MILITARY HOUSING PRIVATIZATION & THE PROMISE OF DESIGN INNOVATION

By

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Submitted to the Center for Real Estate in Partial Fulfillment of the Requirements for the Degree of Master of Science in Real Estate Development

at the

Massachusetts Institute of Technology
September, 2009

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ABSTRACT

The objective of this paper is to answer the question, “Has the military housing privatization process produced design innovation?” Secondary questions are, “What specific role has the Army’s Residential Communities Initiative played in fostering innovation? What are the key process drivers? What (if any) specific building product innovations have arisen from an architectural, sustainability, construction technology and community planning perspective over the last 10-15 years?”

Particular emphasis is paid to design measures employed by the development partners to ensure client satisfaction, maintain the competitiveness of their product on the open market and preserve long term partnerships with the U.S. Government. Consideration is given to the ways in which the Army has streamlined the privatization solicitation process to foster private sector innovation and what impacts these efforts have had on both design drivers and customer satisfaction levels. Specific examples of planning, design and construction innovation are explored through case studies. The author concludes that privatization has produced significant innovation and high customer satisfaction in the military housing market. However, there is still room for further program innovation in light of parallel trends in university student housing privatization, public housing privatization and the private market.

Research methodology included relevant literature review and direct, focused interviews with key industry players from the U.S. Government, design and development arenas. These approaches were augmented with select, relevant case study analyses and supporting site visits.

Thesis Supervisor: Dennis Frenchman
Title: Leventhal Professor of Urban Design and Planning
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I. INTRODUCTION

Housing and community ethos have fundamental impacts on people’s quality of life. The military is no exception. For years, the armed forces have struggled with ways to improve the quality of housing for their service members both married and single while competing for limited facility funds and wading through a suffocating morass of Federal programming, design and procurement regulations. Until the 1990’s, the military was trapped in old paradigms and was failing to provide both sufficient quantities and quality of housing for its troops and dependents. Troop attrition rates were rising markedly, with many service members citing poor housing options as their primary reason for separating. Drastic action needed to be taken before national security interests were compromised.

In the mid-1990’s, a dramatic, experimental new way of looking at military housing delivery was initiated entitled “privatization.” It resulted in revolutionary public-private partnerships which brought private sector expertise, thinking and creativity to bear directly on the military’s dire housing situation. A complex system of deal structuring, financing and contracting quickly evolved which radically transformed military housing design and community planning approaches.

Previous military privatization studies have focused primarily on finance, budget and contracts, but none have looked at the design implications from a holistic standpoint. There are projects sprinkled throughout the military which exemplify originality and push the envelope in terms of design vision under the auspices of public-private sector collaboration. However, these projects have not been consolidated and analyzed collectively to establish a macro perspective.

The objective of this paper is to answer the following primary question:

- “Has the military housing privatization process produced design innovation?”

Secondary, related questions to be explored are:
• “What specific groundbreaking role has the Army’s Residential Communities Initiative (RCI) played in fostering innovation?”

• “What are the key drivers of a privatized design process?”

• “What building product innovations have arisen from an architectural, sustainability, construction technology and community planning perspective over the last 10-15 years of privatization?”

To answer these questions, the thesis is organized into three primary sections. Chapters 2 and 3 provide general background on privatization history, processes and drivers. The thesis begins by defining the privatization process, followed by an historical discussion of the enabling legislation (i.e., the Military Family Housing Initiative Act (MHPI) of 1996). Attention is then paid to the Department of the Army’s Residential Community Initiative (RCI) and Community Development Master Planning (CDMP) programs which paved the way for expanded design innovation in the military housing product. Context is provided as to why the Department of Defense needed privatization in the first place.

Focus then shifts to the key RCI design drivers. Several key questions are explored and answered. Specifically, what motivates the developers, architects, U.S. Government and end users in this process? How has the solicitation process been streamlined to better serve the interests of all parties and promote innovation? What key design factors do the U.S. Government and end users seek from the development team up-front? In turn, what innovations do the developers bring to the table that the U.S. Government and military can’t provide themselves?

Chapters 4 though 7 identify and explore specific, trend-setting design innovations arising from development privatization efforts. The initial focus is on sustainability in terms of architectural, community planning, construction and Leadership in Energy & Environmental Design (LEED) documentation. Case studies focusing on multi-family housing projects in Hawaii, Washington and Virginia illustrate specific achievements.
The second innovation area addresses the rise of New Urbanism and new ways of envisioning communities. An historical context for New Urbanism is furnished. Governing design factors and perspectives are identified and applied to the unique military context. This exploration of New Urbanist communities is complemented by an investigation of the role of retail and the unique challenges posed by its implementation within current Department of Defense vendor contractual structures. Fort Belvoir, Virginia serves as the case study for this topic. Data is supplemented by interviews with key industry players such as Torti Gallas Architects of Silver Springs, Maryland.

To gauge the tangible impact of these design innovations, the author conducted a review of tenant feedback survey results at the U.S. Government and developer levels. The objective was to identify which specific factors are important to end users and to what extent these privatization design initiatives have resulted in higher customer satisfaction compared to
the housing produced under the old Military Construction (MILCON)/Naval Facilities (NAVFAC) standards.

Chapter 7 focuses on a new trend in military privatization design, unaccompanied personnel housing (UPH). Context is provided as to why privatization has been slow to infiltrate this segment of the market. A comprehensive survey of the military’s facilities shortfalls in this product type sets the stage for a case study of a cutting-edge, privatized Navy UPH project in San Diego, CA. The case study demonstrates how an unprecedented range of end users are being engaged in the initial design process and how UPH design is being completely redefined.

In Chapter 8, the author begins by weighing other product types and entities, both inside and outside the military, which may benefit from privatized design efforts. The chapter then delves into what parallels and contrasts can be drawn with other significant privatization efforts such as university student housing and Hope VI. Ultimately, what lessons can the military learn from these programs to take the housing privatization concept one step further?

This thesis concludes that the privatization approach has successfully introduced private sector innovation into military housing arena, an area not commonly associated with innovation or cutting-edge design. This design innovation is concrete and a direct result of unprecedented design team flexibility, private market forces and comprehensive end user feedback. The author recommends that current Federal Acquisition Regulations be liberalized to allow military installations greater flexibility in managing, repositioning and rethinking housing assets similar to civilian privatization efforts. Ultimately, to maximize the value of privatization innovation, old ways of thinking and historical behavioral patterns need to be supplanted by a willingness to take risks, blur artificial boundaries and engage all players’ inputs.
Research methodology employed in developing the thesis included reviews of journal articles, internet resources, industry literature, U.S. Government reports, Requests for Proposal (RFP’s), Requests for Qualifications (RFQ’s), developer proposals, previous case studies, conference reports, press releases, and personal interviews as well as site visits to key case study projects in California and Virginia. Interviews were conducted with developers, architects, planners and various U.S. Government officials involved in the process. Photo documentation, site plans and architectural plans have been incorporated where applicable for clarification and illustration purposes.
II. HOUSING PRIVATIZATION DEFINED

Under a “privatized” housing approach, the private development team and the respective armed services branch form a limited-liability, public-private partnership. The developer serves as managing partner, supplying financing and handling construction, operation and maintenance. The military agency is responsible for protecting its long-term interest in the assets and signs off on decisions regarding such areas as financing, refinancing and adjusting cash flow. At its essence, privatization embodies the following key transitions from the old MILCON system:

- **Private Sector Involvement:** From U.S. Government-owned housing to housing that is owned, managed and maintained by private builders, developers and property managers, but made available for military use;

- **Design Parameters:** From costly and slow U.S. Government-regulated design and construction methods to truly commercial residential development;

- **Site Flexibility:** From rigid, inflexible, programmatic contracting approaches to making intelligent deals tailored to the particular needs of the military and the entrepreneur at each site.

This public/private partnership program was established via the Military Housing Privatization Initiative (MHPI) enacted by Congress in 1996. The initiative allows the military to use private-sector expertise to design, develop, finance and manage higher quality housing for the military for a cost less than what is possible through military construction. The MHPI allows the military to obtain private-sector capital and expertise to develop, manage, and improve military housing. As a result, the Department of Defense is able to provide service members high quality housing with minimal tax-dollar investment. Key provisions of the MHPI legislation encompass asset disposition, financial structuring and tenant management.

The asset disposition philosophy is designed to maximize flexibility and empower the Developer to deliver best value to the U.S. Government. This is achieved through the following contractual provisions:
• **Conveyance of real property**: The U.S. Government may transfer title of Federal property to private ownership;

• **Relaxation of Federal specifications for housing construction**: Builders are allowed to construct housing in accordance with local building codes rather than strict military programmatic standards;

• **Inclusion of ancillary support facilities**: Bids for contracts may incorporate additional recreational amenities to enhance the attractiveness of the associated basic housing.

The quality of design and creating a balanced, livable community were of paramount concern to the legislators.

To facilitate deal structuring between the U.S. Government and the development partner, financial parameters were revised to make housing privatization more enticing to developers. These revisions included the following:

• **Payment of rent by allotment**: Developers may receive payment of rents through direct deposit from the respective Federal disbursing facility, guaranteeing cash flow;

• **Loan guarantee**: The U.S. Government may guarantee up to 80% of the developer’s private loan(s);

• **Direct loan**: The U.S. Government may make a loan directly to a developer;

• **Investment (Joint Venture)**: The U.S. Government can take an equity stake in a housing construction enterprise.

This type of U.S. Government intervention and partnering was unprecedented in the history of the military.

Since tenant retention and management are critical to the overall success of the housing privatization program, contingency provisions were incorporated into the legislation to provide further security to the development community on the back end of the deal. Measures may include:

• **Interim leases**: The U.S. Government may lease private housing units while awaiting the completion of a project;

• **Assignment of Service members**: Service personnel may be assigned to housing in a particular project that they may otherwise not choose to occupy;

• **Build to lease**: The U.S. Government may contract for the private construction of a housing project, then lease its units;
•  **Differential Lease Payment (DLP):** The U.S. Government may pay a differential between the service members’ Basic Allowance for Housing (BAH) and prevailing market rents if required;

•  **Rental guarantee:** The U.S. Government may guarantee a minimal occupancy rate or rental income for a housing project.

It is important to note that these final provisions are not automatically included in or relevant to every deal structure. Instead, they are subject to negotiation as applicable during the development proposal review (Elsie, 2001).

While the Office of the Secretary of Defense retains general oversight and approval authority, the individual service branches are responsible for the execution of projects on their respective installations and for establishing their own solicitation delivery protocols. The Army has been particularly innovative in its approach to the privatization solicitation process. This approach and its implications are detailed in the next chapter.
III. THE ARMY RESIDENTIAL COMMUNITY INITIATIVE (RCI): SETTING THE STAGE FOR INNOVATION

For soldiers and their dependents, few well-being issues are as paramount as the communities where they live. As the Army undergoes its transformation to a lighter, leaner and more rapidly deployed force, residential communities take on increasing importance. More than 60 percent of Army soldiers have families. Commanders have stated that service members train better, fight harder and stay in the Army longer when they know that their families are comfortable and secure. For most families, this means residing in safe, well-maintained and environmentally conscious neighborhoods, with amenities that turn streets of houses into bona fide communities.

The ultimate goal of the RCI process is to guarantee that soldiers and their families living on Army posts have the quality residential communities many civilians already enjoy. The military also saw an opportunity to provide homes to soldiers and their families that would be “as nice as the homes of the people they were defending,” stated Ivan Bolden, assistant for policy and a program manager for the Army’s RCI (Hamilton, 2006). The Army’s privatization policy stresses places with ample urban amenities and an atmosphere where military families can support each other in difficult times, particularly when service members are deployed. To complicate matters, the military’s Base Realignment and Closure (BRAC) program has raised the possibility that any housing built might eventually be sold and will need to be desirable not just to the military families but also to the open market.

