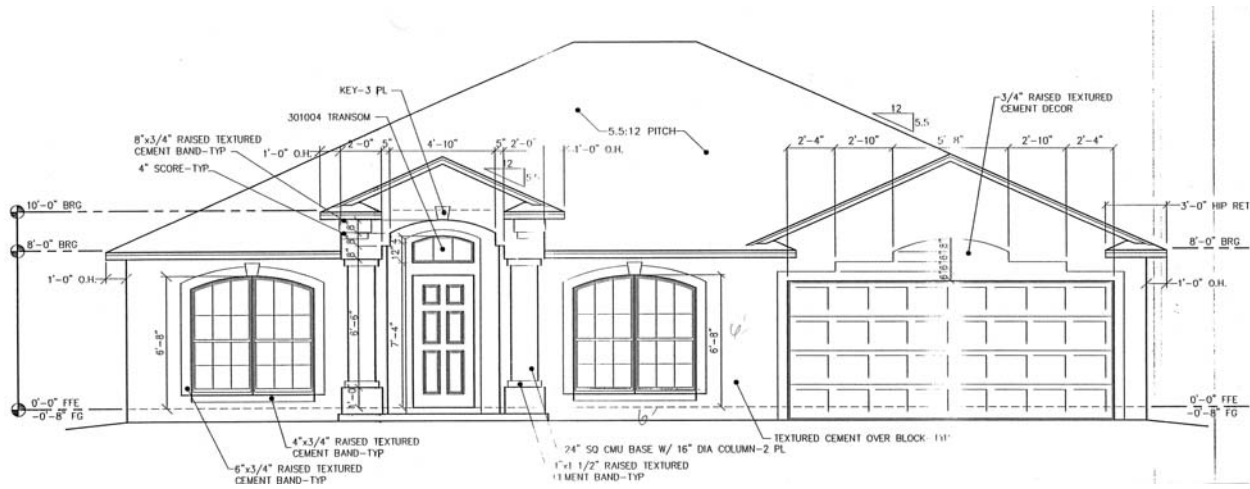


APPENDIX A: HOUSE A - MERCEDES MASONRY HOME



Home built under SBC is in Richfield Estates, Rockledge, Florida

Selling Price (with lot) \$118,500

Building Value: \$ 99,500

Contact person: Kirk Malone,
Regional Production Manager,
Mercedes Homes, Inc.
6767 Wickham Road
Melbourne FL 32940
321-259-6972, X 254

A.1 Construction Features and Documentation

The house built in Part I of the project by Mercedes Homes, Inc. in Rockledge, Florida, is a single-family 2,230 Total Square Foot home. It was constructed of concrete block with stucco finish, wood roof trusses and plywood roof deck covered with asphalt shingles. It is located approximately 2.5 miles from the intercoastal waterway as shown in Figure A-1.



Figure A-1. Location of Mercedes Demonstration Home in Brevard County

Photos A.1 through A.6 show some of the roof tie-down and deck nailing details required by the FBC.

A.2 Wind Load Design

For Part II of the project 29 different design scenarios were considered as shown in Table A-1. Once design work was completed and design pressures for openings were determined pricing for trusses, tie-down connections, doors, sliding glass doors, garage doors and windows were determined. Each change identified in Table 1-1 was examined for cost change and reported in Section A-3 of this appendix.



Photo A.1 shows:

Gable end-wall tie-down

Truss tie-down strap



Photo A.2 shows:

Gable end-wall tie-down

Truss tie-down strap



Photo A.3 shows:

Truss tie-down straps are installed correctly



Photo A.4 shows:

6 inch spacing of roof sheathing fastening

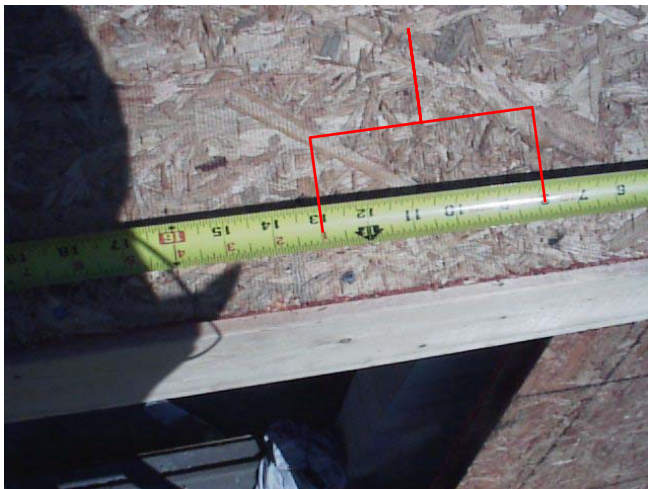


Photo A.5 shows:

4 inch spacing of sheathing fasteners on edge of roof



Photo A.6 shows:

Missed sheathing nails (contractor re-nailed)

Table A-1: Design Options Considered for FBC 2001

Design No.	Wind Speed	Exposure	Enclosed/ Partially Enclosed	WBDR Protection
D-1	100	B	E	Non WBDR
D-2	110	B	E	Non WBDR
D-3	120	B	E	Impact units
D-4	120	B	E	Impact coverings
D-5	120	B	E	Non WBDR
D-6	120	B	P	Not Required
D-7	120	C	E	Impact units
D-8	120	C	E	Impact coverings
D-9	120	C	P	Not Required
D-10	130	B	E	Impact units
D-11	130	B	E	Impact coverings
D-12	130	B	E	Non WBDR
D-13	130	B	P	Not Required
D-14	130	C	E	Impact units
D-15	130	C	E	Impact coverings
D-16	130	C	P	Not Required
D-17	140	B	E	Impact units
D-18	140	B	E	Impact coverings
D-19	140	B	E	Non WBDR
D-20	140	B	P	Not Required
D-21	140	C	E	Impact units
D-22	140	C	E	Impact coverings
D-23	140	C	P	Not Required
D-24	150	B	E	Impact units
D-25	150	B	E	Impact coverings
D-26	150	B	P	Not Required
D-27	150	C	E	Impact units
D-28	150	C	E	Impact coverings
D-29	150	C	P	Not Required

A.3 Cost Determination

Costs were determined from suppliers, sub-contractors and via contractor's estimates. In this section, cost estimates for each design case are presented. Included also are costing detail for the following items:

- Truss Design
- Truss-to-Wall Connections
- Windows, Doors and Garage Doors
- Impact Resistant Protection (if required)

A.3.1 Summary of Cost by Design Case

The following tables summarize the cost increases associated with the FBC. Table A-2 shows the total cost increase for each design case considered in this project. Table A-3 presents a summary of the costs across all design cases.

Table A-2: Summary of Cost Increases by Design Case

Design Number	Wind speed	Exposure	Enclosed/ Partially Enclosed	WBDR Protection	Wind Resistance Cost	Other Cost	Total Cost	Cost per Sq. Ft.	% of Selling Price
D-1	100	B	E	Non WBDR	\$87.00	\$425	\$512.00	\$0.23	0.51%
D-2	110	B	E	Non WBDR	\$887.00	\$425	\$1,312.00	\$0.60	1.32%
D-3	120	B	E	Impact	\$6,759.50	\$425	\$7,184.50	\$3.27	7.22%
D-4	120	B	E	Shutters	\$1,902.50	\$425	\$2,327.50	\$1.06	2.34%
D-5	120	B	E	Non WBDR	\$1,186.50	\$425	\$1,611.50	\$0.73	1.62%
D-6	120	B	P	None	\$1,553.00	\$425	\$1,978.00	\$0.90	1.99%
D-7	120	C	E	Impact	\$6,791.00	\$425	\$7,216.00	\$3.28	7.25%
D-8	120	C	E	Shutters	\$2,263.00	\$425	\$2,688.00	\$1.22	2.70%
D-9	120	C	P	None	\$1,768.50	\$425	\$2,193.50	\$1.00	2.20%
D-10	130	B	E	Impact	\$6,622.00	\$425	\$7,047.00	\$3.20	7.08%
D-11	130	B	E	Shutters	\$2,023.00	\$425	\$2,448.00	\$1.11	2.46%
D-12	130	B	E	Non WBDR	\$1,307.00	\$425	\$1,732.00	\$0.79	1.74%
D-13	130	B	P	None	\$2,117.50	\$425	\$2,542.50	\$1.16	2.56%
D-14	130	C	E	Impact	\$7,589.00	\$425	\$8,014.00	\$3.64	8.05%
D-15	130	C	E	Shutters	\$3,069.00	\$425	\$3,494.00	\$1.59	3.51%
D-16	130	C	P	None	\$3,251.50	\$425	\$3,676.50	\$1.67	3.69%
D-17	140	B	E	Impact	\$7,578.00	\$425	\$8,003.00	\$3.64	8.04%
D-18	140	B	E	Shutters	\$2,993.00	\$425	\$3,418.00	\$1.55	3.44%
D-19	140	B	E	Non WBDR	\$2,276.00	\$425	\$2,701.00	\$0.19	0.43%
D-20	140	B	P	None	\$2,838.50	\$425	\$3,263.50	\$1.48	3.28%
D-21	140	C	E	Impact	\$8,471.50	\$425	\$8,896.50	\$4.04	8.94%
D-22	140	C	E	Shutters	\$3,738.50	\$425	\$4,163.50	\$1.89	4.18%
D-23	140	C	P	None	\$3,888.00	\$425	\$4,313.00	\$1.96	4.33%
D-24	150	B	E	Impact	\$7,686.50	\$425	\$8,111.50	\$3.69	8.15%
D-25	150	B	E	Shutters	\$3,157.50	\$425	\$3,582.50	\$1.63	3.60%
D-26	150	B	P	None	\$3,168.50	\$425	\$3,593.50	\$1.63	3.61%
D-27	150	C	E	Impact	\$8,568.50	\$425	\$8,993.50	\$4.09	9.04%
D-28	150	C	E	Shutters	\$3,942.50	\$425	\$4,367.50	\$1.99	4.39%
D-29	150	C	P	None	\$5,622.00	\$425	\$6,047.00	\$2.75	6.08%

The results in Table A-2 should not be averaged into a single number because they represent costs for only one house and may not reflect market conditions once many homes are built to the FBC. Also, the study found that supplier quotes for some products and services were highly variable; clearly the understanding of the FBC requirements varies significantly at this point. Hence, while the results in Table A-2 are the best estimates that can be made at this time for a few houses, they should be viewed simply as “ball park” estimates of the cost impact of the code. As a wide range of styles and sizes of houses are built to the FBC, there will certainly be examples of cost impacts that are lower as well as higher than those shown in Table A-2.

Table A-3: Summary of Cost Increases for FBC Designs Compared to SBC Design

Non – Wind Borne Debris Region	Enclosed Design Without Impact Protection		
		Low	High
	Wind Resistance Features (\$)	87	2,276
	Other Code Required Items (\$)	425	425
	Range of Total Costs (\$)	512	2,701
	Cost per Square Foot (\$)	0.23	1.23
	Percent of Selling Price (%)	0.51	2.71
Wind Borne Debris Region	Partially-Enclosed Design		
		Low	High
	Wind Resistance Features (\$)	1,553	5,622
	Other Code Required Items (\$)	425	425
	Range of Total Costs (\$)	1,978	6,047
	Cost per Square Foot (\$)	0.90	2.75
	Percent of Selling Price (%)	1.99	6.08
	Enclosed Design Using Impact Resistant Coverings		
		Low	High
	Wind Resistance Features (\$)	1,903	3,943
	Other Code Required Items (\$)	425	425
	Range of Total Costs (\$)	2,328	4,368
	Cost per Square Foot (\$)	1.06	1.99
	Percent of Selling Price (%)	2.34	4.39
	Enclosed Design Using Impact Resistant Glazing		
		Low	High
	Wind Resistance Features (\$)	6,759	8,568
	Other Code Required Items (\$)	425	425
	Range of Total Costs (\$)	7,184	8,993
Cost per Square Foot (\$)	3.27	4.09	
Percent of Selling Price (%)	7.20	9.04	

Table A-3 shows that the cost increases vary significantly depending on the location (wind speed), design options chosen, and the wind borne debris protection methods used (if required). The wind loading features (Category 2 from Table 1-1) are the significant part of the cost increases. The cost increases for the other eight categories are lumped into a single number in Table A-2 and Table A-3 and do vary by house design but do not vary by location or Wind Borne Debris Region (WBDR) design option.

Summarizing the data in Table A-3, we see:

- For buildings not in the WBDR, the increased cost of construction varies from \$0.23 per square foot to \$1.23 per square foot, or 0.5% to 2.71% of selling price.
- For buildings designed as partially enclosed (for internal pressures), the increased cost of construction range from \$0.90 per square foot to \$2.75 per square foot, or 1.99 to 6.08% of selling price.

- If impact resistant glazed opening protection were used, the increased cost of construction would vary from \$1.06 per square foot to \$1.99 per square foot, or 2.34% to 4.39% of selling price.
- If impact resistant glazing were used, the increased cost of construction would vary from \$3.27 per square foot to \$4.09 per square foot, or 7.22% to 9.04% of selling price.

A.3.2 Cost Breakdown for All Design Cases

The following pages contain Table A-4 which present individual cost break-downs for each of the 29 design cases identified in Table A-1. Generally, costs for structural components for cases D-1 through D-9 are the same. This is because input from truss suppliers indicated that trusses designed for less than 130 MPH would be very similar to designs using SBC wind loads. We, therefore, asked the truss suppliers involved with Part II of the project to provide information for design case D-10 through D-29.

The non-wind design related costs (Categories 1 and 3-10 in Table 1-1) are constant for the entire range of design cases because these changes are house specific. Factors such as size in square feet, number of rooms, termite treatment system used, and swimming pool all effect costs but are not wind load design dependent.

It should be clearly understood that wind design options will control the largest percentage of the increased cost of construction under the 2001 Florida Building Code. Builders, designers and owners have many choices for products, systems and designs available for them to use. (Size and shape of the house, height, wind borne debris protection options, etc.) A look at Table A-2 shows that costs vary significantly for the house shown.

Larger homes may experience an even greater percentage of cost increase due to additional design changes that could be required due to building and site conditions. For example, truss spans greater than approximately 45 feet may require significant re-design to meet wind loads developed at high wind speeds. Additionally, large windows and doors may not be available to meet required wind loads for Exposure C conditions and where wind speeds are 140 mph or higher.

Table A-4: Summary of Cost Increases by Design Case

Builder	Mercedes
House Type	Masonry
Wind Design	Design Number
	100
	Exposure
	B
	Enclosure
	E
Wind-Borne Debris Protection	None

Category	Item	Base Price	As designed	Difference	
2	Wind Load Related				
	Roof Covering (Shingles)	\$ 885.00	\$ 885.00	\$ -	
	Roof Deck-nailing	Builder reported "no increased cost for nailing".			
	Roof Truss	\$ 2,492.00	\$ 2,492.00	\$ -	
	Roof Tie-down	\$ 270.00	\$ 270.00	\$ -	
	Walls fill cells	\$ 255.00	\$ 255.00	\$ -	
	Windows	\$ 1,210.00	\$ 1,147.00	\$ (63.00)	
	Installation		\$	\$ -	
	Sliding Glass Doors	\$ 190.00	\$ 340.00	\$ 150.00	
	Entrance Doors	\$ 89.00	\$ 89.00	\$ -	
	Garage Door	\$ 435.00	\$ 435.00	\$ -	
	Impact rated "Shutters"		\$	\$ -	
3	Termite Treatments	(assume one re-treat)	\$ 440.00	\$ 515.00	\$ 75.00
4	Concrete Slab	Additional cost	\$	\$ 110.00	\$ 110.00
6	Screen Enclosure			\$	\$ -
7	Swimming Pool	Duel Drain & related	None	\$ -	None
				\$	\$ -
9	Mechanical Code	Balanced Return	\$	\$ 105.00	\$ 105.00
		Overflow alarm	\$	\$ 55.00	\$ 55.00
		Bath/Toilet Room Exhaust	\$ 150.00	\$ 200.00	\$ 50.00
		Dryer Vent		\$	\$ -
		\$	-		
10	Plumbing Code	\$	-	\$ 30.00	\$ 30.00
			Wind Related + Screen Enclosure	\$	\$ 87.00
			Other	\$	\$ 425.00
			Total	\$	\$ 512.00

Table A-4: Summary of Cost Increases by Design Case

Builder	Mercedes
House Type	Masonry
Wind Design	Design Number
	D-2
	Wind speed
	110
	Exposure
	B
	Enclosure
	E
Wind-Borne Debris Protection	None

Category	Item	Base Price	As designed	Difference	
2	Wind Load Related				
	Roof Covering (Shingles)	\$ 885.00	\$ 1,313.00	\$ 428.00	
	Roof Deck-nailing	Builder reported "no increased cost for nailing".			
	Roof Truss	\$ 2,492.00	\$ 2,492.00	\$ -	
	Roof Tie-down	\$ 270.00	\$ 270.00	\$ -	
	Walls fill cells	\$ 255.00	\$ 255.00	\$ -	
	Windows	\$ 1,210.00	\$ 1,147.00	\$ (63.00)	
	Installation		\$ 350.00	\$ 350.00	
	Sliding Glass Doors	\$ 190.00	\$ 362.00	\$ 172.00	
	Entrance Doors	\$ 89.00	\$ 89.00	\$ -	
	Garage Door	\$ 435.00	\$ 435.00	\$ -	
	Impact rated "Shutters"			\$ -	
3	Termite Treatments	(assume one re-treat)	\$ 440.00	\$ 515.00	\$ 75.00
4	Concrete Slab	Additional cost	\$ 110.00	\$ 110.00	
6	Screen Enclosure			\$ -	
7	Swimming Pool	Duel Drain & related	None	\$ -	None
				\$ -	
9	Mechanical Code	Balanced Return	\$ 105.00	\$ 105.00	
		Overflow alarm	\$ 55.00	\$ 55.00	
		Bath/Toilet Room Exhaust	\$ 150.00	\$ 200.00	\$ 50.00
		Dryer Vent		\$ -	
		\$ -		\$ -	
10	Plumbing Code	\$ -	\$ 30.00	\$ 30.00	
			Wind Related + Screen Enclosure	\$ 887.00	
			Other	\$ 425.00	
			Total	\$ 1,312.00	

Table A-4: Summary of Cost Increases by Design Case

Builder	Mercedes
House Type	Masonry
Wind Design	Design Number
	D-3
	Wind speed
	120
	Exposure
	B
	Enclosure
	E
Wind-Borne Debris Protection	Impact

Category	Item	Base Price	As designed	Difference	
2	Wind Load Related				
	Roof Covering (Shingles)	\$ 885.00	\$ 1,313.00	\$ 428.00	
	Roof Deck-nailing	Builder reported "no increased cost for nailing".			
	Roof Truss	\$ 2,492.00	\$ 2,492.00	\$ -	
	Roof Tie-down	\$ 270.00	\$ 270.00	\$ -	
	Walls fill cells	\$ 255.00	\$ 297.50	\$ 42.50	
	Windows	\$ 1,210.00	\$ 5,542.00	\$ 4,332.00	
	Installation		\$ 350.00	\$ 350.00	
	Sliding Glass Doors	\$ 190.00	\$ 1,572.00	\$ 1,382.00	
	Entrance Doors	\$ 89.00	\$ 134.00	\$ 45.00	
	Garage Door	\$ 435.00	\$ 615.00	\$ 180.00	
	Impact rated "Shutters"			\$ -	
3	Termite Treatments	(assume one re-treat)	\$ 440.00	\$ 515.00	\$ 75.00
4	Concrete Slab	Additional cost	\$ 110.00	\$ 110.00	
6	Screen Enclosure			\$ -	
7	Swimming Pool	Duel Drain & related	None	\$ -	None
9	Mechanical Code	Balanced Return	\$ 105.00	\$ 105.00	
		Overflow alarm	\$ 55.00	\$ 55.00	
		Bath/Toilet Room Exhaust	\$ 150.00	\$ 200.00	\$ 50.00
		Dryer Vent		\$ -	
		\$ -			
10	Plumbing Code	\$ -	\$ 30.00	\$ 30.00	
			Wind Related + Screen Enclosure	\$ 6,759.50	
			Other	\$ 425.00	
			Total	\$ 7,184.50	

