GENERAL NOTES

1. The 2007 CBC, 2007 CMC, 2007 CPC and 2007 CEC (which is based on the 2005 NEC), as well as the 2008 California Energy Efficiency Standards & City of Livermore Security Ordinance, IB-25 are applicable to this project.

2. This remodel shall require that smoke detectors be installed (or confirmed as existing) at all bedrooms, hallways leading to bedrooms, at the top of the stairs and at least one detector on each level per CBC 907.2.10.1 New smoke detectors shall be 110 volt with battery backup and the ones for non-alterated spaces may be the battery only type.

3. If the remodel or addition requires patching or new exterior wall material one or more of the following will be required: A. Wood siding shall have a method of providing a weatherresistive barrier (i.e. over building paper) as per CBC 1405.2 B. New masonry veneer shall be either anchored with 22

ga. galv. anchors tie (Simpson BT-R) at one per sq.ft. of veneer or adhered with an approved adhesive material. CBC 1405.5/1405.9 C. Stucco shall be 7/8" thick (three coat) over two layers of grade D paper with wire. A 26 ga. galv. weep screep shall be used at the foundation line with at least 4 in. clearance to soil and 2 in. clearance at paved areas per CBC 2512

4. New skylights shall be ICC approved per CBC 2610

5. New electrical panels or existing panels requiring additional breaker(s) shall not be located in the area of easily ignitable materials such as clothes closets per CEC.

6. All new tub/shower walls shall have a smooth, hard, nonabsorbent surface over building paper and w.r. gyp. or concrete backer bd. to a min. of 70 in. above the drain inlet.

7. All new or relocated water closets shall be max. 1.6 gallon per flush and have a min. clearance of 30 in. width and a min. of 24 in. clearance in front per CPC 407.6 and CA health&safety.

8. Doors and panels of shower and bathtub enclosures and windows adjacent to hazardous areas to within 60 in. above a standing surface/drain inlet shall be fully tempered, laminated safety glass or approved plastic per CBC 2406.3 Safety glazing is also required at windows within 24 in. of doors and within 18 in. of the floor.

9. Showers and tub/shower combinations shall have pressure balance valves. The min. interior floor area of a shower shall be 1024 sq.in. and encompass a 30 in. circle.

10. Light fixtures in tub or shower enclosures shall be labeled "suitable for damp locations" and listed for bathroom use.

11. If a window of 1.5 sq.ft.opening is not provided from a bathroom or laundry an exhaust fan providing five air changes per hour shall be installed. They shall exit a min. of 3 ft. from operable windows and have backdraft dampers. CBC 1203.4.2.1 existing, provide a letter and supporting documentation from

12. Appliance branch circuits shall be on dedicated circuits.

13. If new or relocated outlet receptacles are part of this construction the following shall be provided (including existing oultets not intended to be effected):

A. All countertop spaces over 12 in. wide shall have outlets for larger than #5. located so that no point along the counter is over 24 in. from a outlet receptacle.

B. All outlet receptacles withing the kitchen shall be C.Two (2) decicated 20 amp GFCI circuits shall be provided

for kitchen countertops and one (1) dedicated 20 amp GFCI for bathroom countertops. D. Bedroom outlet recepticles shall be arc fault protected. offical.

E. Provide waterproof/GFCI protected outlet at front and rear of home.

F. Additional receptacle outlets should be provided in the following locations: 1. 12 feet maximum on center and within 6 feet of openings.

2. At wall spaces 2 foot or more in width. 3. In any hallway 10 ft. or more in length/

14. If any lights in the kitchen or bathroom are new or relocated the entire room shall be required to be updated with high efficacy lighting per Title 24 energy requirements. MF1R Section and submittal documents". 150 (k) 3 and Kitchen Lighting WS-5R

15. For clothes dryers a smooth metal duct shall extend to the outside with a backdraft damper. Four inch dia. ducts shall be limited to 14 ft. with no more than two (2) 90 deg. elbows.

16. New or remodeled fireplaces shall be prefabricated and ICC approved and installed per their listing. Livermore Municipal Code 15.30. For factory built metal direct-vent gas fireplaces see CBC section 2111.3.1 and C,C 90.2).