The RCI approach was implemented in the 1990’s to address severe problems in family housing on Army posts. 1998 figures showed that 70,000 units (i.e., 75% of the US inventory) were substandard. Peeling paint, leaky plumbing, outdated designs, and drab neighborhoods were hindering recruitment, retention, and morale. Despite these drawbacks, waiting lists for on-post housing were still long due to their relative affordability and convenience.
The overall maintenance backlog, compounded by a shortage of on-post housing, exceeded $7 billion. Beyond housing, the Army has the world’s largest managed real estate portfolio at more than 14 million acres (5.6 million hectares) and 1 billion square feet (92.9 million square meters) of space in more than 150,000 structures crossing all types of buildings and land uses (RCI Primer, 2001; Scribner, 2008). Because Army housing competes for funding with many other military facilities, full funding to fix the problem was not forthcoming. Relying on traditional construction and management processes could potentially take 20+ years to come to fruition. (JLL/ULI, 2008)

**TABLE 1: RCI OUTCOME METRICS – 1999-2008 (Jones Lang LaSalle, 2008)**

<table>
<thead>
<tr>
<th>ELEMENTS METRICS</th>
<th>INDICATORS</th>
<th>BENEFICIARIES</th>
</tr>
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<tbody>
<tr>
<td>Speed</td>
<td>50-200% Faster than the previous U.S. Government Approach</td>
<td>Soldiers, Army</td>
</tr>
<tr>
<td>Quality</td>
<td>100% Market Product; Twice the Number of Maintenance Inspections</td>
<td>Soldiers, Army</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>Re-enlistment Boost</td>
<td>Soldiers</td>
</tr>
<tr>
<td>Backlog/Shortage</td>
<td>100% of Housing Deficit Met; Original Maintenance Backlog Cleared</td>
<td>Soldiers, Army</td>
</tr>
<tr>
<td>Service</td>
<td>98% On-Time Response for Maintenance Problems</td>
<td>Soldiers</td>
</tr>
<tr>
<td>Construction Costs</td>
<td>30% Lower than Prior U.S. Government Approach</td>
<td>Army</td>
</tr>
<tr>
<td>Development Value</td>
<td>$10 Billion Increase in 10 Years</td>
<td>Army</td>
</tr>
<tr>
<td>Sustainment</td>
<td>100% Lifecycle Sustainment</td>
<td>Army</td>
</tr>
<tr>
<td>Funding</td>
<td>11:1 Leverage of Public versus Private Funds</td>
<td>Taxpayers</td>
</tr>
</tbody>
</table>
Thanks to innovative private sector thinking introduced by former Rouse Company officer Mahlon “Sandy” Apgar IV, the old, rigid Request for Proposal (RFP) process has been superseded by a more flexible Request for Qualifications (RFQ). What had originally been a protracted 23 month long process involving concept development, solicitation proposal, contractor selection and implementation was compressed into a 16 month solicitation, developer selection, planning and implementation process (SEE FIGURE BELOW). This streamlining was achieved by allowing the developer and U.S. Government to collaborate on the design and programming process in real time once an initial concept and development team had been selected (RCI Primer, 2001).

In 1998, Apgar was appointed Assistant Secretary of the Army for Installations and Environment (ASAI&E) charged with addressing the Army’s acute housing issues. Thanks to his background in community development, he was able to bring new ways of thinking to bear on the Army’s installation planning approach. Up until that point, the Army’s focus had been predominantly on simple housing unit production, both new construction and renovation. Apgar brought a new focus on up-to-date homes with state-of-the-art amenities comparable to their private sector counterparts. Emphasis was also placed on architectural contextualism and how these new homes blended with their natural surroundings and local vernacular. Part of this initiative
included the preservation of historic homes to help define community image and preserve a sense of Army heritage.

Due to his private sector experience, Apgar crusaded to convince the Army Brass that the private sector was capable of providing a top-notch product with higher quality and lower cost than the U.S. Government could provide on its own. He also had to convince the Army that the private sector would be interested in such collaborative ventures. General Jack Keane, the Army Vice Chief of Staff, and Dr. Bernard Rostker, Under Secretary of the Army, became convinced of the merits of the approach and began securing the support of senior leadership as well as departmental approvals within the complex organizational system. Dr. Jacques Gansler, the Under Secretary of Defense for Acquisitions, demonstrated how existing systems and protocol could be used to implement such a program. From the Congressional perspective, Representative Chet Edwards was able to leverage his real estate background to carry RCI through the appropriations process and champion it among his colleagues in the House Army Caucus.

Through meetings with the development community, Mr. Apgar found that the large scale of the projects would attract interest from qualified developers. However, many in the development community were intimidated by the U.S. Government procurement mechanism’s reputation for inflexibility and process-orientation over problem solving. In fact, a typical RFP document was expensive, voluminous and time-consuming with overly prescriptive instructions on how to design and construct the final product. The end result favored firms with expertise in dealing with the U.S. Government’s involved procedures rather than firms which strove to think outside the box and bring fresh insights to the process. To solve the dilemma, Mr. Apgar turned to the little-known RFQ procurement method which relied on a much simpler format and focused on company’s financial stability, management capabilities and experience. Jones Lang LaSalle was brought-in a consultant to assist the Army in evaluating developers’ qualifications, structuring projects and negotiating final contracts.
Due to the relative security of the service members’ Basic Allowance for Housing (BAH), the pilot RCI program was able to secure an “A” bond rating from the capital markets. This attribute, combined with the streamlined solicitation process and the large aggregate proposed project scopes (i.e., 2,000 to 6,000 housing units per phase), stimulated substantial interest from the development community in the program when the first projects were launched at Fort Meade, Maryland, Fort Lewis, Washington, and Fort Hood, Texas. A fundamental change had occurred in the relationship between the Army and the developer. Instead of the traditional client-contractor relationship, the two entities now viewed each other as business partners (JLL/ULI, 2008).

As currently structured, the RCI process consists of the following two primary phases:

**Phase 1 – Project Planning**

a. The Army will pay the developer a fixed sum of $350,000 upon completion of the project’s Phase 1. Community Development Management Plan (CDMP) completion is defined by the acceptance of the CDMP by the subject installation, Headquarters Department of the Army (HQDA), Office of the Secretary of Defense (OSD), the Office of Management & Budget (OMB) and the Congress. In return for this payment, the Army will be granted full and unlimited rights to use the CDMP, including the right to provide the CDMP to other developers in this or other military housing privatization projects. The CDMP consists of the following elements:

- Ground Lease Agreement;
- Operating & Transition Agreement;
- Purchase Option Agreement;
- Developer Services Agreement;
- Property Management Agreement;
- Asset Management Agreement.
b. At this point, the contract will be complete and the developer will have no right, title, or interest in Phase 2 by virtue of its participation in Phase 1. If the Army and developer are unable to reach agreement on the CDMP, or the plan is not otherwise acceptable to the Army, or the offeror fails to provide the CDMP within the agreed time, the Army may terminate the developer’s work on the project. Termination under this paragraph will be deemed a termination for cause. At its own discretion, the Army may continue to proceed with the project by working with another developer deemed most advantageous to the U.S. Government or by seeking new RFQ responses (RCI Primer, 2001).

Phase 2 – Project Implementation

The Army desires to have the successful CDMP developer implement the approved plan. Once the installation, Headquarters Department of the Army (HQDA), Office of the Secretary of Defense (OSD), Office of Management & Budget (OMB) and Congress approve the CDMP, the developer and the installation may be given approval to begin transition toward project implementation. This approval will mark the beginning of Phase 2 of the project. During Phase 2, the developer will implement the approved CDMP. The Army, in conjunction with other agencies who have a vested interest in the land, will transfer ownership of the existing housing units and provide an appropriate interest in the underlying land (i.e., 50 year base ground lease with a 25 year lease extension option) to the developer to facilitate implementation in a manner consistent with the approved CDMP and with prudent business practices. Once the CDMP is approved, the Army expects transition to project implementation to occur within 90 days or less. Inability to transition in a timely manner may be justification for offering the implementation opportunity to another development entity (RCI Primer, 2001).

As a result of these RCI initiatives, all substandard Army housing stock will fall under private developers by the end of 2009, one year ahead of schedule. The program will encompass 98% of the Army’s family housing stock (88,000 homes) on 45 posts in 23 states. As of 2008, 35 installations had RCI partnerships in place covering 77,000 homes. The remaining homes are
either in solicitation or under development. Two of the original pilot projects are already in their second phases (JLL/ULI, 2008).

According to Matt Keiser, United States Army Corps of Engineers Assistant Counsel for Procurement, the military housing privatization selection and award process has evolved substantially and been streamlined since its inception in 1996. Based on lessons learned, potential development partners are pre-qualified and pre-selected based on a range of metrics including but not limited to past experience, past performance, client references, personnel, industry reputation, design team, financial strength, access to capital, management, niche expertise and engagement of local small business interests (Exhibit 1). This multiple-parameter approach allows for flexibility and enables the Army to pursue holistic “best value” rather than strictly evaluating price alone. The architecture and engineering component of the team is evaluated using a Standard Federal Form 36. Once the finalist has been selected, the actual award is negotiated using detailed financial pro-formas outlining proposed funding sources and uses.

Risks to the developer can be mitigated per MHPI guidelines. This mitigation can but not necessarily entail the U.S. Government guaranteeing occupancy levels and rents for leased facilities, providing guarantees against base closures, downsizing, and extended deployments, requiring that soldiers live on post in the units provided by private developers (rare) and requiring that the basic allowance for housing (BAH) go directly to the developer via direct deposit. However, since developer profits are a function of occupancy and soldiers typically have options regarding off base housing without these guarantees in place, the developers have a strong incentive to create and maintain attractive residential communities. Ultimately, RCI’s combination of site control and cash flow enables developers to leverage the Army’s investment with private capital infusion (RCI Primer, 2001).
The RCI proposal review process contains a portion dedicated strictly to design and neighborhood issues carrying substantial point weight (RCI Primer, 2001). Unlike the financial parameters, the solicitation design requirements are deliberately general and vague to allow maximum flexibility for developers’ innovations. At the proposal stage, the U.S. Government is often focusing more on product quality than price. Per Matt Keiser, the U.S. Government’s design considerations address architectural, planning and sustainability drivers.

Architectural factors are both aesthetic and practical in nature. These considerations include adaptability of common recreational facilities to alternate uses, floor plan flexibility for use by varying tenant types, sensitivity to historic preservation requirements and the incorporation of local vernacular elements into the architectural vocabulary. These assume varying degrees of significance based on local conditions and installation priorities.

From a planning lens, the U.S. Government stresses a holistic perspective. Close consideration is given to recreational facility public access, neighborhood differentiation, the character of the

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**RFQ PROCESS -- EVALUATION CRITERIA**

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<thead>
<tr>
<th>QUALIFICATION</th>
<th>FOCUS</th>
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<tbody>
<tr>
<td>Experience</td>
<td>Breadth / depth of relevant experience</td>
</tr>
<tr>
<td>Preliminary Concept</td>
<td>Overall vision / strategy / approach</td>
</tr>
<tr>
<td>Financial Capabilities</td>
<td>Structure / arrange / manage</td>
</tr>
<tr>
<td>Organizational Capabilities</td>
<td>Qualified / experienced team</td>
</tr>
<tr>
<td>Financial Return</td>
<td>Plan / expected profit / capital sources</td>
</tr>
<tr>
<td>Past Performance</td>
<td>Performance in relevant past projects</td>
</tr>
<tr>
<td>Small Business Subs</td>
<td>Past / proposed use</td>
</tr>
</tbody>
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streetscape, the efficiency of connections between neighborhoods and amenities, maximizing the use of existing view corridors/natural features and the introduction of formal common areas/green spaces. The homes, neighborhoods and public services must work as an organic whole.

Long term maintenance and environmental sustainability are critical review components. The U.S. Government is interested in seeing how the development proposal incorporates native plantings, water conservation, sensitivity to local climatic conditions, creative reuse of existing infrastructure, use of durable materials and maintenance personnel mechanical equipment access with minimal tenant disruption. The new housing product must be made to last and reduce overall maintenance expenses for the military, tenants and respective developer.

Design quality is not easy to assess or implement consistently. One of the lessons which has arisen from the privatization design process is the need to articulate what good design and establish guidelines for making sure design is in fact good. One of the military housing privatization effort’s most prolific architects, Torti Gallas of Silver Springs, Maryland, sought to respond to these legitimate concerns by drafting a master design charter which has been brought to bear on all of their military privatization projects.