Table A-4: Summary of Cost Increases by Design Case

Builder	Mercedes
House Type	Masonry
Wind Design	Design Number
	D-4
	Wind speed
	120
	Exposure
	B
	Enclosure
	E
Wind-Borne Debris Protection	Shutters

Category	Item	Base Price	As designed	Difference	
2	Wind Load Related				
	Roof Covering (Shingles)	\$ 885.00	\$ 1,313.00	\$ 428.00	
	Roof Deck-nailing	Builder reported "no increased cost for nailing".			
	Roof Truss	\$ 2,492.00	\$ 2,492.00	\$ -	
	Roof Tie-down	\$ 270.00	\$ 270.00	\$ -	
	Walls fill cells	\$ 255.00	\$ 297.50	\$ 42.50	
	Windows	\$ 1,210.00	\$ 1,179.00	\$ (31.00)	
	Installation		\$ 350.00	\$ 350.00	
	Sliding Glass Doors	\$ 190.00	\$ 362.00	\$ 172.00	
	Entrance Doors	\$ 89.00	\$ 134.00	\$ 45.00	
	Garage Door	\$ 435.00	\$ 615.00	\$ 180.00	
	Impact rated "Shutters"		\$ 716.00	\$ 716.00	
3	Termite Treatments	(assume one re-treat)	\$ 440.00	\$ 515.00	\$ 75.00
4	Concrete Slab	Additional cost	\$ 110.00	\$ 110.00	
6	Screen Enclosure			\$ -	
7	Swimming Pool	Duel Drain & related	None	\$ -	None
9	Mechanical Code	Balanced Return	\$ 105.00	\$ 105.00	
		Overflow alarm	\$ 55.00	\$ 55.00	
		Bath/Toilet Room Exhaust	\$ 150.00	\$ 200.00	\$ 50.00
		Dryer Vent		\$ -	
		\$ -		\$ -	
10	Plumbing Code	\$ -	\$ 30.00	\$ 30.00	
Wind Related + Screen Enclosure				\$ 1,902.50	
Other				\$ 425.00	
Total				\$ 2,327.50	

Table A-4: Summary of Cost Increases by Design Case

Builder	Mercedes
House Type	Masonry
Wind Design	Design Number
	D-5
	Wind speed
	120
	Exposure
	B
	Enclosure
	E
Wind-Borne Debris Protection	None

Category	Item	Base Price	As designed	Difference	
2	Wind Load Related				
	Roof Covering (Shingles)	\$ 885.00	\$ 1,313.00	\$ 428.00	
	Roof Deck-nailing	Builder reported "no increased cost for nailing".			
	Roof Truss	\$ 2,492.00	\$ 2,492.00	\$ -	
	Roof Tie-down	\$ 270.00	\$ 270.00	\$ -	
	Walls fill cells	\$ 255.00	\$ 297.50	\$ 42.50	
	Windows	\$ 1,210.00	\$ 1,179.00	\$ (31.00)	
	Installation		\$ 350.00	\$ 350.00	
	Sliding Glass Doors	\$ 190.00	\$ 362.00	\$ 172.00	
	Entrance Doors	\$ 89.00	\$ 134.00	\$ 45.00	
	Garage Door	\$ 435.00	\$ 615.00	\$ 180.00	
	Impact rated "Shutters"			\$ -	
3	Termite Treatments	(assume one re-treat)	\$ 440.00	\$ 515.00	\$ 75.00
4	Concrete Slab	Additional cost	\$ 110.00	\$ 110.00	
6	Screen Enclosure			\$ -	
7	Swimming Pool	Duel Drain & related	None	\$ -	None
9	Mechanical Code	Balanced Return	\$ 105.00	\$ 105.00	
		Overflow alarm	\$ 55.00	\$ 55.00	
		Bath/Toilet Room Exhaust	\$ 150.00	\$ 200.00	\$ 50.00
		Dryer Vent		\$ -	
		\$ -			
10	Plumbing Code	\$ -	\$ 30.00	\$ 30.00	
			Wind Related + Screen Enclosure	\$ 1,186.50	
			Other	\$ 425.00	
			Total	\$ 1,611.50	

Table A-4: Summary of Cost Increases by Design Case

Builder	Mercedes
House Type	Masonry
Wind Design	Design Number
	D-6
	Wind speed
	120
	Exposure
	B
	Enclosure
	PE
Wind-Borne Debris Protection	None

Category	Item	Base Price	As designed	Difference	
2	Wind Load Related				
	Roof Covering (Shingles)	\$ 885.00	\$ 1,313.00	\$ 428.00	
	Roof Deck-nailing	Builder reported "no increased cost for nailing".			
	Roof Truss	\$ 2,492.00	\$ 2,492.00	\$ -	
	Roof Tie-down	\$ 270.00	\$ 270.00	\$ -	
	Walls fill cells	\$ 255.00	\$ 306.00	\$ 51.00	
	Windows	\$ 1,210.00	\$ 1,441.00	\$ 231.00	
	Installation		\$ 350.00	\$ 350.00	
	Sliding Glass Doors	\$ 190.00	\$ 379.00	\$ 189.00	
	Entrance Doors	\$ 89.00	\$ 134.00	\$ 45.00	
	Garage Door	\$ 435.00	\$ 694.00	\$ 259.00	
	Impact rated "Shutters"			\$ -	
3	Termite Treatments	(assume one re-treat)	\$ 440.00	\$ 515.00	\$ 75.00
4	Concrete Slab	Additional cost	\$ 110.00	\$ 110.00	
6	Screen Enclosure			\$ -	
7	Swimming Pool	Duel Drain & related	None	\$ -	
9	Mechanical Code	Balanced Return	\$ 105.00	\$ 105.00	
		Overflow alarm	\$ 55.00	\$ 55.00	
		Bath/Toilet Room Exhaust	\$ 150.00	\$ 200.00	
		Dryer Vent		\$ -	
		\$ -		\$ -	
10	Plumbing Code	\$ -	\$ 30.00	\$ 30.00	
			Wind Related + Screen Enclosure	\$ 1,553.00	
			Other	\$ 425.00	
			Total	\$ 1,978.00	

Table A-4: Summary of Cost Increases by Design Case

Builder	Mercedes
House Type	Masonry
Wind Design	Design Number
	D-7
	Wind speed
	120
	Exposure
	C
	Enclosure
	E
Wind-Borne Debris Protection	Impact

Category	Item	Base Price	As designed	Difference	
2	Wind Load Related				
	Roof Covering (Shingles)	\$ 885.00	\$ 1,313.00	\$ 428.00	
	Roof Deck-nailing	Builder reported "no increased cost for nailing".			
	Roof Truss	\$ 2,492.00	\$ 2,492.00	\$ -	
	Roof Tie-down	\$ 270.00	\$ 270.00	\$ -	
	Walls fill cells	\$ 255.00	\$ 306.00	\$ 51.00	
	Windows	\$ 1,210.00	\$ 5,486.00	\$ 4,276.00	
	Installation		\$ 350.00	\$ 350.00	
	Sliding Glass Doors	\$ 190.00	\$ 1,572.00	\$ 1,382.00	
	Entrance Doors	\$ 89.00	\$ 134.00	\$ 45.00	
	Garage Door	\$ 435.00	\$ 694.00	\$ 259.00	
	Impact rated "Shutters"			\$ -	
3	Termite Treatments	(assume one re-treat)	\$ 440.00	\$ 515.00	\$ 75.00
4	Concrete Slab	Additional cost	\$ 110.00	\$ 110.00	
6	Screen Enclosure			\$ -	
7	Swimming Pool	Duel Drain & related	None	\$ -	None
9	Mechanical Code	Balanced Return	\$ 105.00	\$ 105.00	
		Overflow alarm	\$ 55.00	\$ 55.00	
		Bath/Toilet Room Exhaust	\$ 150.00	\$ 200.00	\$ 50.00
		Dryer Vent		\$ -	
		\$ -		\$ -	
10	Plumbing Code	\$ -	\$ 30.00	\$ 30.00	
			Wind Related + Screen Enclosure	\$ 6,791.00	
			Other	\$ 425.00	
			Total	\$ 7,216.00	

Table A-4: Summary of Cost Increases by Design Case

Builder	Mercedes
House Type	Masonry
Wind Design	Design Number
	D-8
	Wind speed
	120
	Exposure
	C
	Enclosure
	E
Wind-Borne Debris Protection	Shutters

Category	Item	Base Price	As designed	Difference	
2	Wind Load Related				
	Roof Covering (Shingles)	\$ 885.00	\$ 1,313.00	\$ 428.00	
	Roof Deck-nailing	Builder reported "no increased cost for nailing".			
	Roof Truss	\$ 2,492.00	\$ 2,492.00	\$ -	
	Roof Tie-down	\$ 270.00	\$ 270.00	\$ -	
	Walls fill cells	\$ 255.00	\$ 306.00	\$ 51.00	
	Windows	\$ 1,210.00	\$ 1,434.00	\$ 224.00	
	Installation		\$ 350.00	\$ 350.00	
	Sliding Glass Doors	\$ 190.00	\$ 380.00	\$ 190.00	
	Entrance Doors	\$ 89.00	\$ 134.00	\$ 45.00	
	Garage Door	\$ 435.00	\$ 694.00	\$ 259.00	
	Impact rated "Shutters"		\$ 716.00	\$ 716.00	
3	Termite Treatments	(assume one re-treat)	\$ 440.00	\$ 515.00	\$ 75.00
4	Concrete Slab	Additional cost	\$ 110.00	\$ 110.00	
6	Screen Enclosure			\$ -	
7	Swimming Pool	Duel Drain & related	None	\$ -	None
9	Mechanical Code	Balanced Return	\$ 105.00	\$ 105.00	
		Overflow alarm	\$ 55.00	\$ 55.00	
		Bath/Toilet Room Exhaust	\$ 150.00	\$ 200.00	\$ 50.00
		Dryer Vent		\$ -	
		\$ -			
10	Plumbing Code	\$ -	\$ 30.00	\$ 30.00	
			Wind Related + Screen Enclosure	\$ 2,263.00	
			Other	\$ 425.00	
			Total	\$ 2,688.00	

Table A-4: Summary of Cost Increases by Design Case

Builder	Mercedes
House Type	Masonry
Wind Design	Design Number
	D-9
	Wind speed
	120
	Exposure
	C
	Enclosure
	PE
Wind-Borne Debris Protection	None

Category	Item	Base Price	As designed	Difference	
2	Wind Load Related				
	Roof Covering (Shingles)	\$ 885.00	\$ 1,313.00	\$ 428.00	
	Roof Deck-nailing	Builder reported "no increased cost for nailing".			
	Roof Truss	\$ 2,492.00	\$ 2,492.00	\$ -	
	Roof Tie-down	\$ 270.00	\$ 270.00	\$ -	
	Walls fill cells	\$ 255.00	\$ 314.50	\$ 59.50	
	Windows	\$ 1,210.00	\$ 1,441.00	\$ 231.00	
	Installation		\$ 350.00	\$ 350.00	
	Sliding Glass Doors	\$ 190.00	\$ 380.00	\$ 190.00	
	Entrance Doors	\$ 89.00	\$ 134.00	\$ 45.00	
	Garage Door	\$ 435.00	\$ 900.00	\$ 465.00	
	Impact rated "Shutters"			\$ -	
3	Termite Treatments	(assume one re-treat)	\$ 440.00	\$ 515.00	\$ 75.00
4	Concrete Slab	Additional cost	\$ 110.00	\$ 110.00	
6	Screen Enclosure			\$ -	
7	Swimming Pool	Duel Drain & related	None	\$ -	
9	Mechanical Code	Balanced Return	\$ 105.00	\$ 105.00	
		Overflow alarm	\$ 55.00	\$ 55.00	
		Bath/Toilet Room Exhaust	\$ 150.00	\$ 200.00	
		Dryer Vent		\$ -	
		\$ -		\$ -	
10	Plumbing Code	\$ -	\$ 30.00	\$ 30.00	
			Wind Related + Screen Enclosure	\$ 1,768.50	
			Other	\$ 425.00	
			Total	\$ 2,193.50	

Table A-4: Summary of Cost Increases by Design Case

Builder	Mercedes
House Type	Masonry
Wind Design	Design Number
	D-10
	Wind speed
	130
	Exposure
	B
	Enclosure
	E
Wind-Borne Debris Protection	Impact

Category	Item	Base Price	As designed	Difference	
2	Wind Load Related				
	Roof Covering (Shingles)	\$ 885.00	\$ 1,313.00	\$ 428.00	
	Roof Deck-nailing	Builder reported "no increased cost for nailing".			
	Roof Truss	\$ 2,492.00	\$ 2,527.00	\$ 35.00	
	Roof Tie-down	\$ 270.00	\$ 270.00	\$ -	
	Walls fill cells	\$ 255.00	\$ 306.00	\$ 51.00	
	Windows	\$ 1,210.00	\$ 5,542.00	\$ 4,332.00	
	Installation		\$ 350.00	\$ 350.00	
	Sliding Glass Doors	\$ 190.00	\$ 1,572.00	\$ 1,382.00	
	Entrance Doors	\$ 89.00	\$ 134.00	\$ 45.00	
	Garage Door	\$ 695.00	\$ 694.00	\$ (1.00)	
	Impact rated "Shutters"			\$ -	
3	Termite Treatments	(assume one re-treat)	\$ 440.00	\$ 515.00	\$ 75.00
4	Concrete Slab	Additional cost	\$ 110.00	\$ 110.00	
6	Screen Enclosure			\$ -	
7	Swimming Pool	Duel Drain & related	None	\$ -	None
9	Mechanical Code	Balanced Return	\$ 105.00	\$ 105.00	
		Overflow alarm	\$ 55.00	\$ 55.00	
		Bath/Toilet Room Exhaust	\$ 150.00	\$ 200.00	\$ 50.00
		Dryer Vent		\$ -	
		\$ -			
10	Plumbing Code	\$ -	\$ 30.00	\$ 30.00	
			Wind Related + Screen Enclosure	\$ 6,622.00	
			Other	\$ 425.00	
			Total	\$ 7,047.00	

Table A-4: Summary of Cost Increases by Design Case

Builder	Mercedes
House Type	Masonry
Wind Design	Design Number
	D-11
	Wind speed
	130
	Exposure
	B
	Enclosure
	E
Wind-Borne Debris Protection	Shutters

Category	Item	Base Price	As designed	Difference	
2	Wind Load Related				
	Roof Covering (Shingles)	\$ 885.00	\$ 1,313.00	\$ 428.00	
	Roof Deck-nailing	Builder reported "no increased cost for nailing".			
	Roof Truss	\$ 2,492.00	\$ 2,527.00	\$ 35.00	
	Roof Tie-down	\$ 270.00	\$ 270.00	\$ -	
	Walls fill cells	\$ 255.00	\$ 306.00	\$ 51.00	
	Windows	\$ 1,210.00	\$ 1,419.00	\$ 209.00	
	Installation		\$ 350.00	\$ 350.00	
	Sliding Glass Doors	\$ 190.00	\$ 380.00	\$ 190.00	
	Entrance Doors	\$ 89.00	\$ 134.00	\$ 45.00	
	Garage Door	\$ 695.00	\$ 694.00	\$ (1.00)	
	Impact rated "Shutters"		\$ 716.00	\$ 716.00	
3	Termite Treatments	(assume one re-treat)	\$ 440.00	\$ 515.00	\$ 75.00
4	Concrete Slab	Additional cost	\$ 110.00	\$ 110.00	
6	Screen Enclosure			\$ -	
7	Swimming Pool	Duel Drain & related	None	\$ -	None
9	Mechanical Code	Balanced Return	\$ 105.00	\$ 105.00	
		Overflow alarm	\$ 55.00	\$ 55.00	
		Bath/Toilet Room Exhaust	\$ 150.00	\$ 200.00	\$ 50.00
		Dryer Vent		\$ -	
		\$ -		\$ -	
10	Plumbing Code	\$ -	\$ 30.00	\$ 30.00	
Wind Related + Screen Enclosure				\$ 2,023.00	
Other				\$ 425.00	
Total				\$ 2,448.00	

Table A-4: Summary of Cost Increases by Design Case

Builder	Mercedes
House Type	Masonry
Wind Design	Design Number
	D-12
	Wind speed
	130
	Exposure
	B
	Enclosure
	E
Wind-Borne Debris Protection	None

Category	Item	Base Price	As designed	Difference	
2	Wind Load Related				
	Roof Covering (Shingles)	\$ 885.00	\$ 1,313.00	\$ 428.00	
	Roof Deck-nailing	Builder reported "no increased cost for nailing".			
	Roof Truss	\$ 2,492.00	\$ 2,527.00	\$ 35.00	
	Roof Tie-down	\$ 270.00	\$ 270.00	\$ -	
	Walls fill cells	\$ 255.00	\$ 306.00	\$ 51.00	
	Windows	\$ 1,210.00	\$ 1,419.00	\$ 209.00	
	Installation		\$ 350.00	\$ 350.00	
	Sliding Glass Doors	\$ 190.00	\$ 380.00	\$ 190.00	
	Entrance Doors	\$ 89.00	\$ 134.00	\$ 45.00	
	Garage Door	\$ 695.00	\$ 694.00	\$ (1.00)	
	Impact rated "Shutters"			\$ -	
3	Termite Treatments	(assume one re-treat)	\$ 440.00	\$ 515.00	\$ 75.00
4	Concrete Slab	Additional cost	\$ 110.00	\$ 110.00	
6	Screen Enclosure			\$ -	
7	Swimming Pool	Duel Drain & related	None	\$ -	None
9	Mechanical Code	Balanced Return	\$ 105.00	\$ 105.00	
		Overflow alarm	\$ 55.00	\$ 55.00	
		Bath/Toilet Room Exhaust	\$ 150.00	\$ 200.00	\$ 50.00
		Dryer Vent		\$ -	
		\$ -			
10	Plumbing Code	\$ -	\$ 30.00	\$ 30.00	
			Wind Related + Screen Enclosure	\$ 1,307.00	
			Other	\$ 425.00	
			Total	\$ 1,732.00	

Table A-4: Summary of Cost Increases by Design Case

Builder	Mercedes
House Type	Masonry
Wind Design	Design Number
	D-13
	Wind speed
	130
	Exposure
	B
	Enclosure
	PE
Wind-Borne Debris Protection	None

Category	Item	Base Price	As designed	Difference	
2	Wind Load Related				
	Roof Covering (Shingles)	\$ 885.00	\$ 1,313.00	\$ 428.00	
	Roof Deck-nailing	Builder reported "no increased cost for nailing".			
	Roof Truss	\$ 2,492.00	\$ 2,655.00	\$ 163.00	
	Roof Tie-down	\$ 270.00	\$ 717.00	\$ 447.00	
	Walls fill cells	\$ 255.00	\$ 314.50	\$ 59.50	
	Windows	\$ 1,210.00	\$ 1,440.00	\$ 230.00	
	Installation		\$ 350.00	\$ 350.00	
	Sliding Glass Doors	\$ 190.00	\$ 380.00	\$ 190.00	
	Entrance Doors	\$ 89.00	\$ 134.00	\$ 45.00	
	Garage Door	\$ 695.00	\$ 900.00	\$ 205.00	
	Impact rated "Shutters"			\$ -	
3	Termite Treatments	(assume one re-treat)	\$ 440.00	\$ 515.00	\$ 75.00
4	Concrete Slab	Additional cost	\$ 110.00	\$ 110.00	
6	Screen Enclosure			\$ -	
7	Swimming Pool	Duel Drain & related	None	\$ -	None
9	Mechanical Code	Balanced Return	\$ 105.00	\$ 105.00	
		Overflow alarm	\$ 55.00	\$ 55.00	
		Bath/Toilet Room Exhaust	\$ 150.00	\$ 200.00	\$ 50.00
		Dryer Vent		\$ -	
		\$ -			
10	Plumbing Code	\$ -	\$ 30.00	\$ 30.00	
				Wind Related + Screen Enclosure	\$ 2,117.50
				Other	\$ 425.00
				Total	\$ 2,542.50

