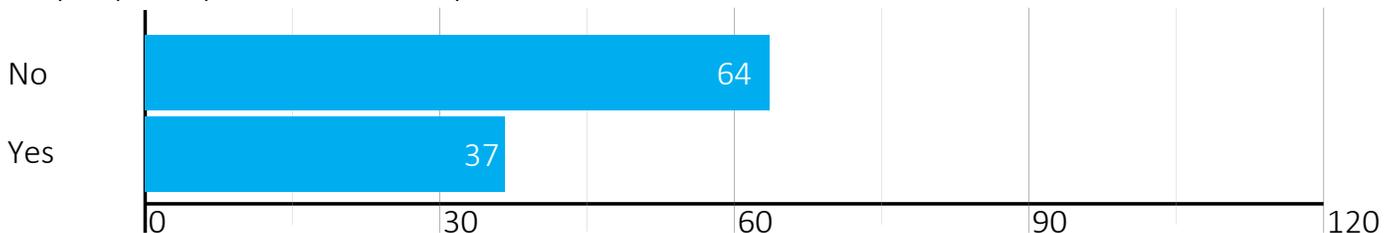
- Ash Center for Democratic Governance and Innovation
- Belfer Center for Science and International Affairs
- Carr Center for Human Rights Policy
- Center for International Development at Harvard University
- Center for Public Leadership
- Hauser Institute for Civil Society
- Institute of Politics
- Joint Center for Housing Studies
- Malcolm Wiener Center for Social Policy
- Mossavar-Rahmani Center for Business and Government
- Rappaport Institute for Greater Boston
- Shorenstein Center on the Media, Politics and Public Policy
- Taubman Center for State and Local Government
- Women and Public Policy Program

Figure 05 | More than half of survey respondents participate in HKS groups, and less than half of survey respondents participate in HKS community service.

Do you belong to an HKS organization(s)?



Do you participate in community service at HKS?



HKS STUDENT GROUPS AND PROFESSIONAL INTEREST COUNCILS

Africa Caucus
Kennedy School
American Global Leadership Initiative
Arab Caucus
Argentine Society
Armed Forces Committee
Asian Caucus
Asian Pacific American Caucus
Australian and New Zealand Caucus
Black Student Union
Brazilian Caucus
British and Irish Caucus
Business and Government
Canadian Caucus
Catholic Students Association
Childhood
China Society
Christian Fellowship
Colombian Caucus
Community Development Project Group
Criminal Justice
Crisis Management
Cybersecurity
Debating Group
Diplomacy
Democratic Caucus
Documentary Film Collective
Education
Egypt Club
Electoral Politics
Energy and Environment
Entrepreneurship
European Club
Farming, Agriculture, Rural Matters
Finance and Macro
Food Literacy Project Caucus
Francophile Club
The Future Society
Gender Consortium
German Caucus
Green Team
Health Policy
Human Rights
India Caucus
Indonesia Club
International Development
International Security
Israel Caucus
Japan Caucus
Jewish Caucus
Korea Caucus
Kennedy School Review (publication)
LACAU Latin American Caucus
Latino/Hispanic Caucus
NGO and NPO
North Korea Study Group
Pakistan Caucus
Palestine Caucus
Persian Caucus
Progressive Caucus
Regional, State, Local and Tribal Governance
Republican Caucus
Science of Social Change
Soccer Club
South Asia Caucus
South East Asia Caucus
Students for the Alleviation of Poverty and Social Inequality
Student Public Service Collaborative
Tennis Club
Tech4Change
Turkish Caucus
Venezuelan Caucus

College's student-run, staff-supported Phillips Brooks House Association for social service and social action, with the hope expressed for flexibility in the demanding work week to support intra-community projects and volunteerism: "We have enormous potential. As a community, we are an untapped resource" (HKS staff interview, October 2015).

Stress management at HKS includes Koru Mindfulness programs run by the HUHS Wellness Center; these courses are in high demand and "always fill up as soon as they are offered" (Wellness Center Harvard University Health Services staff interview, October 2015). More services are needed and in development, with concern conveyed for attention to mental health and wellness beyond stress, "Sometimes I think people who need mental health services are not aware of the services. Also, faculty or staff often don't know where to send people looking for help." (HKS student comment, Student Forum tabling, October 2015) Raising an alert to potentially toxic peer pressure, one student response from Student Forum tabling comments on "the subtle social bullying of isolation [sic] students" (HKS student comment, Student Forum tabling, October 2015).

HKS CAMPUS

"...different kinds of environments can facilitate social capital."

(HAPI, 2014)

The heart of the HKS campus, bounded by the Charles River, John F. Kennedy Boulevard, and Eliot Street, is framed by four main buildings: Belfer, Taubman, Rubenstein, and Littauer. The school additionally occupies neighboring 124 Mt. Auburn Street and One Brattle Square. Each building serves a designated mission within the overall global leadership project of HKS. The Belfer Center for Science and International Affairs is the HKS hub for research, teaching, and training in international security and diplomacy and environmental and resource issues. In 2014, the University of Pennsylvania's Think Tank and Civil Societies Program ranked Belfer the world's #1 University-Affiliated Think Tank. The Taubman Center for State and Local Government serves urban scholars, government and nonprofit practitioners in public policy, and students in formal study and also hosts informal research presentations and workshops. Rubenstein houses the university-wide Center for International Development, a research hub dedicated to advancing the understanding of development challenges and seeks solutions to global poverty. The Littauer Building houses HKS library and the school's social center, Student Forum, where students gather to study, meet, dine at the HKS Café, and present political forums and public programming. With classrooms and staff and faculty offices, the HKS campus operates 14 distinct research and policy centers and programs.

HKS CAMPUS: STUDENT EXPERIENCE

While access to nearby amenities is important to students' positive experience of HKS life as a neighborhood, the primary concern expressed by respondents is the lack of quiet places for study and private spaces on campus to conduct personal and professional matters such as phone calls and meetings. With a presumed intention of creating an open plan, collaborative layout, HKS interior spaces are often framed with transparent glass or by modular walls on

wheels, allowing scant privacy or refuge from the school’s bustling pace. When solicited for input during the tabling session in Student Forum, multiple students were reluctant to indicate on the map their favorite places to study for fear other students would discover and crowd these prized study venues (HKS student comment, Student Forum tabling, October 2015).

Immense frustration is also expressed by students at the poor way-finding navigation directing circulation through the school’s four interconnecting buildings. This sense of being lost or disoriented is exacerbated by the anonymous campus architecture that expresses little of school identity or Cambridge locale. Urban planner Kevin Lynch underscores “legibility” in the built environment as a factor in overall community well-being. Dannenberg links legibility to health:

...a legible city provides an important sense of emotional security as well as an invitation to explore. Places with distinct landmarks and districts, clear edges and pathways, and appropriate signage increase legibility, help people stay oriented, and promote less stressful interactions with the built environment.

(Dannenberg, et al, 2011, p. 114)

As HKS awaits completion of its much-anticipated expansion in 2020, the school is advised to take additional measures to ensure the comfort and well-being of current students, faculty, and staff. As discussed in this HIA’s chapters on green space, design, and mental health, temporary interventions such as greening interior spaces can contribute to lowering stress levels (there is only one potted plant in Student Forum despite abundant natural daylight). Temporary food kiosks installed throughout the campus could relieve the pressure of overcrowding at HKS Café. Allowing sufficient provision for storage of students’ personal belongings while on campus would enhance their experience

HKS STUDENT COMMENTS ON PHYSICAL CAMPUS

“Crowded study space.”

“Add more stress-free places in HKS – so much anxiety and stress everywhere! Quiet rooms, etc.”

“Quiet work place with high ceilings, nice lights and windows – very few tables in HKS, including library...I tend to study from Ed library or music because of this.

“Provide more silence, please.”

“How about a couch somewhere?”