Central to Torti Gallas’ design charter is the preservation of human scale and visual interest. For instance, facades which abut an active street or public space should receive special design care to create visual interest, especially at the ground level. This visual interest is achieved through variations in materials, depths and detailing. These elements should be used to break down the scale of large buildings (particularly high-rise towers) and allow the pedestrian to interface with the architecture at an accessible scale.

Another aspect of Torti Gallas’ design philosophy is to use architectural vocabulary and composition which reinforces psychological archetypes of how buildings are inherently supposed to look. For instance, the façade should provide a rational pattern of elements based on rhythm and hierarchy, with a clear sense of entrance and welcoming. There should
be a hierarchy of windows with a clear horizontal organization using larger windows below and smaller windows above. Aside from size, hierarchies can be created with changes in plane, color or materials.
Per Torti Gallas’ Charter, it is critical to clearly define the external surface of the building as wall, frame or skin, with a clear reading of load bearing and non load bearing elements based on historical precedent (tectonics). This is complemented by using a thickness of elements appropriate to the external surface. For instance, on a masonry façade, depths of columns and window recesses would be deeper than on a stucco façade given the implicit assumption that masonry is load bearing while stucco is not (even though the masonry may in fact not be load bearing). The overall façade system needs to employ a coherent representational system of proportions where elements look like they can support themselves even if they are merely cladding (a “credible fiction”) and appear correctly sized relative to one another based on collective archetypal memory.

The final aspect of the Torti Gallas design approach mandates a sensitive response to the local environmental conditions and climate of the site. This can include indigenous plants, desert xeriscaping, vernacular detailing, eave overhangs/Bermuda shutters to reduce passive solar heat gain and unit solar orientation. In essence, the building must respond to its immediate cardinal points rather than simply to a macro-imposed planning scale. Under this scenario, a building’s respective facades may assume a unique character depending on their respective orientation. This is evident at Torti Gallas’ project at Fort Irwin where overhangs, porches, window sizes and pop-outs morph depending on the orientation of the respective unit facades. (Torti Gallas, 2009)

Per interviews with Mark Bombaugh, Associate Principal at Torti Gallas, authenticity and consistency in defining a design vocabulary are important. This language includes historicist (Fort Belvoir), vernacular (low versus high end) and principle-based design which factors in human scale and proportionality conflated with contemporary flair (i.e., Pacific Beacon Unaccompanied Personnel Housing). These underlying prototypes are used to generate a basic housing model chassis which is customized through a kit of parts based on local site conditions. Customized layers such as porches, pediments, trim, pop-outs and recesses are then added sequentially with careful consideration given to engaging color as a tool. On a
FORT IRWIN ARCHITECTURAL DETAILS

Concrete Roof Tiles  
Radiant Roof Sheathing  
Solar Attic Fan  
R38 Insulation

30” Roof Overhang

Window Shading

High Performance Windows

Wall Assembly:  
Stucco  
2”x6” modular framing  
R19 insulation
recent military housing project, Torti Gallas reviewed over 60 different potential color palettes. Governing all of these elements is an awareness of the project budget and long term maintenance considerations. Partnering with Clark, full-scale mock-ups of key details are prepared using innovative materials such as vinyl siding, vinyl trim and foam details which reduce cost, reduce maintenance, ensure constructability and ultimately serve as training tools for the field construction crews.

FORT BELVOIR ENLISTED HOUSING UNIT
FORT BELVOIR CUSTOMIZED ARCHITECTURAL DETAILS
Prior to privatization, military construction (MILCON) was governed by dated, onerous MILCON and Naval Facilities (NAVFAC) standards which placed little emphasis on aesthetics and comfort. Additionally, these old programmatic standards sized facilities based on rank rather than a given family’s true space needs. Fortunately, the MILCON and NAVFAC standards have been relaxed in favor of general RCI design standards, local municipal building code and market driven parameters. The one exception to this design standard relaxation are the anti-terrorist force protection (ATFP) measures implemented after 9-11 which require specified setbacks of buildings from streets and driveways, bollards, annealed laminated glazing and provisions for progressive structural collapse. Per the current RCI Program, the minimum established governing building codes have been reduced to the National Electric Code (NEC), National Fire Protection Association (NFPA) Code, Uniform Federal Accessibility Standards (UFAS), Americans with Disabilities Act Accessibility Guidelines (ADAAG), Unified Facilities Criteria Design, American Society of Heating, Refrigeration, and Air Conditioning Engineers and the U.S. Environmental Protection Agency’s Energy Star Program. Aside from these code constraints and the current RCI guidelines (Exhibit 2), the development team has latitude to pursue their design vision unless local installation standards are more stringent.

One of the most significant achievements of the privatization design program has been the direct and on-going engagement of the end users, from the lowest to the highest levels. Private development teams routinely conduct intensive, direct focus groups with a range of end users to ascertain what the prospective tenants value and with what relative weight. Topics range from the swing of doors to the placement of telephone and data jacks. Housewives provide a substantial amount of input to the process given that they spend the greatest amount of time in the living units. Specific inputs such as preferred placement of the laundry room or whether a formal dining room is desired are weighed.

A fascinating, in depth customer design survey conducted by GMH (now Balfour Beatty) of enlisted service members through company grade officers and their families at Fort Bliss, Texas
revealed detailed living unit design preferences which also involved trade-offs and choices between competing features. The findings are summarized in Table 2 below by use category.

### TABLE 2: GMH CUSTOMER FEEDBACK SURVEY, FORT BLISS, TX (2006)

<table>
<thead>
<tr>
<th>TOPIC</th>
<th>FINDINGS</th>
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| STORAGE    | • Families prefer a second garage to additional storage  
            • There is often inadequate storage space for family needs |
| BATHROOMS  | • Families prefer to locate the second bathroom closest to the master bedroom  
            • The ideal number of bathrooms in a three bedroom house is two  
            • Shared bathrooms are acceptable for younger children |
| CLOSETS    | • The ideal number of closets in a three bedroom house is four to five |
| BEDROOMS   | • The master bedroom should be located remotely from the children’s bedrooms  
            • Families prefer more space in the living room versus the master bedroom |
| KITCHENS   | • Families prefer a larger kitchen with less eating space  
            • Floor to ceiling pantries should be used versus more cabinets in the kitchens  
            • More storage space in the kitchen takes precedence over a breakfast nook or larger appliances  
            • An average of 3-4 adults at one given time should be factored to size kitchens  
            • Kitchens in general are undersized for family needs |
| LIVING ROOMS | • Furniture configuration planning needs to account for large entertainment centers  
              • Living rooms need to be sized to accommodate at least five people at any given time |
| FLOOR PLANS | • Single family housing is preferred to multi-family housing  
              • Families prefer open, fluid floor plans |
Pie charts were generated which showed the relative percentage weights given to each preference category (Exhibit 3). These findings were ultimately incorporated into the final built product.

The above findings are bolstered by proprietary privatized housing tenant feedback surveys conducted by Picerne Military Housing at Fort Riley, Fort Meade, Fort Polk and Fort Bragg from 2006 to 2007. Similar to GMH, the results were carefully reviewed and incorporated into Picerne’s new building product. Picerne consistently found that tenants particularly valued generously sized, open kitchens with ample cabinets. Larger bedrooms, increased general storage space, generous closet space, enclosed garages and upstairs laundry rooms in two story homes were also treasured by the residents. These features were commonly neglected, deleted and overlooked under previous MILCON and NAVFAC housing standards (Mulvey, 2009).

It appears that this emphasis on design quality and heeding end user input is paying dividends for the privatization developers. Given the Department of Defense’s (DoD) objective to improve the quality of life of its service members, the degree of satisfaction service personnel experience in privatized housing units is a critical benchmark indicator of overall program success. Since DoD provides military families with BAH at privatized bases, a military family’s decision to live in privatized housing is a primary measure of satisfaction. As of 2008, the military privatized housing occupancy rate of nearly 90 percent military-wide demonstrates the overall success of the program in providing suitable housing (OSD, 2008).

Since the developers own the housing units, they themselves conduct tenant surveys to help assess the quality of their privatized product. To help interpret results, the developers code surveys based on whether the respondent resides in a newly constructed unit, renovated unit or in a unit that has not yet been revitalized. This coding of survey results continues until the completion of the initial development periods for most projects. As expected, satisfaction was highest among those living in newly constructed units (92 percent). Satisfaction was the 87 percent for tenants living in renovated units. The Office of the Secretary of Defense (OSD)
anticipates that the divergence in results between the different housing types will diminish by the end of the program’s initial development period (OSD, 2008).

Privatized development’s progress does not end with innovative architectural features and progressive floor plan configurations. Aside from courting prospective tenants, the developer-owners are mindful of the long term operating costs of these communities and are constantly seeking ways to minimize costs for both themselves and their tenants. Accordingly, privatization developers have made great strides in incorporating the latest sustainable features into both the living units and the overall neighborhoods. These issues are explored in detail in the next few chapters.
IV. NEW STRIDES IN SUSTAINABLE HOUSING DESIGN

Inspired by such environmental stewardship programs as the Army’s Spirit Gold and Leadership in Energy & Environmental Design (LEED), privatization developers have focused on designing buildings which have small carbon footprints and low maintenance costs. The importance of such measures is underscored by the fact that the developers own and maintain the housing units for 50 years under the terms of a typical U.S. Government ground lease. Additionally, several developers involved in the program have incorporated green principles into their corporate charters and voluntarily participate in the Environmental Global Reporting Initiative. As a result, privatized military housing projects have set new trends and standards of excellence in many facets of sustainability, from being the first to use low volatile organic compound paints in Hawaii to accelerated, pre-engineered modularized construction technology for mass-produced multi-family housing. A handful of specific project examples from across the country highlight these advances.

To promote sustainability, Clark Realty Capital, LLC, the RCI developer at Fort Belvoir, Virginia led focus groups with tenants to clarify tradeoffs among conflicting objectives (e.g., low-energy appliances to reduce utility costs and durable finishes to reduce service calls). During the planning and design phases, dozens of real estate professionals and building trade professionals participated in the process. As a result, Fort Belvoir’s next RCI neighborhood will be the most sustainable to date, with all new homes “Energy Star” certified (JLL/ULI, 2008). These sustainability initiatives have been complemented by the New Urbanist master planning approach described in the next section, shrinking the development footprint and reducing or eliminating automobile usage. Diligent tree preservation and replacement programs have improved air quality and reduced energy usage.

At Fort Belvoir, every new privatized home constructed is Energy Star certified. This ensures a tighter building envelope and reduces overall consumption. To date, more than 900 homes have qualified for Energy Star at Fort Belvoir. Key design components to achieve this
certification include certified appliances, low-E windows, R-11 exterior walls and a SEER 13 HVAC system. Additionally, all homes are equipped with compact fluorescent light bulbs which require infrequent replacement and are vastly more energy efficient than standard incandescent bulbs. In fact, the new George Washington Community Center is the greenest building on the installation to date, featuring a geothermal well, photovoltaic panels and an automated lighting system. The facility earned LEED Platinum status.

Similarly, in resource-conscious Hawaii with its more than 15,000 units of military housing in various stages of redevelopment, sustainability is taking center stage. Forest City Development has used passive construction to complement air conditioning by aligning unit openings with prevailing breezes and incorporating tankless water heaters and wireless sub-metering to help push the efficiency of its units 43 percent beyond Hawaii’s energy codes. Across the island of Oahu, Actus installed solar-powered hot water heaters in 5,388 units and is adding laminated rooftop photovoltaic solar panels to create one of the largest solar-powered communities in the world (Wood, 2008).
In a similar vein, Actus’ Kalakaua Community will feature the world’s largest residential photovoltaic solar installation, features wireless smart meter technology and four units that are the first units on the Island of Oahu to achieve the LEED Gold certification from the U.S. Green Building Council (USGBC). Other environmentally-sensitive features Actus employed at Kalakaua include compact fluorescent lighting, dual pane low-e glazed windows, low-flow 1.6-gallon toilets, extra wall and ceiling insulation, recycled fiber cement siding radiant barrier construction, Tech Shield radiant barriers under the roof shingles, ridge vents to evacuate hot air from the attic space, high SEER-rated HVAC equipment, programmable thermostats, ceiling fans to encourage passive cooling and Energy Star rated kitchen appliances. As a result of these proactive measures, direct energy cost savings are conservatively estimated at between $3.8 million and $6.65 million per year (Wood, 2008).