Table A-4: Summary of Cost Increases by Design Case

Builder	Mercedes
House Type	Masonry
Wind Design	Design Number
	D-14
	Wind speed
	130
	Exposure
	C
	Enclosure
	E
Wind-Borne Debris Protection	Impact

Category	Item	Base Price	As designed	Difference	
2	Wind Load Related				
	Roof Covering (Shingles)	\$ 885.00	\$ 1,313.00	\$ 428.00	
	Roof Deck-nailing	Builder reported "no increased cost for nailing".			
	Roof Truss	\$ 2,492.00	\$ 2,881.00	\$ 389.00	
	Roof Tie-down	\$ 270.00	\$ 734.00	\$ 464.00	
	Walls fill cells	\$ 255.00	\$ 306.00	\$ 51.00	
	Windows	\$ 1,210.00	\$ 5,485.00	\$ 4,275.00	
	Installation		\$ 350.00	\$ 350.00	
	Sliding Glass Doors	\$ 190.00	\$ 1,572.00	\$ 1,382.00	
	Entrance Doors	\$ 89.00	\$ 134.00	\$ 45.00	
	Garage Door	\$ 695.00	\$ 900.00	\$ 205.00	
	Impact rated "Shutters"			\$ -	
3	Termite Treatments	(assume one re-treat)	\$ 440.00	\$ 515.00	\$ 75.00
4	Concrete Slab	Additional cost	\$ 110.00	\$ 110.00	
6	Screen Enclosure			\$ -	
7	Swimming Pool	Duel Drain & related	None	\$ -	None
9	Mechanical Code	Balanced Return	\$ 105.00	\$ 105.00	
		Overflow alarm	\$ 55.00	\$ 55.00	
		Bath/Toilet Room Exhaust	\$ 150.00	\$ 200.00	\$ 50.00
		Dryer Vent		\$ -	
		\$ -			
10	Plumbing Code	\$ -	\$ 30.00	\$ 30.00	
			Wind Related + Screen Enclosure	\$ 7,589.00	
			Other	\$ 425.00	
			Total	\$ 8,014.00	

Table A-4: Summary of Cost Increases by Design Case

Builder	Mercedes
House Type	Masonry
Wind Design	Design Number
	D-15
	Wind speed
	130
	Exposure
	C
	Enclosure
	E
Wind-Borne Debris Protection	Shutters

Category	Item	Base Price	As designed	Difference	
2	Wind Load Related				
	Roof Covering (Shingles)	\$ 885.00	\$ 1,313.00	\$ 428.00	
	Roof Deck-nailing	Builder reported "no increased cost for nailing".			
	Roof Truss	\$ 2,492.00	\$ 2,881.00	\$ 389.00	
	Roof Tie-down	\$ 270.00	\$ 734.00	\$ 464.00	
	Walls fill cells	\$ 255.00	\$ 306.00	\$ 51.00	
	Windows	\$ 1,210.00	\$ 1,440.00	\$ 230.00	
	Installation		\$ 350.00	\$ 350.00	
	Sliding Glass Doors	\$ 190.00	\$ 380.00	\$ 190.00	
	Entrance Doors	\$ 89.00	\$ 134.00	\$ 45.00	
	Garage Door	\$ 695.00	\$ 900.00	\$ 205.00	
	Impact rated "Shutters"		\$ 717.00	\$ 717.00	
3	Termite Treatments	(assume one re-treat)	\$ 440.00	\$ 515.00	\$ 75.00
4	Concrete Slab	Additional cost	\$ 110.00	\$ 110.00	
6	Screen Enclosure			\$ -	
7	Swimming Pool	Duel Drain & related	None	\$ -	None
9	Mechanical Code	Balanced Return	\$ 105.00	\$ 105.00	
		Overflow alarm	\$ 55.00	\$ 55.00	
		Bath/Toilet Room Exhaust	\$ 150.00	\$ 200.00	\$ 50.00
		Dryer Vent		\$ -	
		\$ -			
10	Plumbing Code	\$ -	\$ 30.00	\$ 30.00	
			Wind Related + Screen Enclosure	\$ 3,069.00	
			Other	\$ 425.00	
			Total	\$ 3,494.00	

Table A-4: Summary of Cost Increases by Design Case

Builder	Mercedes
House Type	Masonry
Wind Design	Design Number
	D-16
	Wind speed
	130
	Exposure
	C
	Enclosure
	PE
Wind-Borne Debris Protection	None

Category	Item	Base Price	As designed	Difference	
2	Wind Load Related				
	Roof Covering (Shingles)	\$ 885.00	\$ 1,313.00	\$ 428.00	
	Roof Deck-nailing	Builder reported "no increased cost for nailing".			
	Roof Truss	\$ 2,492.00	\$ 3,241.00	\$ 749.00	
	Roof Tie-down	\$ 270.00	\$ 1,011.00	\$ 741.00	
	Walls fill cells	\$ 255.00	\$ 314.50	\$ 59.50	
	Windows	\$ 1,210.00	\$ 1,541.00	\$ 331.00	
	Installation		\$ 350.00	\$ 350.00	
	Sliding Glass Doors	\$ 190.00	\$ 380.00	\$ 190.00	
	Entrance Doors	\$ 89.00	\$ 134.00	\$ 45.00	
	Garage Door	\$ 695.00	\$ 1,053.00	\$ 358.00	
	Impact rated "Shutters"			\$ -	
3	Termite Treatments	(assume one re-treat)	\$ 440.00	\$ 515.00	\$ 75.00
4	Concrete Slab	Additional cost	\$ 110.00	\$ 110.00	
6	Screen Enclosure			\$ -	
7	Swimming Pool	Duel Drain & related	None	\$ -	None
9	Mechanical Code	Balanced Return	\$ 105.00	\$ 105.00	
		Overflow alarm	\$ 55.00	\$ 55.00	
		Bath/Toilet Room Exhaust	\$ 150.00	\$ 200.00	\$ 50.00
		Dryer Vent		\$ -	
		\$ -			
10	Plumbing Code	\$ -	\$ 30.00	\$ 30.00	
			Wind Related + Screen Enclosure	\$ 3,251.50	
			Other	\$ 425.00	
			Total	\$ 3,676.50	

Table A-4: Summary of Cost Increases by Design Case

Builder	Mercedes
House Type	Masonry
Wind Design	Design Number
	D-17
	Wind speed
	140
	Exposure
	B
	Enclosure
	E
Wind-Borne Debris Protection	Impact

Category	Item	Base Price	As designed	Difference	
2	Wind Load Related				
	Roof Covering (Shingles)	\$ 885.00	\$ 1,313.00	\$ 428.00	
	Roof Deck-nailing	Builder reported "no increased cost for nailing".			
	Roof Truss	\$ 2,492.00	\$ 2,836.00	\$ 344.00	
	Roof Tie-down	\$ 270.00	\$ 711.00	\$ 441.00	
	Walls fill cells	\$ 255.00	\$ 306.00	\$ 51.00	
	Windows	\$ 1,210.00	\$ 5,542.00	\$ 4,332.00	
	Installation		\$ 350.00	\$ 350.00	
	Sliding Glass Doors	\$ 190.00	\$ 1,572.00	\$ 1,382.00	
	Entrance Doors	\$ 89.00	\$ 134.00	\$ 45.00	
	Garage Door	\$ 695.00	\$ 900.00	\$ 205.00	
	Impact rated "Shutters"			\$ -	
3	Termite Treatments	(assume one re-treat)	\$ 440.00	\$ 515.00	\$ 75.00
4	Concrete Slab	Additional cost	\$ 110.00	\$ 110.00	
6	Screen Enclosure			\$ -	
7	Swimming Pool	Duel Drain & related	None	\$ -	None
9	Mechanical Code	Balanced Return	\$ 105.00	\$ 105.00	
		Overflow alarm	\$ 55.00	\$ 55.00	
		Bath/Toilet Room Exhaust	\$ 150.00	\$ 200.00	\$ 50.00
		Dryer Vent		\$ -	
		\$ -			
10	Plumbing Code	\$ -	\$ 30.00	\$ 30.00	
			Wind Related + Screen Enclosure	\$ 7,578.00	
			Other	\$ 425.00	
			Total	\$ 8,003.00	

Table A-4: Summary of Cost Increases by Design Case

Builder	Mercedes
House Type	Masonry
Wind Design	Design Number
	D-18
	Wind speed
	140
	Exposure
	B
	Enclosure
	E
Wind-Borne Debris Protection	Shutters

Category	Item	Base Price	As designed	Difference	
2	Wind Load Related				
	Roof Covering (Shingles)	\$ 885.00	\$ 1,313.00	\$ 428.00	
	Roof Deck-nailing	Builder reported "no increased cost for nailing".			
	Roof Truss	\$ 2,492.00	\$ 2,836.00	\$ 344.00	
	Roof Tie-down	\$ 270.00	\$ 711.00	\$ 441.00	
	Walls fill cells	\$ 255.00	\$ 306.00	\$ 51.00	
	Windows	\$ 1,210.00	\$ 1,432.00	\$ 222.00	
	Installation		\$ 350.00	\$ 350.00	
	Sliding Glass Doors	\$ 190.00	\$ 380.00	\$ 190.00	
	Entrance Doors	\$ 89.00	\$ 134.00	\$ 45.00	
	Garage Door	\$ 695.00	\$ 900.00	\$ 205.00	
	Impact rated "Shutters"		\$ 717.00	\$ 717.00	
3	Termite Treatments	(assume one re-treat)	\$ 440.00	\$ 515.00	\$ 75.00
4	Concrete Slab	Additional cost	\$ 110.00	\$ 110.00	
6	Screen Enclosure			\$ -	
7	Swimming Pool	Duel Drain & related	None	\$ -	None
9	Mechanical Code	Balanced Return	\$ 105.00	\$ 105.00	
		Overflow alarm	\$ 55.00	\$ 55.00	
		Bath/Toilet Room Exhaust	\$ 150.00	\$ 200.00	\$ 50.00
		Dryer Vent		\$ -	
		\$ -			
10	Plumbing Code	\$ -	\$ 30.00	\$ 30.00	
			Wind Related + Screen Enclosure	\$ 2,993.00	
			Other	\$ 425.00	
			Total	\$ 3,418.00	

Table A-4: Summary of Cost Increases by Design Case

Builder	Mercedes
House Type	Masonry
Wind Design	Design Number
	D-19
	Wind speed
	140
	Exposure
	B
	Enclosure
	E
Wind-Borne Debris Protection	None

Category	Item	Base Price	As designed	Difference	
2	Wind Load Related				
	Roof Covering (Shingles)	\$ 885.00	\$ 1,313.00	\$ 428.00	
	Roof Deck-nailing	Builder reported "no increased cost for nailing".			
	Roof Truss	\$ 2,492.00	\$ 2,836.00	\$ 344.00	
	Roof Tie-down	\$ 270.00	\$ 711.00	\$ 441.00	
	Walls fill cells	\$ 255.00	\$ 306.00	\$ 51.00	
	Windows	\$ 1,210.00	\$ 1,432.00	\$ 222.00	
	Installation		\$ 350.00	\$ 350.00	
	Sliding Glass Doors	\$ 190.00	\$ 380.00	\$ 190.00	
	Entrance Doors	\$ 89.00	\$ 134.00	\$ 45.00	
	Garage Door	\$ 695.00	\$ 900.00	\$ 205.00	
	Impact rated "Shutters"			\$ -	
3	Termite Treatments	(assume one re-treat)	\$ 440.00	\$ 515.00	\$ 75.00
4	Concrete Slab	Additional cost	\$ 110.00	\$ 110.00	
6	Screen Enclosure			\$ -	
7	Swimming Pool	Duel Drain & related	None	\$ -	None
9	Mechanical Code	Balanced Return	\$ 105.00	\$ 105.00	
		Overflow alarm	\$ 55.00	\$ 55.00	
		Bath/Toilet Room Exhaust	\$ 150.00	\$ 200.00	\$ 50.00
		Dryer Vent		\$ -	
		\$ -			
10	Plumbing Code	\$ -	\$ 30.00	\$ 30.00	
			Wind Related + Screen Enclosure	\$ 2,276.00	
			Other	\$ 425.00	
			Total	\$ 2,701.00	

Table A-4: Summary of Cost Increases by Design Case

Builder	Mercedes
House Type	Masonry
Wind Design	Design Number
	D-20
	Wind speed
	140
	Exposure
	B
	Enclosure
	PE
Wind-Borne Debris Protection	None

Category	Item	Base Price	As designed	Difference	
2	Wind Load Related				
	Roof Covering (Shingles)	\$ 885.00	\$ 1,313.00	\$ 428.00	
	Roof Deck-nailing	Builder reported "no increased cost for nailing".			
	Roof Truss	\$ 2,492.00	\$ 2,894.00	\$ 402.00	
	Roof Tie-down	\$ 270.00	\$ 734.00	\$ 464.00	
	Walls fill cells	\$ 255.00	\$ 314.50	\$ 59.50	
	Windows	\$ 1,210.00	\$ 1,491.00	\$ 281.00	
	Installation		\$ 350.00	\$ 350.00	
	Sliding Glass Doors	\$ 190.00	\$ 380.00	\$ 190.00	
	Entrance Doors	\$ 89.00	\$ 134.00	\$ 45.00	
	Garage Door	\$ 435.00	\$ 1,054.00	\$ 619.00	
	Impact rated "Shutters"			\$ -	
3	Termite Treatments	(assume one re-treat)	\$ 440.00	\$ 515.00	\$ 75.00
4	Concrete Slab	Additional cost	\$ 110.00	\$ 110.00	
6	Screen Enclosure			\$ -	
7	Swimming Pool	Duel Drain & related	None	\$ -	None
9	Mechanical Code	Balanced Return	\$ 105.00	\$ 105.00	
		Overflow alarm	\$ 55.00	\$ 55.00	
		Bath/Toilet Room Exhaust	\$ 150.00	\$ 200.00	\$ 50.00
		Dryer Vent		\$ -	
		\$ -			
10	Plumbing Code	\$ -	\$ 30.00	\$ 30.00	
			Wind Related + Screen Enclosure	\$ 2,838.50	
			Other	\$ 425.00	
			Total	\$ 3,263.50	

Table A-4: Summary of Cost Increases by Design Case

Builder	Mercedes
House Type	Masonry
Wind Design	Design Number
	D-21
	Wind speed
	140
	Exposure
	C
	Enclosure
	E
Wind-Borne Debris Protection	Impact

Category	Item	Base Price	As designed	Difference	
2	Wind Load Related				
	Roof Covering (Shingles)	\$ 885.00	\$ 1,313.00	\$ 428.00	
	Roof Deck-nailing	Builder reported "no increased cost for nailing".			
	Roof Truss	\$ 2,492.00	\$ 3,183.00	\$ 691.00	
	Roof Tie-down	\$ 270.00	\$ 892.00	\$ 622.00	
	Walls fill cells	\$ 255.00	\$ 314.50	\$ 59.50	
	Windows	\$ 1,210.00	\$ 5,486.00	\$ 4,276.00	
	Installation		\$ 350.00	\$ 350.00	
	Sliding Glass Doors	\$ 190.00	\$ 1,572.00	\$ 1,382.00	
	Entrance Doors	\$ 89.00	\$ 134.00	\$ 45.00	
	Garage Door	\$ 435.00	\$ 1,053.00	\$ 618.00	
	Impact rated "Shutters"			\$ -	
3	Termite Treatments	(assume one re-treat)	\$ 440.00	\$ 515.00	\$ 75.00
4	Concrete Slab	Additional cost	\$ 110.00	\$ 110.00	
6	Screen Enclosure			\$ -	
7	Swimming Pool	Duel Drain & related	None	\$ -	None
9	Mechanical Code	Balanced Return	\$ 105.00	\$ 105.00	
		Overflow alarm	\$ 55.00	\$ 55.00	
		Bath/Toilet Room Exhaust	\$ 150.00	\$ 200.00	\$ 50.00
		Dryer Vent		\$ -	
		\$ -			
10	Plumbing Code	\$ -	\$ 30.00	\$ 30.00	
			Wind Related + Screen Enclosure	\$ 8,471.50	
			Other	\$ 425.00	
			Total	\$ 8,896.50	

Table A-4: Summary of Cost Increases by Design Case

Builder	Mercedes
House Type	Masonry
Wind Design	Design Number
	D-22
	Wind speed
	140
	Exposure
	C
	Enclosure
	E
Wind-Borne Debris Protection	Shutters

Category	Item	Base Price	As designed	Difference	
2	Wind Load Related				
	Roof Covering (Shingles)	\$ 885.00	\$ 1,313.00	\$ 428.00	
	Roof Deck-nailing	Builder reported "no increased cost for nailing".			
	Roof Truss	\$ 2,492.00	\$ 3,183.00	\$ 691.00	
	Roof Tie-down	\$ 270.00	\$ 892.00	\$ 622.00	
	Walls fill cells	\$ 255.00	\$ 314.50	\$ 59.50	
	Windows	\$ 1,210.00	\$ 1,488.00	\$ 278.00	
	Installation		\$ 350.00	\$ 350.00	
	Sliding Glass Doors	\$ 190.00	\$ 380.00	\$ 190.00	
	Entrance Doors	\$ 89.00	\$ 134.00	\$ 45.00	
	Garage Door	\$ 695.00	\$ 1,053.00	\$ 358.00	
	Impact rated "Shutters"		\$ 717.00	\$ 717.00	
3	Termite Treatments	(assume one re-treat)	\$ 440.00	\$ 515.00	\$ 75.00
4	Concrete Slab	Additional cost	\$ 110.00	\$ 110.00	
6	Screen Enclosure			\$ -	
7	Swimming Pool	Duel Drain & related	None	\$ -	None
9	Mechanical Code	Balanced Return	\$ 105.00	\$ 105.00	
		Overflow alarm	\$ 55.00	\$ 55.00	
		Bath/Toilet Room Exhaust	\$ 150.00	\$ 200.00	\$ 50.00
		Dryer Vent		\$ -	
		\$ -			
10	Plumbing Code	\$ -	\$ 30.00	\$ 30.00	
Wind Related + Screen Enclosure				\$ 3,738.50	
Other				\$ 425.00	
Total				\$ 4,163.50	

Table A-4: Summary of Cost Increases by Design Case

Builder	Mercedes
House Type	Masonry
Wind Design	Design Number
	D-23
	Wind speed
	140
	Exposure
	C
	Enclosure
	PE
Wind-Borne Debris Protection	None

Category	Item	Base Price	As designed	Difference	
2	Wind Load Related				
	Roof Covering (Shingles)	\$ 885.00	\$ 1,313.00	\$ 428.00	
	Roof Deck-nailing	Builder reported "no increased cost for nailing".			
	Roof Truss	\$ 2,492.00	\$ 3,471.00	\$ 979.00	
	Roof Tie-down	\$ 270.00	\$ 1,085.00	\$ 815.00	
	Walls fill cells	\$ 255.00	\$ 323.00	\$ 68.00	
	Windows	\$ 1,210.00	\$ 1,548.00	\$ 338.00	
	Installation		\$ 350.00	\$ 350.00	
	Sliding Glass Doors	\$ 190.00	\$ 433.00	\$ 243.00	
	Entrance Doors	\$ 89.00	\$ 134.00	\$ 45.00	
	Garage Door	\$ 695.00	\$ 1,317.00	\$ 622.00	
	Impact rated "Shutters"			\$ -	
3	Termite Treatments	(assume one re-treat)	\$ 440.00	\$ 515.00	\$ 75.00
4	Concrete Slab	Additional cost	\$ 110.00	\$ 110.00	
6	Screen Enclosure			\$ -	
7	Swimming Pool	Duel Drain & related	None	\$ -	None
9	Mechanical Code	Balanced Return	\$ 105.00	\$ 105.00	
		Overflow alarm	\$ 55.00	\$ 55.00	
		Bath/Toilet Room Exhaust	\$ 150.00	\$ 200.00	\$ 50.00
		Dryer Vent		\$ -	
		\$ -			
10	Plumbing Code	\$ -	\$ 30.00	\$ 30.00	
			Wind Related + Screen Enclosure	\$ 3,888.00	
			Other	\$ 425.00	
			Total	\$ 4,313.00	