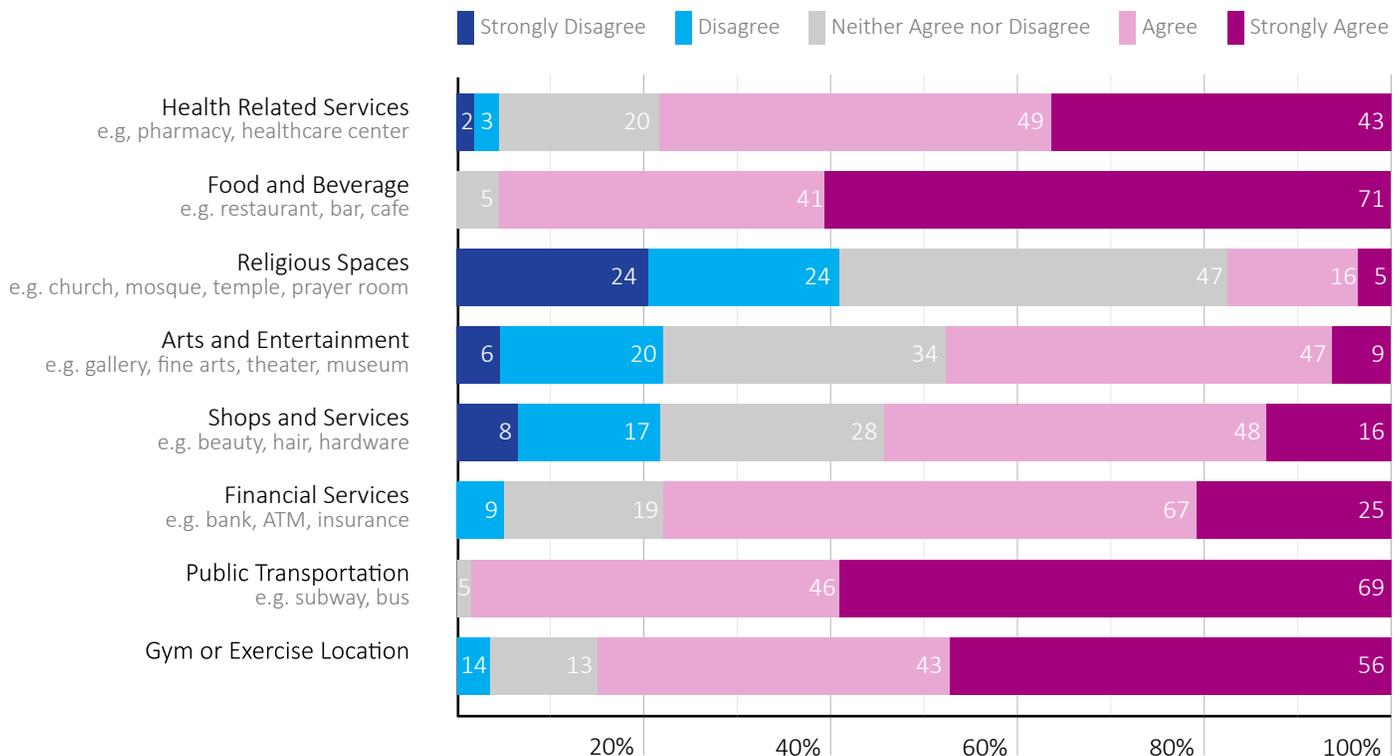
“More windows!”

“Bigger and better JFK – it is too small, always packed with so many people. It is stress-inducing and I feel people are always anxious there.”

“Cafeteria does not have a proper place to eat!! And it is too small.”

“Better accommodation for student parents, especially a larger lactation room with more comfortable chairs.”

Figure 06 | Survey respondents rank the importance to them of having access to amenities nearby HKS.



of arrival and welcome. Strategic interventions implemented by trial and error in an evolutionary process can contribute not only to sustaining and building social capital for ongoing health and wellness, but may inform and adapt current construction and preparedness toward honing a responsive and integrated setting for the leadership community at HKS.

Figure 07 | 72% of survey respondents are not aware of existing HKS stress-management programs.

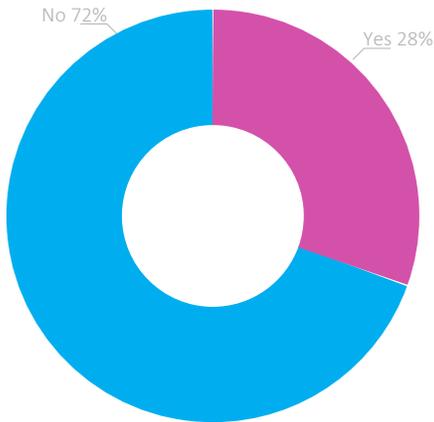


Figure 08 | Survey respondents characterize how they feel about specific locations on HKS campus.

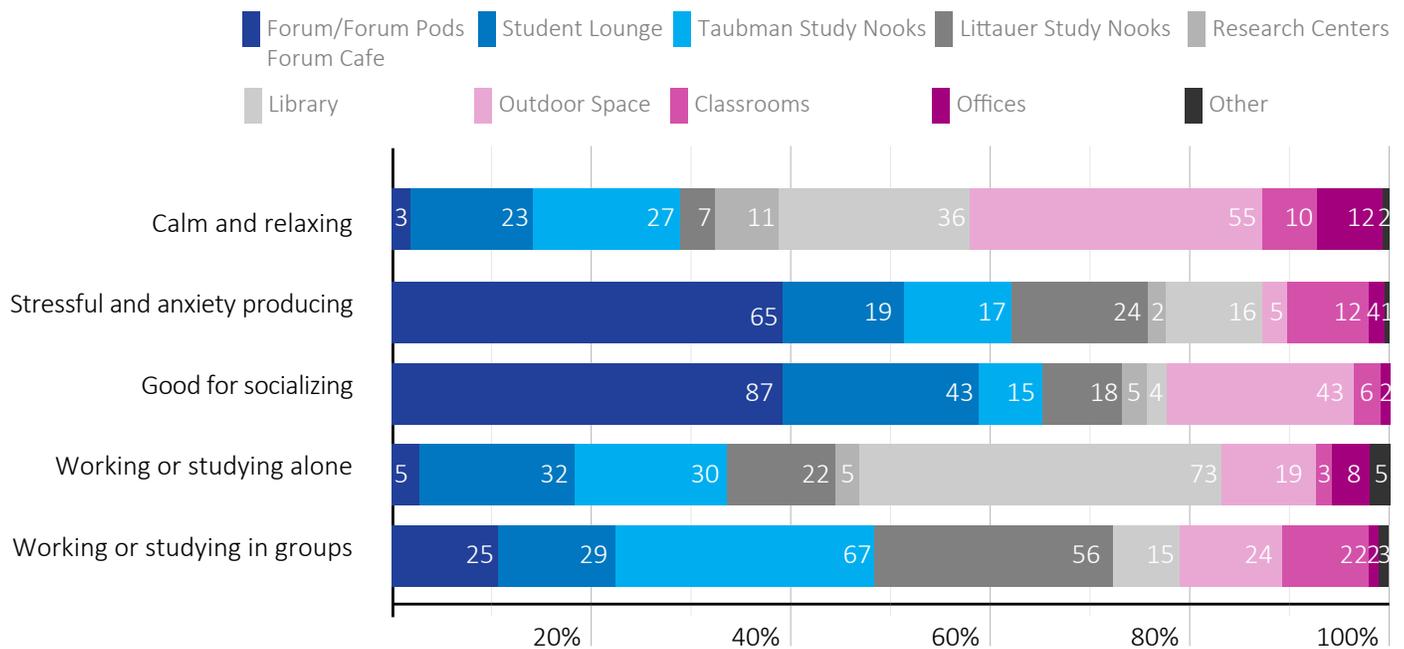




Figure 09 | The lone potted plant in HKS Student Forum, Littauer.



Figure 10 | HKS Littauer Forum

When solicited for input during the tabling session in Student Forum, multiple students were reluctant to indicate on the map their favorite places to study for fear other students would discover and crowd these prized study venues.

