

In accordance with ACCA Manual J

Registered For:**The David Bell Residence**

For: Bell Residence Remodel
1525 West Willetta
Phoenix, AZ 85007-1817

Design Conditions: Phoenix

Indoor:		Outdoor:	
Summer temperature:	75	Summer temperature:	107
Winter temperature:	72	Winter temperature:	34
Relative humidity:	50	Summer grains of moisture:	56
		Daily temperature range:	High

Building Component		Sensible Gain (BTUH)	Latent Gain (BTUH)	Total Heat Gain (BTUH)	Total Heat Loss (BTUH)
Whole House	1,538.3 sq.ft.	34,152	3,910	38,062 (3 tons)	42,126
First Floor		32,016	3,450	35,466	37,120
Living Room	172 sq.ft.	3,643	460	4,103	12,003
Infiltration		697	0	697	1,766
- Tightness: Poor; Winter ACH: 1.37 ; Summer ACH: .64					
Duct		475	0	475	1,566
- Supply above 120; Exposed to outdoor ambient; R-4					
People	2	600	460	1,060	0
Fireplace		0	0	0	5,213
- Poor					
Floor	171.5 sq.ft.	0	0	0	1,017
- Over enclosed crawl space; Hardwood; No insulation					
E Wall BelowGr	120 sq.ft.	0	0	0	570
- Block or brick, extends to 5' below grade; None; 8 or 12 in. Block					
Window	3 sq.ft.	296	0	296	113
- Single pane; Wood frame; Clear glass					
- No inside shading; Coating: None (clear glass); No outside shading.					
Window (2)	3 sq.ft.	200	0	200	113
- Single pane; Wood frame; Clear glass					
- No inside shading; Coating: None (clear glass); 55% shaded.					
N Wall BelowGr	70.8 sq.ft.	0	0	0	336
- Block or brick, extends to 5' below grade; None; 8 or 12 in. Block					
Window	20 sq.ft.	812	0	812	752
- Single pane; Wood frame; Clear glass					
- No inside shading; Coating: None (clear glass); No outside shading.					
Door	19.5 sq.ft.	274	0	274	341

Building Component		Sensible Gain (BTUH)	Latent Gain (BTUH)	Total Heat Gain (BTUH)	Total Heat Loss (BTUH)
	- Wood; Solid; No storm				
Ceiling	172 sq.ft.	289	0	289	216
	- Under ventilated attic; R-30 (8 - 9 inch); Dark				
Family Room	115 sq.ft.	4,939	690	5,629	6,263
Infiltration		787	0	787	1,997
	- Tightness: Poor; Winter ACH: 1.37 ; Summer ACH: .64				
Duct		644	0	644	817
	- Supply above 120; Exposed to outdoor ambient; R-4				
People	3	900	690	1,590	0
Floor	115 sq.ft.	0	0	0	682
	- Over enclosed crawl space; Hardwood; No insulation				
N Wall BelowGr	70 sq.ft.	0	0	0	332
	- Block or brick, extends to 5' below grade; None; 8 or 12 in. Block				
Window	20 sq.ft.	812	0	812	752
	- Single pane; Wood frame; Clear glass				
	- No inside shading; Coating: None (clear glass); No outside shading.				
W Wall BelowGr	66.5 sq.ft.	0	0	0	316
	- Block or brick, extends to 5' below grade; None; 8 or 12 in. Block				
Window	32.5 sq.ft.	1,602	0	1,602	1,223
	- Single pane; Wood frame; Clear glass				
	- No inside shading; Coating: None (clear glass); 85% shaded.				
Ceiling	115 sq.ft.	194	0	194	144
	- Under ventilated attic; R-30 (8 - 9 inch); Dark				
Storage	64 sq.ft.	1,126	0	1,126	1,512
Infiltration		121	0	121	307
	- Tightness: Poor; Winter ACH: 1.37 ; Summer ACH: .64				
Duct		147	0	147	197
	- Supply above 120; Exposed to outdoor ambient; R-4				
Floor	64 sq.ft.	0	0	0	379
	- Over enclosed crawl space; Hardwood; No insulation				
W Wall BelowGr	55.4 sq.ft.	0	0	0	263
	- Block or brick, extends to 5' below grade; None; 8 or 12 in. Block				
Window	3.8 sq.ft.	375	0	375	143
	- Single pane; Wood frame; Clear glass				
	- No inside shading; Coating: None (clear glass); No outside shading.				
Window (2)	3.8 sq.ft.	375	0	375	143
	- Single pane; Wood frame; Clear glass				
	- No inside shading; Coating: None (clear glass); No outside shading.				
Ceiling	64 sq.ft.	108	0	108	80
	- Under ventilated attic; R-30 (8 - 9 inch); Dark				
Kitchen	144 sq.ft.	4,763	690	5,453	3,632
Infiltration		333	0	333	845
	- Tightness: Poor; Winter ACH: 1.37 ; Summer ACH: .64				

