

# NOTICE OF DECISION

PLANNING DIVISION  
555 LIBERTY ST. SE, RM 305  
SALEM, OREGON 97301  
PHONE: 503-588-6173  
FAX: 503-588-6005



*Si necesita ayuda para comprender esta informacion, por favor llame  
503-588-6173*

## DECISION OF THE PLANNING ADMINISTRATOR

**MINOR HISTORIC DESIGN REVIEW CASE NO.: HIS20-19**

**APPLICATION NO.: 20-113134-DR**

**NOTICE OF DECISION DATE: AUGUST 25, 2020**

**SUMMARY:** Minor Historic Design Review of a proposal to install 48 solar panels on the roof of the education building of the Jason Lee United Methodist Church.

**REQUEST:** Minor Historic Design Review of a proposal to install 48 solar panels on the roof of the education building of the Jason Lee United Methodist Church, individually designated as a Salem Local Historic Landmark, located at 820 Jefferson Street, 97301; Marion County Assessor Map and Tax Lot number 073W23BA-8000.

**APPLICANT:** David Cox on Behalf of United Methodist Open Door Churches of Salem

**LOCATION:** 820 Jefferson St NE 97301

**CRITERIA:** Salem Revised Code (SRC) Chapters 230.060(e) Solar Panels

**FINDINGS:** The findings are in the attached Decision dated August 25, 2020

**DECISION:** The **Historic Preservation Officer (a Planning Administrator Designee)** **APPROVED** Historic Design Review HIS20-19 based upon the application materials deemed complete on August 25, 2020 and the findings as presented in this report.

This Decision becomes effective on September 10, 2020. No work associated with this Decision shall start prior to this date unless expressly authorized by a separate permit, land use decision, or provision of the Salem Revised Code (SRC).

The rights granted by the attached decision must be exercised, or an extension granted, by September 10, 2022 or this approval shall be null and void.

Application Deemed Complete:	August 25, 2020
Notice of Decision Mailing Date:	August 25, 2020
Decision Effective Date:	September 10, 2020
State Mandate Date:	December 23, 2020

**Case Manager:** Kimberli Fitzgerald, [kfitzgerald@cityofsalem.net](mailto:kfitzgerald@cityofsalem.net), 503-540-2397

This decision is final unless written appeal and associated fee (if applicable) from an aggrieved party is filed with the City of Salem Planning Division, Room 320, 555 Liberty Street SE, Salem OR 97301, or by email at [planning@cityofsalem.net](mailto:planning@cityofsalem.net), no later than 5:00 p.m., September 9, 2020. The notice of appeal must contain the information required by SRC 300.1020 and must state where the decision failed to

conform to the provisions of the applicable code section, SRC Chapter(s) 230. The appeal fee must be paid at the time of filing. If the appeal is untimely and/or lacks the proper fee, the appeal will be rejected. The Historic Landmarks Commission will review the appeal at a public hearing. After the hearing, the Historic Landmarks Commission may amend, rescind, or affirm the action, or refer the matter to staff for additional information.

The complete case file, including findings, conclusions and conditions of approval, if any, is available for review by contacting the case manager, or at the Planning Desk in the Permit Application Center, Room 305, City Hall, 555 Liberty Street SE, during regular business hours.

<http://www.cityofsalem.net/planning>

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503-588-6173***

**BEFORE THE PLANNING ADMINISTRATOR OF THE CITY OF SALEM**

**HISTORIC DESIGN REVIEW CASE NO. HIS20-19  
DECISION**

**IN THE MATTER OF APPROVAL OF ) MINOR HISTORIC DESIGN REVIEW  
HISTORIC DESIGN REVIEW )  
CASE NO. HIS20-19 )  
820 JEFFERSON STREET NE ) AUGUST 25, 2020**

In the matter of the application for a Minor Historic Design Review submitted by David Cox on behalf of the Jason Lee United Methodist (Las Naciones) Church, the Historic Preservation Officer (a Planning Administrator Designee), having received and reviewed evidence and the application materials, makes the following findings and adopts the following order as set forth herein.

**REQUEST**

**SUMMARY:** Minor Historic Design Review of a proposal to install 48 solar panels on the roof of the education building of the Jason Lee United Methodist Church.

**REQUEST:** Minor Historic Design Review of a proposal to install 48 solar panels on the roof of the education building of the Jason Lee United Methodist Church, individually designated as a Salem Local Historic Landmark, located at 820 Jefferson Street, 97301; Marion County Assessor Map and Tax Lot number 073W23BA-8000.

A vicinity map illustrating the location of the property is attached hereto, and made a part of this decision (**Attachment A**).

**DECISION**

**APPROVED** based upon the application materials deemed complete on August 25, 2020 and the findings as presented in this report.

**FINDINGS**

1. Minor Historic Design Review Applicability

SRC 230.020(f) requires Historic Design Review approval for any alterations to historic resources as those terms and procedures are defined in SRC 230. The Planning Administrator shall render a decision supported by findings that explain conformance or lack thereof with relevant design standards, state the facts relied upon in rendering the decision, and explain justification for the decision.

## 2. Analysis of Minor Historic Design Review Approval Criteria

**Summary and Background:** The Jason Lee Methodist Church was constructed in 1911 in the Romanesque style and clad in stone and concrete block. In 1949 a two story stuccoed education building was constructed to the east of the church, attached by a breezeway (**Attachment B**). The applicant is proposing to install forty-eight (48) HoneyBlack (TSM-DD06M.05(II)) non-reflective aluminum framed solar panels on the roof of the education building of the Jason Lee United Methodist Church. The panels will be mounted on EcoFoot racking systems with a 10 degree tilt toward the south. The top of the panels will be approximately one foot above the level of the flat roof. This roof is encompassed by a 2'6" high parapet wall, therefore the proposed panels will not be visible. Proposed conduit will be run vertically on the southwest and southeast corners of the building, collocated adjacent to the existing building gutters, and will be painted to match (**Attachment C**). Staff finds that the applicant adequately demonstrated that this proposal complies with the applicable provisions of the Salem Revised Code (SRC) as follows:

**Criteria: 230.060 (e) (3) Solar Panels, Rooftop Mechanical Devices, and Skylights.**

Solar panels and other rooftop mechanical structures may be added to historic contributing buildings and individually listed public historic resources.

**(A) Materials.**

**(i) *Non-reflective glass and metal panels are allowed.***

**Finding:** The applicant is proposing to install HoneyBlack (TSM-DD06M.05(II)) aluminum framed solar panels with tempered anti-reflective black coated glass panels, thereby meeting this standard.

**(ii) *Reflective glass and plastic frames are prohibited.***

**Finding:** The applicant's proposal does not include reflective glass or plastic frames, thereby meeting this standard.

**(B) Design.**

**(i) *Solar panels shall not alter the existing profile of the roof, and shall be mounted parallel to the roof plane on rear-facing roofs or placed on the ground in an inconspicuous location.***

**Finding:** The applicant is proposing to mount the solar panels on frames that will be mounted parallel to the flat roof plane. The glass panels will be tilted at a 10 degree angle to a height of one foot above the roof in order to function adequately. The panels will be mounted on the flat portion of the roof of both the education building, behind a 2' 6" high parapet wall and will not visibly alter the existing profile of the roof of this building. Staff finds that this standard has been met.

**(ii) *Satellite dishes, TV antennae and other rooftop mechanical structures shall be installed so they are not visible from the street and do not damage or obscure significant architectural features of the resource.***

**Finding:** The applicant has proposed to install the solar panels and the associated conduit on the flat portion of the roof behind the parapet wall. The applicant has adequately demonstrated that at this height and located on the flat portion of the roof, behind the parapet wall, the solar panels will not be visible from the right of way, and will not damage or obscure any significant architectural features of either the administration building or the education wing. Proposed conduit will be run vertically on the exterior of the southwest and southeast corners of the building, collocated adjacent to the existing building gutters, and will be painted to match. Staff finds that this standard has been met.

**(iii) *Skylights shall be flat and shall not alter the existing profile of the roof. Bubble-type skylights are prohibited.***

**Finding:** The applicant is not proposing to install skylights as part of this proposal, therefore this standard is not applicable to the evaluation of this proposal.

## DECISION

Based upon the application materials deemed complete on August 25, 2020 and the findings as presented in this report, the application for HIS20-19 is **APPROVED**.



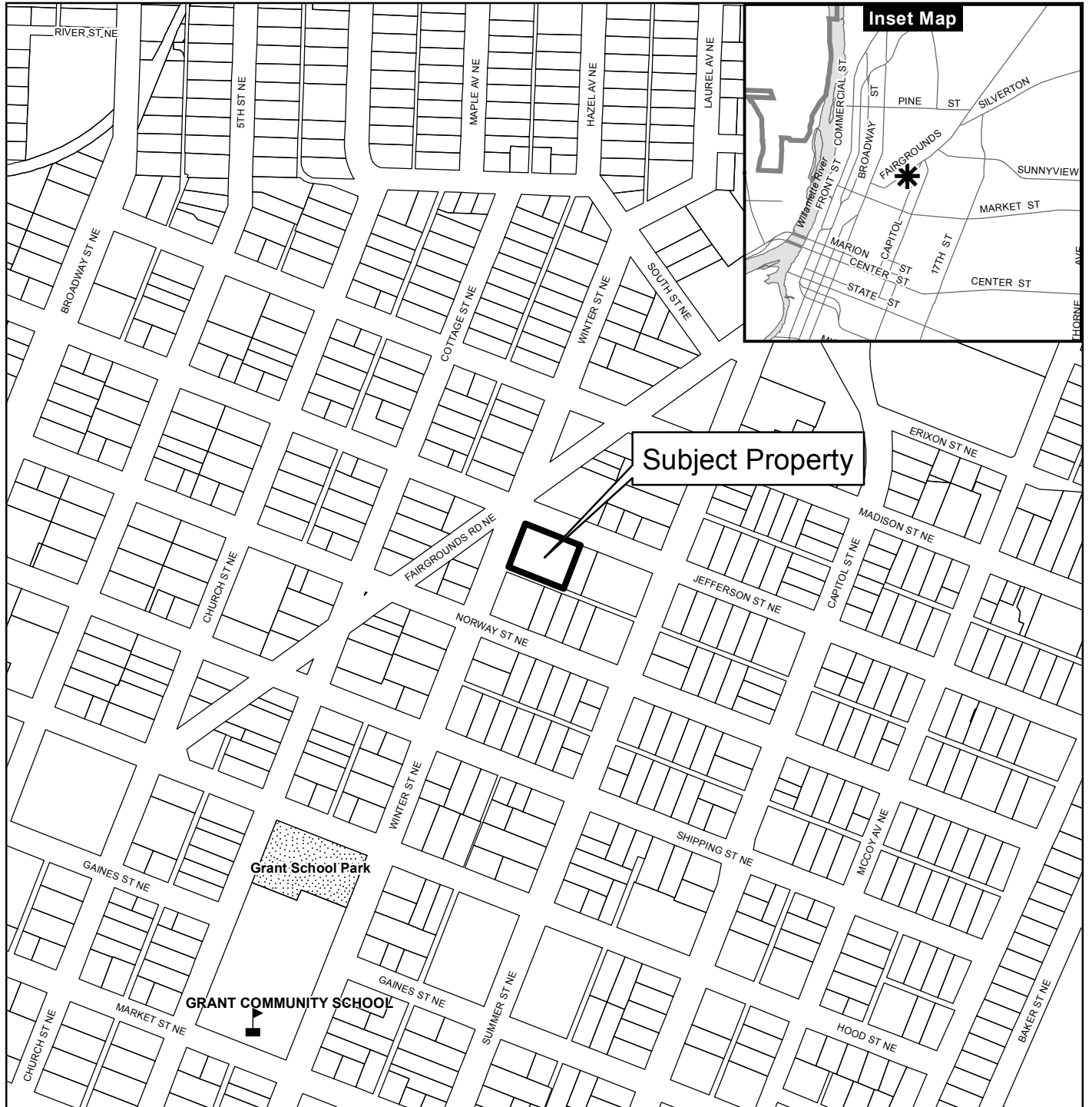
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Kimberli Fitzgerald, AICP  
Historic Preservation Officer  
Planning Administrator Designee








Attachments: A. Vicinity Map  
B. Local Landmark Designation Excerpt  
C. Applicant's Submittal Material

# Vicinity Map

## 820 Jefferson Street NE (073W23BA08000)



### Legend

-  Taxlots
-  Urban Growth Boundary
-  City Limits
-  Outside Salem City Limits
-  Historic District
-  Schools
-  Parks