Hawaii has high energy costs combined with the ideal weather for solar energy. Because of the partnership and participation of the military and private agencies, the conditions are creating a tremendous advantage for solar energy use in these military housing communities. One of the highlights of the Actus project is its reliance on solar energy rather than fossil fuels. The project will incorporate photovoltaic (PV) panels providing seven megawatts of power for the entire project. The PV panels will generate approximately 35 percent of the community’s electrical needs. Along with electrical generation, the homes are fitted with solar panels for hot water heating.

Actus is using a new film-applied Uni-Solar PV technology for the panels. This film is applied to the metal roofs of the garages adjacent to the homes. The company is in the second year of the installation process, and thus far the panels are performing well. This type of application is used in Europe, so there were previous product installations that the Actus team could study and evaluate.

Other sustainable aspects of this project include:
Developers have extended energy efficiency innovations to outdoor comfort. At the Fort Irwin, California Sandy Basin Neighborhood Community Center, a low-energy consumption cooling tower was installed in the common plaza area. The tower, echoing ancient technology from the Middle East, contains evaporative water cooling baffles at the top. The only energy consumed is from the pump raising the water to the baffles themselves. As the cool air sinks within the tower, additional hot air is drawn in to the tower top and cooled. The courtyard itself is sunken to trap the cooled air. As a result of these innovative measures, ambient temperatures in the broiling summer months have been reduced by 30 degrees (Torti Gallas, 2009).

Sustainability innovations are not limited to solar power and thermal efficiencies. Starting in 2005 at Fort Lewis, Washington, Equity Residential, a major privatization developer in partnership with Champion Enterprises, pioneered accelerated, sustainable modular construction technology for military multi-family housing. Modular construction affords greater energy conservation and pollution reduction than conventional stick-built methods. As of 2008, nearly 500 modular military homes had been constructed at Fort Lewis. The modular...
assembly process allows the building sequence to be conducted in a controlled environment with dry, climate-controlled raw materials.

In Seattle, moisture control is critical. Conventional homes typically undergo a protracted drying-out regimen prior to the installation of finishes. Construction time is also reduced to five
days per building with all construction scope completed within 4 weeks, two to three times the speed of conventional construction. Interiors are also of very high quality with hardwood floors, skylights and minimum 9-foot ceilings. All interior finish elements are precut in the factory to further mitigate material waste.

Per the Energy Star guidelines, all Equity Residential homes are pre-fitted with R-21 insulation in walls, R-33 insulation in floors, R-38 loose fill cellulose in the ceilings, double-pane low emissivity, vinyl-framed windows with a U value of 0.35, metal doors with a U value of 0.2, 90 percent annual fuel utilization efficiency gas furnaces, insulated ducts to R-8, gas hot water heater with an 0.61 efficiency rating, Energy Star compact fluorescent lamps in 50 percent of the fixtures and all Energy Star appliances. In addition, Equity has each home inspected by the Washington State University (WSU) and Oregon State Department of Energy for compliance. WSU estimates that these homes use 65 less therms per year than a conventional home. Equity Residential’s design team is researching the potential placement of ducts within conditioned spaces instead of attics, potentially saving over 100 therms per year (U.S. Army Installation Management Command, 2007).
The development community’s implementation of sustainable principles extends beyond the living units themselves to community master planning. Balfour Beatty Military Housing’s design team and executives insist on the use of shared driveways to minimize the “heat island” effect and to increase permeable surfaces for storm water management. Off-street parking is configured in parallel to accommodate narrower streets, further minimizing the “heat island” effect. Interconnected pedestrian trails linking neighborhoods and services minimize the need for vehicular travel. Plant materials used in the yards and common areas are native to the respective region and typically do not require more water than natural rainfall levels. Canopy trees are either retained on site or provided to maximize natural shade and mitigate passive solar heat gain. Specially designed “Dark Sky” street lights are used to offset evening light pollution in accordance with LEED standards (GMH, 2006). The features enumerated above are part of larger, comprehensive, innovative and sustainable urban planning approach known as New Urbanism. The following chapter explores this concept and its application to privatized military housing in more depth.
V. URBAN PLANNING AND THE INTRODUCTION NEW URBANISM TO MILITARY COMMUNITIES

Developers have introduced New Urbanist design principles to make communities more livable and foster a greater sense of community spirit. This is especially important in light of the frequent deployments of service members and the attendant, prolonged family separations. New Urbanist concepts have also enabled designers and the U.S. Government to integrate living spaces for typically under-served junior officers and non-commissioned officers into the master plans. In the past, military housing master planning has largely been focused on lower-density family housing without providing a mix of household types.

New Urbanism originated in the United States in the 1980’s. The primary objective was to transform conventional thinking about real estate and urban planning ranging from urban retrofits to suburban infill. At their core, New Urbanist neighborhoods are intended to be walkable with a diverse mix of tenants, housing and services catering to a broad socio-economic demographic. New Urbanism encompasses transit-oriented development, vernacular neighborhood design and New Pedestrianism. New Urbanism is the re-discovery of an older form or urbanism predating the automobile. New Pedestrianism is a continuation of early 20th century experiments.

In 1991, a Sacramento California non-profit group (Local U.S. Government Commission) asked architects Andres Duany, Elizabeth Plater-Zyberk, Elizabeth Moule, Michael Corbett, Daniel Solomon and Stefanos Polyzoides to formulate a set of urban planning principles based on the above concepts. The commission published the principles to one hundred U.S. Government officials in 1991 at Yosemite National Park. The codified New Urbanist principles range from open space, context-appropriate architecture and the balanced development of jobs and housing to traffic congestion mitigation, affordable housing supply and combating urban sprawl. Recently, New Urbanist thought has broadened to encompass safe streets, green building, historic preservation and brownfield re-development (Hass, 2008).
TABLE 3: ARMY LIVING UNIT DENSITY GUIDELINES

<table>
<thead>
<tr>
<th>Grade</th>
<th>Low Density Units/Acre</th>
<th>Medium Density Units/Acre</th>
<th>High Density Units/Acre (NEW URBANIST RANGE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSG &amp; Below</td>
<td>4-7</td>
<td>8-10</td>
<td>11-15</td>
</tr>
<tr>
<td>SFC – SGM</td>
<td>3-5</td>
<td>6-9</td>
<td>10-12</td>
</tr>
<tr>
<td>LT – CPT</td>
<td>3-5</td>
<td>6-9</td>
<td>10-12</td>
</tr>
<tr>
<td>MAJ – LTC</td>
<td>2.5-3</td>
<td>4-5</td>
<td>6-9</td>
</tr>
<tr>
<td>COL</td>
<td>2</td>
<td>3</td>
<td>4-6</td>
</tr>
<tr>
<td>BG &amp; Above</td>
<td>1</td>
<td>2</td>
<td>3-4</td>
</tr>
</tbody>
</table>

Source: RCI Standards, 2003

The 1,100-acre Ewa Plain & Ocean Pointe privatized housing development by Actus Lend Lease embodies this vision. It features a collection of single-family homes, townhouses and condominiums, clustered around a marina, a golf course and parks. Ocean Pointe, which has 4,800 homes, opened its doors in May of 1998.
With garages and driveways located in the rear of the homes, Ocean Pointe has the look and feel of a town from a bygone era. The design concept is credited to Andres Duany, a Miami-based architect and planner and one of the leading proponents of New Urbanism. Duany is probably most famous for designing the idyllic resort town of Seaside, Florida, which proponents consider a seminal development in New Urbanism. Detractors call the neo-traditional, self-sustained community “Disney-esque.” Seaside, located on the Gulf Coast, was featured in the film The Truman Show, in which the main character, played by Jim Carrey, is unknowingly the star of his own reality TV show. Seaside became Seahaven, a perfect but wholly artificial coastal town.

The most striking feature of Ocean Pointe’s urban design landscape is its turn-of-the century interior street pattern. A primary Duany objective is to design homes and communities around people, not cars. At Ocean Pointe, driveways and detached garages are moved to the rear of each house and are only accessible through a private lane. The result is a neighborhood in which homes, each with a cozy porch, are built adjacent to a nearly car-free, pedestrian friendly street. Additionally, every neighborhood has a small park within walking distance. “By putting the car out back, we’ve changed the whole look of the neighborhood both outside and inside,” stated Richard Dunn, Vice President, Haseko Homes Inc., which is a partner with Actus in the development. “Now, you have a front door and a front porch where they should be prominently placed out front. Also, by not having a garage blocking everything, we get a lot more natural light into the homes.”

The neighborly, traditional look and feel caught the attention of Actus officials. Company officials conducted focus-group discussions with Ocean Pointe residents to find out what aspects of the community they liked most. Later on, they gave military families tours of Ocean Pointe and noted their comments and observations. According to interviews with Actus representatives, the reaction was overwhelmingly positive. Waiting lists for the releases were typically over 400 people long each (Wu, 2004).
New Urbanism is not just about scale but also about connectivity, public space and a synergistic mix of retail and convenience uses which reinforce pedestrian scale and reduce reliance on the automobile. In the past, military installations have been very poor at blending retail with residential to create community synergies due to old fashioned thinking and Department of Defense restrictions on post retail establishments. The next section explains how an innovative approach to using retail as a tool in privatized communities paid off for one high profile Army privatization project.
VI. THE ROLE OF RETAIL IN MILITARY NEW URBANISM

The original RCI concept incorporated entertainment, retail and other community supporting functions as basic components of a vibrant Army family community. However, several of these early plans were later undermined by RCI, as they created potential competition with adjacent off-post businesses and with the military installation exchange establishment, Army and Air Force Exchange Service (AAFES), Defense Commissary Agency (DeCA) and Morale Welfare & Recreation (MWR).

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Below is an excerpt from a sample Army RFQ for Fort Huachuca, Arizona (2005) outlining the Department of Defense’s policy on retail components:

To further the Army’s goals, the Army may authorize the developer to construct and operate one or more ancillary supporting facilities (e.g., tot lots, community centers, housing office, etc.) that relate to and support the family housing community and complement business operations in the local community. However, such facilities may not be in direct competition with the activities of the Boards of Directors for Army Morale Welfare and Recreation (MWR) organizations, the Army and Air Force Exchange Service (AAFES), and the Defense Commissary Agency (DeCA) without the approval of these organizations.

In the CDMP, the developer will be expected to include the type, size, location, and features of each ancillary supporting facility they propose to build and operate in the residential housing community(ies). The developer is not required to take ownership and operational responsibility for any existing ancillary supporting facilities that are not located within the housing areas. However, the developer should assume ownership and operational responsibility for any existing ancillary amenities that are located in the housing areas, to include
recreation facilities or housing offices. Developers should take care to differentiate between ancillary facilities that are housing related and funded by the BAH revenue stream versus commercial/retail/MWR activities that generate revenue.

The AAFES system provides military discount benefits valued by active and retired service members. A portion of the proceeds typically fund recreational services for service members and dependents. Consequently, Congress pressured Army officials to remove the retail from the initial RCI RFQ’s.

Fort Belvoir Village Commons

The most successful AAFES facilities mimic the suburban-themed power retail centers, with clustered restaurants and services anchored by a department store (BX). Unfortunately, these centers are often located in bland strip malls surrounded by large, vacuous parking lots. AAFES had attempted to offset this bulk approach by locating small convenience stores in dispersed community locations, but critical supporting patron mass became an issue. Careful consideration needed to be given to the relationship between maintaining a viable economic enterprise and promoting the walkability of the community (Apgar, 2008).
A New Urbanist hybrid approach has been the construction of apartments to complement and create new town centers. These lofts are generally designed with retail or service space on the ground floor and living space on the upper levels. The Army discovered (based on customer satisfaction surveys) that this kind of experience was highly desired by single company grade officers and single senior non-commissioned officers who are often off of the radar screen for the family housing master planning process (Bombaugh, 2009).