17. All new exterior hose bibs shall have non-removable backflow prevention devices per CPC 603

18. New glass blocks shall be installed with lateral support and anchorage to framing capable of transferring a mi. design force of 200 plf with continuous panel anchors @ 16" oc or by channels etc. Block openings shall have a min. 3/8"clearance to accommodate supporting member displacements and openings shall be limited to 250 sq.ft. per CBC 2102.1 & 2110

19. 5/8" type "X"gyp.bd. shall be used at useable space under stairways (soffits and walls) CBC 1009.5.3

20. Kitchen or bathroom additions shall not reduce the required natural light and ventilation to rooms adjacent to the remodeled areas. The adjacent habitable rooms shall continue to have a natural light source, window or skylight, with an area of not less than 1/8th the floor area and ventilation area of not less than 1/16th per CBC 1203.4

21. New attic spaces greater than 30 in. in height shall have a 22 in. x 30 in. min. attic access (30" sq. access required if FAU in attic requires a larger opening). Attics shall be vented at 1/150 of area (or 1/300 if half of the vents are located in upper 1/3 of attic). CBC 1203.2

22. All remodeled kitchens and bathrooms shall have a min. ceiling heigth of seven (7) ft. All habitable rooms shall have a ceiling height of seven & one-half $(7\frac{1}{2})$ feet. CBC 1208.2

23. Installation of a new or relocation of existing water heater requires the following:

for gas burning appliances.

A. Seismic anchorage to inclued anchor straps at points within the upper and lower 1/3 of its vertical dim. The lower located to maintain a min. of 4" above controls per CPC 508.2 B. Water heaters generating a glow, spark or flame capable

of igniting flammable vapors shall be installed 18" above garage floors and not under stairs. C. A method and source of combustion air top and bottom

D. A pressure/temperature relief valve with drain to outside pointing down with 6" clearance. E. A 24 in. min. wide door to the water heater compartment

(These are code minimums). Final location may require additional code requirements not listed and plan submittals.

24. All structural lumber (studs, joists, rafters, beams and posts) shall be douglas fir #2 or better. Ridge boards, valley and hip members shall be not less in depth than the cut end

25. Roof sheathing shall be 1/2" OSB or CDX plywood with panel index of 32/16 min. with 10d nails at 6" oc edge and 12" oc field. See Title 24 CR1R for radiant barrier requirement.

26. Floor sheathing shall be 3/4" Tongue & groove with a min. panel index of 48/24 with subfloor adheasive and 10d nails at 6" oc edge and 10" oc field.

27. Underfloor ventilation to be 1/150th of floor area of the addition, plus any vents at existing foundation lines eclipsed by the addition. Arrange vents for cross-ventilation and 24" x 18" minimum access to all areas of the foundation crawl space.

28. All mudsills and ledgers in contact with concrete shall be pressure treated or foundation grade redwood. Anchor bolts in contact with P.T. wood shall be hot dipped galvanized. Hold down bolts and anchor bolts at shearwalls shall be set in place by template prior to foundation inspection.

29. All roof rafter bays shall have four (4) $2\frac{1}{2}$ " diameter holes with $\frac{1}{4}$ sq. corrosion resistant mesh screens at exterior. Cross ventilation to be maintained at all rafter bays (top & bottom). (See note 21)

30. Where double top plates intersect at existing a 48 in. lap is required or an Simpson ST6224 (min.) installed between new and existing top plates, rafters, ceiling joist or blocking.

31. New foundations to match existing in design/configuration. Provide section of existing foundation for verification. If the new foundation's design/configuration does not match the project engineer clarifying that no differential settlement between the new and existing will occur.

32. Concrete strength shall be 2500 psi at 28 days min.

33. Reinforcing bars #5 & smaller to be grade 40 and grade 60

34. Roof drainage shall be coveyed to the fronting street by through the curb drains. An encroachment permit form the Engineering Department may be required.