Table A-4: Summary of Cost Increases by Design Case

Builder	Mercedes
House Type	Masonry
Wind Design	Design Number
	D-24
	Wind speed
	150
	Exposure
	B
	Enclosure
	E
Wind-Borne Debris Protection	Impact

Category	Item	Base Price	As designed	Difference	
2	Wind Load Related				
	Roof Covering (Shingles)	\$ 885.00	\$ 1,313.00	\$ 428.00	
	Roof Deck-nailing	Builder reported "no increased cost for nailing".			
	Roof Truss	\$ 2,492.00	\$ 2,919.00	\$ 427.00	
	Roof Tie-down	\$ 270.00	\$ 728.00	\$ 458.00	
	Walls fill cells	\$ 255.00	\$ 314.50	\$ 59.50	
	Windows	\$ 1,210.00	\$ 5,542.00	\$ 4,332.00	
	Installation		\$ 350.00	\$ 350.00	
	Sliding Glass Doors	\$ 190.00	\$ 1,572.00	\$ 1,382.00	
	Entrance Doors	\$ 89.00	\$ 134.00	\$ 45.00	
	Garage Door	\$ 695.00	\$ 900.00	\$ 205.00	
	Impact rated "Shutters"			\$ -	
3	Termite Treatments	(assume one re-treat)	\$ 440.00	\$ 515.00	\$ 75.00
4	Concrete Slab	Additional cost	\$ 110.00	\$ 110.00	
6	Screen Enclosure			\$ -	
7	Swimming Pool	Duel Drain & related	None	\$ -	None
9	Mechanical Code	Balanced Return	\$ 105.00	\$ 105.00	
		Overflow alarm	\$ 55.00	\$ 55.00	
		Bath/Toilet Room Exhaust	\$ 150.00	\$ 200.00	\$ 50.00
		Dryer Vent		\$ -	
		\$ -			
10	Plumbing Code	\$ -	\$ 30.00	\$ 30.00	
			Wind Related + Screen Enclosure	\$ 7,686.50	
			Other	\$ 425.00	
			Total	\$ 8,111.50	

Table A-4: Summary of Cost Increases by Design Case

Builder	Mercedes
House Type	Masonry
Wind Design	Design Number
	D-25
	Wind speed
	150
	Exposure
	B
	Enclosure
	E
Wind-Borne Debris Protection	Shutters

Category	Item	Base Price	As designed	Difference	
2	Wind Load Related				
	Roof Covering (Shingles)	\$ 885.00	\$ 1,313.00	\$ 428.00	
	Roof Deck-nailing	Builder reported "no increased cost for nailing".			
	Roof Truss	\$ 2,492.00	\$ 2,919.00	\$ 427.00	
	Roof Tie-down	\$ 270.00	\$ 728.00	\$ 458.00	
	Walls fill cells	\$ 255.00	\$ 314.50	\$ 59.50	
	Windows	\$ 1,210.00	\$ 1,432.00	\$ 222.00	
	Installation		\$ 350.00	\$ 350.00	
	Sliding Glass Doors	\$ 190.00	\$ 380.00	\$ 190.00	
	Entrance Doors	\$ 89.00	\$ 134.00	\$ 45.00	
	Garage Door	\$ 695.00	\$ 956.00	\$ 261.00	
	Impact rated "Shutters"		\$ 717.00	\$ 717.00	
3	Termite Treatments	(assume one re-treat)	\$ 440.00	\$ 515.00	\$ 75.00
4	Concrete Slab	Additional cost	\$ 110.00	\$ 110.00	
6	Screen Enclosure			\$ -	
7	Swimming Pool	Duel Drain & related	None	\$ -	None
9	Mechanical Code	Balanced Return	\$ 105.00	\$ 105.00	
		Overflow alarm	\$ 55.00	\$ 55.00	
		Bath/Toilet Room Exhaust	\$ 150.00	\$ 200.00	\$ 50.00
		Dryer Vent		\$ -	
		\$ -			
10	Plumbing Code	\$ -	\$ 30.00	\$ 30.00	
			Wind Related + Screen Enclosure	\$ 3,157.50	
			Other	\$ 425.00	
			Total	\$ 3,582.50	

Table A-4: Summary of Cost Increases by Design Case

Builder	Mercedes
House Type	Masonry
Wind Design	Design Number
	D-26
	Wind speed
	150
	Exposure
	B
	Enclosure
	PE
Wind-Borne Debris Protection	None

Category	Item	Base Price	As designed	Difference	
2	Wind Load Related				
	Roof Covering (Shingles)	\$ 885.00	\$ 1,313.00	\$ 428.00	
	Roof Deck-nailing	Builder reported "no increased cost for nailing".			
	Roof Truss	\$ 2,492.00	\$ 3,205.00	\$ 713.00	
	Roof Tie-down	\$ 270.00	\$ 845.00	\$ 575.00	
	Walls fill cells	\$ 255.00	\$ 314.50	\$ 59.50	
	Windows	\$ 1,210.00	\$ 1,607.00	\$ 397.00	
	Installation		\$ 350.00	\$ 350.00	
	Sliding Glass Doors	\$ 190.00	\$ 433.00	\$ 243.00	
	Entrance Doors	\$ 89.00	\$ 134.00	\$ 45.00	
	Garage Door	\$ 695.00	\$ 1,053.00	\$ 358.00	
	Impact rated "Shutters"			\$ -	
3	Termite Treatments	(assume one re-treat)	\$ 440.00	\$ 515.00	\$ 75.00
4	Concrete Slab	Additional cost	\$ 110.00	\$ 110.00	
6	Screen Enclosure			\$ -	
7	Swimming Pool	Duel Drain & related	None	\$ -	None
9	Mechanical Code	Balanced Return	\$ 105.00	\$ 105.00	
		Overflow alarm	\$ 55.00	\$ 55.00	
		Bath/Toilet Room Exhaust	\$ 150.00	\$ 200.00	\$ 50.00
		Dryer Vent		\$ -	
		\$ -			
10	Plumbing Code	\$ -	\$ 30.00	\$ 30.00	
			Wind Related + Screen Enclosure	\$ 3,168.50	
			Other	\$ 425.00	
			Total	\$ 3,593.50	

Table A-4: Summary of Cost Increases by Design Case

Builder	Mercedes
House Type	Masonry
Wind Design	Design Number
	D-27
	Wind speed
	150
	Exposure
	C
	Enclosure
	E
Wind-Borne Debris Protection	Impact

Category	Item	Base Price	As designed	Difference	
2	Wind Load Related				
	Roof Covering (Shingles)	\$ 885.00	\$ 1,313.00	\$ 428.00	
	Roof Deck-nailing	Builder reported "no increased cost for nailing".			
	Roof Truss	\$ 2,492.00	\$ 3,320.00	\$ 828.00	
	Roof Tie-down	\$ 270.00	\$ 1,112.00	\$ 842.00	
	Walls fill cells	\$ 255.00	\$ 314.50	\$ 59.50	
	Windows	\$ 1,210.00	\$ 5,486.00	\$ 4,276.00	
	Installation		\$ 350.00	\$ 350.00	
	Sliding Glass Doors	\$ 190.00	\$ 1,572.00	\$ 1,382.00	
	Entrance Doors	\$ 89.00	\$ 134.00	\$ 45.00	
	Garage Door	\$ 695.00	\$ 1,053.00	\$ 358.00	
	Impact rated "Shutters"			\$ -	
3	Termite Treatments	(assume one re-treat)	\$ 440.00	\$ 515.00	\$ 75.00
4	Concrete Slab	Additional cost	\$ 110.00	\$ 110.00	
6	Screen Enclosure			\$ -	
7	Swimming Pool	Duel Drain & related	None	\$ -	None
9	Mechanical Code	Balanced Return	\$ 105.00	\$ 105.00	
		Overflow alarm	\$ 55.00	\$ 55.00	
		Bath/Toilet Room Exhaust	\$ 150.00	\$ 200.00	\$ 50.00
		Dryer Vent		\$ -	
		\$ -			
10	Plumbing Code	\$ -	\$ 30.00	\$ 30.00	
			Wind Related + Screen Enclosure	\$ 8,568.50	
			Other	\$ 425.00	
			Total	\$ 8,993.50	

Table A-4: Summary of Cost Increases by Design Case

Builder	Mercedes
House Type	Masonry
Wind Design	Design Number
	D-28
	Wind speed
	150
	Exposure
	C
	Enclosure
	E
Wind-Borne Debris Protection	Shutters

Category	Item	Base Price	As designed	Difference	
2	Wind Load Related				
	Roof Covering (Shingles)	\$ 885.00	\$ 1,313.00	\$ 428.00	
	Roof Deck-nailing	Builder reported "no increased cost for nailing".			
	Roof Truss	\$ 2,492.00	\$ 3,320.00	\$ 828.00	
	Roof Tie-down	\$ 270.00	\$ 1,112.00	\$ 842.00	
	Walls fill cells	\$ 255.00	\$ 314.50	\$ 59.50	
	Windows	\$ 1,210.00	\$ 1,432.00	\$ 222.00	
	Installation		\$ 350.00	\$ 350.00	
	Sliding Glass Doors	\$ 190.00	\$ 380.00	\$ 190.00	
	Entrance Doors	\$ 89.00	\$ 134.00	\$ 45.00	
	Garage Door	\$ 695.00	\$ 956.00	\$ 261.00	
	Impact rated "Shutters"		\$ 717.00	\$ 717.00	
3	Termite Treatments	(assume one re-treat)	\$ 440.00	\$ 515.00	\$ 75.00
4	Concrete Slab	Additional cost	\$ 110.00	\$ 110.00	
6	Screen Enclosure			\$ -	
7	Swimming Pool	Duel Drain & related	None	\$ -	None
9	Mechanical Code	Balanced Return	\$ 105.00	\$ 105.00	
		Overflow alarm	\$ 55.00	\$ 55.00	
		Bath/Toilet Room Exhaust	\$ 150.00	\$ 200.00	\$ 50.00
		Dryer Vent		\$ -	
		\$ -			
10	Plumbing Code	\$ -	\$ 30.00	\$ 30.00	
Wind Related + Screen Enclosure				\$ 3,942.50	
Other				\$ 425.00	
Total				\$ 4,367.50	

Table A-4: Summary of Cost Increases by Design Case

Builder	Mercedes
House Type	Masonry
Wind Design	Design Number
	D-29
	Wind speed
	150
	Exposure
	C
	Enclosure
	PE
Wind-Borne Debris Protection	None

Category	Item	Base Price	As designed	Difference	
2	Wind Load Related				
	Roof Covering (Shingles)	\$ 885.00	\$ 1,313.00	\$ 428.00	
	Roof Deck-nailing	Builder reported "no increased cost for nailing".			
	Roof Truss	\$ 2,492.00	\$ 3,891.00	\$ 1,399.00	
	Roof Tie-down	\$ 270.00	\$ 1,173.00	\$ 903.00	
	Walls fill cells	\$ 255.00	\$ 323.00	\$ 68.00	
	Windows	\$ 1,210.00	\$ 3,038.00	\$ 1,828.00	
	Installation		\$ 350.00	\$ 350.00	
	Sliding Glass Doors	\$ 190.00	\$ 433.00	\$ 243.00	
	Entrance Doors	\$ 89.00	\$ 134.00	\$ 45.00	
	Garage Door	\$ 695.00	\$ 1,053.00	\$ 358.00	
	Impact rated "Shutters"			\$ -	
3	Termite Treatments	(assume one re-treat)	\$ 440.00	\$ 515.00	\$ 75.00
4	Concrete Slab	Additional cost	\$ 110.00	\$ 110.00	
6	Screen Enclosure			\$ -	
7	Swimming Pool	Duel Drain & related	None	\$ -	None
9	Mechanical Code	Balanced Return	\$ 105.00	\$ 105.00	
		Overflow alarm	\$ 55.00	\$ 55.00	
		Bath/Toilet Room Exhaust	\$ 150.00	\$ 200.00	\$ 50.00
		Dryer Vent		\$ -	
		\$ -			
10	Plumbing Code	\$ -	\$ 30.00	\$ 30.00	
			Wind Related + Screen Enclosure	\$ 5,622.00	
			Other	\$ 425.00	
			Total	\$ 6,047.00	

A.3.3 Costs for Truss and Tie-Down Packages

The pages containing Table A-5 and Table A-6 provide cost information for the truss packages (truss design information was provided by the truss manufacturers) and related tie-down connectors required (provided by Simpson Strong Tie and Storm Smart Systems). Trusses were designed using Component and Cladding criteria and as indicated earlier, this results in somewhat higher uplift loads than when Main Wind Force Resisting System (MWFRS) criteria is used. Costs for these materials could be lower than those included in this report if MWFRS criteria is used. At the top of each sheet the truss package selling price is noted along with the change in price vs. the SBC pricing. Within the tables are specific truss details for positive and negative loads and the connectors used with appropriate pricing for each connector. At the bottom of the individual sheets are the total uplift and gravity loads and connector pricing for each design case. (Connector prices were calculated at list price plus 50% for an installation allowance.)

Table A-5: Summary of Truss and Connector Prices

Wind Speed	Exposure Category	Enclosed/ Partially Enclosed	Truss Package Cost*	Increase vs. SBC	Connector Package Cost**	Increase vs.SBC	Total Cost	Increase vs.SBC
130	B	E	\$2,492		\$270		\$2,762	
130	B	P	\$2,655	\$163	\$717	\$447	\$3,372	\$610
130	C	E	\$2,881	\$389	\$734	\$464	\$3,615	\$853
130	C	P	\$3,241	\$749	\$1,011	\$741	\$4,252	\$1,490
140	B	E	\$2,836	\$344	\$711	\$441	\$3,547	\$785
140	B	P	\$2,894	\$402	\$734	\$464	\$3,628	\$866
140	C	E	\$3,183	\$691	\$892	\$622	\$4,075	\$1,313
140	C	P	\$3,471	\$979	\$1,085	\$815	\$4,556	\$1,794
150	B	E	\$2,919	\$427	\$728	\$458	\$3,647	\$885
150	B	P	\$3,205	\$713	\$845	\$575	\$4,050	\$1,288
150	C	E	\$3,320	\$828	\$1,112	\$842	\$4,432	\$1,670
150	C	P	\$3,891	\$1,399	\$1,173	\$903	\$5,064	\$2,302

* Space Coast Truss Company

** Simpson Strong Tie and Storm Smart Systems

Table A-6: Truss Costs and Reaction Loads

Price for Phase I house trusses \$2,492
 Change in price: 0
 Truss Package ID 1
 Design Parameters --> 130/B/E
 Selling Price \$2,492

Quantity	Truss ID	Joint No.	Truss			Connectors		
			Ply	Downward Reaction (lb)	Upward Reaction (lb)	Connector number	Price each	Total Price
6	BJ2	2		145	205	META 16	\$ 0.68	\$ 4.05
		3		52	92	META 16	\$ 0.68	\$ -
		4		19		META 16	\$ 0.68	\$ -
6	BJ4	2		221	276	META 16	\$ 0.68	\$ 4.05
		3		91	213	META 16	\$ 0.68	\$ -
		4		36		META 16	\$ 0.68	\$ -
6	BJ6	2		293	330	META 16	\$ 0.68	\$ 4.05
		4		127	255	META 16	\$ 0.68	\$ -
		5		76	58	META 16	\$ 0.68	\$ -
3	CJ8	2		473	384	META 16	\$ 0.68	\$ 2.03
		7		779	1,101	META 16	\$ 0.68	\$ -
1	GE2	2		179	194	META 16	\$ 0.68	\$ 0.68
1		10		115	73	META 16	\$ 0.68	\$ 0.68
1		11		277	282	META 16	\$ 0.68	\$ 0.68
1	GE3	12		96	102	META 16	\$ 0.68	\$ 0.68
1		13		166	155	META 16	\$ 0.68	\$ 0.68
1		2		408	473	META 16	\$ 0.68	\$ 0.68
1	H101	4		408	473	META 16	\$ 0.68	\$ 0.68
1		2		1,675	1,224	META 16	\$ 0.68	\$ 0.68
1		10		1,675	1,224	META 16	\$ 0.68	\$ 0.68
1	H101S	2		1,669	1,219	META 16	\$ 0.68	\$ 0.68
1		10		1,597	1,085	META 16	\$ 0.68	\$ 0.68
1	H121A	1		1,510	1,051	META 16	\$ 0.68	\$ 0.68
1		9		1,510	1,016	META 16	\$ 0.68	\$ 0.68
1	H121S	2		1,669	1,249	META 16	\$ 0.68	\$ 0.68
1		10		1,597	1,115	META 16	\$ 0.68	\$ -
1	H141S	2		1,675	1,283	META 16	\$ 0.68	\$ 0.68
1		11		1,603	1,151	META 16	\$ 0.68	\$ 0.68
1	H161S	2		1,669	1,309	META 16	\$ 0.68	\$ 0.68
1		10		1,597	1,175	META 16	\$ 0.68	\$ 0.68
1	H181S	2		1,667	1,334	META 16	\$ 0.68	\$ 0.68
1		9		1,597	1,205	META 16	\$ 0.68	\$ 0.68
1	H81	2	2	3,694	4,590	HPA35	\$ 15.75	\$ 15.75
1		12		3,694	4,590	HPA35	\$ 15.75	\$ 15.75
33	J8	2		354	355	META 16	\$ 0.68	\$ 22.28
		4		99	206	META 16	\$ 0.68	\$ -
		5		190	194	META 16	\$ 0.68	\$ -
1	MH81S	2	2	3,728	4,612	HPA35	\$ 15.75	\$ 15.75
1		13		3,934	4,849	HGT-2	\$ 157.94	\$ 157.94
4	S1	2		1,679	1,396	META 16	\$ 0.68	\$ 2.70
4		12		1,679	1,396	META 16	\$ 0.68	\$ 2.70
1	SH141SP	2		1,602	1,210	META 16	\$ 0.68	\$ 0.68
1		15		1,539	1,042	META 16	\$ 0.68	\$ 0.68
1	SH161SP	2		1,602	1,238	META 16	\$ 0.68	\$ 0.68
1		13		1,539	1,074	META 16	\$ 0.68	\$ 0.68
1	SH181SP	2		1,602	1,266	META 16	\$ 0.68	\$ 0.68
1		14		1,539	1,105	META 16	\$ 0.68	\$ 0.68
1	SH201	2		1,679	1,366	META 16	\$ 0.68	\$ 0.68
1		11		1,679	1,366	META 16	\$ 0.68	\$ 0.68
1	SH201A	2		1,679	1,366	META 16	\$ 0.68	\$ 0.68
1		13		1,616	1,250	META 16	\$ 0.68	\$ 0.68
2	T3	2		408	856	META 16	\$ 0.68	\$ 1.35
2		6		408	856	META 16	\$ 0.68	\$ 1.35
	V12-55H	1		57	1			
		2		191	439			
		3		57	132			
	V16-55H	1		211	277			
		2		211	445			
		3						
	V16-55RB	1		262	342			
		2		262	342			
		3						
	V4-55	1		48	115			
		2		97	144			
		3		48	115			
	V4-55H	1		51	76			
		2		51	121			
	V8-55	1		102	217			
		2		205	270			
		3		102	217			
	V8-55H	1		98	146			
		2		98	233			
	V8-55RB	1		208	298			
		2		208	298			
		3						
				65,181	61,717			\$ 270

Table A-6: Truss Costs and Reaction Loads

Price for Phase I house trusses \$2,492
 Change in price: \$163
 Truss Package ID 2
 Design Parameters --> 130/B/PE
 Selling Price \$2,655

