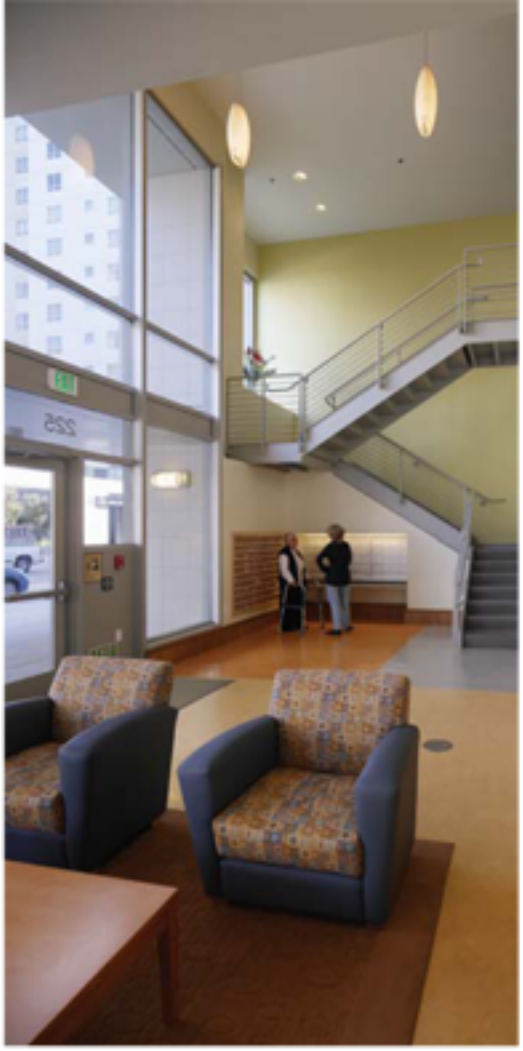


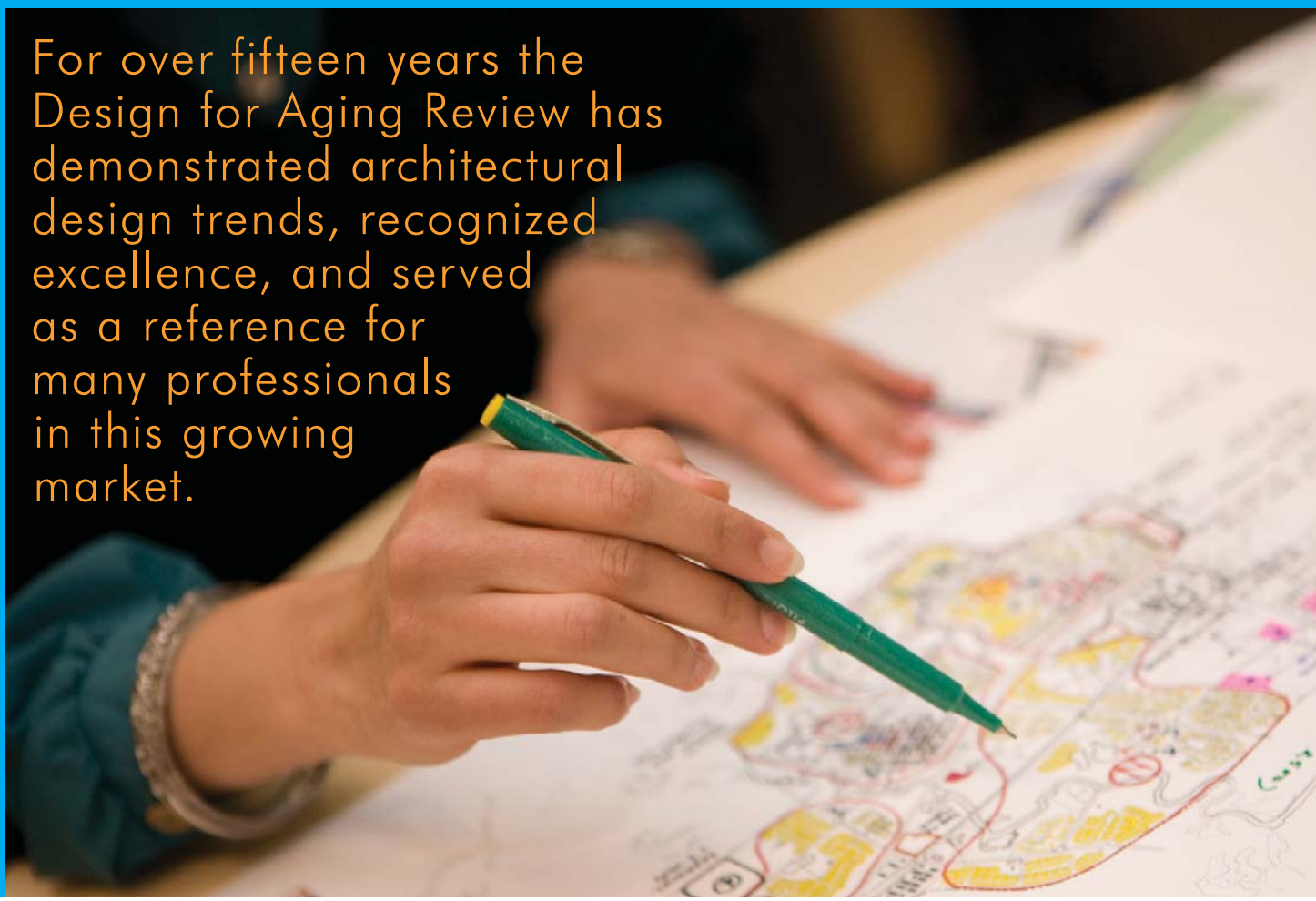
Design for Aging Review 9

Data Mining Findings

Kaplan Family Hospice House | EGA, P.C.

CONTENTS

INTRODUCTION



The mission of the AIA Design for Aging Knowledge Community (DFA) is to foster design innovation and disseminate knowledge necessary to enhance the built environment and quality of life for an aging society.[1] Research on the characteristics of innovative design for aging includes a biennial competition, the Design for Aging Review (DFAR), which showcases facilities that improve quality of life for the aging while exhibiting innovation in their design and execution. [2]

The DFAR program, a joint effort between the AIA and the American Association of Homes and Services for the Aging (AAHSA), began in 1992 and includes a juried exhibition, a companion book, and education programs. For over fifteen years and with over 300 participating facilities, the program has demonstrated architectural design trends, has recognized excellence, and has served as a reference for providers, developers, users, advocates, architects, and other design professionals in this growing market. [3]

In September 2007, DFA conducted its first web-based submission process, for the 9th DFAR Design Competition. Over 70 applications were received from architects and providers, in four categories: Planning, Concept Design, Building, and Research/Post-Occupancy Evaluation (see Appendix A for a list of all 72 submissions). The data collected through the online submission process adds to the information that has been collected manually in the eight previous cycles that have been conducted since 1992.

In 2007, applicants were required to complete an online submission form, in any of the four submission categories.Planning submissions were required to be in the planning phase only; and may be community or campus plans, including master plans or re-positioning plans. Concept Design submissions included projects in the early stages of design. Building category submissions included built projects; either projects as a whole or small, stand-alone projects that are part of larger projects. Research/POE submissions included studies that emphasized the link between research and practice in the field of design for aging including the relationship between people and the environment and how the built environment can lead to better quality places and quality of life.[4]

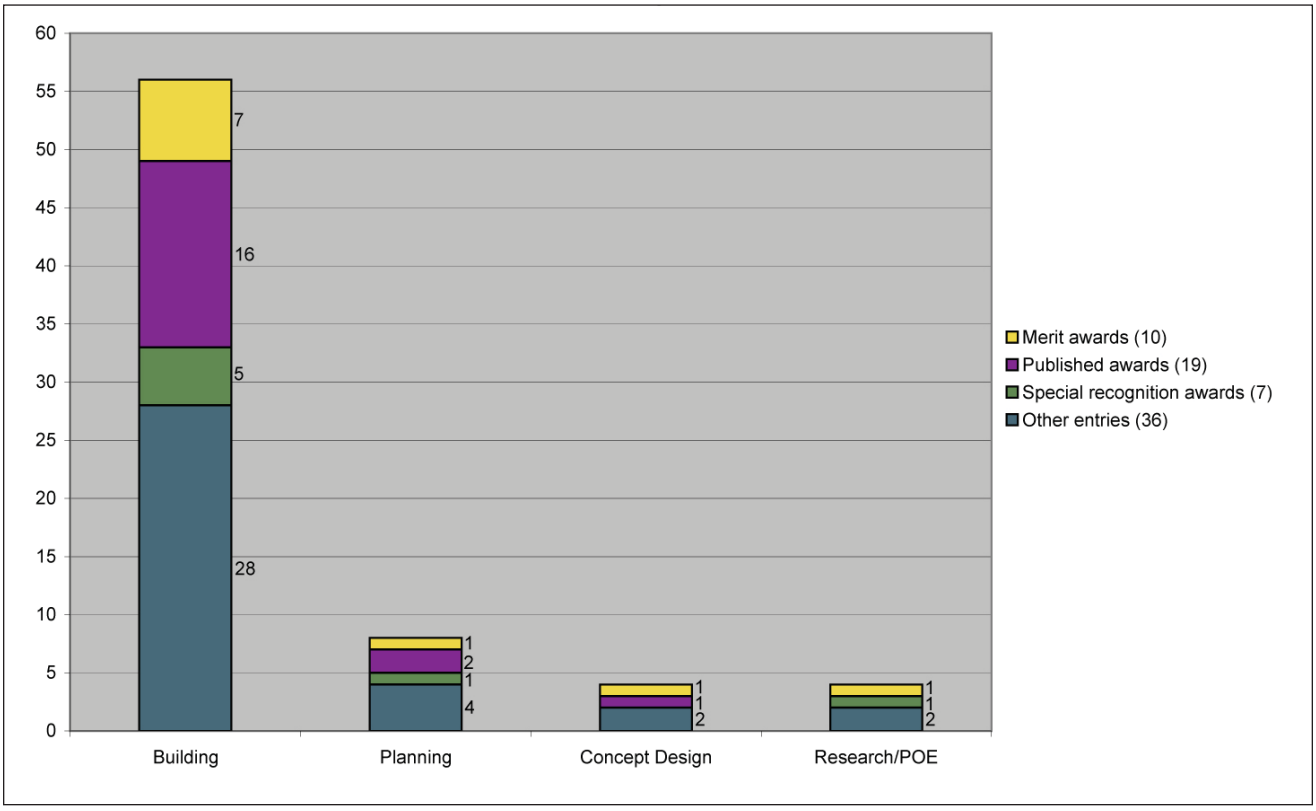
The submission form consisted of five parts (see Appendices B-E):

- Submitter Information (Questions E – AC)
- Project Information (Questions AD – EB)
- Provider/Manager Objectives Questions EC – EK)
- Population & Staffing Data and Building Project Data charts (submitted as Excel files that were uploaded separately)
- Project Objectives (Questions EL – FC for the Planning category, FD – FR for Concept Design, FS – GB for Building, and GC – GO for Research/POE)

72 submissions were received, 36 of which became the award winners. Award categories include Merit awards (to projects that represent advanced design concepts, research, and solutions sensitive to the needs of an aging population), Publish awards (for projects included in the DFAR9 book), and Special Recognition awards.[4] Because this is the first year that DFA collected information for categories other than Building, there were not as many submissions for the Planning, Concept Design, or Research/POE categories. However, this imbalance is likely to change in future years as more projects get submitted in the new categories.

In September 2007, the DFA conducted its first web-based awards submission process, for the 9th DFAR Design Competition.

DFAR9 Submissions Summary



Questions on the submission forms included the following:
Planning category:

- Submitter and project team information
- Project information: facility type, name and location, project summary, occupancy information, construction and zoning information, parking information, and project costs and funding
- Provider/manager objectives
- Population/staffing data
- Planning project objectives

Concept design category:

- Submitter and project team information
- Project information: facility type, name and location, project summary, occupancy information, construction and zoning information, parking information, and project costs and funding
- Provider/manager objectives
- Population/staffing data
- Concept design project objectives

Building category:

- Submitter and project team information
- Project information: facility type, name and location, project summary, construction dates, occupancy information, construction and zoning information, parking information, and project costs and funding
- Provider/manager objectives
- Population/staffing data
- Building project data
- Building project architect's objectives

Research/POE category:

- Submitter and project team information
- Project information: facility type, project description
- Research/POE project information

With the data now in hand, DFA recognized an opportunity: A great deal of information had been collected from architectural firms and service providers. If this information could be systematically analyzed, the results could be shared so that others could learn from the best projects in the country. In March 2008, DFA submitted a grant request to the AIA for the organization and analysis of the data collected from the DFAR9 Design Competition online submittals (see Appendix F). In May 2008, the AIA generously provided the necessary funds, which were matched by Perkins Eastman; and data analysis, performed by the Perkins Eastman Research Collaborative, began immediately.
The purpose of the research project is to describe patterns and statistics from the data; and share the findings with architects and providers who want to know the current state of practice. A second part of the project is to assess the submission form questions and the quality of the data received to determine how to improve the DFAR Design Competition submittal process to produce usable and informative data in the future.

The intent of the study is to:

- Enable members to learn about various design approaches to senior living in order to better serve their clients.
- Provide a foundation for AIA senior living evidence-based design.
- Promote a better understanding of the range of design goals and approaches, sharing lessons learned amongst peers.
- Provide a more comprehensive look at statistics, patterns, and innovations impacting the senior living industry and design community.
- Establish a data bank that in time will offer members the opportunity for "longitudinal" perspectives in the future. Particular interest may be trends in the size of resident rooms, how public space programs change over time, and the proportions between public and private space within a given building type.
- Provide a benchmark from leading-edge, state-of-the-art design submissions that can help the design community to "raise the bar" on the quality of design solutions we provide to the industry as a whole.

EXECUTIVE SUMMARY

Sun City Palace Takarazuka | BAR Architects

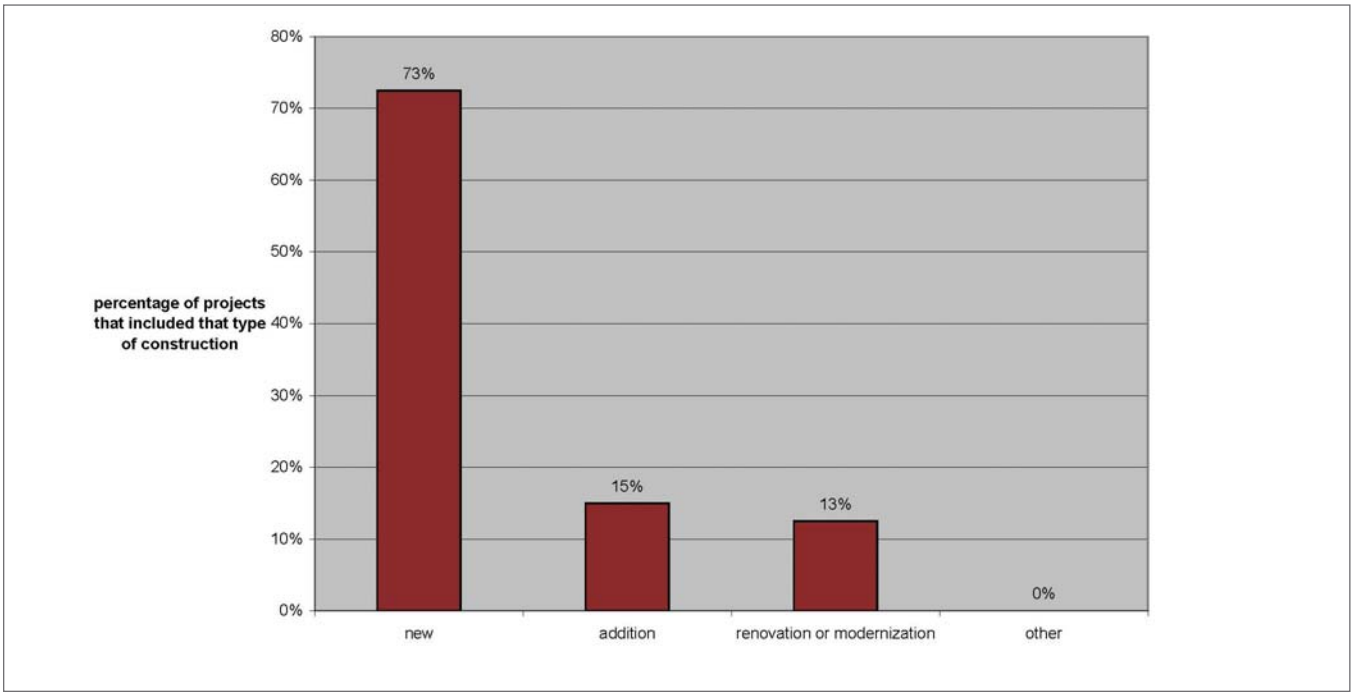
This data mining project offers an opportunity to glimpse best practices and emerging ideas in senior living design. It is a close look at a special set of recently designed or built projects that include the 36 DFAR9 award-winners. Unlike conventional research, data mining does not impose the structure of pre-determined questions, but rather elicits questions from the data that may offer insights into underlying patterns and evolving trends.

Data mining is an unusual and creative kind of research. It is designed to explore data for patterns or relationships. Instead of beginning with a hypothesis and using data to test the hypothesis, it starts with data and uses concepts to test the data. The purpose of this study is, therefore, to derive insights into relationships or trends that might lead to a better body of knowledge. It also provides an idea of what might be gained from analyzing the data from the entire history of the DFA awards program. In addition, it offers feedback about the way that the data have been gathered, particularly from this first on-line submission process.

Data mining is generally applied to very large sets of numerical or quantifiable data for the purpose of building predictive models. Such research studies demand both sophisticated analytical tools and rigorous statistical parameters. By comparison, the DFAR9 data are drawn from a very small sample and consist of a mix of both quantitative and qualitative data. The research techniques, therefore, rely on much simpler methods of finding commonalities and comparisons.

This report is organized in four parts. Section One, "Methodology", explains how the researchers approached the study. Section Two, "Data Mining Findings", summarizes the information that was derived directly from the submissions, which comprises the primary data analysis. Section Three, "Reflections on the Data", describes patterns or concepts that emerged from a secondary analysis derived from the findings. Section Four, "Quality of the Data", examines the questions that produced the data and recommends ways to improve data collection for future submission processes. The DFAR9 submission forms and detailed reports are provided in the Appendices.

Type of Construction (Building/Planning/Concept Design award submission categories, 68 out of 68 responses)



The data set consists of the information provided by 72 submissions to the 2007 DFA awards program. Understanding and analyzing the data was complicated for several reasons:

- The four awards categories—Planning (8 submissions), Concept Design (4 submissions), Building (56 submissions), and Research/POE (4 submissions)—included different sets of questions.
- The submitted projects consisted of any of nine building types; and varied from a single building to an entire campus.
- The scope of the submitted projects included new construction, additions, and/or renovations.
- During analysis, even after all of the submissions were divided into groups based on project similarities, in some instances there were more than ten comparable projects, but, in others, less than three.

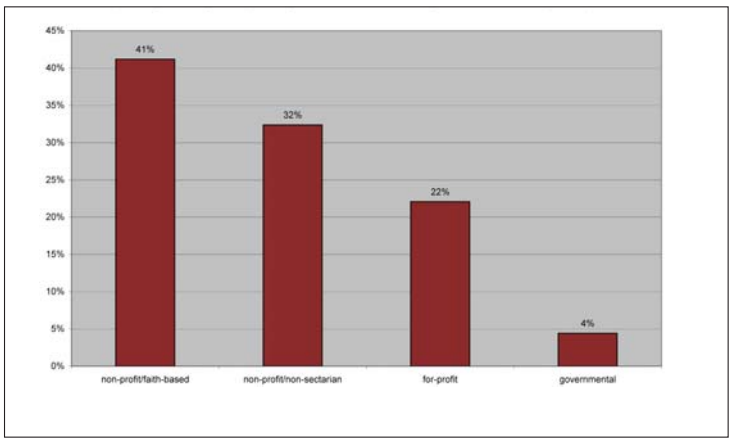
The submissions represent a broad cross-section of the senior living industry in terms of type of facility, context, and geographic location. While most serve middle- to upper-income residents, several are targeted to a more moderate-income market. The 28 award-winning projects in the Building category are spread fairly evenly throughout the United States, except the northwest region (which had no submissions in the Building category). The states with the most projects (at four each) are Texas and Virginia. The three international projects are all in Japan. The eight Planning projects, of which four won awards, vary from a hospice to a large CCRC; and are also geographically dispersed. The four projects in the Concept Design category, which include two award-winning CCRCs, all have an emphasis on wellness and sustainability. The four Research/POE projects are quite diverse, focusing on perceptions, preferences, and levels of satisfaction in programming and post-occupancy.