0 100 200 400 Feet



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**OREGON INVENTORY OF HISTORIC PROPERTIES  
HISTORIC RESOURCE SURVEY FORM  
COUNTY: Marion**

**HIST. NAME:** Jason Lee Methodist Church      **DATE OF CONSTRUCTION:** 1911  
**COMMON NAME:**      **ORIGINAL USE:** Church  
**ADDRESS:** 820 Jefferson St      **PRESENT USE:** Church  
**CITY:** Salem, OR 97303      **ARCHITECT:** Black, H. M.  
**OWNER:** Methodist Church      **BUILDER:** Roberts. F.B.  
      **THEME:** 20th C Arch/Religion  
      **STYLE:** Romanesque

**T/R/S:** 7S\3W\23  
**MAP NO:** 23BA      **TAX LOT:** 8000  
**ADDITION:** Wilds North Salem      **BLDG:** X **STRUC:**      **DIST:**      **SITE OBJ:**  
**BLOCK:** 68      **LOT:** 5-7      **QUAD:** Salem  
**TAX ACCOUNT NUMBER:** 86130-020

**PLAN TYPE/SHAPE:** irregular      **NO. OF STORIES:** 1  
**FOUNDATION MATERIAL:** concrete, scored      **BASEMENT (Y/N):** yes  
**ROOF FORM & MATERIALS:** cross gable and hip      composition and metal  
**WALL CONSTRUCTION:** concrete      **STRUCTURAL FRAME:**  
**PRIMARY WINDOW TYPE:** wood frame double-hung, 1/1 and casement; two large  
arched stained glass windows in north and west gable ends  
**EXTERIOR SURFACING MATERIALS:** cast stone  
**DECORATIVE FEATURES:** three stone chimneys with brick corbelling, one exter  
**OTHER:** ior, two interior; finials atop roof and tower (see following page)  
**CONDITION GOOD:** X **FAIR:**      **POOR:**      **MOVED:**      **(DATE):**

**EXTERIOR ALTERATIONS/ADDITIONS (DATED):** 1960s, complete renovation of  
interior including sanctuary; 1947, classroom addition to east  
**NOTEWORTHY LANDSCAPE FEATURES:** large street trees, including birch; mature  
native shrubs as foundation plantings  
**ASSOCIATED STRUCTURES:** connected classroom addition, two-story  
compatible, stuccoed building  
**KNOWN ARCHEOLOGICAL FEATURES:**  
**SETTING:** building faces north near busy Fairgrounds Road, quiet street directly  
north; paved parking for church directly south; area is mixed residential  
and commercial

**STATEMENT OF SIGNIFICANCE (Historical and/or architectural importance, dates  
events, persons, contexts)**

The Jason Lee Methodist Church came into being as a result of a need for a church building for the North Salem area. Early proponents of the building were Dr. James Moore and Rev. Selleck, pastor of the First Church. The first minister of the church was W.C. Stewart. Construction began in January 1911 with the contractor, F.B. Roberts and members of the congregation making concrete blocks for the building with a hand-operated block making machine. By the fall of 1911 the basement was ready for occupancy. The building was dedicated and ready for use in June 1912. During the early years, the church had an average attendance of 124. Financial disaster was averted in 1918 when the ladies of the First Methodist Church turned over their State Fair restaurant booth to the ladies of the (see following page)

**SOURCES:** Jason Lee Memorial Methodist Church Annual Yearbook, 1910-1960, 50th Anniversary; Salem Inventory, 1987; interview with Ron Speed, church member and historian, 5\5\94

NEGATIVE NO. :  
SLIDE NO. :

RECORDED BY: Marianne Kadas  
DATE: July 1994

SHPO INVENTORY NO. : 228

OREGON INVENTORY OF HISTORIC PROPERTIES  
HISTORIC RESOURCE SURVEY FORM - TWO

NAME: Jason Lee Methodist Church T/R/S: 7s/3w/23  
ADDRESS: 820 Jefferson St MAP NO: 23BA TAX LOT: 8000  
Salem, OR 97303 QUADRANGLE: Salem

\*\*\*\*\*

PHOTO

\*\*\*\*\*

NEGATIVE NO. : SLIDE NO. :

\*\*\*\*\*

PLEASE PLACE HERE:

PLEASE PLACE HERE:

SITE MAP SCHEMATIC DRAWING  
SHOWING INVENTORIED BUILDING (S)  
AND INCLUDING OUTBUILDINGS,  
STRUCTURES, ROADS, AND HISTORIC  
LANDSCAPING, IF APPROPRIATE.

TOWN MAP WITH CROSS STREETS  
FOR URBAN AREAS OR SECTION  
OR USGS MAP FOR RURAL AREAS.

INDICATE NORTH BY AN ARROW

INDICATE NORTH BY AN ARROW



\*\*\*\*\*

GRAPHIC AND PHOTO SOURCES: Community Development, City of Salem

SHPO INVENTORY NO.: 228

**ADDRESS:** 820 Jefferson St

**DECORATIVE FEATURES:** peak; boxed eaves with wooden brackets; dressed stone arches with keystones over all arched windows and roundels in gable ends; capped pilasters at regular intervals emphasizing arches and stained glass; hexagon two-story tower with wooden brackets and plain and arched windows; main entry on north elevation with paneled double doors, arched transom with dressed stone trim and keystone, original wrought iron light fixture, dog-leg concrete steps with landing and wrought iron railing; minor entry on west elevation with similar configuration.

**STATEMENT OF SIGNIFICANCE:** Jason Lee Methodist Church, enabling the church to meet its mortgage responsibilities. The church operated the cafeteria at the Fair until 1942, depending upon it for many projects including the construction of a new parsonage in 1926. A fire in the church also occurred in 1926, but was quickly put out. In 1949 an education building was constructed to the east of the church, attached by a breezeway; this building is of a modest style and does not detract from the elegant church building. In 1967 the church sanctuary was drastically remodelled; the sloping floor was leveled, an entrance from the south side of the building was added, and new ideas were incorporated into the worship area. The exterior of the building remains as constructed, with the addition of a ramp on the north side.

# Oregon Historic Site Record

LOCATION AND PROPERTY NAME			
<b>address:</b>	820 Jefferson St NE Salem, Marion County	<b>historic name:</b>	Jason Lee Methodist Church
<b>assoc addresses:</b>		<b>current/other names:</b>	
<b>location descr:</b>		<b>block/lot/tax lot:</b>	
		<b>twshp/rng/sect/qtr sect:</b>	7S 3W 23
PROPERTY CHARACTERISTICS			
<b>resource type:</b>	Building	<b>height (stories):</b>	2.0
<b>elig evaluation:</b>	eligible/contributing	<b>total elig resources:</b>	1
<b>prim constr date:</b>	1911	<b>second date:</b>	1947
		<b>total inelig resources:</b>	
<b>primary orig use:</b>	Religious Facility	<b>orig use comments:</b>	
<b>second orig use:</b>		<b>prim style comments:</b>	
<b>primary style:</b>	Romanesque	<b>sec style comments:</b>	
<b>secondary style:</b>		<b>siding comments:</b>	
<b>primary siding:</b>	Stone:Other/Undefined	<b>architect:</b>	Black, H M
<b>secondary siding:</b>		<b>builder:</b>	Roberts, F B
<b>plan type:</b>	Church/Meetinghouse		
<b>comments/notes:</b>			
GROUPINGS / ASSOCIATIONS			
<b>Survey/Grouping Included In:</b>	<b>Type of Grouping</b>	<b>Date Listed</b>	<b>Date Compiled</b>
Salem Inventory Update RLS 2009	Survey & Inventory Project		2009
SHPO INFORMATION FOR THIS PROPERTY			
<b>NR date listed:</b>	N/A	<b>106 Project(s):</b>	None
<b>ILS survey date:</b>		<b>Special Assess Project(s):</b>	None
<b>RLS survey date:</b>		<b>Federal Tax Project(s):</b>	None
ARCHITECTURAL / PROPERTY DESCRIPTION			
<i>(Includes expanded description of the building/property, setting, significant landscape features, outbuildings and alterations)</i>			
Refer to scanned documents links.			
HISTORY			
<i>(Chronological, descriptive history of the property from its construction through at least the historic period - preferably to the present)</i>			
<p>The Jason Lee Methodist Church came into being as a result of a need for a church building for the North Salem area. Early proponents of the building were Dr. James Moore and Rev. Selleck, pastor of the First Church. The first minister of the church was W.C. Stewart. Construction began in January 1911 with the contractor, F.B. Roberts and members of the congregation making concrete blocks for the building with a hand-operated block making machine. By the fall of 1911 the basement was ready for occupancy. The building was dedicated and ready for use in June 1912. During the early years, the church had an average attendance of 124. Financial disaster was averted in 1918 when the ladies of the First Methodist Church turned over their State Fair restaurant booth to the ladies of the : Jason Lee Methodist Church, enabling the church to meet its mortgage responsibilities. The church operated the cafeteria at the Fair until 1942, depending upon it for many projects including the construction of a new parsonage in 1926. A fire in the church also occurred in 1926, but was quickly put out. In 1949 an education building was constructed to the east of the church, attached by a breezeway; this building is of a modest style and does not detract from the elegant church building. In 1967 the church sanctuary was drastically remodelled; the sloping floor was leveled, an entrance from the south side of the building was added, and new ideas were incorporated into the worship area. The exterior of the building remains as constructed, with the addition of a ramp on the north side.</p>			
RESEARCH INFORMATION			
Title Records	Census Records	Property Tax Records	Local Histories
Sanborn Maps	Biographical Sources	SHPO Files	Interviews
Obituaries	Newspapers	State Archives	Historic Photographs
City Directories	Building Permits	State Library	
<b>Local Library:</b>		<b>University Library:</b>	
<b>Historical Society:</b>		<b>Other Respository:</b>	
<b>Bibliography:</b>			
Jason Lee Memorial Methodist Church Annual Yearbook, 1910-1960, 50th Anniversary; Salem Inventory, 1987; interview with Ron Speed, church member and historian, 5/5/94			

**Historic Alteration Review Worksheet**Site Address: 820 Jefferson St. NE Salem, OregonResource Status: Contributing  Non-Contributing  Individual Landmark Type of Work Activity Proposed: Major  Minor Chose One: Commercial District  Individual Resource  Public District   
Residential District  Sign **Replacement, Alteration, Restoration or Addition of:****Architectural Feature:**

- Awning  
 Door  
 Exterior Trim, Lintel  
 Other architectural feature  
 Roof/Cornice  
 Masonry/Siding  
 Storefront  
 Window(s) Number of windows: \_\_\_\_\_

**Landscape Feature:**

- Fence  
 Streetscape  
 Other Site feature (describe) \_\_\_\_\_

**New:**

- Addition  
 Accessory Structure  
 Sign  
 Mural  
 Accessibility Ramp  
 Energy Improvements  
 Mechanical Equipment  
 Primary Structure

Will the proposed alteration be visible from any public right-of-way?  Yes  No

Project's Existing Material: \_\_\_\_\_ Project's New Material: \_\_\_\_\_

**Project Description**

**This project will install 48 solar panels on the flat portion of the roof of the Education Building adjacent to the Las Naciones (Jason Lee) Church. These panels will be mounted on "EcoFoot2+" Ballasted Racking system with a 10 degree tilt toward the south. The top of the panels (the highest point) will be approximately 1 foot above the level of the roof. The panels themselves are made of high transmission, AR (anti reflective) tempered glass (see attached specification sheets for additional product details). These panels will not be visible from the street, alley, parking lot or the adjacent Las Naciones Church as the entire flat portion of the Education Building roof is surrounded by a 2 foot 6 inch high parapet wall.**

*Nendy M. Hewitt*  
 Signature of Applicant

8/11/20  
 Date Submitted/Signe

## **Open Door Churches Historic Permit Application for Las Naciones Church**

**Address: 820 Jefferson St. NE Salem, Oregon**

**Application Number: 20-113134**

### Project Description

This project will install 48 solar panels on the flat portion of the roof of the education building adjacent to the Las Naciones (Jason Lee) Church. These panels will be mounted on “EcoFoot2+” Ballasted Racking systems with a 10 degree tilt toward the south. The top of the panels (the highest point) will be approximately 1 foot above the level of the roof. The racking system is made of aluminum and the panels themselves are made of high transmission, AR (anti reflective) tempered glass (see enclosed specification sheets for additional details). These panels will not be visible from the street, the alley, the parking lot, any structure in the neighborhood and not from the adjacent Las Naciones Church because the entire flat portion of the education building roof is surrounded by a 2 foot 6 inch high parapet wall.

### Pre- Application Conference

A pre-application conference was not held and the Open Door Church does not considered such a conference to be necessary.