Quantity	Truss ID	Joint No.	Ply	Truss		Connectors		Total Price
				Downward Reaction (lb)	Upward Reaction (lb)	Connector number	Price each	
6	BJ2	2		145	218	META 16	\$ 0.68	\$ 4.05
		3		52	114	META 16	\$ 0.68	\$ -
		4		19		META 16	\$ 0.68	\$ -
6	BJ4	2		221	300	META 16	\$ 0.68	\$ 4.05
		3		91	255	META 16	\$ 0.68	\$ -
		4		36		META 16	\$ 0.68	\$ -
6	BJ6	2		293	369	META 16	\$ 0.68	\$ 4.05
		4		127	303	META 16	\$ 0.68	\$ -
		5		76	74	META 16	\$ 0.68	\$ -
3	CJ8	2		473	451	META 16	\$ 0.68	\$ 2.03
		7		779	1,326	META 16	\$ 0.68	\$ -
1	GE2	2		179	217	META 16	\$ 0.68	\$ 0.68
1		10		115	96	META 16	\$ 0.68	\$ 0.68
1		11		277	365	META 16	\$ 0.68	\$ 0.68
1	GE3	12		96	131	META 16	\$ 0.68	\$ 0.68
1		13		166	201	META 16	\$ 0.68	\$ 0.68
1	H101	2		408	558	META 16	\$ 0.68	\$ 0.68
1		4		408	558	META 16	\$ 0.68	\$ 0.68
1	H101S	2		1,675	1,622	HETA 20	\$ 1.50	\$ 1.50
1		10		1,675	1,622	HETA 20	\$ 1.50	\$ 1.50
1	H121A	2		1,669	1,617	HETA 20	\$ 1.50	\$ 1.50
1		10		1,597	1,483	META 16	\$ 0.68	\$ 0.68
1	H121S	1		1,510	1,426	META 16	\$ 0.68	\$ 0.68
1		9		1,510	1,393	META 16	\$ 0.68	\$ 0.68
1	H141S	2		1,669	1,646	HETA 20	\$ 1.50	\$ 1.50
1		10		1,597	1,513	HETA 20	\$ 1.50	\$ -
1	H161S	2		1,675	1,682	HETA 20	\$ 1.50	\$ 1.50
1		11		1,603	1,549	HETA 20	\$ 1.50	\$ 1.50
1	H181S	2		1,669	1,706	HETA 20	\$ 1.50	\$ 1.50
1		10		1,597	1,572	HETA 20	\$ 1.50	\$ 1.50
1	H81	2		1,667	1,731	HETA 20	\$ 1.50	\$ 1.50
1		9		1,597	1,602	HETA 20	\$ 1.50	\$ 1.50
1	J8	2	3	3,694	5,597	HGT-2	\$ 157.94	\$ 157.94
1		12		3,694	5,597	HGT-2	\$ 157.94	\$ 157.94
33	MH81S	2		345	410	META 16	\$ 0.68	\$ 22.28
		4		99	245	META 16	\$ 0.68	\$ -
		5		190	241	META 16	\$ 0.68	\$ -
1	S1	2	2	3,728	5,628	HGT-2	\$ 157.94	\$ 157.94
1		13		3,934	5,961	HGT-2	\$ 157.94	\$ 157.94
4	SH141SP	2		1,679	1,798	HETA 20	\$ 1.50	\$ 6.00
4		12		1,679	1,798	HETA 20	\$ 1.50	\$ 6.00
1	SH161SP	2	2	1,602	1,590	HETA 20	\$ 1.50	\$ 1.50
1		15		1,539	1,428	META 16	\$ 0.68	\$ 0.68
1	SH181SP	2		1,602	1,619	HETA 20	\$ 1.50	\$ 1.50
1		13		1,539	1,458	META 16	\$ 0.68	\$ 0.68
1	SH201	2		1,602	1,647	HETA 20	\$ 1.50	\$ 1.50
1		14		1,539	1,490	META 16	\$ 0.68	\$ 0.68
1	SH201A	2		1,679	1,768	HETA 20	\$ 1.50	\$ 1.50
1		11		1,679	1,768	HETA 20	\$ 1.50	\$ 1.50
1	T3	2		1,679	1,768	HETA 20	\$ 1.50	\$ 1.50
1		13		1,616	1,652	HETA 20	\$ 1.50	\$ 1.50
2	V12-55H	2		408	942	META 16	\$ 0.68	\$ 1.35
2		6		408	942	META 16	\$ 0.68	\$ 1.35
	V16-55H	1		57	3			
		2		191	517			
	V16-55RB	3		57	156			
		1		79	2			
	V4-55	2		264	664			
		3		79	200			
	V4-55H	1		262	431			
		2		262	431			
	V8-55	1		48	135			
		2		97	170			
	V8-55H	3		48	135			
		1		51	89			
	V8-55RB	2		51	141			
		1		102	259			
	V8-55H	2		205	325			
		3		102	259			
	V8-55RB	1		98	173			
		2		98	273			
	V8-55RB	1		208	369			
		2		208	369			
		3		65,172	78,148			\$ 717

Table A-6: Truss Costs and Reaction Loads

Price for Phase I house trusses \$2,492
 Change in price: \$389
 Truss Package ID 3
 Design Parameters --> 130/CE
 Selling Price \$2,881

Quantity	Truss ID	Joint No.	Truss			Connectors		Total Price
			Ply	Downward Reaction (lb)	Upward Reaction (lb)	Connector number	Price each	
6	BJ2	2		145	317	META 16	\$ 0.68	\$ 4.05
		3		52	139	META 16	\$ 0.68	\$ -
		4		19		META 16	\$ 0.68	\$ -
6	BJ4	2		221	431	META 16	\$ 0.68	\$ 4.05
		3		91	322	META 16	\$ 0.68	\$ -
		4		36		META 16	\$ 0.68	\$ -
6	BJ6	2		293	521	META 16	\$ 0.68	\$ 4.05
		4		127	382	META 16	\$ 0.68	\$ -
		5		76	106	META 16	\$ 0.68	\$ -
3	CJ8	2		473	625	META 16	\$ 0.68	\$ 2.03
		7		779	1,725	HETA 20	\$ 1.50	\$ -
1	GE2	2		179	307	META 16	\$ 0.68	\$ 0.68
1		10		115	123	META 16	\$ 0.68	\$ 0.68
1		11		277	452	META 16	\$ 0.68	\$ 0.68
1		12		96	162	META 16	\$ 0.68	\$ 0.68
1	GE3	13		166	249	META 16	\$ 0.68	\$ 0.68
1		2		408	748	META 16	\$ 0.68	\$ 0.68
1		4		408	748	META 16	\$ 0.68	\$ 0.68
1	H101	2		1,675	2,020	HHETA 20	\$ 2.00	\$ 2.00
1		10		1,675	2,020	HHETA 20	\$ 2.00	\$ 2.00
1	H101S	2		1,669	2,013	HHETA 20	\$ 2.00	\$ 2.00
1		10		1,597	1,809	HETA 20	\$ 1.50	\$ 1.50
1	H121A	1		1,510	1,747	HETA 20	\$ 1.50	\$ 1.50
1		9		1,510	1,695	HETA 20	\$ 1.50	\$ 1.50
1	H121S	2		1,669	2,057	HHETA 20	\$ 2.00	\$ 2.00
1		10		1,597	1,853	HETA 20	\$ 1.50	\$ -
1		2		1,675	2,108	HHETA 20	\$ 2.00	\$ 2.00
1	H141S	11		1,603	1,906	HHETA 20	\$ 2.00	\$ 2.00
1		2		1,669	2,145	HHETA 20	\$ 2.00	\$ 2.00
1	H161S	10		1,597	1,941	HHETA 20	\$ 2.00	\$ 2.00
1		2		1,667	2,190	HHETA 20	\$ 2.00	\$ 2.00
1	H181S	9		1,597	1,994	HHETA 20	\$ 2.00	\$ 2.00
1		2		3,694	7,239	HGT-2	\$ 157.94	\$ 157.94
1	H81	12		3,694	7,239	HGT-2	\$ 157.94	\$ 157.94
1		2		345	566	META 16	\$ 0.68	\$ 22.28
33	J8	4		99	312	META 16	\$ 0.68	\$ -
		5		190	313	META 16	\$ 0.68	\$ -
		2		3,728	7,279	HGT-2	\$ 157.94	\$ 157.94
1	MH81S	13		3,934	7,666	HGT-2	\$ 157.94	\$ 157.94
4		2		1,679	2,275	HHETA 20	\$ 2.00	\$ 7.98
4	S1	12		1,679	2,275	HHETA 20	\$ 2.00	\$ 7.98
1		2		1,602	1,990	HHETA 20	\$ 2.00	\$ 2.00
1	SH141SP	15		1,539	1,738	HETA 20	\$ 1.50	\$ 1.50
1		2		1,602	2,034	HHETA 20	\$ 2.00	\$ 2.00
1	SH161SP	13		1,539	1,782	HETA 20	\$ 1.50	\$ 1.50
1		2		1,602	2,074	HHETA 20	\$ 2.00	\$ 2.00
1	SH181SP	14		1,539	1,830	HETA 20	\$ 1.50	\$ 1.50
1		2		1,679	2,231	HHETA 20	\$ 2.00	\$ 2.00
1	SH201	11		1,679	2,231	HHETA 20	\$ 2.00	\$ 2.00
1		2		1,679	2,231	HHETA 20	\$ 2.00	\$ 2.00
1	SH201A	13		1,616	2,054	HHETA 20	\$ 2.00	\$ 2.00
2		2		408	1,313	META 16	\$ 0.68	\$ 1.35
2	T3	6		408	1,313	META 16	\$ 0.68	\$ 1.35
2		1		57	6			
	V12-55H	2		191	843			
		3		57	254			
		1		79	6			
	V16-55H	2		264	843			
		3		79	254			
	V16-55RB	1		262	528			
		2		262	528			
	V4-55	3						
		1		48	174			
		2		97	220			
	V4-55H	3		48	174			
		1		51	116			
	V8-55	2		51	182			
		1		102	329			
	V8-55H	2		205	416			
		3		102	329			
	V8-55RB	1		98	224			
		2		98	352			
	V8-55RB	1		208	458			
		2		208	458			
		3						
				65,172	99,534			734

Table A-6: Truss Costs and Reaction Loads

Price for Phase I house trusses \$2,492
 Change in price: \$749
 Truss Package ID 4
 Design Parameters --> 130/C/PE
 Selling Price \$3,241

Quantity	Truss ID	Joint No.	Ply	Truss		Connectors		
				Downward Reaction (lb)	Upward Reaction (lb)	Connector number	Price each	Total Price
6	BJ2	2		145	337	META 16	\$ 0.68	\$ 4.05
		3		52	172	META 16	\$ 0.68	\$ -
		4		19		META 16	\$ 0.68	\$ -
6	BJ4	2		221	468	META 16	\$ 0.68	\$ 4.05
		3		91	384	META 16	\$ 0.68	\$ -
		4		36		META 16	\$ 0.68	\$ -
6	BJ6	2		293	578	META 16	\$ 0.68	\$ 4.05
		4		127	329	META 16	\$ 0.68	\$ -
		5		76	254	META 16	\$ 0.68	\$ -
3	CJ8	2		473	724	META 16	\$ 0.68	\$ 2.03
		7		779	2,058	HHETA 20	\$ 2.00	\$ -
1	GE2	2		179	340	META 16	\$ 0.68	\$ 0.68
1		10		115	155	META 16	\$ 0.68	\$ 0.68
1		11		277	575	META 16	\$ 0.68	\$ 0.68
1		12		96	206	META 16	\$ 0.68	\$ 0.68
1		13		166	317	META 16	\$ 0.68	\$ 0.68
1		2		408	874	META 16	\$ 0.68	\$ 0.68
1	GE3	4		408	874	META 16	\$ 0.68	\$ 0.68
1		2		1,675	2,609	PA28	\$ 8.30	\$ 8.30
1	H101	10		1,675	2,609	PA28	\$ 8.30	\$ 8.30
1		2		1,669	2,599	PA28	\$ 8.30	\$ 8.30
1	H101S	10		1,597	2,395	PA28	\$ 8.30	\$ 8.30
1		1		1,510	2,300	HHETA 20	\$ 2.00	\$ 2.00
1	H121A	9		1,510	2,251	HHETA 20	\$ 2.00	\$ 2.00
1		2		1,669	2,653	PA28	\$ 8.30	\$ 8.30
1	H121S	10		1,597	2,451	PA28	\$ 8.30	\$ -
1		2		1,675	2,697	PA28	\$ 8.30	\$ 8.30
1	H141S	11		1,603	2,495	PA28	\$ 8.30	\$ 8.30
1		2		1,669	2,741	PA28	\$ 8.30	\$ 8.30
1	H161S	10		1,597	2,539	PA28	\$ 8.30	\$ 8.30
1		2		1,667	2,779	HPA35	\$ 15.75	\$ 15.75
1	H181S	9		1,597	2,583	PA28	\$ 8.30	\$ 8.30
1		2		3,694	8,727	HGT-3	\$ 159.81	\$ 159.81
1	H81	12	3	3,694	8,727	HGT-3	\$ 159.81	\$ 159.81
1		2		345	648	META 16	\$ 0.68	\$ 22.28
33	J8	4		99	371	META 16	\$ 0.68	\$ -
		5		190	384	META 16	\$ 0.68	\$ -
		2		3,728	8,781	HGT-3	\$ 159.81	\$ 159.81
1	MH81S	13	3	3,934	9,295	HGT-3	\$ 159.81	\$ 159.81
1		2		1,679	2,868	HPA35	\$ 15.75	\$ 63.00
4	S1	12		1,679	2,868	HPA35	\$ 15.75	\$ 63.00
4		2		1,602	2,553	PA28	\$ 8.30	\$ 8.30
1	SH141SP	15		1,539	2,306	HHETA 20	\$ 2.00	\$ 2.00
1		2		1,602	2,595	PA28	\$ 8.30	\$ 8.30
1	SH161SP	13		1,539	2,352	PA28	\$ 8.30	\$ 8.30
1		2		1,602	2,636	PA28	\$ 8.30	\$ 8.30
1	SH181SP	14		1,539	2,399	PA28	\$ 8.30	\$ 8.30
1		2		1,679	2,824	HPA35	\$ 15.75	\$ 15.75
1	SH201	11		1,679	2,824	HPA35	\$ 15.75	\$ 15.75
1		2		1,679	2,824	HPA35	\$ 15.75	\$ 15.75
1	SH201A	13		1,616	2,647	PA28	\$ 8.30	\$ 8.30
1		2		408	1,440	META 16	\$ 0.68	\$ 1.35
2	T3	6		408	1,440	META 16	\$ 0.68	\$ 1.35
2		1		57	9			
	V12-55H	2		191	780			
		3		57	235			
		1		79	10			
	V16-55H	2		264	1,004			
		3		79	302			
		1		262	660			
	V16-55RB	2		262	660			
		3						
		1		48	203			
	V4-55	2		97	259			
		3		48	203			
		1		51	136			
	V4-55H	2		51	213			
		1		102	391			
	V8-55	2		205	498			
		3		102	391			
		1		98	263			
	V8-55H	2		98	412			
		1		208	563			
	V8-55RB	2		208	563			
		3						
		3		65,172	123,610			1,011

Table A-6: Truss Costs and Reaction Loads

Price for Phase I house trusses \$2,492
 Change in price: \$344
 Truss Package ID 5
 Design Parameters --> 140/B/E
 Selling Price \$2,836

Quantity	Truss ID	Joint No.	Ply	Truss		Connectors		
				Downward Reaction (lb)	Upward Reaction (lb)	Connector number	Price each	Total Price
6	BJ2	2		145	242	META 16	\$ 0.68	\$ 4.05
		3		52	108	META 16	\$ 0.68	\$ -
		4		19		META 16	\$ 0.68	\$ -
6	BJ4	2		221	328	META 16	\$ 0.68	\$ 4.05
		3		91	250	META 16	\$ 0.68	\$ -
		4		36		META 16	\$ 0.68	\$ -
6	BJ6	2		293	394	META 16	\$ 0.68	\$ 4.05
		4		127	294	META 16	\$ 0.68	\$ -
		5		76	78	META 16	\$ 0.68	\$ -
3	CJ8	2		473	465	META 16	\$ 0.68	\$ 2.03
		7		779	1,310	META 16	\$ 0.68	\$ -
1	GE2	2		179	232	META 16	\$ 0.68	\$ 0.68
1		10		115	90	META 16	\$ 0.68	\$ 0.68
1		11		277	339	META 16	\$ 0.68	\$ 0.68
1	GE3	12		96	122	META 16	\$ 0.68	\$ 0.68
1		13		166	186	META 16	\$ 0.68	\$ 0.68
1	H101	2		408	565	META 16	\$ 0.68	\$ 0.68
1		4		408	565	META 16	\$ 0.68	\$ 0.68
1		2		1,675	1,490	META 16	\$ 0.68	\$ 0.68
1	H101S	10		1,675	1,490	META 16	\$ 0.68	\$ 0.68
1		2		1,669	1,485	META 16	\$ 0.68	\$ 0.68
1	H121A	10		1,597	1,328	META 16	\$ 0.68	\$ 0.68
1		1		1,510	1,285	META 16	\$ 0.68	\$ 0.68
1	H121S	9		1,510	1,244	META 16	\$ 0.68	\$ 0.68
1		2		1,669	1,525	HETA 20	\$ 1.50	\$ 1.50
1	H141S	10		1,597	1,369	META 16	\$ 0.68	\$ -
1		2		1,675	1,559	HETA 20	\$ 1.50	\$ 1.50
1	H161S	11		1,603	1,404	META 16	\$ 0.68	\$ 0.68
1		2		1,669	1,594	HETA 20	\$ 1.50	\$ 1.50
1	H181S	10		1,597	1,438	META 16	\$ 0.68	\$ 0.68
1		2		1,667	1,624	HETA 20	\$ 1.50	\$ 1.50
1	H81	9		1,597	1,473	META 16	\$ 0.68	\$ 0.68
1		2	3		3,694	5,477	HGT-2	\$ 157.94
1	J8	12		3,694	5,477	HGT-2	\$ 157.94	\$ 157.94
33		2		345	426	META 16	\$ 0.68	\$ 22.28
	MH81S	4		99	241	META 16	\$ 0.68	\$ -
		5		190	234	META 16	\$ 0.68	\$ -
1		2	3		3,728	5,505	HGT-2	\$ 157.94
1	S1	13		3,934	5,792	HGT-2	\$ 157.94	\$ 157.94
4		2		1,679	1,690	HETA 20	\$ 1.50	\$ 6.00
4	SH141SP	12		1,679	1,690	HETA 20	\$ 1.50	\$ 6.00
1		2	3		1,602	1,471	META 16	\$ 0.68
1	SH161SP	15		1,539	1,275	META 16	\$ 0.68	\$ 0.68
1		2		1,602	1,504	HETA 20	\$ 1.50	\$ 1.50
1	SH181SP	13		1,539	1,311	META 16	\$ 0.68	\$ 0.68
1		2		1,602	1,536	HETA 20	\$ 1.50	\$ 1.50
1	SH201	14		1,539	1,348	META 16	\$ 0.68	\$ 0.68
1		2		1,679	1,656	HETA 20	\$ 1.50	\$ 1.50
1	SH201A	11		1,679	1,656	HETA 20	\$ 1.50	\$ 1.50
1		2		1,679	1,656	HETA 20	\$ 1.50	\$ 1.50
1	T3	13		1,616	1,519	HETA 20	\$ 1.50	\$ 1.50
2		2		408	1,009	META 16	\$ 0.68	\$ 1.35
2	V12-55H	6		408	1,009	META 16	\$ 0.68	\$ 1.35
		1		57	3			
		2		191	514			
	V16-55H	3		57	155			
		1		79	2			
	V16-55RB	2		264	652			
		3		79	197			
		1		262	404			
	V4-55	2		262	404			
		3						
		1		48	135			
	V4-55H	2		97	169			
		3		48	135			
	V8-55	1		51	89			
		2		51	141			
	V8-55H	1		102	254			
		2		205	319			
		3		102	254			
	V8-55RB	1		98	172			
		2		98	273			
		1		208	351			
		2		208	351			
		3						
				65,172	74,332			\$ 711

Table A-6: Truss Costs and Reaction Loads

Price for Phase I house trusses \$2,492
 Change in price: \$402
 Truss Package ID 6
 Design Parameters --> 140/B/PE
 Selling Price \$ 2,894