The projects submitted to the DFAR9 program consist of nine building types: Independent Living, Assisted Living, Skilled Nursing, Special Care Unit, [15] Wellness/Fitness Center, Hospice, Senior Community Center, Other Medical Services Care Facility, and Other. However, a majority of projects only include Independent Living (18% of the submissions), Assisted Living (14% of the submissions), Skilled Nursing (13% of the submissions), and Special Care Units (14% of the submissions). There were vast differences in the data provided by each of the 72 submissions, though patterns did emerge. However, in some instances, extreme cases had to be excluded from comparisons since a unique project would skew the calculations.

The projects range in size, from small chapels to large Continuing Care Retirement Communities. Total project costs for 80% of the submissions range from $1.93 million to $92.3 million, though there are projects as small as $1.18 million and one as large as $225.3 million. Almost three-quarters of the submissions are new construction, plus 15% additions and the remaining 13% renovations or modernizations. It was not clear if the addition/renovation projects were just upgrading or if they were repositioning themselves to address new market demands, changing unit types, or offering different models of living.

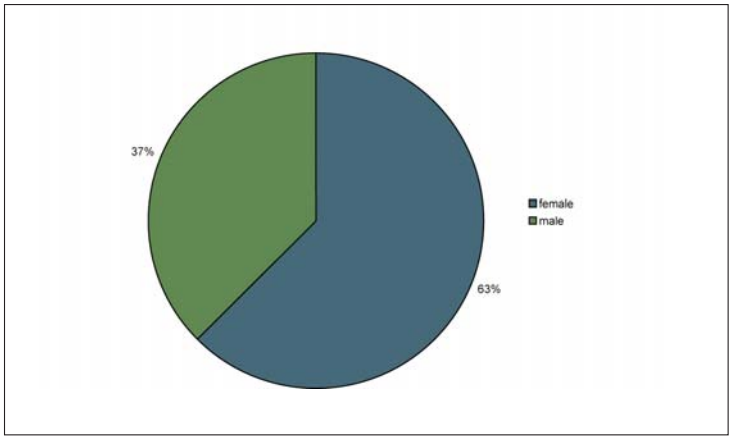
Organization Type

(Building/Planning/Concept Design award submission categories, 68 out of 68 responses)



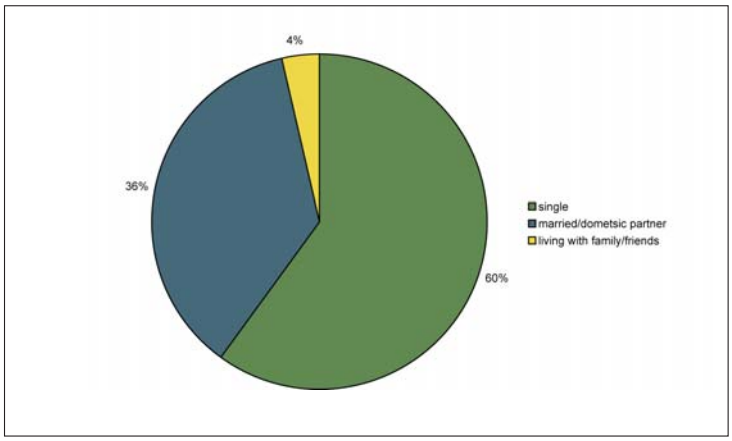
Occupants

(Building/Planning/Concept Design award submission categories, 53 out of 68 responses)



Occupants

(Building/Planning/Concept Design award submission categories, 48 out of 68 responses)



Presbyterian Homes at North Oaks | InSite Architects

Innovations and Opportunities

The data provided in the DFAR9 submissions reflect the changing demands and emerging concepts that are re-shaping today's senior living industry. Many projects tried out innovative ideas; others creatively took advantage of opportunities as they were presented. They are interesting because they are new approaches—and every design responds to unique circumstances. However, a few overall themes were observed.

Among the overall project objectives, four goals were often expressed with regard to the award-winning buildings:

- Maintaining the independence of residents
- Aesthetic compatibility with the surrounding community
- A focus on wellness
- Expanding the market

Architects indicated that what makes their projects innovative are:

- Creating attractive, welcoming facilities on tight budgets
- Adapting facilities to difficult site conditions
- Integrating the cultural, architectural, and topographical features of a site

One trend that seems to be gaining momentum in the market is the development of higher-density living environments in urban communities, such as Harbor's Edge at Fort Norfolk. These projects often encourage relationships between the residents and the greater community, including linking the senior living community with neighboring amenities, such as hospitals, churches, and schools to take advantage of both social opportunities as well as existing services in the neighborhood.

To serve a broader market, many communities are offering new ways to sustain a less-expensive level of care for seniors by allowing residents to age-in-place. For example, Mission Creek Community provides Independent Living apartments to low-income and homeless residents in San Francisco; and has added an additional alternative level of care to seniors who otherwise would be housed at the county hospital. Located in an extremely expensive area, the project site was donated by the city.

Another trend is promoting wellness. Roughly three-quarters of the 28 award-winning projects in the Building category incorporate wellness or fitness centers into their design. Some projects are also addressing the other dimensions of wellness, including projects that promote educational programs and are linked with local universities or libraries. And others are providing environmental wellness through sustainable developments and campuses that complement their natural surroundings, such as Bienvivir Health Services – McKinley and Sun City Park Yokohama.

Additionally, many senior living organizations aspire to increase the interaction between residents and the larger community. This is accomplished by including features such as auditoriums and fitness centers that are open to members of the greater community. For example, Cherry Ridge, an affordable-market facility that otherwise could not feature a wellness center, bridged the gap by locating their facility adjacent to an existing community aquatics center. It is possible that this trend will continue in future senior living projects, with even more connections to the greater community.

The data provided in the Design for Aging Review 9 submissions reflect the changing demands and emerging concepts that are re-shaping today's senior living industry.

Saban Center for Health and Wellness | SmithGroup

Several applicants also described how their buildings complement the surrounding neighborhood's architecture, with the intention of making the buildings feel residential rather than institutional. In addition to appealing to clients, providers are using design to integrate the development into the surrounding community. For instance, Mission Creek Community integrates public spaces in a mixed-use building that puts a public library and subsidized senior housing side-by-side. Other projects focused their attention on providing residential features, such as including wide front porches; and larger CCRC campuses are being created or repositioned to be visually connected to the surrounding neighborhood, and marking the connection with a welcoming focal point.

The themes and patterns seen in the DFAR9 submissions can inform both architects and providers. However, the value of this data is going to be truly realized only when data mining can be conducted on the information collected from the past eight DFAR cycles and from future submissions. The greatest advantage of this data mining process will be seen when the findings can be compared to other years, which will enable DFA to start tracking trends. Also, the addition of other years' submissions would increase the pool of projects being compared, which will improve the validity of the findings.

METHODOLOGY

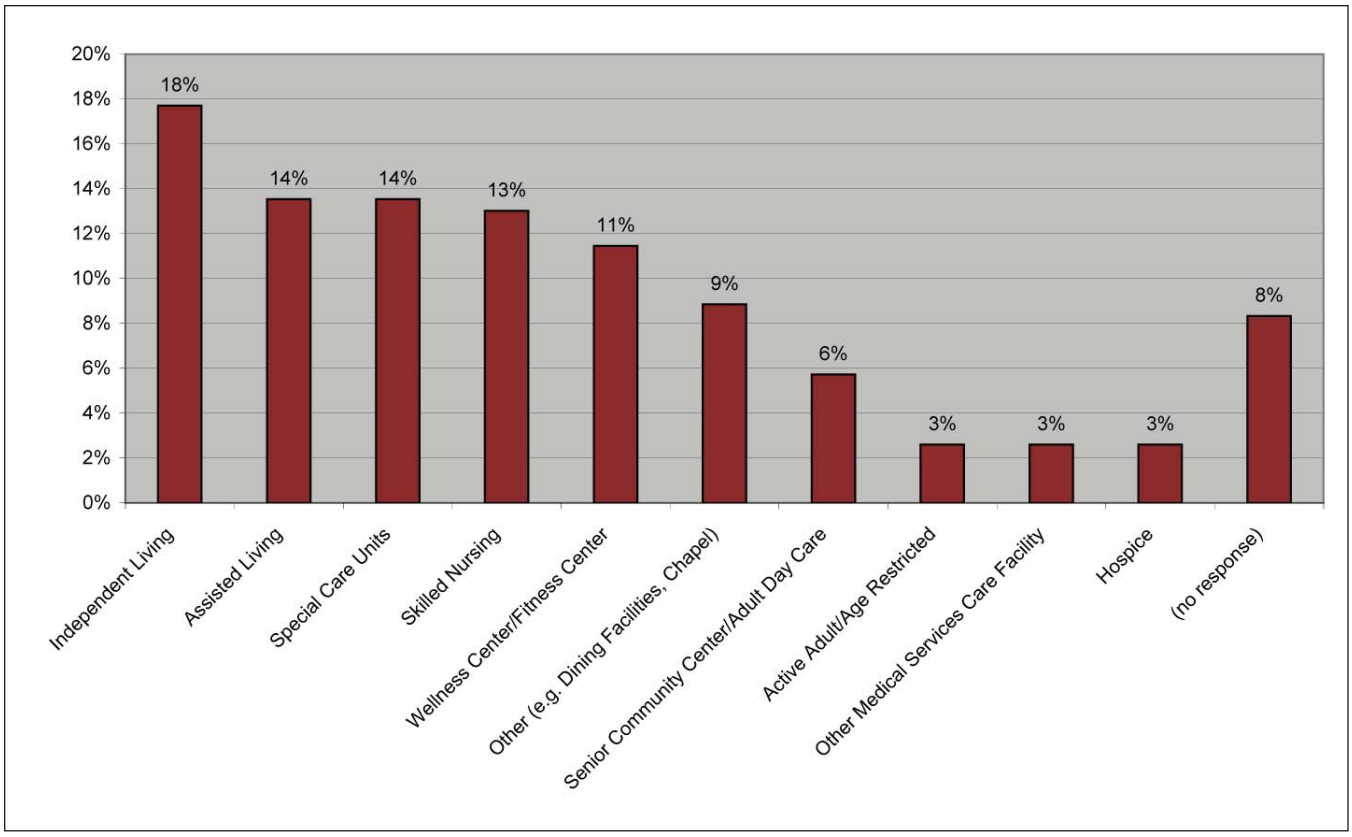
This research study took into account all 72 projects that were submitted in the DFAR9 process, though particular attention was paid to the 36 award winners at different times in the analysis.

DFA provided the Perkins Eastman Research Collaborative with the following information for data analysis:

- Qualitative data and images from proofs of the DFAR9 book, for the 36 award-winning projects.
- Quantitative and qualitative data from all 72 submission forms, which equated to 9,804 responses to 202 questions (see Appendix G for a question-by-question summary of the data collected by the DFAR9 submission forms).
- Quantitative data from the Population & Staffing Data and Building Project Data charts (collected in Part 4 of the submission form*).

* NOTE: Each submission included these charts by building type. For instance, a project with Independent Living, Assisted Living, and Skilled Nursing buildings should have submitted three Population & Staffing Data charts and three Building Project Data charts—though this was not always the case. There were different numbers and types of charts submitted with each project. The researchers received charts only for award-winning projects; and were provided with a total of 65 Population & Staffing Data charts (from 26 projects) and 80 Building Project Data charts (from 30 projects), for nine building types (Independent Living, Assisted Living, Skilled Nursing, Special Care Units, Wellness/Fitness Center, Hospice, Senior Community Center, Other Medical Services Care Facility, and Other).

Project Facility Types (all award submission categories, 72 out of 72 responses)



This study consisted of both quantitative and qualitative evaluations. The quantitative analyses included basic statistical investigations (e.g. ranges, means, and distributions)—particularly for Part 4: Population & Staffing Data and Building Project Data charts, but also for other questions (e.g. occupancy levels and project costs and sizes). The qualitative analyses were focused on understanding common themes, plus any significant exceptions—particularly in Parts 3 and 5: Provider/Manager Objectives and Project Objectives.

The researchers started with a few general questions that were intended to identify the patterns in the data, such as:

- What are the innovative ideas and strategies?
- Are there any correlations related to project costs?
- Is sustainability common; and what strategies are being employed?
- What are typical space breakdowns (e.g. the ratio of common area to resident area)?
- What are typical sizes and distributions of units?

However, it quickly became clear to the researchers that the data, itself, was pushing certain issues to the forefront of the investigation. As with any data analysis research project, there are an infinite number of questions that could be asked and answered. But because of the scope of this project, the researchers chose to analyze and present the findings that were the most interesting for the industry and that would have the most value to DFA, architects, and providers.

The high-priority queries that "bubbled up" from the data were investigated in two ways, beginning with the primary data mining process (summarized in the Data Mining Findings section of this report). The investigation included a question-by-question analysis of responses, correlations between questions (e.g. region, site type, project size and costs), and understanding the differences between the award winners and the other submissions. Also, the results from related questions (e.g. the multiple questions about sustainability) were compiled to contribute to the understanding of larger issues facing designers and providers today.

Secondary data mining consisted of further inquiry into award-winning projects, as described in the Reflections on the Data section of this report. Several groups of projects were established that brought together submissions that are similar. The commonalities were determined on the basis of project descriptions and the providers' statement of objectives. The quantitative data (from the Population & Staffing Data and Building Project Data charts) for the projects in these analogous groups were compared to the same data for the overall group (i.e. all award winners). The comparisons were conducted to determine if the group's qualitative assessments were also reflected in the design of the project.

Together, the primary and secondary data mining processes address the purpose of this study. By exploring what could be learned from the submissions and describing the patterns and statistics seen in the data, the findings can now be shared with architects and providers who want to know the current state of practice.

DATA MINING FINDINGS

Planning Category

Part 1: Submitter Information

(Questions E – AC)

The data collected in this section of the submission form provided such information as the names and organizations of the designers, consultants, contractors, and photographers for the submitted projects.

Part 2: Project Information

(Questions AD – EB)

The data in this section of the submission form provided such information as the project's name and location, a project summary, and project costs and funding.

Of the 72 DFAR9 respondents, eight submitted under the Planning category, and four are award-winners:

- One Merit Award: NewBridge on the Charles
- Two Published projects: Providence Point and Sunrise Condominium for Life/Sterling Woodlands
- One Special Recognition Award: Hospice of Lancaster County

Four of the eight projects are Continuing Care Retirement Community projects:

- NewBridge on the Charles
- Providence Point
- Crestview Retirement Community
- Cadbury at Lewes CCRC

Projects are all located in the United States, but vary in terms of site density:

- Three urban projects
- One town project
- Three suburban projects
- One rural project

Part 3: Provider/Manager Objectives

(Questions EC – EK)

The data in this section of the submission form provided such information as the projects' overall objectives, marketing and sales goals, intentions for quality of life and workspace, and staffing and design influences.

Overall objectives differed from project to project. One particular submission wanted to provide a high-end residence that appeals to affluent, independent seniors while another wished to give residents a strong community feeling by connecting the facility to a K-8 school. However, many of the Planning projects looked to provide quality care for seniors to age-in-place, to improve the quality of life for residents, and to give residents many of the comforts of home.

Project goals in regard to marketing/sales objectives also varied depending on the project type and what each provider wished to accomplish with the marketing for the project. Some common marketing/sales objectives were:

- To reach their occupancy target in a short period of time
- To be different/unique from other facilities in the senior living market

Providers wanted to improve the quality of resident life by:

- Being more home-like and comfortable
- Providing a wide variety of amenities
- Offering personal care that changes with residents' needs

One project's goal was to be environmentally sensitive (meeting LEED® criteria), including the idea of using nature as a tool to brighten one's mood and improve well-being.

Providers also had objectives relating to the quality of workplace and staffing:

- Many wanted to provide comfortable environments for employees, including access to many of the amenities provided to the residents.
- Hiring, training, and retention are priorities.
- Some providers wanted to encourage as much informal interaction as possible between staff and residents.
- Cross-training for staff was to include many possible tasks and was to minimize the amount of staff needed.

Design objectives also varied between projects:

- Many wished for strong connections to nature, with large amounts of natural lighting.
- Some wanted facilities to match the style of the existing community, while others wanted to be set apart from the surroundings and were inspired by European styles.

Part 4: Population & Staffing Data and Building Project Data Charts

See page 19 for a summary and information.

Part 5: Project Objectives

(Questions EL – FC)

The data in this section of the submission form provided such information as the Planning category projects' major uses, major market sectors, development costs, unique features and opportunities, and issues related to sustainability and creating community.

Major Uses

Most of the Planning projects include Independent Living, Assisted Living, Skilled Nursing, and Special Care Units; with one unique project: The Hospice of Lancaster County, which is a hospice facility.

Development Costs, Funding Sources, and Major Market Sectors

Total project costs range from $6.1 million to $213.4 million; and six of the eight Planning projects are for non-profit organizations. Most of the Planning projects are targeted towards residents with upper and middle/upper-middle income levels; however, two of the projects are targeted towards mixed-income residents.

Sustainability

Some of the projects included information regarding the conservation of energy, resources, and water, and features related to reducing greenhouse gases. Some of these sustainable features include:

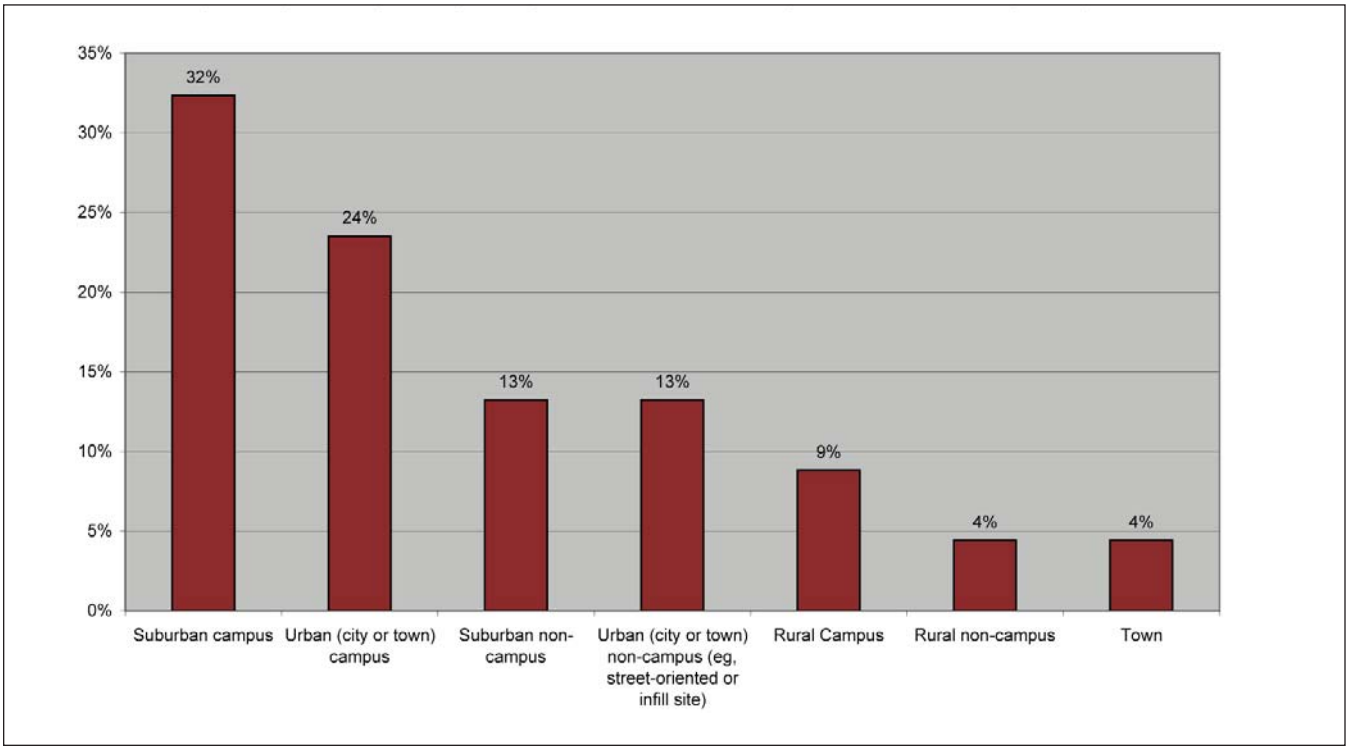
- Energy conserving mechanical equipment
- High performance insulation, windows, and doors
- Water-saving plumbing fixtures
- Site design and walkable distances to amenities to reduce residents' dependence on vehicles

Unique Opportunities

Many of the Planning projects discussed unique opportunities and features that set them apart from others in the market.

