Table K.3.7-1
Postulated Accident Loading Identification

Accident Load Type	Section Reference	NUHOMS® Component Affected				
		DSC Shell Assembly	DSC Basket	DSC Support Structure	HSM	On-Site Transfer Cask
Loss of Adjacent HSM Shielding Effects	8.2.1	(radiological consequence only)				
Tornado Wind	8.2.2				X	X
Tornado Missiles	8.2.2				X	X
Earthquake	8.2.3	X	X	X	X	X
Flood	8.2.4	X			X	
Accident Cask Drop	8.2.5	X	X			X
Loss of Cask Neutron Shield	8.2.5					X
Lightning	8.2.6				X	
Blockage of HSM Air Inlets and Outlets	8.2.7	X	X	X	X	
DSC Leakage	8.2.8	(radiological consequence only)				
DSC Accident Internal Pressure	8.2.9	X				
Load Combinations	8.2.10	X	X	X	X	X

Table K.3.7-2
HSM Limiting Component Evaluation – NUHOMS®-61BT vs. -52B

Component	Stress Ratio (or Demand/Capacity) (1)		
	52B	61BT(3)	Status
HSM Concrete Floor	0.71	0.81	Acceptable
HSM Concrete Side Wall	0.69	0.79	Acceptable
HSM Concrete Front Wall	0.94	1.07	Further evaluation gives a ratio of 0.94(2)
DSC Steel Support Column	0.80	0.91	Acceptable
DSC Steel Support Wall Attachment Bolt	0.74	0.84	Acceptable
DSC Steel Support Rail Extension Plates	0.93	1.06	Further evaluation gives a ratio of 0.94(2)
DSC Steel Support Rail Stiffener Weld	0.86	0.98	Acceptable
DSC Steel Support Stop Plate Stiffener Weld	0.86	0.98	Acceptable
DSC Steel Support Beam Flange to Stiffener Weld	0.89	1.01	Further evaluation gives a ratio of 0.98(2)
HSM Concrete Floor Embedment	0.76	0.87	Acceptable

Notes:
1. Accident thermal and HSM binding load conditions/combinations are not included because the DSC weight has essentially no effect on these results.
2. The stress ratio is governed by thermal loading for these components. The scaling of the deadweight effects by a factor of 1.11 and seismic effects by a factor of 1.14 results in a negligible or small increase in the combined stress ratio.
3. Values are conservatively based on a factor of 1.14 times the NUHOMS®-52B stress ratios.

Table K.3.7-3
Maximum NUHOMS®-61BT DSC Stresses for Drop Accident Loads(2)

DSC Components	Stress Type	Calculated Stress (ksi)(1)	
		Vertical	Horizontal
DSC Shell	Primary Membrane	11.93	35.85
	Membrane + Bending	31.78	58.98
Inner Top Cover Plate	Primary Membrane	1.70	32.34
	Membrane + Bending	1.90	55.21
Outer Top Cover Plate	Primary Membrane	1.70	39.84
	Membrane + Bending	2.25	54.89
Inner Bottom Cover Plate	Primary Membrane	6.37	22.80
	Membrane + Bending	23.78	56.77
Outer Bottom Cover Plate	Primary Membrane	1.70	32.39
	Membrane + Bending	3.07	47.04
Top Cover Plate Weld(2)	Primary	0.95	21.11
Bottom Cover Plate Weld	Primary	0.67	9.13

Notes:
(1) Values shown are maximums irrespective of location.
(2) Stress values are the envelope of drop loads with and without 20psig internal pressure.

Table K.3.7-4
Fuel Assembly Weight Simulation Based on 1g Load

Drop Orientations	Pressure Applied to Horizontal Plates P × Sin θ (psi)	Pressure Applied to Vertical Plates P × Cos θ (psi)
90° and 180°	0.6911	-
45°	0.4887	0.4887
60°	0.5985	0.3456
161.5°	0.6554	0.2193