Building Component		Sensible Gain (BTUH)	Latent Gain (BTUH)	Total Heat Gain (BTUH)	Total Heat Loss (BTUH)
Duct		621	0	621	474
- Supply above 120; Exposed to outdoor ambient; R-4					
People	3	900	690	1,590	0
Miscellaneous		1,200	0	1,200	0
Floor	144 sq.ft.	0	0	0	854
- Over enclosed crawl space; Hardwood; No insulation					
E Wall BelowGr	95 sq.ft.	0	0	0	451
- Block or brick, extends to 5' below grade; None; 8 or 12 in. Block					
Window	10 sq.ft.	667	0	667	376
- Single pane; Wood frame; Clear glass					
- No inside shading; Coating: None (clear glass); 55% shaded.					
Window (2)	12 sq.ft.	800	0	800	451
- Single pane; Wood frame; Clear glass					
- No inside shading; Coating: None (clear glass); 55% shaded.					
Ceiling	144 sq.ft.	242	0	242	181
- Under ventilated attic; R-30 (8 - 9 inch); Dark					
Dining Room	105 sq.ft.	5,019	690	5,709	4,001
Infiltration		485	0	485	1,229
- Tightness: Poor; Winter ACH: 1.37 ; Summer ACH: .64					
Duct		655	0	655	522
- Supply above 120; Exposed to outdoor ambient; R-4					
People	3	900	690	1,590	0
Miscellaneous		1,200	0	1,200	0
Floor	105 sq.ft.	0	0	0	622
- Over enclosed crawl space; Hardwood; No insulation					
W Wall BelowGr	57.5 sq.ft.	0	0	0	273
- Block or brick, extends to 5' below grade; None; 8 or 12 in. Block					
Window	32.5 sq.ft.	1,602	0	1,602	1,223
- Single pane; Wood frame; Clear glass					
- No inside shading; Coating: None (clear glass); 85% shaded.					
Ceiling	105 sq.ft.	177	0	177	132
- Under ventilated attic; R-30 (8 - 9 inch); Dark					
Office	138 sq.ft.	4,621	460	5,081	4,229
Infiltration		757	0	757	1,920
- Tightness: Poor; Winter ACH: 1.37 ; Summer ACH: .64					
Duct		603	0	603	552
- Supply above 120; Exposed to outdoor ambient; R-4					
People	2	600	460	1,060	0
Floor	137.5 sq.ft.	0	0	0	0
- Over conditioned space					
S Wall	67 sq.ft.	82	0	82	102
- Wood frame, with sheathing, siding or brick; R-195 1/2 in.; R-8Sheathing					