- NewBridge on the Charles includes intergenerational spaces, such as a K-8 day school and a community center, so seniors and children can share experiences.
- All of the rooms in the Hospice of Lancaster County overlook gardens and are south-facing to maximize sunlight year-round.
- The Bellettini provides luxury services such as a pet walking park and wine storage to all residents.

Site Type (Building/Planning/Concept Design award submission categories, 68 out of 68 responses)



Concept Design Category

Part 1: Submitter Information

(Questions E – AC)

The data collected in this section of the submission form provided such information as the names and organizations of the designers, consultants, contractors, and photographers for the submitted projects.

Part 2: Project Information

(Questions AD – EB)

The data in this section of the submission form provided such information as the facility type, the project's name and location, and a project summary.

Four projects out of the 72 DFAR9 respondents submitted in the Concept Design category; and two are award-winners:

- One Merit Award: The Mirabella at South Waterfront
- One Published project: Tallgrass at Mill Creek

These same submissions comprised the two Continuing Care Retirement Community projects.

All four of the Concept Design projects are located in the United States. Two projects are set in urban areas and two are in suburban areas. The projects mostly consist of Independent Living, Assisted Living, Skilled Nursing, Special Care Units, and Health and Wellness Centers building types. The Clubhouse at Independence Village at the Dominion, however, is exclusively a commons building that is intended to provide amenities and be a central destination for an existing senior living community.

Part 3: Provider/Manager Objectives

(Questions EC – EK)

The data in this section of the submission form provided such information as the projects' overall objectives, marketing and sales goals, intentions for quality of life and workspace, and staffing and design influences.

While general objectives differed between projects, many had similar goals to address:

- Create connections to the community and surrounding areas through close proximity to neighborhoods, by being locate in urban settings, and by providing transportation to services/amenities in the surrounding community
- Focus on a variety of services and options for both residents' care and recreation/leisure
- Provide the latest technological resources for the aging
- Design with architectural styles based on existing local neighborhoods/communities. However, in the Clubhouse at Independence Village at the Dominion, the surrounding community and the Clubhouse adopted the style of an Italian country village.

Marketing and sales goals are all focused on occupancy. Some aimed to reach occupancy goals by pre-selling units, attracting new residents, or devising timelines to fill specific unit types.

All four projects also aimed to improve the quality of resident life by:

- Providing wellness programs
- Encouraging community interaction
- Creating safe and secure environments
- Promoting resident choice, independence, and privacy

Some providers also addressed the quality of workplace and staffing by:

- Providing employees with greater responsibility
- Supplying various amenities for employees in addition to residents
- Keeping the staff operating ratios less than 1.00

The design objectives for three of the four Concept Design projects focused on **creating communities that seamlessly coexist with the styles of surrounding areas** and designing spaces that were functional for senior living.

Part 4: Population & Staffing Data and Building Project Data Charts

See page 19 for summary and information.

Part 5: Project Objectives

(Questions FD – FR)

The data in this section of the submission form provided such information as the Concept Design category projects' current status, new ideas and innovations, unique activities or features, significant features, quality of life and workplace decisions, and issues related to sustainability and sense of community.

New Ideas, Innovations, and Unique/Significant Qualities

One of the areas of focus for the Concept Design respondents was the use of innovative and new ideas. Some of these innovations include:

- Buildings wired for state-of-the-art monitoring
- Developing a high-density urban adaptation of the household/neighborhood concept

Providers also discussed the unique/significant qualities and features in their project. Examples include:

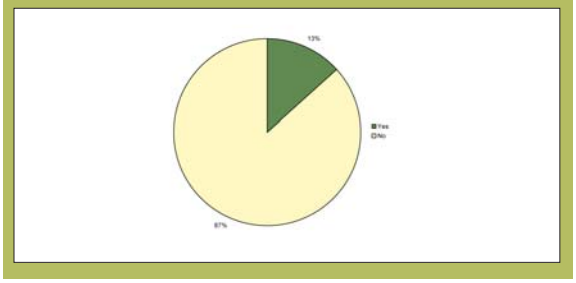
- The Mirabella at South Waterfront is a 30-story vertical building (500,000 SF on 1 acre) to limit the use of corridors and minimize resident walking distance, as most traveling can be accomplished through the use of elevators. This project also utilizes below-grade parking with a mechanical lift.
- Tallgrass at Mill Creek includes access to intergenerational activities through local schools, churches, and golf courses.
- The Clubhouse at Independence Village at the Dominion offers opportunities for residents to engage in crafts, exercise, dining, recreational games, and wine education classes and tasting rooms.

Sustainability

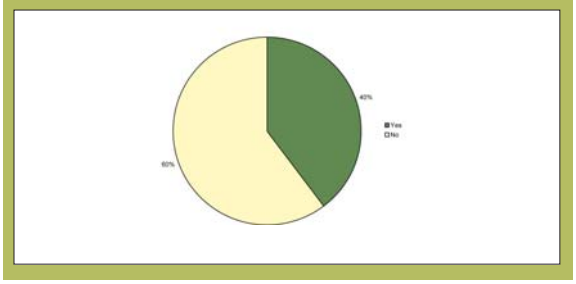
Like the Planning projects, the Concept Design projects included sustainability information regarding the conservation of energy, resources, and water, and the reduction of greenhouse gases. Some of these sustainable features include:

- Ecoroofs
- Paved and planted rooftop terraces
- High performance insulation and windows
- Water conservation systems
- Proximity to a variety of public transportation systems
- Focusing on pedestrian circulation and walkability
- Adopting LEED® criteria (certification levels not specified)

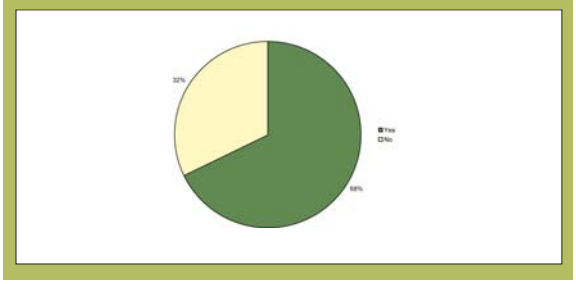
Is the Site a Brownfield? (Building/Planning/Concept Design award submission categories, 68 out of 68 responses)



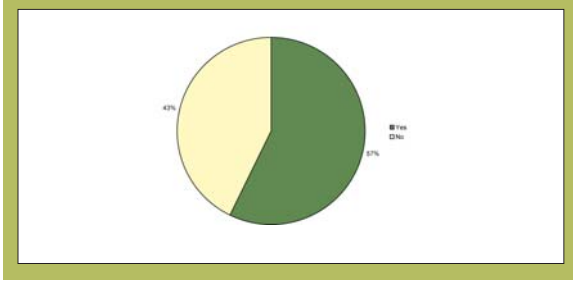
Is the Site a Greenfield? (Building/Planning/Concept Design award submission categories, 68 out of 68 responses)



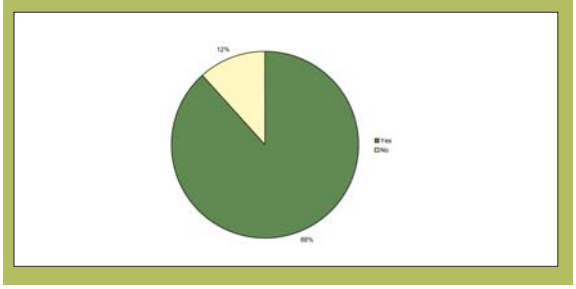
Is the Site Within 1,000 Feet of a Bus Line or Rapid Transit Line? (Building/Planning/Concept Design award submission categories, 68 out of 68 responses)



Is the Site Within 1,000 Feet of Everyday Shopping and/or Medical Areas? (Building/Planning/Concept Design award submission categories, 68 out of 68 responses)



Does the Project Offer Transport to Nearby Shopping, Medical, or Cultural Areas? (Building/Planning/Concept Design award submission categories, 68 out of 68 responses)



Building Category

Part 1: Submitter Information

(Questions E – AC)

The data collected in this section of the submission form provided such information as the names and organizations of the designers, consultants, contractors, and photographers for the submitted projects.

Part 2: Project Information

(Questions AD – EB)

The data in this section of the submission form provided such information as the facility type, the project's name and location, a project summary, and project costs and funding.

Of the 72 DFAR9 respondents, 56 submitted under the Building category; and 28 were award-winners:

- Seven Merit Awards
- Sixteen Published projects
- Five Special Recognition Awards

There were 32 Continuing Care Retirement Community projects.

Four out of the 56 Building category submissions are located in Japan. The rest are located across the United States. In terms of site density, most were located in urban and suburban areas:

- Twenty urban projects
- Two town projects
- Twenty six suburban projects
- Eight rural projects

Project Costs and Funding

80% of the total project costs range from $1.93 million to $92.3 million; and the mean is $35.9 million. Most of the projects have approximately 75% of project costs devoted to construction, while pre-construction costs (such as architectural/engineering fees, marketing, and financial costs) comprise about 16% of the total project costs (with a range of 2-69%. The remaining costs were related to land and other costs. Projects were funded through various sources including conventional financing, taxable and non-taxable bond offerings, and public funding sources.

Childer's Place | Perkins Eastman

Part 3: Provider/Manager Objectives

(Questions EC – EK)

The data in this section of the submission form provided such information as the projects' overall objectives, marketing and sales goals, intentions for quality of life and workspace, and staffing and design influences.

Overall objectives of Building submissions differed from project to project. However, a majority of the 56 Building projects aimed to:

- Provide affordable housing for lower- and middle-income seniors
- Offer a variety of care options
- Create facilities that will appeal to the future target market
- Create a home-like environment

Providers want to improve the quality of resident life by:

- Offering more services and choices of amenities, activities, and programs
- Creating a community environment through social interaction
- Incorporating natural elements
- Focusing on the individual resident
- Being adaptable to residents' changing care needs

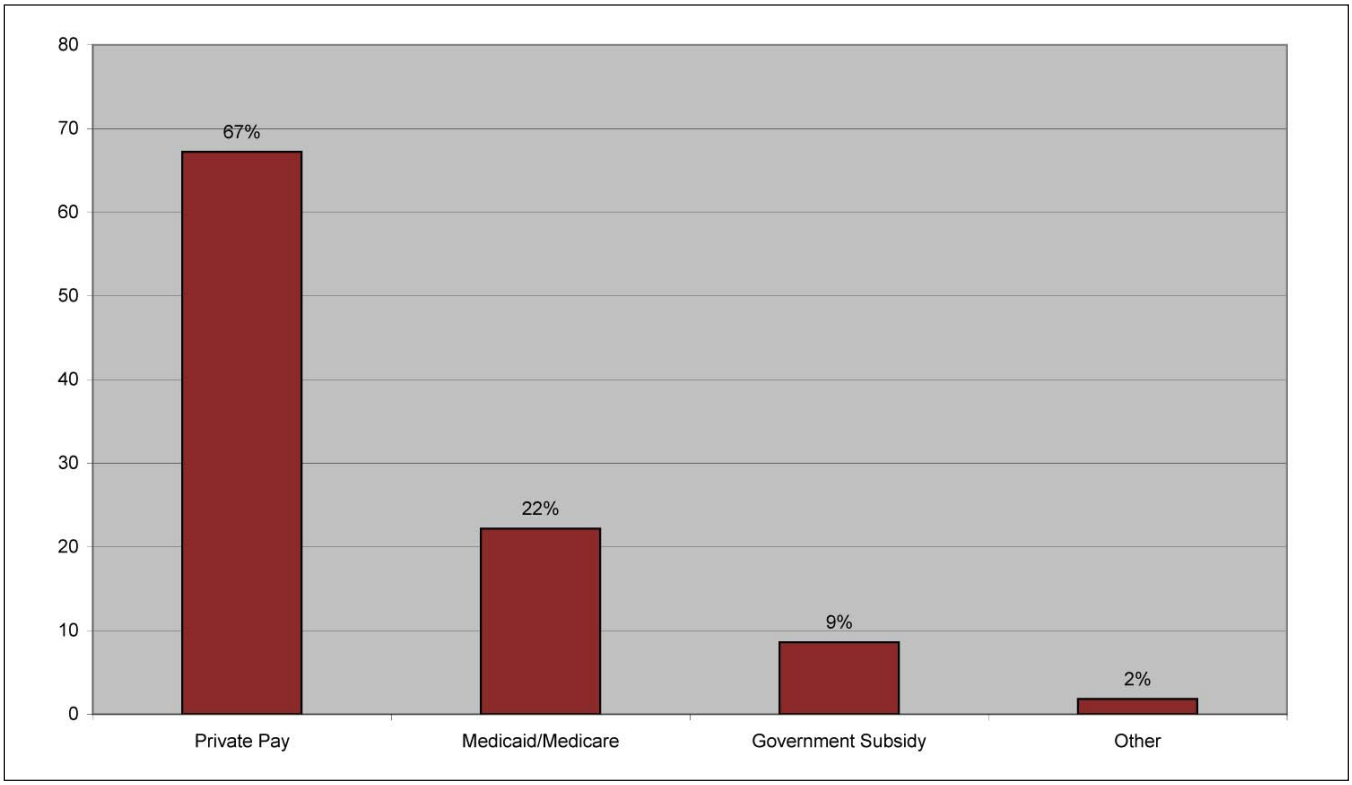
Provider objectives in regards to marketing/sales also varied depending on the project type and what each provider wished to accomplish with the marketing for the project. However, some common objectives include:

- Using innovative designs to attract interest
- Focusing on amenities
- Reaching occupancy goals within a specified time period
- Setting up waiting lists and pre-selling apartments

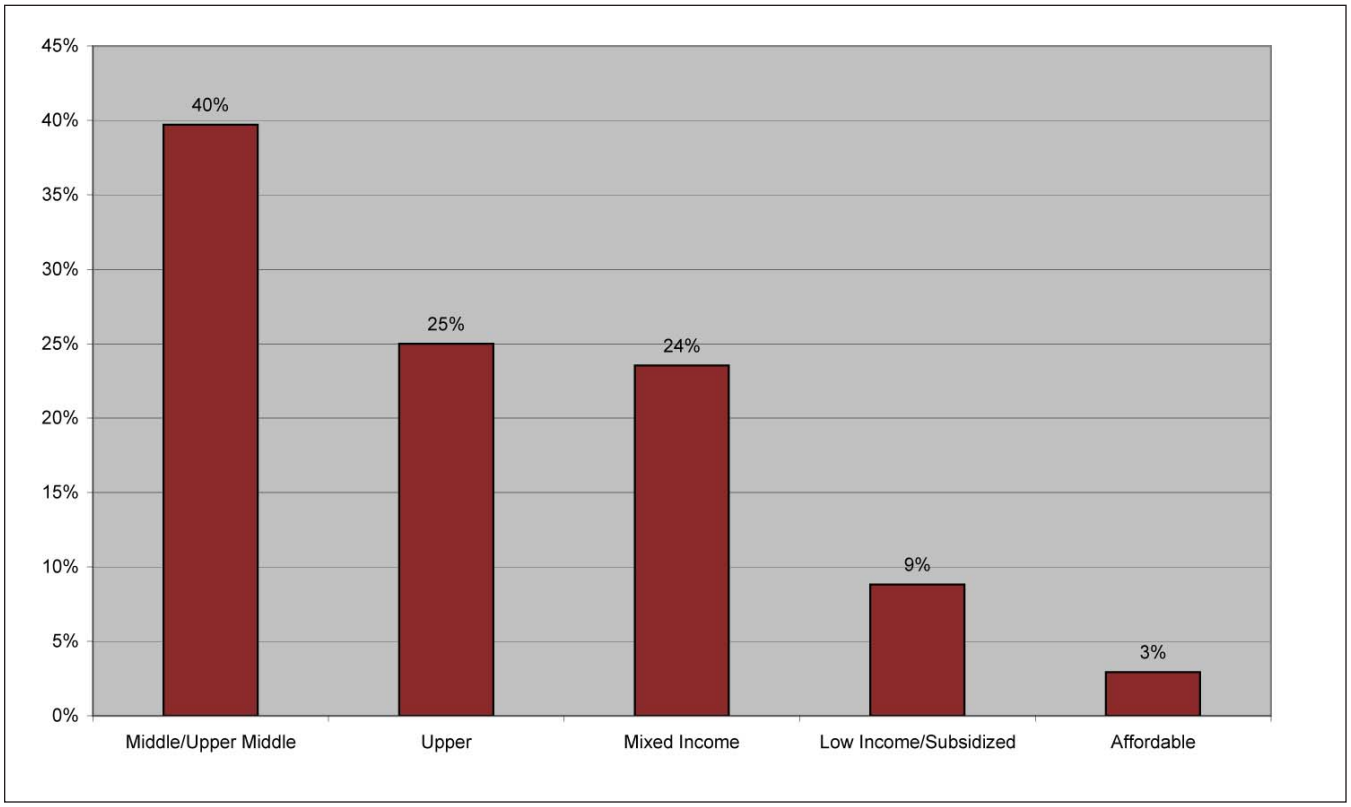
There were also objectives regarding the quality of workplace and staffing, including:

- Providing ample workspaces for employees
- Making amenities available to both residents and employees
- Encouraging interaction between staff and residents
- Prioritizing hiring and training programs
- Maximizing staff efficiency

Payment Source (Building/Planning/Concept Design award submission categories, 44-59 out of 68 responses)



Target Market (Building/Planning/Concept Design award submission categories, 68 out of 68 responses)



Part 4: Population & Staffing Data and Building Project Data Charts

The data in this section of the submission forms provided metrics related to each project's population and staffing and building data, such as quantities and sizes of units and floor area breakdowns by type of space. Population & Staffing Data charts from 26 projects and Building Project Data charts from 30 projects were provided to the researchers for analysis.

The following tables summarize the data provided by Planning, Concept Design, and Building submissions. The majority of data is derived from Building category applicants, with 49 Population & Staffing Data charts and 65 Building Project Data charts. Planning category applicants provided 12 Population & Staffing Data charts and 7 Building Project Data charts; and Concept Design category applicants provided 3 Population & Staffing Data charts and 7 Building Project Data charts.

