

**HDC-23-8**

Historic District

Certificate of

Appropriateness

Status: Active

Submitted On: 4/5/2023

Primary Location

304 E FRANKLIN ST

CHAPEL HILL, NC 27514

Applicant

Alan Rimer

919-270-8835

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3000 Galloway Ridge

A-004`

Pittsboro, NC 27312

Certificate of Appropriateness Form

Historic District

Franklin-Rosemary

Application Type Check all that apply

Minor Work is exterior work that does not involve any substantial alterations, and do not involve additions or removals that could impair the integrity of the property and/or the district as a whole. See Chapel Hill Historic Districts Design Principles & Standards ("Principles & Standards") (p. 9-11) for a list of minor works. Please contact Town Staff to confirm if you believe the project is classified as "minor work."

Historic District Commission Review includes all exterior changes to structures and features other than minor works

Minor Work as defined by Design Standards☐**Historic District Commission Review**☒**Request for Review After Previous Denial**☐**After-the-Fact COA Application**☐

Written Description

Describe clearly and in detail the physical changes you are proposing to make. Identify the materials to be used (siding, windows, trim, roofing, pavements, decking, fencing, light fixtures, etc.), specify their dimensions, and provide names of manufacturers, model numbers, and specifications where applicable. Consider including additional materials to illustrate your project, such as: - Photos and specifications for proposed exterior materials such as siding, trim, roof, foundation materials, windows, etc. - Renderings of the proposed work - Spec sheets

Installation of Solar panels on roof surfaces not visible from East Franklin St. or the Planetarium parking lot. See the subsequent uploaded documents (Answers 1,2)

Applicable HDC Design Standards

| Page / Standard # | Topic |
|---|---------------------|
| 107-109 | 3. Exterior Changes |
| Brief Description of the Applicable Aspects of Your Proposal | |
| Installation of Solar panels | |

Property Owner Information

Property Owner Name

Chapel of the Cross

Property Owner Signature

✓ Elizabeth Marie Melchionna
(Rector)
Apr 5, 2023

Chapel of the Cross Installation of Solar panels

COA and associated material in support of application.

1. History, content and Character information

Please see the power point presentation below that provides a history of the church, as presented to the Town Council in the SUP application for the construction of the Parish Hall including a picture of the plaque commemorating the addition of Chapel of the Cross to the National Register of Historic Places in 1972.



History of Chapel of the Cross

Extracted from the SUP Presentation to Chapel Hill Town Council
Chapel of the Cross Site on 11-14-2011

2. Photographs

Please see the attached pictorial narrative of the project. This narrative outlines the project pictorially and notes that no solar panels will be evident from Franklin St.

The following is a pictorial exploration of the installation of solar panels on a section of the roof of the Chapel of the Cross. The purpose of this presentation is to demonstrate that none of the panels will be visible from Franklin St. and thus should have no visual impact on the historical property.

3. Site Plan (Not applicable but one is illustrated in the pictorial discussion referenced in 2.
4. Elevation Drawings (Not applicable)
5. Not applicable.



THE CHAPEL OF THE CROSS

An Episcopal Parish in Chapel Hill, NC

304 East Franklin St. Chapel Hill, NC 27514 919-929-2193

History of Chapel of the Cross

Extracted from the SUP Presentation to Chapel Hill Town Council
Chapel of the Cross Site on 11-14-2011



Objectives of Presentation

- History of the Church & Project
 - Relevant to this COA Application
- Current Conditions



History of the Church & Project



Church History

Part of the Chapel Hill
downtown for over 165 years.

(Now 178 years)

- 1848 – Completion of the original chapel
- 1925 – Completion of Main Church
- 1916-1991 – Other structures constructed at various times
- 2014 - Completion of the new Parish Hall



Project History

- **2001** – Parish undertakes a facility review that lasts for over two years looking at space needs
- **2007** – Master Plan Steering Committee formed to work with Parish architects – Hartman-Cox.
- **2008** – Capital Campaign launched to raise funds to build new parish facilities
- **11/2008** – Historic District review
- **1/2009** – Town Council Concept Plan review
- **1/2011** – Formal application for rezoning and Special Use Permit submitted



Church Growth Strategy

- Stay downtown rather than build a “greenfields” church because of:
 - Historic nature of the property
 - Long term relationship with the downtown area
 - Close ties with UNC
- Retain the Chapel and Church (Sanctuary)
- Replace all other facilities in two phases as funds become available
 - Such replacement is necessary as the original facilities are not suitable to meet current standards and future functional needs.
 - Two phases because of funding issues due to downturn in economy