Table K.3.7-5
Stress Summary of the Basket Due to Side Drop Loads – 75G

Drop Orientation	Component	Stress Category	Max. Stress (ksi)	Allowable Stress (ksi)[1]	Reference Figures
45° Side Drop	Basket	P_m	14.54	44.38	Figure K.3.7-6
		$P_m + P_b$	27.12	57.06	Figure K.3.7-7
	Rails	P_m	16.52	44.38	Figure K.3.7-8
		$P_m + P_b$	25.27	57.06	Figure K.3.7-9
	Canister	P_m	2.01	44.38	Figure K.3.7-10
		$P_m + P_b$	19.60	57.06	Figure K.3.7-11
60° Side Drop	Basket	P_m	14.43	44.38	Figure K.3.7-12
		$P_m + P_b$	27.30	57.06	Figure K.3.7-13
	Rails	P_m	20.85	44.38	Figure K.3.7-14
		$P_m + P_b$	28.72	57.06	Figure K.3.7-15
	Canister	P_m	2.44	44.38	Figure K.3.7-16
		$P_m + P_b$	19.57	57.06	Figure K.3.7-17
90° Side Drop	Basket	P_m	18.02	44.38	Figure K.3.7-18
		$P_m + P_b$	22.78	57.06	Figure K.3.7-19
	Rails	P_m	29.03	44.38	Figure K.3.7-20
		$P_m + P_b$	32.79	57.06	Figure K.3.7-21
	Canister	P_m	3.17	44.38	Figure K.3.7-22
		$P_m + P_b$	16.83	57.06	Figure K.3.7-23
	Rail Weld Stud	Shear	17.43	26.63	--
161.5° Side Drop Impact on one Transfer cask Support rail	Basket	P_m	13.47	44.38	Figure K.3.7-24
		$P_m + P_b$	25.76	57.06	Figure K.3.7-25
	Rails	P_m	19.71	44.38	Figure K.3.7-26
		$P_m + P_b$	44.37	57.06	Figure K.3.7-27
	Canister	P_m	3.27	44.38	Figure K.3.7-28
		$P_m + P_b$	23.12	57.06	Figure K.3.7-29
180° Side Drop Impact on two Transfer cask Support rails	Basket	P_m	16.22	44.38	Figure K.3.7-30
		$P_m + P_b$	23.55	57.06	Figure K.3.7-31
	Rails	P_m	28.09	44.38	Figure K.3.7-32
		$P_m + P_b$	34.71	57.06	Figure K.3.7-33
	Canister	P_m	4.72	44.38	Figure K.3.7-34
		$P_m + P_b$	26.13	57.06	Figure K.3.7-35

(1) Allowables are taken at a temperature of 650°F

Table K.3.7-6
Stress Summary of the Basket due to 75g End Drop Load

Drop Orientation	Component	Stress Category	Max. Stress (ksi)	Allowable Stress (ksi)[1]
End Drop	Hold down Ring	P_m	7.5	44.45
End Drop	Basket	P_m	6.75	44.45
	Rail weld Stud	Shear	9.75	26.7
	Plate Insert Weld	Shear	11.25	26.7

[1] Allowable stresses are determined at 650°F.

Table K.3.7-7
Mechanical Properties of SA-240 Type 304 SS

	550°F	650°F
Modulus of Elasticity (psi)	25.55×10^6	25.05×10^6
Yield Strength (psi)	18,900	18,000
Ultimate Strength (psi)	63,400	63,400
Tangent Modulus (psi)	1.2775×10^6	1.2525×10^6

Table K.3.7-8
Summary of Loads Used for Different Drop Orientations

Location 1
($F_y = F\cos\theta$, $P_x = P\sin\theta$, F = 290 lbs, P = 0.8 psi)

Drop Orientation (Degree)	1g load (6" Length) (Weight including all SS & poison plates above the bottom panel, rails, and 8 fuel assemblies**)		200g Load Computer Run	
	Axial Load F_y (lbs)	Trans. Load P_x (psi)	F_y (lbs)	P_x(psi)
Vertical	290	0	58,000	0
30	251	0.4	50,200	80
45	205	0.565	41,000	113

** This assumption is very conservative for drop orientations other than the vertical drop. For example, for 30 and 45 degree drops, the bottom panel only supports 6 fuel assemblies but was analyzed for 8 fuel assemblies.

Location 2
($F_y = F\cos\theta$, $P_x = P\sin\theta$, F = 160 lbs, P = 0.8 psi)

Drop Orientation (Degree)	1g load (6" Length) (Weight including all SS & poison plates above the bottom panel, rails, and 4 fuel assemblies**)		200g Load Computer Run	
	Axial Load F_y (lbs)	Trans. Load P_x (psi)	F_y (lbs)	P_x(psi)
Vertical	160	0	32,000	0
30	139	0.4	27,800	80
45	113	0.565	22,600	113

** This assumption is also very conservative for drop orientations other than vertical drop. For example, for 30 and 45 degree drops, the bottom panel only supports 3 fuel assemblies but was analyzed for 4 fuel assemblies.

Table K.3.7-9
Summary of Basket Buckling Analysis

Location 1
(550°F)

Basket Orientation	Last Converged Load (g)	Allowable Collapse Load (g)	Reference Figure
Vertical	112	112	K.3.7-44
30°	99	96	K.3.7-45
45°	105	100	K.3.7-46

Location 2
(650°F)

Basket Orientation	Last Converged Load (g)	Allowable Collapse Load (g)	Reference Figure
Vertical	187	185	K.3.7-47
30°	148	139	K.3.7-48
45°	146	140	K.3.7-49

Table K.3.7-10
Weight Comparison – NUHOMS®-61BT vs. -52B

	NUHOMS®-52B	NUHOMS®-61BT	Ratio	Acceleration Scale Factor(1)	Total Scale Factor
DSC Weight	80 kips	88.4 kips	1.105	1.032	1.14
HSM Weight	252 kips	252 kips	---		---
DSC + HSM Weight	332 kips	340.4 kips	1.025		1.06

Note:

1. A 5% frequency shift at 33 Hz due to the weight increase results in an acceleration increase from 0.250g to 0.258g which results in a ratio of 1.032.