36. Deferal of any submittal items (such as trusses, Fire Sprinkler plans, etc.) shall have prior approval of building

a. A list of the deferred submitalls b. Note that the "deferred submittal items shall be submitted to the design professional in responsible charge who shall review them and forward them to the building official with a notation indicating that the deferred submittal documents have been reviewed and been found to be in general conformance to the design of the building".

c. Note thant the "deferred submittal items shall not be installed until the building official has approved their design

| HVAC SIZING | | HVAC Page |
|----------------------------------|--|----------------------|
| Project Title Project Address | Heather Ln. Accessory Bld 1395 Heather Lane Livermore, CA *v8.1* | Date11/09/10 21:18:5 |
| Documentation Author | | Building Permit # |
| | PO Box 251 Danville, CA 94526 | Plan Check / Date |
| Climate Zone | 925-735-9121 12 | Field Check/ Date |
| | WT0707700 0 1 5 0000; | |

Compliance Method..... MICROPAS8 v8.1 for 2008 CEC Standards (r02) MICROPAS8 v8.1 File-HEATHER4 Wth-CTZ12S08 Program-HVAC SIZING User#-MP0950 User-SGF Energy Calcs Run-L11101

> GENERAL INFORMATION Floor Area..... 640 sf Volume..... 7000 cf Front Orientation..... Front Facing 180 deg (S) Sizing Location..... LIVERMORE Latitude..... 37.7 degrees Winter Outside Design..... 22 F Winter Inside Design..... 70 F Summer Outside Design..... 93 F Summer Inside Design..... 75 F Summer Range..... 35 F Interior Shading Used..... Yes Exterior Shading Used..... Yes Overhang Shading Used..... Yes Latent Load Fraction..... 0.17

> > HEATING AND COOLING LOAD SUMMARY

| escription | Heating (Btu/hr) | Cooling (Btu/hr) |
|---|-------------------------------------|-------------------------------------|
| paque Conduction and Solar lazing Conduction and Solar nfiltration nternal Gain | 9728 5376 2315 n/a 2775 | 1778 4412 481 2520 1319 |
| ensible Loadatent Load | 20194 n/a | 10511 1814 |
| Minimum Total Load | 20194 | 12325 |

Note: The loads shown are only one of the criteria affecting the selection of HVAC equipment. Other relevant design factors such as air flow requirements, outside air, outdoor design temperatures, coil sizing, availability of equipment, oversizing safety margin, etc., must also be considered. It is the HVAC designer's responsibility to consider all factors when selecting the HVAC equipment.

| Project Title | Heather Ln. Accessory I | Bld ***** | Date | e11/09/10 | 21:18:5 |
|----------------------|-------------------------|--------------|-------|-------------|---------|
| Project Address | Livermore, CA | *v8.1* | Γ | | |
| Documentation Author | | ***** | 1 | Building Po | ermit # |
| | SGF Energy Calcs | | | | |
| | PO Box 251 | - | | Plan Check | / Date |
| | Danville, CA 94526 | | | | |
| | 925-735-9121 | | | Field Check | k/ Date |
| Climate Zone | 12 | | L | **** | |
| Compliance Method | MICROPAS8 v8.1 for 2008 | CEC Stan | ndaro | ds (r02) | |

MICROPAS8 v8.1 File-HEATHER4 Wth-CTZ12S08 Program-FORM CF-1R

User#-MP0950 User-SGF Energy Calcs Run-L11101

| 1 | MICROPAS8 ENERGY USE SUMMARY | | | | | | | |
|--|---------------------------------|---------------------------------|--------------------------------|--------------------------------|--|--|--|--|
| Energy Use (kTDV/sf-yr) | Standard Design | Proposed Design | Compliance Margin | Percent Improvement | | | | |
| Space Heating Space Cooling Ventilation Fans Water Heating | 36.83 36.21 1.74 40.48 | 37.90 37.38 1.74 38.14 | -1.07 -1.17 0.00 2.34 | -2.9% -3.2% 0.0% 5.8% | | | | |
| Total | 115.26 | 115.16 | 0.10 | 0.1% | | | | |
| *** Building *** HERS Ve: | complies wit | h Computer D quired for G | Performance * Compliance ** | ** | | | | |

