

Online Recontracting: Increasing Efficiencies in University Residences

Barbara Frazee

Purdue University Residences

Bob Heitert

Purdue University Residences

Jody Couch

Purdue University Housing and Food Services Computing

John Richardson

Purdue University Residences

Kristal Arnold

Purdue Marketing Communications

Abstract

Purdue University Residences, the largest housing operation in the country that does not require freshman residency, sought and secured a solution to an inefficient paper-based recontracting process. In less than one year, a team researched the possibilities, determined a response, justified the solution, and delivered a product that offers numerous efficiencies and cost savings, from decreased staff time to increased resident numbers. Purdue's online recontracting system is a definite best practice to be considered for this award and shared with other universities across the nation.

Introduction of the Organization

Purdue University is a land-grant research institution with 39,000 students on its West Lafayette, Indiana, campus. University Residences houses nearly 11,000 of those students in 15 on-campus facilities. Students are not required to live in University Residences their freshman year or any subsequent year, yet University Residences currently houses 90 percent of the incoming freshman class, which this year topped 7,500 students.

University Residences comprises 12 traditional halls (two of which include suites with baths), an undergraduate apartment complex, and a family apartment complex. All residences require an academic-year contract.

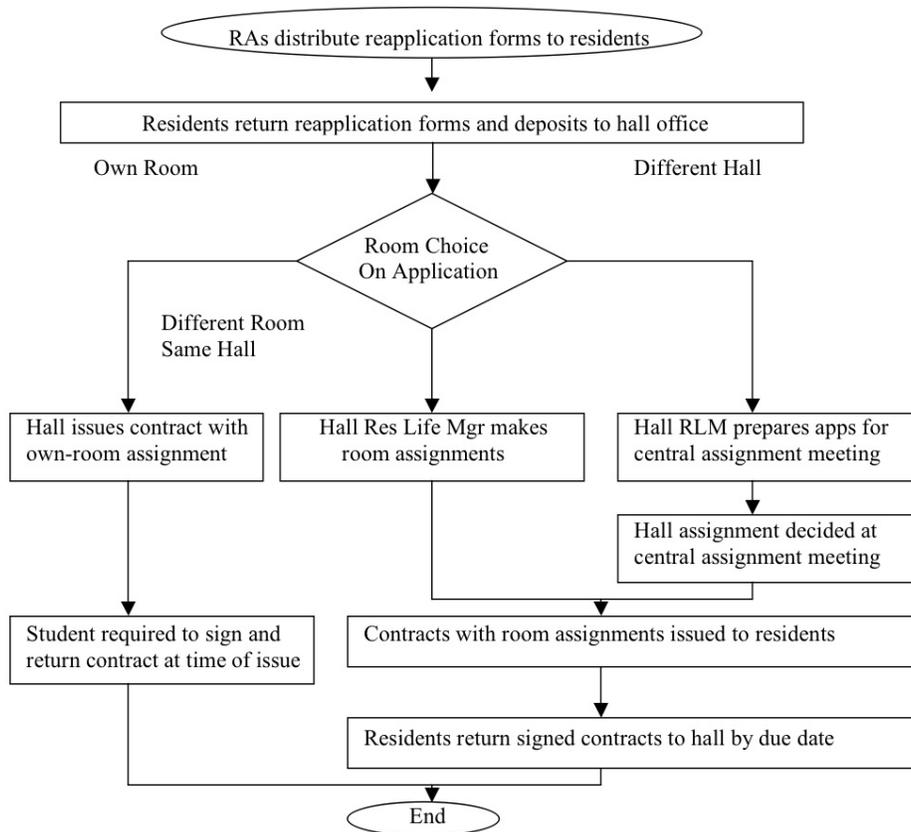
Actual room inventory consists of 981 married-student apartments and 10,537 single-student spaces: 9,360 in rooms and 1,177 in apartments. University Residences has had a 37 to 41 percent reapplication rate over the past three years and has recently had to offer supplemental housing to fill the need.

Each hall operates as a separate unit with a general manager. The general manager has responsibility and authority over residential life, housekeeping and maintenance, dining services/retail dining, office and operations, and the budget.

The strong history of University Residences lies with the popularity and strength of the halls, the variety of spaces offered, and the varying styles and personalities of each residence.