Independent Living

Unit Type	Number of Projects out of submissions	Range		Most Common Size	Total Number of Units	Percent Distribution
		Low	High			
Apartments						
Studio	3/20	430 NSF	574 NSF	508 NSF	162	5%
One-Bedroom	18/20	440 NSF	1,352 NSF	844 NSF	1582	45%
Two-Bedroom	20/20	570 NSF	2,100 NSF	1,184 NSF	1298	37%
Two-Bedroom + den	11/20	670 NSF	2,600 NSF	1,465 NSF	452	13%
Three Bedroom +	6/20	830 NSF	4,200 NSF	2,259 NSF	48	1%
Cottages						
Two-Bedroom	5/20	1,065 NSF	3,044 NSF	1,820 NSF	132	47%
Two-Bedroom + den	6/20	1,487 NSF	3,602 NSF	2,333 NSF	133	48%
Three-Bedroom +	2/20	1,606 NSF	3,600 NSF	2,603 NSF	15	5%

Building Data	Number of Projects out of submissions	Range		Mean
		Low	High	
Total Building Area	20/20	78,650 GSF	700,000 GSF	281,095 GSF
Total Building Area per Unit[6]	20/20	987 GSF	2,838 GSF	1,693 GSF
Total Net to Grosss Area*	14/20	0.52	0.88	0.79
Net Residential Area[12] to Gross	18/20	0.42	0.79	0.63
Net Commons Area[7] to Gross	17/20	0.01	0.42	0.09
Net Commons Area[7] per Unit †	16/20	21 NSF	242 NSF	118 NSF
Net Staff Support Area to Gross	2/20	0.01	0.01	0.01
Net General Support Area to Gross	15/20	0.01	0.16	0.03
Net Staff + General Support Area to Gross	15/20	0.01	0.17	0.04

Population and Staffing	Number of Projects out of submissions	Range		Mean
		Low	High	
Overall FTE's per Resident	12/16	0.01	0.32	0.14
Direct Care FTE's per Resident	7/16	0.01	0.05	0.02

* The data presented in this ratio has been adjusted to remove an outlier: Westiminster Canterbury Richmond at .99

† The data presented in this value has been adjusted to remove outliers: Cherry Ridge at 8.89 NSF and Sun City Park Yokohama at 506.25 NSF

Assisted Living

Unit Type	Number of Projects out of submissions	Range		Most Common Size	Total Number of Units	Percent Distribution
		Low	High			
Apartments						
Studio	6/14	274 NSF	630 NSF	358 NSF	138	20%
One-Bedroom	13/14	461 NSF	1,269 NSF	581 NSF	434	63%
Two-Bedroom	7/14	525 NSF	1,192 NSF	877 NSF	114	17%
Two-Bedroom + den	1/14	1,464 NSF	1,464 NSF	1,464 NSF	2	0.3%

Building Data	Number of Projects out of submissions	Range		Mean
		Low	High	
Total Building Area	13/14	11,689 GSF	427,824 GSF	86,808 GSF
Total Building Area per Unit*[6]	12/14	731 GSF	1,402 GSF	1,029 GSF
Total Net to Gross Area †	11/14	0.69	0.98	0.78
Net Residential Area[12] to Gross ‡	11/14	0.41	0.78	0.56
Net Commons Area[7] to Gross	9/14	0.01	0.20	0.08
Net Commons Area[7] per Unit §	9/14	21 NSF	316 NSF	121 NSF
Net Household Commons Area[11] to Gross	8/14	0.02	0.17	0.09
Net Staff Support Area to Gross	3/14	0.03	0.03	0.03
Net General Support Area to Gross	10/14	0.01	0.06	0.03
Net Staff + General Support Area to Gross	10/14	0.01	0.08	0.04

Population and Staffing	Number of Projects out of submissions	Range		Mean
		Low	High	
Overall FTE's per Resident	7/11	0.15	1.66	0.62
Direct Care FTE's per Resident	7/11	0.06	0.86	0.29

* The data presented in this value has been adjusted to remove an outlier: Sun City Ginza East at 30,559 GSF
† The data presented in this ratio has been adjusted to remove an outlier: Sun City Ginza East at .01
‡ The data presented in this ratio has been adjusted to remove an outlier: Sun City Ginza East also at .01
§ The data presented in this value has been adjusted to remove an outlier: Overlook Masonic Healthcare at 5.52 NSF

Skilled Nursing

Unit Type	Number of Projects out of submissions	Range		Most Common Size	Total Number of Units	Percent Distribution
		Low	High			
Single-Occupancy Room*	10/11	137 DGFA[10]	395 DGFA[10]	293 DGFA[10]	584	97%
Double-Occupancy Room	3/11	370 DGFA[10]	465 DGFA[10]	423 DGFA[10]	17	3%
Triple-Occupancy Room	0/11	N/A	N/A	N/A	0	0%

Building Data	Number of Projects out of submissions	Range		Mean
		Low	High	
Total Building Area †	9/11	13,240 GSF	105,790 GSF	45,269 GSF
Total Building Area per Bed ‡	9/11	519 GSF	1,763 GSF	863 GSF
Total Net to Gross Area	7/11	0.55	0.77	0.67
Net Residential Area[12] to Gross	10/11	0.02	0.65	0.38
Net Commons Area[7] to Gross	8/11	0.05	0.45	0.16
Net Commons Area[7] per Bed	8/11	44 NSF	253 NSF	125 NSF
Net Household Commons Area[11] to Gross	5/11	0.02	0.09	0.06
Net Staff Support Area to Gross	4/11	0.01	0.04	0.02
Net General Support Area to Gross	7/11	0.02	0.06	0.04
Net Staff + General Support Area to Gross	8/11	0.02	0.09	0.05

Population and Staffing	Number of Projects out of submissions	Range		Mean
		Low	High	
Overall FTE's per Resident	3/10	0.32	1.20	1.05
Direct Care FTE's per Resident	3/10	0.44	0.80	0.68

* The data presented in this value has been adjusted to remove an outlier: Classic Residence by Hyatt in Palo Alto at 900 DGFA[10]

† The data presented in this value has been adjusted to remove an outlier: Sun City Ginza East at 427,824 GSF

‡ The data presented in this value has been adjusted to remove an outlier: Sun City Ginza East at 5,942 GSF

Special Care Unit

Unit Type	Number of Projects out of submissions	Range		Most Common Size	Total Number of Units	Percent Distribution
		Low	High			
Single-Occupancy Room*	11/11	137 DGFA[10]	924 DGFA[10]	351 NSF	250	80%
Double-Occupancy Room	4/11	500 DGFA[10]	1,082 DGFA[10]	795 NSF	62	20%
Triple-Occupancy Room	0/11	N/A	N/A	N/A	0	0%

Building Data	Number of Projects out of submissions	Range		Mean
		Low	High	
Total Building Area*	10/11	12,350 GSF	58,584 GSF	21,871 GSF
Total Building Area per Bed†	10/11	200 GSF	1,308 GSF	721 GSF
Total Net to Gross Area	9/11	0.62	0.79	0.68
Net Residential Area[12] to Gross	9/11	0.35	0.53	0.43
Net Commons Area[7] to Gross	9/11	0.02	0.29	0.12
Net Commons Area[7] per Bed	9/11	15 NSF	238 NSF	84 NSF
Net Household Commons Area[11] to Gross	6/11	0.03	0.16	0.10
Net Staff Support Area to Gross	4/11	0.01	0.02	0.02
Net General Support Area to Gross	9/11	0.02	0.06	0.04
Net Staff + General Support Area to Gross	8/11	0.02	0.08	0.05

Population and Staffing	Number of Projects out of submissions	Range		Mean
		Low	High	
Overall FTE's per Resident ‡	3/8	0.75	1.00	0.90
Direct Care FTE's per Resident§	3/8	0.42	0.66	0.57

* The data presented in this value has been adjusted to remove an outlier: Sun City Ginza East at 427,824 GSF
† The data presented in this value has been adjusted to remove an outlier: Sun City Ginza East at 11,884 GSF
‡ The data presented in this ratio has been adjusted to remove an outlier: Overlook Masonic Healthcare at 1.96
§ The data presented in this ratio has been adjusted to remove an outlier: Overlook Masonic Healthcare at 1.15

Part 5: Project Objectives

(Questions FS – GB)

The data in this section of the submission form provided such information as the Building category projects' design objectives, challenges, new ideas and form shapers, lessons learned, issues related to sustainability and creating community, and the process associated with the project.

Design Objectives and Challenges

Design objectives varied between the 56 submissions. One particular project, Eastcastle Place, was unique in its use of existing buildings that dated from as early as 1885, through selective demolition and adaptive reuse. However, some similarities found between many of the projects included:

- Create a supportive environment for residents
- Protect the natural environment through careful planning
- Provide high quality health care services to all residents
- Design a site with a seamless continuum between the buildings, environment, and cultural heritage of the community
- Design upscale, home-like environments that are non-institutional in style
- Encourage social interaction among residents and with community members through design

Similar to the design objectives, the challenges varied from project to project, but usually followed similar themes:

- Some wanted to achieve a high-quality look within a lower budget.
- Many providers needed to adapt to site constraints, such as a lack of space, difficult topography, and/or environmental issues.
- Many projects had trouble gaining neighborhood approvals.

New Ideas and Form Shapers

Many submissions discussed new ideas that were incorporated into their projects. Many of these were:

- The reuse of materials
- Reflecting the culture and heritage of a community
- Integrating housing spaces with shared spaces
- Using large windows to let in light and allow residents to connect with natural elements
- The use of either larger or smaller units to allow for residents' differing comfort levels

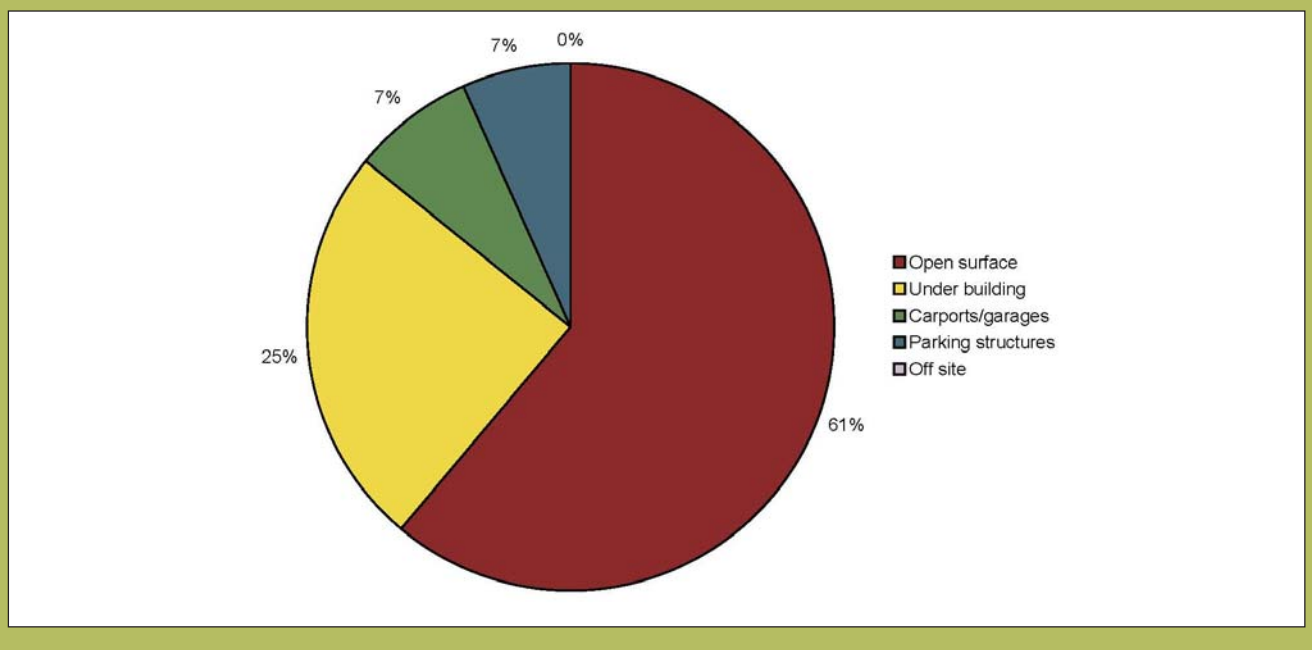
Some projects stood out with very unique ideas:

- The Lodge at Prairie Creek incorporated a combination library/café, with a chapel above, for residents' use.
- Bienvivir Senior Health Services – McKinley used the existing mountainous terrain to design a building that cascades down the hillside.
- Attic Angel Prairie Point was designed completely without steps and with walkways that do not exceed a 5% slope.

Many projects were designed with the following influences:

- Natural terrain, organic forms, and the environment (both built and natural)
- Site and budget constraints
- The desire for social interaction and common spaces
- Future residents' needs and experiences
- Specific style requirements by the sponsor or client

Parking (Building/Planning/Concept Design award submission categories, 47-63 out of 68 responses)



Lessons Learned

Many providers discussed the lessons learned through the design and construction process. These include:

- High quality materials can be used even with budget constraints, particularly when they are used in a simple way.
- There is no "typical project" - every site and design should be seen as unique.
- Residents' perceptions are a key value of the design.
- It is important not to see challenges as constraints, but as opportunities to create bold designs.
- Attention to detail can make all projects look luxurious.

Sustainability

Many of the 56 Building projects incorporated sustainable attributes, such as:

- Natural and recycled materials
- Energy conserving mechanisms and features
- The use of green roofs
- Preserving environmentally sensitive areas, like wetlands and forests, through careful planning
- Using daylighting and building orientation to conserve heating and cooling energy
- Adaptive reuse of existing structures
- Water conservation features

Creating Community

Most Building projects described using the physical environment to create a sense of community among residents, and between residents and the larger community. Some of these design elements include:

- Common areas, courtyards, and green spaces
- Spatial groupings of different types of residences
- Partnerships between the senior living organization and other community services, such as hospitals, churches, school, and libraries
- Amenities, like auditoriums and fitness centers, that allow external community access and interaction
- Hiring from local neighborhoods and communities

Process

Providers discussed many interesting and essential characteristics about the design process for these projects. One project, Sun City Ginza East, was unique in that the project started as a design competition entry. However, many projects used other processes to aid in design, such as:

- Collaborating with community members and leaders, future and existing residents, and the client
- POEs conducted on similar projects
- Surveys and interviews

Felician Sisters | Perkins Eastman

Research/POE Category

Part 1: Submitter Information

(Questions E – AC)

The data collected in this section of the submission form provided such information as the names and organizations of the designers, consultants, contractors, and photographers for the submitted projects.

Part 2: Project Information

(Questions AD – EB)

The data in this section of the submission form provided such information as the facility type, the project's name and location, and a project summary.

Four out of the 72 projects in the DFAR9 award submission process were Research/POE projects. All four studied environments located in the United States and dealt with Independent Living facilities. Some also included Assisted Living, Skilled Nursing, and Special Care Units. One study, Assessing the Impact of Daylight and Natural Views, was conducted at a CCRC; and won a Merit Award. The Felician Sisters Convent and High School POE received a Special Recognition Award.

Part 3: Provider/Manager Objectives

(Questions EC – EK)

(The Research/POE category of the DFAR9 award submissions form did not include questions from Part 3.)

Part 4: Population & Staffing Data and Building Project Data Charts

(The Research/POE category of the DFAR9 award submissions form did not include questions from Part 4.)

Part 5: Project Objectives

(Questions GC – GO)

The data in this section of the submission form provided such information as the Research/POE category projects' abstract, major findings, hypotheses, methodology, communication of findings, further areas of inquiry, and relevance, context, and applicability.

Investigation Topics

While each study focused on a different topic, two general themes stood out. The first is the influence of nature and the outdoors on seniors, including how these features are perceived by the residents. The second theme is the effect that architectural features in a senior living facility have on residents' sense of community and sense of home.

Two research projects addressed the natural/outdoor theme:

- Assessing the Impact of Daylight and Natural Views, which studied the importance of natural light and views of nature along travel paths in senior living environments.
- Outdoor Space for Aging, which evaluated the design of outdoor space at Assisted Living facilities using environmental assessment tools.

Two projects were focused on the effect of architecture:

- Six-Building Affordable Independent Living POE, which explored one building and occupant type across six projects that were newly constructed, three-story buildings containing mostly one-bedroom Independent Living apartments. The study was performed to determine what architectural features are preferred by residents and what leads to a sense of community and a sense of home.
- Felician Sisters Convent and High School POE, which analyzed the renovation of a convent into an enhanced Assisted Living facility and the transformation of a 300-student high school into a more advanced academic environment. This project also stands out because part of the study included an assessment of how the green features introduced by the building renovation affected building occupants and their quality of life.

Methodology, Hypotheses, & Findings

The methodology for each study was, of course, different. However, some conducted research in similar ways, such as with building walk-throughs, interviews, and surveys. A few methodologies stood out as unique:

- The Daylight and Natural Views study was conducted using six photo-realistic animations of traveling through a 223-foot circulation path along a new corridor in the building, each with different lighting characteristics and all animations equal in time at 1½ minutes. Participants would view each animation and then rate it based on how pleasant the trip was and the perceived time of the trip.
- The Outdoor Space for Aging project developed a 63-item environmental assessment tool and two 40+ item surveys that were given to 1,100 residents and 400 staff.

All of the research studies had hypotheses as to what the expected results of their research would be. Most of the hypotheses predicted the influences, whether it be natural or architectural, that would improve the residents' quality of life. The highlights are as follows:

- A majority of residents would prefer full-view experiences over punched opening and clerestory views in corridors; and that they would perceive the travel time through these corridors as faster and more comfortable.
- An improved sense of community would result from resident and student interaction and from certain architectural features, such as transitional spaces, flexible spaces that layer uses, and clustering apartment entrances—all which encourage resident interaction.
- A majority of residents would prefer their apartments to include open spaces, eliminating the wasted space often taken up by internal hallways.
- Residents who spend more time outdoors have better health and an increase in physical activity levels. Those who go out less claimed outdoor spaces are too small or hard to reach/see.

Relevance of the Research, Context, & Applicability

The relevance of the research studies greatly varied between each individual investigation topic. Many of the studies helped solidify or supplement previous research projects done on the topic, including elaborating on the subject being researched. However, all of the studies were focused on improving the overall quality of life for residents in senior living facilities.

Similarly, the context of the research varied between each study. All of the projects were placed in the context of previous research on the topic, including precedent studies and literature reviews.

The applicability of each study varied slightly, but each mentioned that the results could be applied to any future research or development that might be done on the topic. One study that stands out is the Outdoor Space for Aging project, which developed an interactive educational media CD to help those in the field learn about the findings. Additionally, the Felician Sisters Convent and High School study was unique in that the study also looked at the ways a POE can be used to promote organizational change, through action items that would allow for follow-up on the POE results. Also, the Six-Building Affordable Independent Living POE study translated the findings into design recommendations focused on making the most of available funds and limited area involved with affordable senior living facilities.

SARAH NEUMA
CENTER FOR

REFLECTIONS ON THE DATA

Preface

Out of the 72 projects that submitted applications for the DFAR9 Design Competition process, the researchers only had access to Population & Staffing Data charts from 26 submissions and Building Project Data charts from 30 submissions; all award-winning projects. This information provided sufficient data for a detailed analysis that went further than the primary data mining process.

The secondary data analysis explored such questions as:

- What types of units are included in the projects, including their frequency (i.e. distribution)?
- What are typical unit sizes?
- How big are the projects, both in terms of gross square footage and area per unit?
- What are typical space breakdowns (e.g. net common space)?
- Are there any interesting findings related to staffing?

The 36 award-winning projects were divided into smaller groups, based on characteristics and goals.

One way the researchers classified the projects was by the provider's statement of objectives. 24 out of the 36 award-winners were able to be distributed into three subgroups, which were identified by the similarities within the projects' descriptions and goals. The three groupings include:

- Campus-Centered projects: eight submissions that focus on creating a strong sense of community on their campus, as well as little interaction with the surrounding neighborhood
- Greater-Community projects: eleven submissions that are defined by their openness to and interactions with the surrounding neighborhood, including providing public access to on-campus amenities and/or taking advantage of existing amenities in the surrounding neighborhood
- Hospitality projects: five submissions that strive for resort-quality environments

Additionally, the researchers explored how the 36 award-winning projects could be compared in other ways. Of the project characteristics that were investigated, the greatest differentiator seemed to be the size of the projects, as defined by project cost. Eighteen submissions were able to be allocated into three additional subgroups:

- Small projects: seven submissions priced at $10 million to $40 million
- Medium projects: seven submissions priced at $40 million to $80 million
- Large projects: four submissions priced at $80 million to $100 million

Several other submissions (for which project costs were markedly higher or lower) were also evaluated, though they were so different that they fell outside the $10-100 million range and were, thus, not included in the Small-Medium-Large analyses. Traditional subdivisions of the projects by other project characteristics could have been analyzed, but the research to date did not yield any other interesting factors.

Within each of the subgroups, the researchers examined the projects' Population & Staffing Data and Building Project Data charts to see if meaningful patterns emerged. The analogous projects' data were compared to the information provided by all of the submissions that the researchers had been given access to—a total of 32 projects (see Appendix H for a summary of which projects provided what building and staffing information). Comparisons between each subgroup and the overall group of 32 were made by building type: Independent Living, Assisted Living, Skilled Nursing, and/or Special Care Units. For a summary of all the building and staffing information provided by the 32 projects by building type, see Appendix I.

Please note that comparisons were based off of mean values. Also, when analyzing the Population & Staffing Data and Building Project Data charts, quantitative comparisons were not conducted when there was insufficient data (i.e. when data for fewer than three projects was available for investigation). Also, for some evaluations, there were outliers (values that were significantly much higher or much lower, indicating a unique project) that had to be excluded so that appropriate comparisons could be made. It is noted in the report where outliers were pulled from the evaluation.

Campus-Centered Projects

Of the 32 submissions that provided sufficient information for detailed analysis, eight projects focus on creating a strong sense of community on their campus, as well as little interaction with the surrounding neighborhood (as stated in their project goals and by the types of elements incorporated into the projects). The eight projects that make up the Campus-Centered group are listed in the chart below.

Common characteristics of the Campus-Centered group include:

- Creating the feeling of a "community within a community"
- Placing an emphasis on residents' independence
- Weaving common area components together to create a cohesive community, both in terms of sense of place and as a locus for activities
- Offering amenities just for residents (e.g. wellness centers)
- Developing communal outdoor spaces, with strong indoor-outdoor connections
- Providing plentiful on-site amenities and services so residents do not need to leave the campus/facility
- Six of the eight Campus-Centered projects target and Middle/Upper income market.

These eight projects are also characterized by similar images, messages, and marketing strategies. With these common characteristics in mind, the building and staffing information provided to the researchers was analyzed to determine if this campus-centered focus affected project design. Three out of the eight projects did not provide adequate data for analysis, so only five projects were used to compare four building types (Independent Living, Assisted Living, Skilled Nursing, and Special Care Units). For a summary of the data analysis performed on the Campus-Centered group by building type, see Appendix J.

