



5	
6	
7	
8	
9	
1	
1	
1	
1	
1	
1	
1	
1	
1	
A	
1	
2	
G	
1	
2	
3	
4	
N	
1	
2	
3	
4	
5	
6	
	MA
	C
	H
(1)	

DATE:	11/18/22
SCALE:	AS NOTED
DRAWN:	MEG
CHECKED:	
CHECKED:	
FILE NAME:	
SHEET:	MO.1
SHEET OF SHEETS	



THE USE OF THESE DRAWINGS AND SPECIFICATIONS IS RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY WERE PREPARED. PUBLICATION THEREOF IS EXPRESSLY LIMITED TO SUCH USE. REPRODUCTION OR PUBLICATION BY ANY MEANS, IN WHOLE OR IN PART, IS PROHIBITED.

TITLE TO THESE DRAWINGS AND SPECIFICATIONS REMAINS WITH THE ENGINEER WITHOUT PREJUDICE. VISUAL CONTACT WITH THESE DRAWINGS AND SPECIFICATIONS SHALL CONSTITUTE AFRICA EVIDENCE OF THE ACCEPTANCE OF THESE RESTRICTIONS.

MONTEREY ENERGY GROUP, INC.

CERTIFICATE OF COMPLIANCE  
Project Name: 415 Natural Bridges, Santa Cruz  
Calculation Date/Time: 2022-08-01T10:04:04-07:00  
Input File Name: 22-277 415 Natural Bridges, Santa Cruz (Multi-Family).rbd19x

CF1R-PRF-01E  
(Page 1 of 19)

GENERAL INFORMATION										
01	Project Name		415 Natural Bridges, Santa Cruz							
02	Run Title		Title 24 Analysis							
03	Project Location		415 Natural Bridges Drive							
04	City		Santa Cruz		05	Standards Version		2019		
06	Zip code		95060		07	Software Version		EnergyPro 8.3		
08	Climate Zone		3		09	Front Orientation (deg/ Cardinal)		90		
10	Building Type		Multifamily		11	Number of Dwelling Units		20		
12	Project Scope		NewConstruction		13	Number of Bedrooms		0		
14	Addition Cond. Floor Area (ft²)		0		15	Number of Stories		3		
16	Existing Cond. Floor Area (ft²)		n/a		17	Fenestration Average U-factor		0.3		
18	Total Cond. Floor Area (ft²)		7328		19	Glazing Percentage (%)		14.62%		
20	ADU Bedroom Count		n/a		21	ADU Conditioned Floor Area		n/a		
22	Is Natural Gas Available?		No							

COMPLIANCE RESULTS	
01	Building Complies with Computer Performance
02	This building incorporates features that require field testing and/or verification by a certified HERS rater under the supervision of a CEC-approved HERS provider.
03	This building incorporates one or more Special Features shown below

Registration Number: 222-P0101513508-000-000-00000000-0000  
CA Building Energy Efficiency Standards - 2019 Residential Compliance

Registration Date/Time: 2022-08-01 09:58:07  
Report Version: 2019.2.000  
Schema Version: rev 20200901

HERS Provider: CalCERTS, Inc.  
Report Generated: 2022-08-01 09:58:08

CERTIFICATE OF COMPLIANCE  
Project Name: 415 Natural Bridges, Santa Cruz  
Calculation Date/Time: 2022-08-01T10:04:04-07:00  
Input File Name: 22-277 415 Natural Bridges, Santa Cruz (Multi-Family).rbd19x

CF1R-PRF-01E  
(Page 3 of 19)

REQUIRED SPECIAL FEATURES	
The following are features that must be installed as condition for meeting the modeled energy performance for this computer analysis.	
<ul style="list-style-type: none"><li>Indoor air quality, balanced fan</li><li>IAQ Ventilation System Heat Recovery: minimum 66 SRE and 66 ASRE</li><li>IAQ Ventilation System: supply outside air -inlet, filter, and H/ERV cores accessible per RACM Reference Manual</li><li>No cooling system included</li><li>Solar water heating credit, multifamily building</li><li>Central Heat Pump Water Heater</li><li>Multifamily: Recirculating with no control (continuous pumping)</li></ul>	

HERS FEATURE SUMMARY	
The following is a summary of the features that must be field-verified by a certified HERS Rater as a condition for meeting the modeled energy performance for this computer analysis. Additional detail is provided in the building tables below. Registered CF2Rs and CF3Rs are required to be completed in the HERS Registry	

Building-level Verifications:	
<ul style="list-style-type: none"><li>Indoor air quality ventilation</li><li>Kitchen range hood</li></ul>	
Cooling System Verifications:	
<ul style="list-style-type: none"><li>None --</li></ul>	
Heating System Verifications:	
<ul style="list-style-type: none"><li>None --</li></ul>	
HVAC Distribution System Verifications:	
<ul style="list-style-type: none"><li>None --</li></ul>	
Domestic Hot Water System Verifications:	
<ul style="list-style-type: none"><li>None --</li></ul>	

BUILDING - FEATURES INFORMATION						
01	02	03	04	05	06	07
Project Name	Conditioned Floor Area (ft <sup>2</sup> )	Number of Dwelling Units	Number of Bedrooms	Number of Zones	Number of Ventilation Cooling Systems	Number of Water Heating Systems
415 Natural Bridges, Santa Cruz	7328	20	0	1	0	1

ZONE INFORMATION				
01	02	03	04	05
Zone Name	Zone Type	Zone Floor Area (ft <sup>2</sup> )	Avg. Ceiling Height	Number of Dwelling Units
Entire Building	Conditioned	7328	9	20

Registration Number: 222-P0101513508-000-000-00000000-0000  
CA Building Energy Efficiency Standards - 2019 Residential Compliance

Registration Date/Time: 2022-08-01 09:58:07  
Report Version: 2019.2.000  
Schema Version: rev 20200901

HERS Provider: CalCERTS, Inc.  
Report Generated: 2022-08-01 09:58:08

CERTIFICATE OF COMPLIANCE  
Project Name: 415 Natural Bridges, Santa Cruz  
Calculation Date/Time: 2022-08-01T10:04:04-07:00  
Input File Name: 22-277 415 Natural Bridges, Santa Cruz (Multi-Family).rbd19x

CF1R-PRF-01E  
(Page 5 of 19)

DWELLING UNIT TYPES						
01	02	03	04	05	06	07
Name	CFA (ft2)	Number of Bedrooms	Number in Building	Space Conditioning Systems Assigned	DHW System Name	IAQ Vent Fan Name
DU-1 Units 101 & 102	412	0	2	DDU-1 Units 101 & 102 1/2   :Heating Component 1::1:3 DDU-1 Units 101 & 102 2/2   :Heating Component 1::1:3 DDU-1 Units 101 & 102 1/2   :Cooling Component 1::1:3 DDU-1 Units 101 & 102 2/2   :Cooling Component 1::1:3	DHW Sys 1	Specify Individual IAQ Fans
DU-2 Unit 103	413	0	1	DDU-2 Unit 103   :Heating Component 1::1:3 DDU-2 Unit 103   :Cooling Component 1::1:3	DHW Sys 1	Specify Individual IAQ Fans
DU-3 Units 201-204	359	0	4	DDU-3 Units 201-204 1/4   :Heating Component 1::1:3 DDU-3 Units 201-204 2/4   :Heating Component 1::1:3 DDU-3 Units 201-204 3/4   :Heating Component 1::1:3 DDU-3 Units 201-204 4/4   :Heating Component 1::1:3 DDU-3 Units 201-204 1/4   :Cooling Component 1::1:3 DDU-3 Units 201-204 2/4   :Cooling Component 1::1:3 DDU-3 Units 201-204 3/4   :Cooling Component 1::1:3 DDU-3 Units 201-204 4/4   :Cooling Component 1::1:3	DHW Sys 1	Specify Individual IAQ Fans
DU-4 Unit 205	258	0	1	DDU-4 Unit 205   :Heating Component 1::1:3 DDU-4 Unit 205   :Cooling Component 1::1:3	DHW Sys 1	Specify Individual IAQ Fans
DU-5 Unit 206	321	0	1	DDU-5 Unit 206   :Heating Component 1::1:3 DDU-5 Unit 206   :Cooling Component 1::1:3	DHW Sys 1	Specify Individual IAQ Fans
DU-6 Units 207 & 208	362	0	2	DDU-6 Units 207 & 208 1/2   :Heating Component 1::1:3 DDU-6 Units 207 & 208 2/2   :Heating Component 1::1:3 DDU-6 Units 207 & 208 1/2   :Cooling Component 1::1:3 DDU-6 Units 207 & 208 2/2   :Cooling Component 1::1:3	DHW Sys 1	Specify Individual IAQ Fans
DU-7 Unit 209	415	0	1	DDU-7 Unit 209   :Heating Component 1::1:3 DDU-7 Unit 209   :Cooling Component 1::1:3	DHW Sys 1	Specify Individual IAQ Fans

Registration Number: 222-P0101513508-000-000-00000000-0000  
CA Building Energy Efficiency Standards - 2019 Residential Compliance

Registration Date/Time: 2022-08-01 09:58:07  
Report Version: 2019.2.000  
Schema Version: rev 20200901

HERS Provider: CalCERTS, Inc.  
Report Generated: 2022-08-01 09:58:08

CERTIFICATE OF COMPLIANCE  
Project Name: 415 Natural Bridges, Santa Cruz  
Calculation Date/Time: 2022-08-01T10:04:04-07:00  
Input File Name: 22-277 415 Natural Bridges, Santa Cruz (Multi-Family).rbd19x

CF1R-PRF-01E  
(Page 2 of 19)

ENERGY DESIGN RATING				
Energy Design Ratings		Compliance Margins		
	Efficiency' (EDR)	Total' (EDR)	Efficiency' (EDR)	Total' (EDR)
Standard Design	67.5	39.7		
Proposed Design	58.4	30	9.1	9.7

RESULT: <sup>3</sup> COMPLIES

1: Efficiency EDR includes improvements to the building envelope and more efficient equipment  
2: Total EDR includes efficiency and demand response measures such as photovoltaic (PV) systems and batteries  
3: Building complies when efficiency and total compliance margins are greater than or equal to zero

- Standard Design PV Capacity: 24.91 kWdc
- PV System resized to 24.91 kWdc (a factor of 24.910) to achieve 'Standard Design PV' PV scaling

ENERGY USE SUMMARY				
Energy Use (kTODU/ft <sup>2</sup> -yr)	Standard Design	Proposed Design	Compliance Margin	Percent Improvement
Space Heating	4.24	2.67	1.57	37
Space Cooling	3.55	6.59	-3.04	-85.6
IAQ Ventilation	13.98	16.15	-2.17	-15.5
Water Heating	112.44	69.62	42.82	38.1
Self Utilization/Flexibility Credit	n/a	0	0	n/a
Compliance Energy Total	134.21	95.03	39.18	29.2

REQUIRED PV SYSTEMS - SIMPLIFIED											
01	02	03	04	05	06	07	08	09	10	11	12
DC System Size (kWdc)	Exception	Module Type	Array Type	Power Electronics	CFI	Asimuth (deg)	Tilt Input	Array Angle (deg)	Tilt: (x in 12)	Inverter Eff. (%)	Annual Solar Access (%)
24.91	NA	Standard	Fixed	none	true	150-270	n/a	n/a	<=7:12	96	98

Registration Number: 222-P0101513508-000-000-00000000-0000  
CA Building Energy Efficiency Standards - 2019 Residential Compliance

Registration Date/Time: 2022-08-01 09:58:07  
Report Version: 2019.2.000  
Schema Version: rev 20200901

HERS Provider: CalCERTS, Inc.  
Report Generated: 2022-08-01 09:58:08

CERTIFICATE OF COMPLIANCE  
Project Name: 415 Natural Bridges, Santa Cruz  
Calculation Date/Time: 2022-08-01T10:04:04-07:00  
Input File Name: 22-277 415 Natural Bridges, Santa Cruz (Multi-Family).rbd19x

CF1R-PRF-01E  
(Page 4 of 19)

DWELLING UNIT INFORMATION		
01	02	03
Dwelling Unit Name	Dwelling Unit Type	Zone
DDU-1 Units 101 & 102 (1/2)	DU-1 Units 101 & 102	Entire Building
DDU-1 Units 101 & 102 (2/2)	DU-1 Units 101 & 102	Entire Building
DDU-2 Unit 103 (1/1)	DU-2 Unit 103	Entire Building
DDU-3 Units 201-204 (1/4)	DU-3 Units 201-204	Entire Building
DDU-3 Units 201-204 (2/4)	DU-3 Units 201-204	Entire Building
DDU-3 Units 201-204 (3/4)	DU-3 Units 201-204	Entire Building
DDU-3 Units 201-204 (4/4)	DU-3 Units 201-204	Entire Building
DDU-4 Unit 205 (1/1)	DU-4 Unit 205	Entire Building
DDU-5 Unit 206 (1/1)	DU-5 Unit 206	Entire Building
DDU-6 Units 207 & 208 (1/2)	DU-6 Units 207 & 208	Entire Building
DDU-6 Units 207 & 208 (2/2)	DU-6 Units 207 & 208	Entire Building
DDU-7 Unit 209 (1/1)	DU-7 Unit 209	Entire Building
DDU-8 Units 301-304 (1/4)	DU-8 Units 301-304	Entire Building
DDU-8 Units 301-304 (2/4)	DU-8 Units 301-304	Entire Building
DDU-8 Units 301-304 (3/4)	DU-8 Units 301-304	Entire Building
DDU-8 Units 301-304 (4/4)	DU-8 Units 301-304	Entire Building
DDU-9 Unit 305 (1/1)	DU-9 Unit 305	Entire Building
DDU-10 Units 306 & 307 (1/2)	DU-10 Units 306 & 307	Entire Building
DDU-10 Units 306 & 307 (2/2)	DU-10 Units 306 & 307	Entire Building
DDU-11 Unit 308 (1/1)	DU-11 Unit 308	Entire Building

Registration Number: 222-P0101513508-000-000-00000000-0000  
CA Building Energy Efficiency Standards - 2019 Residential Compliance

Registration Date/Time: 2022-08-01 09:58:07  
Report Version: 2019.2.000  
Schema Version: rev 20200901

HERS Provider: CalCERTS, Inc.  
Report Generated: 2022-08-01 09:58:08

CERTIFICATE OF COMPLIANCE  
Project Name: 415 Natural Bridges, Santa Cruz  
Calculation Date/Time: 2022-08-01T10:04:04-07:00  
Input File Name: 22-277 415 Natural Bridges, Santa Cruz (Multi-Family).rbd19x

CF1R-PRF-01E  
(Page 6 of 19)

DWELLING UNIT TYPES						
01	02	03	04	05	06	07
Name	CFA (ft2)	Number of Bedrooms	Number in Building	Space Conditioning Systems Assigned	DHW System Name	IAQ Vent Fan Name
DU-8 Units 301-304	359	0	4	DDU-8 Units 301-304 1/4   :Heating Component 1::1:3 DDU-8 Units 301-304 2/4   :Heating Component 1::1:3 DDU-8 Units 301-304 3/4   :Heating Component 1::1:3 DDU-8 Units 301-304 4/4   :Heating Component 1::1:3 DDU-8 Units 301-304 1/4   :Cooling Component 1::1:3 DDU-8 Units 301-304 2/4   :Cooling Component 1::1:3 DDU-8 Units 301-304 3/4   :Cooling Component 1::1:3 DDU-8 Units 301-304 4/4   :Cooling Component 1::1:3	DHW Sys 1	Specify Individual IAQ Fans
DU-9 Unit 305	398	0	1	DDU-9 Unit 305   :Heating Component 1::1:3 DDU-9 Unit 305   :Cooling Component 1::1:3	DHW Sys 1	Specify Individual IAQ Fans
DU-10 Units 306 & 307	362	0	2	DDU-10 Units 306 & 307 1/2   :Heating Component 1::1:3 DDU-10 Units 306 & 307 2/2   :Heating Component 1::1:3 DDU-10 Units 306 & 307 1/2   :Cooling Component 1::1:3 DDU-10 Units 306 & 307 2/2   :Cooling Component 1::1:3	DHW Sys 1	Specify Individual IAQ Fans
DU-11 Unit 308	379	0	1	DDU-11 Unit 308   :Heating Component 1::1:3 DDU-11 Unit 308   :Cooling Component 1::1:3	DHW Sys 1	Specify Individual IAQ Fans

OPAQUE SURFACES							
01	02	03	04	05	06	07	08
Name	Zone	Construction	Asimuth	Orientation	Gross Area (ft <sup>2</sup> )	Window and Door Area (ft2)	Tilt (deg)
PWall	Entire Building	R-21 Wall	90	Front	1530.7	539.3	90
UWall	Entire Building	R-21 Wall	180	Left	1031.2	66	90
BWall	Entire Building	R-21 Wall	270	Back	1071	384	90
RWall	Entire Building	R-21 Wall	0	Right	1215	82	90
Partition Wall	Entire Building	R-21 Wall1	n/a	n/a	3573	420	n/a
Raised Floor X	Entire Building	R-19 Floor No Crawlspace1	n/a	n/a	112	n/a	n/a
Partition Floor	Entire Building	R-19 Floor No Crawlspace	n/a	n/a	1928	n/a	n/a


Registration Number: 222-P0101513508-000-000-00000000-0000  
CA Building Energy Efficiency Standards - 2019 Residential Compliance

Registration Date/Time: 2022-08-01 09:58:07  
Report Version: 2019.2.000  
Schema Version: rev 20200901

HERS Provider: CalCERTS, Inc.  
Report Generated: 2022-08-01 09:58:08

REVISIONS:	BY:
1	MEG
1	MEG
1	MEG
1	MEG
1	MEG
1	MEG
1	MEG
1	MEG
1	MEG
1	MEG

**MONTEREY ENERGY GROUP**  
Consulting Mechanical Engineering  
26465 Carmel Rancho Blvd., Suite 8, Carmel, CA 93923  
www.montereyenergygroup.com  
831-372-8328 VOICE  
831-359-4173 FAX  
cmf@meg4.com



**AFFORDABLE HOUSING**  
415 NATURAL BRIDGES  
SANTA CRUZ, CA

**ENERGY COMPLIANCE**

DATE:	11/18/22
SCALE:	AS NOTED
DRAWN:	MEG
CHECKED:	
CHECKED:	
FILE NAME:	
SHEET:	MO.2
SHEET OF SHEETS	



THE USE OF THESE DRAWINGS AND SPECIFICATIONS IS RESTRICTED TO THE ORIGINAL, ETC FOR WHICH THEY WERE PREPARED. PUBLICATION, THEREOF, IS EXPRESSLY LIMITED TO SUCH USE. REPRODUCTION OR PUBLICATION BY ANY MEANS, IN WHOLE OR IN PART, IS PROHIBITED.

