

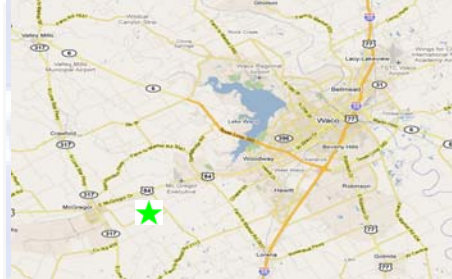
AQUILA



Existing Retirement Village



Map of Texas



Map of the Waco Metropolitan Area

The military retirees that will make up Aquila Villa will include young and older retirees and so the team tried to incorporate as many different housing options and amenities to appeal to both age groups. The village will include a community center which will allow residents to gather and enjoy a range of recreational facilities such as an indoor and outdoor pool, gym, and fitness center. Residents will have access to a computer room, art studio, and shuffle board and pool court. Also located in the heart of Aquila Villa is a daycare center and elementary School as well as an auditorium which residents can use upon reservation. The Village will connect people to sports through outdoor fields for soccer, baseball and tennis and access to lakes and ponds. A health clinic and nondenominational chapel will also be part of the village. The residential area will be buffered by a commercial area adjacent to the highway.

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Location

The team researched various websites including usnews.com and USAA-military.com for the top cities for military retirees and found that Waco, Texas ranked first amongst the top ten cities in this category. This is because Waco offers affordable housing, low unemployment, favorable climate, lakes, and proximity to a military base, commissary and VA hospital, and the well respected Baylor University. Given these factors, the team chose Waco as the location for this project.

Site Selection:

The team reviewed regional planning maps of Waco to identify potential plots of land, both urban and rural, to house the village. The review included looking at a range of data such as the existence of flood zones, transit availability, school and airport proximity, etc. The team evaluated four sites, ranging in size from 160-210 acres, and selected a 210 acre site, situated in a rural area, near Highway 84 and Cotton Belt Parkway. The site was selected for the following reasons: the site cost \$20,000 less per acre than the urban sites allowing for more money to go towards the project. In addition, the site is in close proximity to parks and recreation, a hospital, airport, and average level of transit availability. Furthermore, the area is planned for further development and so the population is expected to increase which will mean more services will be provided to residents.

USGBC LEED for Neighborhood Development

Among the many benefits provided by Aquila Villa the team designed this community in such a way that it got certified in a gold standard by LEED Neighborhood Development. LEED Neighborhood Development integrates principles of smart growth, new urbanism, and green building into a national rating system that recognizes development project that successfully protect and enhance the overall health, natural environment and quality of life in our community. Aquila Villa got 73 points from areas such as smart location, walkable streets and certified green buildings among others.

Residential Housing Types

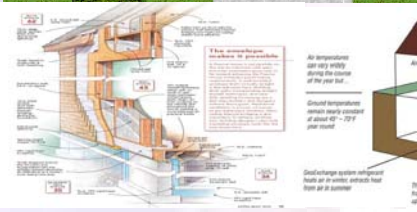
Aquila Villa consists of approximately 650 dwelling units and is divided into three sections. The three sections are independent living, assisted living and skilled nursing. To meet the needs of all retirees, we provided a diverse range of housing options that include single family homes, multifamily residences, and communal living/skilled nursing housing.

The team researched the standard levels of care for most retirement facilities. The levels are defined as follows:

- Independent Living - are for residents who do not require any care.
- Assisted Living - provides residents with daily activities like eating, dressing and taking medication.
- Skilled Nursing - provides residents with the highest level of care.

Taking into account that military retirees are retiring at younger ages (as young as 38 years of age according to Military.com) we have provided **single family homes** and **loft-style apartments** for our Independent Living and Assisted Living Residents. The single family home will include two bedrooms, two bathrooms, dining area, kitchen, living room, optional porch and a one car garage. The multifamily apartments will have one bed and bath, a living room, dining room, and kitchen. All of these dwelling units conform with the principles of Universal Design and are adaptable to conform to comply with the Americans with Disabilities Act guidelines.

For our Skilled Nursing option we provided for **Communal Living Residences**. These residences will be designed as four communal living, small scale, and non-institutional settings. Each Communal Living Unit consists of four resident units that include a living room, bedroom and bathroom each. An optional den/second bedroom. These units are based on the concept of Aging-in-Place. The idea behind Aging-in-Place is to create more residential style of living as opposed to the traditional institutional "hospital" setting. The homes will be surrounded by gardens and nature, which according to the AIA report on Senior Housing is one of the most requested features. A large lounge area and activity/meeting space is centrally located and shared by all for units. All meals are provided by the exceptionally trained gourmet staff. Cooking is done by staff in an open kitchen, residents dine in intimate settings, and care is focused on the whole person, not just their illness.