Project Name	Building Types			
Bishop Gadsden Episcopal Retirement Community*	IL	AL	SN	SCU
Eastcastle Place	IL	AL	SN	SCU
Friendship Village of Schaumburg	IL	AL	SN	SCU
Goodwin House Bailey's Crossroads†	IL	AL	SN	SCU
The Lodge at Prairie Creek*	IL	AL	SN	SCU
Marsh's Edge‡	IL	AL	SN	SCU
Overlook CCRC / Overlook Masonic Healthcare† §	IL	AL	SN	SCU
Saban Center for Health and Wellness†	IL	AL	SN	SCU

* Sufficient data was not submitted to determine the building types included in this project.
† Additional building type: Wellness Center / Fitness Center
‡ Additional building type: Senior Community Center
§ Additional building type: Other

IL-Independent Living
AL-Assisted Living
SN-Skilled Nursing
SCU-Special Care Unit

Independent Living

The distribution of unit types for Independent Living apartments is fairly similar for both the Campus-Centered group and all 32 projects, though the Campus-Centered communities have no studio units. However, the apartment sizes are comparatively greater than those for all 32 projects. Similarly, the Campus-Centered group also have larger cottages (particularly two-bedroom units), though there are no cottages bigger than two-bedroom + den units. The larger Independent Living units in the Campus-Centered group supports the observation that these projects tend to allocate a larger proportion of building space to the individual units, emphasizing individual needs over communal ones.

Comparing the total building areas[5] showed that the projects in the Campus-Centered group are 11% smaller than the overall group of 32 projects. However, the total building area per unit[6] is 10% greater; indicating that even though the Campus-Centered projects typically have smaller Independent Living buildings, within those buildings there is more building area available to each resident.

The data analysis also showed that the Campus-Centered group has 29% less common area[7] compared to the 32 submissions; and likewise, less common area per unit[8] . Though the amount of common area per unit[8] is mostly a function of affordability and is related to the targeted market, the Campus-Centered group focuses on providing more private spaces than communal areas.

UNIT TYPE	CAMPUS-CENTERED GROUP		ALL 32 PROJECTS		PERCENTAGE DIFFERENCE IN UNIT SIZE
	UNIT DISTRIBUTION	MEAN UNIT SIZE	UNIT DISTRIBUTION	MEAN UNIT SIZE	
One-bedroom apartment	45%	983 NSF	45%	844 NSF	14%
Two-bedroom apartment	48%	1,325 NSF	37%	1,184 NSF	11%
Two-bedroom + den apartment	7%	1,604 NSF	13%	1,465 NSF	9%
Two-bedroom cottage	59%	2,190 NSF	47%	1,820 NSF	17%
Two-bedroom + den cottage	41%	2,357 NSF	48%	2,333 NSF	1%

	CAMPUS-CENTERED GROUP	ALL 32 PROJECTS	PERCENTAGE DIFFERENCE
Total building area[5]	253,944 GSF	281,095 GSF	-11%
Total building area per unit[6]	1,879 GSF	1,693 GSF	10%

	CAMPUS-CENTERED GROUP	ALL 32 PROJECTS	PERCENTAGE DIFFERENCE
Common area[7]	.07	.09	-29%
Common area per unit[8]	120 NSF	118 NSF*	-2%

* The data presented in this table has been adjusted to remove outliers: Cherry Ridge at 8.89 NSF and Sun City Park Yokohama at 506.25 NSF

Marsh's Edge | CSD Architects

Assisted Living

The distribution of Assisted Living residential unit types is somewhat similar for both the Campus-Centered group and the 32 projects. However, though the majority of units in both groups are studio and one-bedroom apartments, the Campus-Centered projects have a slightly larger percentage of studio and two-bedroom units, with fewer one-bedroom apartments. The findings for Assisted Living units parallel the results in Independent Living, though the disparity in unit size is not as great.

The total building area for the Campus-Centered group is 35% less than for the 32 projects, though the total building area per unit[6] is 9% greater; indicating that, like in Independent Living, even though the Campus-Centered projects typically have smaller Assisted Living buildings, within those buildings there is more building area available to each resident.

There is less common area in the Assisted Living buildings for the Campus-Centered projects, indicating that like in the Independent Living buildings, the Assisted Living buildings in the Campus-Centered group also allocate more building space to the individual units, emphasizing individual needs over communal ones.

The Campus-Centered projects also reported less staffing[9] compared to the 32 submissions, though it is not clear how this disparity relates to the campus-centered focus.

UNIT TYPE	CAMPUS-CENTERED GROUP		ALL 32 PROJECTS		PERCENTAGE DIFFERENCE IN UNIT SIZE
	UNIT DISTRIBUTION	MEAN UNIT SIZE	UNIT DISTRIBUTION	MEAN UNIT SIZE	
Studio apartment	29%	352 NSF	20%	358 NSF	-2%
One-bed apartment	49%	605 NSF	63%	581 NSF	4%
Two-bed apartment	21%	939 NSF	17%	877 NSF	7%

	CAMPUS-CENTERED GROUP	ALL 32 PROJECTS	PERCENTAGE DIFFERENCE
Total building area[5]	64,188 GSF	86,808 GSF	-35%
Total building area per unit[6]	1,129 GSF	1,029*	9%

*The data presented in this table has been adjusted to remove an outlier: Sun City Ginza East at 30,559 GSF.

	CAMPUS-CENTERED GROUP	ALL 32 PROJECTS	PERCENTAGE DIFFERENCE
Common area[7]	.07	.08	-14%
Common area per unit[8]	92 NSF	121 NSF	-32%

STAFFING[9]	CAMPUS-CENTERED GROUP	ALL 32 PROJECTS	PERCENTAGE DIFFERENCE
Overall FTE's per resident	.47	.64	-36%
Direct care FTE's per resident	.21	.29	-38%

Skilled Nursing

Interestingly, there are no Skilled Nursing resident rooms with more than double-occupancy in any of the projects evaluated. The distribution of Skilled Nursing unit types between the Campus-Centered group and all 32 projects is almost identical: Single-occupancy rooms account for 97% or more of the total units. However, the Skilled Nursing unit sizes in the Campus-Centered group are slightly larger.

The total building areas[5] for the Skilled Nursing projects are also almost identical, though the total building area per bed in the Campus-Centered group is 8% less than for the 32 projects; indicating that even though the Campus-Centered projects typically have the same size Skilled Nursing buildings, within those buildings there is less building area available to each resident.

The Campus-Centered group also has less common space than the 32 projects. Even in the Skilled Nursing buildings, the Campus-Centered projects focus more on providing private spaces than communal areas.

Campus-Centered projects typically have the same size Skilled Nursing buildings, within those buildings there is less building area available to each resident.

UNIT TYPE	CAMPUS-CENTERED GROUP		ALL 32 PROJECTS		PERCENTAGE DIFFERENCE IN UNIT SIZE
	UNIT DISTRIBUTION	MEAN UNIT SIZE	UNIT DISTRIBUTION	MEAN UNIT SIZE	
Single-occupancy room	98%	318 DGFA*[10]	97%	293 DGFA*[10]	3%
Double-occupancy room	2%	465 DGFA*[10]	3%	423 DGFA*[10]	9%

* The data presented in this table has been adjusted to remove outliers: Classic Residence by Hyatt in Palo Alto at 900 DGFA[10] and Sun City Ginza East at 137 DGFA[10]

	CAMPUS-CENTERED GROUP	ALL 32 PROJECTS	PERCENTAGE DIFFERENCE
Total building area[5]	45,449 GSF	45,269 GSF*	0.4%
Total building area per bed[6]	797 GSF	863 GSF†	-8%

* The data presented in this table has been adjusted to remove an outlier: Sun City Ginza East at 427,824 GSF.
† The data presented in this table has been adjusted to remove an outlier: Sun City Ginza East at 5,942 GSF per bed.

	CAMPUS-CENTERED GROUP	ALL 32 PROJECTS	PERCENTAGE DIFFERENCE
Common area[7]	.10	.16	-60%
Common area per bed[8]	78 NSF	85 NSF*	-9%

* The data presented in this table has been adjusted to remove outliers: Childers Place at 252 NSF and Sun City Park Yokohama at 235 NSF.

Special Care Units

Though the room sizes in the Campus-Centered projects' Special Care Units are larger than in the group of 32, there is less of an emphasis on single-occupancy rooms.

Furthermore, the total building area for the Campus-Centered projects is 34% less than the 32 projects; and the total building area per bed is lower, as well. The Campus-Centered projects typically have smaller Special Care Units and, within those buildings, there is less building area available to each resident.

The total common area in the Campus-Centered group's Special Care Units is a bit higher. However, the common area per bed[8] is less. Also, the amount of household common space is significantly smaller when compared to all 32 projects.

Like the other building types within the Campus-Centered projects, the Special Care Units allocate less building space to common areas.

UNIT TYPE	CAMPUS-CENTERED GROUP		ALL 32 PROJECTS		PERCENTAGE DIFFERENCE IN UNIT SIZE
	UNIT DISTRIBUTION	MEAN UNIT SIZE	UNIT DISTRIBUTION	MEAN UNIT SIZE	
Single-occupancy room	60%	475 NSF	80%	351 NSF	26%
Double-occupancy room	40%	1,082 NSF	20%	795 NSF	27%

	CAMPUS-CENTERED GROUP	ALL 32 PROJECTS	PERCENTAGE DIFFERENCE
Total building area[5]	16,269 GSF	21,871 GSF*	-34%
Total building area per bed[6]	507 GSF	721 GSF†	-42%

* The data presented in this table has been adjusted to remove an outlier: Sun City Ginza East at 427,824 GSF.
† The data presented in this table has been adjusted to remove an outlier: Sun City Ginza East at 11,884 GSF per bed.

	CAMPUS-CENTERED GROUP	ALL 32 PROJECTS	PERCENTAGE DIFFERENCE
Common area[7]	.13	.12	8%
Common area per bed[8]	70 NSF	84 NSF	-20%
Household area[11]	.03	.10	-233%

GREATER-COMMUNITY PROJECTS

Of the 32 award-winning submissions that provided sufficient data for detailed analysis, eleven projects are defined by their openness to and interactions with the surrounding neighborhood, including providing public access to on-campus amenities and/or taking advantage of existing amenities in the surrounding neighborhood (as stated in their project goals and by the types of elements incorporated into the projects). The eleven projects that make up the Greater-Community group are listed in the chart below.

Common characteristics of the Greater-Community group include:

- Community spaces and/or amenities are open to the public (e.g. wellness center, auditorium)
- Public services are provided (e.g. educational services, child development center, adult day care center)
- Projects include mixed-use buildings
- Projects are located within established neighborhood hubs and/or are adjacent to community resources (a majority of the Greater-Community projects had site locations defined as "urban" or "town")
- The projects were intended to be catalysts for urban renewal
- Six of the eleven Greater-Community Projects are classified as providing either Affordable or Low Income/subsidized housing, with the remaining five targeting a mixed or Middle/Upper income

With these common characteristics in mind, the building and staffing information provided to the researchers was analyzed to determine if this greater-community focus affected project design. Four out of the eleven projects did not provide adequate data for analysis, so only seven projects were used to compare three building types (Independent Living, Assisted Living, and Special Care Units). For a summary of the data analysis performed on the Greater-Community group by building type, see Appendix K.

PROJECT NAME	BUILDING TYPES			
Bienvivir Senior Health Services – Concourse*	IL	AL	SN	SCU
Bienvivir Senior Health Services – McKinley*	IL	AL	SN	SCU
Brightview Commons	IL	AL	SN	SCU
Cherry Ridge*	IL	AL	SN	SCU
Childers Place	IL	AL	SN	SCU
Friendship Haven†	IL	AL	SN	SCU
Harbor's Edge at Fort Norfolk‡	IL	AL	SN	SCU
Jenkins Terrace	IL	AL	SN	SCU
Mission Creek Community* §	IL	AL	SN	SCU
Presbyterian Homes at North Oaks†	IL	AL	SN	SCU
Westminster Canterbury Richmond§	IL	AL	SN	SCU

* Additional building type: Senior Community Center
† Additional building type: Wellness Center / Fitness Center
‡ Sufficient data was not submitted to determine the building types included in this project.
§ Additional building type: Other

Mission Creek Community | HKIT Architects

Independent Living

The distribution of unit types for Independent Living apartments is somewhat similar for both the Greater-Community group and the overall group of 32 projects, with both placing an emphasis on one- and two-bedroom units. However, the Greater-Community group has slightly more one-bedroom apartments. There is also a noticeable difference in the sizes of units between the Greater-Community group and the 32 projects, with the Greater-Community group having slightly smaller units. The smaller Independent Living units that characterize the Greater-Community projects suggest that these buildings place less emphasis on the autonomy of individual residents and put a greater focus on providing for the greater community.

Comparing the total building areas[5] showed that the Independent Living buildings in the Greater-Community group are 47% smaller than in the 32 projects; and, likewise, the Greater-Community projects' total building area per unit[6] is 17% smaller. However, the residential area[12] is almost identical. Even though the Greater-Community projects typically have smaller Independent Living buildings, the proportion of building space allocated to resident apartments is roughly the same.

The amount of common space in the Greater-Community Independent Living buildings is 29% lower when compared to the 32 projects. Because the amount of commons provided is related to the size of the building (along with being a function of affordability), it makes sense that the smaller Greater-Community Independent Living buildings would also have less total common space. However, there is more common space per unit in the Greater-Community group than in the group of 32; indicating that residents in the Greater-Community projects have access to more amenities. The greater proportion of common space per person available in these projects reflects the Greater-Community group's emphasis on integrating with the surrounding neighborhood, including providing amenities that the general public is encouraged to use (e.g. auditoriums, child developmental centers, adult day care centers, and wellness centers).

UNIT TYPE	CAMPUS-CENTERED GROUP		ALL 32 PROJECTS		PERCENTAGE DIFFERENCE IN UNIT SIZE
	UNIT DISTRIBUTION	MEAN UNIT SIZE	UNIT DISTRIBUTION	MEAN UNIT SIZE	
Studio apartment	2%	500 NSF	5%	508 NSF	-2%
One-bedroom apartment	56%	750 NSF	45%	844 NSF	-13%
Two-bedroom apartment	32%	1,067 NSF	37%	1,184 NSF	-11%
Two-bedroom + den apartment	9%	1,350 NSF	13%	1,465 NSF	-9%
Three-bedroom + apartment	1%	2,072 NSF	1%	2,259 NSF	-9%

	GREATER-COMMUNITY GROUP	ALL 32 PROJECTS	PERCENTAGE DIFFERENCE
Total building area[5]	191,461 GSF	281,095 GSF	-47%
Total building area per unit[6]	1,448 GSF	1,693 GSF	-17%
Residential area[12]	.64	.63	2%

	GREATER-COMMUNITY GROUP	ALL 32 PROJECTS	PERCENTAGE DIFFERENCE
Common area[7]	.07	.09	-29%
Common area per unit[8]	136 NSF*	118 NSF*†	13%

* The data presented in this table has been adjusted to remove an outlier: Cherry Ridge at 8.89 GSF.

† The data presented in this table has been adjusted to remove an outlier: Sun City Park Yokohama at 506.25 NSF.

Assisted Living

The distribution of Assisted Living residential unit types for the Greater-Community group is almost identical to the distribution in all 32 projects; and similar to in Independent Living, the sizes of Assisted Living units are smaller for the Greater-Community projects. This disparity grows as the size of the unit type increases.

The total Assisted Living building area in the Greater-Community group is less than half that for all 32; and the total building area per unit[6] is also less by 15%. However, the residential area[12] is 8% greater. Even though the Greater-Community projects typically have smaller Assisted Living buildings, the proportion of building space allocated to resident apartments is slightly higher than for the group of 32.

Although the common area is 11% higher for the Greater-Community group when compared to all 32 projects, the same set of projects show a third less common area per unit[8]. Within Greater-Community Assisted Living buildings, there is less common space available to the residents. However, this may be because the projects in the Greater-Community group provide more, shared amenities throughout the campus—just not within the Assisted Living buildings, themselves. Presumably, the Assisted Living residents in the Greater-Community projects are able to travel to these shared amenities.

UNIT TYPE	GREATER-COMMUNITY GROUP		ALL 32 PROJECTS		PERCENTAGE DIFFERENCE IN UNIT SIZE
	UNIT DISTRIBUTION	MEAN UNIT SIZE	UNIT DISTRIBUTION	MEAN UNIT SIZE	
Studio apartment	20%	352 NSF	20%	358 NSF	-2%
One-bedroom apartment	65%	544 NSF	63%	581 NSF	-7%
Two-bedroom apartment	15%	775 NSF	17%	877 NSF	-13%

	GREATER-COMMUNITY GROUP	ALL 32 PROJECTS	PERCENTAGE DIFFERENCE
Total building area[5]	42,044 GSF	86,808 GSF	-106%
Total building area per unit[6]	894 GSF	1,029 GSF*	-15%
Residential area[12]	.61	.56†	8%

* The data presented in this table has been adjusted to remove an outlier: Sun City Ginza East at 30,559 GSF.
† The data presented in this table has been adjusted to remove an outlier: Sun City Ginza East at .01.

	GREATER-COMMUNITY GROUP	ALL 32 PROJECTS	PERCENTAGE DIFFERENCE
Common area[7]	.09	.08	11%
Common area per unit[8]	91 NSF	121 NSF	-33%

Special Care Units

The Greater-Community group's Special Care Units have slightly smaller units, but the distribution of unit types is almost exclusively single-occupancy rooms (at 96%), compared to all 32 projects with only 80% single-occupancy rooms.

The total building area in the Greater-Community Special Care Units is 12% larger than for all 32. Likewise, the gross square footage per bed is also 12% greater.

Slightly more common area is allocated in the Special Care portion of the Greater-Community projects, which also have more common area per bed.[8] Moreover, the group's household area[11] is quite a bit larger than in the 32 projects. Unlike in the Assisted Living buildings, where the residents are presumably expected to be able to travel to the common amenities on the campus, the provision of more common space within the Special Care Unit buildings represents the Greater-Community project's accounting for the decrease in the residents' independence and, presumably, their inability to access the amenities located in the outside community. The larger total building areas[5] seen in the Greater-Community projects, reported above, may be due to these greater common areas.

UNIT TYPE	GREATER-COMMUNITY GROUP		ALL 32 PROJECTS		PERCENTAGE DIFFERENCE IN UNIT SIZE
	UNIT DISTRIBUTION	MEAN UNIT SIZE	UNIT DISTRIBUTION	MEAN UNIT SIZE	
Single-occupancy room	96%	328 NSF	80%	351 NSF	-7%
Double-occupancy room	4%	775 NSF	20%	795 NSF	-3%

	GREATER-COMMUNITY GROUP	ALL 32 PROJECTS	PERCENTAGE DIFFERENCE
Total building area[5]	24,894 GSF	21,871 GSF*	12%
Total building area per bed[6]	815 GSF	721 GSF†	12%

* The data presented in this table has been adjusted to remove an outlier: Sun City Ginza East at 427,823 GSF.
† The data presented in this table has been adjusted to remove an outlier: Sun City Ginza East at 11,884 GSF.

	GREATER-COMMUNITY GROUP	ALL 32 PROJECTS	PERCENTAGE DIFFERENCE
Common area[7]	.13	.12	8%
Common area per bed[8]	99 NSF	84 NSF	15%
Household area[11]	.16	.10	38%

Classic Residence by Hyatt in Palo Alto | Steinberg Architects

HOSPITALITY PROJECTS

Of the 32 award-winning submissions that provided sufficient information for detailed analysis, five projects focus on a hospitality model and strive for resort-quality environments (as stated in their project goals and by the types of elements incorporated into the projects). The five projects that make up the Hospitality group are listed in the chart below.

Common characteristics of the Hospitality group include providing:

- Harmony and connections with nature
- Extensive landscaping
- Elegant interiors
- Resort ("five-star hotel") qualities
- A neighborhood character, even though the projects are large in scale
- A senior living residence targeted to the upper income market.

With these common characteristics in mind, the building and staffing information provided to the researchers was analyzed to determine if this hospitality focus affected project design. One out of the five projects did not provide adequate data for analysis. Although only four projects could be used for the investigation, significant differences emerged between the projects: the three located in Japan, and a single project located in the United States. These differences were further explored, as appropriate. Also, because the Hospitality group was comprised of such a small sample, there was sufficient data to evaluate only one building type (Independent Living). For a summary of the data analysis performed on the Hospitality group by building type, see Appendix L.