### Neighborhood Association Contact and Open House

There has been no contact with the neighborhood association. Nor has there been an Open House as this project is not considered to be the type of improvement identified in table 300.2 which would require such consultation.

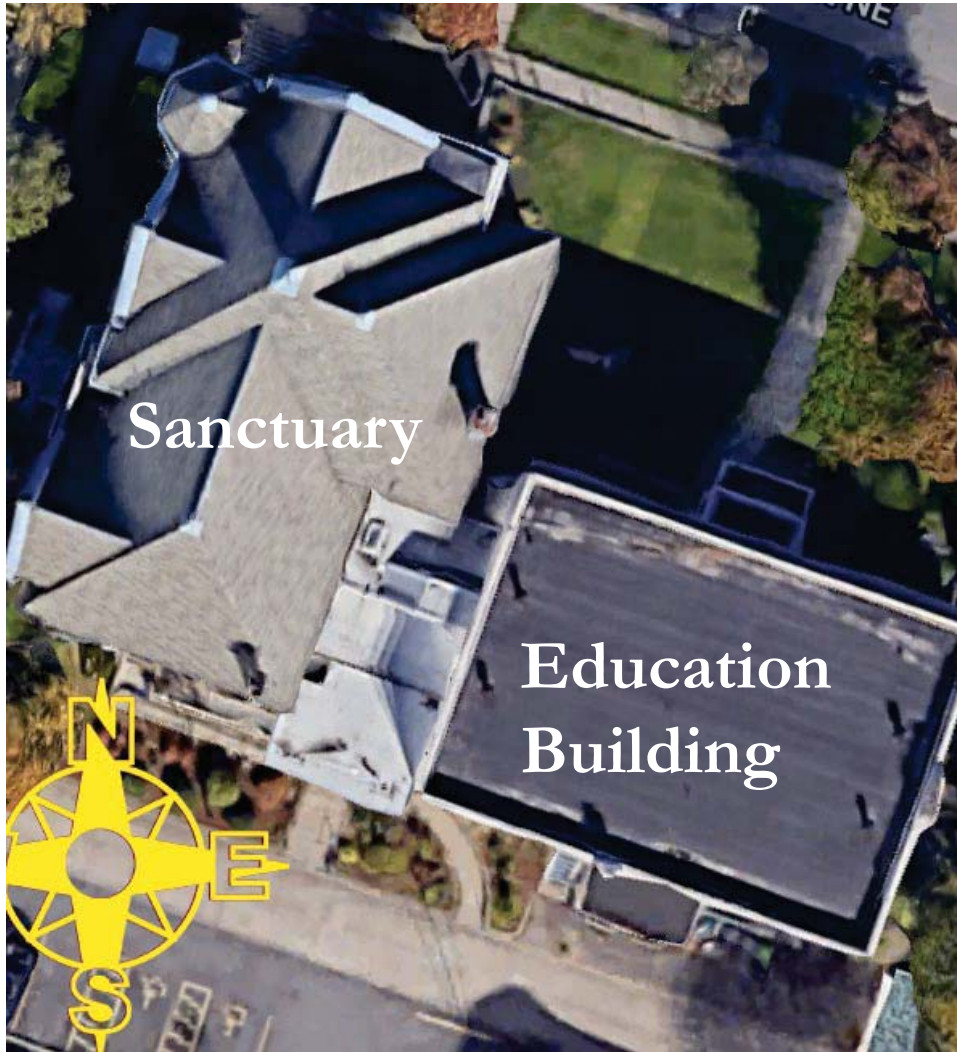
### Salem Keiser Transit District

There has not been contact with the Salem-Keiser Transit District as all construction can be accomplished on site. There will be no disruption of transit services during construction and the completed improvements will not be visible to or otherwise impact transit users.

### Required Design Features

- The solar panels will be made of Non-reflective glass
- Neither the solar panels or the racking system contain plastic parts
- The solar panels will not alter the existing profile of the roof.





# Iglesia Metodista Unida **Las Naciones**

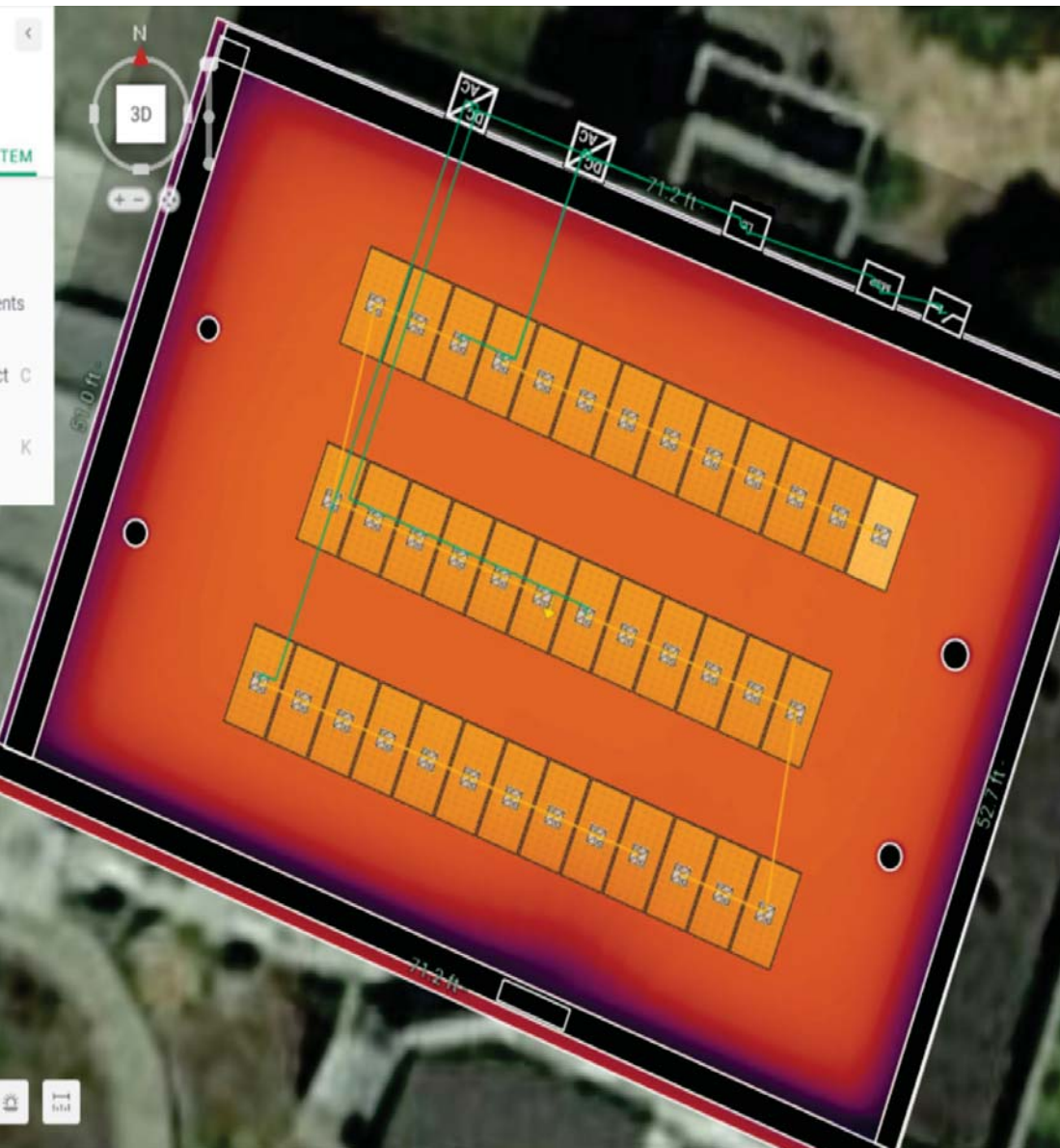
## **Possibilities**

### **Sanctuary – None**

- Too many difficult slopes
- Shaded by trees
- Only small area of south facing

### **Education – Perfect**

- Plenty of room for panels
- Strong roof will support ballasted system which is less expensive
- Easy and safe to install



# Las Naciones Final Design

## Education Building – South Facing

- 20° slope on support frames
- Held in place with ballast (designed for up to 120 mile wind)
- Less expensive construction
- No holes in existing roof membrane
- 95% efficiency

**Total Cost – \$34,480**

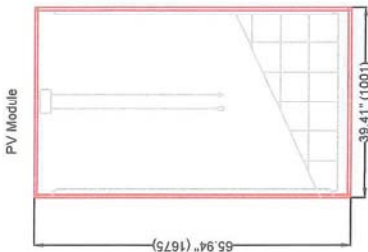
- - Energy Trust Reimbursement: \$7,750
- + grants pending

A 3D architectural rendering of a solar panel array installed on a flat roof. The panels are arranged in three rows. A semi-transparent grey box on the right contains text details. In the top left corner, there is a circular control panel with a cube icon and various symbols.

## Power Production Details

- System Size – 15.5 kw
- Annual Production – 18.8 kwh (62%)
- Value of energy produced in the first year – \$2,275





4. Module Details  
 Front View NTS

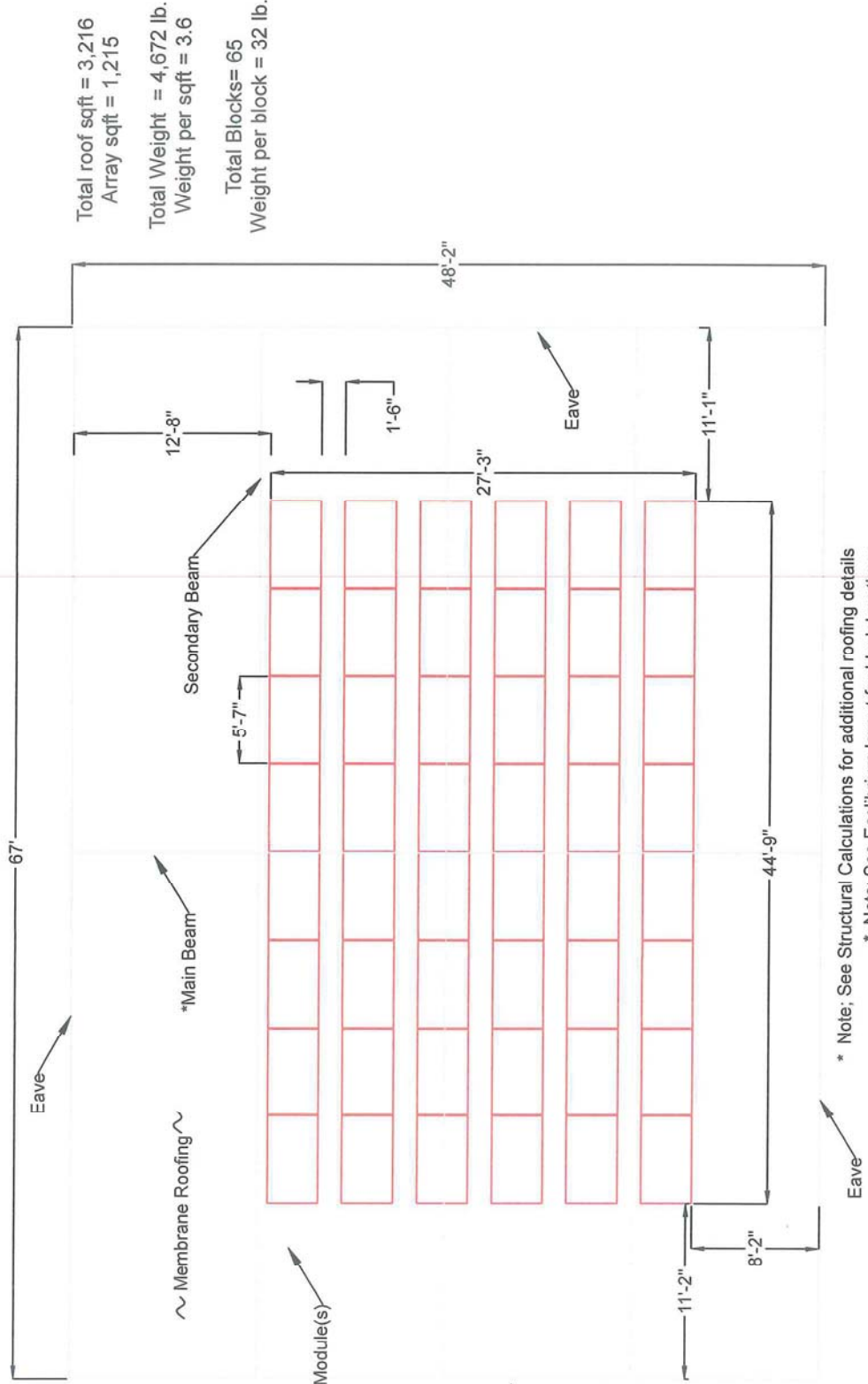


PV Modules  
 Spacing Plan

60 CELL MODULE  
 ECOFOOT2 LANDSCAPE ELEVATION/ISO VIEWS  
 SCALE: NTS  
 UNITS: INCHES

2. Roof Plan Typical (side view)  
 Side View Mounting NTS

3. Profile View  
 Side View Mounting NTS



Total roof sqft = 3,216  
 Array sqft = 1,215

Total Weight = 4,672 lb.  
 Weight per sqft = 3.6

Total Blocks = 65  
 Weight per block = 32 lb.