Building Component		Sensible Gain (BTUH)	Latent Gain (BTUH)	Total Heat Gain (BTUH)	Total Heat Loss (BTUH)
Glassdoor	35 sq.ft.	2,016	0	2,016	1,244
- French doors; Single pane; Wood or vinyl frame; Clear glass					
- No inside shading; Coating: None (clear glass); No outside shading.					
E Wall	40.3 sq.ft.	49	0	49	61
- Wood frame, with sheathing, siding or brick; R-195 1/2 in.; R-8Sheathing					
Window	15 sq.ft.	321	0	321	206
- Double pane; Wood frame; Low emittance					
- No inside shading; Coating: None (clear glass); 100% shaded.					
Ceiling	108 sq.ft.	193	0	193	144
- Roof-Ceiling combination; R-30 batts (2 X 10 rafters); Dark					
Bedroom	147 sq.ft.	3,582	230	3,812	2,676
Infiltration		545	0	545	1,382
- Tightness: Poor; Winter ACH: 1.37 ; Summer ACH: .64					
Duct		467	0	467	349
- Supply above 120; Exposed to outdoor ambient; R-4					
People	1	300	230	530	0
Floor	147 sq.ft.	0	0	0	0
- Over conditioned space					
S Wall	71.8 sq.ft.	88	0	88	109
- Wood frame, with sheathing, siding or brick; R-195 1/2 in.; R-8Sheathing					
Window	17.5 sq.ft.	602	0	602	240
- Double pane; Wood frame; Low emittance					
- No inside shading; Coating: None (clear glass); No outside shading.					
W Wall	101 sq.ft.	124	0	124	154
- Wood frame, with sheathing, siding or brick; R-195 1/2 in.; R-8Sheathing					
Window	6 sq.ft.	398	0	398	82
- Double pane; Wood frame; Low emittance					
- No inside shading; Coating: None (clear glass); No outside shading.					
Window (2)	6 sq.ft.	398	0	398	82
- Double pane; Wood frame; Low emittance					
- No inside shading; Coating: None (clear glass); No outside shading.					
Window (3)	6 sq.ft.	398	0	398	82
- Double pane; Wood frame; Low emittance					
- No inside shading; Coating: None (clear glass); No outside shading.					
Ceiling	147 sq.ft.	262	0	262	196
- Roof-Ceiling combination; R-30 batts (2 X 10 rafters); Dark					
Hall	71 sq.ft.	3,108	0	3,108	2,092
Infiltration		454	0	454	1,152
- Tightness: Poor; Winter ACH: 1.37 ; Summer ACH: .64					
Duct		405	0	405	273
- Supply above 120; Exposed to outdoor ambient; R-4					
Floor	71 sq.ft.	0	0	0	0
- Over conditioned space					

Building Component		Sensible Gain (BTUH)	Latent Gain (BTUH)	Total Heat Gain (BTUH)	Total Heat Loss (BTUH)
E Wall	106 sq.ft.	130	0	130	161
- Wood frame, with sheathing, siding or brick; R-195 1/2 in.; R-8Sheathing					
Window	15 sq.ft.	996	0	996	206
- Double pane; Wood frame; Low emittance					
- No inside shading; Coating: None (clear glass); No outside shading.					
Window (2)	15 sq.ft.	996	0	996	206
- Double pane; Wood frame; Low emittance					
- No inside shading; Coating: None (clear glass); No outside shading.					
Ceiling	71 sq.ft.	127	0	127	94
- Roof-Ceiling combination; R-30 batts (2 X 10 rafters); Dark					
Bathroom	40 sq.ft.	1,055	230	1,285	511
Infiltration		76	0	76	192
- Tightness: Poor; Winter ACH: 1.37 ; Summer ACH: .64					
Duct		138	0	138	67
- Supply above 120; Exposed to outdoor ambient; R-4					
People	1	300	230	530	0
Floor	40 sq.ft.	0	0	0	0
- Over conditioned space					
W Wall	32.5 sq.ft.	40	0	40	49
- Wood frame, with sheathing, siding or brick; R-195 1/2 in.; R-8Sheathing					
Window	5 sq.ft.	332	0	332	69
- Double pane; Wood frame; Low emittance					
- No inside shading; Coating: None (clear glass); No outside shading.					
Ceiling	40 sq.ft.	169	0	169	134
- Under ventilated attic; R-11 (3 - 3.5 inch); Dark					
Laundry	40 sq.ft.	82	0	82	102
Infiltration		0	0	0	0
- Tightness: Poor; Winter ACH: 1.37 ; Summer ACH: .64					
Duct		11	0	11	13
- Supply above 120; Exposed to outdoor ambient; R-4					
Floor	40 sq.ft.	0	0	0	36
- Basement floor, 2' or more below grade; Concrete; Not applicable					
Ceiling	40 sq.ft.	71	0	71	53
- Roof-Ceiling combination; R-30 batts (2 X 10 rafters); Dark					
Hall (2)	38 sq.ft.	78	0	78	99
Infiltration		0	0	0	0
- Tightness: Poor; Winter ACH: 1.37 ; Summer ACH: .64					
Duct		10	0	10	13
- Supply above 120; Exposed to outdoor ambient; R-4					
Floor	38 sq.ft.	0	0	0	35
- Basement floor, 2' or more below grade; Concrete; Not applicable					
Ceiling	38 sq.ft.	68	0	68	51
- Roof-Ceiling combination; R-30 batts (2 X 10 rafters); Dark					