PROJECT NAME	BUILDING TYPES			
Classic Residence by Hyatt in Palo Alto	IL	AL	SN	SCU
Querencia*	IL	AL	SN	SCU
Sun City Ginza East†‡	IL	AL	SN	SCU
Sun City Park Yokohama	IL	AL	SN	SCU
Sun City Takarazuka	IL	AL	SN	SCU

* Sufficient data was not submitted to determine the building types included in this project.
† Additional building type: Wellness Center / Fitness Center
‡ Additional building type: Other Medical Services Care Facility

Independent Living

A majority of the Independent Living apartments in the three Japanese Hospitality projects are one-bedroom apartments (55%), compared to the one Hospitality project located in the United States that has no studio units and 61% of its units are two-bedroom and larger apartments. The distribution of Independent Living units between the Hospitality group and the overall group of 32 is somewhat similar, though the Hospitality projects located in Japan provide a greater percentage of smaller units (studio and one-bedroom apartments); and none of the Hospitality projects contain cottages.

The three Japanese Hospitality projects have significantly smaller Independent Living unit sizes, compared to the group of 32. Though the Japanese studio apartments are roughly the same size, the one-bedroom units are 61% smaller, the two-bedroom units are 68% smaller, the two-bedroom + den units are 81% smaller, and the three-bedroom + units are apparently about two and a half times smaller than the same type of apartment in the 32 projects. Unfortunately, data for the United States Hospitality project's individual unit sizes were incomplete, but, where provided, there is a striking contrast between the sizes of similar Japanese units, which are again much smaller. This finding is contrary to the researchers' expectation, which would have high-end Hospitality projects providing larger scale units, not smaller.

All four Hospitality projects stated that "luxury" was a project goal, but the use of space in articulating that objective is quite different between the national and international (Japanese) projects. Comparing the total building areas[5] showed that the Independent Living buildings in the Hospitality group are larger than in the 32 projects. However, a comparison of building areas per unit is not as straightforward: The one Hospitality project located in the United States has 6% more building area per unit when compared to all 32 projects, but the Japanese projects have 33% less building area per unit. Similarly, the residential area[12] in the Japanese Hospitality projects is 19% less than in the group of 32. Even though the Independent Living Hospitality projects are characterized by their larger overall size and the one Hospitality project located in the United States has more building area per unit, the Japanese projects provide less total building area per unit[6] and have a smaller proportion of building space allocated to resident apartments.

Information related to the breakdown of space within the Independent Living building for the Hospitality project located in the United States was not available. However, a comparison could be made between the Japanese Hospitality projects and the group of 32: The data analysis showed that the Japanese Hospitality group has over one and a half times more common area in the building, compared to the 32 submissions; and likewise, over two and a half times more common area per unit.[8] Because common area per unit[8] is mostly a function of affordability and is related to the targeted market, the very high ratio of common space per unit in the Japanese Hospitality Independent Living buildings is a clear reflection of the high-end feel and profuse offering of amenities available in these projects.

UNIT TYPE	HOSPITALITY GROUP				ALL 32 PROJECTS	
	JAPANESE PROJECTS		U.S. PROJECT			
	UNIT DISTRIBUTION	MEAN UNIT SIZE	UNIT DISTRIBUTION	MEAN UNIT SIZE	UNIT DISTRIBUTION	MEAN UNIT SIZE
Studio apartment	14%	512 NSF	0%	----	5%	508 NSF
One bedroom apartment	55%	524 NSF	39%	900 NSF	45%	844 NSF
Two bedroom apartment	21%	704 NSF	59%	N/A*	37%	1184 NSF
Two bedroom + den apartment	7%	810 NSF	0%	----	13%	1465 NSF
Three bedroom + apartment	2%	910 NSF	2%	4,200 NSF	1%	2,259 NSF

* This submission's Building Project Data chart was incomplete, so this information was not available for analysis.

	HOSPITALITY GROUP		ALL 32 PROJECTS
	JAPANESE PROJECTS	U.S. PROJECT	
Total building area[5]	438,201 GSF	700,000 GSF	281,095 GSF
Total building area per unit[6]	1,277 GSF	1,804 GSF	1,693 GSF
Residential area[12]	.53	N/A*	.63

* This submission's Building Project Data chart was incomplete, so this information was not available for analysis.

	HOSPITALITY GROUP		ALL 32 PROJECTS
	JAPANESE PROJECTS	U.S. PROJECT	
Common area[7]	.23	N/A*	.09
Common area per unit[8]	307 NSF	N/A*	118 NSF†

* This project's Building Project Data chart was incomplete, so this information was not available for analysis.
† The data presented in this table has been adjusted to remove outliers: Cherry Ridge at 8.89 NSF and Sun City Park Yokohama at 506.25 NSF.

SMALL- MEDIUM- LARGE PROJECTS

Of the 36 award-winning submissions, DFA provided the researchers with Population & Staffing Data and Building Project Data charts for 32 projects, allowing for further detailed analysis. Of those 32:

- 21 submissions were able to be allocated into three size-related groups, as defined by project cost. However, three of those 21 projects did not provide adequate data for analysis, so only 18 projects were used to compare four building types (Independent Living, Assisted Living, Skilled Nursing, and Special Care Units).
  - Small projects: seven submissions priced at $10 million to $40 million
  - Medium projects: seven submissions priced at $40 million to $80 million
  - Large projects: four submissions priced at $80 million to $100 million
- Three submissions were excluded from the analysis because they had overall project costs far exceeding the scope of the others ($150,000,000 and greater); and together did not form a meaningful subgroup for analysis.
- Eight submissions were considered to be distinct projects since they could not be defined by the building types that were the basis for all other comparisons (Independent Living, Assisted Living, Skilled Nursing, and Special Care Units). The eight distinct projects are comprised of four other building types:
  - Hospice (four submissions)
  - Senior Community Center (two submissions)
  - Chapel (one submission)
  - Wellness Center / Fitness Center (one submission)

Only one of those building types—Hospice—included enough submissions to allow for any further inquiry. The four hospices submitted in the DFAR9 process include:

- Faith Hospice at Trillium Woods
- Kaplan Family Hospice House
- Sanctuary Hospice House
- Hospice of Lancaster County

Of the four hospices, one of the projects did not provide building and staffing information, so only three submissions were able to be analyzed. A side-by-side comparison showed that the three hospices are very different; mostly because of their disparate sizes. However, of note: Though Faith Hospice at Trillium Woods is the largest building overall and has the largest unit size, the Kaplan Family Hospice House provides the most total building area per unit[6] and has the most common area per unit;[8] reflecting the nature of this building (a 12-bed hospice facility that also offers meeting and administrative spaces for the attached Center for Grief and Healing).

	FAITH HOSPICE AT TRILLIUM WOODS	KAPLAN FAMILY HOSPICE HOUSE*	SANCTUARY HOSPICE HOUSE	ALL THREE PROJECTS
Unit type: single-occupancy room	475 NSF	425 NSF	270 NSF	390 NSF
Total number of units	33 units	12 units	16 units	20 units
Total building area[5]	54,050 GSF	23,301 GSF	14,006 GSF	30,452 GSF
Total building area per bed[6]	1,638 GSF	1,942 GSF	875 GSF	1,485 GSF
Residential area[12]	.38	.22	.31	.30
Common area[7]	.13	.17	.15	.15
Common area per bed[8]	210 NSF	321 NSF	132 NSF	221

*including the Center for Grief and Healing

Small Projects

Of the 18 submissions included in the Small-Medium-Large analysis, seven projects were priced between $10 million and $40 million and make up the Small Group.

Based on the similarities in size (as determined by project costs), the building and staffing information provided to the researchers was analyzed to determine if and how project design was affected. Analysis was able to be performed on four building types: Independent Living, Assisted Living, Skilled Nursing, and Special Care Units. The target market for these seven Small projects varies, ranging from Low Income/Subsidized to Middle/Upper Income. For a summary of the data analysis performed on the Small group by building type, see Appendix M.

PROJECT NAME	BUILDING TYPES			
Brightview Commons	IL	AL	SN	SCU
Childers Place	IL	AL	SN	SCU
Eastcastle Place	IL	AL	SN	SCU
Friendship Haven*	IL	AL	SN	SCU
Jenkins Terrace	IL	AL	SN	SCU
Presbyterian Homes at North Oaks*	IL	AL	SN	SCU
The Village at Ocotillo	IL	AL	SN	SCU

*Additional building type: Wellness Center / Fitness Center

BUILDING TYPE	UNIT TYPE	MEAN QUANTITY OF UNITS	RANGE OF UNIT QUANTITIES
Independent Living	Studio apartment	12 units	N/A*
	One-bedroom apartment	50 units	14-99 units
	Two-bedroom apartment	21 units	1-52 units
	Two-bedroom + den apartment	60 units	N/A*
	Three-bedroom apartment	0 units	N/A
	Two-bedroom cottage	0 units	N/A
	Two-bedroom + den cottage	0 units	N/A
	Three-bedroom cottage	0 units	N/A
Assisted Living	Studio apartment	19 units	8-29 units
	One-bedroom apartment	38 units	8-88 units
	Two-bedroom apartment	14 units	2-32 units
	Two-bedroom + den apartment	0 units	N/A
Skilled Nursing	Single-occupancy room	45 beds	33-60 beds
	Double-occupancy room	1 bed	N/A*
	Triple-occupancy room	0 beds	N/A
Special Care Unit	Single-occupancy room	21 beds	10-32 beds
	Double-occupancy room	19 beds	2-52 beds
	Triple-occupancy room	0 beds	N/A

* Only one project in this group included this type of unit

Independent Living

Both the Small projects and the overall group of 32 have roughly the same sized units, though the Small group does include larger two-bedroom + den units. However, the Small projects consist of smaller unit types, with proportionately more one-bedroom apartments (at 56%) than the group of 32 (at 45%). The Small group also offers no units larger than a two-bedroom + den apartment, including no cottages. The small projects provide fewer Independent Living options and consist of smaller unit types.

As would be expected, the Small projects' Independent Living total building area is less than for the group of 32, with the Small projects being typically almost half the size. However, both the total building area per unit[6] and the residential area[12] in the Small projects are roughly the same when compared to the 32; indicating that even though the Small projects typically have smaller Independent Living buildings, within those buildings the proportion of space devoted to resident units is the same, as is the amount of building area available to each resident.

Interestingly, though the buildings in the Small group are typically half the size of the Independent Living buildings in group of 32, the amount of common area is the same; and there is 24% more common area per unit[8] in the Small projects. For smaller developments, the proportion of common space to private space is greater in Independent Living.

UNIT TYPE	SMALL GROUP		ALL 32 PROJECTS		PERCENTAGE DIFFERENCE IN UNIT SIZE
	UNIT DISTRIBUTION	MEAN UNIT SIZE	UNIT DISTRIBUTION	MEAN UNIT SIZE	
Studio apartment	3%	500 NSF	5%	508 NSF	-2%
One-bedroom apartment	56%	833 NSF	45%	844 NSF	-1 %
Two-bedroom apartment	23%	1,214 NSF	37%	1,184 NSF	3%
Two-bedroom + den apartment	17%	2,230 NSF	13%	1,465 NSF	34%
Three bedroom + apartment	0%	----	1%	2,259 NSF	----
Two-bedroom cottage	0%	----	47%	1,820 NSF	----
Two-bedroom+ den cottage	0%	----	48%	2,333 NSF	----
Three-bedroom+ cottage	0%	----	5%	2,603 NSF	----

	SMALL GROUP	ALL 32 PROJECTS	PERCENTAGE DIFFERENCE
Total building area[5]	147,172 GSF	281,095 GSF	-191%
Total building area per unit[6]	1,735 GSF	1,693 GSF	2%
Residential area[12]	.62	.63	-2%

	SMALL GROUP	ALL 32 PROJECTS	PERCENTAGE DIFFERENCE
Common area[7]	.09	.09	0%
Common area per unit[8]	156 NSF	118 NSF*	24%

* The data presented in this table has been adjusted to remove outliers: Cherry Ridge at 8.89 NSF and Sun City Park Yokohama at 506.25 NSF.

Assisted Living

In the Small group's Assisted Living buildings, there are a higher proportion of one- and two-bedroom apartments, with fewer studios than in the 32 projects. However, the Small group's unit sizes tend to be smaller.

The Assisted Living buildings in the Small group are much smaller, with 44% less total building area and 60% less residential area.[12] However, the total building area per unit[6] is the same; indicating that, like in the Independent Living buildings, even though the Small projects typically have smaller Assisted Living buildings, within those buildings there is the same amount of building area available to each resident.

The Small projects have 27% more common area, but are showing 64% less common area per resident. When compared to the 32 projects, though residents have access to more commons in the Small projects' Assisted Living buildings, there is also a higher proportion of space in the buildings being allocated to other functions (e.g. administrative and support spaces).

The staffing[9] within Assisted Living is less for the Small projects compared to the 32 submissions.

UNIT TYPE	SMALL GROUP		ALL 32 PROJECTS		PERCENTAGE DIFFERENCE IN UNIT SIZE
	UNIT DISTRIBUTION	MEAN UNIT SIZE	UNIT DISTRIBUTION	MEAN UNIT SIZE	
Studio apartment	3%	315 NSF	20%	358 NSF	-14%
One-bedroom apartment	75%	562 NSF	63%	581 NSF	-3%
Two-bedroom apartment	22%	828 NSF	17%	877 NSF	-6%

	SMALL GROUP	ALL 32 PROJECTS	PERCENTAGE DIFFERENCE
Total building area[5]	60,276 GSF	86,808 GSF	-44%
Total building area per unit[6]	993 GSF	1,029 GSF*	-4%
Residential area[12]	.35	.56†	-60%

* The data presented in this table has been adjusted to remove an outlier: Sun City Ginza East at 30,559 GSF.
† The data presented in this table has been adjusted to remove an outlier: Sun City Ginza East at .01.

	SMALL GROUP	ALL 32 PROJECTS	PERCENTAGE DIFFERENCE
Common area[7]	.11	.08	27%
Common area per unit[8]	74 NSF	121 NSF	-64%

STAFFING[9]	SMALL GROUP	ALL 32 PROJECTS	PERCENTAGE DIFFERENCE
Overall FTE's per resident	.46	.62	-39%
Direct care FTE's per resident	.21	.29	-38%

Skilled Nursing

It should be noted that data related Skilled Nursing were available for only three projects in the Small group, which may have been too small of a pool to reliably make comparisons. Irregularities are noted below.

All of the submissions offered almost exclusively single-occupancy rooms; and the size of the single-occupancy Skilled Nursing rooms in the Small group is slightly larger than in the group of 32 projects, by 17%.

The total building area for the Small projects' Skilled Nursing buildings is 17% larger and the building area per bed in 73% bigger than in the group of 32.

The common area in the Small projects' Skilled Nursing buildings is 7% smaller than in the group of 32. However, the common area per bed[8] is significantly larger.

UNIT TYPE	SMALL GROUP		ALL 32 PROJECTS		PERCENTAGE DIFFERENCE IN UNIT SIZE
	UNIT DISTRIBUTION	MEAN UNIT SIZE	UNIT DISTRIBUTION	MEAN UNIT SIZE	
Single-occupancy room	99%	354 DGFA*[10]	97%	293 DGFA*[10]	17%
Double-occupancy room	1%	370 DGFA*[10]	3%	423 DGFA*[10]	-14%

* The data presented in this table has been adjusted to remove outliers: Classic Residence by Hyatt in Palo Alto at 900 DGFA[10] and Sun City Ginza East at 137 DGFA.[10]

	SMALL GROUP	ALL 32 PROJECTS	PERCENTAGE DIFFERENCE
Total building area[5]	53,065 GSF	45,269 GSF*	17%
Total building area per bed[6]	3,183 GSF	863 GSF†	73%

* The data presented in this table has been adjusted to remove an outlier: Sun City Ginza East at 427,824 GSF.
† The data presented in this table has been adjusted to remove an outlier: Sun City Ginza East at 5,942 GSF per bed.

	SMALL GROUP	ALL 32 PROJECTS	PERCENTAGE DIFFERENCE
Common area[7]	.15	.16	-7%
Common area per bed[8]	158 NSF	85 NSF*	46%

* The data presented in this table has been adjusted to remove outliers: Childers Place at 252 NSF and Sun City Park Yokohama at 235 NSF.

Special Care Units

The distribution of single- and double-occupancy rooms varies between the Small projects and the group of 32. The Small projects consist of more double-occupancy rooms in the Special Care Units. However, the unit sizes are larger for the Small group.

Even with larger Special Care Unit rooms, the Small projects are smaller than the Special Care Units in the group of 32, with 37% less total building area and 5% less building area per bed than the 32 submissions.

There is also a third less common area in the Small projects Special Care Units; and the common area per bed[8] is almost half that for the group of 32.

UNIT TYPE	SMALL GROUP		ALL 32 PROJECTS		PERCENTAGE DIFFERENCE IN UNIT SIZE
	UNIT DISTRIBUTION	MEAN UNIT SIZE	UNIT DISTRIBUTION	MEAN UNIT SIZE	
Single-occupancy room	59%	496 NSF	80%	351 NSF	29%
Double-occupancy room	41%	877 NSF	20%	795 NSF	9%

	SMALL GROUP	ALL 32 PROJECTS	PERCENTAGE DIFFERENCE
Total building area[5]	15,918 GSF	21,871 GSF*	-37%
Total building area per bed[6]	686 GSF	721 GSF†	-5%

* The data presented in this table has been adjusted to remove an outlier: Sun City Ginza East at 427,824 GSF.

† The data presented in this table has been adjusted to remove an outlier: Sun City Ginza East at 11,884 GSF per bed.

	SMALL GROUP	ALL 32 PROJECTS	PERCENTAGE DIFFERENCE
Common area[7]	.09	.12	-33%
Common area per bed[8]	44 NSF	84 NSF	-190%
Household area[11]	.14	.10	29%

Williamsburg Landing Edgewood Expansion | CSD Architects

Medium Projects

Of the 18 submissions included in the Small-Medium-Large analysis, seven projects were priced between $40 million and $80 million and make up the Medium group.

Based on the similarities in size (as determined by project costs), the building and staffing information provided to the researchers was analyzed to determine if and how project design was affected. Analysis was able to be performed on two building types: Independent Living and Assisted Living. The target market for the seven Medium projects varies, ranging from Low Income/Subsidized to Upper Income. For a summary of the data analysis performed on the Medium group by building type, see Appendix N.

PROJECT NAME	BUILDING TYPES			
Cherry Ridge*	IL	AL	SN	SCU
Friendship Village of Schaumburg	IL	AL	SN	SCU
Goodwin House Bailey's Crossroads†	IL	AL	SN	SCU
Marsh's Edge*	IL	AL	SN	SCU
Mission Creek Community*‡	IL	AL	SN	SCU
Providence Point†	IL	AL	SN	SCU
Williamsburg Landing*	IL	AL	SN	SCU

* Additional building type: Senior Community Center
† Additional building type: Wellness Center / Fitness Center
‡ Additional building type: Other

BUILDING TYPE	UNIT TYPE	MEAN QUANTITY OF UNITS	RANGE OF UNIT QUANTITIES
Independent Living	Studio apartment	0 units	N/A*
	One-bedroom apartment	65 units	24-139 units
	Two-bedroom apartment	39 units	1-80 units
	Two-bedroom + den apartment	23 units	16-32 units
	Three-bedroom apartment	0 units	N/A
	Two-bedroom cottage	25 units	20-30 units
	Two-bedroom + den cottage	24 units	10-32 units
	Three-bedroom cottage	5 units	N/A*
Assisted Living	Studio apartment	9 units	N/A*
	One-bedroom apartment	33 units	20-42 units
	Two-bedroom apartment	42 units	N/A*
	Two-bedroom + den apartment	2 units	N/A*
Skilled Nursing	Single-occupancy room	53 beds	12-112 beds
	Double-occupancy room	8 bed	4-12 beds
	Triple-occupancy room	0 beds	N/A
Special Care Unit	Single-occupancy room	28 beds	16-39 beds
	Double-occupancy room	4 beds	N/A*
	Triple-occupancy room	0 beds	N/A

* Only one project in this group included this type of unit

Independent Living

The distribution of units is roughly the same for the Medium group and the 32 projects. However, the Medium projects typically have larger unit sizes. In fact, as the size of the unit type increases, so does the amount of difference in square footage. Similarly, the cottage units are quite a bit larger for the Medium projects, compared to group of 32.

The total building area for the Medium Independent Living buildings is 61% smaller than for the 32 projects, but the total building area per unit[6] and the residential area[12] are quite similar; indicating that even though the Medium projects typically have smaller Independent Living buildings, within those buildings the same proportion of space is devoted to resident units and there is the same amount of building area available to each resident.

Both the common area and the common area per unit[8] are significantly smaller in the Medium Independent Living projects when compared to the 32.