(HKS student comment, Student Forum tabling, October 2015)

POTENTIAL IMPACTS

HEALTH ISSUE	POSITIVE OR NEGATIVE	LIKELIHOOD OF IMPACT
Imbalance of self-service with self-care		
Insufficient provision for private, quiet spaces for work, study, or respite		
Lack of social support		
Sense of life purpose		

 Strongly Positive

 Moderately Positive

 Mildly Positive

 Neutral

 Mildly Negative

 Moderately Negative

 Strongly Negative

 Unknown

DIFFERENTIAL IMPACTS	DISTRIBUTION OF IMPACT	MEASURABLE INDICATOR	SUPPORTING EVIDENCE
Y	S	Y	     
Y	S	Y	     
Y	S	Y	     
N	S	Y	     

 Speculative

 Probable

 HKS

 Harvard

 Metro

 National

 Research

 Measurement

 Observation

 Interview

 Survey

 Tabling

RECOMMENDATIONS

MAKE CAMPUS MORE WELCOMING AND CONDUCIVE TO SOCIAL INTERACTION

- | | |
|-------------|--|
| Short Term | <ul style="list-style-type: none">• Provide more comfortable furnishings for rest/relaxation/study and for student parent facility (with a bigger room, if possible).• Provide better storage facilities for student personal effects. |
| Medium Term | <ul style="list-style-type: none">• Create a dedicated cloakroom for students and visitors with staffed attendant to provide social connection as part of daily routines.• Implement better wayfinding signage to help circulation throughout the campus, supplemented by student guides stationed throughout the four school buildings to assist navigation. |
| Long Term | <ul style="list-style-type: none">• Improve campus access for HKS community members and visitors with disabilities.• Provide telecommuting facilities for expatriate families and community members. |
-

STRESS MANAGEMENT

- | | |
|-------------|--|
| Short Term | <ul style="list-style-type: none">• Raise awareness of stress management resources and existing programs such as Koru Mindfulness courses.• Provide more greening in well-lit spaces such as the Student Forum to compensate for temporary loss of the central courtyard. |
| Medium Term | <ul style="list-style-type: none">• Develop a “ready-to-go” strategy for mindfulness programming and implement pilot programs.• Increase student-dedicated spaces by temporarily re-zoning public spaces during high-demand periods such as mid- and end-of-term exams to relieve strain of inadequate space for quiet study. |
| Long Term | <ul style="list-style-type: none">• Increase offerings, raise awareness, and fully implement mindfulness programming across HKS community.• Select interior finishes that are calming such as wood and soft flooring materials (carpet, rubber) for acoustic dampening. |
-

MORE FOCUS ON INTRA-SCHOOL RELATIONS

- | | |
|------------|--|
| Short Term | <ul style="list-style-type: none">• Set up welcome/information stations to greet students and visitors and provide assistance with campus navigation and programming.• Intersperse coffee kiosks and breakfast/lunch carts throughout the HKS campus to ease crowding in HKS Café and encourage more informal, small-scale social interaction around (healthy) snack breaks and morning and midday meals. |
|------------|--|
-

- | | |
|-------------|--|
| Medium Term | <ul style="list-style-type: none">• Initiate programming focusing on intra-community bonds through activities such as community gardening in the Winter Garden and “green gym” workouts that combines physical activity with gardening.• Assign fewer students per Student Services staff to facilitate stronger connections and more individualized interaction. |
|-------------|--|
-

- | | |
|-----------|---|
| Long Term | <ul style="list-style-type: none">• Create a staff-supported, Phillips Brooks Association-like center for intra-community volunteerism and social action.• Implement flexible scheduling to support staff-student-faculty programs and events. |
|-----------|---|
-

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APPENDIX

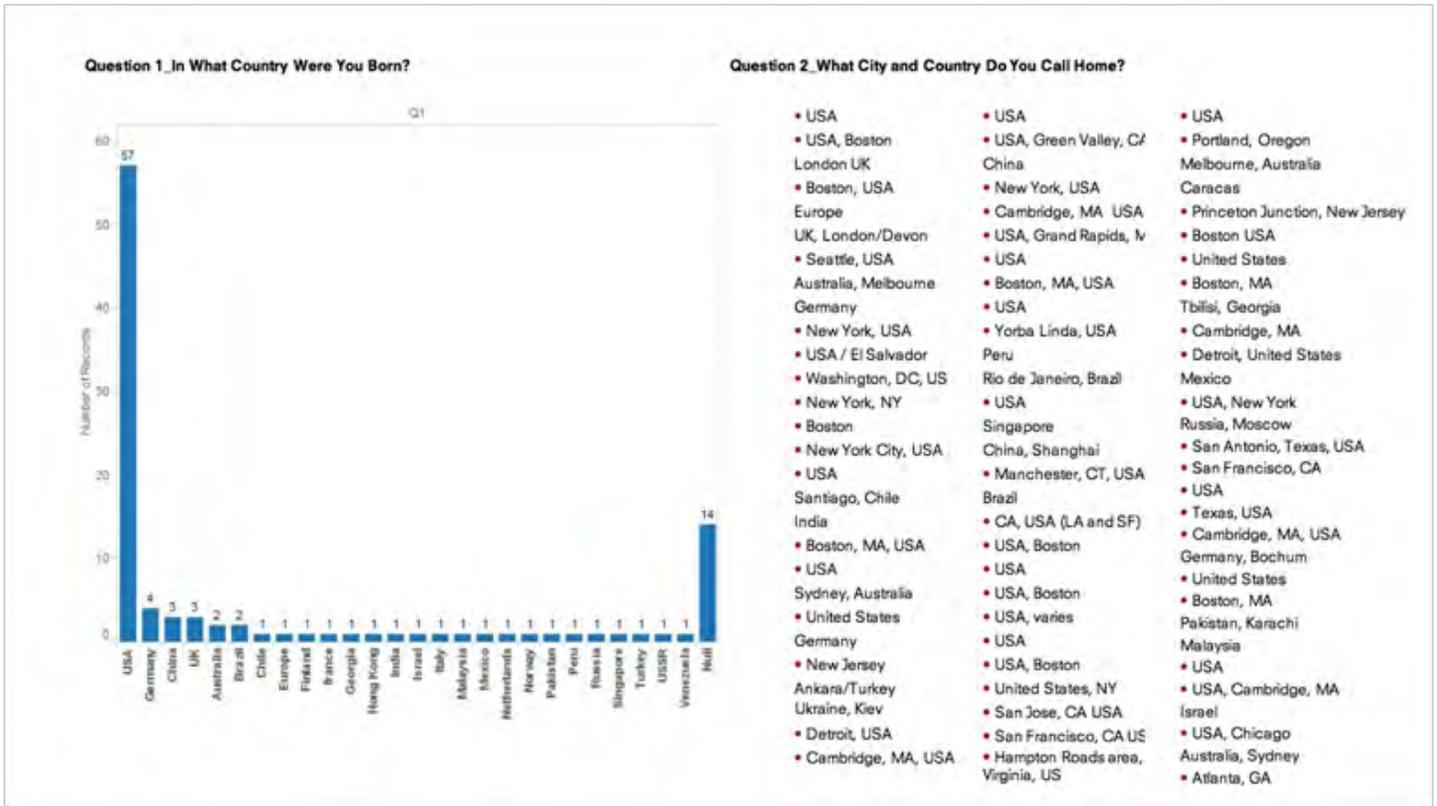


Figure 11 | Additional Student Survey respondent demographics:

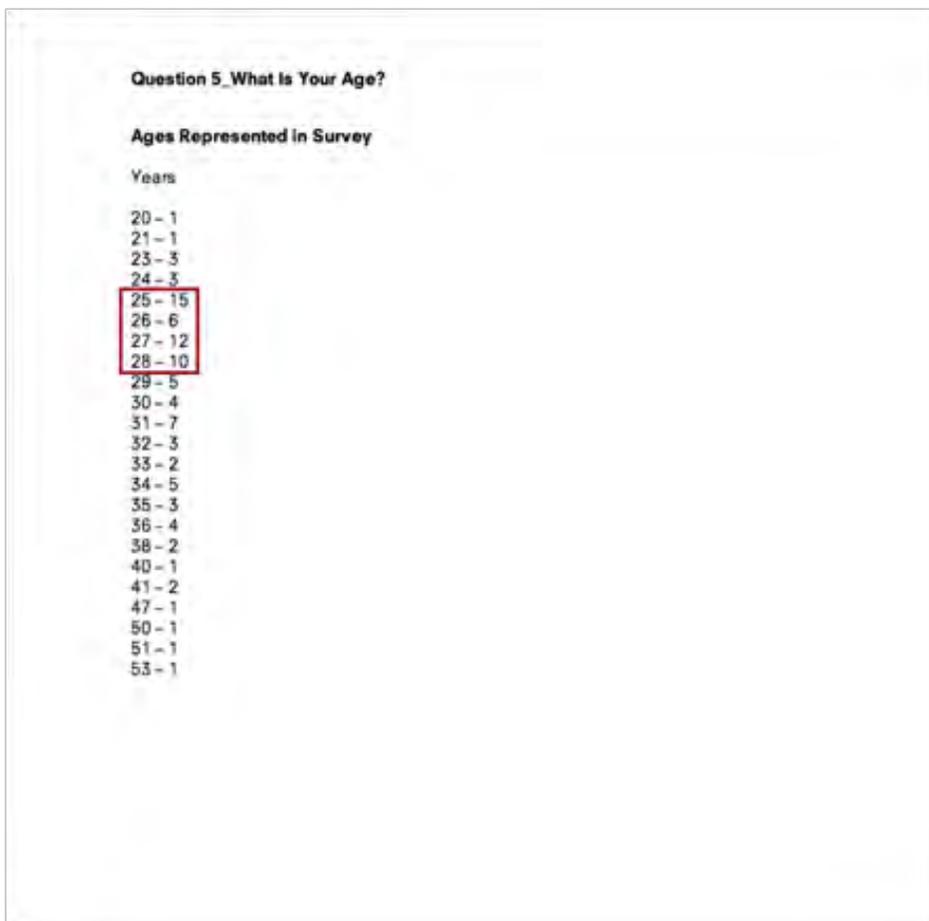


Figure 12 | Student Survey respondents explain their experience of HKS campus in written responses:

Question 24_ Explanations to Question 19 Responses

- Too many people in this school. I can only come for classes otherwise I am too stressed. It is so difficult to walk through the Forum, there are no places to sit, sometimes even the library is completely full!
- Very little places to study alone, kept secret when found.
- The only part of Library that I enjoy is the part where people bring their own laptops and sit in small "cubicles." Either relaxing or studying, I prefer to be alone and undisturbed. In the area where desktop computers are located, it is hard to focus and there's too much noise, either from the door or the people typing next to me. I am not sure if the HKS library is supposed to be a quiet environment or not. The only place I could find with no disturbance was the quiet room of Taubman computer center. Unfortunately for both Taubman computer center and HKS library, there is no ample lighting. I prefer to study in natural light. HKS library makes me feel like stuffed in dim lighted closet.
- There is almost no space to work in group, I prefer to go to MIT Sloan Business School or my friends' places.
- Cafe is stressful b/c traffic flow and hectic transitions time btwn classes. Library can be stressful b/c too crowded and printers get busy/papers messed up.
- The places in Littauer are horribly loud. Impossible to hold a conversation.
- During eating times and between classes, the forum is like a huge bus station, food court. It doesn't have enough room, it is too noisy and the food lines move too slowly and makes everything feel rushed and crowded.
- [Other places:] The top of Belfer, and Malkin Penthouse.
- There aren't very many non-distracting study spaces available that aren't in the library.
- The study spaces to the left of the main entrance in the HKS library smell due to high traffic plus inadequate ventilation.
- The Gym is calm and relaxing as well as great for socializing. Need to include gym memberships in HKS tuition.
- The Littauer Library feels like a basement dungeon, which is why I leave HKS to come to Widener instead. Functionality of outdoor spaces depends largely on the weather.
- The forum and Taubman have really terrible acoustics for productivity and relaxation. The library is pretty miserable...I call it the dungeon.
- Lamont library is good for studying in groups. Business school library is good for studying alone.
- There are insufficient areas for students to work that aren't the depressing library.
- Forum is a bit stressful when the tables and chairs start getting cleared out in the middle of the day for events.
- Groups - in my opinion only really the reservable rooms in the library. The third floor Littauer study spaces are very loud during the day from the forum, and when the forum is being set up towards the end of the day it's extremely distracting (chairs scraping, etc). The Taubman carrels are sometimes fine, but if people are playing ping pong and talking loudly on the ground floor, it's very distracting.



11

Aging & Retirement in the Workplace

Carly Dickson

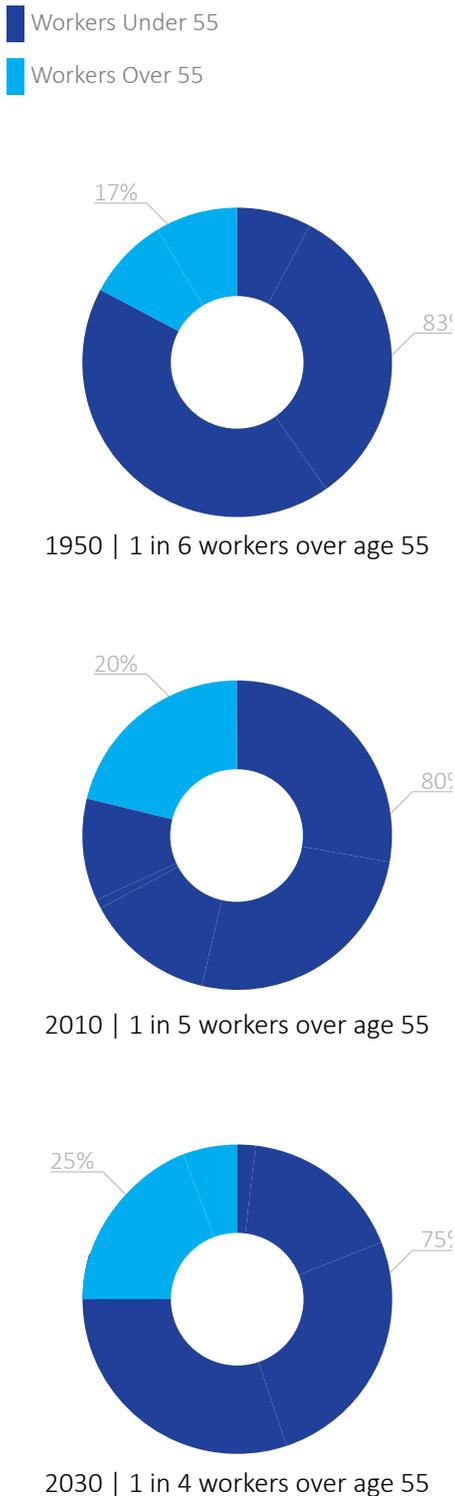
OVERVIEW OF FINDINGS

Successful aging has been defined by The MacArthur Foundation Research Network on an Aging Society by the following three criteria: avoidance of disease and disability; maintenance of high cognitive and physical function; and engagement with life (Rowe & Kahn, 1997, 433). By this definition, one could speculate that successful aging is directly correlated with engagement in the workplace, and the Cornell Employment and Disability Institute and The Center on Aging and Work at Boston College provides the literature to prove the important correlation between psychological and physical well-being and working into older age. Elements that affect the wellbeing of those aging in the workplace are the retirement plan (and one's confidence in their ability to retire), ageist stigmas and discrimination, higher risk of disability, physical limitations due to disability, and happiness through productivity and engagement (Bruyère, 2012).

The health impacts of aging and retirement at Harvard Kennedy School are directly correlated to the impacts felt throughout Harvard University. The Harvard University Benefits Committee is responsible for benefits of faculty and staff across the entire university, rather than just the Harvard Kennedy School. The community is often engaged with, in the form of surveys or open letters, from Provost or President regarding updates, concerns, and intentions. The retirement benefits program consists of investment options as well as medical/dental coverage and educational resources through the Harvard University Retirement Center. The question of healthy aging in the workplace had several findings, with the broad overview being that Harvard does not have enough discussion about or preparation for health in old age, and there is a lack of awareness of opportunities to improve the process of aging.