Franklin Street Entrance



East Elevation



South and East Elevation



South Elevation



West Elevation





THE CHAPEL OF THE CROSS

PARISH ORGANIZED MAY 13, 1842
UNDER THE DIRECTION OF
THE REVEREND WILLIAM MERCER GREEN.
CONSTRUCTION OF THE CHAPEL,
DESIGNED BY THOMAS USTICK WALTER
BEGUN 1843, COMPLETED IN 1848.
CONSECRATED OCTOBER 19, 1848.
PRESENT CHANCEL CREATED FROM
ORIGINAL VESTRY ROOM AND
PRESENT VESTRY ADDED IN 1891.
ENTERED ON THE NATIONAL REGISTER
OF HISTORIC PLACES IN 1972.

NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM

(Continuation Sheet)

| | |
|-------------------------|------|
| STATE North Carolina | |
| COUNTY Orange | |
| FOR NPS USE ONLY | |
| ENTRY NUMBER | DATE |
| | |

(Number all entries)

7.

page 8

Street, which runs north of and parallel to Franklin. Several styles of architecture are represented--typical nineteenth century gable-roof houses, Greek and Gothic Revival, and the "Colonial Revival" and shingle-style popular in the early twentieth century--but most of the houses are frame and feature wide verandahs, and all blend pleasantly into a harmonious whole

27. The Chapel of the Cross. This small Episcopal chapel, which will be nominated separately, is one of the best examples of the Early Gothic Revival in North Carolina. The main front, facing Franklin Street, features a central crenellated tower entered through a four-centered arch beneath a wooden crocketed ogee molding. The tower is flanked by large windows with two trefoil-headed panels united by a quatrefoil in the point of the arch. The four-bay sides are marked by buttresses between windows like those of the front. The large addition and a parish house were constructed in harmonizing styles. The buildings have an idyllic setting among the magnolia and crepe myrtle trees.

28. The President's House. The President's House at the southeast corner of Franklin and Raleigh streets is closely related to the buildings of the Georgian and Neo-Classic Revivals, but it was probably considered to be "Colonial Revival" at the time of its erection about the turn of the last century. The two-story house with hip roof features a well-executed Corinthian portico with pairs of columns on either side. Beneath the portico runs a one-story verandah supported by Ionic columns which carries around three sides of the house.

29. The Spencer House. The Spencer House east of the President's House is a rambling one-story frame structure with a verandah along the front and part of one side. The picturesque quality of the verandah is heightened by the coupling of the columns and the use of pedimented projections at each of two entrances. These pediments, together with several decorative gables, have given the house the name, "The House of the Seven Gables."

30. Dr. Caldwell's Meridian. To the rear of the Spencer House is a lane leading to what is known as "Dr. Caldwell's Meridian," situated to the rear of the president's house. Here is a bower sheltering two square brick pillars about seven feet high, fourteen inches square, and four feet apart. A nearby tablet bears the inscription, "Meridian pillars built by Joseph Caldwell, President of the University of North Carolina, 1804-1812, 1816-1835, shortly after his return from a trip to England in 1824-1825 for the procurement of Astronomical Instruments and Books."

304 East Franklin Street

CHAPEL OF THE CROSS

1846, 1890, 1917, 1925. 1960s, 2014

The Chapel of the Cross was constructed in three distinct building periods, utilizing different styles and materials, and, as such, reads as three distinct, though connected buildings. The original Chapel of the Cross was completed in 1846 in the Gothic Revival style. The front-gabled church three bays wide and four bays deep and is of load-bearing red brick construction, covered with parging. There is a projecting watertable encircling the building and coped battlements conceal the gabled roof on the side elevations. Leaded-glass lancet windows, installed in 1917, have two trefoil-headed panels united by a quatrefoil in the point of the arch and are located on the façade and side elevations. Windows on the side elevations are separated by stepped buttresses with sloped caps. Windows on the façade flank a three-stage crenelated tower centered on the façade with brick coping outlining the crenellations and a double-brick string course beneath the crenellations. Double-leaf arched doors on the first-floor of the tower, each contain a long panel headed by a round trifoliated arch, and are recessed within a shallow paneled Tudor arch. Above the arch is a crocketed wood ogee hoodmold. Above the entrance is a large lancet window, matching the others, with a projecting hoodmold. At the top of the tower, each elevation has paired rectangular louvered vents with square brick hoodmold. Polygonal turrets at each corner of the tower are buttressed at the base and terminate in blunt octagonal projections. The rear elevation of the building was obscured by a gabled addition to the building, the projected beyond the right (west) elevation, that appears on the 1925 Sanborn maps and was likely built concurrent with the larger sanctuary to the east.