The integration of private sector retail elements with New Urbanist density principles was first implemented at Fort Belvoir, Virginia. Fort Belvoir is located on 8,656 acres of land along the Potomac River approximately 18 miles south of the Pentagon. It is one of 27 military installations falling within the Northeast Region Office (NERO) of the Installation Management Agency (IMA). Army personnel stationed throughout the Washington, D.C. area live at Fort Belvoir and work at the Pentagon, Fort Myer, Fort McNair, various Federal agencies as well as the installation itself. Fort Belvoir is home to several major Army command headquarters, 19 Department of the Army agencies, eight elements of the U.S. Army Reserve and the Army National Guard, 26 DoD agencies, a Marine Corps detachment, a U.S. Air Force division and a Department of the Treasury branch. Straddling Northern Virginia’s U.S. Route 1, Fort Belvoir is divided into two halves entitled North and South Post. Existing family housing at Fort Belvoir is grouped into 12 distinct housing areas sprinkled throughout the installation covering 535 acres.

The family housing at Fort Belvoir can be divided into non-historic and historic inventory. Both types of housing are small in comparison to current market or even military standards. The neighborhoods are scattered and isolated from one another. Although the neighborhoods are adjacent to one other, many are not interconnected and residential blocks are long. The neighborhoods have no individual identity to distinguish them. Fort Belvoir contains two existing Village Centers that provide a mix of commercial, retail, recreation and services facilities, including a Post Exchange (PX), Commissary, Garden Center, PX gas stations, car and truck rentals, credit union, library, chapels, Child Development Center, field house, hospital and other sundry support functions.
In 2002, Clark Realty LLC was awarded a $700M multi-phase privatization contract at Fort Belvoir with the following objectives:

- Replace obsolete non-historically significant homes with 1,900 luxury, mixed single-family detached, duplex and town homes with two car garages that meet or exceed current military standards
- Transform the residential neighborhoods from a collection of far-flung, dated houses into a vibrant community with a sense of place, cohesion and extensive recreational amenities
- Renovate 170 historic and historically significant homes, 11 historic garages and construct new two car garages where required
- Enhance the existing South Post town center with new streetscapes and up to 25 apartment units
- Construct a state-of-the-art Community/Recreation Center, five new Neighborhood Centers and one Welcome Center (Clark Pinnacle Fort Belvoir Development Proposal Executive Summary, 2003)

In the Fort Belvoir model, Clark’s architect, Torti Gallas, conceived a “Village Commons” concept that would perpetuate the installation’s historic features and themes. The Commons would house shops and restaurants with apartments situated above them. The buildings would be situated along a single street within walking distance of two of the new RCI neighborhoods. The proposed central location was an underused area near the main post entrance (i.e., Tulley Gate). Creating this Village Commons concept was particularly important to John Torti, Principal of Torti Gallas, as an attempt to make “amends for past sins” relating to bland, sprawled suburban landscapes the firm had designed in earlier years. Mr. Torti was also interested in promoting neighborhood social experimentation with a mixture of attributes (income levels, uses, etc.), a public realm where people could congregate and connectivity (i.e., no cul-de-sacs).
Clark grasped the benefits of adding the Village Commons to the design plan, not solely as a profit center but also as a key community enhancement. Accordingly, Clark approached AAFES, which has the right to operate retail establishments on military installations and acts as the master retail entity for the entire installation. AAFES was interested in pursuing the venture, but did not have the authorization to build on Clark-controlled property. Any agreement between AAFES and Clark also had to be “cost neutral” for RCI, as the MHPI expressly prohibits spending project dollars on non-housing associated amenities such as retail (Apgar, 2008).
Any RCI deal was subject to AAFES’ standard due diligence analysis. As a Department of Defense agency, AAFES does not purchase land for its facilities. Instead, AAFES constructs new facilities on land assigned to it by the respective military installation or it site adapts a building it already operates. For the Village Commons concept, AAFES established the potential mix of businesses in the context of other installation retail offerings. AAFES then calculated the cost of capital for construction, upgrades, major repairs, projected revenues, net present value and internal rate of return hurdles over a projected 30-year time horizon. If the hurdles could not be overcome, plan adjustments would be necessary.

The ultimate solution was for Clark to construct five three-story buildings with retail on the ground floor and 25 townhome style apartments on the upper two levels. The apartment component proved so popular that all of the Village Commons’ apartment units were leased within two weeks of initial release. For the retail component, Clark produced a raw shell with roughed-in utilities which AAFES tenant-improve using its own resources. AAFES reimbursed Clark for the first-floor construction costs over a six-year period. AAFES currently pays $1 per year in rent to Clark for control of the space. A resounding success and recipient of the International Council of Shopping Centers (ICSC) Design Prize, the Village Commons now features popular retailers such as Starbucks, RAC Military Rentals, Sports Zone, GNC, Classic Country Furniture & Gifts, and COCI Accessories. In addition, the new retail hub also includes such standard conveniences as an AAFES Shoppette and a laundry/dry cleaner, barber and day spa.

In order to fulfill the full intent of New Urbanism beyond the retail integration, Clark blended several key features into the respective residential communities to encourage people to meet their neighbors. Specifically, every one of the five Fort Belvoir villages contains a large green space with central mall kiosks and playgrounds. Houses are located closer to the street and garages are loaded from rear alleyways to hide cars. There is a clear sense of front and back (public versus private zones). The neighborhoods include wide sidewalks, porches, stoops and plentiful street trees. Other neighborhood amenities include picnic pavilions, skate parks,
outdoor pools, respective neighborhood community centers and a resident welcome center. Parallel parking is employed and turning radii have been reduced to soften scale and reduce traffic speeds. The compact neighborhood design helps to promote community interest and provide a safer environment for children (Apgar, 2008).

While the primary public spaces are governed by a sense of order and restraint, the secondary spaces and streets employ idiosyncratic elements which lend the respective spaces a unique character, sense of place and adaptability to their local environment. In fact, each village has its own style of architecture to reinforce the unique character of the community and local setting, ranging from Colonial to Georgian and Colonial Revival (Exhibit 4). As a result of these design efforts, the project received the coveted Congress New Urbanism Award.
VII. UNACCOMPANIED HOUSING: THE NEXT FRONTIER FOR MILITARY DESIGN INNOVATION

While a substantial track record has been established in the privatization arena for single family homes, the unaccompanied personnel housing (UPH) market is only in the nascent stages of the privatization development cycle. Despite the successes of privatization in the multi-family housing sector, the application of privatization principles to the UPH inventory has been much slower and more inconsistent. Ten years after RCI’s debut, UPH is still in its infancy. Five pilot projects at Forts Bliss, Bragg, Drum, Irwin, and Stewart are restricted to senior non-commissioned officers and impact less than one percent of the total UPH inventory.

The majority of senior non-commissioned officers fear that private management will inhibit them from entering service members’ quarters to maintain discipline and unit cohesion. This is one reason UPH privatization efforts have been restricted to Grades E6 and higher. There is also a mentality among some senior non-commissioned officers of “we paid our dues so you need to pay yours” and that the facilities are “too nice.” Military officials feared that the tenants would neither appreciate nor take proper care of the new facilities (Bombaugh, 2009).

Another obstacle to UPH privatization is guaranteeing a steady income stream for the developer. As opposed to married service members, single service members living on base receive no BAH but are simply assigned accommodations. Implementing UPH privatization would necessitate the addition of BAH payments for single soldiers.

Renewed focus has been directed at single military enlistees due to personnel retention and quality of life concerns. With the escalation of the conflict in Iraq, there has been increasing competition on the part of the Armed Forces for the 18-25 year old demographic in an all volunteer army. Incentives need to go beyond mere financial incentives. Increasingly, quality of life issues related to housing are coming to the forefront.
Unfortunately, much of the military’s unaccompanied personnel housing (UPH) is in an advanced state of disrepair and is not in accordance with modern living standards. As of 2008, the overall Army UPH maintenance backlog is $2.3 billion, with 80% of the current barrack inventory more than 30 years old and over 90,000 single soldiers live in conditions the Army terms “inadequate” (JLL/ULI, 2008).

The old MILCON UPH standards housed eight service members to a room with a single gang latrine per floor. Layouts consisted of microscopic bedrooms with three or more service members sharing a small bath. There was frequently inadequate accommodation made for dry storage space for service members’ personal effects while deployed or on temporary tours of duty. Finishes were sterile and utilitarian, often with exposed CMU walls, pipes and structural concrete. To make matters worse, junior unaccompanied Navy personnel often reside on their ships while in port, most living in cramped quarters (some no bigger than 30 cubic feet).

Aside from serving as mere sleeping quarters, the UPH function as communities for single service members. The UPH serves not only as a place of refuge for soldiers from intense military training and shift work, but also as a social networking center. Typically, these facilities are not situated near fitness, entertainment, dining, recreation or conveniences. Although military planners are cognizant of the benefits of clustering, integration is often stymied by budgetary, organizational and statutory limitations. This decentralization has resulted in functional inefficiencies wherein one UPH may have surplus space which is used for alternate purposes while a second UPH may be short of beds.

Between 2009 and 2013, the Army plans to spend $10 billion to construct 63,000 beds for single soldiers. This equals $160,000 per bed and satisfies about one quarter of the stated need. In contrast, private developers estimate they could build barracks at one-third to one-half less than the U.S. Government’s cost. Private sector space and construction standards offer savings on capital costs combined with better quality. For junior enlisted service members, the lifecycle costs of U.S. Government construction exceed private sector comparables by 30+ percent. This is largely due to U.S. Government projects being over-engineered and over-
designed compared to private sector housing. A 50-year lifecycle study demonstrates that a UPH program similar to RCI could reduce the U.S. Government’s commitments for long term construction costs, generating $5 billion in present value advantage to the U.S. Government even accounting for added BAH payments (JLL/ULI, 2008).

In contrast to the Army, the Navy has begun to make significant advances in the implementation of UPH privatization. The flagship Navy pilot UPH privatization project is Pacific Beacon located at the 32nd Street Naval Station, San Diego. The station is located just southeast of downtown San Diego and adjacent to National City. It provides shore support, living quarters, and pier-side berthing services for 56 of the Pacific Fleet Surface Force ships, including the hospital ship USNS Mercy. 32nd Street Naval Station is home to 49 tenant commands, including many fleet vocational schools. The Naval station is one of two major fleet support installations in the nation.

The need for affordable housing for single service members in high-priced San Diego is critical. Of the almost 72,000 Navy personnel in the San Diego metro area, greater than 22,000 are classified as permanent party unaccompanied personnel. The current inventory of military unaccompanied housing is insufficient for adequately housing the Region’s unaccompanied Navy personnel. In 2007, the San Diego metropolitan region alone had a deficit of housing of 7,125 unaccompanied personnel. This shortage is exacerbated by the Navy’s “Sailors Ashore” initiative, which seeks to house all shipboard sailors in adequate shore-based housing (Pacific Beacon RFP, 2006).

Density was important given the high cost of land in Southern California. Constructed in 2008 by Clark Realty LLC on a former golf course, the $322M project consists of four 18-story towers (941 total living units, 1,882 total beds) and a structured parking garage arranged around a series of lushly landscaped common areas. Athletic facilities were incorporated into the 15-acre site, including a running path, basketball courts, sand volleyball courts, horseshoe pits, and lawn BBQ areas (Exhibit 5). The Navy surrendered the property to Clark under a 50 year ground lease agreement. Although the Navy did establish some very basic design parameters
regarding minimum square footages and parking ratios (Exhibit 6), Clark was largely given free rein to pursue their architectural vision and implement feedback from developer-led customer focus groups (Lamb, 2009).

Clark collects the resident service members’ basic allowance for housing (BAH) proceeds directly from the U.S. Government via a direct deposit system and competes for the service members’ rental applications on the open market. Originally, the Navy had projected a regional catchment area enlisted personnel demand of 15,000 (Celentano, 2009). Although Clark has the advantage of convenient location and high visibility, competition for this market has intensified given the recent deterioration of the San Diego housing market and the glut of condo quality rentals driving down regional rental rates.