\* Note: See Structural Calculations for additional roofing details  
 \* Note: See Equilibrium layout for block locations

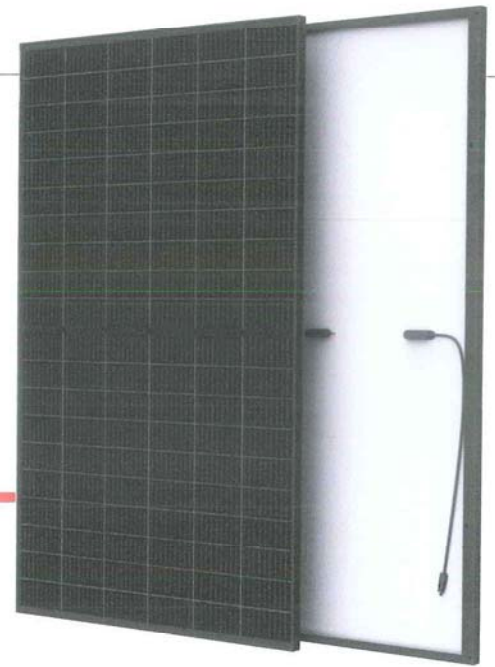
1. Roof Layout  
 Overall Layout NTS





# THE HoneyBlack<sup>M</sup>

## BACKSHEET MONOCRYSTALLINE MODULE



**120 LAYOUT**  
MONOCRYSTALLINE MODULE

**310-335W**  
POWER OUTPUT RANGE

**19.9%**  
MAXIMUM EFFICIENCY

**0~+5W**  
POSITIVE POWER TOLERANCE

PRODUCTS  
TSM-DD06M.05(II)

POWER RANGE  
310-335W



### Outstanding visual appearance

- Designed with aesthetics in mind
- Excellent cell color control by dedicated cell blackening treatment and machine selection.
- Thinner wires that appear all black at a distance



### High power

- Up to 335W front power and 19.9% module efficiency with half-cut and MBB (Multi Busbar) technology bringing more BOS savings
- Lower resistance of half-cut and good reflection effect of MBB ensure high power



### High reliability

- Ensured PID resistance through cell process and module material control
- Resistant to salt, acid and ammonia
- Mechanical performance: Up to 5400 Pa positive load and 2400 Pa negative load



### High energy generation

- Excellent IAM and low light performance validated by 3rd party with cell process and module material optimization
- Lower temp coefficient (-0.36%) and NMOT bring more energy leading to lower LCOE
- Better anti-shading performance and lower operating temperature

Founded in 1997, Trina Solar is the world's leading total solution provider for solar energy. With local presence around the globe, Trina Solar is able to provide exceptional service to each customer in each market and deliver our innovative, reliable products with the backing of Trina as a strong, bankable brand. Trina Solar now distributes its PV products to over 100 countries all over the world. We are committed to building strategic, mutually beneficial collaborations with installers, developers, distributors and other partners in driving smart energy together.

### Comprehensive Products and System Certificates

IEC61215/IEC61730/IEC61701/IEC62716/UL1703  
ISO 9001: Quality Management System  
ISO 14001: Environmental Management System  
ISO14064: Greenhouse Gases Emissions Verification  
ISO45001: Occupation Health and Safety Management System

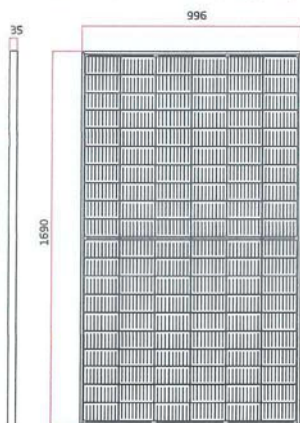


### PERFORMANCE WARRANTY

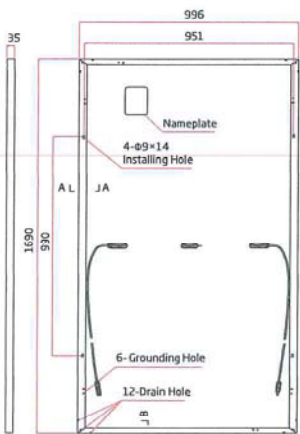
12 Year Product Warranty · 25 Year Power Warranty



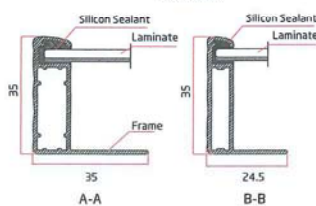
### DIMENSIONS OF PV MODULE(mm)



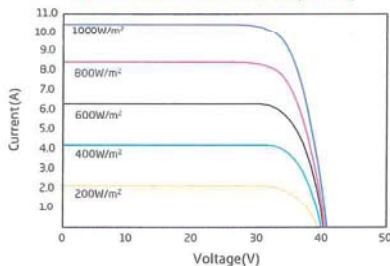
Front View



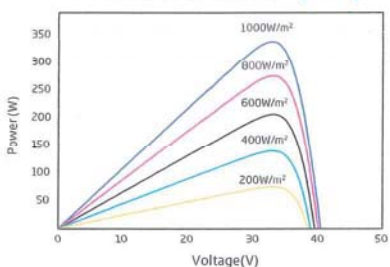
Back View



### I-V CURVES OF PV MODULE(335W)



### P-V CURVES OF PV MODULE(335W)



### ELECTRICAL DATA (STC)

Peak Power Watts- $P_{MAX}$ (Wp)*	310	315	320	325	330	335
Power Tolerance- $P_{MAX}$ (W)	0 ~ +5					
Maximum Power Voltage- $V_{MPP}$ (V)	33.0	33.2	33.4	33.6	33.8	34.0
Maximum Power Current- $I_{MPP}$ (A)	9.40	9.49	9.58	9.67	9.76	9.85
Open Circuit Voltage- $V_{OC}$ (V)	39.9	40.1	40.3	40.4	40.6	40.7
Short Circuit Current- $I_{SC}$ (A)	10.00	10.10	10.20	10.30	10.39	10.48
Module Efficiency $\eta$ m (%)	18.4	18.7	19.0	19.3	19.6	19.9

STC: Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25°C, Air Mass AM1.5.  
\*Measuring tolerance: ±3%.

### ELECTRICAL DATA (NMOT)

Maximum Power- $P_{MAX}$ (Wp)	235	238	242	246	250	254
Maximum Power Voltage- $V_{MPP}$ (V)	30.9	31.1	31.3	31.4	31.6	31.7
Maximum Power Current- $I_{MPP}$ (A)	7.59	7.66	7.74	7.83	7.91	7.99
Open Circuit Voltage- $V_{OC}$ (V)	37.7	37.9	38.0	38.1	38.3	38.4
Short Circuit Current- $I_{SC}$ (A)	8.05	8.13	8.21	8.29	8.36	8.44

NMOT: Irradiance at 800W/m<sup>2</sup>, Ambient Temperature 20°C, Wind Speed 1m/s.

### MECHANICAL DATA

Solar Cells	Monocrystalline
Cell Orientation	120 cells (6 × 20)
Module Dimensions	1690 × 996 × 35 mm (66.54 × 39.21 × 1.38 inches)
Weight	18.0 kg (39.7 lb)
Glass	3.2mm (0.13 inches), High Transmission, AR Coated Tempered Glass
Encapsulant Material	EVA
Backsheet	Black-White
Frame	35 mm (1.38 inches) Anodized Aluminium Alloy
J-Box	IP 68 rated
Cables	Photovoltaic Technology Cable 4.0mm <sup>2</sup> (0.006 inches <sup>2</sup> ), Portrait: N 280mm/P 280mm(11.02/11.02inches) Landscape: N 1200 mm /P 1200 mm (47.24/47.24 inches)
Connector	MC4 / TS4*

\*Please refer to regional datasheet for specified connector.

### TEMPERATURE RATINGS

NMOT (Nominal Module Operating Temperature)	41°C (±3°C)
Temperature Coefficient of $P_{MAX}$	-0.36%/°C
Temperature Coefficient of $V_{OC}$	-0.26%/°C
Temperature Coefficient of $I_{SC}$	0.04%/°C

(Do not connect Fuse in Combiner Box with two or more strings in parallel connection)

### MAXIMUM RATINGS

Operational Temperature	-40 ~ +85°C
Maximum System Voltage	1000V DC (IEC)
	1000V DC (UL)
Max Series Fuse Rating	20A

### WARRANTY

- 12 year Product Workmanship Warranty
- 25 year Power Warranty

(Please refer to product warranty for details)

### PACKAGING CONFIGURATION

- Modules per box: 30 pieces
- Modules per 40' container: 780 pieces



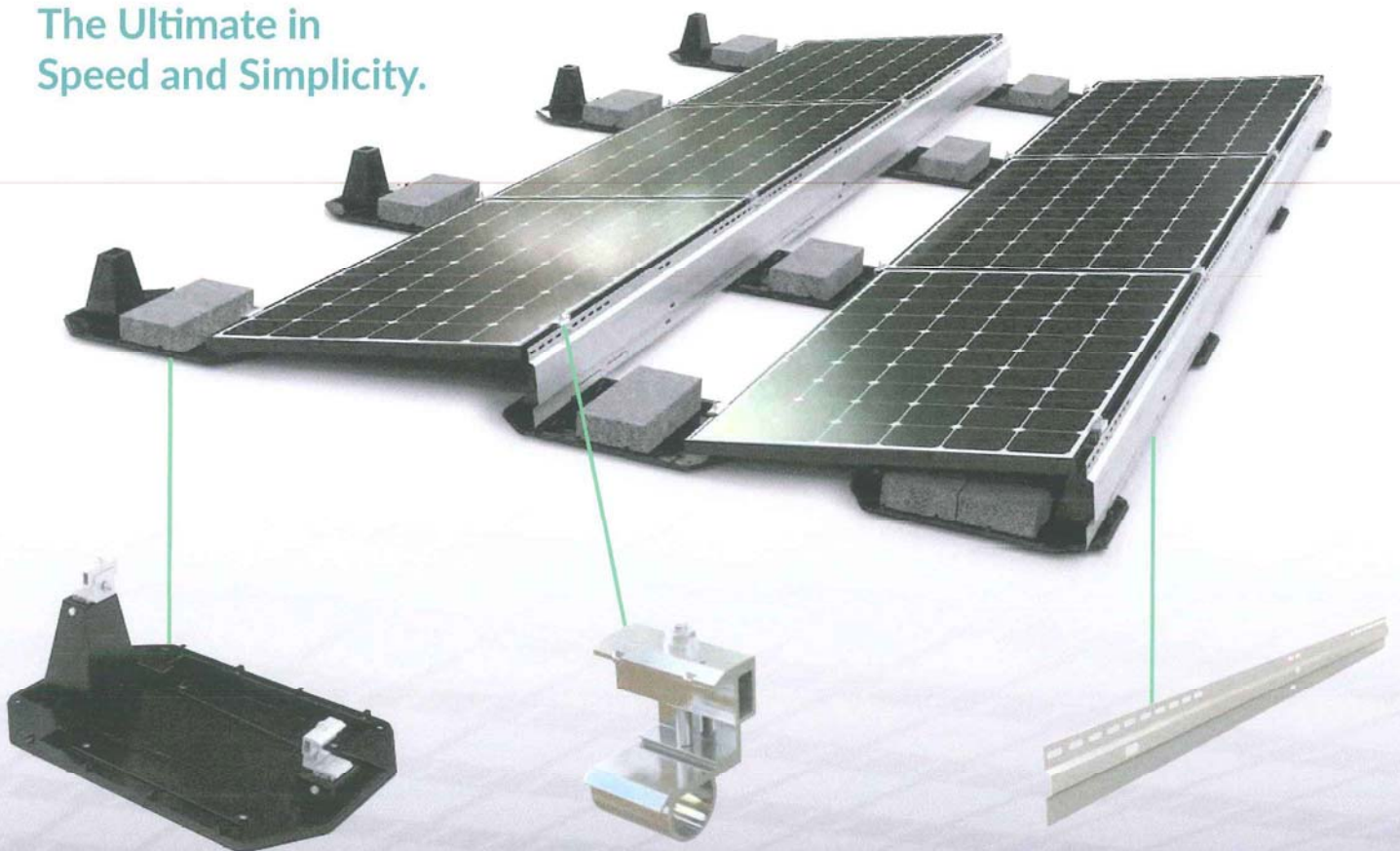
# EcoFoot2<sup>+</sup>

## Ballasted Racking System

### Installer-Preferred for Low-Slope Roofs

Three Main Components.