By 1915, likely in anticipation of the 1925 sanctuary, a two-story, front-gabled hyphen at the left rear (southeast) corner of the chapel was constructed and connected to a two-story, side-gabled addition that extended east and connected to the rear of the 1925 sanctuary. While the rear of the addition has been obscured by later additions, but the front is visible from the cloister. The hyphen and side-gabled wing are of red brick construction with a slate roof, metal-framed casement windows, and one-story buttresses with concrete caps. There is a brick chimney at the intersection of the hyphen and wing and a one-story, flat-roofed addition was constructed after 1960 and extends the full width of the wing along the north elevation facing the cloister. The one-story wing has metal windows with concrete sill and lintels and an arched, batten door centered on the north elevation is sheltered by a flared, copper hipped roof.

The cloister, bordered by the 1846 chapel on the west, the 1915 and 1960s addition on the south, the 1925 sanctuary on the east, and a 1925 covered walkway on the north has an open grassy space with brick walks, several wood benches, foundation plantings along its south and west sides, and a large tree in the southeast corner. The covered walkway that spans the north side of the cloister connects the 1846 chapel and the 1925 sanctuary. The side-gabled structure has a slate roof, five pointed-arch openings on the north and south elevations, and a slate floor that extends north to abut a circular drive at the front (north) of the chapel.

Begun in 1924 and completed in 1925, the large, front-gabled, Gothic Revival-style church stands east of the 1846 chapel. The front-gabled church is granite with cast-stone detailing and a Flemish gable with cast-stone coping and a cross at the peak. It has a projecting water table and beltcourse as well as stepped stone buttresses with cast-stone caps. A cornerstone at the front right (northwest) corner reads “The Chapel of the Cross 1924.” The entrance, centered on the façade, has double-leaf doors with decorative lights with a trefoil pattern, a blind stone panel above, and is slightly recessed in a pointed-arched stone surround. The entrance is flanked by narrow seven-light windows in

stone surrounds. Cast-stone detailing around the entrance bay includes decorative stone tracery in the spandrels and a stone sill and surround for the two-story, pointed-arch, stained-glass window above the entrance. A four-story crenelated tower at the front right corner has beltcourses separating the levels, fixed windows at the first and third levels, and paired, pointed-arch louvered vents at the top with stone corbelling above and a stone beltcourse below. An entrance on the right (west) elevation has double-leaf, pointed-arch batten doors in a stone surround. The side elevations are each five bays deep with a projecting cross bay at the apse on the south end and buttresses separating the bays. They have paired metal-framed windows in stone surrounds at the floor level with large, pointed-arch, stained-glass windows in stone surrounds, matching that one the façade, above.

At the rear of the 1925 sanctuary, and constructed between 1960 and 1974, is a two-story-with-basement, hip-roofed, Tudor-Revival-style education wing with red brick exterior and slate roof. The six-bay-wide wing was enlarged to seven bays in 2014 to connect to a newly constructed section at the southwest, though finishes on the seventh bay match those on the original building. It has paired, ten-light, metal-framed casement windows with cast-stone sills and lintels, a stone watertable, and arched copper roof dormers with louvered vents.

A large, front-gabled addition southwest of the 1846 chapel was constructed in 2014 and connects to the 1925 wing at the rear of the chapel and fills the ell created by the 1846 chapel and 1960s education wing. The front-gabled, red brick building employs a combination of Tudor Revival- and Gothic Revival-style details including a projecting cast-stone bay on the façade, stepped chimneys, and pointed-arch windows. The two-story-with-basement building has a slate roof and is six bays deep with brick buttresses with cast-stone caps dividing the bays. The right (west) elevation has tall, pointed-arch windows, mimicking those on the 1925 sanctuary, with header-course pointed arches with cast stone keystones and springers. The rear two bays project under a hipped roof and have rectangular windows with stone sills. A skylight that extends along

the middle three bays of the building as the first-floor level lights basement spaces below. There are five gabled wall dormers on the west elevation, each with paired, six-light casement windows and with a shed-roofed dormers extending between each gable dormer. At the front, a lower, offset, two-story, front-gabled wing is three bays wide with a stepped chimney at the northwest corner and a shed-roofed dormer on the west elevation. The center bay has windows in a stone surround with a projecting, canted stone bay at the second-floor level. There is a six-light-over-two-panel door on the west elevation accessed by concrete stairs with a brick knee wall that is tied into the brick façade. Three four-light casement windows to the south of the door have a stone sill. The rear elevation of the gabled wing that three entrance bays separated by pilasters. Each entrance has paired six-light-over-two-panel doors with a cast-stone lintel with decorative relief. Above the lintel, pointed-arch windows are located in header-course pointed arch surrounds with cast-stone keystones and springers. There is a group of three windows in the gable with a decorative brick band above.

