

# The Bechtel Residence: House Colonies Report

## 1 Background

The Bechtel Residence, named for Caltech Life Trustee Stephen D. Bechtel Jr., will provide undergraduate housing to 212 students, allowing 95% of undergraduate students to live on campus and fully participate in residential life at Caltech in the Fall of 2018. However, approximately 137 beds in Caltech-owned off-campus housing will be unavailable to undergraduate students, as the House OCAs, 150 Chester, and 1170 Del Mar buildings will become graduate housing in Fall 2018. In May of 2017, three groups were formed to provide input on which students would live in Bechtel: a group of faculty members, Housing staff, and a coalition of student-led groups. The student groups were organized to investigate and generate proposals on the institution of a residential system in the newly established Bechtel Residence. Students at-large were surveyed and solicited for different residential life schemes including: themed housing, unaffiliated housing, sophomore-priority housing, all-freshman housing, and house-affiliated suites. Here, we investigate the feasibility of assigning some number of Bechtel suites to each House to be filled by members of that House, resulting in House “Colonies” in the Bechtel Residence.

## 2 History of Caltech Housing

We will begin by establishing the core values with which the residential systems were built, and then examining whether these values are met through the current system and whether these values should be maintained and/or augmented. Caltech was established as the Throop University in 1891. From the first year of courses in 1892, Throop University provided housing for a portion of students in the original Wooster building. A dining hall was established to “make the total cost of living less than is usually possible in California.” The South Houses, including Dabney House, Ricketts House, Blacker House, and Fleming House were erected by 1934. The completion

of these first four houses were part of an original plan to develop a series of 8 “residential halls” each with “its own distinctive atmosphere, each to be the center about which the loyalties developed in student days and the memories of student life shall cluster.” In 1934, students were required to stay on-campus, unless a special exception was granted. When the North houses were established (Page, Ruddock, Lloyd) it was mentioned that each of the seven Houses will have “their own elective officers and [were] given wide powers in the matter of arranging their own social events, preserving traditions, and promoting the general welfare”.

### 3 Values

The values mentioned in the charter for the original Caltech houses from the original donors are those that are reflected in nearly every collegiate residential life system. They should be cost-effective, offer students to form groups by their interests and to form atmospheres that will be the center for student life. These values and values mentioned by contemporary students, faculty, and staff will be the values that should be implemented in the final housing solution.

- Cost effectiveness
- Distinct group atmospheres
- Multi-generational mentorship
- Integrity
- Diversity
- Friendship
- Leadership
- Academic Success

#### 3.1 Cost effectiveness:

Affordable housing and board are very important to students. Caltech students come from a variety of backgrounds, and some will incur significantly more debt by staying on campus. A plurality of juniors and seniors who are living off-campus are living off-campus because of the cost and quality of on-campus housing and board options. The total cost of living on-campus

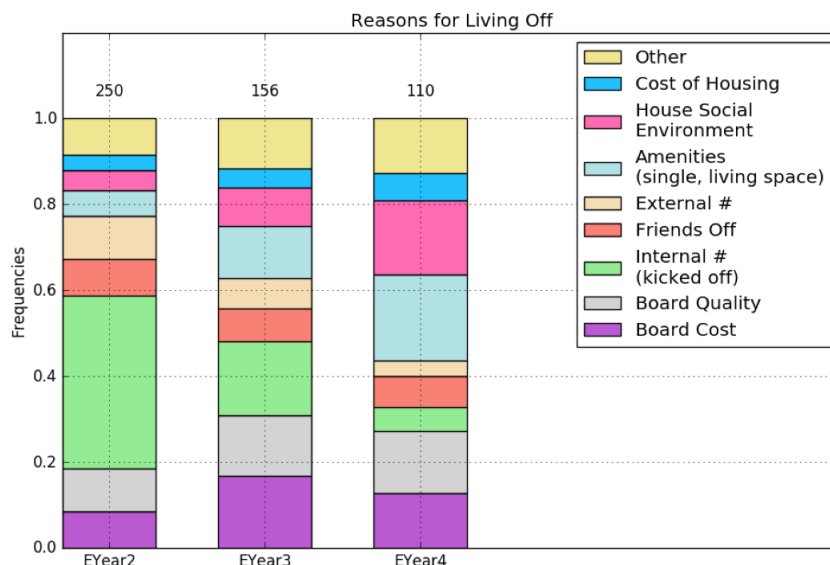


Figure 1: Single most important reason for living off campus, sorted by “Effective Year.” Effective year is the reported year living off minus matriculation year. EYear2 generally corresponds to sophomores, EYear3 to juniors, and EYear4 to seniors. [6]

in the 2017-2018 school year is \$4879.00 per term (74 days, or about 2.5 months). In contrast, an independently rented furnished residence shared among students can cost approximately \$1800 per term, and spend \$600.00 per term in groceries (according to average grocery prices in Pasadena). The residences that will be eliminated in Fall 2018 provided an option for students to save about 1,400 dollars a month on board. The cost/quality of housing and board make up a large portions of the reasons why students choose to live off-campus (Figure 1).