The Ultimate in  
Speed and Simplicity.



#### Base

UL-Listed ASA based resin is a durable material commonly used for automotive and construction products. Wire Clips are built-in for easy wire management. Class A fire rated and UL2703 Certified.

#### Universal Clamp

The preassembled Universal Clamp is ready to go right out of the box. Simply drop the Clamp into the Base. Integrated Bond Pin achieves integrated grounding without the use of grounding washers. Fits 30-50mm module frames with a single component.

#### Wind Deflector

Corrosion-resistant wind deflector on every module helps minimize uplift, reduce ballast requirements and carries UL2703 validated ground path from modules and racking components.



EcolibriumSolar



# Pure Performance

## Unbeatable, Right Out of the Box.

No other racking products install flat roof arrays better than EcoFoot2+ Racking Solution. Installers prefer EcoFoot2+ because it's fast, simple, and durable. The line-up is unbeatable:

- Ready-to-go, preassembled components and simple installation
- No PV panel prep required: bases self-align
- Low-effort roof layout, just two chalk lines required
- No training required, 5-minute learning curve



Commercial



Residential



Design Flexibility



Wire Management Built-In



Stackable Bases fit up to 50kW of Bases delivered on a standard pallet.

### System Benefits

- Low part count
- Rapid system deployment
- Preassembled Universal Clamp
- Increased design flexibility
- More ballast capacity
- Simplified logistics
- Ship up to 50kW per pallet

### Validation Summary

- Certified to UL2703 Fire Class A for Type I and II modules
- Certified to UL2703
- Grounding and Bonding
- Wind tunnel tested to 150mph
- SEAOC seismic compliant
- CFD and structurally tested
- DNV GL rated at 13.5 panels per installer-hour

### Technical Specifications

Dimensions: 26.5"L x 18.25"W x 8.3"H  
Typical System Weight: 3.5-6 lbs. per sq. ft.  
Module orientation: Landscape/Portrait  
Tilt angle: Landscape 10°/Portrait 5°  
Module inter-row spacing: 18.9"  
Roof pitch: 0° to 7°  
Clamping range: 30-50mm  
Ballast requirements: 4" x 8" x 16"  
Warranty: 25 years  
Slip sheets: not required by Ecolibrium Solar.  
If required by roofer, use 20"x29" under Base.



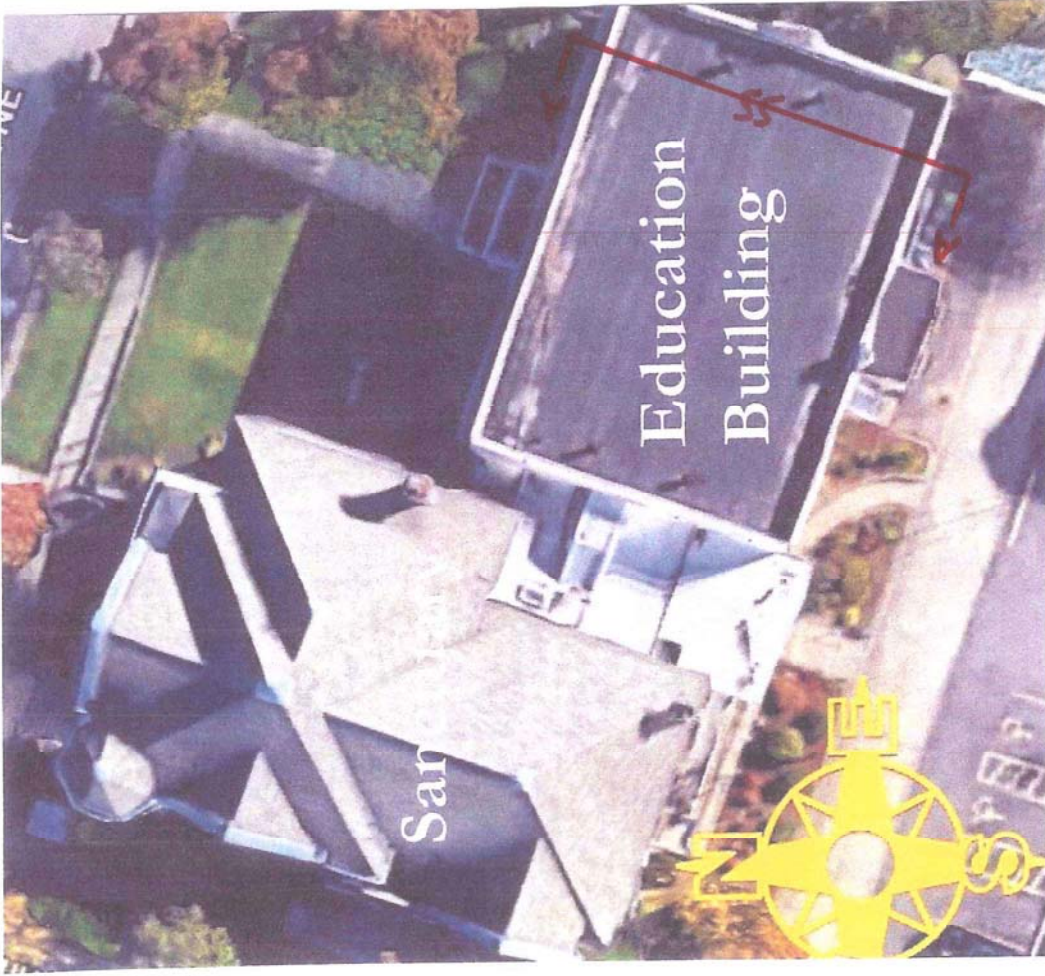
Ecolibrium Solar

740-249-1877 | [www.ecolibriumsolar.com](http://www.ecolibriumsolar.com)  
507 Richland Avenue, Athens, OH 45701

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Las Naciones Church  
And  
Education Building  
Photo Locations



Location of Cross Section A - A

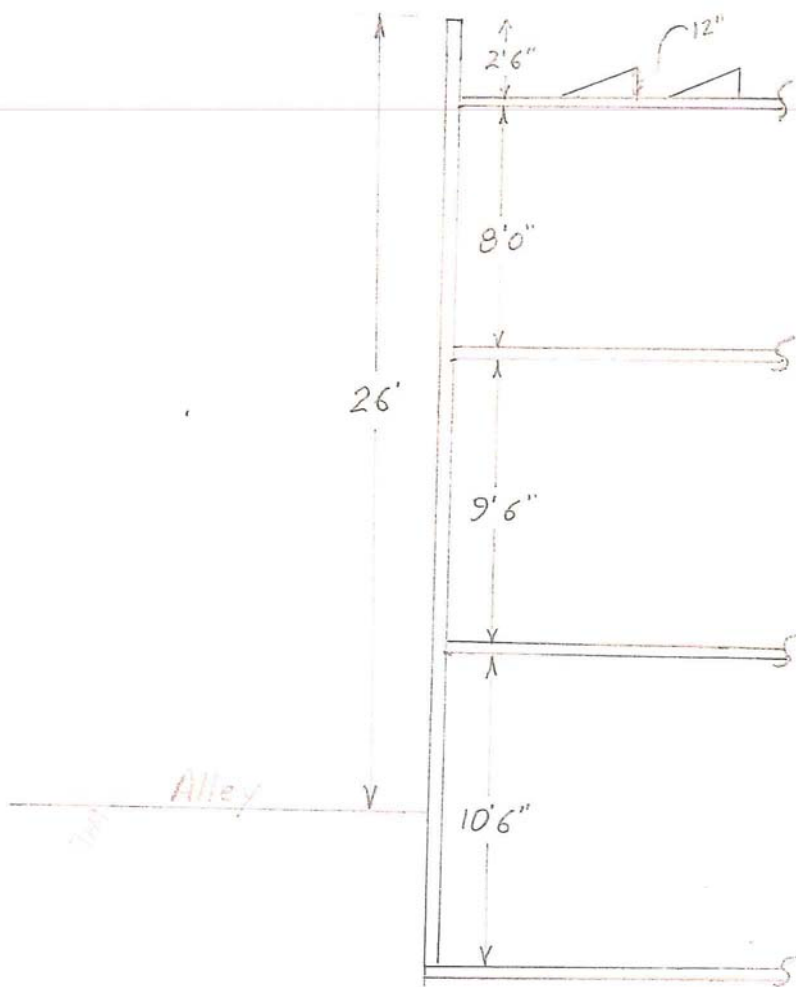
# Las Naciones Church and Education Building

## Education Building Cross Section

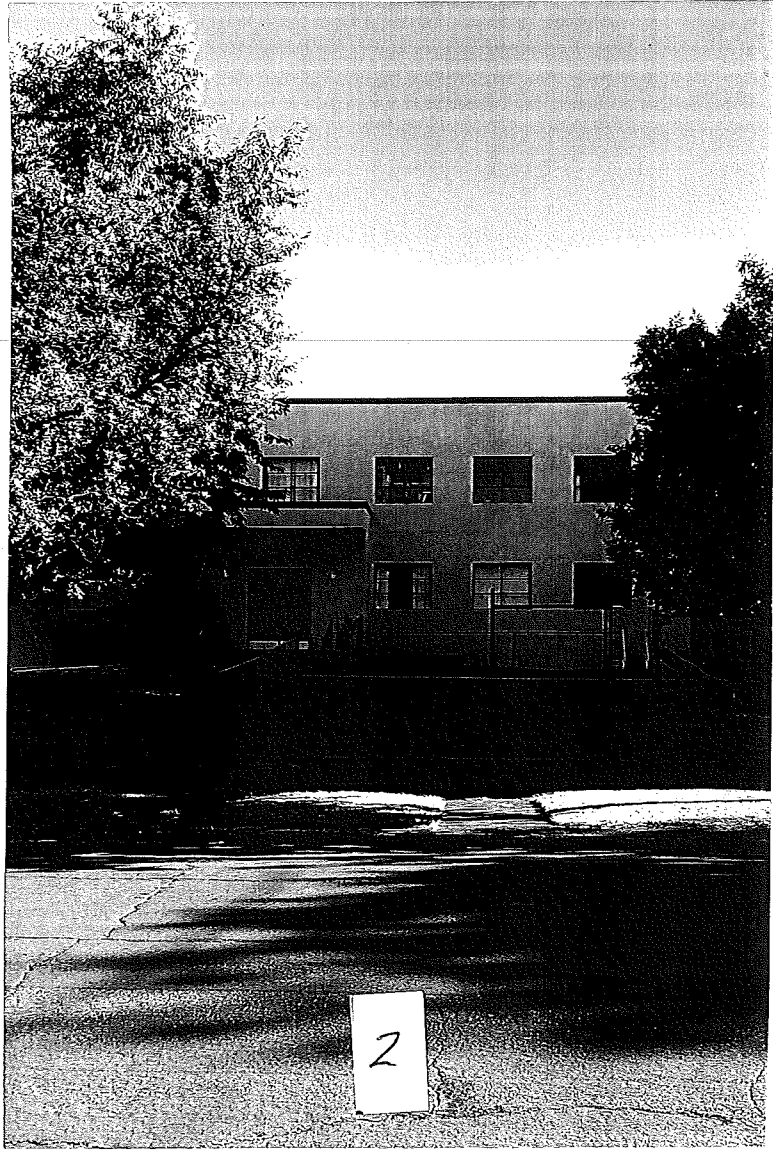
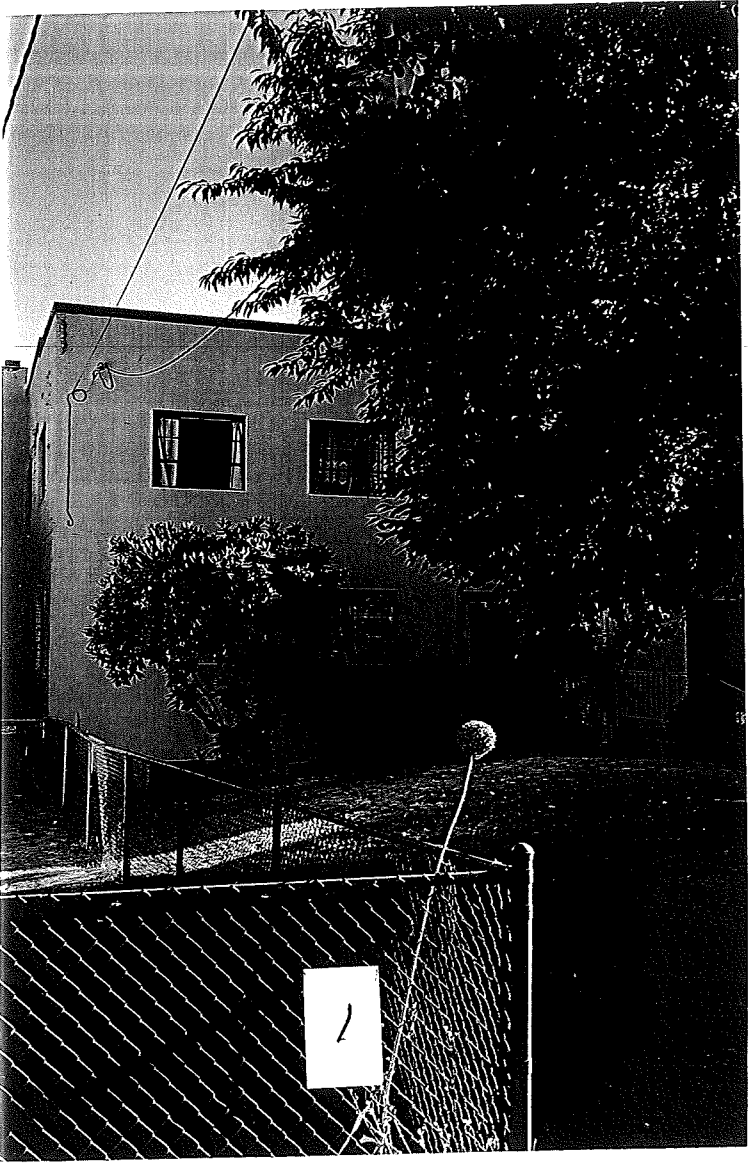
(looking West)