TITLE TO THESE DRAWINGS AND SPECIFICATIONS REMAINS WITH THE ENGINEER WITHOUT PREJUDICE. VISUAL CONTACT WITH THESE DRAWINGS AND SPECIFICATIONS SHALL CONSTITUTE AFRMA EVIDENCE OF THE ACCEPTANCE OF THESE RESTRICTIONS.

MONTEREY ENERGY GROUP, INC.

CERTIFICATE OF COMPLIANCE  
Project Name: 415 Natural Bridges, Santa Cruz  
Calculation Description: Title 24 Analysis

CF1R-PRF-01E  
(Page 7 of 19)  
Calculation Date/Time: 2022-08-01T10:04:04-07:00  
Input File Name: 22-277 415 Natural Bridges, Santa Cruz (Multi-Family).ribd19x

01	02	03	04	05	06	07	08	09	10	11
Name	Zone	Construction	Azimuth	Orientation	Area (ft <sup>2</sup> )	Skylight Area (ft <sup>2</sup> )	Roof Rise (x in 12)	Roof Reflectance	Roof Emissance	Cool Roof
Flat Roof	Entire Building	R-38 Roof	0	Right	4500	0	0	0.1	0.85	No

01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	Type	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft <sup>2</sup> )	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading
5/5/5	Window	FWall	Front	90			1	144	0.3	NFRC	0.28	NFRC	Bug Screen
8/8/8/4	Window	FWall	Front	90			1	203.3	0.3	NFRC	0.28	NFRC	Bug Screen
8/8/8	Window	FWall	Front	90			1	192	0.3	NFRC	0.28	NFRC	Bug Screen
3/3	Window	LWall	Left	180			1	33	0.3	NFRC	0.28	NFRC	Bug Screen
3/3 2	Window	LWall	Left	180			1	38	0.3	NFRC	0.28	NFRC	Bug Screen
8/8/8/2	Window	BWall	Back	270			1	192	0.3	NFRC	0.28	NFRC	Bug Screen
8/8/8/3	Window	BWall	Back	270			1	192	0.3	NFRC	0.28	NFRC	Bug Screen
3/9/3	Window	RWall	Right	0			1	41	0.3	NFRC	0.28	NFRC	Bug Screen
3/9/3 2	Window	RWall	Right	0			1	41	0.3	NFRC	0.28	NFRC	Bug Screen

01	02	03	04
Name	Side of Building	Area (ft <sup>2</sup> )	U-factor
Doors	Partition Wall		0.5

Registration Number: 222-P0101513508-000-000-00000000-0000  
CA Building Energy Efficiency Standards - 2019 Residential Compliance

Registration Date/Time: 2022-08-01 09:59:07  
Report Version: 2019.2.000  
Schema Version: rev 20200901

HERS Provider: CalCERTS Inc.  
Report Generated: 2022-08-01 09:58:08

CERTIFICATE OF COMPLIANCE  
Project Name: 415 Natural Bridges, Santa Cruz  
Calculation Description: Title 24 Analysis

CF1R-PRF-01E  
(Page 9 of 19)  
Calculation Date/Time: 2022-08-01T10:04:04-07:00  
Input File Name: 22-277 415 Natural Bridges, Santa Cruz (Multi-Family).ribd19x

01	02	03	04
Quality Insulation Installation (QII)	High R-value Spray Foam Insulation	Building Envelope Air Leakage	CFM50
Not Required	Not Required	Not Required	n/a

01	02	03	04	05	06	07	08	09
Name	System Type	Number of Systems in Building	Multi-Family Distribution Type	Dwelling Unit Distribution Type	Water Heater Name (H)	Solar Heating System	Compact Distribution	HERS Verification
DHW Sys 1	Domestic Hot Water (DHW)	1	Multi-family: Recirculating with no control (continuous pumping)	Standard Distribution System	DHW Sys 1-heater (1)	Solar-DHW	None	n/a

01	02	03	04	05	06	07	08
Name	Brand/Model	Number of Compressors	Primary Tank Volume (gal)	Tank Count	Tank R-value	Tank Location	Air Source
DHW Sys 1	A. O. Smith CAMF-120 (120 gal)	1	n/a	n/a	n/a	Entire Building	Outside

01	02	03	04	05	06	07
Tank Type	Brand/Model	Count	Tank Volume/Count	Tank R-value	Tank Location	Air Source
Electric Resistance	n/a	1	100 - 1	20	Entire Building	n/a

Registration Number: 222-P0101513508-000-000-00000000-0000  
CA Building Energy Efficiency Standards - 2019 Residential Compliance

Registration Date/Time: 2022-08-01 09:59:07  
Report Version: 2019.2.000  
Schema Version: rev 20200901

HERS Provider: CalCERTS Inc.  
Report Generated: 2022-08-01 09:58:08

CERTIFICATE OF COMPLIANCE  
Project Name: 415 Natural Bridges, Santa Cruz  
Calculation Description: Title 24 Analysis

CF1R-PRF-01E  
(Page 11 of 19)  
Calculation Date/Time: 2022-08-01T10:04:04-07:00  
Input File Name: 22-277 415 Natural Bridges, Santa Cruz (Multi-Family).ribd19x

01	02	03	04	05	06	07	08
Name	Pipe Insulation	Parallel Piping	Compact Distribution	Compact Distribution Type	Recirculation Control	Central DHW Distribution	Shower Drain Water Heat Recovery
DDU-4 Unit 205   DHW Sys 1	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
DDU-5 Unit 206   DHW Sys 1	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
DDU-6 Units 207 & 208 1/2   DHW Sys 1	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
DDU-6 Units 207 & 208 2/2   DHW Sys 1	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
DDU-7 Unit 209   DHW Sys 1	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
DDU-8 Units 301-304 1/4   DHW Sys 1	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
DDU-8 Units 301-304 2/4   DHW Sys 1	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
DDU-8 Units 301-304 3/4   DHW Sys 1	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
DDU-8 Units 301-304 4/4   DHW Sys 1	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
DDU-9 Unit 305   DHW Sys 1	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
DDU-10 Units 306 & 307 1/2   DHW Sys 1	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
DDU-10 Units 306 & 307 2/2   DHW Sys 1	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
DDU-11 Unit 308   DHW Sys 1	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required

Registration Number: 222-P0101513508-000-000-00000000-0000  
CA Building Energy Efficiency Standards - 2019 Residential Compliance

Registration Date/Time: 2022-08-01 09:59:07  
Report Version: 2019.2.000  
Schema Version: rev 20200901

HERS Provider: CalCERTS Inc.  
Report Generated: 2022-08-01 09:58:08

CERTIFICATE OF COMPLIANCE  
Project Name: 415 Natural Bridges, Santa Cruz  
Calculation Description: Title 24 Analysis

CF1R-PRF-01E  
(Page 8 of 19)  
Calculation Date/Time: 2022-08-01T10:04:04-07:00  
Input File Name: 22-277 415 Natural Bridges, Santa Cruz (Multi-Family).ribd19x

01	02	03	04	05	06	07	08
Name	Zone	Area (ft <sup>2</sup> )	Perimeter (ft)	Edge Insul. R-value and Depth	Edge Insul. R-value and Depth	Carpeted Fraction	Heated
Slab-on-Grade	Entire Building	1237	80.7	none	0	80%	No

01	02	03	04	05	06	07	08
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Interior / Exterior Continuous R-value	U-factor	Assembly Layers
R-21 Wall	Exterior Walls	Wood Framed Wall	2x6 @ 16 in. O. C.	R-21	None / None	0.069	Inside Finish: Gypsum Board Cavity / Frame: R-21 / 2x6 Exterior Finish: 3 Coat Stucco
R-38 Roof	Cathedral Ceilings	Wood Framed Ceiling	2x12 @ 24 in. O. C.	R-38	None / None	0.028	Roofing: 5 PSF (Normal Gravel) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: R-38 / 2x12 Inside Finish: Gypsum Board
R-21 Wall1	Interior Walls	Wood Framed Wall	2x6 @ 16 in. O. C.	R-21	None / None	0.064	Inside Finish: Gypsum Board Cavity / Frame: R-21 / 2x6 Other Side Finish: Gypsum Board
R-19 Floor No Crawlspace1	Exterior Floors	Wood Framed Floor	2x8 @ 16 in. O. C.	R-19	None / None	0.048	Floor Surface: Carpeted Floor Deck: Wood Siding/sheathing/decking Cavity / Frame: R-19 / 2x8
R-19 Floor No Crawlspace	Interior Floors	Wood Framed Floor	2x8 @ 16 in. O. C.	R-19	None / None	0.046	Floor Surface: Carpeted Floor Deck: Wood Siding/sheathing/decking Cavity / Frame: R-19 / 2x8 Ceiling Below Finish: Gypsum Board

Registration Number: 222-P0101513508-000-000-00000000-0000  
CA Building Energy Efficiency Standards - 2019 Residential Compliance

Registration Date/Time: 2022-08-01 09:59:07  
Report Version: 2019.2.000  
Schema Version: rev 20200901

HERS Provider: CalCERTS Inc.  
Report Generated: 2022-08-01 09:58:08

CERTIFICATE OF COMPLIANCE  
Project Name: 415 Natural Bridges, Santa Cruz  
Calculation Description: Title 24 Analysis

CF1R-PRF-01E  
(Page 10 of 19)  
Calculation Date/Time: 2022-08-01T10:04:04-07:00  
Input File Name: 22-277 415 Natural Bridges, Santa Cruz (Multi-Family).ribd19x

01	02	03	04	05
Water Heating System Name	Number of Recirculation Loops	Loop Insulation Thickness (in)	Recirculation Loop Location	Recirculation Pump Power (W)
DHW Sys 1	1	1.5	Conditioned	1

01	02	03	04	05	06	07	08	09	10
Name	Collector Manufacturer	Collector Brand	Collector Model	Number of Collectors	Azimuth from North	Tilt from Horizontal	Tank Volume (gal)	SRCC/IAPMO Number	Solar Savings Fraction
Solar-DHW	SunEarth, Inc.	Empire	EC-40-1.5	5	180	22	300	20060247/S-4579	0.45

01	02	03	04	05	06	07	08
Name	Pipe Insulation	Parallel Piping	Compact Distribution	Compact Distribution Type	Recirculation Control	Central DHW Distribution	Shower Drain Water Heat Recovery
DDU-1 Units 101 & 102 1/2   DHW Sys 1	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
DDU-1 Units 101 & 102 2/2   DHW Sys 1	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
DDU-2 Unit 103   DHW Sys 1	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
DDU-3 Units 201-204 1/4   DHW Sys 1	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
DDU-3 Units 201-204 2/4   DHW Sys 1	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
DDU-3 Units 201-204 3/4   DHW Sys 1	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
DDU-3 Units 201-204 4/4   DHW Sys 1	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required

Registration Number: 222-P0101513508-000-000-00000000-0000  
CA Building Energy Efficiency Standards - 2019 Residential Compliance

Registration Date/Time: 2022-08-01 09:59:07  
Report Version: 2019.2.000  
Schema Version: rev 20200901

HERS Provider: CalCERTS Inc.  
Report Generated: 2022-08-01 09:58:08

CERTIFICATE OF COMPLIANCE  
Project Name: 415 Natural Bridges, Santa Cruz  
Calculation Description: Title 24 Analysis

CF1R-PRF-01E  
(Page 12 of 19)  
Calculation Date/Time: 2022-08-01T10:04:04-07:00  
Input File Name: 22-277 415 Natural Bridges, Santa Cruz (Multi-Family).ribd19x

01	02	03	04	05	06	07	08	09	10	11
Name	System Type	Heating Unit Name	Cooling Unit Name	Fan Name	Distribution Name	Required Thermostat Type	Status	Verified Existing Condition	Heating Equipment Count	Cooling Equipment Count
DDU-1 Units 101 & 102 1/2   :Heating Component 1::1:3	Heating and cooling system other	Heating Component 1		n/a	n/a	Non-setback thermostat	New	NA	1	
DDU-1 Units 101 & 102 2/2   :Heating Component 1::1:3	Heating and cooling system other	Heating Component 1		n/a	n/a	Non-setback thermostat	New	NA	1	
DDU-1 Units 101 & 102 1/2   :Cooling Component 1::1:3	Heating and cooling system other	Cooling Component 1		n/a	n/a	Non-setback thermostat	New	NA		1
DDU-1 Units 101 & 102 2/2   :Cooling Component 1::1:3	Heating and cooling system other	Cooling Component 1		n/a	n/a	Non-setback thermostat	New	NA		1
DDU-2 Unit 103   :Heating Component 1::1:3	Heating and cooling system other	Heating Component 1		n/a	n/a	Non-setback thermostat	New	NA	1	
DDU-2 Unit 103   :Cooling Component 1::1:3	Heating and cooling system other	Cooling Component 1		n/a	n/a	Non-setback thermostat	New	NA		1
DDU-3 Units 201-204 1/4   :Heating Component 1::1:3	Heating and cooling system other	Heating Component 1		n/a	n/a	Non-setback thermostat	New	NA	1	
DDU-3 Units 201-204 2/4   :Heating Component 1::1:3	Heating and cooling system other	Heating Component 1		n/a	n/a	Non-setback thermostat	New	NA	1	


Registration Number: 222-P0101513508-000-000-00000000-0000  
CA Building Energy Efficiency Standards - 2019 Residential Compliance

Registration Date/Time: 2022-08-01 09:59:07  
Report Version: 2019.2.000  
Schema Version: rev 20200901

HERS Provider: CalCERTS Inc.  
Report Generated: 2022-08-01 09:58:08

REVISIONS:	BY:
11/18/22	MEG

**MONTEREY ENERGY GROUP**  
Consulting Mechanical Engineering  
26465 Carmel Rancho Blvd., Suite 8, Carmel, CA 93923  
www.montereyenergygroup.com  
831-372-8328 VOICE  
831-359-4173 FAX  
cmf@meg4.com



**AFFORDABLE HOUSING**  
415 NATURAL BRIDGES  
SANTA CRUZ, CA

ENERGY COMPLIANCE

DATE: 11/18/22  
SCALE: AS NOTED  
DRAWN: MEG  
CHECKED:  
CHECKED:  
FILE NAME:  
SHEET: **MO.3**  
SHEET OF SHEETS



THE USE OF THESE DRAWINGS AND SPECIFICATIONS IS RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY WERE PREPARED. PUBLICATION THEREOF IS EXPRESSLY LIMITED TO SUCH USE. REPRODUCTION OR PUBLICATION BY ANY MEANS, IN WHOLE OR IN PART, IS PROHIBITED.

TITLE TO THESE DRAWINGS AND SPECIFICATIONS REMAINS WITH THE ENGINEER WITHOUT PREJUDICE. VISUAL CONTACT WITH THESE DRAWINGS AND SPECIFICATIONS SHALL CONSTITUTE AFRICA EVIDENCE OF THE ACCEPTANCE OF THESE RESTRICTIONS.

MONTEREY ENERGY GROUP, INC.