WHY THIS TOPIC MATTERS

Figure 01 | Workers over age 55 in the Labor Force as a Proportion of all workers, projected 1950 to 2030 (Bureau of Labor Statistics, 2009)



PSYCHOLOGICAL, PHYSICAL, AND ECONOMIC IMPACT OF AN AGING POPULATION THAT IS WORKING LONGER THAN EVER BEFORE

This topic matters because the number of aging workers is increasing, and will continue to do so. In 1950, only one in six of workers were over the age of 55, but by 2030, one in four will be over age 55 (Bruyère, 2012, 4) (See Figure 1). People are living longer and retiring later than ever before, for instance, there are 30.8 million baby boomers in the workforce, of which half plan on working into their 70s and 80s (Bruyère, 2012, 5). These older employees are more vulnerable to disability and have more limitations than younger workers, with 42% of workers over 65 reporting functional limitations (Bruyère, 2012, 5). These are challenges that the workforce has not had to handle at this scale before.

The workforce is aging for a variety of reasons: people are finding enjoyment and feelings of productivity in work that they would miss in retirement. Also, the economic constraints play a factor, in that some people can not afford to retire. The expensive costs of health care also impact the economically driven delayed retirement, which also affects mental and physical health and wellbeing. There are stigmas associated with aging, such as the myths that the aging workforce is afraid of change, that they are technologically inept, slow to learn, lack creativity, perform at lower levels, are less motivated, and are less flexible and adaptable, but these qualities could be true of any person and are not fair generalizations of older employees. The facts are that older employees have a lower turnover rate, are committed to quality, are highly motivated, loyal, reliable, and engaged, with a strong work ethic.

Working longer has proved to make people happier and healthier, from the maintenance of one's identity and sense of purpose, the sustaining of productive engagement, social interaction, and connectivity, to the physical demand and rewards-- all of these factors contribute to positive physical and psychological effects. Also, the economic impact is significant, with only 22% of workers confident that they have a comfortable retirement savings, according to the EBRI Retirement Confidence Survey. When looking at the positive and negative impact chart of this report, we can see that the distribution of impact is not just Harvard Kennedy School or Harvard University specific, it engages with the Metro and National level as well, stressing the magnitude of impact that aging in the workplace can have on everyone.

THE SITUATION AT THE HARVARD KENNEDY SCHOOL

From observation, HKS does not seem to have any more aging workers than the average workplace. The tabling session outlines some HKS specific health impacts, but most health impacts are Harvard University wide. The topics of awareness, retirement specific programming, public engagement, and professional recommendations, (with subcategories ranging from a tangible retirement test run program to a societal mindset shift), give an overview of the current situation at Harvard.

AWARENESS

At the Kennedy School tabling session, people responded to the questions about aging in the workplace through a variety of perspectives. The comment that personal health is not discussed was reiterated in the results, with participants stating that they do not feel prepared for old age and retirement as a result. People are content with the walkability, but would like to have more time for exercise to be prioritized. Other topics were tied into the healthy aging discussion, such as the food and ergonomic factors, with food and chairs being received positively but the lack of standing desks being critiqued. One of Harvard's strategies to increase the awareness about the health benefits available is by having Benefit Fairs, which occurred this fall at HBS, HLS, and HMS. When asking the Harvard Benefits office about these fairs, they stated that they do not keep track of who comes to the fairs. They were also reluctant to share information about which plans people use, and also were not able to discuss the continued-educational opportunities people are or are not taking advantage of because they are offered by a third party vendor, so the information is not easily accessible.

RETIREMENT SPECIFIC PROGRAMING

Retirement specific opportunities are available, such as the Harvard Institute for Learning in Retirement, which was established in 1977 and offers peer-to-peer teaching and learning, as well as year-round events. The director, Leoni Gordon, states that "There is a high level of sociability here, we have a very devoted membership, and we are a major service to people who live in Greater Boston and like to learn. It would appeal to alumni, a lot of whom don't know about it" (Brown, 2014). Another supportive entity that exists is the Harvard University Retirees Association (HURA). "Established in 1991, HURA is a nonprofit organization for former Harvard employees at all levels. With partial financial backing from the University, the group offers a range of programs and services for retired Harvard faculty and staff who are eager to stay connected to the University. For this dynamic group, age is just a number" (Walsh, 2010). For an annual membership fee of 15 dollars, HURA programming ranges from entertainment, wellness, and athletic facilities, to library, museum, and publications access, all with the intention to provide connections back to the university (HURA website, 2015). HURA provides an opportunity for older employees to retain meaningful social engagement with a caring network of over 1,200 retirees (Walsh, 2010).

PUBLIC ENGAGEMENT

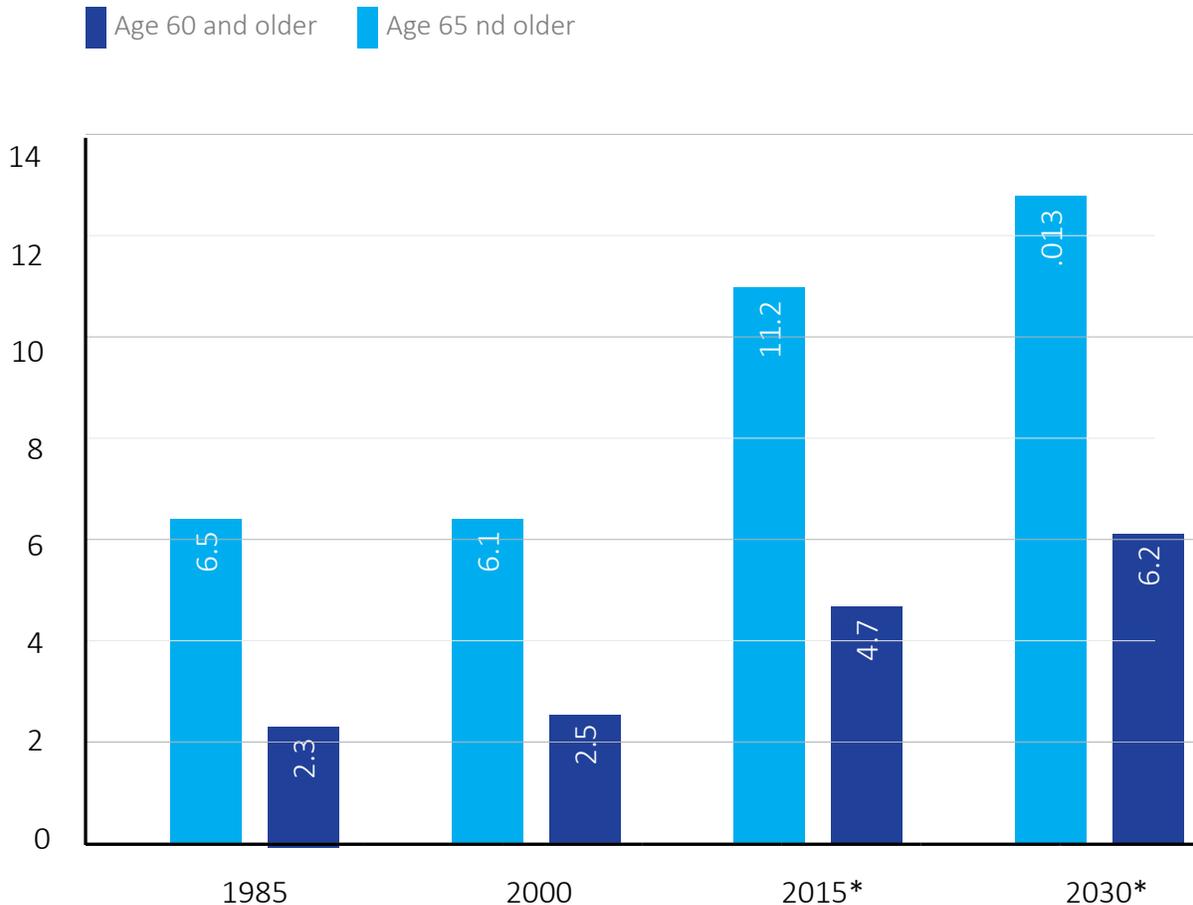
President Faust explained in a September 17, 2015 article with the Gazette that the biggest concerns regarding the 2015 health benefits plan is the lack of measureable risk, so Harvard has worked to revise this in the 2016 version by paying more in terms of premiums but you are in control of what your costs will be. The lower-paid employees at Harvard are more at risk for negative health impacts, and Faust mentions working towards giving them more support. The Harvard Union of Clerical and Technical Workers (HUCTW) exists to discuss and support the employees at Harvard. In 2009, Harvard University initiated a Early Retirement Incentive, which HUCTW supported. They stated in a public update that "although HUCTW was not a party to the discussions that developed the ERI program, our Union's leaders view it as a positive step, so long as the

offering is purely voluntary” (HUCTW, 2009). In addition to the public letters, announcements, and updates, there are many resources online to help people become more educated about their retirement options, but they are not easy to navigate.

