



## BUILDING DEPARTMENT

INCORPORATED 1984

### Plan Review Division

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**TO: All Contractors, Developers, and Architects & Draftsmen**

**FROM City Plan Examiner**

**DATE: May, 2007**

**RE: Plan Review Requirements for Residential Dwellings**

**LIST CURRENT CODES: IRC 2006, UMC 2006, UPC 2006, NEC 2005, IECC 2006, ALL WITH CITY OF MESQUITE AMENDMENTS ON DRAWINGS**

**Required submittal:** One (1) complete permit package containing:

- Three (3) complete construction plans (requirements as noted below)
- Two (2) soils report (pad certification)
- Two (2) grading and drainage certification
- Two (2) pre-engineered truss drawings with hanger hardware called out (if used),
- Two (2) structural calculations (if required)
- Two (2) energy calculations (2006 IECC)
- One (1) signed permit application for review

**One** set of plans: will be approved by the Building Department, and must be on the job site along with inspection card and copy of permit issued. These must be accessible and within sight for the building inspector. If the above requirements are not met, the inspection will be denied.

**Second** set of plans: For Building Department Files.

**Third** set of plans: Sent to the Clark County Assessors office.

### **GENERAL REQUIREMENTS:**

- Minimum size of plans 24"x36" sheets.
- **No loose sheets** shall be attached with the exception of pre-engineered truss drawings, structural calculations, energy (2006 IECC) calculations, and soils report.
- All plans shall be legible and no scale smaller than 1/4" = 1'-0" shall be used for the floor plans, foundation plan, framing plan and elevations.
- All corrections and revisions SHALL be made on the original tracings and three (03) new sets of prints shall be returned with all clouded corrections on the plans.

- Reference or attachment only shall not include details, data and information provided to the Building Department. The data must be delineated on the drawings by notes or graphics as part of the original tracings or masters.
- Clouded red lining of final prints will be acceptable if initialed by designer. To avoid delays ensure all corrections have been made, are complete and have been coordinated on the applicable details and notes.
- Review all code references when making the corrections to assure compliance. Do not copy the code reference as a correction onto the plan unless such reference is requested as note to be incorporated into the plan.
- List the square footage for the following areas separately on the drawings: living area, garage area, covered porch, covered patio, deck area, and courtyard areas.
- All engineers and architects involved in the design of the structure are to seal the related sheets of the plans, details and calculations. Contractors that have prepared and submitting plans must list their information and sign the prints, per NRS 623.330 for work under the contractor license category authorized under NRS 624.

**Required information for plan submittal:**

**Sheet Plan Description**

**SITE PLAN**

Location of proposed site

1. Show cross street.
2. Callout subdivision name.
3. Callout lot number (per subdivision).
4. Callout legal parcel number.
5. Callout physical street address.
6. Callout RIM elevation of next upstream manhole for review of sewer backwater valve requirements.
7. Provide north arrow direction.

Location of structure of site

8. Dimension offsets from property line to structure:  
\*Minimum setbacks:
  - Front @ 20' from back sidewalk
  - Rear @ 25' from property line
  - Sides @ 6' from property line
  - Corner lot side street 15' from back of curb
9. Show exterior concrete (driveways and walks).
10. Detail existing utilities and general information.
11. Callout all pad and finish floor elevations and callout back top of curb elevations with all corners of property elevations, (minimum 18" above approved collection point to finish floor).
12. Maximum slope of driveway is 33% with proper transitions at bottom and top of slope for vehicles.
13. Provide no more than 1:8 slopes (12.5%) on driveways if used as the main walkway to residence.
14. Provide drainage direction arrows from all areas of property to approved collection points per approved grading plan.

15. Indicate the total number of water fixture units counted from Table 6-5 for each fixture and size the waterline to the building per Table 6-6. UPC '06.