### 3.2 Distinctive atmosphere and traditions:

By and large, each House has fulfilled the challenge of creating a distinctive atmosphere. Since the early 1930s, freshmen and sophomores in Ricketts House compete for a metallic brakedrum in a cathartic competitions called Piles. every year on Halloween Dabney House drops a pumpkin from the top of Millikan tower as a parody of Millikan’s famed oil-drop experiment.

In many cases, just by walking into a House's courtyard, one can begin to understand that House's atmosphere. Over the years, Caltech as a whole has developed many significant traditions, such as Ditch Day which occurs in every House. These traditions, at heart, create occasions for students to collaborate with each other on something other than academic work. In addition, Houses have regularly competed with each other athletically since their institution in games such as Dodgeball, Basketball, Spike ball, Floor ball Ultimate Frisbee, and Table Tennis.

### 3.3 Multi-generational mentorship:

The Caltech's symbol and seal since 1891 has been that of a person passing on the torch to another. This principle is represented at Caltech in many ways: not only a passing of the knowledge from the professors to the students or giving trust and responsibility to students to conduct original research, but also the guidance provided from the existing students to the new students. Freshmen entering Caltech are faced with a number of challenging tasks: making new friends, doing laundry, scheduling, challenging coursework, and for some, impostor syndrome. The Houses were in fact designed to help new students handle this transition, for every new freshman there are almost 3 upperclassmen who have each been in their shoes and are eager to help (perhaps because they were helped by upperclassmen when they were freshmen). It is also generally upperclassmen's responsibility to host events and traditions aimed to welcome and incorporate freshmen into the Caltech community.

### 3.4 Integrity

The Honor Code is a principle that is both unique to Caltech and ubiquitous at other institutions. It is ubiquitous in the sense that nearly every college in the United States has a form of the Honor Code. However, at these institutions, it seems to merely be an empty promise. Many institutions of high academic caliber such as MIT, Harvard, Stanford and Yale have been plagued by "course-bibles", distribution of old exams, copying off of other students, and texting during exams. Some of these instances have been caught [4, 8], but many of these methods are surreptitious enough to avoid detection by the institution's administration. At Caltech, the Honor Code is unique in the sense that it is omnipresent, followed stringently, and rigorously enforced socially. The preservation of the Honor Code seems to follow from the interactions between the freshmen and the upperclassmen.

The freshmen observe that all of the upperclassmen in their House hold the Honor code highly, and follow suit.

### 3.5 Diversity

Diversity comes in several forms, from diversity of ideology, major, gender, race, and interests. At times, Houses can suffer from a lack of diversity between particular Houses (Figure 2), and therefore limit exposure to groups with different interests. However, the House system excels in the sense that it forces people who would create small homogenous groups to interact with those different than them in House events and dinners all four years.

		Consistently Interacts with _____ House								
		Avery	Blacker	Dabney	Fleming	Lloyd	Page	Ricketts	Ruddock	
Respondent House	Avery	0.951	0.306	0.209	0.129	0.403	0.274	0.177	0.516	
	Blacker	0.366	0.977	0.644	0.1	0.188	0.155	0.611	0.488	
	Dabney	0.355	0.627	0.932	0.05	0.101	0.05	0.576	0.355	
	Fleming	0.156	0.093	0.078	0.937	0.39	0.75	0.265	0.406	
	Lloyd	0.431	0.156	0	0.274	0.98	0.372	0.235	0.45	
	Page	0.338	0.046	0.046	0.6	0.63	0.83	0.215	0.276	
	Ricketts	0.223	0.477	0.567	0.208	0.343	0.223	0.97	0.388	
	Ruddock	0.452	0.214	0.154	0.19	0.44	0.273	0.404	0.916	

Figure 2: Table of cross House interaction. The House of the respondent is given on the X-axis. Each table entry is the fraction of respondents from a House that reported “consistently-interacting” with a member of another House. [7]

### 3.6 Independence

For some time, OCAs offered an option for students to live outside the House system. Many students displayed the desire to remain affiliated (around close House-members) but away from distractions, with the ability to cook for themselves, and remain more independent.