UNIT TYPE	MEDIUM GROUP		ALL 32 PROJECTS		PERCENTAGE DIFFERENCE IN UNIT SIZE
	UNIT DISTRIBUTION	MEAN UNIT SIZE	UNIT DISTRIBUTION	MEAN UNIT SIZE	
Studio apartment	0%	----	5%	508 NSF	----
One-bedroom apartment	52%	795 NSF	45%	844 NSF	-6%
Two-bedroom apartment	37%	1,296 NSF	37%	1,184 NSF	9%
Two-bedroom + den apartment	11%	1,773 NSF	13%	1,465 NSF	17%
Three bedroom + apartment	0%	----	1%	2,259 NSF	----
Two-bedroom cottage	43%	2,362 NSF	47%	1,820 NSF	23%
Two-bedroom+ den cottage	53%	2,816 NSF	48%	2,333 NSF	17%
Three-bedroom+ cottage	4%	3,600 NSF	5%	2,603 NSF	28%

	MEDIUM GROUP	ALL 32 PROJECTS	PERCENTAGE DIFFERENCE
Total building area[5]	174,186 GSF	281,095 GSF	-61%
Total building area per unit[6]	1,802	1,693 GSF	6%
Residential area[12]	.64	.63	2%

	MEDIUM GROUP	ALL 32 PROJECTS	PERCENTAGE DIFFERENCE
Common area[7]	.04	.09	-225%
Common area per unit[8]	65 NSF*	118 NSF†	-82%

* The data presented in this table has been adjusted to remove an outlier: Cherry Ridge at 8.89 NSF.

† The data presented in this table has been adjusted to remove outliers: Cherry Ridge at 8.89 NSF and Sun City Park Yokohama at 506.25 NSF.

Assisted Living

The distribution of Assisted Living unit types varies between the groups, with the Medium projects consisting of less studio units and more two-bedroom apartments than in the 32 projects. The Medium group also has slightly larger unit sizes.

The total building area for Assisted Living in the Medium group is smaller than for the 32 projects. However, the total building area per unit[6] and the residential areas are slightly larger; indicating that even though the Medium projects typically have smaller Assisted Living projects, within those buildings there is slightly more building area available to each resident and a slightly larger proportion of the building is allocated to resident apartments.

Although the common areas between the Assisted Living projects are exactly the same, the amount of common area per unit[8] is less for the Medium group, when compared to the 32.

UNIT TYPE	MEDIUM GROUP		ALL 32 PROJECTS		PERCENTAGE DIFFERENCE IN UNIT SIZE
	UNIT DISTRIBUTION	MEAN UNIT SIZE	UNIT DISTRIBUTION	MEAN UNIT SIZE	
Studio apartment	6%	425 NSF	20%	358 NSF	16%
One-bedroom apartment	66%	641 NSF	63%	581 NSF	9%
Two-bedroom apartment	28%	1,038 NSF	17%	877 NSF	16%

	MEDIUM GROUP	ALL 32 PROJECTS	PERCENTAGE DIFFERENCE
Total building area[5]	59,577 GSF	86,808 GSF	-46%
Total building area per unit[6]	1,116 GSF	1,029 GSF*	8%
Residential area[12]	.61	.56†	8%

* The data presented in this table has been adjusted to remove an outlier: Sun City Ginza East at 30,559 GSF.
† The data presented in this table has been adjusted to remove an outlier: Sun City Ginza East at .01.

	MEDIUM GROUP	ALL 32 PROJECTS	PERCENTAGE
Common area[7]	.08	.08	0%
Common area per unit[8]	97 NSF	121 NSF	-25%

Large Projects

Of the 18 submissions included in the Small-Medium-Large analysis, four projects were priced between $80 million and $100 million and make up the Large group.

Based on the similarities in size (as determined by project costs), the building and staffing information provided to the researchers was analyzed to determine if and how project design was affected. Analysis was able to be performed on four building types: Independent Living, Assisted Living, Skilled Nursing, and Special Care Units. The target market for the four Large projects are in the Middle/Upper or Upper Income brackets. For a summary of the data analysis performed on the Large group by building type, see Appendix O.

It should be noted that data related to the Large group were available for only four projects, which limited the calculations that could be made and which may have been too small of a pool to reliably make comparisons—particularly when two of the four projects are unique in size and amenities*. Irregularities are noted below.

*Note: Refer to the description of the Japanese Hospitality projects, starting on page 41.

PROJECT NAME	BUILDING TYPES			
NewBridge on the Charles*†	IL	AL	SN	SCU
Overlook CCRC / Overlook Masonic Healthcare‡ §	IL	AL	SN	SCU
Sun City Ginza East*‡	IL	AL	SN	SCU
Sun City Takarazuka	IL	AL	SN	SCU

* Additional building type: Other Medical Services Care Facility
† Additional building type: Senior Community Center
‡ Additional building type: Wellness Center / Fitness Center
§ Additional building type: Other

BUILDING TYPE	UNIT TYPE	MEAN QUANTITY OF UNITS	RANGE OF UNIT QUANTITIES
Independent Living	Studio apartment	75 units	57-93 units
	One-bedroom apartment	87 units	45-131 units
	Two-bedroom apartment	70 units	63-93 units
	Two-bedroom + den apartment	55 units	17-102 units
	Three-bedroom apartment	17 units	N/A*
	Two-bedroom cottage	6 units	N/A*
	Two-bedroom + den cottage	29 units	80-50 units
	Three-bedroom cottage	0 units	N/A
Assisted Living	Studio apartment	40 units	14-65 units
	One-bedroom apartment	26 units	4/48 units
	Two-bedroom apartment	3 units	N/A*
	Two-bedroom + den apartment	0 units	N/A*
Skilled Nursing	Single-occupancy room	73 beds	34-112 beds
	Double-occupancy room	12 bed	N/A*
	Triple-occupancy room	0 beds	N/A
Special Care Unit	Single-occupancy room	36 beds	32-39 beds
	Double-occupancy room	4 beds	N/A*
	Triple-occupancy room	0 beds	N/A

Independent Living

The Large projects have more studio units (16% versus to 5%), more two bedroom + den apartments (17% versus 13%) and significantly more two bedroom + den cottages (91% versus 48%) than in the 32 projects. Though the unit types are similar between both groups, the Large projects offer proportionally more choices in Independent Living units at the top and bottom of the spectrum.

The sizes of units appear to be typically smaller in the Large group. However, because two of the four projects in the group are Japanese submissions, their uniquely small unit sizes distort the values listed below. Accordingly, an accurate comparison of unit sizes between the Large group and the 32 projects was not possible since removing the values from the two Japanese projects would have left insufficient data for the comparison.

As would be expected, the Large projects consist of bigger Independent Living buildings, with a 15% greater total building area when compared to the group of 32. However, the total building area per unit[6] and the residential area[12] are smaller for the Large group; indicating that even though the Large projects typically have bigger Independent Living buildings, within those buildings, proportionately less space is devoted to resident units and less total building area is available to each resident. This is perhaps due to a greater quantity of resident units combined with more space in the building being allocated to non-resident areas, such as administrative and support areas.

The Large group also has less common area and common area per unit[8] when compared to the 32. So in addition to having less area devoted to resident areas, the Large projects similarly have less area allocated to commons in Independent Living.

UNIT TYPE	LARGE GROUP		ALL 32 PROJECTS		PERCENTAGE DIFFERENCE IN UNIT SIZE
	UNIT DISTRIBUTION	MEAN UNIT SIZE	UNIT DISTRIBUTION	MEAN UNIT SIZE	
Studio apartment	16%	512 NSF	5%	508 NSF	1%
One-bedroom apartment	36%	779 NSF	45%	844 NSF	-8%
Two-bedroom apartment	29%	887 NSF	37%	1,184 NSF	-33%
Two-bedroom + den apartment	17%	989 NSF	13%	1,465 NSF	-48%
Three bedroom + apartment	2%	910 NSF	1%	2,259 NSF	-248%
Two-bedroom cottage	9%	1,335 NSF	47%	1,820 NSF	-36%
Two-bedroom+ den cottage	91%	722 NSF	48%	2,333 NSF	-323%
Three-bedroom+ cottage	0%	----	5%	2,603 NSF	----

	LARGE GROUP	ALL 32 PROJECTS	PERCENTAGE DIFFERENCE
Total building area[5]	331,408 GSF	281,095 GSF	15%
Total building area per unit[6]	1,376 GSF	1,693 GSF	-23%
Residential area[12]	.57	.63	-11%

	LARGE GROUP	ALL 32 PROJECTS	PERCENTAGE DIFFERENCE
Common area[7]	.07	.09	-29%
Common area per unit[8]	108 NSF	118 NSF*	-9%

* The data presented in this table has been adjusted to remove outliers: Cherry Ridge at 8.89 NSF and Sun City Park Yokohama at 506.25 NSF.

Sun City Ginza East | Perkins Eastman

Assisted Living

Assisted Living in the Large group consists of primarily studio apartments (at 60%); unlike in the group of 32 that has mostly one-bedroom units (at 63%). In addition to having a greater number of smaller types of units, the Large projects are also offering slightly smaller units.

There was not sufficient data to further compare Large Assisted Living to the 32 projects.

UNIT TYPE	LARGE GROUP		ALL 32 PROJECTS		PERCENTAGE DIFFERENCE IN UNIT SIZE
	UNIT DISTRIBUTION	MEAN UNIT SIZE	UNIT DISTRIBUTION	MEAN UNIT SIZE	
Studio apartment	60%	313 NSF	20%	358 NSF	-14%
One-bedroom apartment	40%	532 NSF	63%	581 NSF	-9%
Two-bedroom apartment	0%	----	17%	877 NSF	----

Skilled Nursing

The distribution of unit types is similar between the Large group and the 32 projects, though the single-occupancy rooms in the Large group's Skilled Nursing buildings are about two-thirds of the size as those in the group of 32.

As would be expected, the total building area of the Large Skilled Nursing projects is bigger than for all 32 projects. However, the total building area per bed is slightly smaller.

There was not sufficient data for Large Skilled Nursing projects' common areas for further comparison to the group of 32.

UNIT TYPE	LARGE GROUP		ALL 32 PROJECTS		PERCENTAGE DIFFERENCE IN UNIT SIZE
	UNIT DISTRIBUTION	MEAN UNIT SIZE	UNIT DISTRIBUTION	MEAN UNIT SIZE	
Single-occupancy room	95%	206 DGFA*[10]	97%	293 DGFA*[10]	-42%
Double-occupancy room	5%	435 DGFA*[10]	3%	423 DGFA*[10]	3%

* The data presented in this table has been adjusted to remove outliers: Classic Residence by Hyatt in Palo Alto at 900 DGFA[10] and Sun City Ginza East at 137 DGFA.[10]

	LARGE GROUP	ALL 32 PROJECTS	PERCENTAGE DIFFERENCE
Total building area[5]	63,534 GSF*	45,269 GSF*	29%
Total building area per bed[6]	785 GSF†	863 GSF†	-10%

* The data presented in this table has been adjusted to remove an outlier: Sun City Ginza East at 427,824 GSF.
† The data presented in this table has been adjusted to remove an outlier: Sun City Ginza East at 5,942 GSF per bed.

Special Care Units

The Special Care Units in the Large group almost exclusively consist of single-occupancy rooms, compared to a greater mix of single- and double-occupancy rooms in the 32 projects. Though there are more private rooms in the Large group, the Special Care Unit room sizes are 62% smaller than in the 32 projects.

Again, as expected, the total building area for the Special Care Unit buildings in the Large group is greater than in all 32 projects. Unfortunately, there was not sufficient data for the Large projects' total building area per bed in the Special Care Units to further compare the two groups.

There was not sufficient data for the Large Special Care Unit projects' common areas to further compare the two groups.

UNIT TYPE	LARGE GROUP		ALL 32 PROJECTS		PERCENTAGE DIFFERENCE IN UNIT SIZE
	UNIT DISTRIBUTION	MEAN UNIT SIZE	UNIT DISTRIBUTION	MEAN UNIT SIZE	
Single-occupancy room	96%	217 NSF	80%	351 NSF	-62%
Double-occupancy room	4%	548 NSF*	20%	795 NSF	-45%

* Based on only one project that included this type of unit.

	LARGE GROUP	ALL 32 PROJECTS	PERCENTAGE DIFFERENCE
Total building area[5]	24,621 GSF*	21,871 GSF*	11%
Total building area per bed[6]	N/A†	721 GSF‡	----

* The data presented in this table has been adjusted to remove an outlier: Sun City Ginza East at 427,824 GSF.
† This submission's Building Project Data chart was incomplete, so this information was not available for analysis.
‡ The data presented in this table has been adjusted to remove an outlier: Sun City Ginza East at 11,884 GSF per bed.

Sun City Park Yokohama | Perkins Eastman

QUALITY OF THE DATA

The patterns and statistics that come out of the analysis and that are summarized in this report are only as good as the data itself. Insufficient information, either from gaps where questions were not fully answered or responses that could not be analyzed, limits the findings.

A well-designed instrument should:

- Be developed from a good understanding of the purpose of the survey, so that the questions that get asked result in useful information. For example, if the intention is to know how big dining rooms are, then there should be a section that has applicants break down the spaces in their building(s) and with this, there needs to be clear instructions (i.e. parameters) of what gets counted in that area breakdown.
- Clearly state its purpose, in order to appeal to applicants. The purpose of the survey needs to be proportional to perceived benefit; otherwise applicants will not find it worth their time to participate.
- Include survey questions that are unambiguous, both in their intent and wording.
- Integrate answer choices that are appropriate and relevant to the question asked, while covering all of the options (e.g. providing an "other" or "not applicable" choice, as necessary).

With this in mind, the information provided by the DFAR9 submissions was evaluated not just to discover the interesting findings, but also to determine the quality of the questions asked on the submission forms. Responses were classified as either:

- Analyzable (information provided was relevant to the question and was submitted in a usable and appropriate format)
- Not analyzable (information provided was not relevant to the question and/or was not submitted in a usable and appropriate format)
- Not applicable (when applicants took it upon themselves to write "N/A" or similar)
- Blank (no response was provided)

Though the target was 100%, the responses collected by the DFAR9 submission forms were only 67.3% analyzable. Questions that were left blank (8.3% of the responses) could not be interpreted reliably because they were ambiguous. It was not clear whether applicants missed the question, whether they intended to state a response of "none" or "0", or whether they felt it was not applicable to their project.

For this reason, it was very helpful when applicants took it upon themselves to answer with "N/A" or similar. All questions should have a "not applicable" or "none" option; and the directions should clearly state that no question should be left blank. This would give applicants a greater chance of providing a usable answer (even if it is simply "0" or "N/A"), which would make the target of 100% analyzable results more likely to be achieved.

Additionally, there was an issue with the software that collected the applicants' responses: Where a check-the-box format question appeared in only three of the four submission categories, the software reported in the other category as a "no" response. For instance, on the Research/POE category submission form, there existed "no" answers to Questions BV, BW, BY, BZ, and CA—even though that question did not exist on the Research/POE submission form.

With the exception of the data filled out by the software for those five Research/POE questions, all of the analyzable responses that were gathered by the DFAR9 submission forms were included in the data analysis process, which determined the patterns, statistics, and lessons learned that are shared in this report. However, some questions received more responses than others. Thus, an analysis was performed to determine where and why there were poor response rates (since a question with a poor rate of response may signal that there was an issue with the way the question was asked).

Overall, in terms of how well the submission forms were completed:

- 37.6% of the questions were answered by all applicants
- 42.1% of the questions were answered by most applicants
- 20.3% of the questions were left unanswered by most applicants

The following is an assessment of how well the questions were completed by the applicants, in each section of the DFAR9 Design Competition online submission forms. Feedback and suggestions to improve questions are provided, where applicable. For a question-by-question summary of the completion of the submission forms, see Appendix P.

Jenkins Terrace | JMM Architects, Inc.

Part 1: Submitter Information

(Questions E – AC)
Within this section of the submission forms, the responses were:

- 71.9% analyzable
- 3.6% not analyzable
- 1.8% not applicable
- 22.7% blank

In terms of how well this part of the submission forms was completed:

- 28% of the questions were answered by all applicants (Questions E, G-I, L-M, O)
- 48% of the questions were answered by most applicants (Questions F, J-K, R-X, AB-AC)
- 24% of the questions were left unanswered by most applicants (Questions N, P-Q, Y-AA)

Of those questions in Part 1 that were not as well answered, there were issues with the following:

Inconsistent answers:

- Question J (submitting firm role) had variable responses. Most applicants wrote something like "architect" or "architect of record," but there were fifteen responses that were not analyzable since applicants wrote a description of the components they were involved with as opposed to a specific role, such as "planning, programming, architectural design, interior design, construction administration."

Poor response rates:

The following questions received few answers, with many applicants leaving these questions blank and/or indicating that it was not applicable.[13]

QUESTION	FIELD	ANALYZABLE RESPONSES
N	Collaborating architect	9%
P	Other architect(s) firm name	7%
Q	Other architect(s) firm role	6%
Y	Other consultants firm name/type (second entry field)	46%
Z	Other consultants firm name/type (third entry field)	28%
AA	Other consultants firm name/type (fourth entry field)	19%

Part 2: Project Information

(Questions AD – EB)
Within this section of the submission forms, the responses were:

- 60.2% analyzable
- 11.2% not analyzable
- 22.1% not applicable
- 6.5% blank

In terms of how well this part of the submission forms was completed:

- 26.2% of the questions were answered by all applicants (Questions AD-AJ, AM-AP, AR, BL, BQ-BR, BV-BW, BY-CA, CI-CL, CO, CQ, DK)
- 40.8% of the questions were answered by most applicants (Questions AK, AY-BK, BM-BP, BS, CB-CH, CS, CZ-DA, DD-DF, DH, DJ, DN-DQ, DS-DV)
- 33% of the questions were left unanswered by most applicants (Questions AL, AQ, AS-AX, BT-BU, BX, CM-CN, CP, CR, CT-CY, DB-DC, DG, DI, DL-DM, DR, DW-EB)

Of those questions in Part 2 that were not as well answered, there were issues with the following:

Inconsistent answers:

- Responses to Questions BT (project site zoning) and BU (proposed zoning) were not uniformly answered, resulting in the inability to analyze the results.
- Responses to Question CH (have parking requirements changed) lacked consistency. Making this a two-part question, with a "yes"/"no" portion followed by an "if yes, how" question (with an "not applicable" option), would likely result in clearer, more consistent responses.
- Responses to Questions DW-EB (regarding funding sources) could not be analyzed because the responses were inconsistent. Applicants provided answers in many different formats: some with dollar amounts, some with narrative descriptions (e.g. names of banks), some with "yes"/"no", and some with a percentage. These questions should clearly state how the datum should be inputted. (NOTE: A percentage is not recommended since it would be difficult to compare each project's answers within the multiple questions to the answers from all of the applicants.)

Poor response rates:

The following questions received few answers, with many applicants leaving these questions blank and/or indicating that it was not applicable.[14] Please note that Questions AQ, AS-AV, AX, and CT-CY were listed as receiving poor response rates because the software saved the applicants' answers into the spreadsheet incorrectly and, thus, could not be used during analysis. This issue is described further below, under a description of the questionable data.

QUESTION	FIELD	ANALYZABLE RESPONSES
CN	Strategy to reduce the number of parking spaces	46%
DB	Total renovations ($)	38%
DC	Renovation Mechanical Electrical Plumbing (MEP) ($)	37%
DG	Special Site Features ($)	44%
DI	Off-site ($)	41%
DL	Land costs (if purchased/owned) ($)	49%
DM	Yearly land cost or value (if leased) ($)	13%
DR	Appraisals ($)	40%

Additionally, the following questions could not be analyzed because applicants responded in many different ways, so it was unclear what to compare. This problem could perhaps be remedied by providing a multiple choice question instead of a question that collects open-ended responses.

QUESTION	FIELD	ANALYZABLE RESPONSES
BT	What is the zoning of the project site?	0%
BU	Proposed zoning	0%
DW	Conventional (private) funding	0%
DX	Non-taxable bond offering funding	0%
DY	Taxable bond offering funding	0%
DZ	Public-public sector funding	0%
EA	Public-private sector funding	0%
EB	Other financing sources funding	0%

Confusing questions/misinterpretations:

- Are Questions AU and AX sufficiently different ("Now under construction: Estimated completion date" versus "Design approved for construction documents: Estimated completion date")?
- Are Questions DZ and EA sufficiently different ("Funding source: Public-public sector" versus "Funding source: Public-private sector)?
- For Questions BA-BC (regarding occupancy levels), the researchers felt that applicants were not entirely clear on what the difference was between total capacity for "units", "beds", and "persons" because the math did not always add up as expected. The questions should be reworded to clarify how many people in total live on campus, and of that number how many are in single-occupancy rooms versus double-occupancy rooms or apartments/cottages.
- The wording for Questions CO (type of construction) and CP (type of construction: other) should be reconsidered. "Type of construction" denotes constructability, thus two applicants wrote "wood frame 4A" and "post tension steel and concrete" when explaining their 'other' response. The question would be clearer if it related more to the new/addition/renovation focus that is intended.
- Over 70% of the responses to Question CR (residential building type: other) resulted in answers that could have been categorized by the choices available under Question CQ (residential building types). Because the "other" responses provided in Question CR should have been able to be captured by Question CQ, there is likely an issue with the way Question CQ is worded since it resulted in a common misinterpretation.