## **FLOOR PLANS**

16. Show all interior and exterior dimensions.
17. Callout all rooms and spaces.
18. Callout ceiling heights and styles and include hallways, utility rooms, garages and walk-in closets.
19. Provide all door and window sizes and types. Designate the operable portion of window.
20. Comply with light and ventilation requirements for windows in all habitable rooms, bathrooms and utility rooms. IRC '06 R303
21. Comply with safety glazing and indicate locations on drawings. IRC '06 R308
22. Provide ½" gypsum board on all walls common to the garage and house and on all of garage ceiling unless provide 5/8" type X gypsum on the ceiling if living space above garage. IRC '06 R309
23. Note doors between the house and the garage shall be 1 3/8" solid core wood door, metal door, or 20 min. fire rated door all with self-closing hardware. IRC '06 R309
24. IF USED, Note and specify that the shower area walls shall be finished with approved type backing board and ceramic tile equal to a height of 70" above the floor drain. IRC '06 R702.3.8 and R702.4.2, and UPC '06 411.7
25. Specify that shower enclosures shall have a minimum finished interior of 1,024 square inches and shall be capable of encompassing a minimum 30" circle. UPC '06 411.7
26. All glass enclosures shall be tempered. IRC '06 R308.4
27. Show that each water closet is located in a clear space not less than 30" wide and has a clear space in front of not less than 24". UPC '06 407.6
28. Detail and specify stair width, rise and run, landing width, handrail heights, guardrail height and intermediate rail spacing. IRC '06 R311.5
29. Callout factory built fireplaces (zero-clearance) and provide a copy of the listing from an approved listing agency.
30. For masonry and zero-clearance fireplaces, indicate fireplace location, hearth size and materials.
31. Locate skylights, specify materials and provide Evaluation Report number for those exceeding 24"x48". Reference locations on Roof Framing Plan.
32. Comply with bedroom window egress requirements. IRC '06 R310
33. Show location and size of attic access opening, minimum 22"x30". IRC '06 R807.1
34. Indicate on the drawings all plumbing fixtures and their water supply fixture unit count per Table 6-5. Then total the count and indicate the water meter size and the water line size into the home per Table 6-6. UPC '06
35. Indicate on the drawings the water heater first hour rating of the unit(s) (gallons of water per hour delivered) to meet Table 5-1. UPC '06
36. Show and callout hosebibbes on exterior of dwelling.
37. Show location of special equipment, such as; propane tank, soft water system, etc.
38. Show marks and reference to cross section sheet.
39. Indicate wall lines and roof required to be fire rated construction per location on property. IRC '06 R302
40. Show location of any firewalls (town homes) and provide detailed construction of listed assembly from floor to roof deck or above with parapet.

41. Callout listed firewall penetrations to be used for review. (town homes) (provide cut-sheets from manufacturer)
42. Indicate on the drawings, window and door U- factors with solar heat gain coefficient on glazing. This should match calculations submitted for review.

**SECOND STORY FLOOR PLAN (if needed or required)**

43. See floor plan requirements

**BASEMENT FLOOR PLAN (if needed or required)**

44. See floor plan requirements.
45. Show and callout emergency escapes and rescue openings with maximum sill height of 44". IRC '06 R310
46. Note and specify damp-proofing for all basement walls. IRC '06 R406.

**EXTERIOR ELEVATIONS**

47. Show all sides of structure including patio covers, decks, fireplaces (chimney) and bay windows.
48. Note and dimension that the fireplace chimney must terminate a minimum of two feet (24") above any point of a roof within ten feet measured horizontally. IRC '06 R1003.9
49. Callout all exterior finishing materials used – stucco, concrete block, glass block, roofing systems, siding veneers, etc.
50. Provide Evaluation Report number and/or the manufacturer of all concrete and clay-type tile roofing with weight psf (per square foot).
51. Indicate and callout approximate finish grades.
52. Callout roof pitches, minimum roof slope 1/4" per foot.
53. Callout bearing heights (plate heights, ridge heights, etc.)
54. Provide attic cross ventilation with calculations and size of openings (psf). Example; drawings to show louvers at gable ends, ridge vents, eave vents, or dormer vents (@ 1 sq. ft per 150 square foot of area). Indicate sizes of vents and number required to meet code as calculated on the drawing. IRC '06 R806

**CROSS SECTION (wall section)**

55. All callouts of construction and details.
56. Dimensions of all heights and lengths.
57. Show and callout all types of materials in structure.
58. Show approximate finish grades.
59. Callout roof pitches.
60. Show and callout the insulation location and rating matching energy code.
61. Show all details needed for construction connections.
62. Show section to be a complete cut throw of structure (one end to the other end) \* If necessary, show other sections to maintain particular construction throughout structure

**FOOTING AND FOUNDATION PLAN**

63. Dimension all construction points.
64. Callout and show elevation changes where they occur (floors included).
65. Locate and specify all required footing widths and depths and any special anchor bolt spacing, post anchors and any other foundation hardware.
66. Show location of underground return air ductwork, if designed in the building.
67. Show all required interior bearing footings per prescriptive methods of the IRC or from engineered design analysis and refer to cross section if needed.
68. Provide location and callout the make and type of all structural hardware in foundation – this will need to correlate with braced wall lines on the Framing Plan sheet showing location of braced walls.
69. Provide the soils report recommendation for the soil bearing capacity and/or design for 1500 psf on foundation.
70. Provide all footing details on the foundation plan sheet or reference a detail number on a separate sheet within the construction drawings. Details shall match cross-referenced numbers on the foundation plans.
71. Locate and detail all footings for the following: fireplace, girder truss bearing locations, turn downs, interior bearing walls, posts, columns, and sunken or raised areas.
72. Provide required landings at all doors, minimum landing slab thickness is 3 ½". IRC '06 R311
73. Call out slab thickness and any required reinforcement.