The front-gabled 2014 addition is connected to the hip-roofed education wing by a two-story, side-gabled wing that abuts the rear of the 1915, side-gabled addition. This side-gabled section is three bays side with two entrances flanking an exterior, stepped brick chimney with stone details on the south elevation and a third entrance on the east end in a recessed bay. The entrances are each paired, six-light-over-two-panel doors. Groups of three six-light casement windows at the second-floor level have stone sills and there are two gabled dormers with copper sheathing on the south elevation, flanking the chimney. One dormer has a louvered vent and the other a fixed window. The front (north) elevation of this wing, features an inset entrance, nestled between the front-gabled wing and the 1846 chapel. It has painted doors with side-lights, all with trefoil details, sheltered by a copper shed roof and accessed by a brick stair and terrace. A brick terrace extends the width of the 2014 front- and side-gabled wings, bordered by the stone wall of Coker Arboretum to the

south. A modern playground is located on the west elevation of the front-gabled wing.

On May 23, 1842, twenty-eight persons under the leadership of the Reverend William Mercer Green, rector of St. Matthew's Church in Hillsborough and professor of belles-lettres at the university, organized a parish. It was known as the Church of the Atonement of the Protestant Episcopal of North America. The building of a sanctuary, designed by Philadelphia architect Thomas U. Walter, was begun a year later. Delayed by an economic depression, construction was not completed until 1846 [Little]. The church was consecrated in that year and named the Chapel of the Cross. A plaque on the building indicates that the chancel and northwest vestry were added in 1890 and the current windows installed in 1917. By 1921, the congregation had outgrown the building and hired Hobart B. Upjohn to design a new structure adjacent to the first. The building was completed in 1925. According to Sanborn maps, the building was enlarged again between 1960 and 1974 with a hip-roofed classroom wing at the southeast corner.

In the 2015 survey, this was deemed a Contributing Building..

SHED - GENERAL STORAGE

2014

Constructed concurrent with the 2014 addition to the rear of the chapel, this one-story, side-gabled shed has a Flemish-bond brick veneer, with brick lintels and diagonally laid brick at the roofline of the gable ends. It has a slate roof, paired metal doors on the south and east elevations, and paired, metal-framed windows with concrete sills on the north and east elevations. In the 2015 survey, this was deemed a Noncontributing Building..

SOURCE: Heather Wagner Slane, National Register of Historic Places

Nomination: Chapel Hill Historic District Boundary Increase and Additional Documentation, Orange County, OR1750 (Raleigh, NC: North Carolina State

Historic Preservation Office, 2015), courtesy of the North Carolina State Historic Preservation Office.

According to Orange County property data as of 2021:

Plot size: 1.55 acres

Building size: 32,268 sq. ft.

Ratio: Building/Plot: 0.478

For link to this information: <https://property.spatalest.com/nc/orange/#/property/9788570788>

For link to 1925-1959 Sanborn maps and map data for this property:

<https://unc.maps.arcgis.com/apps/webappviewer/index.html?id=711a3b4017eb48c0acffc90cf2472f57&level=8¢er=-79.0500,35.91459>

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304 E. Franklin Street Lot





Proposed solar panel location





52.325kW Non-Profit Solar System Proposal

Chapel of the Cross

304 E Franklin St
Chapel Hill, NC 27514



Commercial Business Manager

Armghan Aslam

a.aslam@8msolar.com

(919) 922-8818

December 29, 2022

www.8msolar.com



PV Installation
Professional

Ali Buttar
PVIP #031310-32



Working With 8MSolar

8MSolar's unrivaled expertise and attention to detail sets us apart from other solar installers. Headquartered in Wake forest, North Carolina, we are locally owned and operated. We are the only company whose owners, NABCEP certified solar designers and professional engineers (licensed PE), are directly involved in every solar project we install.



1. Highest Quality Materials

- Top of the line racking components, IronRidge, EcoFoot 2, SolarFoot and SunModo (application dependent)
- Tier 1 solar panels & inverters
- Upgraded electricals - exceeding code requirements. NEC (National Electric Code) requires “#10 Copper” size wire as a minimum to ground the system. We use #6 Copper, which is 4 times this size as added protection against any electrical issues for the 25-50 year life of the system.
- Our installers and electricians document every step of the installation process with pictures and videos.