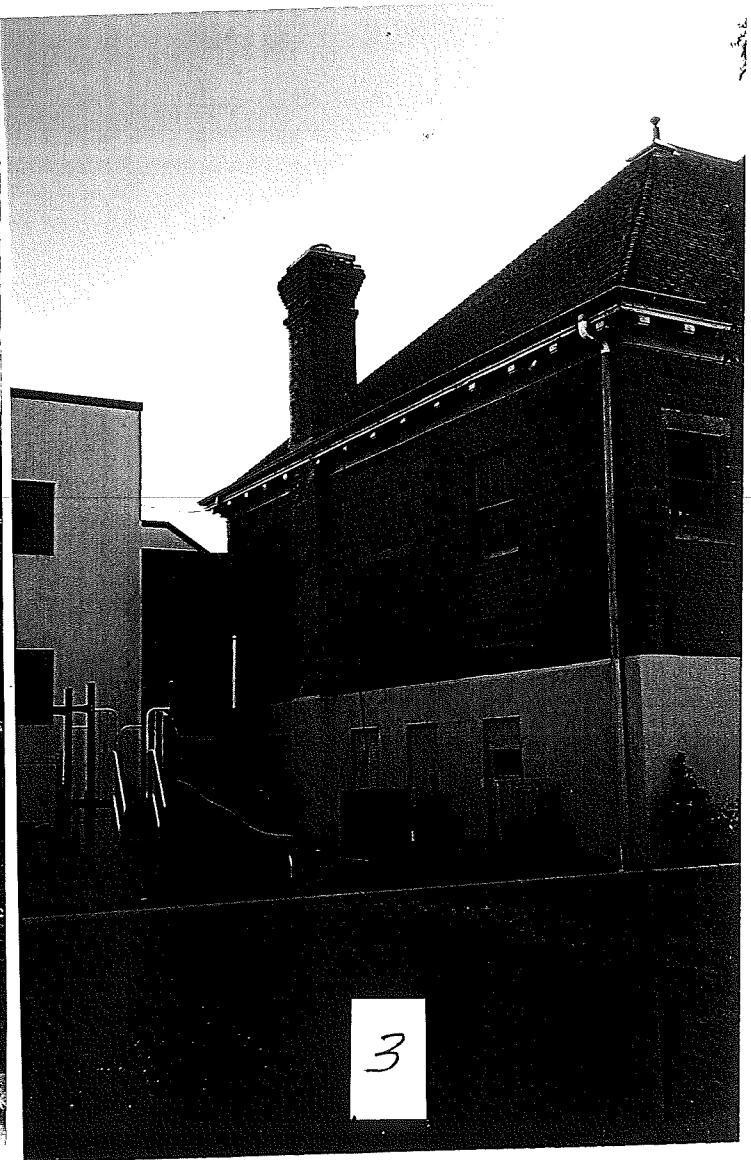
### Notes:

1. Top of wall is 26 feet above the level of the alley.
2. The roof is surrounded by a 2 ft. 6 in. high parapet wall
3. The solar panels will be mounted on racks with a 10 degree tilt toward the south
4. The top of the solar panels will be approx. one foot above the roof

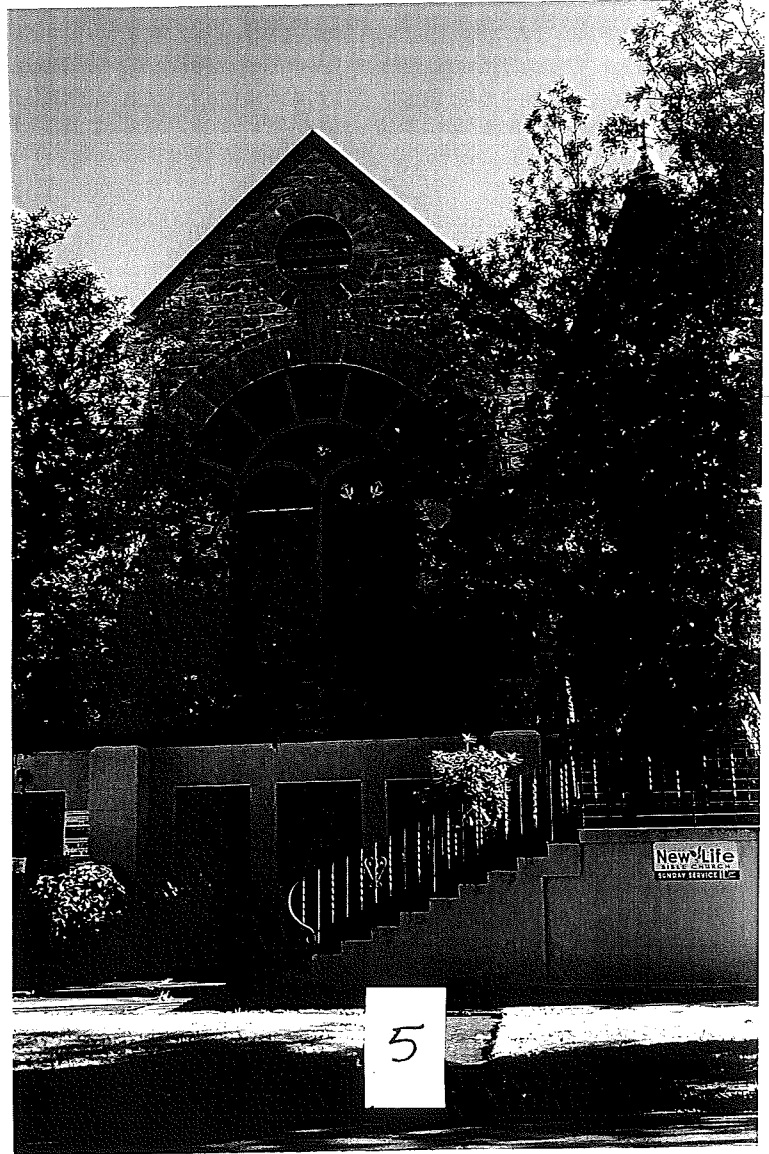
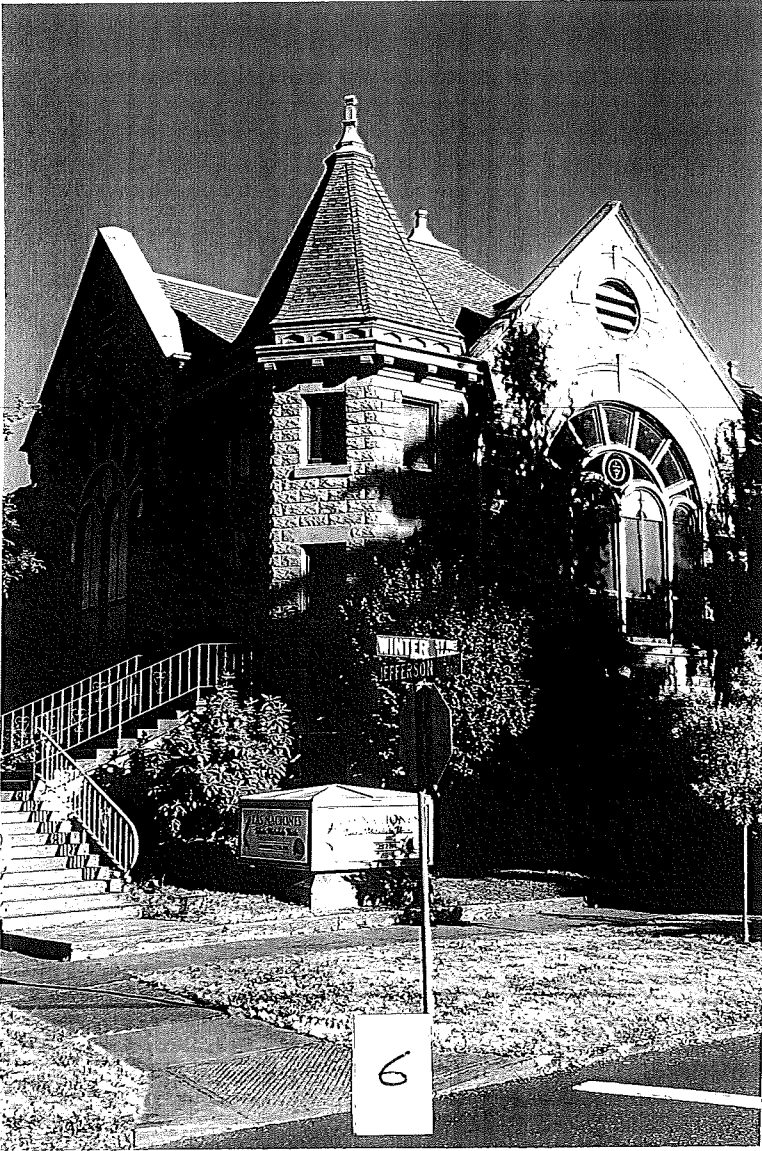