Quantity	Truss ID	Joint No.	Truss			Connectors		
			Ply	Downward Reaction (lb)	Upward Reaction (lb)	Connector number	Price each	Total Price
6	BJ2	2		145	258	META 16	\$ 0.68	\$ 4.05
		3		52	134	META 16	\$ 0.68	\$ -
		4		19		META 16	\$ 0.68	\$ -
6	BJ4	2		221	356	META 16	\$ 0.68	\$ 4.05
		3		91	298	META 16	\$ 0.68	\$ -
		4		36		META 16	\$ 0.68	\$ -
6	BJ6	2		293	439	META 16	\$ 0.68	\$ 4.05
		4		127	323	META 16	\$ 0.68	\$ -
		5		76	123	META 16	\$ 0.68	\$ -
3	CJ8	2		473	542	META 16	\$ 0.68	\$ 2.03
		7		779	1,571	HETA 20	\$ 1.50	\$ -
1	GE2	2		179	258	META 16	\$ 0.68	\$ 0.68
1		10		115	116	META 16	\$ 0.68	\$ 0.68
1		11		277	436	META 16	\$ 0.68	\$ 0.68
1		12		96	156	META 16	\$ 0.68	\$ 0.68
1	GE3	13		166	240	META 16	\$ 0.68	\$ 0.68
1		2		408	664	META 16	\$ 0.68	\$ 0.68
1	H101	4		408	664	META 16	\$ 0.68	\$ 0.68
1		2		1,675	1,953	HHETA 20	\$ 2.00	\$ 2.00
1		10		1,675	1,953	HHETA 20	\$ 2.00	\$ 2.00
1	H101S	2		1,669	1,946	HHETA 20	\$ 2.00	\$ 2.00
1		10		1,597	1,788	HETA 20	\$ 1.50	\$ 1.50
1	H121A	1		1,510	1,719	HETA 20	\$ 1.50	\$ 1.50
1		9		1,510	1,680	HETA 20	\$ 1.50	\$ 1.50
1	H121S	2		1,669	1,980	HHETA 20	\$ 2.00	\$ 2.00
1		10		1,597	1,823	HETA 20	\$ 1.50	\$ -
1	H141S	2		1,675	2,022	HHETA 20	\$ 2.00	\$ 2.00
1		11		1,603	1,866	HETA 20	\$ 1.50	\$ 1.50
1	H161S	2		1,669	2,049	HHETA 20	\$ 2.00	\$ 2.00
1		10		1,597	1,892	HHETA 20	\$ 2.00	\$ 2.00
1	H181S	2		1,667	2,086	HHETA 20	\$ 2.00	\$ 2.00
1		9		1,597	1,935	HHETA 20	\$ 2.00	\$ 2.00
1	H81	2	3	3,694	6,645	HGT-2	\$ 157.94	\$ 157.94
1		12		3,694	6,645	HGT-2	\$ 157.94	\$ 157.94
33	J8	2		345	490	META 16	\$ 0.68	\$ 22.28
		4		99	287	META 16	\$ 0.68	\$ -
		5		190	289	META 16	\$ 0.68	\$ -
1	MH81S	2	2	3,728	5,748	HGT-2	\$ 157.94	\$ 157.94
1		13		3,934	5,754	HGT-2	\$ 157.94	\$ 157.94
4	S1	2		1,679	2,156	HHETA 20	\$ 2.00	\$ 7.98
4		12		1,679	2,156	HHETA 20	\$ 2.00	\$ 7.98
1	SH141SP	2	2	1,602	1,913	HHETA 20	\$ 2.00	\$ 2.00
1		15		1,539	1,721	HETA 20	\$ 1.50	\$ 1.50
1	SH161SP	2	2	1,602	1,946	HHETA 20	\$ 2.00	\$ 2.00
1		13		1,539	1,758	HETA 20	\$ 1.50	\$ 1.50
1	SH181SP	2	2	1,602	1,978	HHETA 20	\$ 2.00	\$ 2.00
1		14		1,539	1,794	HETA 20	\$ 1.50	\$ 1.50
1	SH201	2		1,679	2,122	HHETA 20	\$ 2.00	\$ 2.00
1		11		1,679	2,122	HHETA 20	\$ 2.00	\$ 2.00
1	SH201A	2		1,679	2,122	HHETA 20	\$ 2.00	\$ 2.00
1		13		1,616	1,985	HHETA 20	\$ 2.00	\$ 2.00
2	T3	2		408	664	META 16	\$ 0.68	\$ 1.35
2		6		408	664	META 16	\$ 0.68	\$ 1.35
	V12-55H	1		57	5			
		2		191	605			
		3		57	182			
	V16-55H	1		79	5			
		2		264	778			
		3		79	234			
	V16-55RB	1		262	508			
		2		262	508			
		3						
	V4-55	1		48	158			
		2		97	199			
		3		48	158			
	V4-55H	1		51	105			
		2		51	165			
	V8-55	1		102	303			
		2		205	383			
		3		102	303			
	V8-55H	1		98	203			
		2		98	320			
	V8-55RB	1		208	434			
		2		208	434			
		3						
				65,172	90,219			\$ 734

Table A-6: Truss Costs and Reaction Loads

Price for Phase I house trusses \$2,492
 Change in price: \$691
 Truss Package ID 7
 Design Parameters --> 140/CE
 Selling Price \$3,183

Quantity	Truss ID	Joint No.	Ply	Truss		Connectors		
				Downward Reaction (lb)	Upward Reaction (lb)	Connector number	Price each	Total Price
6	BJ2	2		145	373	META 16	\$ 0.68	\$ 4.05
		3		52	162	META 16	\$ 0.68	\$ -
		4		19		META 16	\$ 0.68	\$ -
6	BJ4	2		221	508	META 16	\$ 0.68	\$ 4.05
		3		91	376	META 16	\$ 0.68	\$ -
		4		36		META 16	\$ 0.68	\$ -
6	BJ6	2		293	615	META 16	\$ 0.68	\$ 4.05
		4		127	269	META 16	\$ 0.68	\$ -
		5		76	306	META 16	\$ 0.68	\$ -
3	CJ8	2		473	744	META 16	\$ 0.68	\$ 2.03
		7		779	2,033	HHETA 20	\$ 2.00	\$ -
1	GE2	2		179	363	META 16	\$ 0.68	\$ 0.68
1		10		115	147	META 16	\$ 0.68	\$ 0.68
1		11		277	536	META 16	\$ 0.68	\$ 0.68
1		12		96	192	META 16	\$ 0.68	\$ 0.68
1		13		166	295	META 16	\$ 0.68	\$ 0.68
1	GE3	2		408	884	META 16	\$ 0.68	\$ 0.68
1		4		408	884	META 16	\$ 0.68	\$ 0.68
1	H101	2		1,675	2,414	PA28	\$ 8.30	\$ 8.30
1		10		1,675	2,414	PA28	\$ 8.30	\$ 8.30
1	H101S	2		1,669	2,405	PA28	\$ 8.30	\$ 8.30
1		10		1,597	2,167	HHETA 20	\$ 2.00	\$ 2.00
1	H121A	1		1,510	2,092	HHETA 20	\$ 2.00	\$ 2.00
1		9		1,510	2,031	HHETA 20	\$ 2.00	\$ 2.00
1	H121S	2		1,669	2,465	PA28	\$ 8.30	\$ 8.30
1		10		1,597	2,228	HHETA 20	\$ 2.00	\$ -
1	H141S	2		1,675	2,516	PA28	\$ 8.30	\$ 8.30
1		11		1,603	2,279	HHETA 20	\$ 2.00	\$ 2.00
1	H161S	2		1,669	2,567	PA28	\$ 8.30	\$ 8.30
1		10		1,597	2,331	PA28	\$ 8.30	\$ 8.30
1	H181S	2		1,667	2,611	PA28	\$ 8.30	\$ 8.30
1		9		1,597	2,382	PA28	\$ 8.30	\$ 8.30
1	H81	2	3	3,694	8,313	HGT-2	\$ 157.94	\$ 157.94
1		12		3,694	8,313	HGT-2	\$ 157.94	\$ 157.94
33	J8	2		345	671	META 16	\$ 0.68	\$ 22.28
		4		99	365	META 16	\$ 0.68	\$ -
		5		190	373	META 16	\$ 0.68	\$ -
1	MH81S	2	2	3,728	6,079	HGT-2	\$ 157.94	\$ 157.94
1		13		3,934	6,470	HGT-2	\$ 157.94	\$ 157.94
4	S1	2	4-2 Ply	1,679	2,710	PA28	\$ 8.30	\$ 33.18
4		12		1,679	2,710	PA28	\$ 8.30	\$ 33.18
1	SH141SP	2	2	1,602	2,377	PA28	\$ 8.30	\$ 8.30
1		15		1,539	2,081	HHETA 20	\$ 2.00	\$ 2.00
1	SH161SP	2	2	1,602	2,425	PA28	\$ 8.30	\$ 8.30
1		13		1,539	2,135	HHETA 20	\$ 2.00	\$ 2.00
1	SH181SP	2	2	1,602	2,474	PA28	\$ 8.30	\$ 8.30
1		14		1,539	2,189	HHETA 20	\$ 2.00	\$ 2.00
1	SH201	2		1,679	2,659	PA28	\$ 8.30	\$ 8.30
1		11		1,679	2,659	PA28	\$ 8.30	\$ 8.30
1	SH201A	2		1,679	2,659	PA28	\$ 8.30	\$ 8.30
1		13		1,616	2,452	PA28	\$ 8.30	\$ 8.30
2	T3	2		408	1,540	HETA 20	\$ 1.50	\$ 3.00
2		6		408	1,540	HETA 20	\$ 1.50	\$ 3.00
	V12-55H	1		57	9			
		2		191	776			
		3		57	234			
	V16-55H	1		79	10			
		2		264	986			
		3		79	297			
	V16-55RB	1		262	620			
		2		262	620			
		3						
	V4-55	1		48	203			
		2		97	258			
		3		48	203			
	V4-55H	1		51	136			
		2		51	212			
	V8-55	1		102	384			
		2		205	488			
		3		102	384			
	V8-55H	1		98	262			
		2		98	411			
	V8-55RB	1		208	537			
		2		208	537			
		3						
				65,172	112,350			\$ 892

Table A-6: Truss Costs and Reaction Loads

Price for Phase I house trusses \$2,492
 Change in price: \$979
 Truss Package ID 8
 Design Parameters --> 40/C/PE
 Selling Price \$ 3,471

Quantity	Truss ID	Joint No.	Ply	Truss		Connectors		
				Downward Reaction (lb)	Upward Reaction (lb)	Connector number	Price each	Total Price
6	BJ2	2		145	396	META 16	\$ 0.68	\$ 4.05
		3		52	200	META 16	\$ 0.68	\$ -
		4		19		META 16	\$ 0.68	\$ -
6	BJ4	2		221	550	META 16	\$ 0.68	\$ 4.05
		3		91	448	META 16	\$ 0.68	\$ -
		4		36		META 16	\$ 0.68	\$ -
6	BJ6	2		293	682	META 16	\$ 0.68	\$ 4.05
		4		127	313	META 16	\$ 0.68	\$ -
		5		76	371	META 16	\$ 0.68	\$ -
3	CJ8	2		473	858	META 16	\$ 0.68	\$ 2.03
		7		779	2,420	PA28	\$ 8.30	\$ -
1	GE2	2		179	401	META 16	\$ 0.68	\$ 0.68
1		10		115	185	META 16	\$ 0.68	\$ 0.68
1		11		277	678	META 16	\$ 0.68	\$ 0.68
1		12		96	243	META 16	\$ 0.68	\$ 0.68
1		13		166	375	META 16	\$ 0.68	\$ 0.68
1	GE3	2		408	1,031	META 16	\$ 0.68	\$ 0.68
		4		408	1,031	META 16	\$ 0.68	\$ 0.68
1	H101	2		1,675	3,097	HPA35	\$ 15.75	\$ 15.75
		10		1,675	3,097	HPA35	\$ 15.75	\$ 15.75
1	H101S	2		1,669	3,086	HPA35	\$ 15.75	\$ 15.75
		10		1,597	2,847	HPA35	\$ 15.75	\$ 15.75
1	H121A	1		1,510	2,734	PA28	\$ 8.30	\$ 8.30
		9		1,510	2,676	PA28	\$ 8.30	\$ 8.30
1	H121S	2		1,669	3,148	HPA35	\$ 15.75	\$ 15.75
		10		1,597	2,911	HPA35	\$ 15.75	\$ -
1	H141S	2		1,675	3,199	HPA35	\$ 15.75	\$ 15.75
		11		1,603	2,962	HPA35	\$ 15.75	\$ 15.75
1	H161S	2		1,669	3,250	HPA35	\$ 15.75	\$ 15.75
		10		1,597	3,013	HPA35	\$ 15.75	\$ 15.75
1	H181S	2		1,667	3,294	HPA35	\$ 15.75	\$ 15.75
		9		1,597	3,065	HPA35	\$ 15.75	\$ 15.75
1	H81	2	3	3,694	7,785	HGT-2	\$ 157.94	\$ 157.94
		12		3,694	7,785	HGT-2	\$ 157.94	\$ 157.94
33	J8	2		345	766	META 16	\$ 0.68	\$ 22.28
		4		99	432	META 16	\$ 0.68	\$ -
		5		190	455	META 16	\$ 0.68	\$ -
1	MH81S	2	3	3,728	6,778	HGT-2	\$ 157.94	\$ 157.94
		13		3,934	7,160	HGT-2	\$ 157.94	\$ 157.94
4	S1	2		1,679	3,398	HPA35	\$ 15.75	\$ 63.00
		12	4-2ply	1,679	338	META 16	\$ 0.68	\$ 2.70
1	SH141SP	2	2	1,602	3,029	HPA35	\$ 15.75	\$ 15.75
1	SH161SP	15		1,539	2,740	PA28	\$ 8.30	\$ 8.30
1		2		1,602	3,077	HPA35	\$ 15.75	\$ 15.75
1	SH181SP	13		1,539	2,794	HPA35	\$ 15.75	\$ 15.75
1		2	2	1,602	3,125	HPA35	\$ 15.75	\$ 15.75
1	SH201	14		1,539	2,849	HPA35	\$ 15.75	\$ 15.75
1		2		1,679	3,347	HPA35	\$ 15.75	\$ 15.75
1	SH201A	11		1,679	3,347	HPA35	\$ 15.75	\$ 15.75
1		2		1,679	3,347	HPA35	\$ 15.75	\$ 15.75
1	T3	13		1,616	3,140	HPA35	\$ 15.75	\$ 15.75
2		2		408	1,687	HETA 20	\$ 1.50	\$ 3.00
2	V12-55H	6		408	1,687	HETA 20	\$ 1.50	\$ 3.00
1		1		57	12			
1	V16-55H	2		191	910			
		3		57	274			
		1		79	14			
1	V16-55RB	2		264	1,172			
		3		79	353			
		1		262	773			
1	V4-55	2		262	773			
		3						
		1		48	237			
1	V4-55H	2		97	303			
		3		48	237			
		1		51	159			
1	V8-55	2		51	248			
		1		102	457			
		2		205	583			
1	V8-55H	3		102	457			
		1		98	308			
		2		98	481			
1	V8-55RB	1		208	248			
		2		208	823			
		3			248			
				65,172	130,449			\$ 1,085

Table A-6: Truss Costs and Reaction Loads

Price for Phase I house trusses \$2,492
 Change in price: \$427
 Truss Package ID 9
 Design Parameters --> 150/B/E
 Selling Price \$2,919

Quantity	Truss ID	Joint No.	Truss			Connectors		
			Ply	Downward Reaction (lb)	Upward Reaction (lb)	Connector number	Price each	Total Price
6	BJ2	2		145	283	META 16	\$ 0.68	\$ 4.05
		3		52	125	META 16	\$ 0.68	\$ -
		4		19		META 16	\$ 0.68	\$ -
6	BJ4	2		221	384	META 16	\$ 0.68	\$ 4.05
		3		91	289	META 16	\$ 0.68	\$ -
		4		36		META 16	\$ 0.68	\$ -
6	BJ6	2		293	462	META 16	\$ 0.68	\$ 4.05
		4		127	342	META 16	\$ 0.68	\$ -
		5		76	93	META 16	\$ 0.68	\$ -
3	CJ8	2		473	725	META 16	\$ 0.68	\$ 2.03
		7		779	3,483	HPA35	\$ 15.75	\$ -
1	GE2	2		179	273	META 16	\$ 0.68	\$ 0.68
1		10		115	108	META 16	\$ 0.68	\$ 0.68
1		11		277	400	META 16	\$ 0.68	\$ 0.68
1		12		96	144	META 16	\$ 0.68	\$ 0.68
1	GE3	13		166	220	META 16	\$ 0.68	\$ 0.68
1		2		408	664	META 16	\$ 0.68	\$ 0.68
1		4		408	664	META 16	\$ 0.68	\$ 0.68
1	H101	2		1,675	1,777	HETA 20	\$ 1.50	\$ 1.50
1		10		1,675	1,777	HETA 20	\$ 1.50	\$ 1.50
1	H101S	2		1,669	1,777	HETA 20	\$ 1.50	\$ 1.50
1		10		1,597	1,588	HETA 20	\$ 1.50	\$ 1.50
1	H121A	1		1,510	1,535	HETA 20	\$ 1.50	\$ 1.50
1		9		1,510	1,488	META 16	\$ 0.68	\$ 0.68
1	H121S	2		1,669	1,816	HETA 20	\$ 1.50	\$ 1.50
1		10		1,597	1,636	HETA 20	\$ 1.50	\$ -
1	H141S	2		1,675	1,856	HETA 20	\$ 1.50	\$ 1.50
1		11		1,603	1,675	HETA 20	\$ 1.50	\$ 1.50
1	H161S	2		1,669	1,896	HHETA 20	\$ 2.00	\$ 2.00
1		10		1,597	1,715	HETA 20	\$ 1.50	\$ 1.50
1	H181S	2		1,667	1,930	HHETA 20	\$ 2.00	\$ 2.00
1		9		1,597	1,755	HETA 20	\$ 1.50	\$ 1.50
1	H81	2	3	3,694	6,430	HGT-2	\$ 157.94	\$ 157.94
1		12		3,694	6,430	HGT-2	\$ 157.94	\$ 157.94
33	J8	2		345	502	META 16	\$ 0.68	\$ 22.28
		4		99	280	META 16	\$ 0.68	\$ -
		5		190	277	META 16	\$ 0.68	\$ -
1	MH81S	2	3	3,728	6,464	HGT-2	\$ 157.94	\$ 157.94
1		13		3,934	6,806	HGT-2	\$ 157.94	\$ 157.94
4	S1	2		1,679	2,007	HHETA 20	\$ 2.00	\$ 7.98
4		12		1,679	2,007	HHETA 20	\$ 2.00	\$ 7.98
1	SH141SP	2	2	1,602	1,752	HETA 20	\$ 1.50	\$ 1.50
1		15		1,539	1,525	HETA 20	\$ 1.50	\$ 1.50
1	SH161SP	2		1,602	1,790	HETA 20	\$ 1.50	\$ 1.50
1		13		1,539	1,566	HETA 20	\$ 1.50	\$ 1.50
1	SH181SP	2		1,602	1,828	HETA 20	\$ 1.50	\$ 1.50
1		14		1,539	1,608	HETA 20	\$ 1.50	\$ 1.50
1	SH201	2		1,679	1,967	HHETA 20	\$ 2.00	\$ 2.00
1		11		1,679	1,967	HHETA 20	\$ 2.00	\$ 2.00
1	SH201A	2		1,679	1,967	HHETA 20	\$ 2.00	\$ 2.00
1		13		1,616	1,809	HETA 20	\$ 1.50	\$ 1.50
2	T3	2		408	1,174	META 16	\$ 0.68	\$ 1.35
2		6		408	1,174	META 16	\$ 0.68	\$ 1.35
	V12-55H	1		57	5			
		2		191	595			
	V16-55H	3		57	179			
		1		79	4			
		2		264	755			
	V16-55RB	3		79	228			
		1		262	471			
		2		262	471			
	V4-55	1		48	156			
		2		97	197			
		3		48	156			
	V4-55H	1		51	104			
		2		51	163			
	V8-55	1		102	295			
		2		205	371			
		3		102	295			
	V8-55H	1		98	200			
		2		98	316			
	V8-55RB	1		208	409			
		2		208	409			
		3						
				65,172	89,989			\$ 728