CF1R-PRF-01E										
Project Name: 415 Natural Bridges, Santa Cruz					Calculation Date/Time: 2022-08-01T10:04:04-07:00					(Page 13 of 19)
Calculation Description: Title 24 Analysis					Input File Name: 22-277 415 Natural Bridges, Santa Cruz (Multi-Family).ribd19x					
SPACE CONDITIONING SYSTEMS										
01	02	03	04	05	06	07	08	09	10	11
Name	System Type	Heating Unit Name	Cooling Unit Name	Fan Name	Distribution Name	Required Thermostat Type	Status	Verified Existing Condition	Heating Equipment Count	Cooling Equipment Count
DDU-3 Units 201-204 3/4   :Heating Component 1::1:3	Heating and cooling system other	Heating Component 1		n/a	n/a	Non-setback thermostat	New	NA	1	
DDU-3 Units 201-204 4/4   :Heating Component 1::1:3	Heating and cooling system other	Heating Component 1		n/a	n/a	Non-setback thermostat	New	NA	1	
DDU-3 Units 201-204 1/4   :Cooling Component 1::1:3	Heating and cooling system other		Cooling Component 1	n/a	n/a	Non-setback thermostat	New	NA		1
DDU-3 Units 201-204 2/4   :Cooling Component 1::1:3	Heating and cooling system other		Cooling Component 1	n/a	n/a	Non-setback thermostat	New	NA		1
DDU-3 Units 201-204 3/4   :Cooling Component 1::1:3	Heating and cooling system other		Cooling Component 1	n/a	n/a	Non-setback thermostat	New	NA		1
DDU-3 Units 201-204 4/4   :Cooling Component 1::1:3	Heating and cooling system other		Cooling Component 1	n/a	n/a	Non-setback thermostat	New	NA		1
DDU-4 Unit 205   :Heating Component 1::1:3	Heating and cooling system other	Heating Component 1		n/a	n/a	Non-setback thermostat	New	NA	1	
DDU-4 Unit 205   :Cooling Component 1::1:3	Heating and cooling system other		Cooling Component 1	n/a	n/a	Non-setback thermostat	New	NA		1
DDU-5 Unit 206   :Heating Component 1::1:3	Heating and cooling system other	Heating Component 1		n/a	n/a	Non-setback thermostat	New	NA	1	
Registration Number: 222-P0101513508-000-000-00000000-0000										
Registration Date/Time: 2022-08-01 09:59:07										
HERS Provider: CalCERTS Inc.										
CA Building Energy Efficiency Standards - 2019 Residential Compliance										
Report Version: 2019.2.000										
Schema Version: rev 20200901										
Report Generated: 2022-08-01 09:58:08										

CF1R-PRF-01E (Page 15 of 19)										
Project Name: 415 Natural Bridges, Santa Cruz										
Calculation Date/Time: 2022-08-01T10:04:04-07:00										
Input File Name: 22-277 415 Natural Bridges, Santa Cruz (Multi-Family).ribd19x										
Calculation Description: Title 24 Analysis										
SPACE CONDITIONING SYSTEMS										
01	02	03	04	05	06	07	08	09	10	11
Name	System Type	Heating Unit Name	Cooling Unit Name	Fan Name	Distribution Name	Required Thermostat Type	Status	Verified Existing Condition	Heating Equipment Count	Cooling Equipment Count
DDU-8 Units 301-304 3/4   :Heating Component 1::1:3	Heating and cooling system other	Heating Component 1		n/a	n/a	Non-setback thermostat	New	NA	1	
DDU-8 Units 301-304 4/4   :Heating Component 1::1:3	Heating and cooling system other	Heating Component 1		n/a	n/a	Non-setback thermostat	New	NA	1	
DDU-8 Units 301-304 1/4   :Cooling Component 1::1:3	Heating and cooling system other		Cooling Component 1	n/a	n/a	Non-setback thermostat	New	NA		1
DDU-8 Units 301-304 2/4   :Cooling Component 1::1:3	Heating and cooling system other		Cooling Component 1	n/a	n/a	Non-setback thermostat	New	NA		1
DDU-8 Units 301-304 3/4   :Cooling Component 1::1:3	Heating and cooling system other		Cooling Component 1	n/a	n/a	Non-setback thermostat	New	NA		1
DDU-8 Units 301-304 4/4   :Cooling Component 1::1:3	Heating and cooling system other		Cooling Component 1	n/a	n/a	Non-setback thermostat	New	NA		1
DDU-9 Unit 305   :Heating Component 1::1:3	Heating and cooling system other	Heating Component 1		n/a	n/a	Non-setback thermostat	New	NA	1	
DDU-9 Unit 305   :Cooling Component 1::1:3	Heating and cooling system other		Cooling Component 1	n/a	n/a	Non-setback thermostat	New	NA		1
DDU-10 Units 306 & 307 1/2   :Heating Component 1::1:3	Heating and cooling system other	Heating Component 1		n/a	n/a	Non-setback thermostat	New	NA	1	
Registration Number: 222-P0101513508-000-000-00000000-0000										
Registration Date/Time: 2022-08-01 09:59:07										
HERS Provider: CalCERTS Inc.										
CA Building Energy Efficiency Standards - 2019 Residential Compliance										
Report Version: 2019.2.000										
Schema Version: rev 20200901										
Report Generated: 2022-08-01 09:58:08										

CF1R-PRF-01E						
Project Name: 415 Natural Bridges, Santa Cruz						
Calculation Date/Time: 2022-08-01T10:04:04-07:00						
Input File Name: 22-277 415 Natural Bridges, Santa Cruz (Multi-Family).ribd19x						
Calculation Description: Title 24 Analysis						
HVAC - FAN SYSTEMS						
01	02	03	04			
Name	Type	Fan Power (Watts/CFM)	Name			
HVAC Fan 1	HVAC Fan	0.58	n/a			
IAQ (INDOOR AIR QUALITY) FANS						
01	02	03	04	05	06	07
Dwelling Unit	IAQ CFM	IAQ Watts/CFM	IAQ Fan Type	IAQ Recovery Effectiveness - SRE	IAQ Recovery Effectiveness - ASRE	HERS Verification
DDU-1 Units 101 & 102 1/2 fan 1/1 cnt 1/1	30	0.733333	Balanced	66	66	Yes
DDU-1 Units 101 & 102 2/2 fan 1/1 cnt 1/1	30	0.733333	Balanced	66	66	Yes
DDU-2 Unit 103 1/1 fan 1/1 cnt 1/1	30	0.733333	Balanced	66	66	Yes
DDU-3 Units 201-204 1/4 fan 1/1 cnt 1/1	30	0.733333	Balanced	66	66	Yes
DDU-3 Units 201-204 2/4 fan 1/1 cnt 1/1	30	0.733333	Balanced	66	66	Yes
DDU-3 Units 201-204 3/4 fan 1/1 cnt 1/1	30	0.733333	Balanced	66	66	Yes
DDU-3 Units 201-204 4/4 fan 1/1 cnt 1/1	30	0.733333	Balanced	66	66	Yes
DDU-4 Unit 205 1/1 fan 1/1 cnt 1/1	30	0.733333	Balanced	66	66	Yes
DDU-5 Unit 206 1/1 fan 1/1 cnt 1/1	30	0.733333	Balanced	66	66	Yes
Registration Number: 222-P0101513508-000-000-00000000-0000						
Registration Date/Time: 2022-08-01 09:59:07						
HERS Provider: CalCERTS Inc.						
CA Building Energy Efficiency Standards - 2019 Residential Compliance						
Report Version: 2019.2.000						
Schema Version: rev 20200901						
Report Generated: 2022-08-01 09:58:08						

CF1R-PRF-01E (Page 14 of 19)										
Project Name: 415 Natural Bridges, Santa Cruz					Calculation Date/Time: 2022-08-01T10:04:04-07:00					
Calculation Description: Title 24 Analysis					Input File Name: 22-277 415 Natural Bridges, Santa Cruz (Multi-Family).ribd19x					
SPACE CONDITIONING SYSTEMS										
01	02	03	04	05	06	07	08	09	10	11
Name	System Type	Heating Unit Name	Cooling Unit Name	Fan Name	Distribution Name	Required Thermostat Type	Status	Verified Existing Condition	Heating Equipment Count	Cooling Equipment Count
DDU-5 Unit 206   Cooling Component 1::1:3	Heating and cooling system other		Cooling Component 1	n/a	n/a	Non-setback thermostat	New	NA		1
DDU-6 Units 207 & 208 1/2   :Heating Component 1::1:3	Heating and cooling system other	Heating Component 1		n/a	n/a	Non-setback thermostat	New	NA	1	
DDU-6 Units 207 & 208 2/2   :Heating Component 1::1:3	Heating and cooling system other	Heating Component 1		n/a	n/a	Non-setback thermostat	New	NA	1	
DDU-6 Units 207 & 208 1/2   :Cooling Component 1::1:3	Heating and cooling system other		Cooling Component 1	n/a	n/a	Non-setback thermostat	New	NA		1
DDU-6 Units 207 & 208 2/2   :Cooling Component 1::1:3	Heating and cooling system other		Cooling Component 1	n/a	n/a	Non-setback thermostat	New	NA		1
DDU-7 Unit 209   :Heating Component 1::1:3	Heating and cooling system other	Heating Component 1		n/a	n/a	Non-setback thermostat	New	NA	1	
DDU-7 Unit 209   :Cooling Component 1::1:3	Heating and cooling system other		Cooling Component 1	n/a	n/a	Non-setback thermostat	New	NA		1
DDU-8 Units 301-304 1/4   :Heating Component 1::1:3	Heating and cooling system other	Heating Component 1		n/a	n/a	Non-setback thermostat	New	NA	1	
DDU-8 Units 301-304 2/4   :Heating Component 1::1:3	Heating and cooling system other	Heating Component 1		n/a	n/a	Non-setback thermostat	New	NA	1	
Registration Number: 222-P0101513508-000-000-00000000-0000										
Registration Date/Time: 2022-08-01 09:59:07										
HERS Provider: CalCERTS Inc.										
CA Building Energy Efficiency Standards - 2019 Residential Compliance										
Report Version: 2019.2.000										
Schema Version: rev 20200901										
Report Generated: 2022-08-01 09:58:08										

CF1R-PRF-01E										
Project Name: 415 Natural Bridges, Santa Cruz										
Calculation Date/Time: 2022-08-01T10:04:04-07:00										
Input File Name: 22-277 415 Natural Bridges, Santa Cruz (Multi-Family).ribd19x										
Calculation Description: Title 24 Analysis										
SPACE CONDITIONING SYSTEMS										
01	02	03	04	05	06	07	08	09	10	11
Name	System Type	Heating Unit Name	Cooling Unit Name	Fan Name	Distribution Name	Required Thermostat Type	Status	Verified Existing Condition	Heating Equipment Count	Cooling Equipment Count
DDU-10 Units 306 & 307 2/2   :Heating Component 1::1:3	Heating and cooling system other	Heating Component 1		n/a	n/a	Non-setback thermostat	New	NA	1	
DDU-10 Units 306 & 307 1/2   :Cooling Component 1::1:3	Heating and cooling system other		Cooling Component 1	n/a	n/a	Non-setback thermostat	New	NA		1
DDU-10 Units 306 & 307 2/2   :Cooling Component 1::1:3	Heating and cooling system other		Cooling Component 1	n/a	n/a	Non-setback thermostat	New	NA		1
DDU-11 Unit 308   :Heating Component 1::1:3	Heating and cooling system other	Heating Component 1		n/a	n/a	Non-setback thermostat	New	NA	1	
DDU-11 Unit 308   :Cooling Component 1::1:3	Heating and cooling system other		Cooling Component 1	n/a	n/a	Non-setback thermostat	New	NA		1

HVAC - HEATING UNIT TYPES			
01	02	03	04
Name	System Type	Number of Units	Heating Efficiency
Heating Component 1	Electric	20	HSPF 3.41

HVAC - COOLING UNIT TYPES							
01	02	03	04	05	06	07	08
Name	System Type	Number of Units	Efficiency EER/CEER	Efficiency SEER	Zonally Controlled	Multi-speed Compressor	HERS Verification
Cooling Component 1	No Cooling	20	n/a	n/a	Not Zonal	Multi-speed	n/a

Registration Number: 222-00101513508-000-000-0000000-0000

Registration Date/Time: 2022-08-01 09:56:07

HERS Provider: CA CERTS Inc.

CA Building Energy Efficiency Standards - 2019 Residential Compliance

Report Version: 2019.2.000

Report Generated: 2022-08-01 09:58:08

Schema Version: 202009001



THE USE OF THESE DRAWINGS AND SPECIFICATIONS IS RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY WERE PREPARED. PUBLICATION, THEREOF, IS EXPRESSLY LIMITED TO SUCH USE. REPRODUCTION OR PUBLICATION BY ANY MEANS, IN WHOLE OR IN PART, IS PROHIBITED. TITLE TO THESE DRAWINGS AND SPECIFICATIONS REMAINS WITH THE ENGINEER WITHOUT PREJUDICE. VISUAL CONTACT WITH THESE DRAWINGS AND SPECIFICATIONS SHALL CONSTITUTE PRIMA FACIE EVIDENCE OF THE ACCEPTANCE OF THESE RESTRICTIONS. MONTEREY ENERGY GROUP, INC.

CF1R-PRF-01E  
(Page 19 of 19)

Calculation Date/Time: 2022-08-01T10:04:04-07:00

Input File Name: 22-277 415 Natural Bridges, Santa Cruz (Multi-Family).r1bd19x

Project Name: 415 Natural Bridges, Santa Cruz

Calculation Description: Title 24 Analysis

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

1. I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Michael Hafner

Signature Date: 2022-08-01 09:59:07

Address: 26465 Carmel Rancho Blvd. #8

City/State/Zip: Carmel, CA 93923

CABEC  
CERTIFIED ENERGY ANALYST

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

1. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design identified on this Certificate of Compliance.

2. I certify that the energy features and performance specifications identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.

3. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.

Responsible Designer Name: Michael Hafner

Signature Date: 2022-08-01 09:59:07

Address: 26465 Carmel Rancho Blvd. #8

City/State/Zip: Carmel, CA 93923

CABEC  
CERTIFIED ENERGY ANALYST

Digitally signed by CalCERTS. This digital signature is provided in order to secure the content of this registered document, and in no way implies Registration Provider responsibility for the accuracy of the information.



Easy to Verify  
at CalCERTS.com

Registration Number: 223-P0101513508-000-000-00000000-0000

Registration Date/Time: 2022-08-01 09:59:07

CA Building Energy Efficiency Standards - 2019 Residential Compliance

Report Version: 2019.2.000


Schema Version: rev 20200901

HERS Provider: CalCERTS Inc.

Report Generated: 2022-08-01 09:58:08

REVISIONS: 11/18/22 BY: MEG

MONTEREY ENERGY GROUP  
Consulting Mechanical Engineering  
26465 Carmel Rancho Blvd. Suite 8, Carmel, CA 93923  
831-372-8328 VOICE  
831-359-4173 FAX  
www.montereyenergygroup.com  
cmf@meg4.com



2019 LOW-RISE  
RESIDENTIAL MANDATORY  
MEASURES SUMMARY

DATE: 11/18/22  
SCALE: AS NOTED  
DRAWN: MEG  
CHECKED:  
CHECKED:  
FILE NAME:  
SHEET: MO.5  
SHEET OF SHEETS



THE USE OF THESE DRAWINGS AND SPECIFICATIONS IS RESTRICTED TO THE ORIGINAL, ETC. FOR WHICH THEY WERE PREPARED. REPRODUCTION OR PUBLICATION BY ANY MEANS, IN WHOLE OR IN PART, IS PROHIBITED. TITLE TO THESE DRAWINGS AND SPECIFICATIONS REMAINS WITH THE ENGINEER WITHOUT PREJUDICE. VISUAL CONTACT WITH THESE DRAWINGS AND SPECIFICATIONS SHALL CONSTITUTE A FRAUDULENT VIOLATION OF THE ACCEPTANCE OF THESE RESTRICTIONS. MONTEREY ENERGY GROUP, INC.

MANUAL J: HEAT/COOL LOADS



Load Short Form  
Entire House  
Monterey Energy Group

Job:  
Date: Apr 21, 2022  
By:

Project Information					
For:	415 Natural Bridges 415 Natural Bridges Drive, Santa Cruz, CA 95060				
Design Information					
	Htg	Clg	Infiltration		
Outside db (°F)	28	94	Method		Simplified
Inside db (°F)	70	75	Construction quality		Average
Design TD (°F)	42	19	Fireplaces		0
Daily range					
Inside humidity (%)	30	50			
Moisture difference (gr/lb)	15	-37			

HEATING EQUIPMENT			COOLING EQUIPMENT		
Make			Make		
Trade			Trade		
Model			Cond		
AHRI ref			AHRI ref		
Efficiency	80 AFUE		Efficiency		0 SEER
Heating input	0 Btu/h		Sensible cooling	0 Btu/h	
Heating output	0 Btu/h		Latent cooling	0 Btu/h	
Temperature rise	0 °F		Total cooling	0 Btu/h	
Actual air flow	4033 cfm		Actual air flow	4033 cfm	
Air flow factor	0.079 cfm/Btu/h		Air flow factor	0.046 cfm/Btu/h	
Static pressure	0 in H2O		Static pressure	0 in H2O	
Space thermostat			Load sensible heat ratio	0.86	

ROOM NAME	Area (ft²)	Htg load (Btu/h)	Cg load (Btu/h)	Htg AVF (cfm)	Cg AVF (cfm)
103 LIVING	219	4649	3424	368	156
103 BATH	96	1190	2517	94	9
103 KITCHEN	116	0	1209	0	55
102 BATH	64	0	0	0	55
102 LIVING	161	1886	2941	149	134
102 KITCHEN	105	0	1209	0	55
101 LIVING	161	1839	2934	146	134
101 BATH	65	0	0	0	0
101 KITCHEN	180	0	1209	0	55
201 BATH	47	598	150	40	7
201 LIVING	200	2321	3274	194	150
201 KITCHEN	117	179	1262	14	58
203 BATH	47	0	0	0	0
203 LIVING	196	1309	2517	104	115

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

203 KITCHEN	114	0	1209	0	55
202 LIVING	196	1309	2517	104	115
202 KITCHEN	116	0	1209	0	55
202 BATH	45	0	0	0	0
204 LIVING	196	2089	3173	194	145
204 KITCHEN	116	0	1209	0	55
204 BATH	45	0	0	0	0
205 BATH	47	0	0	0	0
205 ENTRY	35	0	0	0	0
205 KITCHEN	171	2627	2417	208	110
206 BATH	49	229	69	18	3
206 KITCHEN	106	0	1209	0	55
206 LIVING	75	2869	3666	226	167
209 BATH	49	556	419	44	19
209 KITCHEN	126	0	1209	0	55
209 LIVING	241	3350	3860	285	176
208 BATH	47	0	0	0	0
208 LIVING	210	1324	2948	105	135
208 KITCHEN	100	0	1209	0	55
207 BATH	47	0	0	0	0
207 KITCHEN	102	0	1209	0	55
207 LIVING	204	1289	2937	102	134
301 LIVING	215	2742	3449	217	158
301 BATH	47	565	178	45	8
302 BATH	47	57	28	5	1
307 BATH	47	57	28	5	1
308 BATH	47	57	28	5	1
303 BATH	47	57	28	5	1
308 BATH	47	643	456	51	21
305 BATH	47	565	178	45	8
304 BATH	47	57	28	5	1
303 LIVING	211	1561	2641	124	121
302 LIVING	211	1561	2641	124	121
304 LIVING	215	2381	3509	186	160
304 KITCHEN	98	120	1268	9	58
303 KITCHEN	96	116	1266	9	58
305 KITCHEN	92	112	1264	9	58
306 KITCHEN	91	111	1264	9	58
307 KITCHEN	98	109	1263	9	58
308 LIVING	241	3566	3969	282	182
308 KITCHEN	90	90	1263	9	58
307 LIVING	211	1546	2603	122	140
306 LIVING	222	1590	3079	126	141
305 LIVING	256	3540	4062	280	185
302 KITCHEN	96	116	1266	9	58
301 KITCHEN	98	120	1268	9	58

Entire House	7288	50948	86317	4033	4033
Other equip loads		0	0		
Equip @ 0.99 RSM			87434		
Latent cooling			13985		

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.