Passive House Design

Geothermal Heating & Cooling



Renewable Energy
Solar Panels
Wind Turbines

Architecture
Residential
Commercial
Institutional

Landscape Architecture
Native Trees
Native Plants

Infrastructure
Streets & Bridges
BMP's

Site Address
31001-31221 US Route 84, McGregor, Texas 76657

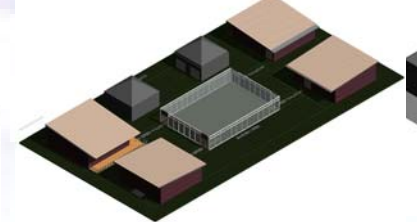


Structural Insulated Panel (SIP's)



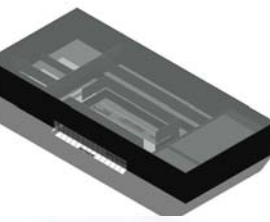
Single Family Home

(Independent Living and Assisted Living)
60 x 100 Lot / 1,600 1,984 SF
Two Bedroom Two Bath
One Car Garage
Optional Sunroom



Communal Living

(Skilled Nursing / Aging-in-Place)
180 x 100 Lot / 600 SF Unit
Four Units w/a Kitchen & Dining Space
One Bedroom One Bath
One Car Garage
Optional Porch/Den



Multifamily Housing

Independent Living and Assisted Living
Loft-style Apartments
180 x 100 Lot / 1000 SF units
One & Two Bedroom One Bath
One Parking Space



In the design for our village, we incorporated aspects from traditional urban neighborhood, rural neighborhood and sustainable neighborhood models. We wanted to connect roads wherever we can to be able to provide for walk-able distances within the community. At the same time, we encourage biking while limiting the need for automobile usage. We have roads that curve more along green edges so people can enjoy the beautiful scenery while turning. One aspect of our site that was visible from Google Streetview is the vast flat and open landscape. So we utilized landscaping features to block the horizon and create a more intimate neighborhood feel. Plots of land would be reserved for civic buildings, residential buildings, and commercial buildings. The retail stores will be located along the highway and will act as a buffer reducing noise. One major issue we had was the flood zone where a flood occurs every one hundred years. We dealt with this issue by building areas to contain storm water such as BMP's, drainage basins, ponds, parks and natural spaces which will absorb flood waters when it occurs. This helps to maintain the natural eco-environment.

Active Design
Exterior Aspect
We followed the Active Design Guidelines to foster an active lifestyle. The site includes a plaza space with trees, a fountain, and movable as well as fixed seating. There are bike paths and walk ways to promote exercise and enjoyment of the surroundings. Trees and landscaping will be used for recreation and shading and parks and other sidewalk infrastructures will serve as buffers separating pedestrians from moving vehicles.
Interior Aspect
To further promote walking, stairs will be made appealing by using nature in indoor areas and inviting colors that attract use.

Universal Design
The Universal Design Concept in our Military Retirement Village provides accessibility to both the able bodied and the physically disabled. Our village contains amazing features that a desirable home needs, that will give our veterans a sense of belonging and a place to call home. We want nothing but the best for our heroic veterans so we incorporated the latest in universal design concepts including:
Radiant-heated bathroom floors.
On demand water heater
Dual flush toilets
Low-flow shower heads
Water re-circulator
Folding patio-door
Central vacuum
First floor master bedroom
Built-in Trash/Recycling stations
Solar hot water heating
Small wind turbine
Large open shower
Second sinks in kitchen

Americans with Disabilities Act (ADA)
The ADA covers a wide range of disability, from physical conditions affecting mobility, stamina, sight, hearing, and speech to conditions such as emotional illness and learning disorders. All facilities comply with ADA.

Job Opportunities
Aquila Village is not just housing for military veterans, but it provides job opportunities as well. Our economy is in a recession and what are we trying to counter act its effects. Some of our military jobs that our site provides are network system manager, technician, engineering manager, plant manager, traffic manager, security manager, human resource manager, contracts administrator and so much more which are common jobs for military veterans according to Money Magazine and CNN.com. Our site is located near the town of McGregor which also provides jobs for our retired military veterans, due to the fact that it has a heavy industrial area according to the McGregor official zoning map.