Table A-6: Truss Costs and Reaction Loads

Price for Phase I house trusses \$2,492
 Change in price: \$713
 Truss Package ID 10
 Design Parameters --> 150/B/PE
 Selling Price \$3,205

Quantity	Truss ID	Joint No.	Truss			Connectors		
			Ply	Downward Reaction (lb)	Upward Reaction (lb)	Connector number	Price each	Total Price
6	BJ2	2		145	301	META 16	\$ 0.68	\$ 4.05
		3		52	154	META 16	\$ 0.68	\$ -
		4		19		META 16	\$ 0.68	\$ -
6	BJ4	2		221	416	META 16	\$ 0.68	\$ 4.05
		3		91	345	META 16	\$ 0.68	\$ -
		4		36		META 16	\$ 0.68	\$ -
6	BJ6	2		293	514	META 16	\$ 0.68	\$ 4.05
		4		127	404	META 16	\$ 0.68	\$ -
		5		76	116	META 16	\$ 0.68	\$ -
3	CJ8	2		473	641	META 16	\$ 0.68	\$ 2.03
		7		779	1,834	HETA 20	\$ 1.50	\$ -
1	GE2	2		179	302	META 16	\$ 0.68	\$ 0.68
1		10		115	137	META 16	\$ 0.68	\$ 0.68
1	GE3	11		277	511	META 16	\$ 0.68	\$ 0.68
1		12		96	183	META 16	\$ 0.68	\$ 0.68
1		13		166	282	META 16	\$ 0.68	\$ 0.68
1	H101	2		408	778	META 16	\$ 0.68	\$ 0.68
1		4		408	778	META 16	\$ 0.68	\$ 0.68
1	H101S	2		1,675	2,307	HHETA 20	\$ 2.00	\$ 2.00
1		10		1,675	2,307	HHETA 20	\$ 2.00	\$ 2.00
1	H121A	2		1,669	2,299	HHETA 20	\$ 2.00	\$ 2.00
1		10		1,597	2,117	HHETA 20	\$ 2.00	\$ 2.00
1	H121S	1		1,510	2,033	HHETA 20	\$ 2.00	\$ 2.00
1		9		1,510	1,989	HHETA 20	\$ 2.00	\$ 2.00
1	H141S	2		1,669	2,347	PA28	\$ 8.30	\$ 8.30
1		10		1,597	2,166	HHETA 20	\$ 2.00	\$ -
1	H161S	2		1,675	2,387	PA28	\$ 8.30	\$ 8.30
1		11		1,603	2,206	HHETA 20	\$ 2.00	\$ 2.00
1	H181S	2		1,669	2,427	PA28	\$ 8.30	\$ 8.30
1		10		1,597	2,246	HHETA 20	\$ 2.00	\$ 2.00
1	H81	2	3	1,667	2,461	PA28	\$ 8.30	\$ 8.30
1		9		1,597	2,285	HHETA 20	\$ 2.00	\$ 2.00
1	J8	2		3,694	7,771	HGT-2	\$ 157.94	\$ 157.94
1		12		3,694	7,771	HGT-2	\$ 157.94	\$ 157.94
33	MH81S	2		345	576	META 16	\$ 0.68	\$ 22.28
1		4		99	332	META 16	\$ 0.68	\$ -
1		5		190	340	META 16	\$ 0.68	\$ -
1	S1	2	3	3,728	7,818	HGT-2	\$ 157.94	\$ 157.94
1		13		3,934	8,274	HGT-2	\$ 157.94	\$ 157.94
4	SH141SP	2	4-2 ply	1,679	2,541	PA28	\$ 8.30	\$ 33.18
4		12		1,679	2,541	PA28	\$ 8.30	\$ 33.18
1	SH161SP	2	2	1,602	2,258	HHETA 20	\$ 2.00	\$ 2.00
1		15		1,539	2,038	HHETA 20	\$ 2.00	\$ 2.00
1	SH181SP	2	2	1,602	2,297	HHETA 20	\$ 2.00	\$ 2.00
1		13		1,539	2,079	HHETA 20	\$ 2.00	\$ 2.00
1	SH201	2	2	1,602	2,334	PA28	\$ 8.30	\$ 8.30
1		14		1,539	2,122	HHETA 20	\$ 2.00	\$ 2.00
1	SH201A	2		1,679	2,502	PA28	\$ 8.30	\$ 8.30
1		11		1,679	2,502	PA28	\$ 8.30	\$ 8.30
1	T3	2		1,679	2,502	PA28	\$ 8.30	\$ 8.30
1		13		1,616	2,343	PA28	\$ 8.30	\$ 8.30
2	V12-55H	2		408	1,288	META 16	\$ 0.68	\$ 1.35
2		6		408	1,288	META 16	\$ 0.68	\$ 1.35
1	V16-55H	1		57	7			
		2		191	700			
		3		57	211			
1	V16-55RB	1		79	8			
		2		264	900			
		3		79	271			
1	V4-55	1		262	590			
		2		262	590			
		3						
1	V4-55H	1		48	182			
		2		97	231			
		3		48	182			
1	V8-55	1		51	122			
		2		51	191			
		3		102	351			
1	V8-55H	1		205	445			
		2		102	351			
		3		98	235			
1	V8-55RB	1		98	370			
		2		208	503			
		3		208	503			
				65,172	109,733			\$ 845

Table A-6: Truss Costs and Reaction Loads

Price for Phase I house trusses \$2,492
 Change in price: \$828
 Truss Package ID 11
 Design Parameters --> 150/C/E
 Selling Price \$3,320

Quantity	Truss ID	Joint No.	Ply	Truss		Connectors		
				Downward Reaction (lb)	Upward Reaction (lb)	Connector number	Price each	Total Price
6	BJ2	2		145	434	META 16	\$ 0.68	\$ 4.05
		3		52	187	META 16	\$ 0.68	\$ -
		4		19		META 16	\$ 0.68	\$ -
6		2		221	591	META 16	\$ 0.68	\$ 4.05
	BJ4	3		91	434	META 16	\$ 0.68	\$ -
		4		36		META 16	\$ 0.68	\$ -
6		2		293	716	META 16	\$ 0.68	\$ 4.05
	BJ6	4		127	379	META 16	\$ 0.68	\$ -
		5		76	288	META 16	\$ 0.68	\$ -
3		2		473	930	META 16	\$ 0.68	\$ 2.03
	GE2	7		779	2,045	HHETA 20	\$ 2.00	\$ -
1		2		179	422	META 16	\$ 0.68	\$ 0.68
1		10		115	173	META 16	\$ 0.68	\$ 0.68
1		11		277	626	META 16	\$ 0.68	\$ 0.68
1		12		96	224	META 16	\$ 0.68	\$ 0.68
1		13		166	345	META 16	\$ 0.68	\$ 0.68
1		2		408	1,030	META 16	\$ 0.68	\$ 0.68
	GE3	4		408	1,030	META 16	\$ 0.68	\$ 0.68
1		2		1,675	2,837	HPA35	\$ 15.75	\$ 15.75
1	10		1,675	2,837	HPA35	\$ 15.75	\$ 15.75	
1	2		1,669	2,827	HPA35	\$ 15.75	\$ 15.75	
1	10		1,597	2,551	PA28	\$ 8.30	\$ 8.30	
1	1		1,510	2,461	PA28	\$ 8.30	\$ 8.30	
1	9		1,510	2,392	PA28	\$ 8.30	\$ 8.30	
1	2		1,669	2,896	HPA35	\$ 15.75	\$ 15.75	
	H121S	10		1,597	2,622	PA28	\$ 8.30	\$ -
1		2		1,675	2,954	HPA35	\$ 15.75	\$ 15.75
1	11		1,603	2,681	PA28	\$ 8.30	\$ 8.30	
1	2		1,669	3,013	HPA35	\$ 15.75	\$ 15.75	
1	10		1,597	2,739	PA28	\$ 8.30	\$ 8.30	
1	2		1,667	3,063	HPA35	\$ 15.75	\$ 15.75	
1	9		1,597	2,798	HPA35	\$ 15.75	\$ 15.75	
1	2	2	3,694	5,807	HGT-2	\$ 157.94	\$ 157.94	
1	12		3,694	5,807	HGT-2	\$ 157.94	\$ 157.94	
33	2		345	784	META 16	\$ 0.68	\$ 22.28	
	4		99	422	META 16	\$ 0.68	\$ -	
	5		190	436	META 16	\$ 0.68	\$ -	
1	2	3	3,728	9,774	HGT4	\$ 161.76	\$ 161.76	
1	13		3,934	10,588	HGT4	\$ 161.76	\$ 161.76	
4	2	4-2ply	1,679	3,177	HPA35	\$ 15.75	\$ 63.00	
4	12		1,679	3,177	HPA35	\$ 15.75	\$ 63.00	
1	2	2	1,602	2,792	HPA35	\$ 15.75	\$ 15.75	
1	15		1,539	2,451	PA28	\$ 8.30	\$ 8.30	
1	2	2	1,602	2,847	HPA35	\$ 15.75	\$ 15.75	
1	13		1,539	2,512	PA28	\$ 8.30	\$ 8.30	
1	2	2	1,602	2,902	HPA35	\$ 15.75	\$ 15.75	
1	14		1,539	2,575	PA28	\$ 8.30	\$ 8.30	
1	2		1,679	3,118	HPA35	\$ 15.75	\$ 15.75	
1	11		1,679	3,118	HPA35	\$ 15.75	\$ 15.75	
1	2		1,679	3,118	HPA35	\$ 15.75	\$ 15.75	
1	13		1,616	2,879	HPA35	\$ 15.75	\$ 15.75	
2	2		408	1,030	META 16	\$ 0.68	\$ 1.35	
2	6		408	1,030	META 16	\$ 0.68	\$ 1.35	
	1		57	11				
	2		191	896				
	3		57	270				
	1		79	13				
	2		264	1,139				
	3		79	343				
	1		262	719				
	2		262	719				
	3							
	1		48	234				
	2		97	299				
	3		48	234				
	1		51	157				
	2		51	245				
	1		102	444				
	2		205	566				
	3		102	444				
	1		98	304				
	2		98	475				
	1		208	622				
	2		208	622				
	3							
			65,172	127,625			\$ 1,112	

Table A-6: Truss Costs and Reaction Loads

Price for Phase I house trusses \$2,492
 Change in price: \$1,399
 Truss Package ID 12
 Design Parameters --> 150/C/PE
 Selling Price \$3,891

Quantity	Truss ID	Joint No.	Ply	Truss		Connectors		Total Price
				Downward Reaction (lb)	Upward Reaction (lb)	Connector number	Price each	
6	BJ2	2		145	460	META 16	\$ 0.68	\$ 4.05
		3		52	230	META 16	\$ 0.68	\$ -
		4		19		META 16	\$ 0.68	\$ -
6	BJ4	2		221	639	META 16	\$ 0.68	\$ 4.05
		3		91	516	META 16	\$ 0.68	\$ -
		4		36		META 16	\$ 0.68	\$ -
6	BJ6	2		293	793	META 16	\$ 0.68	\$ 4.05
		4		127	443	META 16	\$ 0.68	\$ -
		5		76	350	META 16	\$ 0.68	\$ -
3	CJ8	2		473	1,004	META 16	\$ 0.68	\$ 2.03
		7		779	2,808	HPA35	\$ 15.75	\$ -
1	GE2	2		179	466	META 16	\$ 0.68	\$ 0.68
1		10		115	217	META 16	\$ 0.68	\$ 0.68
1	GE3	11		277	790	META 16	\$ 0.68	\$ 0.68
1		12		96	282	META 16	\$ 0.68	\$ 0.68
1		13		166	437	META 16	\$ 0.68	\$ 0.68
1	H101	2		408	1,199	META 16	\$ 0.68	\$ 0.68
1		4		408	1,199	META 16	\$ 0.68	\$ 0.68
1	H101S	2		1,675	3,621	HPA35	\$ 15.75	\$ 15.75
1		10		1,675	3,621	HPA35	\$ 15.75	\$ 15.75
1	H121A	2		1,669	3,608	HPA35	\$ 15.75	\$ 15.75
1		10		1,597	3,332	HPA35	\$ 15.75	\$ 15.75
1	H121S	1		1,510	3,199	HPA35	\$ 15.75	\$ 15.75
1		9		1,510	3,131	HPA35	\$ 15.75	\$ 15.75
1	H141S	2		1,669	3,679	HPA35	\$ 15.75	\$ 15.75
1		10		1,597	3,406	HPA35	\$ 15.75	\$ -
1	H161S	2		1,675	3,738	HPA35	\$ 15.75	\$ 15.75
1		11		1,603	3,465	HPA35	\$ 15.75	\$ 15.75
1	H181S	2		1,669	3,797	HPA35	\$ 15.75	\$ 15.75
1		10		1,597	3,523	HPA35	\$ 15.75	\$ 15.75
1	H81	2	3	1,667	3,847	HPA35	\$ 15.75	\$ 15.75
1		9		1,597	3,582	HPA35	\$ 15.75	\$ 15.75
1	J8	2		3,694	9,077	HGT-3	\$ 159.81	\$ 159.81
1		12		3,694	9,077	HGT-3	\$ 159.81	\$ 159.81
33	MH81S	2		345	893	META 16	\$ 0.68	\$ 22.28
1		4		99	500	META 16	\$ 0.68	\$ -
1		5		190	530	META 16	\$ 0.68	\$ -
1	S1	2	3	3,728	9,141	HGT-3	\$ 159.81	\$ 159.81
1		13		3,934	9,752	HGT4	\$ 161.76	\$ 161.76
4	SH141SP	2	4-2 ply	1,679	3,967	HPA35	\$ 15.75	\$ 63.00
4		12		1,679	3,967	HPA35	\$ 15.75	\$ 63.00
1	SH161SP	2	3	1,602	3,540	HPA35	\$ 15.75	\$ 15.75
1		15		1,539	3,207	HPA35	\$ 15.75	\$ 15.75
1	SH181SP	2	2	1,602	3,569	HPA35	\$ 15.75	\$ 15.75
1		13		1,539	3,269	HPA35	\$ 15.75	\$ 15.75
1	SH201	2	2	1,602	3,650	HPA35	\$ 15.75	\$ 15.75
1		14		1,539	3,332	HPA35	\$ 15.75	\$ 15.75
1	SH201A	2		1,679	3,908	HPA35	\$ 15.75	\$ 15.75
1		11		1,679	3,908	HPA35	\$ 15.75	\$ 15.75
1	T3	2		1,679	3,908	HPA35	\$ 15.75	\$ 15.75
1		13		1,616	3,669	HPA35	\$ 15.75	\$ 15.75
2	V12-55H	2		408	1,199	META 16	\$ 0.68	\$ 1.35
2		6		408	1,199	META 16	\$ 0.68	\$ 1.35
	V16-55H	1		57	15			
		2		191	1,050			
	V16-55RB	3		57	316			
		1		79	18			
	V4-55	2		264	1,352			
		3		79	407			
	V4-55H	1		98	336			
		2		328	1,118			
	V8-55	3		98	336			
		1		48	273			
	V8-55H	2		48	273			
		3		97	350			
	V8-55RB	1		51	184			
		2		51	286			
		1		102	527			
		2		205	675			
		3		102	527			
		1		98	356			
		2		98	554			
		1		208	761			
		2		208	761			
		3						
				65,172	157,119			\$ 1,173

A.3.4 Wall and Roof Deck Design Details

The exterior walls must be designed for appropriate wind load conditions. Fill cell spacing and shear wall lengths were calculated to determine if additional fill cells were required for any of the design cases. Spacing of fill cells was reduced from 9' 4" inches for low wind speed design to 6' for higher wind speeds, thus requiring more filled cells for a given wall length. The design pressure requirements are also provided for each case shown in the Table A-5. It should be noted that wall height is a factor in these calculations and for the study houses a 10' maximum wall height was used.

According to this builder the cost estimate for an 8' fill cell is \$8.50 each. Costs reported reflect this estimate. Price calculations for the increased number of cells required are shown in Table A-8.

The roof deck nailing pattern requirement was also determined for each design case. Results range from the commonly used 6"/12" (6" spacing on the edge of the sheathing/12" spacing in the interior (field) of the panel) to 6"/8" and 6"/6" in the highest wind design cases. Costs provided by this builder's framing contractor indicated there would be no increase in cost for the closer nailing when required.

These design calculations were prepared by Steve Darby, P.E. An example of the design calculations used in this project is given in Appendix J.

Table A-7: Design Details for Mercedes Masonry Home using FBC

Wind Speed (mph gust)	Exposure	Enclosed/ Partially Enclosed	Pressure (psf), Zone 4 & 5	Fill Cell Spacing	Shearwall Length	Additional Fill Cells	Roof Deck Nail Pattern Edge/Int-8d
120	B	E	-24.22	9.33'	3'	5	6"/16"
120	C	E	-29.75	8.67'	4'	6	6"/12"
120	B	P	-32.35	8.00'	3'	6	6"/12"
120	C	P	-39.73	7.33'	4'	7	6"/9.6"
130	B	E	-28.43	8.67'	3'	6	6"/12"
130	C	E	-34.92	8.00'	4'	6	6"/9.6"
130	B	P	-37.96	7.33'	3'	7	6"/9.6"
130	C	P	-46.63	6.67'	4'	7	6"/8"
140	B	E	-32.97	8.00'	4'	6	6"/9.6"
140	C	E	-40.50	7.33'	5'	7	6"/8"
140	B	P	-44.03	6.67'	4'	7	6"/9.6"
140	C	P	-54.07	6.00'	5'	8	6"/8"
150	B	E	-37.85	7.33'	4'	7	6"/9.6"
150	C	E	-46.49	6.67'	5'	7	6"/8"
150	B	P	-50.54	6.67'	4'	7	6"/8"
150	C	P	-62.08	6.00'	5'	8	6"/6.86"

1. Wall height of 10 ft used.

Table A-8: Cost of Additional Fill Cells

Wind Speed (mph, gust)	Exposure	Enclosed/ Partially Enclosed	No. Additional Fill Cells	Cost (\$)
120	B	E	5	42.50
120	C	E	6	51.00
120	B	P	6	51.00
120	C	P	7	59.50
130	B	E	6	51.00
130	C	E	6	51.00
130	B	P	7	59.50
130	C	P	7	59.50
140	B	E	6	51.00
140	C	E	7	59.50
140	B	P	7	59.50
140	C	P	8	68.00
150	B	E	7	59.50
150	C	E	7	59.50
150	B	P	7	59.50
150	C	P	8	68.00

A.3.5 Opening (Window, Door, Sliding Glass Door and Garage Door) Design Pressures and Pricing

For any given set of wind speed, exposure and enclosure conditions, design pressure requirements for windows and doors (of all types) will additionally vary based on the size of the unit, mean roof height, and location of the unit on the exterior of the building. Tables A-9 and A-10 provide a summary of the costs for all openings on this house. Additionally, individual design pressure data for design pressure requirements and prices for non-impact and impact rated units is presented for all 29 design cases shown in Table A-1. Prices for individual units reflect discounts provided by the suppliers, except for the garage doors, and do not include installation costs that are reported separately.

Table A-9 shows that prices for non-impact rated units will range from \$2,143 to \$4,631 depending on wind conditions. Prices for impact rated units range from \$7,864 to \$8,246 for the same reason. As indicated earlier, these figures are based on the specific house with specific windows and doors. Caution must be exercised when considering price changes for other house designs. A typical discount afforded to builders has been included in the summarized costs in Table A-9. Note that the fenestration prices in Table A-10 reflect the list price.

