



New Health Sciences Building

Central Carolina Community College
Chatham County, North Carolina





AERIAL VIEW





AERIAL VIEW





OPTION "A"
PRELIMINARY LAND PLAN

SD WEST

BRIAR CHAPEL®
by
Newland COMMUNITIES

MCKIM-CREED
3-1-2016

SD WEST MASTER PLAN





4.24 AC

CCCC Health Science Building
(40,000 SF-Two Story)

**CENTRAL CAROLINA C.C.
HEALTH SCIENCE BUILDING**
30,000 SF (EXTERIOR WALL 7'5" X 230')
10,000 SF (ONE FLOOR)
PARKING: REQ. 140 (170 Classroom)
PARKING PROVIDED: 140
PARCEL SIZE: 4.24 AC

LIBRARY
10,000 SF (EXTERIOR WALL 7'5" X 135')
ONE FLOOR
PARKING: REQ. 34 (1,000 SF)
PARKING PROVIDED: 40

LIBRARY
(10,000 SF-Single Story)

PARKING

Required:

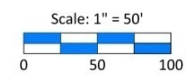
CCCC: 7 parking spaces per classroom.
20 Classrooms/7 = 140 spaces.

Library: 1 space per 300 Sq. Ft. of gross floor area.
10,000 Sq. Ft./300 Sq. Ft. = 34 spaces

Total Required: 174 spaces.

Provided:

Total provided for CCCC and 10k Sq. Ft. Library: 190 spaces



SITE PLAN WITH LIBRARY ON ORIGINAL LOT SIZE
4.24 ACRES





5.3 AC

CCCC Health Science Building
(40,000 SF-Two Story)

LIBRARY
(10,000 SF-Single Story)

PARKING

Required:

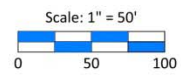
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Provided:

Total provided for CCC and 10k Sq. Ft. Library: 190 spaces



SITE PLAN WITH LIBRARY & GEOTHERMAL FIELDS
5.3 ACRES





HARNETT HEALTH SCIENCES - BASIS OF DESIGN



Programmed Spaces

Administration	3,140 sf
Common Areas	1,800 sf
Support Areas	5,400 sf
Classrooms	7,400 sf
<u>Lab Areas</u>	<u>12,550 sf</u>
Total Gross Area	<u>±40,000 sf</u>

HVAC System: Rooftop DX	
Classroom Building	\$9,671,675
Site Development	\$673,188
Land Purchase (4.24 acres)	\$1,060,000

Total Estimated Construction Cost	\$11,404,863
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HVAC System: 4-Pipe Boiler & Chiller	
Classroom Building	\$9,974,075
Site Development	\$673,188
Land Purchase (4.24 acres)	\$1,060,000

Total Estimated Construction Cost	\$11,707,263
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HVAC System: Geothermal	
Classroom Building	\$10,336,219
Site Development	\$700,000
Land Purchase (5.3 acres)	\$1,325,000

Total Estimated Construction Cost	\$12,361,219
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CONSTRUCTION BUDGET ESTIMATE COMPARISON



GROSS PROJECT BUDGET ESTIMATES:

- ROOFTOP DX \$14,030,888
- 4-PIPE SYSTEM \$14,398,607
- GEOTHERMAL \$15,193,817

ESTIMATES INCLUDE:

- OWNERS SOFT COSTS
- CONTINGENCIES
- DESIGN FEES
- INFLATION FACTOR

* ESTIMATES ASSUME NO SPRINKLER SYSTEM

GROSS PROJECT BUDGET ESTIMATE COMPARISON



	<u>Estimated Construction Cost*</u>	<u>Estimated Annual Operating Cost**</u>
1 – Roof Top VAV	\$1,808,000	\$19,388
2 – Hot Water Chilled Water	\$2,108,000	\$20,138
<u>3 – Water Source Heat Pump</u>	<u>\$2,362,000</u>	<u>\$15,568</u>
Difference between 2 and 3	(\$254,000)	\$4,570

*Basic building Mechanical and Electrical Costs

**HVAC Systems Operating Costs Only

ESTIMATED PAYBACK PERIOD:

50+ yrs.

HVAC COST ANALYSIS



Anticipated Project Schedule

- Schematic Design 2 months
- SCO/AHJ/Owner Review 1 month
- Design Development 4 months
- SCO/AHJ/Owner Review 1 month
- Construction Documents 6 months
- SCO/AHJ/Owner Review 2 months
- Bidding/Contract Negotiation 2 months

- **Start Construction** **Spring / Summer 2018**

- Construction 12 months

Total Project Time

30 months

PROPOSED SCHEDULE





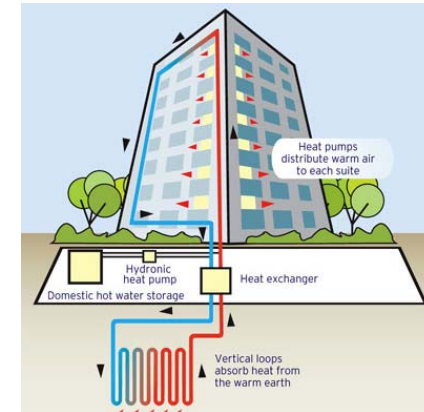
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PROS

- A sustainable design technology
 - Little or no burning of fossil fuels for heating
 - Less overall energy consumption
- More efficient than a 4-pipe system
- Typically smaller with numerous configuration possibilities
- No loud outdoor equipment required
- Less refrigerant needed as compared to a central chiller system
- Minimal or no piping insulation required for loop piping



CONS

- The initial cost is higher
 - 10% - 15% higher than a 4 pipe system
- Requires additional land for well installation
- Remote well fields increase pumping costs and decrease efficiency
- More maintenance due to supply fans and refrigeration compressors
- Shorter life expectancy than central station air handlers
- Zoning is more difficult compared to a VAV system
- Typically require dedicated outside air systems separate from the heat pump systems
- No easy method for use of air-side economizers