Statement (Restatement) of the Problem/Initiative

University Residences encourages residents to reapply and recontract for space in university housing. The former multi-step recontracting process required students to wade through a long paper application and contract, with an additional staff-managed process for selecting rooms according to preferences and roommate requests. These processes were cumbersome for students and necessitated a massive amount of paperwork, data entry, paper storage, time, and energy from University Residences employees. For a more complete representation of the inefficiencies of the overall process, see the diagram below.



University Residences administrators identified online recontracting as a way to streamline the above processes. With the new system, students are able to select a desired

room and hall, identify a requested roommate, and sign a contract in one step, completing the process early, saving data entry, virtually eliminating manual assignments prepared by staff, and reducing paper storage and overall staff workload. In addition, an online system helps advance University Residences in the minds of students, as they become increasingly technology savvy and conduct the majority of their business online.

An online process not only provides better service to students and helps reduce workload, but it also could improve retention rates. Streamlining the process for early completion gives University Residences a significant advantage since other living facilities in the area are competing for students, encouraging them to move out of University Residences and live off campus.

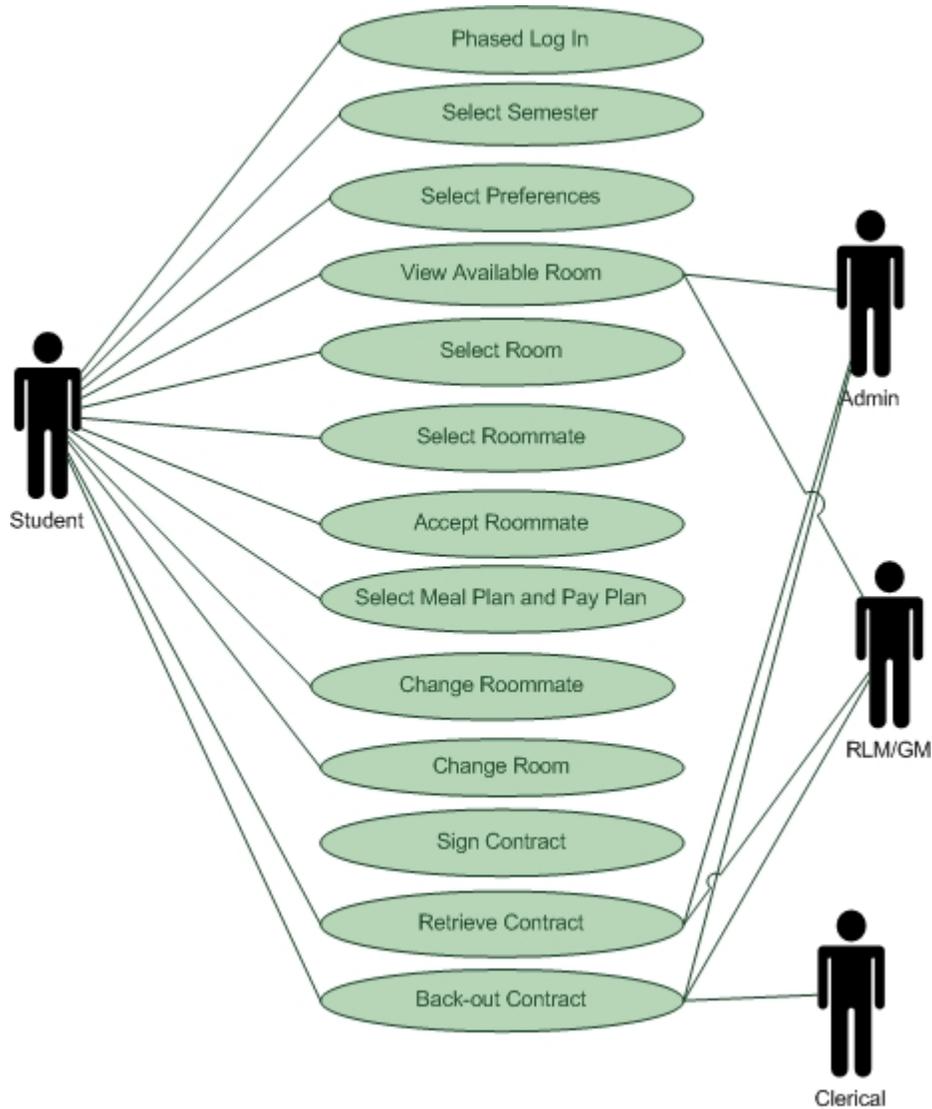
Design

University Residences produced a Web-based software system to allow students to recontract for a residence hall room based on timed phases. It authorizes students to add preferences, select a room and roommates, and sign a contract in one action. This system replaced the paper-based application and contract system for returning students in January 2006.