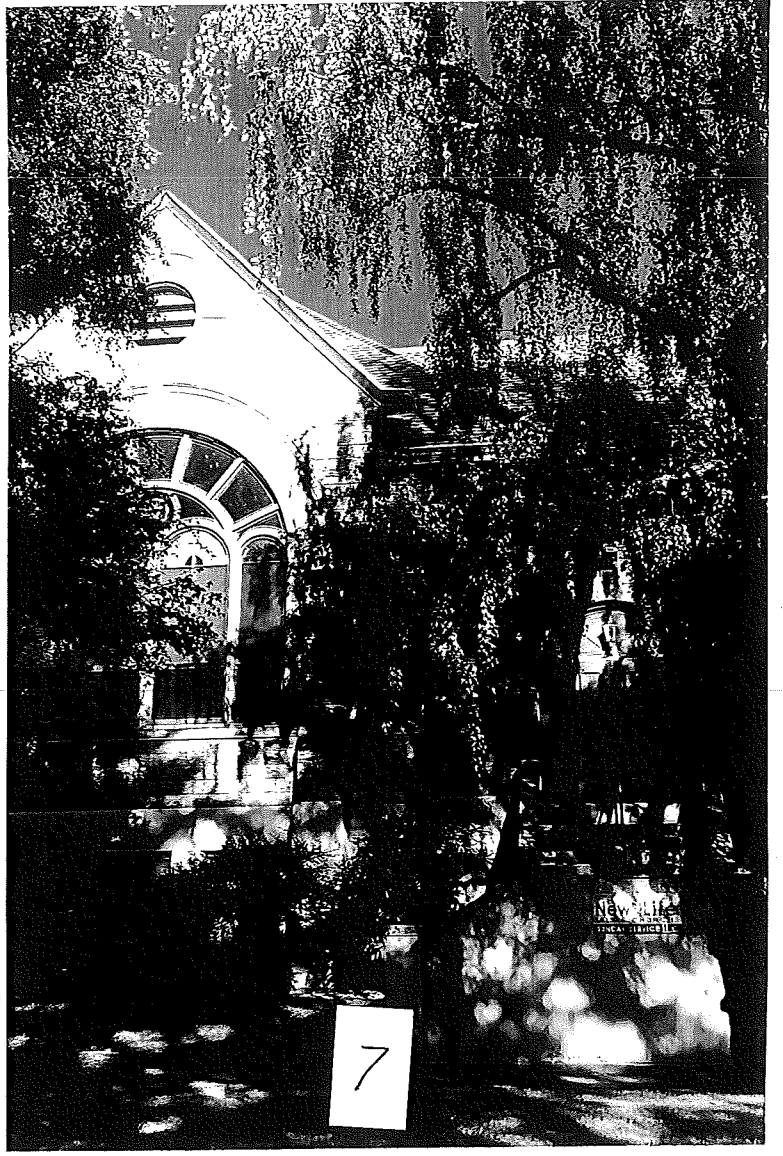
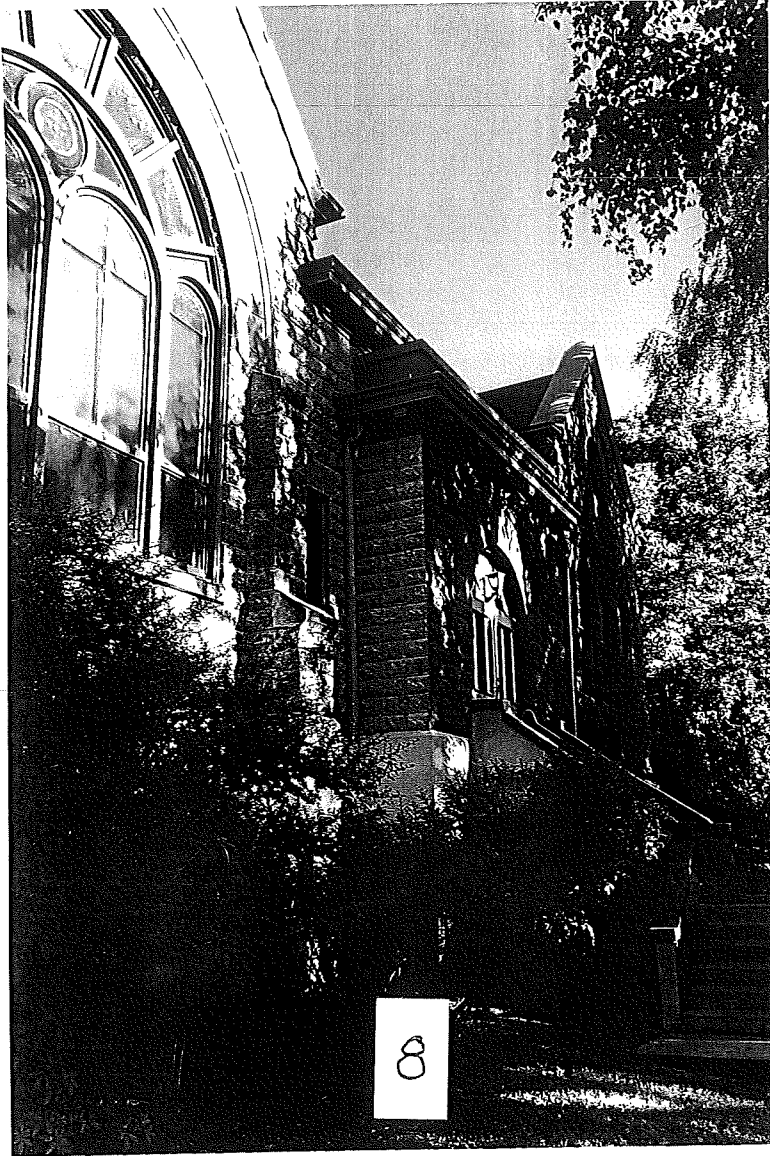
Partial Cross Section A - A Details

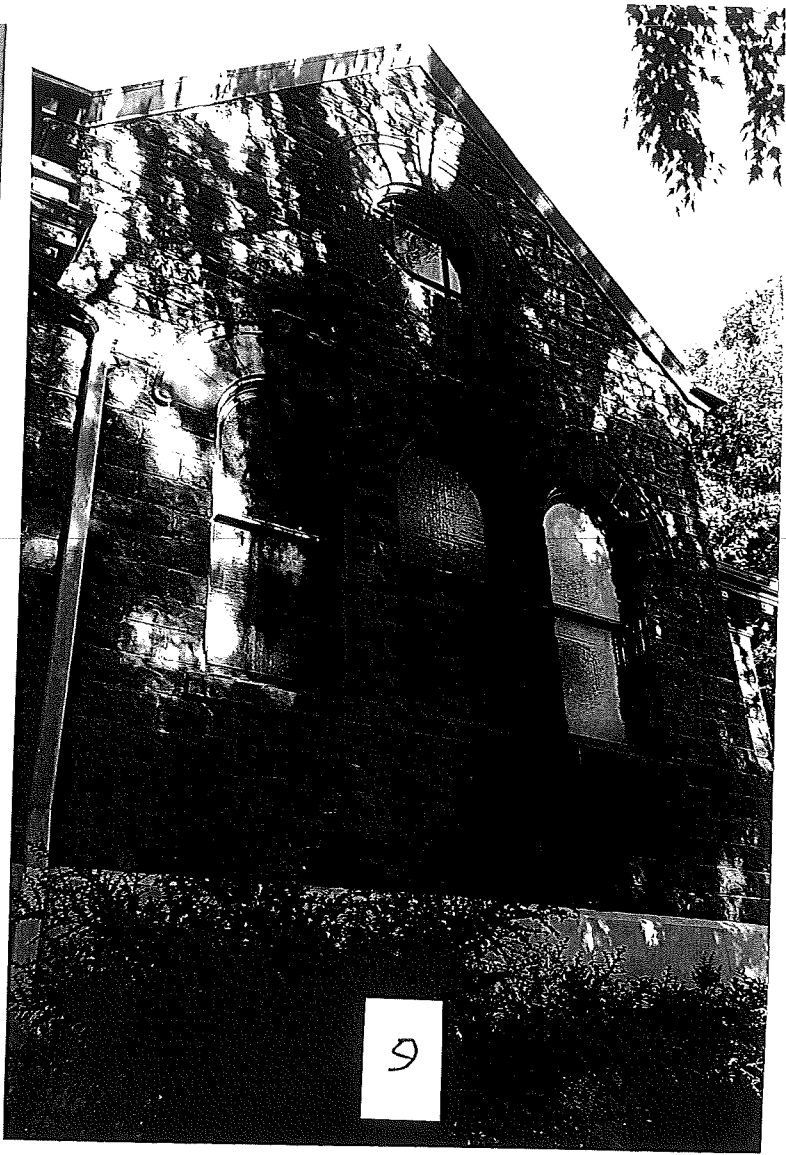
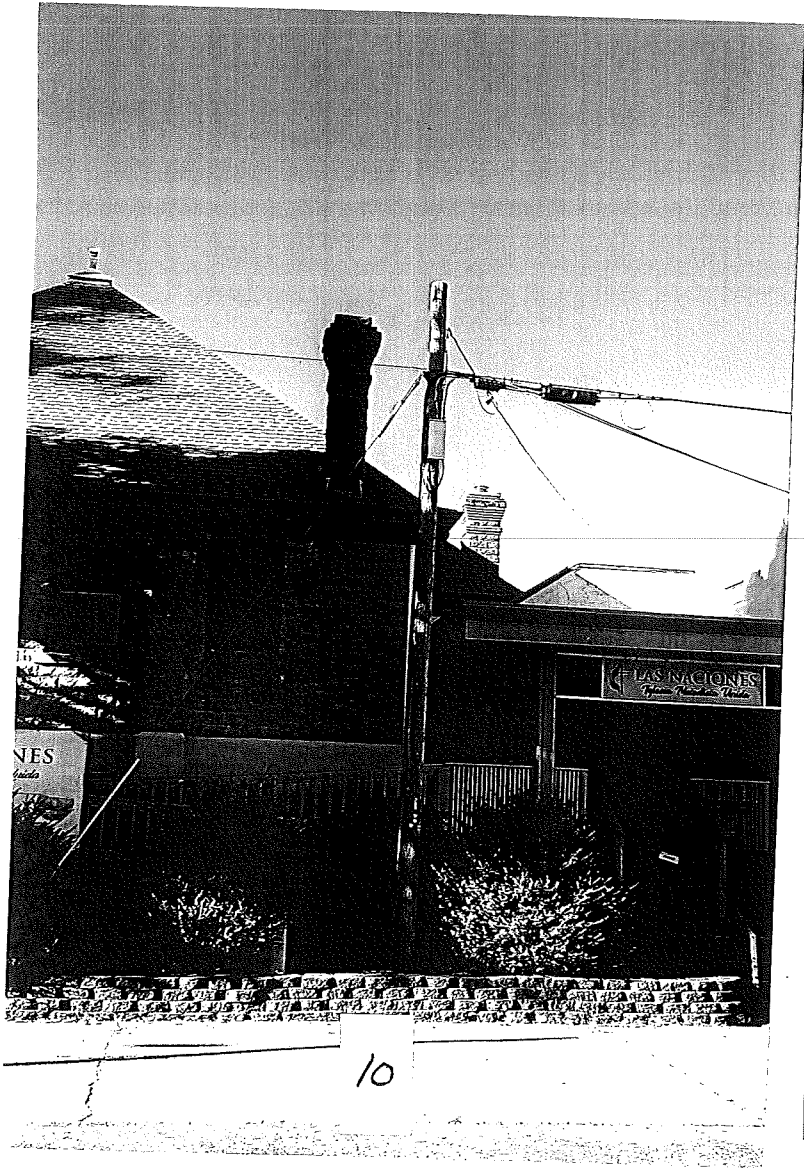