GENERAL INFORMATION

HERS Verification..... Required Conditioned Floor Area.... 640 sf Building Type..... Single Family Detached Construction Type New Natural Gas at Site Yes Building Front Orientation. Front Facing 180 deg (S) Number of Dwelling Units... Number of Building Stories. Weather Data Type..... FullYear Floor Construction Type.... Slab On Grade Number of Building Zones... 1 Conditioned Volume..... 7000 cf Slab-On-Grade Area..... 640 sf Glazing Percentage...... 50 % of floor area Average Glazing U-factor... 0.35 Btu/hr-sf-F Average Glazing SHGC..... 0.3 Average Ceiling Height.... 10.9 ft BUILDING ZONE INFORMATION

of # of Cond- Thermo- Vent Vent Verified Area Volume Dwell Peop- it- stat Height Area Leakage or (sf) (cf) Units le ioned Type (ft) (sf) Housewrap Zone Type 640 7000 1.00 4.0 Yes Setback 2.0 Standard No Residence

ATTIC AND ROOF DETAILS

Roof Roof Re- Emiss-Frame Spac- Value Value Vent Mass Rise flect- ivity Depth ing Above Below Area Vent (in.) (in.) Deck Deck Ratio High Roof Type (lb/sqft) Light 4:12 0.08 0.85 3.5 24 oc 0.00 0.00 1/150 0.03

Solar Appendix

Appendix

| | a+h- |
|--------|----------|
| OPAQUE | SURFACES |

System

Furnace

ACSplit

Type

| Sui | face | | | | | | | | | JA4 Reference | Location/ Comments | |
|-----|----------|------|-----|-------|----|---|-----|----|-----|------------------|-----------------------|-----|
| 1 | Wall | Wood | 150 | 0.074 | 19 | 0 | 180 | 90 | Yes | 4.3.1 A5 | front 2x6 | typ |
| 2 | Wall | Wood | 280 | 0.074 | 19 | 0 | 270 | 90 | Yes | 4.3.1 A5 | left 2x6 | |
| 3 | Wall | Wood | 230 | 0.074 | 19 | 0 | 0 | 90 | Yes | 4.3.1 A5 | back 2x6 | |
| 4 | Wall | Wood | 280 | 0.074 | 19 | 0 | 90 | 90 | Yes | 4.3.1 A5 | right 2x6 | |
| 5 | AtticRad | Wood | 200 | 0.049 | 19 | 0 | 180 | 21 | Yes | 4.2.1 A4 | vault | ; |
| 6 | AtticRad | Wood | 440 | 0.032 | 30 | 0 | n/a | 0 | Yes | 4.2.1 A8 | attic | |
| | | | | | | | | | | | | |

PERIMETER LOSSES

| | Su | rface | | (ft) | | tor | R-v | al | Gai | ns Refere | ence Comments | |
|---|-----|--------|------------------------|------|--------------|-------------------------|--------|------------|----------------|---------------------------|--|--|
| • | 7 | SlabE | dge | 114 | 0.7 | | R-0/0i | | | 4.4.7 A | 1 Standard Slab Edge | |
| | Or: | ientat | tion | | Area (sf) | U- factor | SHGC | Act Azm | Tilt | Exterior Shade Type | Location/Comments | |
| 1 | 2 | Door | Front Left Right | (W) | 120.0 | 0.350 0.350 0.350 | 0.300 | | 90 90 90 | Standard | F1/Vinyl/Wood Patio Door L1/Vinyl/Wood Patio Door R1/Vinyl/Wood Patio Door | |

| | | W 1.7 | udom | | | Overhang | |
|---------|-----------|-------|---------|---------|---------|-------------------|--------------------|
| Surface | Area (sf) | Width | Height | Depth | Height | Left Extension | Right Extension |
| 1 Door | 80.0 | n/a | 6.0 | 8.0 | 1.0 | n/a | n/a |
| 2 Door | 120.0 | n/a | 6.0 | 8.0 | 1.0 | n/a | n/a |
| 3 Door | 120.0 | n/a | 6.0 | 8.0 | 1.0 | n/a | n/a |
| | | | SLA | AB SUR | FACES | | |
| | | | Slab Ty | дре | Are (st | | |
| | | | Star | ndard : | Slab (| 640 | |
| | | | | | | | |

HVAC SYSTEMS

Verified Verified Verified Verified Maximum Minimum Refrig Charge Adequate Fan Watt Cooling Efficiency EER or CID Airflow Draw Capacity 0.900 AFUE n/a n/a n/a n/a n/a 13.00 SEER 11.4 No No