2. Licenses and Certifications

We are the only solar company that has licensed, in-house, professional electrical engineers (PE) overseeing every aspect of the project. Full design build activities handled internally.

- NABCEP Certified Installers, License # 031310-32.
- Unlimited General Contractors, License # 82456.
- Chapter 87 Engineering Firm, Engineering License # D-0411.
-

We have been installing solar all over the Eastern US since 2009, and have extensive experience in designing and installing commercial, residential and non-profit systems.



3. Customer Interaction & Service

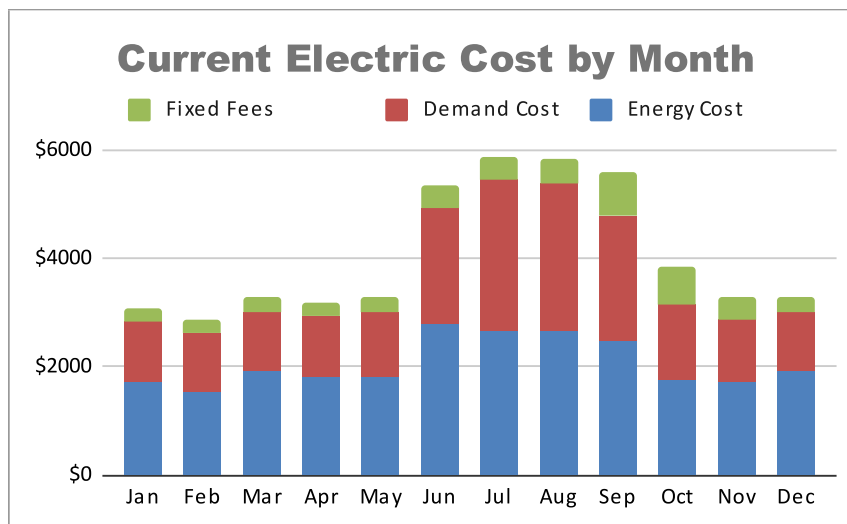
- A dedicated project manager from start to finish, who is involved with every step of the process. You will not be bounced between departments.
- Guidance and involvement at every stage of the process. You will be kept informed and your feedback solicited on important design and material considerations.
- Complementary weekly audits to ensure the system is performing at full potential.





Current Energy Usage & Costs

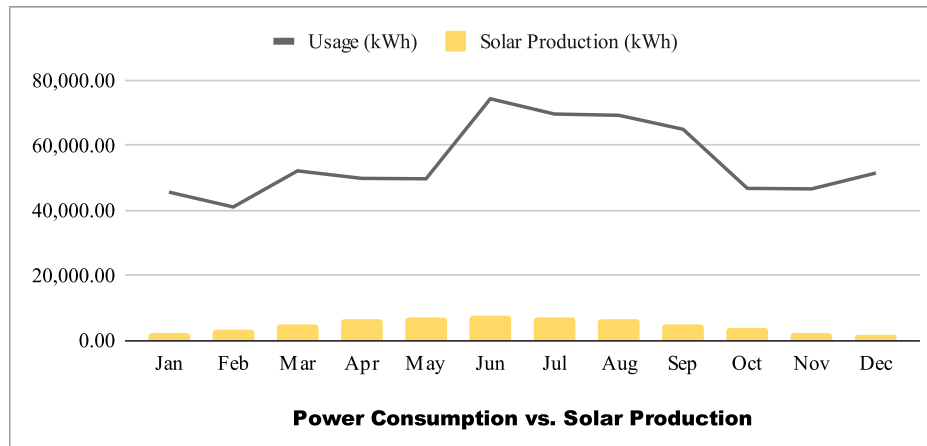
| | Utility | | Rate Schedule | | Solar kWh Rate | |
|---------|--------------|-------------|---------------|-------------|--------------------|----------|
| | Duke Energy | | OPT-V | | \$0.0471 | |
| | Energy (kWh) | Energy Cost | Demand (kW) | Demand Cost | Fixed Fees & Taxes | Total |
| Jan | 45,612 | \$1,728.49 | 88 | \$1,095.76 | \$248 | \$3,073 |
| Feb | 41,033 | \$1,530.10 | 95 | \$1,095.76 | \$234 | \$2,860 |
| Mar | 52,147 | \$1,919.43 | 100 | \$1,095.76 | \$264 | \$3,279 |
| Apr | 49,834 | \$1,838.15 | 103 | \$1,097.15 | \$264 | \$3,199 |
| May | 49,710 | \$1,834.02 | 118 | \$1,172.03 | \$270 | \$3,276 |
| Jun | 74,339 | \$2,805.91 | 152 | \$2,118.23 | \$412 | \$5,336 |
| Jul | 69,637 | \$2,675.01 | 168 | \$2,763.44 | \$439 | \$5,878 |
| Aug | 69,253 | \$2,659.96 | 164 | \$2,713.69 | \$481 | \$5,855 |
| Sep | 64,947 | \$2,492.73 | 136 | \$2,285.64 | \$819 | \$5,598 |
| Oct | 46,756 | \$1,762.40 | 126 | \$1,392.10 | \$689 | \$3,844 |
| Nov | 46,600 | \$1,733.48 | 103 | \$1,127.69 | \$438 | \$3,299 |
| Dec | 51,479 | \$1,927.44 | 100 | \$1,095.76 | \$256 | \$3,280 |
| Annual | 661,345 | \$24,907 | 168 | \$19,053 | \$4,814 | \$48,775 |
| Average | 55,112 | \$2,076 | 121 | \$1,588 | \$401 | \$4,065 |