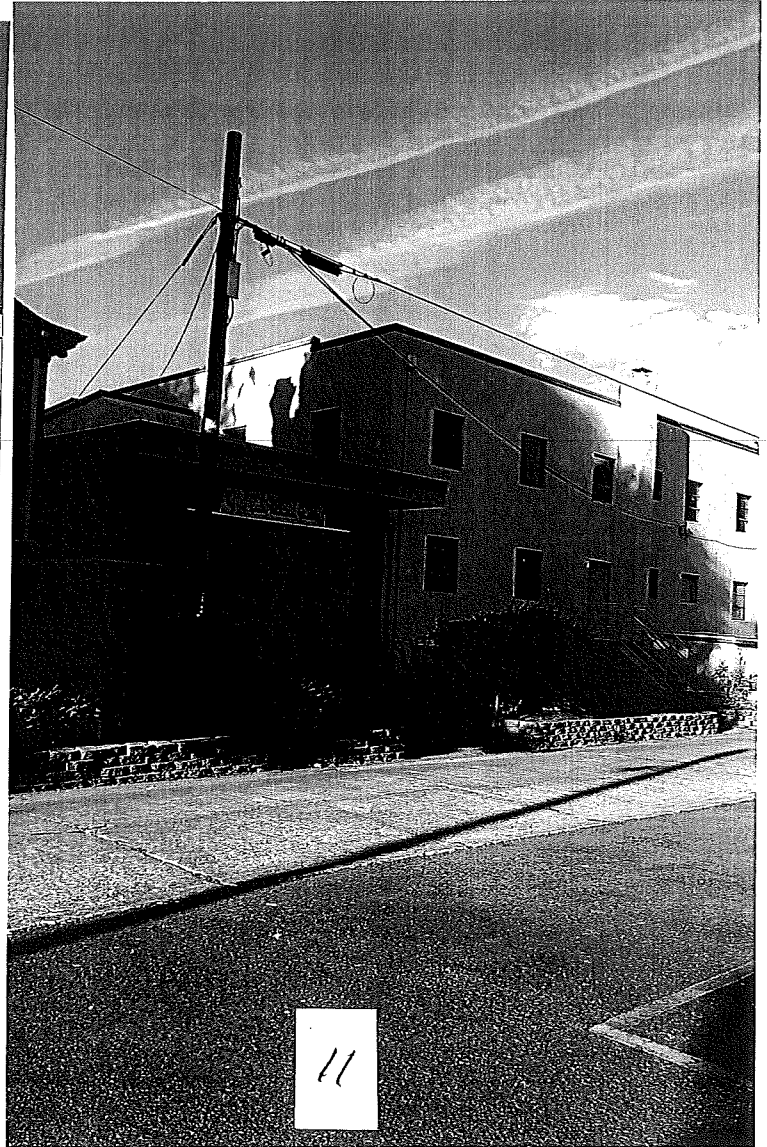
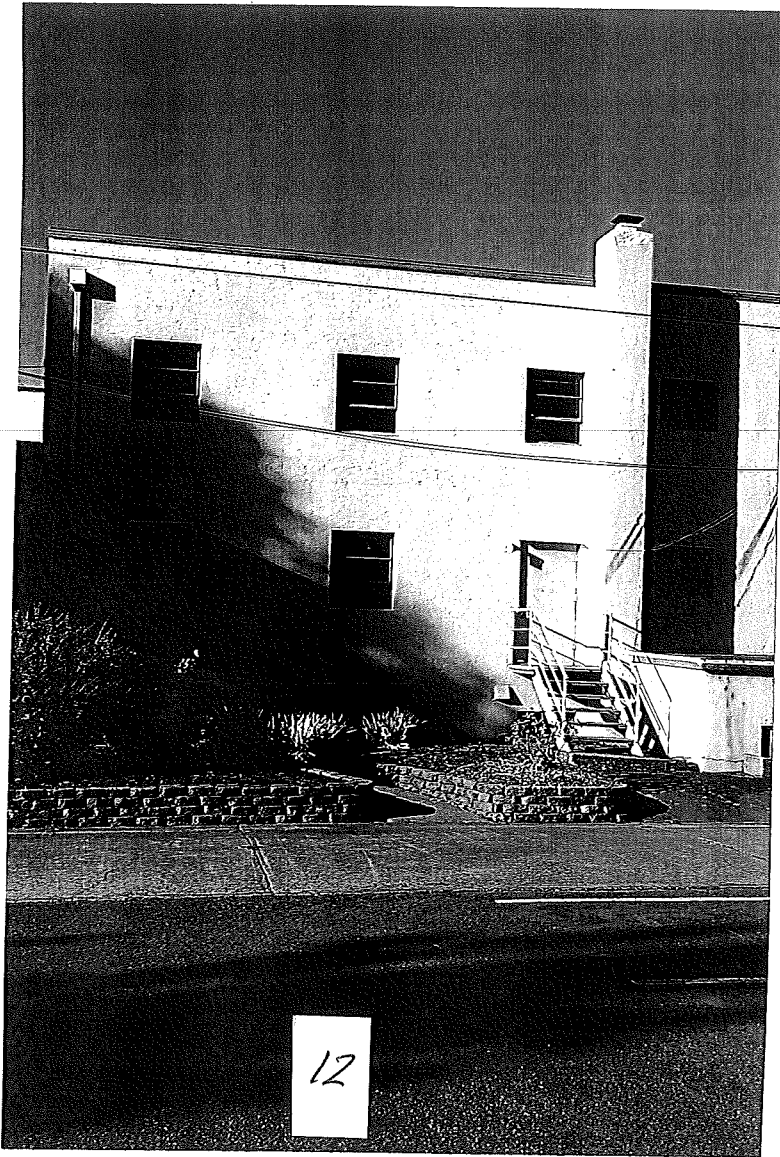




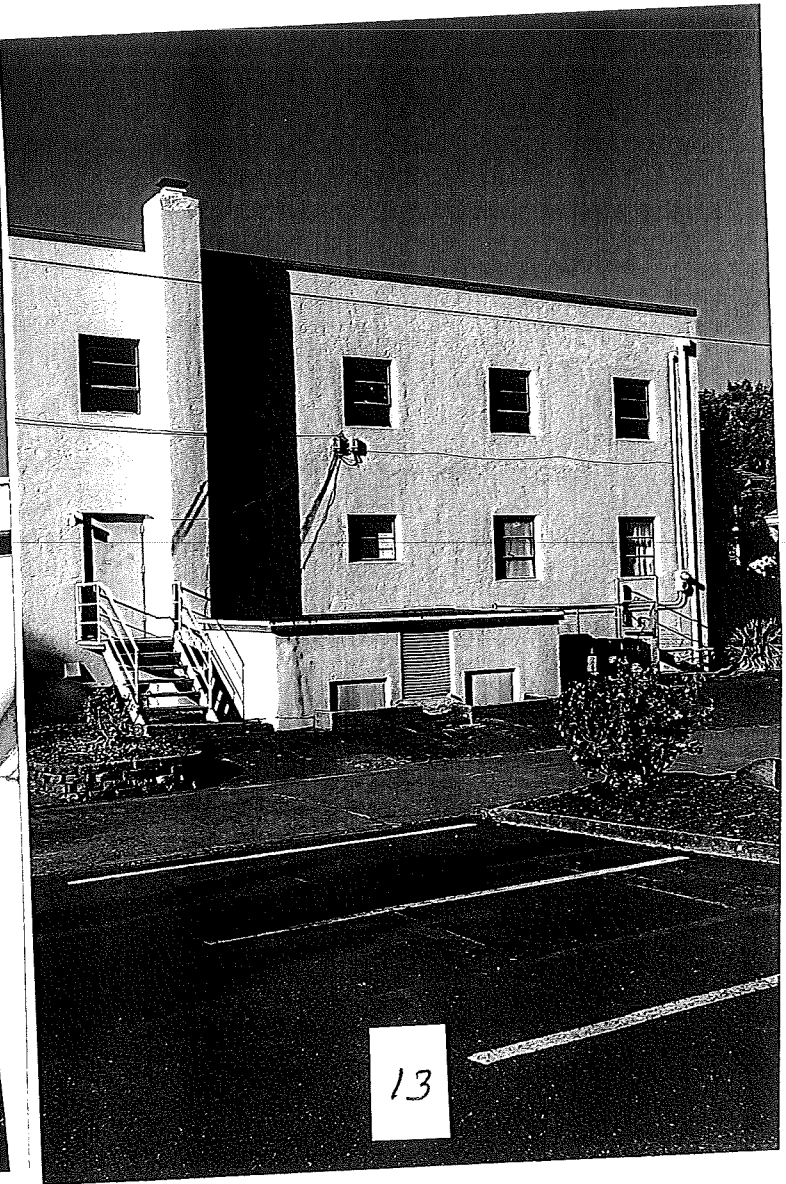
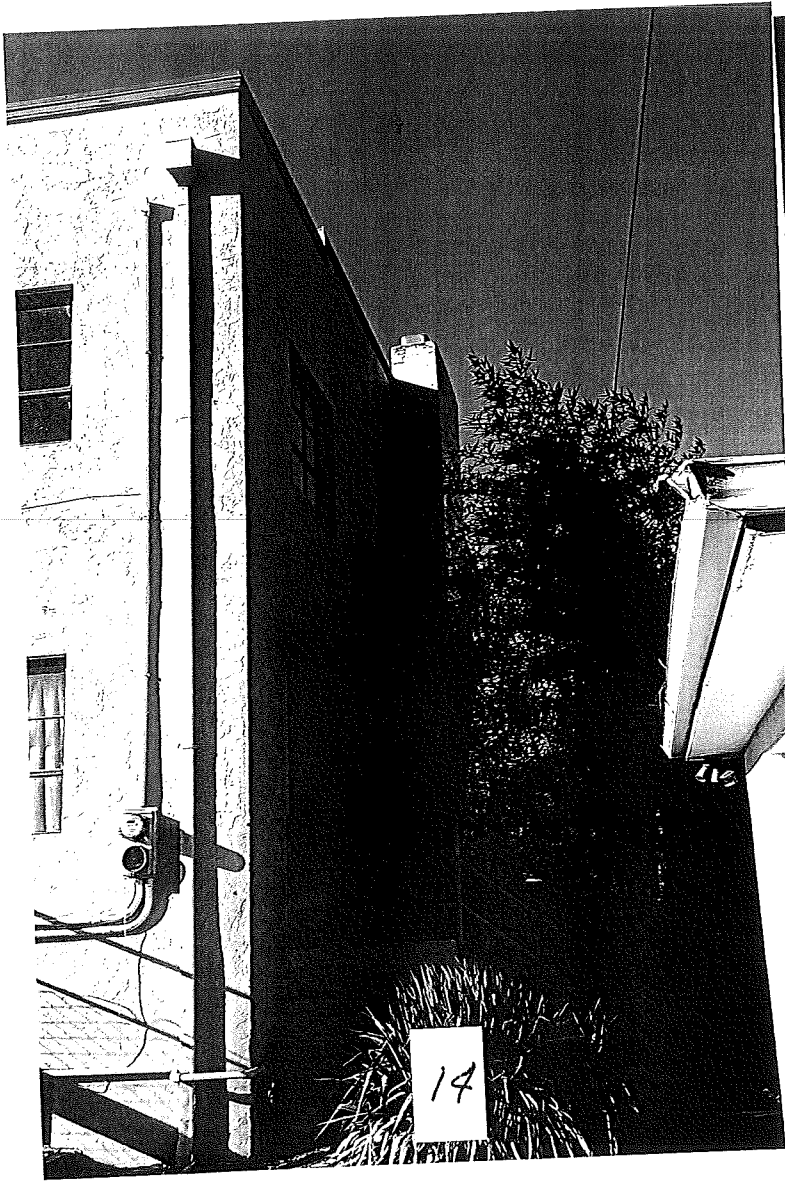


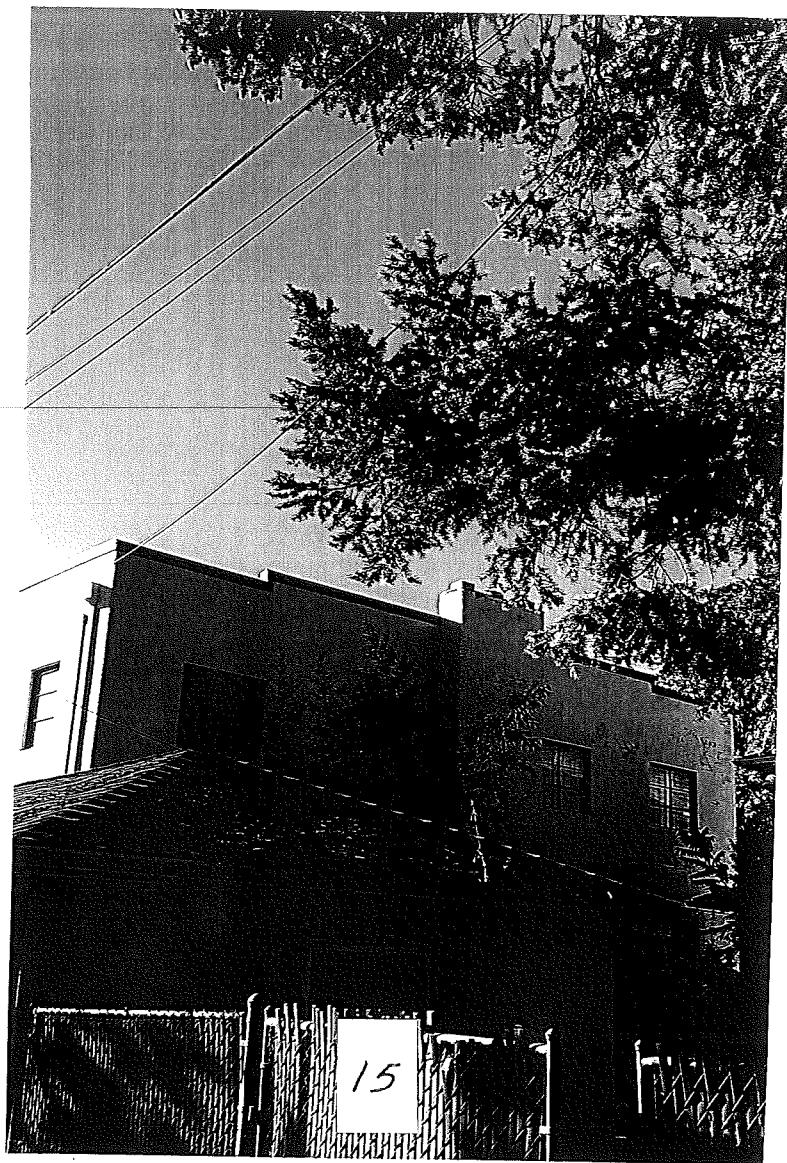












HIS20-19 820 Jefferson St NE



Education Building and Jason Lee United Methodist Church – North facades (looking south)

HIS20-19 820 Jefferson St NE



View of Education Building, south façade (looking northeast) – 820 Jefferson St. NE



HIS20-19 820 Jefferson St NE