### **3.7 Leadership**

The current housing system allows for strong student representation that is focused on enhancing the experience of every Caltech student, whether they live on-campus or off-campus. Each House elects officers to several positions including President, Vice President, Secretary, Social VPs, etc. These officers organize events, act as liaisons to administration, faculty, and staff.

### **3.8 Friendship**

Even if a student only interacted with those in their House, and not with students from other Houses, classes, or clubs, they would develop friendships with approximately 200 people over four years. The current system allows each student to be affiliated with multiple Houses, allowing them to participate in events with a whole new set of people.

### **3.9 Academic Success**

Academic success is difficult to compare. Caltech is notorious for making students earn their grades, and GPAs are, on average, lower than those at other institutions. However, it is important to remember that adherence to the Honor Code has an impact on GPAs, if students no longer follow the Honor Code, their performance is likely to be better.

## **4 Residential Life in Other Institutions**

### **4.1 Massachusetts Institute of Technology**

MIT has 10 existing Residence Halls (not including Senior House). 5 of the Halls require meal plans, and all except the all-female McCormick Hall are coed. Traditionally, MIT had a week called “R/O week,” which was similar to Rotation and involved freshmen visiting and evaluating all the different living options at MIT before deciding. This ended with a fraternity death in 1997, after which freshmen were required to live on campus (unless they live in the greater Boston area). After freshman year, students can continue living on campus or choose to live in a fraternity, sorority, or Independent Living Group, which are on or off campus. With the exception of Kappa Alpha Theta, Kappa Sigma, and Pi Beta Phi, FSILGs, as they are abbreviated, are all independently owned and operated by alumni

house corporations not affiliated with MIT administration, and MIT is not responsible for the governance, operations, and maintenance of the facilities.

MIT has several tight-knit communities that could be analogous to the Caltech Houses. For instance, New House, a coed on campus dorm, is composed of 3 “Numbered Houses” and 3 “Cultural Houses”, each with its own community and culture. East Campus is also broken down into several sections that are further broken down by floors. FSILGs are also similar to Caltech Houses but are markedly different in that they are much more independent.

Students can also choose to live unaffiliated in off-campus housing, for which MIT devotes a website and office to help find affordable prices.

MIT does not have the equivalent of House “Colonies”, since Houses are not the predominant social structure any “House-like” community is small enough to not require another section elsewhere on campus. It is interesting to note that although freshmen are not allowed to rush fraternities or sororities their first year, they do not have any equivalent of all-freshmen housing, since upperclassmen advice and guidance is seen as critical for a smooth adjustment to the intense academics of MIT education.

## 4.2 University of Cambridge

Housing is allocated on student preferences, year, and price range. At some colleges, there are “staircases”, much like alleys, to create more of a community feel. One’s major, age, and gender identity does not seem to be a big influence to their dorm, much like Caltech. Freshmen do seem to be grouped together in certain dorm buildings, but spread out afterwards. Housing accommodations drift away from dorm style and are more like renting out an apartment/house. The housing lifestyle does not really seem focused on creating a community, but more of just giving students a place to live within their price range. There is also a ballot system in place for sophomores and higher and freshmen do not really have much of a choice of where they want to live initially. For the ballot system, a group of students can enter the ballot together to live close to each other the next year, which could be a possible method of figuring out who gets to live in Bechtel within each house. All these smaller colleges within university of Cambridge are about the same size as Caltech so it’s a good comparison in terms of size. Housing buildings range from being on campus (which are usually given to freshmen) as well as college owned houses/apartments outside near the college (older students). There is guaranteed housing all four years for most colleges. Colleges at Cambridge have something somewhat similar to colonies. This could

look similar to placing students from the same house in one alley of Bechtel or assigning sections of Bechtel to different houses. Also a ballot system like theirs could be used to choose which group can go live in Bechtel.