System Production Analysis

| Solar Photovoltaic System | |
|---------------------------|-----------------------|
| Module Brand | JINKO JKM455M-7RL3-TV |
| Module Quantity | 115 |
| System Size DC | 52.325kW |
| System Size AC | 50kW |
| Solar System Production | |
| 1st Year Production | 56,696 kWh |
| 30 Year Production | 1,583,142 kWh |
| Solar Energy Offset | 9% |



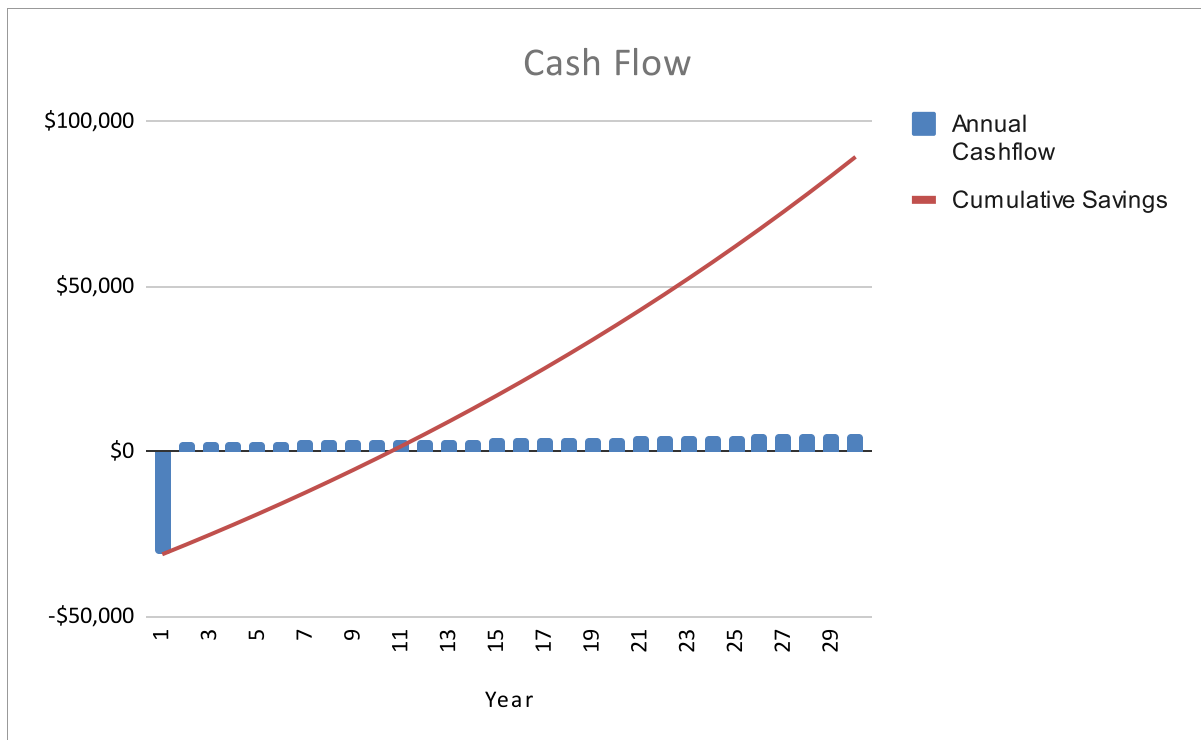


Cash Option

| Cost & Incentives | |
|-------------------------|-----------|
| System Cost | \$102,034 |
| 30% Federal Tax Credit | -\$30,610 |
| 100% Bonus Depreciation | \$0 |
| Utility Rebate* | -\$37,500 |
| Net Cost | \$33,924 |