2019 Low-Rise Residential Mandatory Measures Summary

NOTE: Low-rise residential buildings subject to the Energy Standards must comply with all applicable mandatory measures, regardless of the compliance approach used. Review the respective section for more information. \*Exceptions may apply. (Original 08/2019)

Building Envelope Measures:	
§ 110.6(a)(1):	<b>Air Leakage.</b> Manufactured fenestration, exterior doors, and exterior part doors must limit air leakage to 0.3 cfm per square foot or less when tested per NFRC-400, ASTM E283 or ANSI/ACMAA/ASHRAE 101.5.2/2446:2011.
§ 110.6(a)(5):	<b>Labeling.</b> Fenestration products and exterior doors must have a label meeting the requirements of Section 101-111(a).
§ 110.6(b):	<b>Field fabricated exterior doors and fenestration products</b> must use U-factors and solar heat gain coefficient (SHGC) values from Tables 110.6.A, 110.6.B, or JAS.5 for exterior doors. They must be caulked and/or weather stripped.*
§ 110.7:	<b>Air Leakage.</b> All joints, penetrations, and other openings in the building envelope that are potential sources of air leakage must be caulked, gasketed, or weather stripped.
§ 110.8(a):	<b>Insulation Certification by Manufacturers.</b> Insulation must be certified by the Department of Consumer Affairs, Bureau of Household Goods and Services (BHGS).
§ 110.8(g):	<b>Insulation Requirements for Heated Slab Floors.</b> Heated slab floors must be insulated per the requirements of Section 110.8(g).
§ 110.8(h):	<b>Roofing Products Solar Reflectance and Thermal Emittance.</b> The thermal emittance and aged solar reflectance values of the roofing material must meet the requirements of § 110.8(h) and be labeled per §110-113 when the installation of a cool roof is specified on the CFlR.
§ 110.8(i):	<b>Radiant Barrier.</b> When required, radiant barriers must have an emittance of 0.05 or less and be certified to the Department of Consumer Affairs.
§ 150.0(a):	<b>Ceiling and Rafter Roof Insulation.</b> Minimum R-22 insulation in wood-frame ceiling; or the weighted average U-factor must not exceed 0.043. Minimum R-19 or weighted average U-factor of 0.054 or less in a rafter roof alteration. Attic access doors must have permanently attached insulation using adhesive or mechanical fasteners. The attic access must be gasketed to prevent air leakage. Insulation must be installed in direct contact with a continuous roof or ceiling which is sealed to limit infiltration and exfiltration as specified in § 110.7, including but not limited to placing insulation either above or below the roof deck or on top of a drywall ceiling.
§ 150.0(b):	<b>Loose-fill Insulation.</b> Loose fill insulation must meet the manufacturer's required density for the labeled R-value.
§ 150.0(c):	<b>Wall Insulation.</b> Minimum R-13 insulation in 2x4 inch wood framing wall or have a U-factor of 0.102 or less, or R-20 in 2x6 inch wood framing or have a U-factor of 0.071 or less, (R-19 in 2x6 U-factor of 0.074 or less). Opaque non-framed assemblies must have an overall assembly U-factor not exceeding 0.102, equivalent to an installed value of R-13 in a wood framed assembly. Masonry walls must meet Table 150.1-A or B.*
§ 150.0(d):	<b>Raised-floor Insulation.</b> Minimum R-19 insulation in raised wood framed floor or 0.037 maximum U-factor.*
§ 150.0(f):	<b>Slab Edge Insulation.</b> Slab edge insulation must meet all of the following: have a water absorption rate, for the insulation material alone without facings no greater than 0.3%; have a water vapor permeance no greater than 2.0 perm per inch; be protected from physical damage and UV light deterioration; and, when installed as part of a heated slab floor, meet the requirements of § 110.8(g).
§ 150.0(g)(1):	<b>Vapor Retarder.</b> In climate zones 1 through 16, the earth floor of unvented crawl space must be covered with a Class I or Class II vapor retarder. This requirement also applies to controlled ventilation crawl space for buildings complying with the exception to § 150.0(d).
§ 150.0(g)(2):	<b>Vapor Retarder.</b> In climate zones 14 and 16, a Class I or Class II vapor retarder must be installed on the conditioned space side of all insulation in all exterior walls, vented attics, and unvented attics with air-permeable insulation.
§ 150.0(h):	<b>Fenestration Products.</b> Fenestration, including skylights, separating conditioned space from unconditioned space or outdoors must have a maximum U-factor of 0.35; or the weighted average U-factor of all fenestration must not exceed 0.58.*
<b>Fireplaces, Decorative Gas Appliances, and Gas Log Measures:</b>	
§ 110.5(a):	<b>Pilot Light.</b> Continuously burning pilot lights are not allowed for indoor and outdoor fireplaces.
§ 150.0(f)(1):	<b>Closable Doors.</b> Masonry or factory-built fireplaces must have a closable metal or glass door covering the entire opening of the firebox.
§ 150.0(g)(2):	<b>Combustion Intake.</b> Masonry or factory-built fireplaces must have a combustion outside air intake, which is at least six square inches in area and is equipped with a readily accessible, operable, and light-fitting damper or combustion-air control device.*
§ 150.0(g)(3):	<b>Flue Damper.</b> Masonry or factory-built fireplaces must have a flue damper with a readily accessible control.*
<b>Space Conditioning, Water Heating, and Plumbing System Measures:</b>	
§ 110.4-§ 110.3:	<b>Certification.</b> Heating, ventilation and air conditioning (HVAC) equipment, water heaters, showereheads, faucets, and all other regulated equipment must be certified by the manufacturer to the Energy Commission.
§ 110.2(a):	<b>HVAC Efficiency.</b> Equipment must meet the applicable efficiency requirements in Table 110.2.A through Table 110.2.K.*
§ 110.2(b):	<b>Controls for Heat Pumps with Supplementary Electric Resistance Heaters.</b> Heat pumps with supplementary electric resistance heaters must have controls that prevent supplementary heater operation when the heating load can be met by the heat pump alone; and in which the coil temperature is higher than the coil temperature for supplementary heating, and the coil temperature for compression heating is higher than the coil temperature for supplementary heating.
§ 110.2(c):	<b>Thermostats.</b> All heating or cooling systems not controlled by a central energy management control system (EMCS) must have a setback thermostat.*
§ 110.3(a):	<b>Water Heating Recirculation Loops Serving Multiple Dwelling Units.</b> Water heating recirculation loops serving multiple dwelling units must meet the air release valve, backflow prevention, pump priming, pump isolation valve, and recirculation loop connection requirements of § 110.3(a).
§ 110.3(c):	<b>Isolation Valves.</b> Instantaneous water heaters with an input rating greater than 6.8 kBtu per hour (2 kW) must have isolation valves with hose bibbs or other fittings on both cold and hot water lines to allow for flushing the water heater when the valves are closed.
§ 110.5:	<b>Pilot Lights.</b> Continuously burning pilot lights are prohibited for natural gas: fan-type central furnaces; household cooking appliances (appliances without an electrical supply voltage connection with pilot lights that consume less than 150 Btu/hr are exempt); and pool and spa heaters.*
§ 150.0(h)(1):	<b>Building Cooling and Heating Loads.</b> Heating and cooling loads are calculated in accordance with the ASHRAE Handbook, Equipment Volume, Applications Volume, and Fundamentals Volume, the SMACNA Residential Comfort System Installation Standards Manual, or the ACCA Manual J using design conditions specified in § 150.0(h)(2).



2019 Low-Rise Residential Mandatory Measures Summary

§ 150.0(h)(3A):	<b>Clearances.</b> Air conditioner and heat pump outdoor condensing units must have a clearance of at least 5 feet from the outlet of any dryer vent.
§ 150.0(h)(3B):	<b>Liquid Line Drier.</b> Air conditioners and heat pump systems must be equipped with liquid line filter driers if required, as specified by the manufacturer's instructions.
§ 150.0(i):	<b>Storage Tank Insulation.</b> Unfired hot water tanks, such as storage tanks and back storage tanks for solar water-heating systems, must have a minimum of R-12 external insulation or R-16 internal insulation where the internal insulation R-value is indicated on the exterior of the tank.
§ 150.0(j)(2A):	<b>Water Piping, Solar Water-Heating System Piping, and Space Conditioning System Line Insulation.</b> All domestic hot water piping must be insulated as specified in Section 110.3. In addition, the following piping conditions must have a minimum insulation wall thickness of 1 inch or a minimum insulation R-value of 7.7; the first 5 feet of cold water pipes from the storage tank; all hot water piping with a nominal diameter equal to or greater than 3/4 inch and less than 1 inch; all hot water piping with a nominal diameter less than 3/4 inch that is associated with a domestic hot water recirculation system, from the heating source to storage tank or between tanks, buried below grade, and from the heating source to kitchen fixtures.*
§ 150.0(j)(3):	<b>Insulation Protection.</b> Piping insulation must be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind as required by Section 120.3(b). Insulation exposed to weather must be water retardant and protected from UV light (no adhesive tapes). Insulation covering chilled water piping and refrigerant suction piping located outside the conditioned space must include, or be protected by, a Class I or Class II vapor retarder. Pipe insulation buried below grade must be installed in a waterproof and non-crushable casing or sleeve.
§ 150.0(h)(1):	<b>Gas or Propane Water Heating Systems.</b> Systems using gas or propane water heaters to serve individual dwelling units must include all of the following: A dedicated 120 volt, 20 amp electrical receptacle that is connected to the electric panel with a 120/240 volt 3 conductor, 10 AWG copper branch circuit, within 3 feet from the water heater without obstruction. Both ends of the unused conductor must be labeled with the word "spare" and be electrically isolated. Have a reserved single pole circuit breaker space in the electrical panel adjacent to the circuit breaker for the branch circuit and labeled with the words "Future 240V Load," a Category II II or IV vent, or a Type B vent with straight pipe between the outside termination and the space where the water heater is installed, a condensate drain that is no more than 2 inches higher than the base of the water heater, and allows natural draining without pump assistance, and a gas supply line with a capacity of at least 20,000 Btu per hour.
§ 150.0(j)(2):	<b>Recirculating Loops.</b> Recirculating loops serving multiple dwelling units must meet the requirements of § 110.3(j)(5).
§ 150.0(j)(3):	<b>Solar Water-Heating Systems.</b> Solar water-heating systems and collectors must be certified and rated by the Solar Rating and Certification Corporation (SRCC), the International Association of Plumbing and Mechanical Officials, Research and Testing (IAPMO RST), or by a listing agency that is approved by the Executive Director.
<b>Ducts and Fans Measures:</b>	
§ 110.8(j)(3):	<b>Ducts.</b> Insulation installed on an existing space-conditioning duct must comply with California Mechanical Code (CMC) Section 604.0. If a contractor installs the insulation, the contractor must certify to the customer in writing, that the insulation meets this requirement.
§ 150.0(m)(1):	<b>CMC Compliance.</b> All air-distribution system ducts and plenums must meet the requirements of the CMC Section 601.0, 602.0, 603.0, 604.0, 605.0 and ANSI/SMACNA 006-2006 HVAC Duct Construction Standards Metal and Flexible 3rd Edition. Portions of supply-air and return-air ducts and plenums must be insulated to a minimum installed level of R-4.0 to a minimum installed level of R-4.2 when ducts are entirely in conditioned space as confirmed through field verification and diagnostic testing (RA3.4.3.8). Portions of the duct system completely exposed and surrounded by directly conditioned space are not required to be insulated. Connections of metal ducts and inner core of flexible ducts must be mechanically fastened. Openings must be sealed with mastic, tape, or other duct-closure system that meets the applicable requirements of UL 181, UL 181A, or UL 181B or aerosol sealant that meets the requirements of UL 723. If mastic or tape is used to seal openings greater than 1/4 inch, the combination of mastic and other mesh or tape must be used. Building cavities, support platforms for air handlers, and plenums designed or constructed with materials other than sealed sheet metal, duct board or flexible duct must not be used to convey conditioned air. Building cavities and support platforms may contain ducts. Ducts installed in cavities and support platforms must not be compressed to cause reductions in the cross-sectional area.*
§ 150.0(m)(2):	<b>Factory-Fabricated Duct Systems.</b> Factory-fabricated duct systems must comply with applicable requirements for duct construction, connections, and closures; joints and seams of duct systems and their components must not be sealed with cloth backed rubber adhesive duct tapes unless such tape is used in combination with mastic and draw bands.
§ 150.0(m)(3):	<b>Field-Fabricated Duct Systems.</b> Field-fabricated duct systems must comply with applicable requirements for: pressure-sensitive tapes, mastics, sealants, and other requirements specified for duct construction.
§ 150.0(m)(7):	<b>Backdraft Damper.</b> Fan systems that exchange air between the conditioned space and outdoors must have backdraft or automatic dampers.
§ 150.0(m)(8):	<b>Gravity Ventilation Dampers.</b> Gravity ventilating systems serving conditioned space must have either automatic or readily accessible, manually operated dampers in all openings to the outside, except combustion inlet and outlet air openings and elevator shaft vents.
§ 150.0(m)(9):	<b>Protection of Insulation.</b> Insulation must be protected from damage, sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather must be suitable for outdoor service. For example, protected by aluminum, steel metal, painted canvas, or plastic cover. Cellular foam insulation must be protected above or painted with a coating that is water retardant and provides shielding from solar radiation.
§ 150.0(m)(10):	<b>Porous Inner Core Flex Duct.</b> Porous inner core flex ducts must have a non-porous layer between the inner core and outer vapor barrier.
§ 150.0(m)(11):	<b>Duct System Sealing.</b> When space conditioning systems use forced air duct systems to supply conditioned air to an occupiable space, the ducts must be sealed and duct leakage tested, as confirmed through field verification and diagnostic testing, in accordance with § 150.0(m)(11) and Reference Residential Appendix RA3.
§ 150.0(m)(12):	<b>Air Filtration.</b> Space conditioning systems with ducts exceeding 10 feet and the supply side of ventilation systems must have MERV 13 or equivalent filters. Filters for space conditioning systems must have a 2 inch depth or can be 1 inch if sized per Equation 150.0-A. Pressure drops and labeling must meet the requirements in § 150.0(m)(12). Filters must be accessible for regular service.*
§ 150.0(m)(13):	<b>Space Conditioning System Airflow Rate and Fan Efficiency.</b> Space conditioning systems that use ducts to supply cooling must have a hole for the placement of a static pressure probe, or a permanently installed static pressure probe in the supply plenum. Airflow must be ≥ 350 CFM per ton of nominal cooling capacity, and an air-handling unit fan efficiency ≥ 0.45 watts per CFM gas furnace air handlers and ≥ 0.35 watts per CFM for all others. Small duct high velocity systems must provide an airflow ≥ 250 CFM per ton of nominal cooling capacity, and an air-handling unit fan efficiency ≥ 0.62 watts per CFM. Field verification testing is required in accordance with Reference Residential Appendix RA3.*