#### **FLOOR FRAMING PLAN (for second story structure or crawl space)**

74. Layout of floor joists and sizes, engineering may be required to be justified.
75. Layout and size of beams and headers, engineering may be required justifying sizes.
76. Show and callout all bearing walls.
77. Callout DBL joists if under braced wall lines or openings where needed.
78. Callout and show special hanging hardware or construction.
79. Show proper layouts for stairs between joists and callout construction.
80. Show all other interior walls for layout reference.
81. Callout all columns support and sizes.
82. Dimension all construction points.
83. Provide braced wall locations on drawings with method to be used. Braced wall lines (shear wall) shall be both in the longitudinal and transverse directions not exceeding 35 feet o.c. (unless meeting the exception) attached to a foundation per code. IRC '06 R602.10
84. If bracing does not comply with prescriptive methods of the IRC, provide a lateral analysis of alternate design to be reviewed by the Building Department. Wind forces shall use 90 mph, 3 second gust, Exposure C. Demonstrate design for wind and seismic analysis and meeting R301.1 for all load paths.

#### **ROOF FRAMING PLAN**

85. Show and callout all ridges, eaves, and valleys.
86. Detail, note and size all roof drains/scuppers on flat parapet roofed areas.
87. Show and callout sizes of trusses, girder trusses, rafters, and all other spacing as required – If prefabricated trusses are used, provide [02] separate structural documents, calculations and drawings - wet stamped by a Nevada Registered Structural Engineer for complete prefabricated roof framing design. Callout on the layout page any hanging hardware required for installation.

88. Indicate all beams, headers, and their sizes with location. Engineering may be required.
89. Provide and locate all bearing supports in walls (post) for girders, bearing floors, beams, etc.
90. Note and /or detail fire blocks for concealed spaces in walls, partitions, and furred spaces, at ceiling and floor levels and at intervals of ten feet along the walls. IRC '06 R602.8
91. Callout all over-builds and specialties framing construction (size of members).
92. Indicate soffit (overhang) length on roof line.
93. Indicate on the drawing if soffit overhang is required to be fire rated construction. IRC '06 R302 and Table R302.1.
94. Show location of attic access (refer to floor plan and mechanical plan).
95. Locate skylights and other roof openings. Provide details of framing around openings in floor or roof systems.
96. Provide braced wall locations on drawings with method to be used per IRC R602.10. Braced wall lines (shear wall) shall be both in the longitudinal and transverse directions not exceeding 35 feet o.c. (unless meeting the exception) attached to a foundation per code.
97. If bracing does not comply with prescriptive methods of the IRC, provide a lateral analysis of alternate design to be reviewed by the Building Department. Wind forces shall use 90 mph, 3 second gust, Exposure C. Demonstrate design for wind and seismic analysis (category C seismic) and meeting R301.1 for all load paths.

#### **ELECTRICAL PLAN (plan for each level if needed)**

98. Show all lighting, outlets, and switches (Note: 12 receptacle outlets/lighting fixtures per 20 amp breaker, maximum).
99. A room or area which may be used for sleeping with clothes storage, provisions for privacy and meeting Building Code requirements for emergency escape and rescue shall be wired as a bedroom per code. NEC '05 Amended
100. At least one wall switch controlled light or outlet must be provided in bathrooms, hallways, stairways, attached garages, outdoor entrances or exits and all habitable rooms. Unless prohibited by structural design a wall switch shall be located within 6 foot of the point of entry, and shall not be located behind an active door in the fully open position. NEC '05 Amended Article 210-70
101. Hallways of 10 ft. or more in length shall have wall switches at every end. There shall be a wall switch within 6 ft. of each bedroom door unless prohibited by structural design. NEC '05 Amended Article 210-70
102. At least one wall controlled switch that controls an interior lighting outlet shall be located at each keyed exterior entry and within 6 ft. of the latching jamb side, unless prohibited by structural design, and not behind an active door in the fully open position. NEC '05 Amended
103. Receptacle outlets shall be provided so that no point along the floor line of an unbroken wall or partition/counter/railings two or more feet in length are not more than six feet from an outlet within that wall space. NEC '05 Article 210-52
104. Provide at least one receptacle outlet in hallways ten or more feet in length. NEC '05 Article 210-52(H)
105. At least one ground fault circuit interrupter (GFCI) receptacle outlet, accessible at grade level shall be installed on the exterior at the front and rear of the dwelling. Wiring for this outlet may not be taken from a small appliance circuit. NEC '05 Article 210-52 (E)