### 4.3 Yale University

Yale's residential college system was established more than 70 years ago and is composed of fourteen residential colleges, each of which are "close-knit communities." Each of the colleges provide several amenities through which students can interact and develop relationships, including a dining room, gym, courtyard. Students also benefit from a "Buttery" that is similar to Chouse. The colleges have formal FIRs known as the Heads and Deans. Students are randomly assigned to one of these colleges, and remain affiliated with their colleges throughout their years at Yale and beyond. The selection process is an effort to create a microcosm of the larger student population. Yale also exposes their students to different life experiences and perspective by assigning roommates based on a short survey that consists of questions like "How do you think other would describe you" "What do you like to do for fun?" "What was your favorite class in high school?" "What is your major?" The goal is to provide compatible yet complementary pairings between roommates. Anecdotally, a friend who is focused in Mathematics and Biology was paired with a Japanese chess champion majoring in English. In many ways, these residential colleges are quite analogous to the houses at Caltech, with some caveats: the houses are much more informal, with no faculty imposed events or faculty leadership. In addition, roommate selection usually occurs by choice, if necessary. In recent years, more Yale students prefer to move off-campus for a number of reasons including high on campus housing prices, inflexibility in the board program. Yale does not have off-campus residential college-affiliated houses/apartments (OCA).

**Statistics:** 84% of Yale undergraduates live on-campus, which is nearly identical to Caltech's ratio of students (85%) living on campus versus off campus (including the OCAs). Without the OCAs, this ratio falls dramatically to 71%.

## 5 Suite Style living

Suite-style living provides a number of benefits that are desired by Caltech's sophomores, juniors, and seniors. Suite style living offers students a higher degree of privacy and control over their interactions. This privacy can be useful if students want to be away from noise or other disturbances (which



was a concern for some students living in unaffiliated housing). Suites have been shown to provide more independent living for upperclassmen as “apartment style residences, with individual private spaces, allow upperclassmen to feel independent while still living on campus to help mentor freshmen and sophomores” [5]. Additionally, we expect that the members of the suite may form closer friendships, which can provide a tight-knit support network for physical and emotional health encompassing a range of college majors, interests and houses.

This style of living also presents important challenges that must be overcome throughout the year. Several studies have shown that one of the primary challenges of suite style living has been to find “means to avoid social isolation due to the physical segregation of suite-style halls” [3]. This concern is confirmed by students who feel “awkward walking into someone else’s suite” [1]. Bechtel should have suite-inclusive events to prevent students from only interacting with their suitemates. The architectural design also poses a challenge for counseling because it takes “more time and effort to discover students who may need help in suite-style or apartment style residence halls where there is a higher degree of privacy” [2]. Suite-style living will limit interactions between students, but this is only particularly damaging to freshmen residents. “... if housing professionals want to place first year students in an environment where the possibility for interaction is the highest, then regulations that limit housing options for first year students to traditional residence hall environments might be advisable” . Since freshman year is an important transitional period in which students must quickly acclimate to difficult coursework, receive mentorship, and build a strong social and support networks, these challenges will have a particularly damaging effect on freshmen.

## 6 Colonies

### 6.1 Logistics

The logistics of the Colonies plan is quite similar to the current system. Assuming that the cost of Housing and Board remains similar, the proportion of students that lived in OCAs should live in Bechtel in the same proportion. There are sixteen 8-membered suites, two 12-membered suites, four 6-membered suites, five 4-membered suites, and 16 detached singles. Each suite has double-vanity bathrooms at a ratio of 4 students per bathroom. Between these suites will be lounges and other common areas. Therefore the rooms that need to be filled will mostly be in the 27 suites.

- Each of the Houses will be assigned 1 suite to fill through their internal roompicks process. The House will inform the Housing office of the suite picks.
- After the house internal picks, groups of students (without restriction on house affiliation) will submit a combined application for suites to the Housing office. Suite groups applications will be selected at random to fill Bechtel.
- A small number of singles will be reserved for special circumstances, including UCCs.

## 6.2 Ratio of Sophomores, Juniors, and Seniors

In this plan, freshmen will rotate, as before, into one of the other eight houses, and will be joined by the remaining juniors and seniors. The students who live in these suites will be determined through the House's internal picks system, but we would urge House leadership to adopt a system of mandated class ratios. For example, in Ricketts House the ratio of juniors to sophomores living in the House cannot exceed 3 to 2. This prevents sophomores from being absent in the original house (Figure 1). We expect that about 70-80% of suites will be filled in this manner. This process is most similar to the general off-campus lottery, and helps to support the loss of all Caltech-owned off campus housing.

## 6.3 Positioning of Colonies

The positioning of the colonies has the potential to mend a lack of interaction between particular houses (Figure 2). However, this must be balanced with incompatible interests. For example, a colony that appreciates a quiet and serene environment should not be placed alongside a colony that enjoys to have loud activities. For this reason, the positioning decision will be left to the IHC and the Housing office.

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