PROFESSIONAL RECOMMENDATIONS

Harvard Professor of Psychology, Ellen Langer, researches aging through the lense of positive psychology, and she has done studies that prove we have much more control over our health than people realize (Langer, 1997). Her work makes a case for why people want to keep working into old age, and why the workplace should support that desire. She states “when we are actively making new distinctions, rather than relying on habitual categorizations, we’re alive; and when we’re alive, we can improve”(Langer, 1997). If we continue working into old age, we continue to engage in actively making new distinctions. She also has done studies that show cases where all factors are held constant except for a change in mind-set, and the mind-set shift alone has contributed to positive physical and mental health impacts. When interviewing Professor Langer, the overarching recommendation was that we overlook older people, and by changing our mindset to have greater expectations for old age, we can improve not only aging in the workplace but our overall well-being. She acknowledged that retirement is usually a financial question, whether or not Harvard wants people to retire. When thinking about recommendations that are not driven by financial concerns

Figure 02 | Percent of Employed Population That Is Older than Age 60, 1985- 2030. (Census Bureau Current Population Survey files and estimates based on Social Security Administration population forecasts). *Projected.



but rather health and well-being, she provided several ideas of varying scale, that involve both intangible mindset shifts as well as tangible action plans.

RECOGNIZING RESOURCES

The first idea began with the statement that we are currently missing an opportunity-- we can find new things for older people to do. She believes that we at Harvard “need to recognize how older people are useful; we are overlooking a resource.”

RETIREMENT TEST RUN

Next, Langer suggested that when you retire, it should be a revolving door rather than a closed one. The revolving door could be implemented in the form of a retirement test year, with two groups. There will be those that retirement is not for them, and there will be those realize they need to prepare for it differently. She tied this into the idea of a “pre-retirement year of finding things I can do, rather than the ever growing awareness of what I can’t do.” It is common that employees are only taught the financial side of retirement, but are not taught about the potential for older people to continue using their skills or gain new skills.

Figure 03 | View of Harvard Kennedy School’s Littauer Forum space being used by a multi-generational community. (Source: <http://hilr.dce.harvard.edu/curriculum>, accessed 2015)



MIX AND MATCH

In terms of how Harvard can improve as an aging workplace and better utilize the resource of its older employees, she suggested that we can mix and match across disciplines more, so we see new ways that we can be useful. Older faculty can bring new questions, are less inhibited, and are often treated with respect. Along these lines, she suggests that we could bring people from different schools together to discuss problems of the university, so Harvard utilizes their wisdom and experience in a focused and productive way. She also suggests that an Institutionalization of older people and the younger people might make them work together better rather than be at war. If we institutionalize roles in a certain way, but make it clear that they do not always need to be played by young or old, there may be less insecurity.

Figure 04 | The Harvard Institute for Learning in Retirement, pictured here, offers lectures, concerts, brown-bag lunches, and other peer-led classes. (Source: <http://harvardmagazine.com/2014/09/expanding-the-mind> "Expanding the Mind." Harvard Magazine. harvardmagazine.com, 2014.)

HIGHER EXPECTATIONS

An important thread that Professor Langer ties between the recommendations, is that she would like to see age become a reasonably irrelevant thing, and she envisions a university where changes are determined based on ability rather than based on age. She suggests that we create debility rather than ability, both through our designed environment and our social norms. Her example is that if she were to break her leg, there is an expectation that she would get better, but how come we do not have an expectation that we can



get better when we are old? Ellen Langer’s research proves that we let age have more control than it should. One of her many studies on aging proves that older people, when given incentive, remember things they otherwise would not. She shows that we blame our bad memory on aging, when really we just might not care enough to remember. Another study of hers reversed the eyesight test, so the patient ends by reading the big E. Older people were able to read more letters when they read from difficult to easy, than when they read from easy to difficult like it is usually distributed. The current expectation is that older people cannot see the small lines, but when tested in a new context, there is no longer an existing low expectation, and they have proven to exceed their expectations.

When asked how to change this expectation, she recalled the Today Show, when William Scott, the weatherman, used to wish Happy 100th Birthday to people. Those who watched that show were able to turn 90 and not see themselves at the end of the line, because they were commonly interfacing with happy, celebratory 100 year olds. There was a positive image associated with 100 years old. She proposes a change in the criteria of excellence, but at the same time, a questioning of what it means to be spectacular in a real way? The university does not want to honour someone just for being here, but rather honour them for the multiple excellences, and acknowledge how those excellences can move between different areas over time. The key, she says, is to not condescend, and then we can find people’s strong points. “It’s a people game, and older people get that, they know that better than anyone (Langer, 2015).

Figure 05 | Harvard Institute for Learning in Retirement performing a medley of Shakespearean scenes to celebrate the 100th birthday of member Frances Addelson. (Source: <http://news.harvard.edu/gazette/story/2010/11/hardly-the-retiring-kind/> Walsh, Colleen. “Hardly the retiring kind.” Harvard Gazette. news.harvard.edu, November 18, 2010).



Figure 06 | Member of Harvard Advanced Leadership Initiative lecturing. (Source: Harvard Business School 2015)



Figure 07 | View of Harvard Kennedy School's Littauer Forum space being used by a multi-generational community. (Source: Harvard Kennedy School, 2012)



Figure 08 | Members of HURA's rambles program out for one of their regularly scheduled walks. (Source: hura.harvard.edu, accessed 2015)





Figure 09 | “HURA often serves as liaison with the University to represent retirees and inform members about Harvard changes.” (Source: hura.harvard.edu, accessed 2015)



Figure 10 | “HURA lets retirees stay connected to colleagues and the University. Learn more about membership.” (Source: hura.harvard.edu, accessed 2015)

TALKS, WALKS, and TRIPS

Talks are a major element of HURA Day, and the June Annual Meeting, presenting speakers who are prominent individuals associated with the University. Participants have included Professor Sarah Lawrence Lightfoot, who talked about her book, *The Third Chapter: Life after 50*, and Clinical Instructor in Psychology Douglas Powell offered anecdotes and sound advice from his *The Aging Intellect*. Associate Vice President Kevin Casey talked about the politics and planning involved with the Alston project, and celebrity chef and cookbook author Mollie Katzen, who is associated with the School of Public Health, talked about healthy eating and even supervised the buffet lunch that followed the program.

Walks and rambles in interesting places have led retirees to nature preserves and sanctuaries such as Hailbut Point State Park in Rockport, MA and Broadmoor Wildlife Sanctuary in Natick, MA. Retirees meander through trails with others and engage in conversations that lead in many directions, much the same as the paths they walk.

Trips have taken HURA members to such places as the Lowell National Historical Park with “Working the Water” canal boat tours and lunch at Cobblestones of Lowell or a “ramble plus” to Tower Hill Botanic Garden and the Museum of Russian Icons. The fast ferry provided round trip from Boston to Salem and back for a day at the Peabody Essex Museum, the House of the Seven Gables, and lunch at Fin2 Restaurant. And a visit to the private World War II Museum in Framingham was so popular, it was offered twice.

LEADERSHIP and AFFILIATIONS

HURA is governed by an elected Board of Directors. This action-oriented group of volunteers welcomes other retirees who are willing to commit time and energy to participate in the organization’s planning, publications, and events. HURA is a member of the national Association of Retiree Organizations in Higher Education and the regional Boston Area College and University Retiree Associations, of which it is a founding member.