106. The kitchen small appliance circuits shall not exceed 5 outlets per circuit.
107. Receptacle outlets shall be provided at each kitchen counter space wider than 12 inches and shall be installed so that no point along the wall line is more than 24 inches from a receptacle outlet. All kitchen counter top outlets must be GFCI indicated on the drawings. NEC '05 Article 210-52
108. Island or peninsular counter tops 12 inches or wider shall have at least one GFCI receptacle outlet for every 4 ft. of length. NEC '05 Southern Nevada Amendments Article 210-52
109. A GFCI receptacle outlet shall be provided within 3 ft. of the outside edge of each basin in each bathroom. NEC '05 Article 210-52 (5) (D).
110. Bathroom receptacle outlets shall be supplied by at least one 20 amp branch circuit. NEC '05 Southern Nevada Amendments Article 210-23 (E) (2)
111. All garage outlets will be GFCI and will be a minimum of 18 inches from the floor.
112. Provide one line diagram for service, switches (3way/4way) to lighting, etc.
113. Where ceiling fans are shown on the plans, provide a note indicating that only approved outlet boxes shall be used.
114. Add a note indicating that surface mounted incandescent light fixtures in clothes closets shall maintain 12 inches between the fixture and the nearest point of storage. NEC '05 Article 410-8(D)
115. Show as needed for exhaust fans, water heaters, range, dryers, A/C, etc.
116. Show smoke detectors. Detectors must be interlinked to sound simultaneously, the power source must be from the building wiring and detectors shall be equipped with battery backup. IRC '05 R313
117. Show placement for mechanical unit and size (tonnage) and specify disconnecting means for each mechanical equipment unit and water heaters, etc.
118. Indicate location of convenience outlet and light with switch for attic mechanical equipment unit. NEC '05 Article 210.63 and 210-70(A) (3)
119. Show location and size of main electrical service and any sub panels, preferably on garage side exterior towards the front of dwelling for main panel. (Sub panels are not allowed in a closet or bathroom.)
120. Provide electrical service calculations. The Building Dept. will provide calculation form sheet (upon request) this may be incorporated into the plan.
121. Indicate on the drawings arc-fault protection on all bedroom outlets.
122. Provide note that plan meets requirements of the Southern Nevada Amendments to the 2005 National Electrical Code.
123. Provide GFCI protected service outlet (125 volt) within 25 ft. of heating and air conditioning. NEC '05 Article 210.63

### **MECHANICAL PLAN (plan for each level if needed)**

Note: the dwelling must be provided with heating capable of maintaining a room temperature of 70 degrees at a point three feet above the floor.

124. Show location of mechanical units & callout size of unit (furnace & condenser).
125. Provide a single line diagram of duct work regarding air supply, return air duct sizes and grill sizes and locations. Design shall meet acceptable standards. (ACCA, Manual J, Manual D, etc.)
126. Show and callout location of thermostat control.
127. Callout and show location of all exhaust fans.

128. Locate and callout attic furnace/air handler with attic access, attic light, catwalk, and combustion air and vent furnace as required by UMC '06.
129. Show location of minimum  $\frac{3}{4}$  condensate line from cooling coil and from auxiliary drain pan outside and down to the ground. Identify secondary drain termination or overflow line to readily observable location.
130. Callout insulation rating of ductwork on supply and return. (Minimum of R-6.) IECC '06
131. If any ductwork is allowed to penetrate a fire separation, it shall be 26-gauge galvanized steel duct and provided with an approved fire damper.
132. Provide location of dryer vent, size and note that vent terminates 3'-0" from any building opening.
133. If the heating or air conditioning equipment is located in the attic with a distance of more than 2 ft from the access, it shall be in a mechanical space designed for minimum working space around equipment, plus have a minimum 20 psf live load design on the bottom cord of trusses or ceiling joists to coordinate with the IRC for limited storage in the attic.
134. Gas line drawings shall indicate size of appliances BTU rating and length, size, location of all gas piping. If propane is the fuel, indicate approximate location of the storage tank in respect to buildings and property lines for review.

**If the above requirements are not met at the time of submittal, it will slow the review process by requiring additional plan review and further delay construction.**