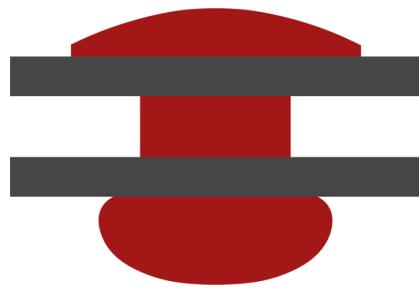


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|--------------------------------------|----------|
| [0101] Codes | 1 |
| [1] Project Summary xx | 1 |
| [2] Overview and Codes | 1 |
| [3] Gravity Loads and Seismic Mass | 3 |
| [0102] Loads | 5 |
| [1] Project Summary | 5 |
| [2] Overview and Codes | 5 |
| [3] Gravity Loads and Seismic Mass | 7 |

[0101] Codes

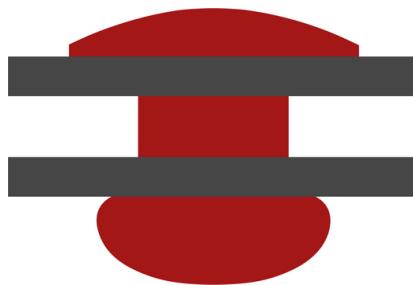
[1] Project Summary xx

This report **describes** the structural design of a solar canopy *covering* a residential patio located in the City of Larkspur, California. It includes the design of a concrete slab and *stem* wall, steel tube frame, and clip attachments of solar panels to the frame.

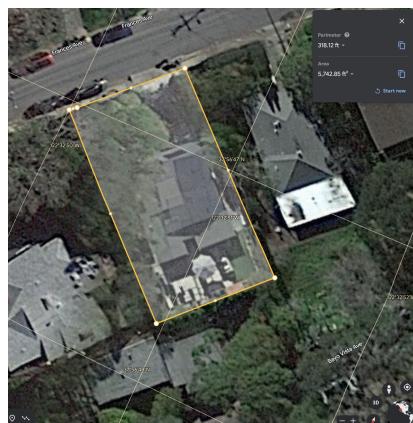
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[2] Overview and Codes

This report **describes** the structural design of a solar canopy *covering* a residential patio located in the City of Larkspur, California. It includes the design of a concrete slab and *stem* wall, steel tube frame, and clip attachments of solar panels to the frame.



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$$wt_2 = \frac{a_2 \cdot dl_2}{2} + 4$$

Building Codes and Jurisdiction

- City of Larkspur, California
- 2019 California Building Code [CBC]
- 2019 California Residential Code [CRC]

[0101] Codes

Table 01 - My Table [from file: ins01/cbc2019A_stds.csv]

| Category | Standard | Year |
|---|-----------|------|
| Loading | ASCE-7 | 2016 |
| Concrete | ACI-318 | 2014 |
| Wood-National Design Specifications | AWC-NDS | 2018 |
| Wood-Special Design Provisions for Wind and Seismic | AWC-SDPWS | 2015 |
| Wood Frame Construction Manual | AWC-WFCM | 2018 |

Design loads for the project are from the California Building and Residential Codes and are summarized in the following tables.

Table 02 - Another Table Title [from file: ins01/load_types01.csv]

| Sym | Load Effect | Notes |
|-----|--|---|
| D | Dead load | See IBC 1606 and Chapter 3 of this publication |
| E | Combined effect of horizontal and vertical earthquake-induced forces as defined in ASCE/SEI 12.4.2 | See IBC 1613, ASCE/SEI 12.4.2 and Chapter 6 of this publication |
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| H | Load due to lateral earth pressures, ground water pressure or pressure of bulk materials | See IBC 1610 for soil lateral loads |
| L | Live load, except roof live load, including any permitted live load reduction | See IBC 1607 and Chapter 3 of this publication |
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| R | Rain load | See IBC 1611 and Chapter 3 of this publication |
| W | Load due to wind pressure | See IBC 1609 and Chapter 5 of this publication |