Questionable data:

- For Questions AY-BF (regarding occupancy levels and resident age), it needs to be clearer if the responses reflect the entire facility's/campus' population or if the answers are specific to the project being submitted for the DFAR9 award process. For example, if an applicant indicates that the total capacity (persons) is 200, is that for the entire CCRC or just the Independent Living building that is up for the award? This is particularly difficult for renovations.

- Questions AY-AZ (occupancy at facility opening and current) and BD-BF (average age at facility opening and current) are asked on the Building, Planning, and Concept Design submission forms. However, these questions seem only relevant to Building category applicants.
- As mentioned earlier, the responses to Questions AQ, AS-AV, AX, and CT-CY were saved into the spreadsheet incorrectly and could not be used during analysis. The date fields which the submission forms requested in a two digit (mm/yy) format, were converted by the software into a d/m/yyyy format resulting in every response listed as occurring in 2007 (the year the submission forms were completed). Because the actual responses were unknown, any answer in the form of a date could not be used.
- As mentioned earlier, due to a software issue, there were responses to Questions BV, BW, BY, BZ, and CA from Research/POE category applicants, even though those questions were not listed on the Research/POE submission form. The software-supplied data was accordingly not included in analysis.
- When calculating how much project cost was devoted to construction (Question DD (construction cost) divided by question DN (total project cost)) the researchers calculated a value of 647% for one project. Assuming this could not be accurate, the project was looked at more closely; and it was discovered that, according to the firm's website, the total project cost was listed as $13.2 million, though on the DFAR9 application $1.93 million was listed. The researchers were not sure if this was a mistake made on the application or in the translation to the spreadsheet.

Part 3: Provider/Manager Objectives

(Questions EC – EK)
Within this section of the submission forms, the responses were:

- 95.8% analyzable
- 0.8% not analyzable
- 2.1% not applicable
- 1.3% blank

In terms of how well this part of the submission forms was completed:

- 33.3% of the questions were answered by all applicants (Questions EC-EE)
- 66.7% of the questions were answered by most applicants (Questions EF-EK)
- 0% of the questions was left unanswered by most applicants

There were no significant issues with the questions or data in Part 3 of the submission form.

Part 4: Population & Staffing Data and Building Project Data Charts

In this section of the submission forms, there were two charts to be completed by the applicants: Population & Staffing Data and Building Project Data.

Of the Population & Staffing Data charts available for analysis, only 54% were entirely or mostly filled out in full. With almost half of the charts incomplete, it was difficult, if not impossible, to answer certain questions asked during the data analysis process. Moreover, 11% of the Population & Staffing Data charts provided were nearly blank, which further limited the information available for analysis.

Common issues with the Population & Staffing Data charts included:

Inconsistent answers:

- Though not a widespread issue, there were several responses within the Population & Staffing Data charts that were not uniform, such as people responding with narrative or percentages as opposed to numerical values (e.g. number of FTE hours).

Poor response rates:

- Almost half of the Population & Staffing Data charts were partially or mostly incomplete. Six projects provided charts that listed no data; and thirteen projects just had the most basic "total units" and/or "population & capacity" fields completed. It was unclear if the applicants had difficulty filling out the charts (e.g. did not have the answers) or if they just did not take the time to fill them out. Because blank fields are ambiguous, these charts should require applicants to provide a response, even if it is "0". That way, it is at least clear that they completed the form, but just had no data to input.
- Most applicants did not complete the "direct care hours per resident day" field.

Questionable data:

- Occasionally, the answers provided in the "total number of units" and "total population at capacity" fields were not consistent with the same data provided in the Building Project Data charts and/or in Questions BA-BB. For example, for the Independent Living portion of the Sun City Ginza East project, the Population & Staffing Data chart listed a total of 398 units. However, the Building Project Data chart for the same project reported a total of 276 apartments; and Question BB listed a total capacity of 410 units. Not only did this cause confusion, but it also seems unnecessary for applicants to provide similar information in multiple places.
- Are the numbers submitted for "total FTE's per resident" listed as per day?

For the Building Project Data charts, there were two main components to the spreadsheet: unit data and building data. Of the Building Project Data charts available for analysis, 89% of the unit data and 82% of the building data were entirely or mostly filled out in full. Compared to the Population & Staffing Data charts, the Building Project Data charts were better completed. However, 11% of the unit data portion of the charts was nearly blank; and 17% of the building data portion was only partially filled out. The missing data limited the information available for analysis.

Common issues with the Building Project Data charts included:

Poor response rate:

- Some of the Building Project Data charts were incomplete. In fact, one project provided no data; and two projects provided only gross square footages with no net square footage breakdowns by type of space. It was unclear if the applicants had difficulty filling out the charts (e.g. did not have the answers) or if they just did not take the time to fill them out. These charts should require applicants to provide a response, even if it is "0".

Confusing question/misinterpretation:

- In the Building Project Data charts for Skilled Nursing, the average sizes for resident rooms were requested as

"DGFA",[10] as opposed to net square feet. DGFA[10] is not as familiar a term as NSF, which may have been confusing to some applicants.

Questionable data:

- 30% of the Independent Living Building Project Data charts submitted included net square footage numbers for "household common areas." Even though Independent Living projects would likely not have any household commons, multiple applicants submitted square footage numbers under this category. Do these projects really contain household commons, were people misinterpreting this question; or did applicants feel obligated to find a way to submit a response to each part of the submission forms, even if it didn't make sense?

There were also some general comments related to the Population & Staffing Data and Building Project Data charts, including:

- The Population & Staffing Data and Building Project Data charts were separate Excel spreadsheets that were uploaded as attachments to each application. The data was not incorporated into the overall spreadsheet of results, which was provided by DFA to the researchers for analysis. Accordingly, the researchers were only given access to the Population & Staffing Data and Building Project Data charts of only 32 award-winning projects. If the information collected by the Population & Staffing Data and Building Project Data charts had been incorporated into the overall spreadsheet of results (i.e. into the overall submission forms), then data from all 72 applicants could have been analyzed.
- Applicants were required to complete a Population & Staffing Data and Building Project Data chart for each part of the project they were submitting, but this did not always happen. For instance, a project with Independent Living, Assisted Living, and Skilled Nursing buildings should have submitted three Population & Staffing Data charts and three Building Project Data charts. However, there were multiple submissions that provided one chart but not the other for a building type, or both charts for only some of the building types on their campus. Accordingly, the researchers were able to analyze Population & Staffing Data charts from 26 projects, but 30 Building Project Data charts.

Part 5: Project Objectives – Planning Category

(Questions EL – FC)
This section of the Planning category submission form was only available to the Planning category applicants.

Within this section of the submission form, the responses were:

- 89.7% analyzable
- 8.1% not analyzable
- 2.2% not applicable
- 0% blank

In terms of how well this part of the Planning category submission form was completed:

- 55.6% of the questions were answered by all applicants (Questions EL, EN-EO, ER-EV, EY-EZ)
- 44.4% of the questions were answered by most applicants (Questions EM, EP-EQ, EW-EX, FA-FC)
- 0% of the questions was left unanswered by most applicants

Of those questions that were not as well answered in Part 5 of the Planning submissions, there were issues with the following:

Inconsistent answers:

- Analysis was difficult for Question EN (residential units) because the answers provided were not uniform. In one cell, there would be multiple pieces of information. For instance, a typical response looked like: "182 independent living apartments, 74 units of cottages and villas, 40 assisted living and 20 AL dementia." Analysis would have been easier and responses would be more consistent if each senior living component was asked for within a separate question (with "not applicable" options).
- For Question EO (residential density), most applicants responded with a numerical value of units per acre, but some did not.

Poor response rate:

- Question FB (developer, operator, or both?) was able to be analyzed, but half of the responses were not included in the analysis because one out of the eight applicants indicated this was not applicable and three submitted responses that could not be analyzed.

Part 5: Project Objectives – Concept Design Category

(Questions FD – FR)
This section of the submission form was only available to the Concept Design category applicants.

Within this section of the Concept Design category submission form, the responses were:

- 85% analyzable
- 1.7% not analyzable
- 13.3% not applicable
- 0% blank

In terms of how well this part of the Concept Design category submission form was completed:

- 60% of the questions were answered by all applicants (Questions FD-FH, FJ, FL, FN-FO)
- 33.3% of the questions were answered by most applicants (Questions FI, FK, FM, FQ-FR)
- 6.7% of the questions were left unanswered by most applicants (Questions FP)

Of those questions that were not as well answered in Part 5 of the Concept Design submissions, there were issues with the following:

Poor response rate:

- For Question FP (area to be renovated), three out of the four applicants indicated this was not applicable; plus the one that did respond said "0".

Part 5: Project Objectives – Building Category

(Questions FS – GB)
This section of the submission form was only available to the Building category applicants.

Within this section of the Building category submission form, the responses were:

- 99.3% analyzable
- 0% not analyzable
- 0.7% not applicable
- 0% blank

In terms of how well this part of the Building category submission form was completed:

- 80% of the questions were answered by all applicants (Questions FS-FX, GA-GB)
- 20% of the questions were answered by most applicants (Questions FY-FZ)
- 0% of the questions was left unanswered by most applicants

There were no significant issues with the questions or data in Part 5 of the Building submission form.

Part 5: Project Objectives – Research/POE Category

(Questions GC – GO)
This section of the submission form was only available to the Research/POE category applicants.

Within this section of the Research/POE category submission form, the responses were:

- 98.1% analyzable
- 0% not analyzable
- 1.9% not applicable
- 0% blank

In terms of how well this part of the Research/POE category submission form was completed:

- 92.3% of the questions were answered by all applicants (Questions GC-GN)
- 7.7% of the questions were answered by most applicants (Questions GO)
- 0% of the questions was left unanswered by most applicants

There were no significant issues with the questions or data in Part 5 of the Research/POE submission form.

General Comments:

- The submission forms began with an overview, which included information about eligibility, the selection process, and submission criteria. Though the forms state "all submitted materials become the property of the AIA. Rights to all materials in the submission must be cleared for use by the AIA in the book and related publicity. Entrants are responsible for any royalties or copyright photography fees", the researchers felt that a stronger, more explicit agreement is necessary regarding the release of information and publishing rights. For instance, the researchers are not sure if the existing contract language was sufficient to cover the references made to specific projects within this report.
- It seemed that many applicants felt the need to respond to every question asked, even if it didn't necessarily make sense for them. A "none" or "not applicable" choice needs to be made available. There is also a need for better definition of terms and/or eliminating questions if they are not applicable to the type of project or building. For example, in the Building Project Data charts, there was a field for common living/dining/kitchen areas (i.e. "household commons"); and multiple Independent Living category applicants submitted square footage numbers, even though these projects would likely not have any household commons (since Independent Living apartments are not organized as households, and only sometimes in neighborhoods). When looking at the projects' plans, it seems that these applicants were listing common areas as household commons.

Another instance of applicants providing answers even if it does not make sense can be seen when Planning and Concept Design (i.e. unbuilt projects) applicants provided values for occupancy and resident age at facility opening and current—data that in theory would not exist since these projects have not been built, much less occupied. Because the submission forms are already separated out to be specific to the application category (Planning, Concept Design, Building, and Research/POE), steps should be taken to ensure that all questions included in each category are relevant and applicable to the type of projects expected.

DIMENSIONS OF WELLNESS

Physical
Promotes involvement in physical activities for cardiovascular endurance, muscular strengthening, and flexibility. Advocates healthy lifestyle habits, encourages personal safety, and appropriate use of the healthcare system.

Social
Emphasizes creating/maintaining healthy relationships by talking, sharing interests, and actively participating in social events.

Intellectual
Encourages individuals to expand their knowledge and skill base through a variety of resources and cultural activities.

Emotional
Involves the capacity to manage feelings and behaviors, recognize and express feelings, control stress, problem solve, and manage success and failure.

Spiritual
Includes seeking meaning and purpose, demonstrating values through behaviors, such as meditation, prayer, and contemplation of life/death, as well as appreciating beauty, nature, and life.

Vocational (Occupational)
Emphasizes the process of determining and achieving personal and occupational interests through meaningful activities including lifespan occupations, learning new skills, volunteering, and developing new interests or hobbies.

Some experts now also add the environmental dimension to the list of six.

Environmental
Focuses on protecting and improving their personal environment and the environment at large for health and safety benefits for themselves and the generations that follow.

- Wellness is a growing trend; and is now seen as more than just providing a fitness center. According to the National Whole Person Wellness Survey (2006, sponsored by Mather LifeWays, architectural firm Dorsky Hodgson Parrish Yue, and Ziegler Capital Markets Group), there are six dimensions of wellness (p. 5).

Though quite a few projects reported a wellness component, most descriptions are focused on the physical dimension, e.g. they have a pool. A few projects discussed available educational opportunities since they were associated with local universities, but it seemed that the applicants did not consider this part of a comprehensive wellness program. There was no specific question on the submission forms that elicited information about the multiple aspects of wellness. Future submission forms should consider adding a question that gathers information on this new and growing trend of whole-person wellness.

- It was difficult to determine which components were involved in a project submission. Sometimes it was not clear what was included just for the submission versus what exists in the entire facility or campus (e.g. is the population listed just for the new Independent Living building being submitted for the award or for the entire CCRC campus?). Other times, it was not clear if data were not included because they were not directly a part of the project being submitted for the award. For example, when looking at projects that incorporated a wellness facility, only two reported having Wellness Centers. However, based on a project description provided elsewhere in an application, the researchers were aware of a third project with a Wellness Center. Did this third project not report this space because it was in a separate building or a different part of the campus than what was up for an award? Did people report by structure; or if the space existed in a single building, was it not reported because there was not an appropriate line for it within the Building Project Data chart (e.g. a line requesting Wellness Center net square footage)? Because the boundary of a renovation or repositioning project is likely to be complex, more attention needs to be given to setting consistent parameters for comparison.

- The submission forms consisted of 202 questions, and garnered 9,804 responses (only 6,596 of which were analyzable). Applicants were required to fill out a lot of detailed information; and unfortunately, there is an inverse relationship between the number of questions on a survey and the quality of the responses. As more questions are asked, the survey becomes burdensome so there tends to be fewer responses and less accuracy. The researchers are aware that some effort was made to reduce the size of the DFAR9 submission forms (e.g. eliminating duplicate questions or questions that could be answered with existing data, such as total project gross square footage when the gross square footages per building component is known). However, the researchers wonder if all of this information was necessary to determine the award winners.

Though all of the data needs to be captured at some point, is it possible to institute a two-tier application process? For instance, the data analysis performed by the researchers began with submission form Parts 3 and 5. Not until a general sense of the project issues was understood, did the researchers get into the more detailed data within submission form Parts 1, 2, and 4. Perhaps the jury could similarly identify the sections and/or questions most relevant to their process and use those to create the first tier of the application process. The other questions could then make up the second tier, which would only be given to the award winners to complete.

Using this process, the initial submission forms could be reduced in size and complexity, providing only the data relevant to the jury process. Then once a project is selected as a winner, the additional detailed data could be gathered so that it can be included in the DFAR book. By limiting the size of the submission forms, additional and a more diverse group of applicants would likely apply (e.g. smaller firms who can spend only so much time on an application form would be more likely to submit for an award) and the data gathered would likely be more accurate and of a higher quality since applicants would not get tired and start truncating their responses.

There are also several miscellaneous comments from throughout the submission forms:

- In Part 1, Question V (electrical engineer firm name) has a misspelling: "enginner" instead of engineer.
- In Part 5, the results from Questions EY-EZ, FL-FM, and FZ could be more interesting if the questions were reworded in a way that elicits specifics about the sustainability of the project. The existing questions resulted in a lot of nebulous descriptions, since they were not targeted to gather substantive green claims. Like the issue of wellness that was discussed earlier, sustainability is a growing trend in the industry, so it would be good to include additional questions that would capture specifics related to such as issues as energy use, water use, materials (e.g. recycled content), and indoor air quality.

In summary, the researchers have the following recommendations to improve the submission forms:

Questions to eliminate:

- Consider any question that received a low response rate to see if it is worth including on the submission forms: Questions N, P, Q, Y, Z, AA, CN, DB, DC, DG, DI, DL, DM, DR, FB, FP, and sections of the Population & Staffing Data and Building Project Data charts.
- If Questions AU and AX are not sufficiently different, one could be eliminated; and likewise for Questions DZ and EA.
- Over 70% of the responses to Question CR could have been categorized by the choices available under Question CQ—can CQ be eliminated, or is it still necessary to capture those (e.g.) 30% "other" responses?
- Sections of the Building Project Data chart and Questions BA-BB are asking for the same information.
- Remove questions that do not relate to the submission category and/or building type, such as Questions AY-AZ and BD-BF on the Planning and Concept Design submission forms, and the household commons area[11] field on the Building Project Data charts for Independent Living projects.
- Consider creating a two-tier application, so that questions unnecessary to the jury process can be removed to reduce the size of the initial submission form.

Questions to add:

- Collect more information on the trend of wellness (e.g. the 6 dimensions).
- In addition to Questions EY-EZ, FL-FM, and FZ (which could be modified to capture more specific information), collect more information on the trend of sustainability (e.g. energy use, water use, materials, and indoor air quality).
- If desired, provide a more thorough (and better defined) breakdown of building areas on the Building Project Data charts.
- Questions on the growing trend of using technology.
- Questions related to new models of living (e.g. urban high-rise, small houses).
- Elaborate on Question CO (new construction/addition/renovation) to clarify if addition/renovation projects are just upgrading or are repositioning themselves to address new market demands, changing unit types, or offering different models of living.

Questions to improve or clarify:

- Provide "0" or "N/A" or "none" options, throughout.
- Fix the issue with Questions AQ, AS-AV, AX, and CT-CY, where the data were saved into the spreadsheet incorrectly (the mm/yr issue).
- Address the software issue that produced (nonexistent) answers for Questions BV, BW, BY, BZ, and CA for Research/POE applicants.
- Address questions with inconsistent answers: Questions J, BT, BU, CH, DW, DX, DY, DZ, EA, EB, responses to questions about costs (e.g. Questions CZ-DJ, DL-DV, EQ), DW-EB, EN, EO, and parts of the Population & Staffing Data charts.
- The difference between total capacity for "units", "beds", and "persons" was not clear on Questions BA-BC.
- The wording for Questions CO-CP should be reconsidered so they no longer denote constructability.
- Consider using net square feet instead of "DGFA"[10] in the Building Project Data charts for Skilled Nursing.
- Clarify when questions are asking for values for the entire campus/facility, or the portion being submitted, e.g. Questions AY-BF.
- Clarify if the "total FTE's per resident" on the Population & Staffing Data charts are listed as per day.
- Generate a more explicit agreement regarding the release of information and publishing rights.
- Fix the spelling error in Question V.
- Consider incorporating the Population & Staffing Data and Building Project Data charts into the submission forms (instead of asking for them as separate attachments); and clarify the information requested so that the charts are more likely to be completed in full.
- When asking for information about a submission, the components of the project need to be clarified: what is being submitted versus what exists in the entire facility or on the entire campus.

ENDNOTES

Note: the sections and page numbers listed here are referring to the comprehensive draft; and are simply for you to be able to find where to put the superscript number in the text.

1 Retrieved September 23, 2008, from http://www.aia.org/dfa_default

2 Retrieved September 23, 2008, from http://www.aia.org/dfa_review_details

3 Retrieved September 23, 2008, from http://www.aia.org/dfa_review_details

4 From the DFAR9 submission forms.

5 Total gross square footage

6 Total gross square footage divided by total number of resident units (apartments and/or beds)

7 Net commons square footage divided by total gross square footage

8 Net commons square footage divided by total number of resident units (apartments and/or beds)

9 FTE hours

10 DGFA is a term used on the Skilled Nursing Building Project Data charts.

11 Net household commons square footage divided by total gross square footage

12 Net residential square footage divided by total gross square footage

13 Several additional questions received low response rates, but were not considered problematic since answers would not be expected from all applicants (e.g. applicant's middle name, or other architect's information).

14 Several additional questions received low response rates, but were not considered problematic since answers would not be expected from all applicants (e.g. project location's province, or "if yes…" questions).

15 Wherever "Special Care Units" are discussed, the entire facility (or part of a facility) is intended–not individual rooms or units. When the term "unit" is used by itself, it refers to residential units, i.e. apartments.

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