| System Production | |
|------------------------|------------------|
| Year 1 Production | 56696 kWh |
| 30 Year Production | 1,583,142 kWh |
| 30 Year Savings | \$89,385 |
| 30 Year Solar Cost/kWh | \$0.02 |
| Current Grid Cost/kWh | \$0.047 |
| Lifetime Grid Cost/kWh | \$0.075 30 years |
| IRR | 8.37% |

**Utility rebate not guaranteed





| Year | Payments | Solar Production kWh | Energy Savings | Tax Credit | Bonus Depreciation | Utility Rebate | USDA REAP | O&M | Annual Cashflow | Cumulative Savings | Present Value Cash Flow |
|------|------------|----------------------|----------------|------------|--------------------|----------------|-----------|---------|-----------------|--------------------|-------------------------|
| 1 | -\$102,034 | 56,696.36 | \$2,668 | \$30,610 | \$0 | \$37,500 | \$0 | \$215 | -\$31,040 | -\$31,040 | -\$30,136.40 |
| 2 | \$0 | 56,412.88 | \$2,734 | \$0 | | | | \$215 | \$2,949 | -\$28,091 | \$2,780.12 |
| 3 | \$0 | 56,130.81 | \$2,802 | \$0 | | | | \$215 | \$3,017 | -\$25,074 | \$2,761.33 |
| 4 | \$0 | 55,850.16 | \$2,872 | \$0 | | | | \$215 | \$3,087 | -\$21,987 | \$2,742.78 |
| 5 | \$0 | 55,570.91 | \$2,943 | \$0 | | | | \$215 | \$3,158 | -\$18,828 | \$2,724.46 |
| 6 | \$0 | 55,293.05 | \$3,017 | \$0 | | | | \$215 | \$3,232 | -\$15,597 | \$2,706.36 |
| 7 | \$0 | 55,016.59 | \$3,091 | \$0 | | | | \$215 | \$3,306 | -\$12,290 | \$2,688.49 |
| 8 | \$0 | 54,741.51 | \$3,168 | \$0 | | | | \$215 | \$3,383 | -\$8,907 | \$2,670.83 |
| 9 | \$0 | 54,467.80 | \$3,247 | \$0 | | | | \$215 | \$3,462 | -\$5,445 | \$2,653.38 |
| 10 | \$0 | 54,195.46 | \$3,328 | \$0 | | | | \$215 | \$3,543 | -\$1,902 | \$2,636.13 |
| 11 | \$0 | 53,924.48 | \$3,410 | \$0 | | | | \$215 | \$3,625 | \$1,723 | \$2,619.09 |
| 12 | \$0 | 53,654.86 | \$3,495 | \$0 | | | | \$215 | \$3,710 | \$5,434 | \$2,602.25 |
| 13 | \$0 | 53,386.59 | \$3,582 | \$0 | | | | \$215 | \$3,797 | \$9,231 | \$2,585.60 |
| 14 | \$0 | 53,119.65 | \$3,671 | \$0 | | | | \$215 | \$3,886 | \$13,117 | \$2,569.14 |
| 15 | \$0 | 52,854.05 | \$3,762 | \$0 | | | | \$215 | \$3,977 | \$17,094 | \$2,552.87 |
| 16 | \$0 | 52,589.78 | \$3,856 | \$0 | | | | \$215 | \$4,071 | \$21,165 | \$2,536.77 |
| 17 | \$0 | 52,326.84 | \$3,952 | \$0 | | | | \$215 | \$4,167 | \$25,331 | \$2,520.86 |
| 18 | \$0 | 52,065.20 | \$4,050 | \$0 | | | | \$215 | \$4,265 | \$29,596 | \$2,505.11 |
| 19 | \$0 | 51,804.88 | \$4,150 | \$0 | | | | \$215 | \$4,365 | \$33,961 | \$2,489.54 |
| 20 | \$0 | 51,545.85 | \$4,254 | \$0 | | | | \$215 | \$4,469 | \$38,430 | \$2,474.14 |
| 21 | \$0 | 51,288.12 | \$4,359 | \$0 | | | | \$215 | \$4,574 | \$43,004 | \$2,458.89 |
| 22 | \$0 | 51,031.68 | \$4,468 | \$0 | | | | \$215 | \$4,683 | \$47,687 | \$2,443.81 |
| 23 | \$0 | 50,776.52 | \$4,579 | \$0 | | | | \$215 | \$4,794 | \$52,481 | \$2,428.88 |
| 24 | \$0 | 50,522.64 | \$4,692 | \$0 | | | | \$215 | \$4,907 | \$57,388 | \$2,414.11 |
| 25 | \$0 | 50,270.03 | \$4,809 | \$0 | | | | \$215 | \$5,024 | \$62,412 | \$2,399.49 |
| 26 | \$0 | 50,018.68 | \$4,928 | \$0 | | | | \$215 | \$5,143 | \$67,555 | \$2,385.01 |
| 27 | \$0 | 49,768.58 | \$5,051 | \$0 | | | | \$215 | \$5,266 | \$72,821 | \$2,370.68 |
| 28 | \$0 | 49,519.74 | \$5,176 | \$0 | | | | \$215 | \$5,391 | \$78,213 | \$2,356.49 |
| 29 | \$0 | 49,272.14 | \$5,305 | \$0 | | | | \$215 | \$5,520 | \$83,733 | \$2,342.45 |
| 30 | \$0 | 49,025.78 | \$5,437 | \$0 | | | | \$215 | \$5,652 | \$89,385 | \$2,328.53 |
| | -\$102,034 | 1,583,141.62 | \$116,859 | \$30,610 | \$0 | \$37,500 | \$0 | \$6,450 | \$89,385 | | \$43,611.20 |