HVAC SIZING Verified Total Sensible Design Maximum Heating Cooling Cooling Cooling Load Load Capacity Capacity Type (Btu/hr) (Btu/hr) (Btu/hr) (Btu/hr) 20194 n/a n/a ACSplit n/a 10511 12325 n/a

Sizing Location..... LIVERMORE Winter Outside Design..... 22 F Winter Inside Design..... 70 F Summer Outside Design..... 93 F Summer Inside Design..... 75 F Summer Range..... 35 F

DUCT SYSTEMS

| | | | ******** | | | |
|------------------|------------------|-----------------|-----------------------------|-----------------------------|-----------------------------|--|
| System Type | Duct Location | Duct R-value | Verified Duct Leakage | Verified Surface Area | Verified Buried Ducts | |
| urnace CSplit | Attic Attic | R-6 R-6 | Yes Yes | No No | No No | |
| | | FAN SYSTE | MS | | | |
| | System Type | | ow Pow | | | |

36.4 .25

WATER HEATING SYSTEMS

Standard

Number Tank External Heater in Energy Size Insulation Tank Type Type Distribution Type System Factor (gal) R-value 1 Storage 1 0.60 40 R-n/a

SPECIAL FEATURES AND MODELING ASSUMPTIONS

*** Items in this section should be documented on the plans, *** *** installed to manufacturer and CEC specifications, and *** verified during plan check and field inspection.

This building incorporates a Radiant Barrier.

HERS REQUIRED VERIFICATION

*** Items in this section require field testing and/or *** verification by a certified home energy rater under *** the supervision of a CEC-approved HERS provider using *** *** CEC approved testing and/or verification methods and *** must be reported on the CF-4R installation certificate. ***

This building incorporates HERS verified High Energy Efficiency Ratio (EER).

This building incorporates HERS verified Duct Leakage. Target leakage is calculated and documented on the CF-4R. If the measured CFM is above the target, then corrective action must be taken to reduce the duct leakage and then must be retested. Alternatively, the compliance calculations could be redone without duct testing. If ducts are not installed, then HERS verification is not necessary.

REMARKS

Radiant barrier in attic required.

COMPLIANCE STATEMENT

This certificate of compliance lists the building features and performance specifications needed to comply with Title-24, Parts 1 and 6 of the California Code of Regulations, and the administrative regulations to implement them. This certificate has been signed by the individual with overall design responsibility.

DOCUMENTATION AUTHOR DESIGNER or OWNER Name.... Scott Finn Name.... Richard Lounsbury Company. SGF Energy Calcs Company. Address. PO Box 251 774 Jefferson Ave. Address. Danville, CA 94526 Livermore, CA Phone... 925-73/9-9121 Phone... 925-339-0810 License. chered () ENFORCEMENT AGENCY

MANDATORY MEASURES SUMMARY: RESIDENTIAL Project Title..... Heather Ln. Accessory Bld Date..11/09/10 21:18:57 Project Address...... 1395 Heather Lane Livermore, CA ***** Building Permit # Documentation Author... Scott Finn SGF Energy Calcs Plan Check / Date PO Box 251 Danville, CA 94526 Field Check/ Date 925-735-9121 Climate Zone..... 12 Compliance Method..... MICROPAS8 v8.1 for 2008 CEC Standards (r02)

MICROPAS8 v8.1 File-HEATHER4 Wth-CTZ12S08 Program-FORM MF-1R

User#-MP0950 User-SGF Energy Calcs Run-L11101

NOTE: Low-rise residential buildings subject to the Standards must comply with all applicable mandatory measures listed, regardless of the compliance approach used. More stringent energy measures listed on the Certificate of Compliance (CF-1R, CF-1R-ADD, or CF-1R-ALT Form) shall supersede the items marked with an asterisk (*) below. This Mandatory Measures Summary shall be incorporated into the permit documents and the applicable features shall be considered by all parties as minimum component performance specifications whether they are shown elsewhere in the documents or in this summary. Submit all applicable sections of the MF-1R Form with plans.