2019 Low-Rise Residential Mandatory Measures Summary

Requirements for Ventilation and Indoor Air Quality:	
§ 150.0(i)(1):	<b>Requirements for Ventilation and Indoor Air Quality.</b> All dwelling units must meet the requirements of ASHRAE Standard 62.2. Ventilation and Acceptable Indoor Air Quality in Residential Buildings subject to the amendments specified in § 150.0(i)(1).
§ 150.0(i)(1C):	<b>Single Family Detached Dwelling Units.</b> Single family detached dwelling units, and attached dwelling units not sharing ceilings or floors with other dwelling units, occupiable spaces, public garages, or commercial spaces must have mechanical ventilation airflow provided at rates determined by ASHRAE 62.2 Sections 4.1.1 and 4.1.2 and as specified in § 150.0(i)(1C).
§ 150.0(i)(1E):	<b>Multifamily Attached Dwelling Units.</b> Multifamily attached dwelling units must have mechanical ventilation airflow provided at rates in accordance with Equation 150.0-B and must be either a balanced system or continuous supply or continuous exhaust system. If a balanced system is not used, all units in the building must use the same system type and the dwelling-unit envelope leakage must be ≤ 0.3 CPM at 50 Pa (0.2 inch water) per square foot of dwelling unit envelope surface area and verified in accordance with Reference Residential Appendix RA3.8.
§ 150.0(i)(1F):	<b>Multifamily Building Central Ventilation Systems.</b> Central ventilation systems that serve multiple dwelling units must be balanced to provide ventilation airflow for each dwelling unit served at a rate equal to or greater than the rate specified by Equation 150.0-B. All unit airflows must be within 20% of the unit with the lowest airflow rate as it relates to the individual unit's minimum required airflow rate needed for compliance.
§ 150.0(i)(1G):	<b>Kitchen Range Hoods.</b> Kitchen range hoods must be rated for sound in accordance with Section 7.2 of ASHRAE 62.2.
§ 150.0(i)(2):	<b>Field Verification and Diagnostic Testing.</b> Dwelling unit ventilation airflow must be verified in accordance with Reference Residential Appendix RA3.7. Kitchen range hoods must be verified in accordance with Reference Residential Appendix RA3.7.4.3 to confirm it is rated by HVI to comply with the airflow rates and sound requirements as specified in Section 5 and 7.2 of ASHRAE 62.2.
<b>Pool and Spa Systems and Equipment Measures:</b>	
§ 110.4(a):	<b>Certification by Manufacturers.</b> Any pool or spa heating system or equipment must be certified to have all of the following: a thermal efficiency that complies with the Appliance Efficiency Regulations; an on-off switch mounted outside of the heater that allows shutting off the heater without adjusting the thermostat setting; a permanent weatherproof plate or card with operating instructions; and must not use electric resistance heating.*
§ 110.4(b)(1):	<b>Piping.</b> Pool or spa heating system or equipment must be installed with at least 36 inches of pipe between the filter and the heater, or dedicated suction and return lines, or built-in or built-up connections to allow for future solar heating.
§ 110.4(b)(2):	<b>Covers.</b> Outdoor pools or spas that have a heat pump or gas heater must have a cover.
§ 110.4(b)(3):	<b>Directional Inlets and Time Switches for Pools.</b> Pools must have directional inlets that adequately mix the pool water, and a time switch that will allow air pumps to be set or programmed to run only during off-peak electric demand periods.
§ 110.5:	<b>Pilot Light.</b> Natural gas pool and spa heaters must not have a continuously burning pilot light.
§ 150.0(j)(p):	<b>Pool Systems and Equipment Installation.</b> Residential pool systems or equipment must meet the specified requirements for pump sizing, flow rate, piping, filters, and valves.*
<b>Lighting Measures:</b>	
§ 110.9:	<b>Lighting Controls and Components.</b> All lighting control devices and systems, ballasts, and luminaires must meet the applicable requirements of § 110.9.
§ 150.0(h)(1A):	<b>Luminaire Efficacy.</b> All installed luminaires must meet the requirements in Table 150.0-A.
§ 150.0(h)(1B):	<b>Blank Electrical Boxes.</b> The number of electrical boxes that are more than 5 feet above the finished floor and do not contain a luminaire or other device must be no greater than the number of bedrooms. These electrical boxes must be served by a dimmer, vacancy sensor control, or fan speed control.
§ 150.0(h)(1C):	<b>Recessed Downlight Luminaires in Ceilings.</b> Luminaires recessed into ceilings must meet all of the requirements for: insulation contact (IC) labeling; air leakage; sealing; maintenance; and spot and light source as described in § 150.0(h)(1C).
§ 150.0(h)(1D):	<b>Electronic Ballasts for Fluorescent Lamps.</b> Ballasts for fluorescent lamps rated 13 watts or greater must be electronic and must have an output frequency no less than 20 kHz.
§ 150.0(h)(1E):	<b>Night Lights, Step Lights, and Path Lights.</b> Night lights, step lights and path lights are not required to comply with Table 150.0-A or be controlled by vacancy sensors provided they are rated to consume no more than 5 watts of power and emit no more than 150 lumens.
§ 150.0(h)(1F):	<b>Lighting Integral to Exhaust Fans.</b> Lighting integral to exhaust fans (except when installed by the manufacturer in kitchen exhaust hoods) must meet the applicable requirements of § 150.0(h)(1F).
§ 150.0(h)(1G):	<b>Screw Based Luminaires.</b> Screw based luminaires must contain lamps that comply with Reference Joint Appendix JAS.*
§ 150.0(h)(1H):	<b>Light Sources in Enclosed or Recessed Luminaires.</b> Lamps and other separable light sources that are not compliant with the JAS elevated temperature requirements, including marking requirements, must not be installed in enclosed or recessed luminaires.
§ 150.0(h)(1I):	<b>Light Sources in Drawers, Cabinets, and Linen Closets.</b> Light sources internal to drawers, cabinets or linen closets are not required to comply with Table 150.0-A or be controlled by vacancy sensors provided that they are rated to consume no more than 5 watts of power, emit no more than 150 lumens, and are equipped with controls that automatically turn the lighting off when the drawer, cabinet or linen closet is closed.
§ 150.0(h)(2A):	<b>Interior Switches and Controls.</b> All forward phase cut dimmers used with LED light sources must comply with NEMA SSL 7A.
§ 150.0(h)(2B):	<b>Interior Switches and Controls.</b> Exhaust fans must be controlled separately from lighting systems.*
§ 150.0(h)(2C):	<b>Interior Switches and Controls.</b> Lighting must have readily accessible wall-mounted controls that allow the lighting to be manually turned ON and OFF.*
§ 150.0(h)(2D):	<b>Interior Switches and Controls.</b> Controls and equipment must be installed



THE USE OF THESE DRAWINGS AND SPECIFICATIONS IS RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY WERE PREPARED. PUBLICATION, THEREOF, IS EXPRESSLY LIMITED TO SUCH USE. REPRODUCTION OR PUBLICATION BY ANY MEANS, IN WHOLE OR IN PART, IS PROHIBITED.

TITLE TO THESE DRAWINGS AND SPECIFICATIONS REMAINS WITH THE ENGINEER WITHOUT PREJUDICE. VISUAL CONTACT WITH THESE DRAWINGS AND SPECIFICATIONS SHALL CONSTITUTE ADEQUATE EVIDENCE OF THE ACCEPTANCE OF THESE RESTRICTIONS.

MONTEREY ENERGY GROUP, INC.

Project Name:	Affordable Housing - Common Areas	NRCC-PRF-01-E	Page 1 of 10
Project Address:	415 Natural Bridges Santa Cruz 95060	Calculation Date/Time:	11:49, Mon, Oct 24, 2022
Input File Name:	415 NB T24 (Common Areas).cbd19x		

**A. GENERAL INFORMATION**

1	Project Location (city)	Santa Cruz	8	Standards Version	Compliance2019
2	CA Zip Code	95060	9	Compliance Software (version)	EnergyPro 8.3
3	Climate Zone	3	10	Weather File	MONTEREY_724915_CZ2010.epw
4	Total Conditioned Floor Area in Scope	534 ft²	11	Building Orientation (deg)	(N) 0 deg
5	Total Unconditioned Floor Area	0 ft²	12	Permitted Scope of Work	NewEnvelopeAndMechanical
6	Total # of Stories (Habitable Above Grade)	1	13	Building Type(s)	Nonresidential
7	Total # of dwelling units	0	14	Gas Type	NaturalGas

**B. PROJECT SUMMARY**

Table Instructions: Table B shows which building components are included in the performance calculation. If indicated as not included, the project must show compliance prescriptively if within permit application.

Building Components Complying via Performance			Building Components Complying Prescriptively		
Envelope (see Table G)	<input checked="" type="checkbox"/> Performance	Covered Process: Commercial Kitchens	<input type="checkbox"/> Performance	The following building components are ONLY eligible for prescriptive compliance and should be documented on the NRCC form listed if within the scope of the permit application (i.e. compliance will not be shown on the NRCC-PRF-E).	
	<input type="checkbox"/> Not Included		<input checked="" type="checkbox"/> Not Included		
Mechanical (see Table H)	<input checked="" type="checkbox"/> Performance	Covered Process: Computer Rooms	<input type="checkbox"/> Performance	Indoor Lighting (Unconditioned)	\$140.6 NRCC-L7I-E
	<input type="checkbox"/> Not Included		<input checked="" type="checkbox"/> Not Included	Outdoor Lighting	\$140.7 NRCC-L7O-E
Domestic Hot Water (see Table I)	<input checked="" type="checkbox"/> Performance	Covered Process: Laboratory Exhaust	<input type="checkbox"/> Performance	Sign Lighting	\$140.8 NRCC-L7S-E
	<input type="checkbox"/> Not Included		<input checked="" type="checkbox"/> Not Included	Mandatory Measures	
Lighting ( Indoor Conditioned, see Table K)	<input type="checkbox"/> Performance		Electrical power systems, commissioning, solar ready, elevator and escalator requirements are mandatory and should on the NRCC form listed if applicable (i.e. compliance will not be shown on the NRCC-PRF-E)		
	<input checked="" type="checkbox"/> Not Included		Electrical Power Distribution \$110.11 NRCC-ELC-E		
Solar Thermal Water Heating (see Table I)	<input type="checkbox"/> Performance		Commissioning \$120.8 NRCC-CXR-E		
	<input checked="" type="checkbox"/> Not Included		Solar Ready \$110.10 NRCC-SRA-E		

CA Building Energy Efficiency Standards- 2019 Nonresidential ComplianceReport Version: NRCC-PRF-01-E-12092021-6844Report Generated at: 2022-10-24 11:52:25

Project Name:	Affordable Housing - Common Areas	NRCC-PRF-01-E	Page 3 of 10
Project Address:	415 Natural Bridges Santa Cruz 95060	Calculation Date/Time:	11:49, Mon, Oct 24, 2022
Input File Name:	415 NB T24 (Common Areas).cbd19x		

**C3. ENERGY USE SUMMARY**

Energy Component	Standard Design Site (MWh)	Proposed Design Site (MWh)	Margin (MWh)	Standard Design Site (MBtu)	Proposed Design Site (MBtu)	Margin (MBtu)
Space Heating	--	1.3	-1.3	5.4	--	5.4
Space Cooling	0.2	0.0	0.2	--	--	--
Indoor Fans	1.6	0.8	0.8	--	--	--
Heat Rejection	--	--	--	--	--	--
Pumps & Misc.	--	--	--	--	--	--
Domestic Hot Water	--	0.2	-0.2	7.4	--	7.4
Indoor Lighting	0.5	0.5	0.0	--	--	-->
Compliance Total	2.3	2.8	-0.5	12.8	0.0	12.8
Receptacle	1.5	1.5	0.0	--	--	--
Process	--	--	--	--	--	--
Other Ltg	--	--	--	--	--	--
Process Motors	--	--	--	--	--	--
TOTAL	3.8	4.3	-0.5	12.8	0.0	12.8

**D. EXCEPTIONAL CONDITIONS**

This project includes partial performance compliance scope options. The building must show compliance with all other applicable compliance scope options (performance or prescriptively) before occupying.

This project uses the Simplified Geometry Performance Modeling Approach which is not capable of modeling daylighting controls and assumes the prescriptive Secondary Daylit Control requirements are met. PRESCRIPTIVE COMPLIANCE documentation (form NRCC-L7I-02-E) for the requirements of section 140.6(d) Automatic Daylighting Controls in Secondary Daylit Zones is required.

**E. HERS VERIFICATION**

This Section Does Not Apply

CA Building Energy Efficiency Standards- 2019 Nonresidential ComplianceReport Version: NRCC-PRF-01-E-12092021-6844Report Generated at: 2022-10-24 11:52:25

Project Name:	Affordable Housing - Common Areas	NRCC-PRF-01-E	Page 5 of 10
Project Address:	415 Natural Bridges Santa Cruz 95060	Calculation Date/Time:	11:49, Mon, Oct 24, 2022
Input File Name:	415 NB T24 (Common Areas).cbd19x		

**G5. FENESTRATION ASSEMBLY SUMMARY**

1	2	3	4	5	6	7	8	9
Fenestration Assembly Name / Tag or I.D.	Fenestration Type / Product Type / Frame Type	Certification Method¹	Assembly Method	Area ft²	Overall U-factor	Overall SHGC	Overall VT	Status
Double Non Metal Tinted	VerticalFenestration FixedWindow N/A	NFRC Rated	SiteBuilt	56	0.36	0.25	0.50	N
Glass Door	VerticalFenestration GlazedDoor N/A	NFRC Rated	SiteBuilt	122	0.45	0.23	0.50	N

**H1. DRY SYSTEM EQUIPMENT (furnaces, air handling units, heat pumps, VRF, economizers etc.)**

1	2	3	4	5	6	7	8	9	10	11	12
Equipment Name	Equipment Type	Qty	Total Heating Output (kBtu/h)	Heating		Efficiency Unit	Efficiency	Cooling		Economizer Type (if present)	Status
				Supp Heat Output (kBtu/h)	Efficiency			Total Cooling Output (kBtu/h)	Efficiency Unit		
HP-1	SZHP (Split3Phase)	1	19	0	HSPF	10.00	17	SEER/EER	20.00/13.00	NoEconomizer	N

**H2. FAN SYSTEMS SUMMARY**

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Name or Item Tag	Qty	Design OA CFM	CFM	Modeling Method	Supply Fan		Control	Return Fan				Status	
					Power	Power Units		CFM	Modeling Method	Power	Power Units		Control
HP-1	1	0	600	BrakeHorsePower	0.100	bhp	ConstantVolume	NA	NA	NA	NA	NA	N

CA Building Energy Efficiency Standards- 2019 Nonresidential ComplianceReport Version: NRCC-PRF-01-E-12092021-6844Report Generated at: 2022-10-24 11:52:25

Project Name:	Affordable Housing - Common Areas	NRCC-PRF-01-E	Page 2 of 10
Project Address:	415 Natural Bridges Santa Cruz 95060	Calculation Date/Time:	11:49, Mon, Oct 24, 2022
Input File Name:	415 NB T24 (Common Areas).cbd19x		

**C1. COMPLIANCE RESULTS FOR PERFORMANCE COMPONENTS (Annual TDV Energy Use, kBtu/ft²-yr)**

Energy Component	Standard Design (TDV)	Proposed Design (TDV)	Compliance Margin (TDV)²
Space Heating	19.46	64.73	-45.27
Space Cooling	11.16	1.05	10.11
Indoor Fans	85.76	43.30	42.46
Heat Rejection	--	--	--
Pumps & Misc.	--	--	--
Domestic Hot Water	24.76	11.32	13.44
Indoor Lighting	25.07	25.07	--
ENERGY STANDARDS COMPLIANCE TOTAL	166.21	145.47	20.74 (12.5%)

**C2. RESULTS FOR 'ABOVE CODE' QUALIFICATIONS¹**

☐ This project is pursuing CalGreen Tier 1☐ This project is pursuing CalGreen Tier 2

Miscellaneous Energy Component	Standard Design (TDV)	Proposed Design (TDV)	Compliance Margin (TDV)²
Receptacle	77.97	77.97	--
Process	--	--	--
Other Ltg	--	--	--
Process Motors	--	--	--
COMPLIANCE TOTAL PLUS MISCELLANEOUS COMPONENTS	244.18	223.44	20.7 (8.5%)

¹ Notes: The number in parenthesis following the Compliance Margin in column 4. represents the Percent Better than Standard.

² Notes: This table is used to document compliance with programs OTHER THAN Title 24 Part 6, if applicable.

CA Building Energy Efficiency Standards- 2019 Nonresidential ComplianceReport Version: NRCC-PRF-01-E-12092021-6844Report Generated at: 2022-10-24 11:52:25

Project Name:	Affordable Housing - Common Areas	NRCC-PRF-01-E	Page 4 of 10
Project Address:	415 Natural Bridges Santa Cruz 95060	Calculation Date/Time:	11:49, Mon, Oct 24, 2022
Input File Name:	415 NB T24 (Common Areas).cbd19x		

**G1. ENVELOPE GENERAL INFORMATION (conditioned spaces only)**

1	2	3	4
Opaque Surfaces & Orientation	Total Gross Surface Area (ft²)	Total Fenestration Area (ft²)	Window to Wall Ratio (%)
North-Facing¹	60 ft²	0 ft²	00.0%
East-Facing²	219 ft²	122 ft²	55.7%
South-Facing³	361 ft²	56 ft²	15.5%
West-Facing⁴	18 ft²	0 ft²	00.0%
Total	658 ft²	178 ft²	27.1%
Roof	0 ft²	0 ft²	00.0%

Notes:

¹ North-Facing is oriented to within 45 degrees of true north, including 45°00'00" east of north (NE), but excluding 45°00'00" west of north (NW).

² East-Facing is oriented to within 45 degrees of true east, including 45°00'00" south of east (SE), but excluding 45°00'00" north of east (NE).

³ South-Facing is oriented to within 45 degrees of true south, including 45°00'00" west of south (SW), but excluding 45°00'00" east of south (SE).

⁴ West-Facing is oriented to within 45 degrees of true west, including 45°00'00" north of due west (NW), but excluding 45°00'00" south of west (SW).

**G3. OPAQUE SURFACE ASSEMBLY SUMMARY**

1	2	3	4	5	6	7	8	9	10
Surface Name	Surface Type	Area (ft²)	Framing Type	Cavity R-Value	Continuous R-Value	Units	Value	Description of Assembly Layers	Status
Slab On Grade9	UndergroundFloor	534	NA	0	NA	F-Factor	0.73	Slab Type = UnheatedSlabOnGrade Insulation Orientation = None Insulation R-Value = R0	N
R-21 Wall11	ExteriorWall	658	Wood	21	NA	U-Factor	0.069	Stucco - 7/8 in. Vapor permeable felt - 1/8 in. Wood framed wall, 16in. OC, S.Sin., R-21 Gypsum Board - 1/2 in.	N

¹ Status: N - New, A - Altered, E - Existing

CA Building Energy Efficiency Standards- 2019 Nonresidential ComplianceReport Version: NRCC-PRF-01-E-12092021-6844Report Generated at: 2022-10-24 11:52:25

Project Name:	Affordable Housing - Common Areas	NRCC-PRF-01-E	Page 6 of 10
Project Address:	415 Natural Bridges Santa Cruz 95060	Calculation Date/Time:	11:49, Mon, Oct 24, 2022
Input File Name:	415 NB T24 (Common Areas).cbd19x		

**H3. EXHAUST FAN SUMMARY**

1	2	3	4	5	6	7	8
System ID	Zone Name	Qty	CFM	Motor BHP	Power Per Flow (W/cfm)	Total Static Pressure (in. H₂O)	Status
Commons Areas3	1-Commons Areas	1	100	0.100	0.872	4.12	N

**H4. Wet System Equipment(boilers,chillers,cooling towers,etc.)**

This Section Does Not Apply

**H5. PUMPS**

This Section Does Not Apply

**H6. SYSTEM SPECIAL FEATURES**

1	2	3	4
System Name	Equipment Type	Window Interlocks per §140.4(n)	Other Special Features and Controls
Undefined Plant1 - SHW	Service Hot Water, Primary Only	NA	Fixed Temperature Control

Notes: This table includes controls related to the performance path only. For projects using the prescriptive path, mandatory and prescriptive controls requirements are documented on the NRCC-MCH-E.