To arrive at a sound and competitive design concept, Clark and Torti Gallas Architects conducted intensive focus groups and design charrettes with the end users to identify what was
important to them. The development team viewed the service members first and foremost as customers, regardless of rank. Mark Bombaugh, Project Architect, noted that several of the service members were timid at first and unaccustomed to having their voices heard in these matters. Key findings revolved around comfort, privacy, adequate storage space, spaciousness (including oversized elevators), ample leisure amenities, educational opportunities, maintaining physical fitness levels, fostering a sense of community and maximum convenience. Service members and Navy officials insisted that the product be comparable to downtown private sector apartments in the Gaslamp Quarter and Marina Districts (Lamb, 2009).
In response to direct end user feedback and to maintain the appeal of their product, Clark implemented several radical design measures unseen to date in Navy unaccompanied personnel housing. Specifically, the level of finishes in the common areas is equivalent to a luxury product, with access to 24-hour concierge, sandwich shop, credit union, a gourmet coffee shop, a wi-fi internet business center, roof-top lap pool/spa, state-of-the-art gyms and running track, fully-equipped game rooms, volleyball/basketball courts, furnished roof top lounges with panoramic views of the San Diego skyline/ocean and even an optional housekeeping service. Clark provided covered structured parking for 941 vehicles to further enhance
the marketability of the units, with ample overflow parking for visitors and staff. Classroom space was provided on the premises for college and continuing education courses, as several of the residents are enrolled in evening programs through the University of Phoenix, San Diego City College and St Leo University. All amenities are included in the base rent.

To confirm the design inputs received from the initial customer focus groups, Clark prepared a series of model units and mock-ups of select common spaces. Prospective tenants were then asked to walk through these models and provide further feedback. Updates were made and incorporated into the plans before Clark proceeded with living unit production and build-out of the common spaces. Additionally, slight modifications were made to the floor plans, such as relocating an interior theater to the exterior at the request of the prospective residents. Individual mailboxes adjacent to the Main Lobby were provided for each bedroom, a first for Navy UPH housing. This continuous, direct feedback from the future residents was unprecedented.

The living units themselves are all 2 bedrooms (37 different floor plans) in line with the Navy’s 1+1 Program, ranging from 950 square feet to 1,200 square feet in size (Exhibit 7). The floor plans are designed for maximum roommate privacy, with shared common areas and private bedroom quarters flanking opposite sides of the living/dining area. Each resident has a dedicated private bathroom, study area and walk-in closet immediately adjacent to the bedroom area, all of which can be locked and secured by the resident. European style natural finish cabinets, Corian solid surface countertops, a full top-of-the-line appliance package and breakfast bars are provided in all of the unit kitchens. Additionally, each unit is equipped with stackable washer/dryer, balconies to take advantage of the sunny, mild climate and complete designer furnishings to enhance resident comfort. Ceiling heights are a minimum of nine feet in all living units to maximize the feeling of volume and space. Ceiling heights are slightly higher at both the ground levels and top floors. The buildings have been oriented to maximize water views from as many units as possible. All utilities except for internet and cable television are included in the monthly rent.
Innovations are not restricted to the interior. The exterior exudes a sense of place and arrival. To dramatize the architectural appeal of the property and create an iconic image, large illuminated beacons were installed at the top of each tower to convey a nautical theme. These beacons are similar in appearance to the beacons installed at the luxury Santa Fe condominiums in downtown San Diego. Additionally, large metal decorative elements reminiscent of sailing apparatus and decorative elements on the upscale Omni Hotel in downtown San Diego were installed above the 19th floor of each tower. The scale is deliberately varied with alternating wing sizes and the façade layered to reduce the building massing and scale. General exterior colors and stucco were designed to reflect the Southern California region’s Mediterranean hues and tone. The buildings have been oriented perpendicularly to the shore to avoid creating an additional barrier between the community and the water. A lush central green has been provided for community activities.
According to Bryan Lamb, Project Manager for Clark, “Pacific Beacon was conceived and built like a resort hotel or luxury multifamily property. Our goal was to make this one as good as any mixed-use, urban multifamily asset in the country by over-delivering on amenities, services, unit sizes, furniture—pretty much everything needed to complement the traditional transient lifestyle of service members.” Clark strove to provide a turnkey lifestyle to service members who are regularly shipping out to new ports of call. In January, 2008, Clark launched an “Above and Beyond” program with its suppliers. The goal was to secure upgraded, top-of-the-line materials in terms of durability and quality. Clark has also reached out to firms via the Chamber of Commerce to outfit the living units with such wares as better carpeting, televisions, computers, linens, and towels.

To remain competitive and in accordance with memorandums of understanding with the Navy, the rent structure is tied to the basic allowance for housing range of a typical E4 rank in the San Diego marketplace. Thus, although there is differential pricing in the units based on size, location, floor and view, the most expensive units are priced no higher than the maximum housing allowance for a typical E4 service member. Although the project was originally targeted at Grades E4 and above, inventory access has been expanded by the local Navy Housing Office to Grades E1 through E9.

The Navy is also considering converting one of the towers into junior grade officer units. Separate towers will be maintained for the E1-E3, E4-E9 and junior officer ranks in accordance with military standards. According to Jade Celentano, Leasing Manager for Clark Realty, this will help to avoid potential fraternization and allow service members to feel more at home and relaxed when on the premises.

Due to the success of this project, similar projects are already underway at Hampton Roads, Virginia and Jacksonville Naval Air Stations. The Hampton Roads project alone will result in more than 1,000 new 2-bedroom/2-bathroom apartments and over 700 privatized existing unaccompanied living modules. Amenities will be on par with Pacific Beacon to include learning
centers, lap pools, spas, saunas, state of the art fitness centers and full furnishings (Penn, 2007). A new bar has been set for unaccompanied personnel quality of life.
VIII. CONCLUSION: FUTURE MODELS FOR MILITARY HOUSING PRIVATIZATION

Military housing privatization has allowed design innovation to successfully blossom in a previously sterile, unimaginative environment. Enhanced design team flexibility, market driven forces and broad customer engagement have been critical components in this success. Within the military context, the Army’s RCI approach has excelled at fostering creativity and allowing developers to innovate in previously unimagined ways. Due to its groundbreaking accomplishments, the RCI Program received a 2008 ULI Award for Excellence.

The RCI model holds tremendous promise for partnering with the private sector to solve other problems the military faces in managing its infrastructure. The Privatization of Army Lodging (PAL) initiative follows RCI principles in attracting hotel developer-operators to recapitalize and manage aging temporary lodging on posts. Programs for senior non-commissioned officers' quarters, single soldier housing (dormitories, apartments), retail and "lifestyle" centers, office parks, and warehouse developments are also in process. Long-term out-leasing of underutilized land and facilities is underway through a complementary program called Enhanced Use Leasing (EUL). RCI is increasingly linked to related programs for base realignments and closures (BRAC).

Inspired by the Army’s successes, the Navy, Marine Corps, and Air Force are pursuing their own privatization initiatives, tailored to their distinct cultures and systems. Other federal departments, states and cities have expressed interest in how RCI’s policies and practices can be adapted to their needs. Foreign governments are also looking at the RCI model for their military and civilian applications.

Military housing privatization design is not without its challenges. New Urbanism, while revolutionary and environmentally advantageous, doesn’t work everywhere. Certain markets will always have a preference for lower density and large yards. In the UPH market, there is still a demand for private one bedroom units from senior NCO’s which goes against current 1+1 military design parameters. Even if the privatized UPH facilities are very competitive with or
exceed the quality of product off base, the convenience of the on post location can still be offset by concerns over reduced personal privacy associated with living on post. Consequently, cutting-edge design excellence, end user engagement and private sector innovation will remain critical to the success and long term viability of the housing privatization program.

Housing privatization efforts are not limited to the military environment. For example, parallels can be drawn between the progress in UPH and university student housing. Like the military, universities are increasingly interested in getting out of the housing business due to liability, high costs and inadequate budgets/resources to manage dormitories. This is compounded by increasing student demand for higher quality and more diverse housing options.

Universities such as the University of Pennsylvania are breaking new ground in housing privatization initiatives. Similar to the military model, the university ground leases property to a private developer for a fixed period (typically 50-99 years) in exchange for having the private development partner assume the project risk for turnkey design, construction, lease-up and maintenance. During this period, the asset is technically off of the university’s balance sheet. Like the military model, there is also the potential for joint financing or leveraging debt terms as a function of the partnership. The design proposal and review processes are very similar, with close involvement of the university regarding prohibited uses, tenant ready conditions, basic design programmatic guidelines, the proposed mix of uses, street frontage, massing, landscaping, access, LEED standards, off-site improvements and the integration of retail.

However, the university model goes beyond the military model in its reach and value creation. The university has the option to profit-share with the developer based on the net rental proceeds or capital appreciation of a given property. UPenn also has an option to purchase the physical housing product for fair market value during the term of the lease period under a first right of refusal clause. This approach has generated a wide range of very high quality housing product comparable to anything on the market, including UPenn’s Domus, Left Bank, Radian and HUB apartment complexes (Sennert, 2009).
Learning from these examples, future U.S. Government legislation could liberalize current Federal Acquisition Regulations to allow the military to purchase the housing back from the developer at any point during the ground lease term if the units are desired as an asset or are required for other needs. If certain privatized military housing occupancy levels (either on or off post) are achieved, rental proceed profits could be shared between the U.S. Government and the developer which could in turn be reinvested back into further installation design and capital improvement efforts. Living unit design programs could also be advanced to create cutting-edge, trendy living products like urban lofts and live-work flex spaces the military has not yet embraced. This product might appeal to single service members and demonstrate that new, privatized military housing models are not largely geared towards families.

Housing privatization innovations are also manifest through the HOPE VI Public Housing Authority Program. Launched in 1992 under the auspices of the Department of Housing & Urban Development (HUD), the $5 billion HOPE VI program represented a dramatic turnaround in public housing policy and one of the most ambitious urban redevelopment efforts in the nation's history. Essentially, it sought to replace substandard public housing projects with re-designed mixed-income housing constructed by private developers.
The shortcomings of the original military and public housing projects were identical: bleak, utilitarian landscapes with little sense of identity, warmth, character or community. Public housing was intended to be clean and acceptable, but never a real home. Small details, like using curtains instead of closet doors and numbers instead of names for buildings, reinforced this lack of identity.

Both military privatization and Hope VI draw on the principals of New Urbanism to craft residential environments that are sensitive to the needs of the residents and the architectural character of the neighborhood, sustainable principles and pedestrian-friendly elements. Similar to the military’s program, a broad range of building types (houses, rowhomes, and small apartment buildings) have been incorporated for family living with low maintenance overhead. Mass clearance has been supplanted by historic preservation and restoration. New developments are integral parts of larger existing neighborhoods and communities. Under both programs, on-going tenant involvement in the development process is paramount. Planning now involves community participation and engagement. Private developer design solutions respond more to their immediate environment. In fact, HOPE VI neighborhoods in Baltimore and Washington, DC have received Honor Awards for Urban Design from the American Institute of Architects (Congress for New Urbanism, 2005).

Similar to the Fort Belvoir Village Commons model, The Villages at Park DuValle in Louisville, KY, is a model of comprehensive neighborhood revitalization. Boasting a broad array of housing options, the development features a “Town Center” concept with healthcare facilities, shopping, dining, laundry services and access to mass transit. Amenities also include an on-site elementary school, community center and two large parks with an Olympic-sized swimming pool.

However, the HOPE VI Program differs radically from the military model in its emphasis on income mixture. Given Hope VI’s programmatic flexibility, the Park DuValle developer, TCB,
was able to integrate a very broad socio-economic demographic and incorporate home ownership into the project. A diverse range of housing types was used to attract moderate and upper income residents to the neighborhood, further expanding housing options for lower-income residents.