BUILDING ENVELOPE MEASURES:

116(a)1: Doors and windows between conditioned and unconditioned spaces are manufactured to limit air leakage. 116(a)4: Fenestration products (except field-fabricated windows) have a label listing the certified U-Factor, certified Solar Heat Gain Coefficient (SHGC), and infiltration that meets the requirements of 10-111(a). 117: Exterior doors and windows are weather-stripped; all joints and penetrations are caulked and sealed.

118(a): Insulation specified or installed meets Standards for Insulating Material. Indicate type and include on CF-6R Form. 118(i): The thermal emittance and solar reflectance values of the cool roofing material meets the requirements of 118(i) when the installation of a Cool Roof is specified on the CF-1R Form. *150(a): Minimum R-19 insulation in wood-frame ceiling or equivalent U-factor. 150(b): Loose fill insulation shall conform with manufacturer's installed

design labeled R-Value. *150(c): Minimum R-13 insulation in wood-frame wall or equivalent U-factor. *150(d): Minimum R-13 insulation in raised wood-frame floor or equivalent 150(f): Air retarding wrap is tested, labeled, and installed according to ASTM

E1677-95(2000) when specified on the CF-1R Form. 150(g): Mandatory Vapor barrier installed in Climate Zones 14 or 16. 150(1): Water absorption rate for slab edge insulation material alone without facings is no greater than 0.3%; water vapor permeance rate is no greater than 2.0 perm/inch and shall be protected from physical damage and UV light

FIREPLACES, DECORATIVE GAS APPLIANCES AND GAS LOG MEASURES:

150(e)1A: Masonry or factory-built fireplaces have a closable metal or glass door covering the entire opening of the firebox. 150(e)1B: Masonry or factory-built fireplaces have a combustion outside air intake, which is at least six square inches in area and is equipped with a with a readily accessible, operable, and tight-fitting damper and or a combustion-air control device. 150(e)2: Continuous burning pilot lights and the use of indoor air for cooling a firebox jacket, when that indoor air is vented to the outside of the building, are prohibited.

SPACE CONDITIONING, WATER HEATING AND PLUMBING SYSTEM MEASURES:

110-113: HVAC equipment, water heaters, showerheads, faucets and all other regulated appliances are certified by the Energy Commission. 113(c)5: Water heating recirculation loops serving multiple dwelling units and High-Rise residential occupancies meet the air release valve, backflow prevention, pump isolation valve, and recirculation loop connection requirements of 113(c)5.

115: Continuously burning pilot lights are prohibited for natural gas: fan-type central furnaces, household cooking appliances (appliances with an electrical supply voltage connection with pilot lights that consume less than 150 Btu/hr are exempt), and pool and spa heaters. 150(h): Heating and/or cooling loads are calculated in accordance with ASHRAE,

150(i): Heating systems are equipped with thermostats that meet the setback requirements of Section 112(c). 150(j)1A: Storage gas water heaters rated with an Energy Factor no greater than the federal minimal standard are externally wrapped with insulation

having an installed thermal resistance of R-12 or greater. 150(j)1B: Unfired storage tanks, such as storage tanks or backup tanks for solar water-heating system, or other indirect hot water tanks have R-12 external insulation or R-16 internal insulation where the internal insulation R-value is indicated on the exterior of the tank. 150(j)2: First 5 feet of hot and cold water pipes closest to water heater tank, non-recirculating systems, and entire length of recirculating sections of hot water pipes are insulated per Standards Table 150-B. 150(j)2: Cooling system piping (suction, chilled water, or brine lines), and piping insulated between heating source and indirect hot water tank shall be

150(j)2: Pipe insulation for steam hydronic heating systems or hot water systems >15 psi, meets the requirements of Standards Table 123-A. 150(j)3A: Insulation is protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind. 150(j)3A: Insulation for chilled water piping and refrigerant suction lines includes a vapor retardant or is enclosed entirely in conditioned space. 150(j)4: Solar water-heating systems and/or collectors are certified by the

the same of the same of the same of the same

insulated to Table 150-B and Equation 150-A.

Solar Rating and Certification Corporation.