The initial step in the project was a visit to the University of Illinois to explore its online application process and systems. Several subsequent meetings involving various directors (of University Residences, administration, computing) and managers (of data analysis, housing assignments, Residential Management Systems) generated a project scope, charter, and Microsoft Project timeline for the project plan. The scope and charter detailed the product, justification, deliverables, objectives, business case, resource estimates, history, and roles and responsibilities.

To ensure buy-in from everyone involved, University Residences took a team approach in the design and testing of the system. This team included staff from the University Residences director's office, Residential Management System administrators, general managers from the halls, and programming and design staff from Housing and Food Services Computing and Housing and Food Services Marketing. Two new staff members were added to help round out the team and complete the project: a programmer/analyst and an application support coordinator who tests, documents, and trains staff on new systems. These two employees have since taken on regular, broader responsibilities and are not a continuing cost for the project.

In the design of the actual software system, the computing department used object-oriented programming, a programming paradigm intended to promote greater flexibility and maintainability, and use-case modeling, a technique that shows relationships among a user and the uses of a system (see diagram below).



Use cases were developed from the team design meetings, and every possible action or set of actions required of the system was captured, along with pre or post conditions, action steps, and alternate courses of action. Computing staff attended a week of on-site training to familiarize themselves with the new programming language used to

code the system, Microsoft.net C#, which was selected for its versatility as a common programming language. Versatility was central to the entire design of the system, built so that additions and corrections could be made quickly without interrupting the recontracting process. Once the computing department built the database and code, it was handed to the marketing department for development of the site's flow, look, and feel.

The system uses a controlled-access method, allowing access to residents in priority order. The system consists of 13 phases with subgroups, beginning with students recontracting for their own room, then single rooms, then other rooms in their hall, and finally rooms in other halls. Students are granted access depending on their academic classification, which standardizes the process so that each hall uses the same criteria to prioritize their residents. The phases are as follows:

1. Own room
2. Singles who have lived more than 700 days in a hall
3. Singles who have lived more than 350 days in a hall
4. Singles who have been in the system for more than 700 days
5. Singles who have been in the system for more than 470 days
6. a. Own hall, senior b. Special sections, senior
7. a. Own hall, junior b. Special sections, junior c. Displaced own hall
8. a. Own hall, sophomore b. Special sections, sophomore
9. a. Own hall, freshman b. Special sections, freshman
10. Different hall, senior
11. Different hall, junior
12. Different hall, sophomore
13. Different hall, freshman

The system interfaces with the Residential Management System, a database software used to manage room and spaces in university housing. With security and reliability as high priorities, five new Web servers were purchased to house the system.

Including initial cost, installation, and support, the servers cost an average of \$23,000 per year over three years, after which they will need to be replaced. The cost of

labor totaled 1,194 hours for creating the system and for training. The project, however, is estimated to save 3,008 work hours annually for clerical staff, residential-life managers, and other staff, in addition to annual savings in materials and printing costs (not having to print 11,000 applications, contracts, cover letters, labels, envelopes, etc.) and the cost of credit card fees from deposit transactions (about \$5,000 per year), which are no longer required.

Implementation

The execution of the project began immediately after the visit to the University of Illinois, which occurred in April 2005. Determining and creating the project scope and charter took about two months. This was followed by requesting resources, readying the database, setting up the Web environment, designing the system, and training staff, which took an additional month. The system then had to be created and interfaced with the Residential Management System, which also took a month.

The marketing design portion took about one month, as well, and included a usability session in which the marketing team invited resident assistants to try out a prototype of the site before the launch in order to observe how users navigated the site. After requesting they perform certain tasks, the marketing team asked if they were able to complete the task and if not, what caused the confusion. This helped the team pinpoint trouble spots in the design and gather feedback from first-time users.

Testing the system took about 21 days and was completed in phases. It was tested first by the developers, then the application support coordinator, the design team, and, lastly, the marketing department and volunteer students. The testing period also included a security audit by Purdue's central information-technology department, which consisted of vulnerability testing to ensure the site was secure, since it is housed on Web servers that include other sensitive data.

The technical aspects of the system were completed by December 2005 and the product was handed off to various directors and team members to determine and modify the content, review reports, and resolve any discrepancies in the student data with which the system would interface.