FRIENDS and FUN

For all of HURA’s events, whether it is the Holiday Luncheon or a group visit to a Hasty Pudding production, the top priority is to gather Harvard retiree friends, old and new, and their guests to have fun and, along the way, extend our connections with Harvard by staying in touch with one another.

SPORTS and GAMES

Enthusiastic fans always enjoy Harvard sports events, especially fall home football games, with two free tickets for HURA members. Men’s and women’s ice hockey may also be offered during the winter months including recently a women’s contest against the Russian national women’s hockey team.

Figure 11 | Sample overview of HURA Retiree Perks and Services. (Source: http://hura.harvard.edu/files/hura/files/hura_brochure.pdf Harvard University Retirees Association. “Retiree Perks & Services.” hura.harvard.edu, November, 2015)

POTENTIAL IMPACTS

HEALTH ISSUE	POSITIVE OR NEGATIVE	LIKELIHOOD OF IMPACT
Awareness of resources	⊖ ⊖ ⊖ ⊕ ⊕ ⊕	Ⓢ
Awareness of abilities & interests	⊖ ⊖ ⊖ ⊕ ⊕ ⊕	Ⓢ
Meaningful social engagement	⊖ ⊖ ⊖ ⊕ ⊕ ⊕	Ⓢ
Age related disability	⊖ ⊖ ⊖ ⊕ ⊕ ⊕	Ⓟ
Financial instability	⊖ ⊖ ⊖ ⊕ ⊕ ⊕	Ⓢ

⊕ ⊕ ⊕ Strongly Positive

⊕ ⊕ ⊕ Moderately Positive

⊕ ⊕ ⊕ Mildly Positive

⊕ ⊕ ⊕ Neutral

⊖ ⊖ ⊖ Mildly Negative

⊖ ⊖ ⊖ Moderately Negative

⊖ ⊖ ⊖ Strongly Negative

Ⓢ ⊕ ⊕ ⊕ Unknown

DIFFERENTIAL IMPACTS	DISTRIBUTION OF IMPACT	MEASURABLE INDICATOR	SUPPORTING EVIDENCE
Older staff, faculty, or students		Try different methods then Interview/survey for where awareness levels are best	     
Older staff, faculty, or students		Interview and survey benefits of analyzing skills and interests pre-retirement	     
Older staff, faculty, or students		Interview and survey benefits of programmed social engagement	     
Older staff, faculty, or students		Measure chronic or temporary pain. Measure coworker expectation for agist stigmas	     
Older staff, faculty, or students		Survey if reason for delaying retirement is financial rather than for wellbeing purposes	     

 Speculative

 Probable

 HKS

 Harvard

 Metro

 National

 Research

 Measurement

 Observation

 Interview

 Survey

 Tabling

RECOMMENDATIONS

INCREASE PRE RETIREMENT PREPARATION

Short Term

- Increase awareness of existing programming, such as the Harvard University Retirees Association and the Harvard Institute for Learning in Retirement.
- Evaluate skills and interests on a personal level to prepare for the implications of retirement beyond the financial considerations.
- The aging and retirement in the workplace recommendations could potentially be embedded into the following HKS Sustainability Plan opportunities:
 -  Fast track manager participation in the Universal Managers Training (required for all managers by 2020), which covers well-being, sustainability, and work/life balance.
 -  Provide guidelines on acceptable uses of work time towards sustainability and wellness.
 -  Host a “coffee connection” focused on sharing the available well-being resources with the community. (e.g. Healthy Harvard, Harvard Gym Discount, Wellness Center, Employee Assistance Program (EAP), Meditation call-in line (free), etc.)
 -  Utilize Faculty Assistant meetings to share wellness offerings at Harvard.
 -  Educate the community on existing health and wellness offerings that they can begin taking advantage of immediately.

Medium Term

- Institutionalize skill and interest evaluations.
- Provide workplace flexibility, such as working from home, working from more than a single location.
- Provide work hour flexibility, such as part time work.
- Provide work schedule flexibility, such as a flex schedule or compressed week.

Long Term

- Institutionalize new roles that use older employees’ experience and skillsets (e.g. the Mix and Match recommendation, where older faculty are brought from different departments to discuss potential opportunities and overlaps between fields).
-

INCREASE RETIREMENT OPTIONS

- | | |
|------------|--|
| Short Term | <ul style="list-style-type: none">• Increase awareness of existing programming such as Harvard University Retirees Association and the Harvard Institute for Learning in Retirement. |
|------------|--|
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- | | |
|-------------|--|
| Medium Term | <ul style="list-style-type: none">• Create a Retirement Test Run program e.g. allowing part-time work with the possibility of returning to full time. Flexible work or retirement test runs will allow people to transition into a new type of lifestyle rather than losing a meaningful part of their life all at once. They will have time to prepare for more than just the financial implications of retirement. |
|-------------|--|
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|-----------|---|
| Long Term | <ul style="list-style-type: none">• Expand the Retirement Test Run program to provide multiple test options as well as a variety of opportunities to return to, such as part time work related to the program recommendation in the social capital chapter. |
|-----------|---|
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MINDSET SHIFT

- | | |
|------------|--|
| Short Term | <ul style="list-style-type: none">• Institutional recognition that the existing retirement age is outdated now that lifespans have increased, which means that older people are now able to work and contribute productively for much longer, so an effort can be made to benefit from their skills and experience |
|------------|--|
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|-------------|---|
| Medium Term | <ul style="list-style-type: none">• Institutionalize objective evaluations in order for workplace to become an ability determined space rather than age determined.• Implement higher expectations of older workers. |
|-------------|---|
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- | | |
|-----------|--|
| Long Term | <ul style="list-style-type: none">• Shift societal stigmas around age. A balance of empathy and empowerment can lead to people feeling safe and happy during old age without feeling isolation from the rest of the community. A long term goal for HKS and Harvard is to set new levels of expectations and opportunities for the aging population. |
|-----------|--|
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BLOOD DRIVE
(1-800-RED CROSS)
CHARLES HTL
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Undertaking the Harvard Kennedy School 2015 Health Impact Assessment, students modeled their working method and output on two previous HIA's conducted by the GSD's "Healthy Places" seminar students at the Harvard Divinity School (2014) and the GSD (2013).

Early in the semester, students brainstormed topics of health and well-being as they relate to the Harvard Kennedy School. Each student then selected a topic of interest and proceeded to research relevant scholarship and conduct field observations and measurements on the HKS campus. The research included a student-authored, voluntary HKS Survey, administered online, and three tabling sessions at the John F. Kennedy Forum in the Littauer Center, intended to directly garner student input on their experience of the HKS campus and its community. Many students also conducted semi-structured interviews with HKS staff and relevant University personnel.

Each student evaluated the results of their fieldwork and drafted chapters that contextualized their topics, analyzed their effect on the HKS campus and community, and offered recommendations for impactful implementation toward mitigating challenges and enhancing opportunities for improvement in the short, medium, and long term. The suggestions engage a range of offices in HKS administration, student body, and the City of Cambridge, among other stakeholders.

An in-class HIA workshop provided a forum to discuss the research and results as a group and prioritize recommendations. Students began by sharing their observations and identifying their most pressing concerns for the HKS campus and community's health and well-being. Students prioritized their recommendations and the class then voted on six interventions they found most urgent and feasible. The strongest recommendations concern efforts to enhance the school's social capital, accessibility, and green environment. Students expressed unanimous support for the recommendation that HKS create welcome stations throughout the campus to improve both social cohesion and wayfinding for the HKS community and its guests.

Janney Wilson, Senior Associate Dean, Chief Financial and Administrative Officer at the HKS Office of Financial Services, and Elaine Strunk, Senior Sustainability Manager at the Harvard University Office of Sustainability, joined students to review their recommendations and offer input on feasibility and prioritization. Students incorporated this feedback in completing their chapters, designed the HIA's template, and produced this final document.

HKS Health Assessment

Welcome to the HKS Campus Health Survey conducted by Harvard’s Graduate School of Design. We appreciate you taking 7-10 minutes to answer the following questions. All responses are anonymous.