Despite longstanding protocol, security concerns and a tradition of rank segregation, military leaders can learn from this model and benefit by creating both mixed rank and mixed active/retired communities, increasing diversity and enhancing project financial viability with broader market exposure. Even if this mixture cannot be achieved for functional reasons, it is important for the communities to appear egalitarian in nature and not segregated, similar to what Clark and Torti Gallas successfully achieved at Fort Belvoir. Just as HUD expanded Hope VI to integrate senior housing into planned communities, retired military personnel housing could be constructed adjacent to new installation Town Centers, providing additional consumer support for post businesses, a broader target market for the developer and enhanced
community diversity. With liberalized Federal Acquisition Regulations, a mixture of for sale and for rent units could be offered to military personnel, each synergistically reinforcing the success of the other product type.

The military needs to give further consideration to expanding the mixed-use lifestyle concept. While Fort Belvoir serves as an excellent example of retail and residential mixed use development, other uses such as theaters, office space, base services, temporary lodging and medical facilities could be integrated into consolidated, turnkey living environments, each element drawing on the positive energies of the others and creating destination-oriented, vibrant, 24-hour environments. Existing big box AAFES shopping centers with vast parking lots could be transformed into smaller scale, pedestrian oriented retail environments. These concepts have been applied successfully in the private and civilian sectors. Why can’t they be applied on a military installation?

FORT IRWIN MIXED-USE TOWN CENTER CONCEPT
These mixed-use communities must embrace historic preservation wherever possible. Instead of tearing down character-laden but functionally obsolescent buildings, innovative approaches should be implemented to bring new life to these facilities. An excellent example of this innovation is Clark’s “The Bricks” townhome project at Quantico, Virginia. Old barrack flats once slated for demolition were retrofitted into vertically-oriented townhomes complete with private direct access garages, sun decks and basements with larger floor plans than are typical for military housing. Despite these interior renovations, the original facades were restored to their original appearance and grandeur.

Tremendous strides have been made in military housing privatization in a relatively short time. With continued paradigm shifts from military leadership and sustained interest from the real estate development community, the sky is the limit. Proactive consideration needs to be given to how the U.S. Government, design professional, private developer and end user interest in the program can best be sustained. Inspirational, innovative privatization examples abound outside the military. Support for design innovation from senior base leadership is essential to setting the tone. Senior leadership must continue to emphasize the importance of preserving
the quality of living units over sheer quantity lest the sins of the past be repeated. Will military officials in positions of power pay heed? Will service members and their families be receptive to radical lifestyle changes? Given the sacrifice military families make for our country each and every day, they deserve no less from others and from themselves.
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**EXHIBIT 1A**

**Step 2 Summary Data - Sources & Uses**

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<tr>
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### Funds Available for Project Work

**Sources**
- Government Direct Loan
- Private Debt
- Private Equity
- Army Equity

**Net Cash Flow From Operations:**
- Cash Flow after Debt Service and Subordinated Expenses
- Capitalized Interest
- Other 1 & 2 (subordinated expenses)

**Net Cash Flow From Operations**
- Interest Earnings

**Total Sources** $0 $0

**Uses**
- Hard Costs (See Note 1)
- Soft Costs
- Development Fee
- Financing Costs, Start Up Costs and Reserves
- Excess Sources

**Total Uses** $0 $0

### Data as Presented in Offeror Pro Formas

**Sources**
- Government Direct Loan
- Private Debt
- Private Equity
- Army Equity
- Capitalized Interest Draws

**Cash Flow after Debt Service and Subordinated Expenses**

**Cash Flow not net of Debt Service and Cap I**
- Interest Earnings

**Total Sources** $0 $0

**Uses**
- Hard Costs
- Soft Costs
- Development Fee
- Financing Costs, Start Up Costs and Reserves
- Construction Period Interest (Debt Service)
- Capitalized Interest
- Other (1) rating agency fee, asset mgmt base fee and reimbursables
- Other (2) property and asset management incentive fees
- Excess Sources

**Total Uses** $0 $0
### EXHIBIT 1B

**Step 2 Summary Data - Finance**

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<td>Per Occupied Unit</td>
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<td>Total Sources Available for Project Work ($)</td>
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**Distribution of Available Cash (Reinvestment Account) and Cap on Equity Return**

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**OCCUPANCY**

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<td>Vacancy Rate First 12 Months / Occupied Units</td>
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<td>Stabilized Vacancy Rate / Year Achieved</td>
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**OPERATING Cost/Unit, First 12 Months, per month, Excluding Fees ($)**

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<td>Development Management (3-5%)</td>
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<td>Construction Management (3-6%)</td>
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<td>Total Fees Yrs 1-10 of Project</td>
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<td>Property/Asset Management Fee per Occupied Unit, per Month, First 12 Months</td>
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**DEVELOPER DISTRIBUTION $** (See Note 1)

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**REINVESTMENT ACCOUNT DEPOSITS thru Yr 50 (See Note 2)**

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<tr>
<td>Reinvestment Account Balance End of Yr 50 in 2009 $</td>
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### EXHIBIT 1C

**Step 2 Summary Data - Concept**

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<td><strong>DEMO/REMOVES</strong></td>
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<td>Garage / Off Street Parking - NEW homes</td>
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<tr>
<td>New Units Constructed after IDP (See Note 3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outyear Amenity Renovations in 2009 $</td>
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**OTHER DATA REGARDING PLAN**

<table>
<thead>
<tr>
<th>Category</th>
<th>ARMY BASELINE</th>
<th>DEVELOPMENT PROPOSAL</th>
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<tbody>
<tr>
<td><strong>REPAIRS</strong></td>
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<tr>
<td>Backlog Maintenance and Repair Funding $</td>
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<td></td>
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<tr>
<td>Capital Repair and Replacement per Occupied Unit, 2009 $</td>
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<td>Density Reduction</td>
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<td>Connectivity</td>
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<td>Neighborhood Concept</td>
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<td><strong>SERVICES</strong></td>
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<td>Emergency Response</td>
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<td>Urgent Response</td>
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<td>Amenities</td>
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<td>Community Centers</td>
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<td>Appropriateness of Amenities</td>
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### EXHIBIT 1D

**Step 2 Summary Data - Small Business**

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<thead>
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<th>SUBCONTRACTED WORK</th>
<th>ARMY BASELINE</th>
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<tr>
<td></td>
<td>Goal</td>
<td>$</td>
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<tr>
<td><strong>Percent of Project Subcontracted during IDP</strong></td>
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<tr>
<td><strong>Subcontracted Work Going to Small Business During IDP</strong></td>
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<td><strong>ARMY Target is 50%</strong></td>
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<table>
<thead>
<tr>
<th>SMALL BUSINESS SUBCONTRACING GOALS DURING IDP</th>
<th>ARMY BASELINE</th>
<th>DEVELOPMENT PROPOSAL</th>
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<tr>
<td></td>
<td>Goal</td>
<td>$</td>
</tr>
<tr>
<td><strong>SB</strong></td>
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<td>Info Not Provided</td>
</tr>
<tr>
<td><strong>VOSB/SDVOSB</strong></td>
<td>Info Not Provided</td>
<td>Info Not Provided</td>
</tr>
<tr>
<td><strong>VOSB</strong></td>
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<td>Info Not Provided</td>
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<tr>
<td><strong>SDVOSB</strong></td>
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<td>Info Not Provided</td>
</tr>
<tr>
<td><strong>HUBZone SB</strong></td>
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<td>Info Not Provided</td>
</tr>
<tr>
<td><strong>SDB (7.7% target)</strong></td>
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<td>Info Not Provided</td>
</tr>
<tr>
<td><strong>WOSB (7% target)</strong></td>
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<td>Info Not Provided</td>
</tr>
<tr>
<td><strong>HBCU/MI (no target)</strong></td>
<td>Info Not Provided</td>
<td>Info Not Provided</td>
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<table>
<thead>
<tr>
<th>SMALL BUSINESS SUBCONTRACING GOALS POST IDP (OUT YEARS)</th>
<th>ARMY BASELINE</th>
<th>DEVELOPMENT PROPOSAL</th>
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</thead>
<tbody>
<tr>
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<td>Goal</td>
<td>$</td>
</tr>
<tr>
<td><strong>SB</strong></td>
<td>Info Not Provided</td>
<td>Info Not Provided</td>
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<tr>
<td><strong>VOSB/SDVOSB</strong></td>
<td>Info Not Provided</td>
<td>Info Not Provided</td>
</tr>
<tr>
<td><strong>VOSB</strong></td>
<td>Info Not Provided</td>
<td>Info Not Provided</td>
</tr>
<tr>
<td><strong>SDVOSB</strong></td>
<td>Info Not Provided</td>
<td>Info Not Provided</td>
</tr>
<tr>
<td><strong>HUBZone SB</strong></td>
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<td>Info Not Provided</td>
</tr>
<tr>
<td><strong>SDB</strong></td>
<td>Info Not Provided</td>
<td>Info Not Provided</td>
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<tr>
<td><strong>WOSB</strong></td>
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<td>Info Not Provided</td>
</tr>
<tr>
<td><strong>HBCU/MI</strong></td>
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</table>

Additional Information Provided by Offeror
Endnote

Ensure

Principal Deputy Assistant Secretary of the Army

GEORGE A. PROCHO

EXHIBIT 2

the end of each calendar year.

greater success on future projects. This policy will be reviewed, updated, and re-published by

RCH program and are considered the changes addressed in this policy will contribute to even

approved in FY2006. The standards were selected to meet or exceed IHR standards.

meet the Army Installation Standards Report (ISR) green sheet standard beginning with projects

participating. It is intended that these standards will replace the requirement for our partners to

3. These new standards will be referenced in future documents that establish the RCH

condition standards that will apply to all houses throughout the remainder of our projects.

existing units that will be retained after the initial development phase of the project, and also

newly constructed homes. The new standards address requirements that may be required to

These new standards (endosure) apply to all homes on RCH installations instead of just the

2. The purpose of this memorandum is to replace the referenced construction standards.

Residential Communities Initiative (RCH) Family Housing Program—Update #1

REFERENCE: Policy of 25 November 2002; Updated Minimum Construction Standards for the

Initiative Family Housing—Update #2

SUBJECT: Construction/Remodelling and Condition Standards for Residential Communities

HIGHWAY 10516, ARLINGTON, VA 22202

INSTALLATION MANAGEMENT AGENCY (SMMA-Z), 231 JEFFERSON

600 ARMY PENTAGON, WASH DC 20310

ASSISTANT CHIEF OF STAFF FOR INSTALLATION MANAGEMENT (DAIM-2)

CHIEF OF ENGINEERS (DAEN), 2600 ARMY PENTAGON, WASH DC 20310

MEMORANDUM FOR

JAN 06 2005

SALE

WASHINGTON DC 20310-110

INSTALLATION AND ENVIRONMENT

OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY

DEPARTMENT OF THE ARMY
projects unless waived by appropriate installation authorities. If in installation guidelines, if any.