DUCTS AND FANS MEASURES:

150(m)1: All air-distribution system ducts and plenums installed, are sealed and insulated to meet the requirements of CMC Sections 601, 602, 603, 604, 605 and Standard 6-5; supply-air and return-air ducts and plenums are insulated to a minimum installed level of R-4.2 or enclosed entirely in conditioned space. Openings shall 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 either mesh or tape shall be used. 150 (m) 1: Building cavities, support platforms for air handlers, and plenums

defined or constructed with materials other than sealed sheet metal, duct board or flexible duct shall not be used for conveying conditioned air. Building cavities and support platforms may contain ducts. Ducts installed in cavities and support platforms shall not be compressed to cause reductions in the cross-sectional area of the ducts. 150(m)2D: Joints and seams of duct systems and their components shall not be sealed with cloth back rubber adhesive duct tapes unless such tape is used in

combination with mastic and draw bands. 150(m)7: Exhaust fan systems have back draft or automatic dampers. 150 (m) 8: Gravity ventilating systems serving conditioned space have either automatic or readily accessible, manually operated dampers. 150(m)9: Insulation shall be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind. Cellular foam insulation

shall be protected as above or painted with a coating that is water retardant and provides shielding from solar radiation that can cause degradation of the

material. 150(m)10: Flexible ducts cannot have porous inner cores. 150(o): All dwelling units shall meet the requirements of ANSI/ASHRAE Standard 62.2-2007 Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings. Window operation is not a permissible method of providing the Whole Building Ventilation required in Section 4 of that

POOL AND SPA HEATING SYSTEMS AND EQUIPMENT MEASURES:

114(a): Any pool or spa heating system shall be certified to have: a thermal efficiency that complies with the Appliance Efficiency Regulations; an on-off switch mounted outside of the heater; a permanent weatherproof plate or card with operating instructions; and shall not use electric resistance heating or a pilot light.

114(b)1: Any pool or spa heating equipment shall be installed with at least 36" of pipe between filter and heater, or dedicated suction and return lines, or built-up connections for future solar heating .114(b)2: Outdoor pools or spas that have a heat pump or gas heater shall have

114(b)3: Pools shall have directional inlets that adequately mix the pool water, and a time switch that will allow all pumps to be set or programmed to run only during off-peak electric demand periods. 150(p): Residential pool systems or equipment meet the pump sizing, flow rate, piping, filters, and valve requirements of 150(p). RESIDENTIAL LIGHTING MEASURES:

150(k)1: High efficacy luminaires or LED Light Engine with Integral Heat Sink has an efficacy that is no lower than the efficacies contained in Table 150-C and is not a low efficacy luminaire as specified by 150(k)2. 150(k)3: The wattage of permanently installed luminaires shall be determined as specified by 130(d).

150(k)4: Ballasts for fluorescent lamps rated 13 Watts or greater shall be electronic and shall have an output frequency no less than 20 kHz. 150(k)5: Permanently installed night lights and night lights integral to a permanently installed luminaire or exhaust fan shall contain only high efficacy lamps meeting the minimum efficacies contained in Table 150-C and shall not contain a line-voltage socket or line-voltage lamp holder; OR shall be rated to consume no more than five watts of power as determined by 130(d), and shall not contain a medium screw-base socket. 150(k)6: Lighting integral to exhaust fans, in rooms other than kitchens, shall meet the applicable requirements of 150(k).

150(k)7: All switching devices and controls shall meet the requirements of 150(k)8: A minimum of 50 percent of the total rated wattage of permanently installed lighting in kitchens shall be high efficacy.

EXCEPTION: Up to 50 watts for dwelling units less than or equal to 2,500 ft2 or 100 watts for dwelling units larger than 2,500 ft2 may be exempt from the 50% high efficacy requirement when: all low efficacy luminaires in the kitchen are controlled by a manual on occupant sensor, dimmer, energy management system (EMCS), or a multi-scene programmable control system; and all permanently installed luminaries in garages, laundry rooms, closets greater than 70 square feet, and utility rooms are high efficacy and controlled by a manual-on occupant sensor. 150(k)9: Permanently installed lighting that is internal to cabinets shall use

no more than 20 watts of power per linear foot of illuminated cabinet. 150(k)10: Permanently installed luminaires in bathrooms, attached and detached garages, laundry rooms, closets and utility rooms shall be high efficacy. EXCEPTION 1: Permanently installed low efficacy luminaires shall be allo provided that they are controlled by a manual-on occupant sensor certified to comply with the applicable requirements of 119.