VILLA



Historical Precedents



Conceptual Sketch



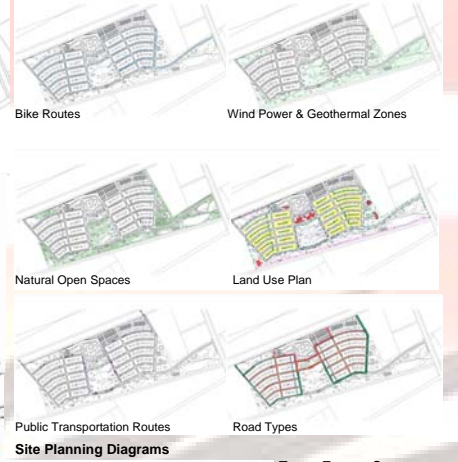
Conceptual Photomontage

Design Concept: The Eagle

For this project of designing a military retirement village, we wanted to create a comfortable, sustainable and attractive place for the veterans who have fought hard for our nation. The team looked at symbols that represented all branches of the military as our conceptual model and our site plan layout. Each part of the eagle represents a section of the design. The head of the eagle will be used for commercial activity, the wings for residential space, the torso for community space, and the belly for recreation space.

A - TOTAL AREA 9,304,802 SF
B - RESIDENTIAL LOTS 1,860,383 SF
C - APARTMENTS 199,564 SF
D - SENIOR HOUSING 401,316 SF
E - COMMERCIAL/RETAIL 179,639 SF
F - PUBLIC/COMMUNITY 105,839 SF
G - PARKING 583,004 SF
H - ROAD 712,788 SF
I - ROAD - SECONDARY 733,343 SF
J - SOLAR PANELS 15 EA

TOTAL OCCUPIED AREA 4,775,876 SF
TOTAL OPEN AREA 4,528,926 SF



Site Planning Diagrams

Community Gardens
The purpose of organic farming is to maintain and improve the productivity of the land and to have a naturally balanced ecosystem. The soil is nurtured with composts, cover crops, rock minerals, and natural fertilizers. In the process, synthetic chemical fertilizers and pesticides are not allowed. We have provided for organic farming in our community gardens.

Community Center
To make the community more attractive to residents, we have a community center which will be a gathering place. The center lies in the heart of the Eagle and includes an indoor and outdoor pool, Basketball Court, two-story Fitness Center, Computer Room, Art Studio, Shuffleboard, Auditorium, Game Room and Bowling Alley.

General Commercial Area
The commercial area was located along Route 84. This commercial area accommodates the latest in shopping providing for the residents of Aquila Villa and the neighboring town of McGregor. Located along the highway, the store would receive the most exposure to attract customers. The commercial area would include an open air plaza with covered arcade style walkways and solar panel covered parking.

Childcare Center
A childcare center was designed so parents can work, shop in our commercial center or exercise and relax in our community center. They are all within close proximity yet allow a sense of personal space for kids and parents. The childcare center was designed with a curved shape with a purpose of wanting to create an organic feel to the building.

Chapel
We created a non-denominational chapel so people can worship and to provide for a place for meditation.

Medical/Therapy Clinic
We incorporated a health clinic into our community to assist those retirees who need to live with physical and mental challenges.

Texas Energy Sources
Texas has been known for its vast energy resources. Oil, natural gas, coal and uranium are just some of Texas' natural energy. Texas has relied on these energies to gain an income to fund its state. But Texas is consuming more energy than it has at a rate which could wipe out all of its natural energy within 364 years (except for coal which has 7000 years left at its current consumption rate) according to the 1994 consumption rate. Texas' population in only 7% of the U.S. population, yet it is consuming about 12% of the nation's energy. Uranium, coal, natural gas and petroleum make up 99% of Texas' used fuels, while renewable energy is .7% according to the U.S. Department of Energy. This contradicts Texas' full potential. Texas has more renewable energy than any other state according to U.N. Study. Our village addresses these issues. We are using renewable energy sources such as wind, solar, geothermal and hydro electric to power our facilities. All of energy is produced on our site except for hydro electric which is produced from Lake Waco. With our site we hope to set an example for the rest to Texas.