Table 03 - Load Combinations

Table 04 - xxx [from file: ins01/asce7_load_comb.csv]

| CBC 2019 reference | Equation |
|--------------------|---|
| Equation 16-1 | 1.4(D + F) |
| Equation 16-2 | 1.2(D + F) + 1.6(L + H) + 0.5(L or S or R) |
| Equation 16-3 | 1.2(D + F) + 1.6(Lr or S or R) + 1.6H + (f1L or 0.5W) |
| Equation 16-4 | 1.2(D + F) + 1.0W + f1L + 1.6H + 0.5(Lr or S or R) |
| Equation 16-5 | 1.2(D + F) + 1.0E + f1L + 1.6H + f2S |
| Equation 16-6 | 0.9D + 1.0W + 1.6H |

[3] Gravity Loads and Seismic Mass

| | |
|---------------|----------------------------|
| Equation 16-7 | $0.9(D + F) + 1.0E + 1.6H$ |
|---------------|----------------------------|

[3] Gravity Loads and Seismic Mass

E01 - First floor dimensions

| variable | value | [value] | description |
|----------|--------------|------------|----------------------|
| area1 | 10700.00 sf | 994.06 SM | roof area |
| area2 | 100000.00 sf | 9290.30 SM | floor area |
| area3 | 25.00 sf | 2.32 SM | floor area |
| ht1 | 9.00 ft | 2.74 m | wall height |
| len1 | 110.00 ft | 33.53 m | interior wall length |
| len2 | 155.00 ft | 47.24 m | exterior wall length |
| udl1 | 12.20 psf | 584.14 Pa | description |

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[from file: vals01test1.csv]

| variable | value | [value] | description |
|----------|-----------|------------|----------------------|
| floordl1 | 50.00 psf | 2394.01 Pa | interior wall length |
| floordl2 | 10.00 psf | 478.80 Pa | exterior wall length |

E02 - Equation for floor area

$$wt_2 = area_2 \cdot floordl_1$$

ACI-315-05

| wt2 | area2 | floordl1 |
|---------------|--------------|------------|
| 5000.00 kips | 100000.00 sf | 50.00 psf |
| 22241108.00 N | 9290.30 SM | 2394.01 Pa |

E03 - Equation for wall area

$$wt_3 = area_3 \cdot floordl_2 \cdot 0.1$$

ACI-315-05

| wt3 | floordl2 | area3 |
|----------|-----------|----------|
| 25.0 lbs | 10.00 psf | 25.00 sf |
| 111.2 N | 478.80 Pa | 2.32 SM |

E04 - Exterior wall - total area load

[from file: vals01test2.csv]

| variable | value | [value] | description |
|----------|-------|---------|-------------|
|----------|-------|---------|-------------|

[3] Gravity Loads and Seismic Mass

| | | | |
|------|-----------|----------|----------------------|
| len1 | 410.00 ft | 124.97 m | interior wall length |
| len2 | 455.00 ft | 138.68 m | exterior wall length |

[0102] Loads

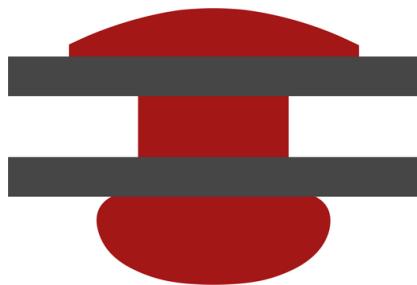
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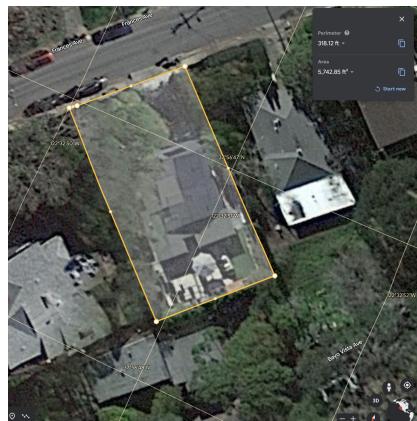
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[3] Gravity Loads and Seismic Mass

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ACI-315-05

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ACI-315-05

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E04 - Exterior wall - total area load

[from file: vals01test2.csv]

| variable | value | [value] | description |
|----------|-------|---------|-------------|
|----------|-------|---------|-------------|

[3] Gravity Loads and Seismic Mass

| | | | |
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