**H7. NONRESIDENTIAL VENTILATION**

1	2	3	4	5	6	7
Zone Name	Ventilation Function	Mechanical Ventilation			DCV or Occupant Sensor Controls, or Both	
		# of people	Supply OA CFM	Exhaust CFM		
1-Commons Areas	Misc - All others	2.67	80	100	534	NA

**H8. HIGH-RISE RESIDENTIAL DWELLING UNIT AND HOTEL/MOTEL VENTILATION**

This Section Does Not Apply

CA Building Energy Efficiency Standards- 2019 Nonresidential ComplianceReport Version: NRCC-PRF-01-E-12092021-6844Report Generated at: 2022-10-24 11:52:25

REVISIONS:BY:

11/18/22MEG

MONTEREY ENERGY GROUP

Consulting Mechanical Engineering

26465 Carmel Rancho Blvd., Suite 8, Carmel, CA 93923

www.montereyenergygroup.com

831-372-8328 VOICE

831-359-4173 FAX

cal@meg4.com

REGISTERED PROFESSIONAL ENGINEER

STATE OF CALIFORNIA

NO. 43160

EXP. MAR 31, 2023

MECHANICAL

AFFORDABLE HOUSING

415 NATURAL BRIDGES SANTA CRUZ, CA

2019 T24 NON-RESIDENTIAL

SHEET OF SHEETS

DATE:11/18/22

SCALE:AS NOTED

DRAWN:MEG

CHECKED:

CHECKED:

FILE NAME:

SHEET:MO.7



MONTEREY ENERGY GROUP, INC. TITLE TO THESE DRAWINGS AND SPECIFICATIONS REMAINS WITH THE ENGINEER WITHOUT PREJUDICE. VISUAL CONTACT WITH THESE DRAWINGS AND SPECIFICATIONS SHALL CONSTITUTE ADEQUATE EVIDENCE OF THE ACCEPTANCE OF THESE RESTRICTIONS. THE USE OF THESE DRAWINGS AND SPECIFICATIONS IS RESTRICTED TO THE ORIGINAL SET FOR WHICH THEY WERE PREPARED. PUBLICATION THEREOF IS EXPRESSLY LIMITED TO SUCH USE. REPRODUCTION OR PUBLICATION BY ANY MEANS, IN WHOLE OR IN PART, IS PROHIBITED.

Project Name:	Affordable Housing - Common Areas	NRCC-PRF-01-E	Page 7 of 10
Project Address:	415 Natural Bridges Santa Cruz 95060	Calculation Date/Time:	11:49, Mon, Oct 24, 2022
Input File Name:	415 NB T24 (Common Areas).cbd19x		

H9. ZONAL SYSTEM AND TERMINAL UNIT SUMMARY												
System ID	Zone Name	System Type	Qty	Rated Capacity (kBtu/h)		Airflow (cfm)			Fan			
				Heating	Cooling	Design	Min.	Min. Ratio	Power	Power Units	Cycles	VSD
1-Common Areas-Trm	1-Common Areas	Uncontrolled	1	NA	NA	600	NA	0.00	0.100	bhp	NA	<input type="checkbox"/>

H10. EVAPORATIVE COOLER SUMMARY
This Section Does Not Apply

H11. HEAT RECOVERY SUMMARY
This Section Does Not Apply

H1. WATER HEATER EQUIPMENT SUMMARY													
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Name	Heater Element Type	Tank Type	Qty	Tank Vol (gal)	Rated Input	Rated Input Unit	Efficiency	Efficiency Unit	Tank Insulation R-value (in/Ex)	Standby Loss Fraction	1st Hour Rating or Flow Rate (gal)	Heat Pump Type	Tank Location or Ambient Condition
Instantaneous Electric2	Electricity	Instantaneous	1	1.00	2.3	kW	0.98	UEF	NA	NA	8	NA	NA

CA Building Energy Efficiency Standards- 2019 Nonresidential Compliance Report Version: NRCC-PRF-01-E-12092021-6844 Report Generated at: 2022-10-24 11:52:25

Project Name:	Affordable Housing - Common Areas	NRCC-PRF-01-E	Page 9 of 10
Project Address:	415 Natural Bridges Santa Cruz 95060	Calculation Date/Time:	11:49, Mon, Oct 24, 2022
Input File Name:	415 NB T24 (Common Areas).cbd19x		

M. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE	
Table Instructions: Selections shall be made by Documentation Author to indicate which Certificates of Acceptance must be submitted for the features to be recognized for compliance. These documents must be provided to the building inspector during construction and must be completed through an Acceptance Test Technician Certification Provider (ATTCP). For more information visit:https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCA/	
Building Component	Form/Title
Envelope	NRCA-ENV-02-F - NRFC label verification for fenestration
Mechanical	NRCA-MCH-02-A Outdoor Air must be submitted for all newly installed HVAC units. Note: MCH02-A can be performed in conjunction with MCH-07-A Supply Fan VFD Acceptance (if applicable) since testing activities overlap
	NRCA-MCH-03-A Constant Volume Single Zone HVAC
	NRCA-MCH-11-A Automatic Demand Shed Controls
	NRCA-MCH-13-A Automatic FDD for Air Handling Units and Zone Terminal Units Acceptance


CA Building Energy Efficiency Standards- 2019 Nonresidential Compliance Report Version: NRCC-PRF-01-E-12092021-6844 Report Generated at: 2022-10-24 11:52:25

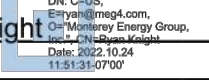
Project Name:	Affordable Housing - Common Areas	NRCC-PRF-01-E	Page 8 of 10
Project Address:	415 Natural Bridges Santa Cruz 95060	Calculation Date/Time:	11:49, Mon, Oct 24, 2022
Input File Name:	415 NB T24 (Common Areas).cbd19x		

L. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION	
Table Instructions: Selections shall be made by Documentation Author to indicate which Certificates of Installation must be submitted for the features to be recognized for compliance. These documents must be retained and provided to the building inspector during construction and can be found online at: https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCI/	
Building Component	Form/Title
Envelope	NRCI-ENV-01-E - Must be submitted for all buildings
Mechanical	NRCI-MCH-01-E - Must be submitted for all buildings
Plumbing	NRCI-PLB-01-E - Must be submitted for all buildings


CA Building Energy Efficiency Standards- 2019 Nonresidential Compliance Report Version: NRCC-PRF-01-E-12092021-6844 Report Generated at: 2022-10-24 11:52:25


Project Name:	Affordable Housing - Common Areas	NRCC-PRF-01-E	Page 10 of 10
Project Address:	415 Natural Bridges Santa Cruz 95060	Calculation Date/Time:	11:49, Mon, Oct 24, 2022
Input File Name:	415 NB T24 (Common Areas).cbd19x		

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT	
I certify that this Certificate of Compliance documentation is accurate and complete.	
Documentation Author Name: Ryan Knight	Signature: 
Company:	Monterey Energy Group
Address: 26465 Carmel Rancho Blvd. #8	Signature Date: 2022-10-24
City/State/Zip: Carmel CA 93923	CEA/ HERS Certification Identification (if applicable):
Phone: 831.372.8328	

RESPONSIBLE PERSON'S DECLARATION STATEMENT		
I certify the following under penalty of perjury, under the laws of the State of California:		
1. The information provided on this Certificate of Compliance is true and correct.		
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).		
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.		
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.		
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.		
Responsible Envelope Designer Name: William C. Kempf	Signature:	
Company: William C. Kempf Architects	Date Signed:	
Address: 105 Locust Street, Suite B		
City/State/Zip: Santa Cruz CA 95060	Title:	License #:
Phone:		
Responsible Lighting Designer Name:	Signature: NOT IN SCOPE	
Company:	Date Signed:	
Address:		
City/State/Zip:	Title:	License #:
Phone:		
Responsible Mechanical Designer Name: Ryan Knight	Signature: 	
Company: Monterey Energy Group	Date Signed:	
Address: 26465 Carmel Rancho Blvd., Suite 8		
City/State/Zip: Carmel CA 93923	Title:	License #:
Phone:		

CA Building Energy Efficiency Standards- 2019 Nonresidential Compliance Report Version: NRCC-PRF-01-E-12092021-6844 Report Generated at: 2022-10-24 11:52:25

REVISIONS:	BY:
 1	11/18/22 MEG



**MONTEREY ENERGY GROUP**  
Consulting Mechanical Engineering  
26465 Carmel Rancho Blvd., Suite 8, Carmel, CA 93923  
831.372-8328 VOICE  
831.359-4173 FAX  
www.montereyenergygroup.com  
cmf@meg4.com



**AFFORDABLE HOUSING**  
415 NATURAL BRIDGES  
SANTA CRUZ, CA

2019 T24  
NON-RESIDENTIAL

DATE:	11/18/22
SCALE:	AS NOTED
DRAWN:	MEG
CHECKED:	
CHECKED:	
FILE NAME:	
SHEET:	MO.8
SHEET OF SHEETS	



THE USE OF THESE DRAWINGS AND SPECIFICATIONS IS RESTRICTED TO THE ORIGINAL, ETC. FOR WHICH THEY WERE PREPARED. PUBLICATION THEREOF IS EXPRESSLY LIMITED TO SUCH USE. REPRODUCTION OR PUBLICATION BY ANY MEANS, IN WHOLE OR IN PART, IS PROHIBITED.

TITLE TO THESE DRAWINGS AND SPECIFICATIONS REMAINS WITH THE ENGINEER WITHOUT PREJUDICE. VISUAL CONTACT WITH THESE DRAWINGS AND SPECIFICATIONS SHALL CONSTITUTE AFRICA. EVIDENCE OF THE ACCEPTANCE OF THESE RESTRICTIONS.

MONTEREY ENERGY GROUP, INC.

STATE OF CALIFORNIA

1

Solar Ready Areas

NRCC-SRA-E

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE

NRCC-SRA-E

This document is used to demonstrate compliance with mandatory requirements in §110.10 for newly constructed buildings which are either high-rise multifamily ten stories or fewer, hotel/motel ten stories or fewer or all other nonresidential buildings three stories or fewer. It is also used to demonstrate compliance with additions to these building types which add more than 2,000 ft² of roof area. Alterations or additions of less than 2,000 ft² are not required to comply with §110.10.

Project Name: Affordable Housing - Common AreasReport Page: (Page 1 of 5)

Project Address: 415 Natural BridgesDate Prepared: 10/24/2022

A. GENERAL INFORMATION

01 Project Location (city)

Santa Cruz

04 Building Type

Building with total roof area 533 ft²

02 Climate Zone

3

05 Construction Type

New Construction

03 ☐ Roof is designed for vehicle traffic, parking or for heliport

03a Plan sheet showing roof design for vehicle traffic, parking or heliport exception:

B. PROJECT SCOPE

The compliance path the project is using to comply per §110.10(b)(18) is indicated below.

My project consists of (check one):

☒ Provide Solar Ready Area no exceptions

The project has allocated a solar zone on the roof plan per requirements in §110.10(b), as documented in Table F.

☐ Exception to Solar Ready Area: Installed Solar Photovoltaic System

The project includes a permanently installed solar electric system having a nameplate DC power rating, measured under Standard Test Conditions, of no less than one watt per square foot of roof area as documented in Table G.

☐ Exception to Solar Ready Area: Installed Solar Water Heating System

The project is a hotel/motel or high-rise multifamily occupancy and includes a permanently installed domestic solar water-heating system complying with §150.1(c)(8)(ii) and Reference Residential Appendix R44, as documented in Table H.

☐ Exception to Solar Ready Area: Smart Thermostat and Alternative Energy Efficiency Measure

The project is a high-rise multifamily occupancy where all thermostats in each dwelling unit comply with §110.12(a) AND at least one additional measure listed in Exception 4 to §110.10(b)(18) is installed, as documented in Table I.

Registration Number:

CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance

Registration Date/Time:

Report Version: 2019.1.003  
Schema Version: rev 20200601

Registration Provider: Energysoft

Report Generated: 2022-10-24 11:52:11

STATE OF CALIFORNIA

Solar Ready Areas

NRCC-SRA-E

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE

NRCC-SRA-E

Project Name: Affordable Housing - Common AreasReport Page: (Page 3 of 5)

Project Address: 415 Natural BridgesDate Prepared: 10/24/2022

F. ALLOCATED SOLAR ZONE

This table is completed if the project is designating a solar zone to comply with §110.10(b)(18). New construction consider the total roof area; Additions consider newly added roof area. This table demonstrates that the project has designated the minimum area required for the Allocated Solar Zone, and also that the requirements for Solar Zone Subareas have been met. Each subarea must be shown on a roof plan or documented in construction documents. The solar zones must also comply with fire code requirements, including, but not limited to, setback and pathway requirements. Requirements for interconnection pathways must also be included in construction documents, and the location is specified in this table.

Required Minimum Solar Zone

01	02	03	04	05	06	07	08
Minimum Solar Zone Area Calculation Method	Total New or Added Roof Area (ft²)	Total New or Added Roof Area Covered with Skylights (ft²)	Minimum Solar Zone Based on Total or Added Roof Area (0.15 x (Roof-Skyt)) (ft²)	Method/ Tools Used to Determine Annual Solar Access for Potential Zones¹	Potential Solar Zone Areas: Roof areas with >= 70% Solar Access Steep-Sloped Area (> 2:12 pitch) (ft²) Low-Sloped Area (<= 2:12 pitch) (ft²) Oriented 90° ± 300° (ft²)	Minimum Solar Zone Based on Potential Zone (0.5 x (Total Potential Zone)) (ft²)	Required Minimum Solar Zone Area (ft²)
Total New or Added Roof Area	0	0	0				0

Designated Solar Zone Subareas

09	10	11	12	13	14	15	16	17	18	19
Subarea Name or Tag	Building Plan Reference	Roof or Overhang Slope (Low <= 2:12 pitch) (Steep > 2:12 pitch)	Is Steep-Sloped Roof or Overhang between 90 and 300 degrees?	Subarea Complies with Title 24, Part 9	Solar Zone Subarea Free of Obstructions per §110.10(b)(3A)	Subarea is Required Distance from Potential Obstructions per §110.10(b)(3B)	Is the Smallest Dimension 5 feet or greater?	Min. Area Required per Subarea (ft²)	Designated Area (ft²)	Subarea Complies?
Common Areas		SteepSlope	No	Yes	Yes	Yes	Yes	80	80	COMPLIES
Total Designated Solar Zone Area (ft²):										80

Registration Number:

CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance

Registration Date/Time:

Report Version: 2019.1.003  
Schema Version: rev 20200601

Registration Provider: Energysoft

Report Generated: 2022-10-24 11:52:11

STATE OF CALIFORNIA

Solar Ready Areas

NRCC-SRA-E

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE

NRCC-SRA-E

Project Name: Affordable Housing - Common AreasReport Page: (Page 5 of 5)

Project Address: 415 Natural BridgesDate Prepared: 10/24/2022

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Ryan Knight

Signature Date: 10/24/2022

Address: 26465 Carmel Rancho Blvd. #8

City/State/Zip: Carmel CA 93923

Phone: 831.372.8328

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

1. The information provided on this Certificate of Compliance is true and correct.

2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).

3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.

4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.

5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: William C. Kempf

Responsible Designer Signature: William C. Kempf Architects

Date Signed: 2022-10-24

Address: 105 Locust Street, Suite B

City/State/Zip: Santa Cruz CA 95060

Phone:

Registration Number:

CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance

Registration Date/Time:

Report Version: 2019.1.003  
Schema Version: rev 20200601

Registration Provider: Energysoft

Report Generated: 2022-10-24 11:52:11

STATE OF CALIFORNIA

Solar Ready Areas

NRCC-SRA-E

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE

NRCC-SRA-E

Project Name: Affordable Housing - Common AreasReport Page: (Page 2 of 5)

Project Address: 415 Natural BridgesDate Prepared: 10/24/2022

C. COMPLIANCE RESULTS

Results in this table are automatically calculated from data input and calculations in Tables F through I. Note: If any cell on this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D for guidance or see the applicable Table referenced below.

Allocated Solar Zone		Installed PV System		Installed SWH System		Smart Tstat and Alternative EE Measure		
01	02	03	04	05	06	07	08	09
Required Minimum Area (ft²)	Designated Area (ft²)	Required Minimum DC Power Rating (Watts)	Designed DC Power Rating (Watts)	Required Minimum Solar Savings Fraction	Designed/Rated Solar Savings Fraction	JAS Compliant Thermostat Specified?	Alternative Energy Efficiency Measure	
(See Table F)		(See Table G)		(See Table H)		(See Table I)		COMPLIES
0	<= 80	OR	<=	OR	<=	OR		
Location within the construction documents showing the location for inverters and metering equipment and a pathway for the routing of conduit/plumbing to the electrical service/ water heating system per §110.10(c).								COMPLIES

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

Registration Number:

CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance

Registration Date/Time:

Report Version: 2019.1.003  
Schema Version: rev 20200601

Registration Provider: Energysoft

Report Generated: 2022-10-24 11:52:11

STATE OF CALIFORNIA

Solar Ready Areas

NRCC-SRA-E

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE

NRCC-SRA-E

Project Name: Affordable Housing - Common AreasReport Page: (Page 4 of 5)

Project Address: 415 Natural BridgesDate Prepared: 10/24/2022

Interconnection Pathways

Location in construction documents showing the location for inverters and metering equipment and a pathway for the routing of conduit/ plumbing to the electrical service/ water heating system per §110.10(c).

FOOTNOTE: This field is used to document how the percentage of annual solar access was determined per §110.10(b)(18). Solar access is the ratio of solar insolation including shade to the solar insolation without shade. Shading from obstructions located on the roof or any other part of the building shall not be included in the determination of annual solar access.

G. PERMANENTLY INSTALLED SOLAR PHOTOVOLTAIC (PV) SYSTEM

This section does not apply to this project.

H. PERMANENTLY INSTALLED SOLAR HOT WATER SYSTEMS

This section does not apply to this project.

I. SMART THERMOSTATS AND ALTERNATIVE EFFICIENCY MEASURE

This section does not apply to this project.

J. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

There are no NRCI forms required for this project.

K. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

There are no Certificates of Acceptance applicable to solar ready requirements.