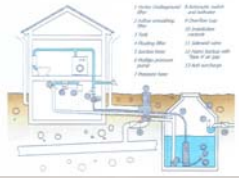
Wind Turbines

Trellis Covered Walkways

Community Gardens

Arcade Covered Shopping

Bicycle Street Furniture



Gray Water System



Cross section through features of residential streets and major avenue



Best Management Practice's (BMP's)

Best Management Practices
High performance infrastructure best management practices are based on the principle of sustainable design. One of the biggest issues we had with the village was that we had a flood zone where a flood will occur every 100 year. So our site design include the installation of BMP's to control storm water.

Construction
1. **SIP's (Structural Insulated Panels)**
Structural insulated panels (SIP's) are high performance building panels used in floors, walls, and roofs for residential and light commercial buildings.

2. **Geothermal**
Geothermal heat pumps can be used at the village to provide an alternate, renewable heating/cooling source for the planned residences and facilities. The geothermal units would be installed below ground and circulate water through a series of deep wells to heat and/or cool the temperature of buildings. There is a high initial cost for the installation, but over several years the system will provide a renewable energy savings for the residence to heat and cool their homes. (If needed you can download a schematic of geothermal from the internet)

3. **Solar management**
Each of the structures in the retirement village will use solar energy to supplement the energy requirements from the utility grid. Waco has a higher than average number of sunny days than the nation and the use of solar energy is a reasonable option for this community. It will provide a renewable, passive, energy option for all of the buildings.

4. **Wind Power**
Individual wind turbines will be installed to provide energy to street lighting and slightly larger units may be installed for the school, retail facilities, church and community center. The buildings would still receive their primary energy source from the public utility grid and then energy would be supplemented by the wind turbines when available. Waco has a higher than average wind velocity and frequency than the nation, which makes wind energy a natural option.

5. **Fire Protection**
The retirement village is located in Waco adjacent to Lake Waco. In this area of Texas the primary source of energy for residents is hydroelectric energy from the lake making the area less dependent on fossil fuels. This provides the residents with a cost effective and renewable energy source from the Lake that other areas of Texas do not have.

Sustainable Design Features

Passive House Design

Our houses include the latest in Passive design which promote the use of hermetically sealed building envelopes through the use of substantial insulation and high efficiency windows. The exterior walls are approximately 12-18 inches thick to prevent air infiltration. The building envelop acts as a "thermos."

Wind Turbines

The 2-kW vertical-axis wind generators provides smooth power and torque delivery across a broad range of wind speeds and withstands difficult physical environments. The generator produces usable power at 11.1 mph with optimum wind speed of 15.6mph. The modular units are scalable; this unit is 10 ft, 10m tall with a 4ft by 8.66 ft rotor dimension.

Solar Electric
The 5.4 kW PV system, consisting of 24 solar panels, is expected to generate an annual output of 4119 kWh per year. The system also includes an inverter.

Green Roof
The vegetated roof consist of 2ft by 4ft trays filled with growing medium and a selection of sedums chosen especially for the location and condition. Rainwater harvesting uses a 3000 gallon cistern located under the garage for irrigation of the sites and the green roof.

ACE Mentor Group 8 - New York

Veterans Retirement Village

Waco	Date:	8/31/11
Texas	Date:	8/31/11

Schematic budget Summary

Code	Description	Total Qty (SF)	Total Budget Value per SF	Total Budget Value	PERCENT OF TOTAL
1	Single Housing Units (Total Lot Size)	1,860,383	\$60	\$111,622,980	41.03%
2	Apartments	199,564	\$90	\$17,960,760	6.60%
3	Senior Housing Buildings	401,316	\$80	\$32,105,280	11.92%
4	Commercial / Retail	179,639	\$90	\$16,167,510	5.94%
5	Public / Community	105,839	\$110	\$11,642,290	4.28%
6	Parking	583,004	\$6	\$3,498,024	1.29%
7	Main Road	712,788	\$8	\$5,702,304	2.10%
8	Secondary Road	733,343	\$7	\$5,133,401	1.89%
9	Specialty Items (Solar panels)	Allow	\$0.05	\$500,000	0.18%
10	Specialty Items (Infrastructure / Utilities)	9,304,802	\$3	\$27,914,406	10.26%
11	Landscape / Parkland Area	4,528,926	\$2	\$6,793,389	2.50%
Subtotal			\$25.69	\$229,040,344	87.86%
12	Land Purchase Price		\$0.21	\$2,000,000	0.74%
13	Development Costs (5%)		\$1.30	\$12,052,017	4.43%
14	Contingency (7.5%)		\$2.04	\$18,981,927	6.98%
Total Schematic Budget			\$29	\$272,074,288	100%



Native Species of Trees