Discount Rate
3.00%

- Includes estimated federal tax credits, depreciation, estimated utility fees and utility rebates where applicable
- Federal tax rate assumed to be 30%

IRR 8.37%



System Summary

| Hardware |
|---|
| JINKO JKM455M-7RL3-TV |
| SE50K-US Inverters & P1101 Optimizers |
| US made racking and mounting hardware |
| Wire, conduit, and all other electrical components required for system operations |
| Online Monitoring |

| Warranties | |
|------------------------------------|----------|
| Solar Panels Manufacturer Warranty | 30 years |
| Inverter Manufacturer Warranty | 12 years |
| Power Optimizers Warranty | 25 years |
| 8MSolar Workmanship Warranty | 5 years |

| Design & Installation |
|--|
| Complete system design to ensure optimal performance |
| Electrical drawings created by inhouse professional engineer, structural engineering reviews to ensure roof is capable of supporting system load |
| Acquisition and payment of permits |
| Interconnection application, filing and fees |
| Installation of all 8MSolar provided materials |
| System commissioning and ownership training |

| Exclusions |
|---|
| Provisions to paint any components |
| Any repairs to the roof required before installation of the PV system |
| Bonding |
| Facility infrastructure upgrade / changes from utility |

| Assumptions |
|--|
| No changes to existing electrical infrastructure |
| Structural analysis fees of up to \$700 |
| Tax Bracket assumed 30% |

| Payment Schedule | |
|------------------------------------|----------|
| 10% at Contract Signing | \$10,203 |
| 40% Upon Inventory Delivery | \$40,814 |
| 40% After Completed Installation | \$40,814 |
| 10% at Completed System Inspection | \$10,203 |

8MSolar LLC is not a tax provider, financial advisor, or legal attorney. Examples provided herein do not constitute professional tax advice or other professional financial guidance, and should not be used as the only source of the information when making purchase decisions or tax decisions. Actual tax benefits may vary. Please consult a financial or tax professional to determine your eligibility. System price guaranteed for 30 days.

Anya Grahn-Federmack

From: Alan Rimer <alanrimer@outlook.com>
Sent: Wednesday, April 19, 2023 12:57 PM
To: Anya Grahn-Federmack
Subject: Re: Payment Received

External email: Don't click links or attachments from unknown senders. To check or report forward to reportspam@townofchapelhill.org

The 8M proposal shows them as parallel to the roof line at about a 10 degree slope. The pictures I had taken were meant to show the top of the panel which still could not be seen
Does that help?

Alan

From: Anya Grahn-Federmack <agrahn-federmack@townofchapelhill.org>
Sent: Wednesday, April 19, 2023 12:49 PM
To: Alan Rimer <alanrimer@outlook.com>
Subject: RE: Payment Received

Thanks, Alan! Just to confirm, will the solar panels be flush-mounted or installed parallel to the roof?

Thanks for turning this around so quickly,
Anya