In what building is your primary office, work/study space or classroom? (Please select all that apply)

- Littauer
- Taubman
- Belfer
- Rubenstein
- 124 Mt. Auburn
- 1 Brattle Street
- Other _____

My office, work/study space or classroom has adequate:

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Lighting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ventilation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Noise level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Temperature	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Humidity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sanitation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Views of nature	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Aesthetically pleasing setting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Personal control over lighting and ventilation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Feel free to explain your answer:

In the space(s) you spend most of your time, are you most likely to be:

- Standing
- Sitting
- Constantly moving

Do you take breaks during your day to move around?

- Yes
- No

If yes, please indicate what you do on your break (e.g. take a walk, stretch, go to the gym).

If you experience physical pain during your day, please indicate where:

	some pain (doesn't affect my work)	moderate pain (affects my work)	intense pain (very difficult to focus or work)	N/A (no noticeable pain)
Lower back	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Shoulder	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wrists/fingers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Neck	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Eyes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Can anything be done to improve your comfort in your office, work/study station or classroom?

- Yes (please explain below) _____
- No
- I haven't thought about it

Having access to the following services/amenities near the HKS campus is important to me:

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Health related services (e.g. pharmacy, healthcare center)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Food & beverage (e.g. restaurant, bar, cafe)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Religious spaces (e.g. church, mosque, temple, prayer room)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Arts & entertainment (e.g. gallery, fine arts, theater, museum)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Shops and services (e.g. beauty, hair, hardware)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Financial services (e.g. bank, ATM, insurance)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Public transportation (e.g. subway, bus)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gym or exercise location	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The HKS campus currently provides good access to the following services and amenities:

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Health related services (e.g. pharmacy, healthcare center)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Food & beverage (e.g. restaurant, bar, cafe)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Religious spaces (e.g. church, mosque, temple, prayer room)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Arts & entertainment (e.g. gallery, fine arts, theater, museum)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Shops and services (e.g. beauty, hair, hardware)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Financial services (e.g. bank, ATM, insurance)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Public transportation (e.g. subway, bus)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gym or exercise location	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please share your ranking of the following statements:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Food prices at HKS Café are affordable.	<input type="radio"/>				
The cuisines offered at HKS Café meet my tastes.	<input type="radio"/>				
The layout of the HKS Café is intuitive and welcoming.	<input type="radio"/>				
I find the food options at HKS Café appetizing.	<input type="radio"/>				
Mealtimes are my break to relax.	<input type="radio"/>				
When eating at HKS Café, I eat with a group.	<input type="radio"/>				
I can find organic food options at HKS Café.	<input type="radio"/>				
I can find healthy food options at HKS Café	<input type="radio"/>				
Resources about the impact my food has on my health are important to me.	<input type="radio"/>				
Resources about the sustainability of my food choices are important to me.	<input type="radio"/>				

Please indicate the level to which the statements below reflect your experience at HKS.

	Yes	Sometimes	No
There are interior (potted) plants in my workspace or classrooms.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The places where I study or work at HKS have windows through which I can see trees, plants, grass and/or sky.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I pass through green space on my commute to HKS.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When the weather is nice, I eat or work outside on the HKS campus.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Having access to or views of green space is important to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Feel free to explain your answers.

Which green space do you visit most often (or would if it weren't under construction)? (Please select all that apply)

- JFK Park
- Path between HKS and Charles Hotel
- Charles River
- Outdoor seating on JFK Park side (Rubenstein)
- Outdoor seating on JFK St (Littauer)
- Main Courtyard
- Other (please list) _____

Please state which places have the following characteristics. You can select multiple options on each line.

	Forum/ Forum Pods/ HKS Café	Student Lounge	Taubman Study Nooks	Littauer Study Nooks	Research Centers	Library	Outdoor spaces	Classrooms	Offices	Other (please comment below)
Calm and relaxing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stressful and anxiety producing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Good for socializing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Working or studying alone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Working or studying in groups	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Feel free to explain your answers.

Do you belong to an HKS organization(s)?

- No
- Yes. If so which one(s)? _____

Do you participate in community service at HKS (e.g. HKS Serves, Student Public Service Collaborative)?

- No
- Yes. If so which one(s)? _____

Please indicate the level to which you agree with the following statements:

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I feel safe walking between buildings at night.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I always use the crosswalks when I cross the street.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
As a pedestrian, cars and bikes always yield when I look to cross the street.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I never text and walk.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At night, I feel safe walking around inside HKS buildings.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If there were an emergency on campus, I would know what to do.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please indicate the level to which you agree with the following statements related to cycling:

	Never	Rarely	Sometimes	Often	All of the Time	Does Not Apply
I use lights on my bike at night.	<input type="radio"/>					
I follow traffic signs.	<input type="radio"/>					
I wear a helmet.	<input type="radio"/>					
I bike on the sidewalk.	<input type="radio"/>					
I go the wrong way down the street.	<input type="radio"/>					

Do you know about HKS and Harvard's sustainability efforts?

	Yes	No
HKS Green Team	<input type="radio"/>	<input type="radio"/>
green.harvard.edu, sustainability at Harvard	<input type="radio"/>	<input type="radio"/>
Mindfulness programs	<input type="radio"/>	<input type="radio"/>
Well-being program offered through the Center for Wellness	<input type="radio"/>	<input type="radio"/>
University-wide sustainability efforts, GHG emissions, Sustainability Plan	<input type="radio"/>	<input type="radio"/>

How proud are you of Harvard's Sustainability efforts (1-10)?

_____ Harvard's Sustainability Efforts

How satisfied are you with your health?

_____ Health

Over the last two weeks, please share the amount of time:

	All the time	Most of the time	More than half of the time	Less than half of the time	Some of the time	At no time
I have felt cheerful and in good spirits.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have felt calm and relaxed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have felt active and vigorous.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I woke up feeling fresh and rested.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My daily life has been filled with things that interest me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

From the following list, what do you think are the three most important factors that define "well-being"?

- Access to green space
- Strong sense of community
- Low levels of stress
- Job satisfaction
- Feeling safe and secure
- Having good physical health
- Having good mental health
- Opportunities to learn and develop
- Satisfying income
- Lack of outdoor air pollution and noise
- Spiritual purpose

In this last section we ask demographic information for segmentation purposes. As a reminder, all survey responses are anonymous and you may choose to skip any questions you may feel uncomfortable answering.

In what country were you born?

What country and city do you call home?

What is your gender:

- Male
- Female
- Transgender
- I prefer not to say

What is your age?

Please specify your race or ethnicity:

- International
- White
- Black or African American
- Asian
- Latino
- Other
- I prefer not to say

Please specify your affiliation at HKS:

- Student
- Staff
- Faculty

How long have you been affiliated with HKS?

- 0-2 years
- 3-5 years
- 6-11 years
- 12+ years

Which mode of transport do you mainly use to commute to and from the HKS Campus? (Please select all that apply.)

- Car
- Bike
- Walk
- Public transportation
- Other

Please feel free to add any other comments about health and well-being at the HKS campus.

You are invited to participate in an HKS Health Assessment survey. This effort was commissioned by the HKS Sustainability Committee and in collaboration with the Healthy Places class at the Graduate School of Design under the guidance of Professor Ann Forsyth. This survey is part of our continued efforts to improve sustainability and well-being on the HKS Campus.

Please use the URL below and share your responses by Friday, October 23rd

https://harvard.az1.qualtrics.com/SE/?SID=SV_cRSs79pv8wP0TEF

What services and policies around the HKS should improve to better support physical and mental wellness?

Are there places at HKS that are more or less conducive to those with any type of disability, even temporary?

Good?

Bad?

How does HKS prepare you for optimized health and wellness in old age?

What places do you avoid/use less or find unsafe, unsettling, stressful, anxiety producing, unfriendly, or uncomfortable? Where?

What places do you avoid/use less or find unsafe, unsettling, stressful, anxiety producing, unfriendly, or uncomfortable? Where?





Top Left | Tabling Map
October 19, 2015

Bottom Left | Tabling Map
October 20, 2015

Top Right | Tabling Map
October 21, 2015

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