Table A-9: Summary of Opening Costing for FBC Design Cases

Wind Speed	Enclosed				Partially Enclosed	
	B		C		B	C
	Non Impact	Impact	Non Impact	Impact	Non Impact	Non Impact
100	\$2,143	N/R	N/R	N/R	N/R	N/R
110	\$2,258	N/R	N/R	N/R	N/R	N/R
120	\$2,290	\$7,864	\$2,642	\$7,887	\$2,649	\$2,855
130	\$2,628	\$7,943	\$2,848	\$8,092	\$2,855	\$3,109
140	\$2,846	\$8,149	\$3,055	\$8,246	\$3,058	\$3,311
150	\$2,902	\$8,149	\$3,130	\$8,246	\$3,228	\$4,631

Notes: N/R = not required

Table A-10: List Prices of Windows

Internal Pressure Design		Enclosed								Partially Enclosed					
Wind Speed	Exposure Fenestration	B				C				B			C		
		Neg DP (psf)	Pos DP (psf)	Cost for Non Impact	Cost for Impact	Neg DP (psf)	Pos DP (psf)	Cost for Non Impact	Cost for Impact	Neg DP (psf)	Pos DP (psf)	Cost for Non Impact	Neg DP (psf)	Pos DP (psf)	Cost for Non Impact
		100	3068 Door	-18.49	16.97	\$ 134									
	16070 Garage door	-17.02	15.16	\$ 625											
	6068 Slider	-17.89	16.36	\$ 426											
	2-26SH W/half eyebrow	-21.09	16.49	\$ 155											
	2-26SH W/half eyebrow	-18.02	16.49	\$ 155											
	35 SH	-18.70	17.18	\$ 170											
	35 SH	-18.70	17.18	\$ 170											
	35 SH	-18.70	17.18	\$ 170											
	35 SH	-18.70	17.18	\$ 170											
	35 SH	-18.70	17.18	\$ 170											
	24 SH Temp Obscure	-19.30	17.78	\$ 189											
	Windows			\$1,349											
	All			\$2,534											
110	3068 Door	-22.37	20.53	\$ 134											
	16070 Garage door	-20.59	18.35	\$ 769											
	6068 Slider	-21.64	19.80	\$ 426											
	2-26SH W/half eyebrow	-21.80	19.95	\$ 155											
	2-26SH W/half eyebrow	-25.52	19.95	\$ 155											
	35 SH	-22.63	20.79	\$ 170											
	35 SH	-22.63	20.79	\$ 170											
	35 SH	-22.63	20.79	\$ 170											
	35 SH	-22.63	20.79	\$ 170											
	35 SH	-22.63	20.79	\$ 170											
	24 SH Temp Obscure	-23.35	21.51	\$ 189											
	Windows			\$1,349											
	All			\$2,678											

Table A-10: List Prices of Windows

Internal Pressure Design		Enclosed								Partially Enclosed					
Wind Speed	Exposure	B				C				B			C		
	Fenestration	Neg DP (psf)	Pos DP (psf)	Cost for Non Impact	Cost for Impact	Neg DP (psf)	Pos DP (psf)	Cost for Non Impact	Cost for Impact	Neg DP (psf)	Pos DP (psf)	Cost for Non Impact	Neg DP (psf)	Pos DP (psf)	Cost for Non Impact
	120	3068 Door	-26.63	24.43	\$ 134	\$ 134	-32.26	29.60	\$ 134	\$ 134	-34.75	32.55	\$ 134	-42.10	39.44
	16070 Garage door	-24.50	21.84	\$ 769	\$ 769	-29.69	26.46	\$ 868	\$ 868	-32.63	29.96	\$ 868	-39.53	36.30	\$1,125
	6068 Slider	-25.76	23.56	\$ 426	\$1,850	-31.21	28.55	\$ 447	\$ 1,850	-33.88	31.68	\$ 447	-41.05	38.39	\$ 447
	2-26SH W/half eyebrow	-30.37	23.75	\$ 193	\$ 964	-36.80	28.77	\$ 193	\$ 964	-38.49	31.87	\$ 197	-46.64	38.62	\$ 197
	2-26SH W/half eyebrow	-25.94	23.75	\$ 155	\$ 964	-31.43	28.77	\$ 193	\$ 964	-34.07	31.87	\$ 197	-41.28	38.62	\$ 197
	35 SH	-26.93	24.74	\$ 170	\$ 806	-32.63	29.97	\$ 219	\$ 806	-35.05	32.86	\$ 219	-42.47	39.82	\$ 219
	35 SH	-26.93	24.74	\$ 170	\$ 806	-32.63	29.97	\$ 219	\$ 806	-35.05	32.86	\$ 219	-42.47	39.82	\$ 219
	35 SH	-26.93	24.74	\$ 170	\$ 806	-32.63	29.97	\$ 219	\$ 806	-35.05	32.86	\$ 219	-42.47	39.82	\$ 219
	35 SH	-26.93	24.74	\$ 170	\$ 806	-32.63	29.97	\$ 219	\$ 806	-35.05	32.86	\$ 219	-42.47	39.82	\$ 219
	35 SH	-26.93	24.74	\$ 170	\$ 806	-32.63	29.97	\$ 219	\$ 806	-35.05	32.86	\$ 219	-42.47	39.82	\$ 219
	24 SH Temp Obscure	-27.79	25.60	\$ 189	\$ 562	-33.68	31.02	\$ 206	\$ 496	-35.91	33.72	\$ 206	-43.52	40.86	\$ 206
	Windows			\$1,387	\$6,520			\$1,687	\$6,454			\$1,695			\$1,695
	All			\$2,716	\$9,273			\$3,136	\$9,306			\$3,144			\$3,401
130	3068 Door	-31.25	28.67	\$ 134	\$ 134	-37.86	34.74	\$ 134	\$ 134	-40.78	38.20	\$ 134	-49.41	46.29	\$ 134
	16070 Garage door	-28.76	25.63	\$ 868	\$ 868	-34.85	31.05	\$1,125	\$1,125	-38.29	35.16	\$1,125	-46.40	42.60	\$1,317
	6068 Slider	-30.23	27.65	\$ 447	\$1,850	-36.63	33.51	\$ 447	\$1,850	-39.76	37.19	\$ 447	-48.18	45.06	\$ 447
	2-26SH W/half eyebrow	-35.65	27.87	\$ 193	\$ 964	-43.19	33.77	\$ 193	\$ 964	-45.18	37.40	\$ 197	-54.74	45.32	\$ 256
	2-26SH W/half eyebrow	-30.45	27.87	\$ 193	\$ 964	-36.89	33.77	\$ 193	\$ 964	-39.98	37.40	\$ 197	-48.44	45.32	\$ 256
	35 SH	-31.61	29.03	\$ 219	\$ 806	-38.30	35.18	\$ 219	\$ 806	-41.14	38.56	\$ 219	-49.85	46.73	\$ 219
	35 SH	-31.61	29.03	\$ 219	\$ 806	-38.30	35.18	\$ 219	\$ 806	-41.14	38.56	\$ 219	-49.85	46.73	\$ 219
	35 SH	-31.61	29.03	\$ 219	\$ 806	-38.30	35.18	\$ 219	\$ 806	-41.14	38.56	\$ 219	-49.85	46.73	\$ 219
	35 SH	-31.61	29.03	\$ 219	\$ 806	-38.30	35.18	\$ 219	\$ 806	-41.14	38.56	\$ 219	-49.85	46.73	\$ 219
	35 SH	-31.61	29.03	\$ 219	\$ 806	-38.30	35.18	\$ 219	\$ 806	-41.14	38.56	\$ 219	-49.85	46.73	\$ 219
	24 SH Temp Obscure	-32.62	30.04	\$ 189	\$ 562	-39.52	36.4	\$ 206	\$ 496	-42.15	39.57	\$ 206	-51.07	47.95	\$ 206
	Windows			\$1,670	\$6,520			\$1,687	\$6,454			\$1,695			\$1,813
	All			\$3,119	\$9,372			\$3,393	\$9,563			\$3,401			\$3,711

A.3.6 Options to Meet 2001 Energy Code

Energy code changes may require builders to change designs or products currently used in order to comply with the 2001 Energy Code. In simple terms, energy audits consist of rating a building in terms of the heating, cooling and energy consumption features. These numeric ratings are calculated relative to a baseline feature. To meet the energy requirements, a builder must select a combination of features that yields a total rating (called an E-ratio) of equal to or less than 100. Under the FBC, the baseline features to which the ratings are relative have been changed. As a result, the impact on builders will only be felt when the current energy package used by the builder is minimally compliant with the SBC requirements.

Table A-10: List Prices of Windows

Internal Pressure Design		Enclosed								Partially Enclosed					
Wind Speed	Exposure	B				C				B			C		
	Fenestration	Neg DP (psf)	Pos DP (psf)	Cost for Non Impact	Cost for Impact	Neg DP (psf)	Pos DP (psf)	Cost for Non Impact	Cost for Impact	Neg DP (psf)	Pos DP (psf)	Cost for Non Impact	Neg DP (psf)	Pos DP (psf)	Cost for Non Impact
	140	3068 Door	-36.24	33.25	\$ 134	\$ 134	-43.91	40.29	\$ 134	\$ 134	-47.3	44.31	\$ 134	-57.31	53.69
	16070 Garage door	-33.35	29.72	\$1,125	\$1,125	-40.41	36.01	\$1,317	\$1,317	-44.41	40.78	\$1,317	-53.81	49.41	\$1,450
	6068 Slider	-35.06	32.07	\$ 447	\$1,850	-42.48	38.86	\$ 447	\$1,850	-46.11	43.13	\$ 447	-55.87	52.25	\$ 510
	2-26SH W/half eyebrow	-41.34	32.32	\$ 193	\$ 964	-50.09	39.17	\$ 256	\$ 964	-52.4	43.38	\$ 256	-63.49	52.56	\$ 281
	2-26SH W/half eyebrow	-35.31	32.32	\$ 193	\$ 964	-42.79	39.17	\$ 193	\$ 964	-46.37	43.38	\$ 197	-56.18	52.56	\$ 281
	35 SH	-36.66	33.67	\$ 219	\$ 806	-44.42	40.8	\$ 219	\$ 806	-47.71	44.73	\$ 219	-57.81	54.19	\$ 219
	35 SH	-36.66	33.67	\$ 219	\$ 806	-44.42	40.8	\$ 219	\$ 806	-47.71	44.73	\$ 219	-57.81	54.19	\$ 219
	35 SH	-36.66	33.67	\$ 219	\$ 806	-44.42	40.8	\$ 219	\$ 806	-47.71	44.73	\$ 219	-57.81	54.19	\$ 219
	35 SH	-36.66	33.67	\$ 219	\$ 806	-44.42	40.8	\$ 219	\$ 806	-47.71	44.73	\$ 219	-57.81	54.19	\$ 219
	35 SH	-36.66	33.67	\$ 219	\$ 806	-44.42	40.8	\$ 219	\$ 806	-47.71	44.73	\$ 219	-57.81	54.19	\$ 219
	24 SH Temp Obscure	-37.83	34.84	\$ 204	\$ 562	-45.84	42.22	\$ 206	\$ 496	-48.88	45.9	\$ 206	-59.23	55.61	\$ 206
	Windows			\$1,685	\$6,520			\$1,750	\$6,454			\$1,754			\$1,863
	All			\$3,391	\$9,629			\$3,648	\$9,755			\$3,652			\$3,957
150	3068 Door	-41.6	38.17	\$ 134	\$ 134	-50.41	46.25	\$ 134	\$ 134	-54.29	50.86	\$ 134	-65.79	61.63	
	16070 Garage door	-38.29	34.12	\$1,125	\$1,125	-46.39	41.34	\$ 1,317	\$1,317	-50.98	46.81	\$1,317	-61.77	56.72	\$1,450
	6068 Slider	-40.25	36.82	\$ 447	\$1,850	-48.76	44.61	\$ 447	\$1,850	-52.94	49.51	\$ 510	-64.14	59.99	\$ 510
	2-26SH W/half eyebrow	-47.46	37.11	\$ 193	\$ 964	-57.5	44.96	\$ 281	\$ 964	-60.15	49.8	\$ 281	-72.88	60.34	\$ 964
	2-26SH W/half eyebrow	-40.54	37.11	\$ 193	\$ 964	-49.12	44.96	\$ 256	\$ 964	-53.23	49.8	\$ 281	-64.49	60.34	\$ 964
	35 SH	-42.08	38.65	\$ 219	\$ 806	-50.99	46.83	\$ 219	\$ 806	-54.77	51.34	\$ 219	-66.37	62.21	\$ 288
	35 SH	-42.08	38.65	\$ 219	\$ 806	-50.99	46.83	\$ 219	\$ 806	-54.77	51.34	\$ 219	-66.37	62.21	\$ 288
	35 SH	-42.08	38.65	\$ 219	\$ 806	-50.99	46.83	\$ 219	\$ 806	-54.77	51.34	\$ 219	-66.37	62.21	\$ 288
	35 SH	-42.08	38.65	\$ 219	\$ 806	-50.99	46.83	\$ 219	\$ 806	-54.77	51.34	\$ 219	-66.37	62.21	\$ 288
	35 SH	-42.08	38.65	\$ 219	\$ 806	-50.99	46.83	\$ 219	\$ 806	-54.77	51.34	\$ 219	-66.37	62.21	\$ 288
	24 SH Temp Obscure	-43.43	40.00	\$ 204	\$ 562	-52.62	48.46	\$ 206	\$ 496	-56.12	52.69	\$ 234	-68.00	63.84	\$ 206
	Windows			\$1,685	\$6,520			\$1,838	\$6,454			\$1,891			\$3,574
	All			\$3,391	\$9,629			\$3,736	\$9,755			\$3,852			\$5,534

This builder currently builds houses with energy features that exceed the minimum requirements for the SBC and also exceed the new requirements of the FBC. Therefore, no changes were required in this work, and no cost impact has been included in the cost summaries.

However, some builders may build with minimal SBC energy features and, therefore, will not meet the new requirements of the FBC. In this case, changes to the building would be required. To illustrate what could be done, the Department of Community Affairs prepared Table A-11 that shows several options and methods of meeting the new code. The As-Built case is what the builder currently uses as a standard energy package. Under the SBC, the builder is well within the energy requirements. The first three rows of Table A-11 show how this package scores in the SBC and FBC. If this home was built in the Central or the South regions of the State, the As-Built house would also meet the FBC.

The remaining nine rows of the table show this house with a set of features that minimally meet the SBC requirements (Min SBC Comp.) which does not meet the requirements under the FBC and a couple of options are listed that will meet the FBC energy requirements. Several options are presented to make the houses comply with the FBC.

- Glass type: Single Clear, Double Clear, Single Tinted, or Double Tinted.
- Ceiling R Value: R-19 or R-30
- Cooling SEER: 10, 10.5, or 11
- Heating Option: Heat Pump or Electric Strip Heaters
- Location of Air Handling Unit: Interior or Garage
- Water Heater Rating (EF)

Builders will have to examine current construction practices for each house they build to determine the impact of the 2001Code.

Table A-11: Mercedes Masonry Energy Code Options

House Description Masonry	Zone	Glass Type/%	Ceiling R-Value	Wall R-Value	Cool SEER	Heat HSPF/COP	AHU Location	Water Heater EF	E-Ratio '97	E-Ratio '01
									SBC	FBC
As- Built	North	Sgl Clr 13	30	4.2	11	7.2	Interior	0.96	97	103
As- Built	Central	Sgl Clr 13	30	4.2	11	7.2	Interior	0.96	79	95
As- Built	South	Sgl tint 13	30	4.2	11	7.2	Interior	0.96	80	89
Min SBC Comp	North	Dbl Clr 13	30	4.2	10	6.8	Garage	0.92	100	105
FBC Option #1	North	Dbl Clr 13	30	5.2	11	7.2	Garage	0.88		99
FBC Option #2	North	Dbl Clr 13	30	4.2	10.5	7	Interior	0.88		99
Min SBC Comp	Central	Sgl Clr 13	30	4.2	10.5	Electric Strip	Interior	0.91	99	120
FBC Option #1	Central	Sgl Clr 13	19	4.2	11	7.2	Interior	0.91		100
FBC Option #2	Central	Sgl tint 13	30	4.2	11	7.2	Garage	0.91		99
Min SBC Comp	South	Sgl Clr 13	19	4.2	10	Electric Strip	Garage	0.88	99	112
FBC Option #1	South	Sgl Clr 13	30	4.2	11	Electric Strip	Garage	0.96		99
FBC Option #2	South	Sgl tint 13	19	4.2	11	Electric Strip	Interior	0.88		99

- E- Ratio '97 column indicates As-Built house is compliant in all three zones under SBC.
- E-Ration '01 column shows As-Built house meets FBC except in North zone.
- Min. SBC comp = minimum compliant according to SBC.
- FBC Options are possible versions of Min. SBC Comp that meet FBC requirements.

A.3.7 Impact Resistant Covering (Shutters) Pricing

Many options exist for impact resistant coverings:

- Structural Wood Panels
- Storm Panels:
- Steel
- Aluminum
- Acrylic/Polycarbonate

- Accordion Shutters
- Roll Shutters
- Bahama Shutters
- Colonial Shutters
- Flexible Screen Products
- Others

Pricing varies due to the product selected for use and installation requirements for each opening and product. For this project direct mounted steel storm panels were used in the cost analysis. Additionally, for comparison, we priced direct mounted aluminum panels and track mounted steel and aluminum panels and wood structural panels for this home.

Many options exist and choices of products used will be made based on many factors including the applicability of specific products to the specific openings. For example, the FBC limits the use of wood panels to buildings with a mean roof height of 33 feet (essentially a 2 story building) and panels can be no larger than 8 feet. Builders are advised to secure specific quotations from suppliers for each home to properly assess pricing.

Table A-12 shows the shutter pricing for each window and glazed opening on the house. The area of each opening was increased by 20% to allow the shutter to overlap the wall by approximately 6 inches. These prices include installation costs by a professional installer.

Cost for wood panels was calculated as follows:

- Add 6 inches to the opening size in both directions to allow for overlap of the panel on wall.
- Determine cutting pattern for 4 x 8 sheets of material to calculate number of sheets required.
- Use the prices shown in Table 3-8 for the material and \$25 per hour for labor.
- Pre-drill holes in panels.
- Provide anchors in masonry walls.
- For nine glazed openings ten sheets of 7/16 OSB are required: cost = \$60 plus tax.
- Labor is estimated at 16 hours for a cost of \$400.
- Fasteners and anchors estimated at: \$50.
- Total cost of \$610 or \$2.81per square foot of rough opening (217 square feet of rough opening).

Table A-12: Pricing of Shutters for Mercedes Home

Fenestration	Width (ft)	Height (ft)	Square Ft.	Add 20% Area	Steel Panels			Aluminum Panels		
					Direct Mount Price	Add for track	Track Mount Price	Direct Mount Price	Add for track	Track Mount Price
2-26SH	3.08	8.00	24.6	29.6	\$ 74	\$ 24	\$ 98	\$ 108	\$ 24	\$ 132
2-26SH	3.08	8.00	24.6	29.6	\$ 74	\$ 24	\$ 98	\$ 108	\$ 24	\$ 132
3068 Door	3.00	6.66	20.0	24.0	\$ 60	\$ 19	\$ 79	\$ 88	\$ 19	\$ 107
35 SH	4.42	5.25	23.2	27.8	\$ 70	\$ 22	\$ 92	\$ 102	\$ 22	\$ 124
35 SH	4.42	5.25	23.2	27.8	\$ 70	\$ 22	\$ 92	\$ 102	\$ 22	\$ 124
35 SH	4.42	5.25	23.2	27.8	\$ 70	\$ 22	\$ 92	\$ 102	\$ 22	\$ 124
35 SH	4.42	5.25	23.2	27.8	\$ 70	\$ 22	\$ 92	\$ 102	\$ 22	\$ 124
35 SH	4.42	5.25	23.2	27.8	\$ 70	\$ 22	\$ 92	\$ 102	\$ 22	\$ 124
6068 Slider	6.00	6.66	40.0	48.0	\$120	\$ 38	\$158	\$ 175	\$ 38	\$ 213
24 SH Temp	3.08	4.16	12.8	15.4	\$ 38	\$ 12	\$ 51	\$ 56	\$ 12	\$ 68
Total					\$717	\$ 229	\$943	\$1,046	\$ 229	\$1,271