![Image](image.png)

**EXHIBIT 2**

**PAGE 74**
after January 1, 2005 and are not retroactive to previous projects.

5. These standards apply to RCI projects with CDMP co-ordination contracts awarded.

6. The use of building systems complete will not be looked upon favorably.

7. Requests, which are based on the reasons for the waiver, shall not have already been

8. Requests may be sent directly both CDMP and IDP phases of the project.

9. Components, which are based on the reasons for the waiver, shall not have already been

10. Requests shall be sent directly both CDMP and IDP phases of the project.

11. Requests shall be sent directly both CDMP and IDP phases of the project.

12. Requests shall be sent directly both CDMP and IDP phases of the project.

13. Requests shall be sent directly both CDMP and IDP phases of the project.

14. Requests shall be sent directly both CDMP and IDP phases of the project.

15. Requests shall be sent directly both CDMP and IDP phases of the project.
<table>
<thead>
<tr>
<th>Standards</th>
<th>RCL</th>
<th>Requirements</th>
<th>Condition</th>
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<tbody>
<tr>
<td>[Items listed]</td>
<td>[Items listed]</td>
<td>[Items listed]</td>
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</tr>
</tbody>
</table>

**Exhibit 2**

**Standards for RCL Projects as of 27 Dec 2023**

**Sleep and Comfort**

- [Items listed]

**Safety and Accessibility**

- [Items listed]
### Building Exterior and Foundation

<table>
<thead>
<tr>
<th>Condition</th>
<th>Status</th>
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<tbody>
<tr>
<td>Roof</td>
<td>3-0</td>
</tr>
<tr>
<td>Exterior walls</td>
<td>3-0</td>
</tr>
<tr>
<td>Windows and doors</td>
<td>3-0</td>
</tr>
</tbody>
</table>

- Properly weather-stripped and sealed
- Functional and secure

### Roof

- Properly pitched
- Free of debris and obstructions
- Drainage system working properly

### Exterior Walls

- Free of cracks and deterioration
- Paint in good condition

### Windows and Doors

- Properly maintained
- Screen doors and windows in good condition

### Foundation

- Level and stable
- No signs of settlement or movement

### Housing Elements and Standard

<table>
<thead>
<tr>
<th>Housing Elements</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insulation</td>
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<tr>
<td>Roofing materials</td>
<td>3-0</td>
</tr>
<tr>
<td>Structural framing</td>
<td>3-0</td>
</tr>
</tbody>
</table>

Additional requirements:
- Properly ventilated
- Meets all local building codes
<table>
<thead>
<tr>
<th>Condition</th>
<th>RCL Standard</th>
<th>RCL Construction</th>
</tr>
</thead>
</table>

### General Building

- Building should comply with local building codes and standards.
- Fire safety systems should be installed.
- Emergency exit and escape routes should be clearly marked.
- Fire extinguishers should be available in each room.
- Smoke detectors should be installed in each room.
- Carbon monoxide detectors should be installed in each room.
- Escape routes should be well-lit and accessible.
- Building should have emergency lighting.
- Structural integrity should be maintained.

### Housing Elements and Standards

- Housing units should have adequate space and storage.
- Each unit should have a kitchenette and a bathroom.
- Units should be equipped with a full-size refrigerator and a stove.
- Units should have access to water, electricity, and gas.
- Units should have adequate insulation.
- Units should have adequate natural light.
- Units should have adequate ventilation.
- Units should have adequate sound isolation.
- Units should have adequate privacy.

### Exhibit 2

- Exhibit 2 contains additional details on building and housing standards.
- Exhibit 2 is important for ensuring compliance with building and housing regulations.
- Exhibit 2 should be reviewed by all stakeholders involved in the project.
- Exhibit 2 should be updated periodically to reflect changes in regulations.
EXHIBIT 3: FT BLISS COMMUNITY SURVEY

Participants

<table>
<thead>
<tr>
<th>Rank</th>
<th>Participants</th>
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<tbody>
<tr>
<td>E-4</td>
<td>7</td>
</tr>
<tr>
<td>E-5</td>
<td>6</td>
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<td>E-7</td>
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</tr>
<tr>
<td>E-8</td>
<td>1</td>
</tr>
<tr>
<td>E-9</td>
<td>1</td>
</tr>
<tr>
<td>W-2</td>
<td>1</td>
</tr>
<tr>
<td>O-3</td>
<td>1</td>
</tr>
</tbody>
</table>
Choice Between more Storage Space & 2nd Garage

- More Storage: 0%
- Second Garage: 68%
- Not Sure: 32%
EXHIBIT 3: FT BLISS COMMUNITY SURVEY

Storage Space for Family Needs

- 83%: No
- 17%: Yes
- 0%: Not Sure

Yes
No
Not Sure
EXHIBIT 3: FT BLISS COMMUNITY SURVEY

Location of 2nd Bathroom

- Nearer the Master Bedroom: 60.9%
- Nearer the Children's Bedrooms: 30.4%
- Between Master & Children's Bedrooms: 8.7%
- Other: 0%
- Not Sure: 0%
EXHIBIT 3: FT BLISS COMMUNITY SURVEY

# of Bathrooms in a 3-Bedroom House

- 69.6% of 3-bedroom houses have 2 bathrooms.
- 30.4% of 3-bedroom houses have 2.5 bathrooms.

EXHIBIT 3: FT BLISS COMMUNITY SURVEY

# of Closets in a 3-Bedroom House

- 2-3: 0
- 4-5: 60.9
- 6+: 34.8
- Not Sure: 4.3
Children Sharing Bedrooms

<table>
<thead>
<tr>
<th>Response</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Never a Good Idea</td>
<td>43.5%</td>
</tr>
<tr>
<td>Ok for Younger Children</td>
<td>56.5%</td>
</tr>
<tr>
<td>Ok for Children of all ages</td>
<td>0%</td>
</tr>
<tr>
<td>Other</td>
<td>0%</td>
</tr>
<tr>
<td>Not Sure</td>
<td>0%</td>
</tr>
</tbody>
</table>
EXHIBIT 3: FT BLISS COMMUNITY SURVEY

Location of Master Bedroom

- Next to Children's: 48%
- Away from Children's: 52%
More Space in Master Bdr vs. Living Room

- Living room: 60.9%
- Master Bdr: 21.7%
- Not Sure: 17.4%
EXHIBIT 3: FT BLISS COMMUNITY SURVEY

Preferred Kitchen & Eating Area Design

- 78% for Larger kitchen, less eating space
- 22% for Smaller kitchen, more eating space
EXHIBIT 3: FT BLISS COMMUNITY SURVEY

Storage Options

- 70% Floor to Ceiling Pantry
- 30% More Cabinets
EXHIBIT 3: FT BLISS COMMUNITY SURVEY

Key Addition to Kitchen

<table>
<thead>
<tr>
<th>Feature</th>
<th>Percent</th>
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</thead>
<tbody>
<tr>
<td>Large Refrigerator</td>
<td>30</td>
</tr>
<tr>
<td>More Storage Space</td>
<td>35</td>
</tr>
<tr>
<td>Larger Dishwasher</td>
<td>0</td>
</tr>
<tr>
<td>Breakfast Nook</td>
<td>25</td>
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</table>
EXHIBIT 3: FT BLISS COMMUNITY SURVEY

# Adults to Fix in a Kitchen

- 3 - 4: 65.2
- 1 - 2: 4.3
- 5+: 26.1
- not sure: 4.3
EXHIBIT 3: FT BLISS COMMUNITY SURVEY

Adequacy of Living Space

- 26% Yes
- 74% No
Does the size of current kitchen meet family's needs?

- Yes: 30%
- No: 66%
- Not sure: 4%
EXHIBIT 3: FT BLISS COMMUNITY SURVEY

Key Furniture to Fit in a Living Room

- 3-person couch: 17.4
- Coffee table: 4.3
- Entertainment Ctr: 26.1
- Not sure: 4.3
EXHIBIT 3: FT BLISS COMMUNITY SURVEY

# of Adults in a Living Room

- 3 - 4: 4%
- 5+: 26%
- 1 - 2: 70%
Adequacy of Current Living Room Size

- 61% no
- 35% yes
- 4% not sure
EXHIBIT 3: FT BLISS COMMUNITY SURVEY

Type of House Most Preferred

- Multi-family, 43%
- Single-Family, 47.80%
- Not sure, 8.70%
EXHIBIT 3: FT BLISS COMMUNITY SURVEY

Floor Plan Preference

- 83% for Floor Plan A
- 17% for Floor Plan B

Diagram showing floor plans A and B.
EXHIBIT 4: FT BELVOIR K FLOOR PLAN  
Source: Torti Gallas Architects
EXHIBIT 4: FT BELVOIR D UNIT ELEVATION

Source: Torti Gallas Architects
EXHIBIT 4: FT BELVOIR R UNIT ELEVATION

Source: Torti Gallas Architects
EXHIBIT 4: FT BELVOIR R UNIT FLOOR PLAN Source: Torti Gallas Architects
EXHIBIT 5: CENTRAL COURTYARD

FIRE PIT

BARBEQUE AREA
EXHIBIT 5: AMENITIES

FITNESS CENTER

GAME ROOM
EXHIBIT 5: AMENITIES

POOL & SPA

AMPHITHEATER
EXHIBIT 5: AMENITIES

ROOFTOP DECK

ROOFTOP DECK
EXHIBIT 5: AMENITIES

INTERNET CENTER

CAFE
EXHIBIT 5: LIVING UNIT

BEDROOM

LIVING ROOM
EXHIBIT 5: EXTERIOR

MAIN COMPLEX

TOWER 3
Design and Construction

Guidelines and Standards for Planning

APPENDIX S

EXHIBIT 6
For the purposes of this reference, "hazard" and "environmental exposure" are defined as the occurrence of substances, the concentration of which, or the presence of which, may be harmful to the health or safety of the person exposed to such substances. The term "environmental exposure" shall include any exposure to substances that may cause illness, injury, or other adverse health effects.

The LFP (Step 2): The planning and design process for the project will follow the procedures outlined in the LFP.

The LFP (Step 3): The planning and design process for the project will follow the procedures outlined in the LFP.

The LFP (Step 4): The planning and design process for the project will follow the procedures outlined in the LFP.

The LFP (Step 5): The planning and design process for the project will follow the procedures outlined in the LFP.

The LFP (Step 6): The planning and design process for the project will follow the procedures outlined in the LFP.

The LFP (Step 7): The planning and design process for the project will follow the procedures outlined in the LFP.

The LFP (Step 8): The planning and design process for the project will follow the procedures outlined in the LFP.

The LFP (Step 9): The planning and design process for the project will follow the procedures outlined in the LFP.

The LFP (Step 10): The planning and design process for the project will follow the procedures outlined in the LFP.

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The LFP (Step 38): The planning and design process for the project will follow the procedures outlined in the LFP.

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The LFP (Step 41): The planning and design process for the project will follow the procedures outlined in the LFP.

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The LFP (Step 52): The planning and design process for the project will follow the procedures outlined in the LFP.

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The LFP (Step 54): The planning and design process for the project will follow the procedures outlined in the LFP.

The LFP (Step 55): The planning and design process for the project will follow the procedures outlined in the LFP.

The LFP (Step 56): The planning and design process for the project will follow the procedures outlined in the LFP.

The LFP (Step 57): The planning and design process for the project will follow the procedures outlined in the LFP.

The LFP (Step 58): The planning and design process for the project will follow the procedures outlined in the LFP.

The LFP (Step 59): The planning and design process for the project will follow the procedures outlined in the LFP.

The LFP (Step 60): The planning and design process for the project will follow the procedures outlined in the LFP.
and should discourage through traffic.

C. Fire System. The fire system should provide continuous and safe access and

Exhibit 6 - Solution N68711-04-RP-04031
5. Lithium Design Standards. The following standards shall be incorporated into the project:

- Utility Equipment. Locate all utility equipment, transformers, utility meters and service entrance conductors. Utility equipment shall be accessible.

4. Other Equipment. The following equipment shall be accessible:

- Overhead Service Entrance. All service entrance equipment shall be accessible at the street level.

3. Postal Service and Installation.

- Mail Boxes. The mail boxes shall be located in accordance with the Service Entrance Requirements. Mail boxes shall be secured against tampering and vandalism.

2. Building Access.

- Property Resources. The property resources shall be accessible.

1. Parking.

- Parking. Parking facilities shall be provided.

- Parking Requirements. The parking requirements shall be determined by the applicable zoning regulations.

- Parking Spaces. The following parking requirements shall be met:

  - Standard parking spaces shall be provided at a rate of 1.5 spaces for each apartment.

  - Handicapped parking spaces shall be provided at a rate of 1 space for each apartment.
Exhibit 6
Appendix 5 – Solution N68110-RP-0403
The building design minimum requirements apply to all units unless specified otherwise:

Residential mid- to high-rise construction:

Electrical (interior) should be a minimum comply with local code applicable to

Uplift, San Diego area residential mid- to high-rise construction

Architectural Features: Architectural Features should be provided commensurate with a

Military members' storage requirements often exceed typical private sector needs.

Storage should be provided commensurate with a typical San Diego area

Appendix 5 - Solicitation N68711-04-RP-04031

EXHIBIT 6
EXHIBIT 7: PACIFIC BEACON CORNER UNIT

Source: Clark LLC

Unit 2C-9
Unit 2C-13 (Sim)