Registration Number:

CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance

Registration Date/Time:

Report Version: 2019.1.003  
Schema Version: rev 20200601

Registration Provider: Energysoft

Report Generated: 2022-10-24 11:52:11

REVISIONS:

BY:

1 11/18/22 MEG

MONTEREY ENERGY GROUP

Consulting Mechanical Engineering

26465 Carmel Rancho Blvd., Suite 8, Carmel, CA 93923

831-372-8328 VOICE

831-359-4173 FAX

www.montereyenergygroup.com

cal@meg4.com

REGISTERED PROFESSIONAL ENGINEER

WILLIAM C. KEMPf

No. 131607

EXP. MAR 31, 2023

MECHANICAL

STATE OF CALIFORNIA

AFFORDABLE HOUSING

415 NATURAL BRIDGES

SANTA CRUZ, CA

2019 T24

NON-RESIDENTIAL

DATE:

11/18/22

SCALE:

AS NOTED

DRAWN:

MEG

CHECKED:

CHECKED:

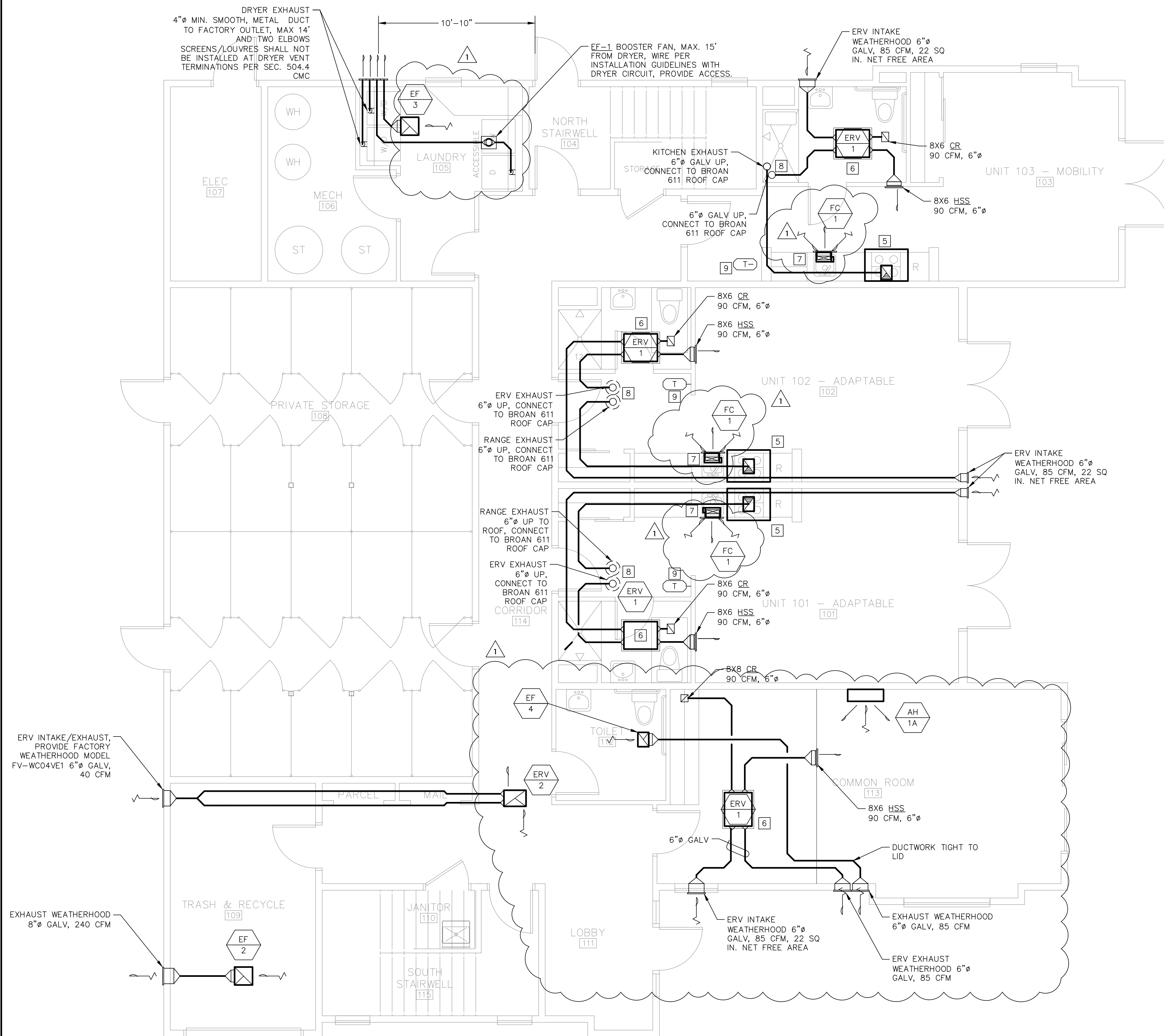
FILE NAME:

SHEET:

MO.9

SHEET OF SHEETS





# 1 FIRST FLOOR HVAC PLAN

SCALE: 1/4" = 1'-0"

- 1 ALL WORK SHALL COMPLY WITH 2019 CBC, CMC, CEC & CPC.
- 2 CONTRACTOR SHALL HAVE A COMPLETED FORM CF2R-MCH-27-H ON-SITE AT THE TIME OF INSPECTION.
- 3 ALL ENVIRONMENTAL AIR EXHAUST OUTLETS SHALL MAINTAIN A MIN. 3' CLEARANCE FROM ANY OPERABLE OPENING, 3' FROM PROPERTY LINES AND 10' FROM FORCED AIR INLET. EXHAUST DUCTS SHALL BE EQUIPPED WITH BACK-DRAFT DAMPER PER SEC. 504.1.1 CMC. WHERE ENVIRONMENTAL AIR EXHAUST DUCTS ARE COMBINED TO SERVE A SINGLE OUTLET, AN ADDITIONAL FIELD INSTALLED BACKDRAFT DAMPER SHALL BE USED TO PROVIDE GREATER PROTECTION
- 4 ALL PRODUCT CONVEYING AIR EXHAUST OUTLETS SHALL MAINTAIN A MIN. 10' CLEARANCE FROM PROPERTY LINE, 3 FT. FROM EXTERIOR WALLS OR ROOFS, 10 FT. FROM OPENINGS INTO THE BUILDING, 10 FT. FROM ADJOINING GRADE, AND 10 FT. FROM FORCED AIR INLET.
  - A. LAUNDRY DRYER EXHAUST SHALL NOT COMBINE WITH ANY OTHER EXHAUST DUCT.
  - B. KITCHEN HOOD EXHAUST SHALL NOT COMBINE WITH ANY OTHER EXHAUST DUCT.
- 5 RANGE HOOD SHALL VENT TO THE OUTSIDE PER MANUFACTURER'S REQUIREMENTS. IF OPEN COMBUSTION APPLIANCE OR FIREPLACE IS PRESENT, MAKE UP AIR MAY BE REQUIRED. CONFIRM RANGE HOOD SPECIFICATION.
- 6 MOUNT ERV IN DROP CEILING:
  - A. MOUNT PER ALL MANUFACTURER'S REQUIREMENTS.
  - B. PROVIDE CONDENSATE DRAIN LINE IN ACCORDANCE WITH CMC 802.9
  - C. PROVIDE CLEARANCE REQUIREMENTS PER MANUFACTURERS INSTALLATION MANUAL
  - D. PROVIDE ACCESS PER MANUFACTURERS INSTALLATION MANUAL
  - E. PROVIDE MERV-13 FILTER
- 7 COORDINATE EXACT LOCATION OF ELECTRIC FAN CONVECTORS WITH ARCHITECT AND FURNITURE LAYOUT. PROVIDE MIN. CABINET DIMENSIONS 20"W X 5"H X 16"D.
- 8 FOR EACH DUCT ENTERING VENTILATION SHAFT, PROVIDE FIRE SMOKE DAMPER: GREENHECK MODEL FSDR-511, UL 555 1.5 HOUR FIRE RATING.
- 9 PROVIDE SETBACK THERMOSTAT, 120V/3A.

WHOLE HOUSE VENTILATION PROVIDED BY CONTINUOUSLY OPERATED  
ERV-1 PER ASHRAE 62.2. SEE FAN SCHEDULE ON M0.1 FOR CONTINUOUS  
EXHAUST VENTILATION RATES. SEE T24 FOR CONTINUOUS EXHAUST  
VENTILATION CALCULATION.

LOADS, DUCTS AND EQUIPMENT SIZES ARE APPROVED BY ACCA TO MEET ALL REQUIREMENTS OF MANUAL JDS.

MANUAL J: ROOM-BY-ROOM HEATING AND COOLING LOADS ARE  
CALCULATED USING RIGHSUITE, A PROGRAM APPROVED BY ACCA MANUAL  
J

MANUAL D: DUCTS ARE SIZED USING A CONSTANT FRICTION RATE WITH AN ACCA APPROVED DUCTULATOR

MANUAL S: EQUIPMENT IS SIZED BASED ON THE MANUAL J HEATING AND COOLING LOADS AND SELECTED BASED ON THE GUIDELINES PROVIDED IN MANUAL S HANDBOOK

REVISIONS:	BY:
1 11/18/22	MEG

**MONTEREY ENERGY GROUP**  
**Consulting Mechanical Engineering**  
 26465 Carmel Rancho Blvd. Suite 8, Carmel, CA 93923  
 www.montereyenergygroup.com  
 831-372-8328 VOICE  
 831-359-4173 FAX  
 cat@mcg4.com



**AFFORDABLE  
HOUSING**  
415 NATURAL BRIDGES  
SANTA CRUZ, CA

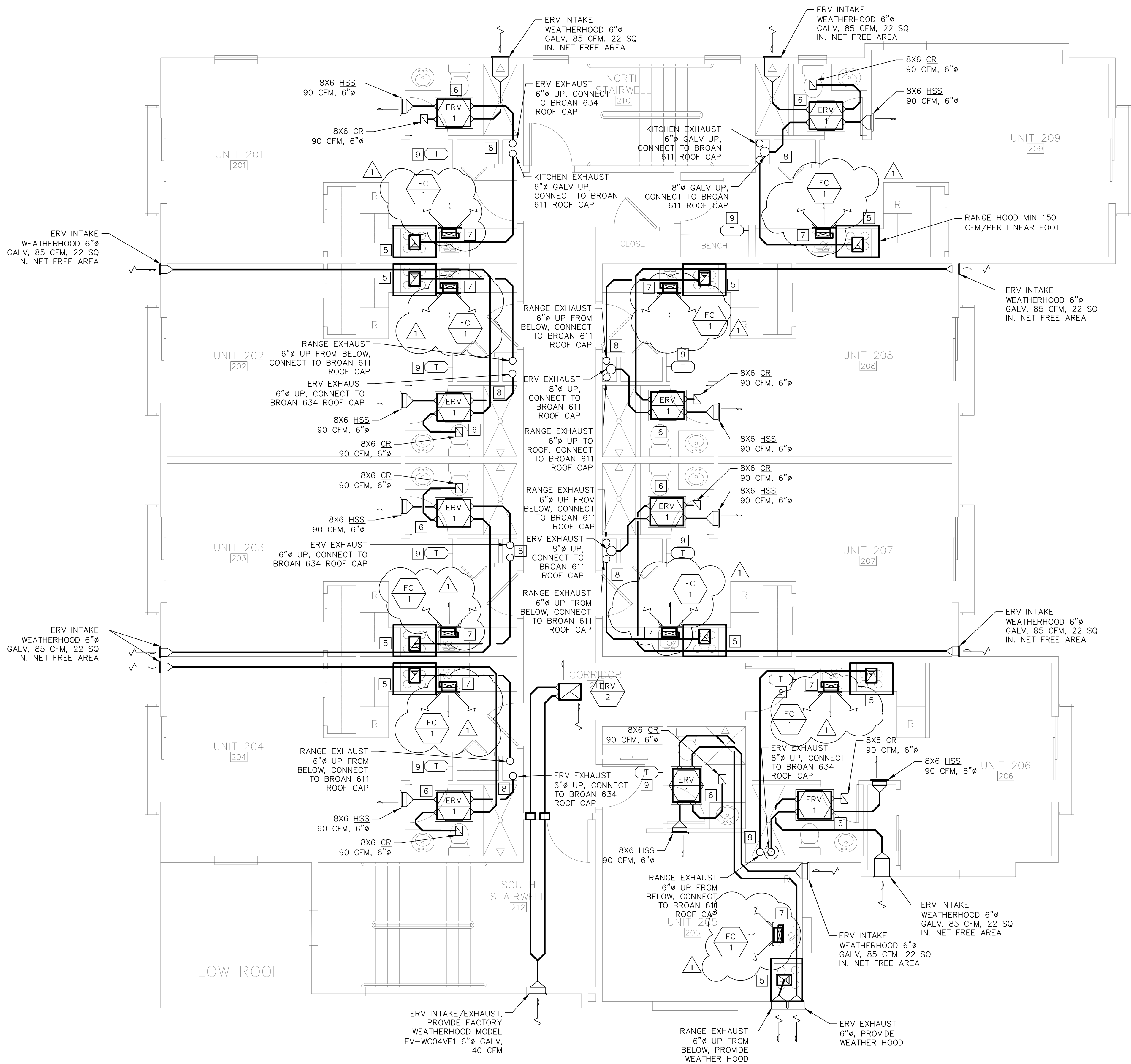
## 1ST FLOOR HEATING & VENT PLAN

DATE:	11/18/22
SCALE:	AS NOTED
DRAWN:	MEG
CHECKED:	
CHECKED:	
FILE NAME:	

SHEET:  
**M2.1**  
SHEET OF SHEETS



MONTEREY ENERGY GROUP, INC.  
TITLE TO THESE DRAWINGS AND SPECIFICATIONS REMAINS WITH THE ENGINEER WITHOUT PREJUDICE. VISUAL CONTACT WITH THESE DRAWINGS AND SPECIFICATIONS SHALL CONSTITUTE ADEQUATE EVIDENCE OF THE ACCEPTANCE OF THESE RESTRICTIONS.  
THE USE OF THESE DRAWINGS AND SPECIFICATIONS IS RESTRICTED TO THE ORIGINAL, ETC. FOR WHICH THEY WERE PREPARED. REPRODUCTION OR PUBLICATION IN WHOLE OR IN PART, IS PROHIBITED.



1 2ND FLOOR HVAC PLAN  
SCALE: 1/4" = 1'-0"

## SHEET NOTES

- ALL WORK SHALL COMPLY WITH 2019 CBC, CMC, CEC & CPC.
- CONTRACTOR SHALL HAVE A COMPLETED FORM CF2R-MCH-27-H ON-SITE AT THE TIME OF INSPECTION.
- ALL ENVIRONMENTAL AIR EXHAUST OUTLETS SHALL MAINTAIN A MIN. 3' CLEARANCE FROM ANY OPERABLE OPENING, 3' FROM PROPERTY LINES AND 10' FROM FORCED AIR INLET. EXHAUST DUCTS SHALL BE EQUIPPED WITH BACK-DRAFT DAMPER PER SEC. 504.1.1 CMC. WHERE ENVIRONMENTAL AIR EXHAUST DUCTS ARE COMBINED TO SERVE A SINGLE OUTLET, AN ADDITIONAL FIELD INSTALLED BACKDRAFT DAMPER SHALL BE USED TO PROVIDE GREATER PROTECTION.
- ALL PRODUCT CONVEYING AIR EXHAUST OUTLETS SHALL MAINTAIN A MIN. 10' CLEARANCE FROM PROPERTY LINE, 3 FT. FROM EXTERIOR WALLS OR ROOFS, 10 FT. FROM OPENINGS INTO THE BUILDING, 10 FT. FROM ADJOINING GRADE, AND 10 FT. FROM FORCED AIR INLET.  
A. LAUNDRY DRYER EXHAUST SHALL NOT COMBINE WITH ANY OTHER EXHAUST DUCT.  
B. KITCHEN HOOD EXHAUST SHALL NOT COMBINE WITH ANY OTHER EXHAUST DUCT.
- RANGE HOOD SHALL VENT TO THE OUTSIDE PER MANUFACTURER'S REQUIREMENTS. IF OPEN COMBUSTION APPLIANCE OR FIREPLACE IS PRESENT, MAKE UP AIR MAY BE REQUIRED. CONFIRM RANGE HOOD SPECIFICATION.
- MOUNT ERV IN DROP CEILING:  
A. MOUNT PER ALL MANUFACTURER'S REQUIREMENTS.  
B. PROVIDE CONDENSATE DRAIN LINE IN ACCORDANCE WITH CMC 802.9  
C. PROVIDE CLEARANCE REQUIREMENTS PER MANUFACTURERS INSTALLATION MANUAL  
D. PROVIDE ACCESS PER MANUFACTURERS INSTALLATION MANUAL  
E. PROVIDE MERV-13 FILTER
- COORDINATE EXACT LOCATION OF ELECTRIC FAN CONVECTORS WITH ARCHITECT AND FURNITURE LAYOUT. PROVIDE MIN. CABINET DIMENSIONS 20"W X 5"H X 16"D.
- FOR EACH DUCT ENTERING VENTILATION SHAFT, PROVIDE FIRE SMOKE DAMPER: GREENHECK MODEL FSDR-511, UL 555 1.5 HOUR FIRE RATING.
- PROVIDE SETBACK THERMOSTAT, 120V.

## ASHRAE 62.2 VENTILATION

WHOLE HOUSE VENTILATION PROVIDED BY CONTINUOUSLY OPERATED ERV-1 PER ASHRAE 62.2. SEE FAN SCHEDULE ON M0.1 FOR CONTINUOUS EXHAUST VENTILATION RATES. SEE T24 FOR CONTINUOUS EXHAUST VENTILATION CALCULATION.

## MANUAL JDS

LOADS, DUCTS AND EQUIPMENT SIZES ARE APPROVED BY ACCA TO MEET ALL REQUIREMENTS OF MANUAL JDS.