EXCEPTION 2: Permanently installed low efficacy luminaires in closets less than 70 square feet are not required to be controlled by a manual-on occupant

150(k)11: Permanently installed luminaires located in rooms or areas other than in kitchens, bathrooms, garages, laundry rooms, closets, and utility rooms shall be high efficacy luimnaires. EXCEPTION 1: Permanently installed low efficacy luminaires shall be allowed provided they are controlled by either a dimmer switch that complies with the applicable requirements of 119, or by a manual-on occupant sensor that complies with the applicable requirements of 119.

EXCEPTION 2: Lighting in detached storage building less than 1000 square feet located on a residential site is not required to comply with 150(k)11. 150(k)12: Luminaires recessed into insulated ceilings shall be listed for zero clearance insulation contact (IC) by Underwriters Laboratories or other nationally recognized testing/rating laboratory; and have a label that certifies the lumiunaire is airtight with air leakage less then 2.0 CFM at 75 Pascals when tested in accordance with ASTM E283; and be sealed with a gasket or caulk between the luminaire housing and ceiling. 150(k)13: Luminaires providing outdoor lighting, including lighting for private patios in low-rise residential buildings with four or more dwelling units, entrances, balconies, and porches, which are permanently mounted to a residential building or to other buildings on the same lot shall be high

EXCEPTION 1: Permanently installed outdoor low efficacy luminaires shall be allowed provided that they are controlled by a manual on/off switch, a motion sensor not having an override or bypass switch that disables the motion sensor, and one of the following controls: a photocontrol not having an override or bypass switch that disables the photocontrol; OR an astronomical time clock not having an override or bypass switch that disables the astronomical time clock; OR an energy management control system (EMCS) not having an override or bypass switch that allows the luminaire to be always on EXCEPTION 2: Outdoor luminaires used to comply with Exception1 to 150(k)13 may be controlled by a temporary override switch which bypasses the motion sensing

six hours. EXCEPTION 3: Permanently installed luminaires in or around swimming pool, water features, or other location subject to Article 680 of the California Electric Code need not be high efficacy luminaires. 150(k)14: Internally illuminated address signs shall comply with Section 148; OR not contain a screw-base socket, and consume no more than five watts of

function provided that the motion sensor is automatically reactivated within

power as determined according to 130(d). 150(k)15: Lighting for parking lots and carports with a total of for 8 or more vehicles per site shall comply with the applicable requirements in Sections 130, 132, 134, and 147. Lighting for parking garages for 8 or more vehicles shall comply with the applicable requirements of Sections 130, 131, 134, and

150(k)16: Permanently installed lighting in the enclosed, non-dwelling spaces of low-rise residential buildings with four or more dwelling units shall be high efficacy luminaires.

EXCEPTION: Permanently installed low efficacy luminaires shall be allowed provided that they are controlled by an occupant sensor(s) certified to comply with the applicable requirements of 119. 1. Site Demolition to include existing building, walkways up to 7 feet from

the building, concrete slab, foundation including electrical & plumbing. Electrical & plumbing to be capped below foundation. 2. Scope of work includes all mechanical, plumbing and electrical work. Plumbing work includes connecting hot water line to Water Heater and run hot and cold water line to Deity Room and cold water line to Shower

pan outside. 3. Contractor to design, build a drain at deity room and connect to existing

sewer line at existing house. 4. New doors to be Nana wall fiberglass doors painted, 6 feet 10inches tall with bottom rail ht. 10 inches. Glazing to be double glazing low E

insulated tempered argon filled. 5. Meditation Room to have 8 recessed down lights at ceiling manufactured by Lithonia, model # AF-126-DTT-6AR-LD MVOLT GEB 10IS with Dimmer

9. Walkways finish to be stone pavers 16"x16" or equal.

6. Deity Room to have surface mounted 4 down lights manufactured by Lithonia, model CF 10-226DTT-6AR-120 GEB10-DDB

7. Two Electric fans part of contract to be installed in Meditation room at the ceiling as shown on drawings. 8. Floor finish in Deity and Meditation Room to be 12"x12" white Marble tiles.

Deity Room to have Marble Tiles at all walls up to wainscoat height of 3ft.

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