An administrative team spent a considerable amount of time writing the scripts and text used throughout the system, keeping in mind the student audience that would be viewing the pages. Included in this effort was the construction of comprehensive frequently asked question (FAQ) pages.

Since the data for the site came from the Residential Management System, it was important for the information to be as up-to-date as possible. Discrepancy reports listed any rooms or students who, for one reason or another, may not display properly in the system, and efforts were made to rectify those concerns.

The team also addressed changes that this new system would encompass. Leaving all of the paper behind would probably lead to a feeling of insecurity for some staff members. Additionally, certain time-honored practices at the halls had to be reviewed and consolidated into a more centralized process. A good example of this was the many ways in which single student rooms had been assigned in the past. Criteria varied at each hall and over many years included items such as seniority, number of semesters living in a hall, and student organization officer positions. Consensus had to be achieved on manageable and reasonable criteria that would fit into the system.

As with any new program, changes would have to be addressed in training sessions. One staff member was assigned to design and implement a training program for the system. The training program was multi-faceted, including separate sessions and informative documents for hall managers, clerical staff, and residential-life staff. The purpose of the training was to provide enough information to the staff to give accurate feedback to student questions about the system. Their familiarity with the system would be beneficial in decreasing any anxiety and frustration that student users might have. In

addition, managers and clerical staff needed to be trained on their various roles in managing the site.

Marketing pieces were developed for parents and students, and a Macromedia Flash video was created for the site. About a week before the site launched, students were notified that the site was available for viewing, although the interactive piece would not be active until the first official day. This provided them an opportunity to familiarize themselves with some of the pages and phases of eligibility before they actually needed to insert information.

The recontracting Web site officially launched on January 24, 2006. Although it exhibited some bumps along the way (such as denied access for students, a few server problems, and student errors, all of which were handled promptly), data flowed through the site as anticipated. University Residences even provided a professionally staffed Help Desk to log and respond to help requests by phone and e-mail Monday through Friday. Eventually, 4,298 students were contracted through the site. University Residences expects to recontract 4,400 students for the 2007–08 academic year.

Benefits

The numerous advantages realized by this system begin with decreased staff time. There is less time spent handling paper and entering data from paper applications, and there is no time spent printing and mailing contracts. It is also now unnecessary to hire temporary staff to enter applications into a database, and a considerable amount of labor at the hall level has been eliminated (distribution and collection of applications and contracts, and the major organization effort for interhall transfers).

The amount of paper required has been dramatically reduced (11,000 applications, contracts, room labels, etc.), as have mailing and printing costs. An online system has also eliminated the possibility of losing an application or contract and removed any confusion over having to complete and sign both an application and contract.

The system was built in such a way that it modernized the old recontracting process while retaining the core of an existing complex priority system for choosing rooms. It also improves security and consistency and gives access to multiple individuals needing to review data simultaneously. Additionally, the system offers a reusable infrastructure for future projects.

This recontracting site was the first large project completed jointly by the computing and marketing departments. Not only did it help bridge the gap between internal and external systems, but also it inspired organizational restructuring that has improved productivity and helped create new synergies.

Lastly, and perhaps most importantly, the system is easier, quicker, and now offers students the ability to choose their own room, all of which combine to increase the number of students who choose to recontract with University Residences.

Retrospect

After the launch, the team revisited several issues and requests, such as allowing administrators to log in as a student to view what the student sees and sending out confirmation e-mails after a student signs a contract. Other issues included giving students the option to flag themselves as “not returning” with a space in which to give a reason and adding dates on the site when the system would be down for maintenance. All of these issues and requests were addressed and added as updates for the following year.

The previous housing application deposit of \$75 was abandoned with the new system, and although not collecting the deposit saved much time and effort, the team acknowledged the possibility of it leading to system-clogging by “marginally interested” students. This has not occurred, but it is still a concern.

The fact that decisions on room blocks (for medical needs, athletes rooms, etc.) must now be made earlier in the year was not initially taken into account with this new online system. However, these decisions are now being approached in a variety of ways, and moving up the deadlines has actually given the team a clearer sense of direction for planning purposes.

With the incredible decrease in work time devoted to recontracting, the team did not realize the immensity of such a paradigm shift for the staff (the feelings of insecurity and lack of purpose that came with the absence of paper contracts and applications). The team tried to convey in training sessions that the recontracting process would be primarily paperless, but they now acknowledge that they probably could have determined strategies for utilizing the time they were saving because of the increased efficiency of the new process.