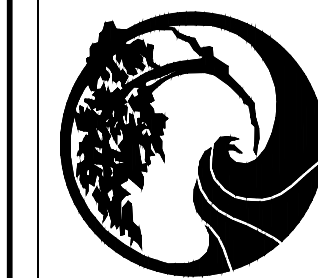
MANUAL J: ROOM-BY-ROOM HEATING AND COOLING LOADS ARE CALCULATED USING RIGHSUITE, A PROGRAM APPROVED BY ACCA MANUAL J

MANUAL D: DUCTS ARE SIZED USING A CONSTANT FRICTION RATE WITH AN ACCA APPROVED DUCTULATOR

MANUAL S: EQUIPMENT IS SIZED BASED ON THE MANUAL J HEATING AND COOLING LOADS AND SELECTED BASED ON THE GUIDELINES PROVIDED IN MANUAL S HANDBOOK

REVISIONS:	BY:
1	11/18/22
MEG	

**MONTEREY ENERGY GROUP**  
Consulting Mechanical Engineering  
26465 Carmel Rancho Blvd. Suite 8, Carmel, CA 93923  
www.montereyenergygroup.com  
831-372-8328 VOICE  
831-359-4173 FAX  
cal@meg4.com



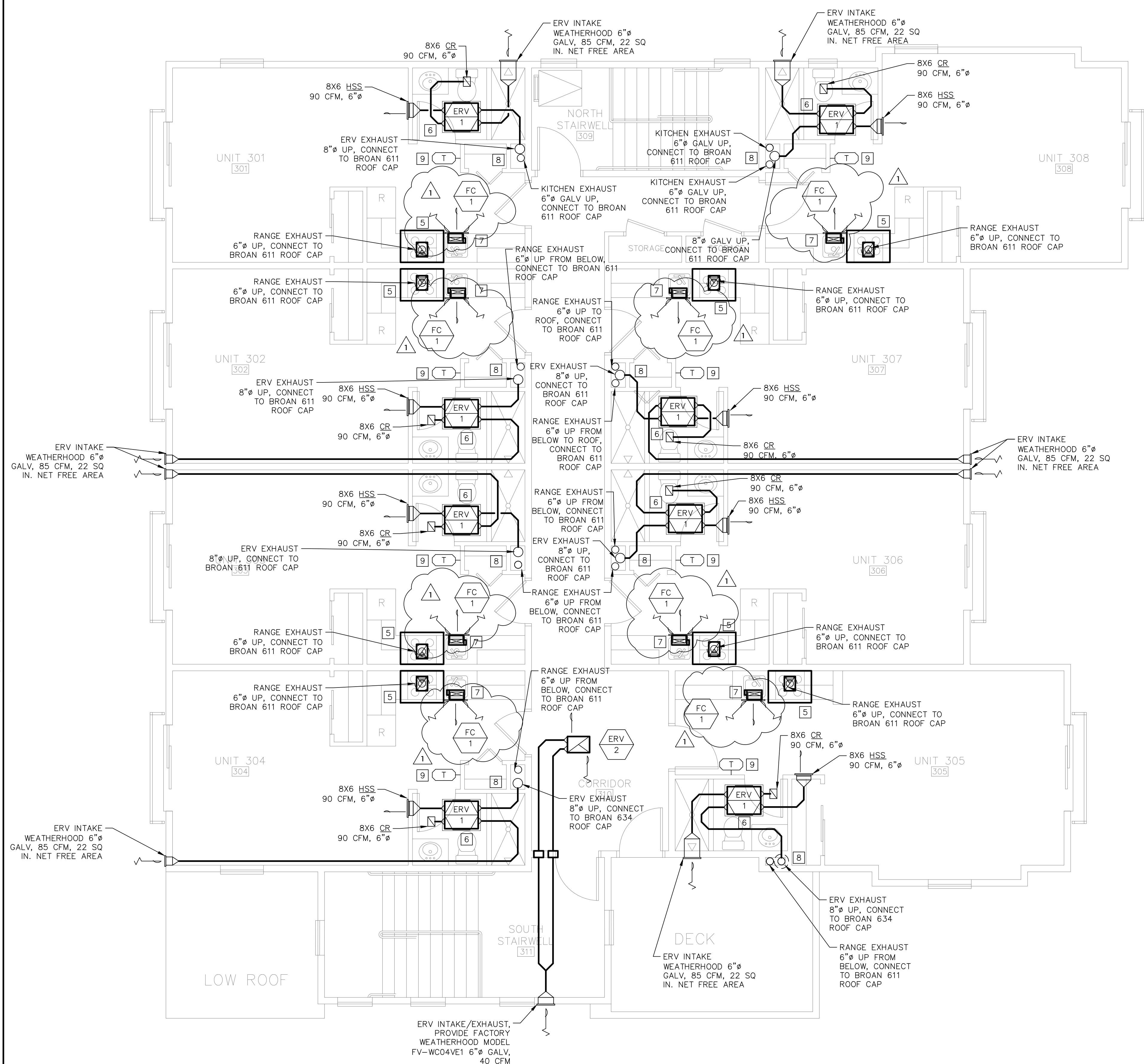
**AFFORDABLE HOUSING**  
415 NATURAL BRIDGES  
SANTA CRUZ, CA

2ND FLOOR  
HEATING & VENT PLAN

DATE:	11/18/22
SCALE:	AS NOTED
DRAWN:	MEG
CHECKED:	
CHECKED:	
FILE NAME:	

SHEET:  
**M2.2**  
SHEET OF SHEETS





1 3RD FLOOR HVAC PLAN  
SCALE: 1/4" = 1'-0"

## SHEET NOTES

- 1 ALL WORK SHALL COMPLY WITH 2019 CBC, CM, CMC, SEC & CPC.
- 2 CONTRACTOR SHALL HAVE A COMPLETED FORM CF2R-MCH-27-H ON-SITE AT THE TIME OF INSPECTION.
- 3 ALL ENVIRONMENTAL AIR EXHAUST OUTLETS SHALL MAINTAIN A MIN. 3' CLEARANCE FROM ANY OPERABLE OPENING, 3' FROM PROPERTY LINES AND 10' FROM FORCED AIR INLET. EXHAUST DUCTS SHALL BE EQUIPPED WITH BACK-DRAFT DAMPER PER SEC. 504.1.1 CMC. WHERE ENVIRONMENTAL AIR EXHAUST DUCTS ARE COMBINED TO SERVE A SINGLE OUTLET, AN ADDITIONAL FIELD INSTALLED BACKDRAFT DAMPER SHALL BE USED TO PROVIDE GREATER PROTECTION
- 4 ALL PRODUCT CONVEYING AIR EXHAUST OUTLETS SHALL MAINTAIN A MIN. 10' CLEARANCE FROM PROPERTY LINE, 3 FT. FROM EXTERIOR WALLS OR ROOFS, 10 FT. FROM OPENINGS INTO THE BUILDING, 10 FT. FROM ADJOINING GRADE, AND 10 FT. FROM FORCED AIR INLET.
  - A. LAUNDRY DRYER EXHAUST SHALL NOT COMBINE WITH ANY OTHER EXHAUST DUCT.
  - B. KITCHEN HOOD EXHAUST SHALL NOT COMBINE WITH ANY OTHER EXHAUST DUCT.
- 5 RANGE HOOD SPECIFICATION PER ARCHITECT, MIN 150 CFM/FT.
- 6 MOUNT ERV IN DROP CEILING:
  - A. MOUNT PER ALL MANUFACTURER'S REQUIREMENTS.
  - B. PROVIDE CONDENSATE DRAIN LINE IN ACCORDANCE WITH CMC 802.9
  - C. PROVIDE CLEARANCE REQUIREMENTS PER MANUFACTURERS INSTALLATION MANUAL
  - D. PROVIDE ACCESS PER MANUFACTURERS INSTALLATION MANUAL
  - E. PROVIDE MERV-13 FILTER
- 7 COORDINATE EXACT LOCATION OF ELECTRIC FAN CONVECTORS WITH ARCHITECT AND FURNITURE LAYOUT. PROVIDE MIN. CABINET DIMENSIONS 20"W x 5'H x 16"D.
- 8 FOR EACH DUCT ENTERING VENTILATION SHAFT, PROVIDE FIRE SMOKE DAMPER: GREENHECK MODEL FSDR-511, UL 555 1.5 HOUR FIRE RATING.
- 9 PROVIDE SETBACK THERMOSTAT, 120V.

## ASHRAE 62.2 VENTILATION

WHOLE HOUSE VENTILATION PROVIDED BY CONTINUOUSLY OPERATED ERV-1 PER ASHRAE 62.2. SEE FAN SCHEDULE ON M0.1 FOR CONTINUOUS EXHAUST VENTILATION RATES. SEE T24 FOR CONTINUOUS EXHAUST VENTILATION CALCULATION.

## MANUAL JDS

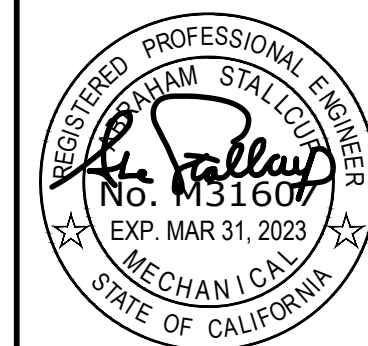
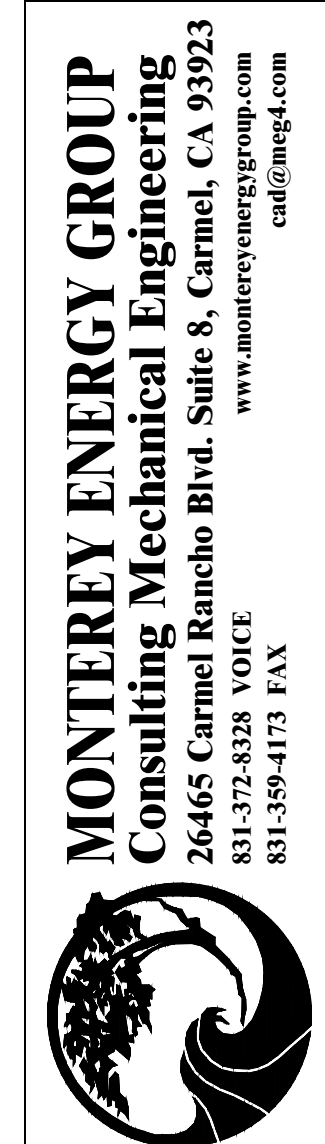
LOADS, DUCTS AND EQUIPMENT SIZES ARE APPROVED BY ACCA TO MEET ALL REQUIREMENTS OF MANUAL JDS.

MANUAL J: ROOM-BY-ROOM HEATING AND COOLING LOADS ARE  
CALCULATED USING RIGHSUITE, A PROGRAM APPROVED BY ACCA MANUAL  
J

MANUAL D: DUCTS ARE SIZED USING A CONSTANT FRICTION RATE WITH AN ACCA APPROVED DUCTULATOR

MANUAL S: EQUIPMENT IS SIZED BASED ON THE MANUAL J HEATING AND COOLING LOADS AND SELECTED BASED ON THE GUIDELINES PROVIDED IN MANUAL S HANDBOOK

REVISIONS:	BY:
1 11/18/22	MEG



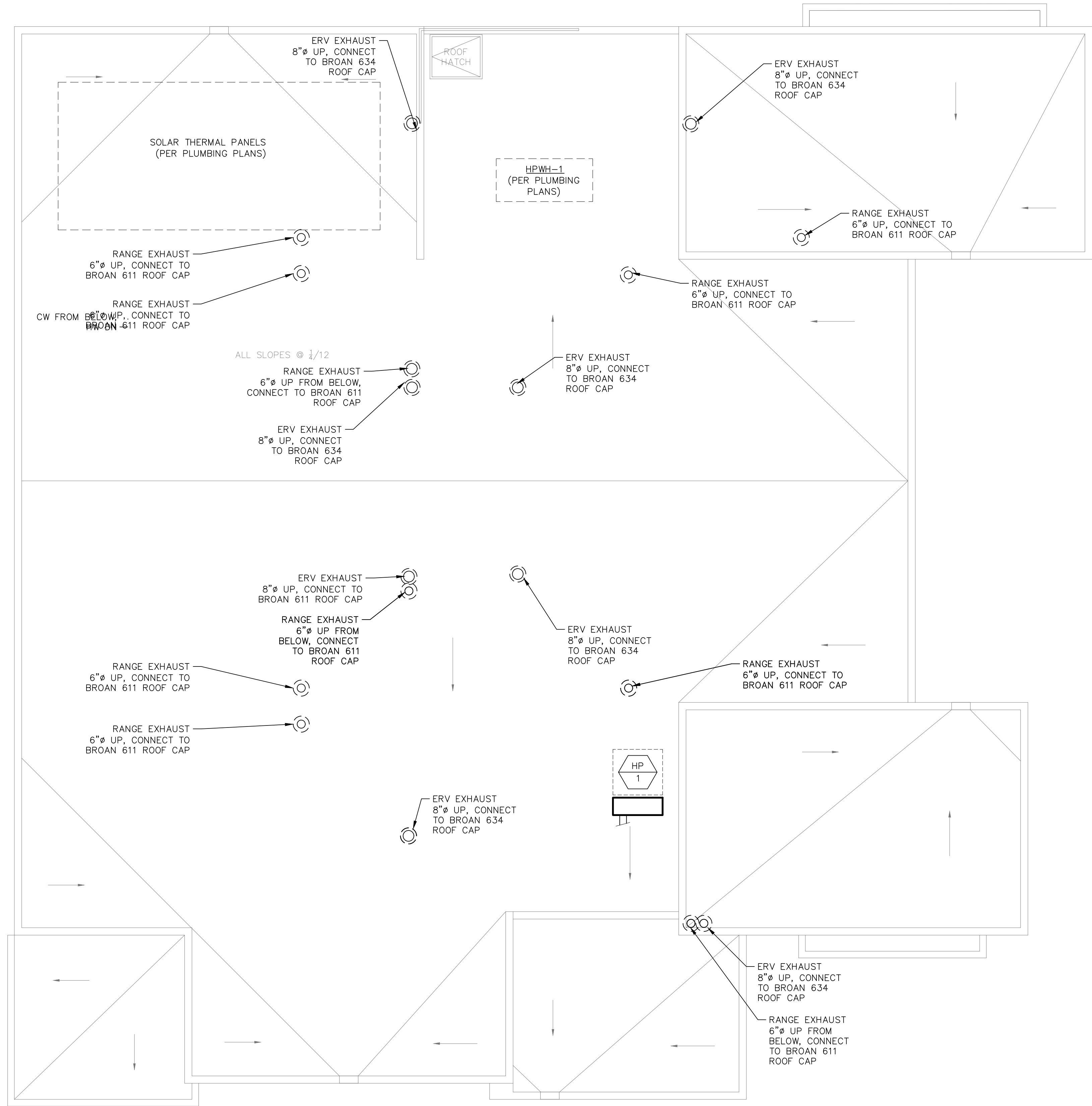
**AFFORDABLE  
HOUSING**  
415 NATURAL BRIDGES  
SANTA CRUZ, CA

### 3RD FLOOR HEATING & VENT PLAN

DATE:	11/18/22
SCALE:	AS NOTED
DRAWN:	MEG
CHECKED:	
CHECKED:	
FILE NAME:	
SHEET:	
<div style="text-align: center;"> <h1>M2.3</h1> <p>SHEET 05 SHEETS</p> </div>	



MONTEREY ENERGY GROUP, INC.  
TITLE TO THESE DRAWINGS AND SPECIFICATIONS IS RESTRICTED TO THE ORIGINAL SET FOR WHICH THEY WERE PREPARED. PUBLICATION OR REPRODUCTION IN ANY MANNER, IN WHOLE OR IN PART, IS PROHIBITED.  
THE USE OF THESE DRAWINGS AND SPECIFICATIONS IS RESTRICTED TO THE ORIGINAL SET FOR WHICH THEY WERE PREPARED. PUBLICATION, THEREOF, IS EXPRESSLY LIMITED TO SUCH USE. REPRODUCTION OR PUBLICATION BY ANY MEANS, IN WHOLE OR IN PART, IS PROHIBITED.



1 ROOF TOP HVAC PLAN  
SCALE: 1/4" = 1'-0"

SHEET NOTES

- 1 ALL WORK SHALL COMPLY WITH 2019 CBC, CMC, CEC & CPC.
- 2 CONTRACTOR SHALL HAVE A COMPLETED FORM CF2R-MCH-27-H ON-SITE AT THE TIME OF INSPECTION.
- 3 ALL ENVIRONMENTAL AIR EXHAUST OUTLETS SHALL MAINTAIN A MIN. 3' CLEARANCE FROM ANY OPERABLE OPENING, 3' FROM PROPERTY LINES AND 10' FROM FORCED AIR INLET. EXHAUST DUCTS SHALL BE EQUIPPED WITH BACK-DRAFT DAMPER PER SEC. 504.1.1 CMC. WHERE ENVIRONMENTAL AIR EXHAUST DUCTS ARE COMBINED TO SERVE A SINGLE OUTLET, AN ADDITIONAL FIELD INSTALLED BACKDRAFT DAMPER SHALL BE USED TO PROVIDE GREATER PROTECTION
- 4 ALL PRODUCT CONVEYING AIR EXHAUST OUTLETS SHALL MAINTAIN A MIN. 10' CLEARANCE FROM PROPERTY LINE, 3 FT. FROM EXTERIOR WALLS OR ROOFS, 10 FT. FROM OPENINGS INTO THE BUILDING, 10 FT. FROM ADJOINING GRADE, AND 10 FT. FROM FORCED AIR INLET.  
A. LAUNDRY DRYER EXHAUST SHALL NOT COMBINE WITH ANY OTHER EXHAUST DUCT.  
B. KITCHEN HOOD EXHAUST SHALL NOT COMBINE WITH ANY OTHER EXHAUST DUCT.
- 5 COORDINATE ALL ROOF PENETRATION LOCATIONS IN THE FIELD WITH ROOFER AND SOLAR INSTALLER.

REVISIONS:	BY:
1 11/18/22	MEG
<div>MONTEREY ENERGY GROUP Consulting Mechanical Engineering 26465 Carmel Rancho Blvd. Suite 8, Carmel, CA 93923 831-372-8328 VOICE 831-359-4173 FAX cml@meg4.com</div>	
<div>REGISTERED PROFESSIONAL ENGINEER No. 31604 EXP. MAR 31, 2023 MECHANICAL STATE OF CALIFORNIA</div>	
AFFORDABLE HOUSING 415 NATURAL BRIDGES SANTA CRUZ, CA	
ROOF TOP HVAC PLAN	
DATE:	11/18/22
SCALE:	AS NOTED
DRAWN:	MEG
CHECKED:	
CHECKED:	
FILE NAME:	
SHEET:	M2.4
SHEET OF SHEETS	