Building Component		Sensible Gain (BTUH)	Latent Gain (BTUH)	Total Heat Gain (BTUH)	Total Heat Loss (BTUH)
Basement		2,136	460	2,596	5,006
Hall	63 sq.ft.	0	0	0	980
Infiltration		0	0	0	0
- Tightness: Poor; Winter ACH: 1.37 ; Summer ACH: .64					
Duct		0	0	0	89
- Supply above 120; Enclosed in unheated space; R-4					
Floor	63 sq.ft.	0	0	0	57
- Basement floor, 2' or more below grade; Concrete; Not applicable					
E Wall BelowGr	162 sq.ft.	0	0	0	536
- Block or brick, extends over 5' below grade; None; 8 or 12 in. Block					
S Wall BelowGr	90 sq.ft.	0	0	0	298
- Block or brick, extends over 5' below grade; None; 8 or 12 in. Block					
Bedroom	258 sq.ft.	2,136	460	2,596	3,359
Infiltration		454	0	454	1,152
- Tightness: Poor; Winter ACH: 1.37 ; Summer ACH: .64					
Duct		102	0	102	305
- Supply above 120; Enclosed in unheated space; R-4					
People	2	600	460	1,060	0
Floor	258 sq.ft.	0	0	0	235
- Basement floor, 2' or more below grade; Concrete; Not applicable					
S Wall BelowGr	108 sq.ft.	0	0	0	357
- Block or brick, extends over 5' below grade; None; 8 or 12 in. Block					
W Wall BelowGr	163.5 sq.ft.	0	0	0	541
- Block or brick, extends over 5' below grade; None; 8 or 12 in. Block					
Window	15 sq.ft.	490	0	490	206
- Double pane; Wood frame; Low emittance					
- No inside shading; Coating: None (clear glass); 75% shaded.					
Window (2)	15 sq.ft.	490	0	490	206
- Double pane; Wood frame; Low emittance					
- No inside shading; Coating: None (clear glass); 75% shaded.					
N Wall BelowGr	108 sq.ft.	0	0	0	357
- Block or brick, extends over 5' below grade; None; 8 or 12 in. Block					
Storage	63 sq.ft.	0	0	0	586
Infiltration		0	0	0	0
- Tightness: Poor; Winter ACH: 1.37 ; Summer ACH: .64					
Duct		0	0	0	53
- Supply above 120; Enclosed in unheated space; R-4					
Floor	63 sq.ft.	0	0	0	57
- Basement floor, 2' or more below grade; Concrete; Not applicable					
N Wall BelowGr	63 sq.ft.	0	0	0	208
- Block or brick, extends over 5' below grade; None; 8 or 12 in. Block					
E Wall BelowGr	81 sq.ft.	0	0	0	268

Building Component		Sensible Gain (BTUH)	Latent Gain (BTUH)	Total Heat Gain (BTUH)	Total Heat Loss (BTUH)
- Block or brick, extends over 5' below grade; None; 8 or 12 in. Block					
Den	81 sq.ft.	0	0	0	81
Infiltration		0	0	0	0
- Tightness: Poor; Winter ACH: 1.37 ; Summer ACH: .64					
Duct		0	0	0	7
- Supply above 120; Enclosed in unheated space; R-4					
Floor	81.3 sq.ft.	0	0	0	74
- Basement floor, 2' or more below grade; Concrete; Not applicable					
Whole House	1,538.3 sq.ft.	34,152	3,910	38,062 (3 tons)	42,126