Table K.3.7-11
NUHOMS®-61BT DSC Enveloping Load Combination Results for Normal and Off-Normal Loads

(ASME Service Levels A and B)

DSC Components	Stress Type	Controlling Load Combination (1)	Stress (ksi)	
			Calculated	Allowable (2)
DSC Shell	Primary Membrane	TR-3, TR-7	7.17	17.5
	Membrane + Bending	N0-1	19.39	40.5
	Primary + Secondary	LD-4	53.69	54.3
Inner Bottom Cover Plate	Primary Membrane	LD-4	4.71	17.5
	Membrane + Bending	N0-1	18.84	40.5
	Primary + Secondary	LD-4	37.71	54.3
Outer Bottom Cover Plate	Primary Membrane	LD-4, LD-5	6.28	17.5
	Membrane + Bending	UL-4,UL-5, UL-6	25.44	29.0
	Primary + Secondary	UL-5	34.68	58.0
Inner Top Cover Plate	Primary Membrane	TR-5	3.75	17.5
	Membrane + Bending	HSM-4	10.69	28.1
	Primary + Secondary	TR-1, TR-5	33.35	52.5
Outer Top Cover Plate	Primary Membrane	HSM-4	4.93	18.7
	Membrane + Bending	HSM-4	16.09	28.1
	Primary + Secondary	HSM-4	29.42	56.1
Basket	Primary Membrane	TR-8	0.8	16.2
	Membrane + Bending	TR-8	3.67	24.3
	Primary + Secondary	HSM-3	17.69	48.6
Rail	Primary Membrane	TR-8	1.18	16.2
	Membrane + Bending	TR-8	5.11	24.3
	Primary + Secondary	HSM-3	11.51	48.6
Rail Stud	Shear	DD-2	0.19	9.72

See Table K.3.7-14 for notes.

Table K.3.7-12
NUHOMS®-61BT DSC Enveloping Load Combination Results for Accident Loads

(ASME Service Level C)

DSC Components	Stress Type	Controlling Load Combination (1)	Stress (ksi)	
			Calculated	Allowable(2)
DSC Shell	Primary Membrane	HSM-8	16.85	22.4
	Membrane + Bending	HSM-8	25.71	33.7
Inner Bottom Cover Plate	Primary Membrane	HSM-8	9.71	23.2
	Membrane + Bending	HSM-8	16.36	34.8
Outer Bottom Cover Plate	Primary Membrane	UL-7	7.87	23.2
	Membrane + Bending	UL-7	33.01	34.8
Inner Top Cover Plate	Primary Membrane	HSM-8	8.61	22.4
	Membrane + Bending	HSM-8	21.37	33.7
Outer Top Cover Plate	Primary Membrane	HSM-8	8.06	22.4
	Membrane + Bending	HSM-8	21.78	33.7
Basket	Primary Membrane	HSM-8	1.46	16.2
	Membrane + Bending	HSM-8	5.62	24.3
Rail	Primary Membrane	HSM-8	1.76	16.2
	Membrane + Bending	HSM-8	10.6	24.3
Rail Stud	Shear	HSM-8	3.47	26.67

See Table K.3.7-14 for notes.

Table K.3.7-13
NUHOMS®-61BT DSC Enveloping Load Combination Results for Accident Loads

(ASME Service Level D) (3)

DSC Components	Stress Types	Controlling Load Combination (1)	Stress (ksi)	
			Calculated	Allowable(2)
DSC Shell	Primary Membrane	TR-10	35.85	44.4
	Membrane + Bending	TR-10	58.98	62.2(5)
Inner Bottom Cover Plate	Primary Membrane	TR-10	22.80	44.4
	Membrane + Bending	TR-10	56.77	59.6(6)
Outer Bottom Cover Plate	Primary Membrane	TR-10	32.39	44.4
	Membrane + Bending	UL-8	62.54	65.1
Inner Top Cover Plate	Primary Membrane	TR-10	32.34	44.4
	Membrane + Bending	TR-10	55.21	57.1
Outer Top Cover Plate	Primary Membrane	TR-10	39.84	44.4
	Membrane + Bending	TR-10	54.89	57.1
Basket	Primary Membrane	TR-10	18.02	44.38
	Membrane + Bending	TR-10	27.30	57.06
Rail	Primary Membrane Membrane + Bending	TR-10 TR-10	29.03 44.37	44.38 57.06
Rail Stud	Shear	TR10	17.43	26.63

See Table K.3.7-14 for notes.

Table K.3.7-14
DSC Enveloping Load Combination Table Notes

(1) See Table K.3.2-6 for load combination nomenclature.

(2) See Table K.3.2-9 for allowable stress criteria. Material properties were obtained from Table 8.1-3 at a design temperature of 500°F or as noted.

(3) In accordance with the ASME Code, thermal stresses need not be included in Service Level D load combinations.

(4) Evaluated per ASME NB-3228.5 for components with stresses greater than $3.0S_m$.

(5) The maximum side drop membrane + bending stress is highly localized near the cask rail, at the outer bottom cover plate. The maximum temperature in this region is less than 240°F (temperature case 2).

(6) The maximum side drop membrane + bending stress is highly localized over the cask rail. The maximum temperature in this region is less than 300°F (temperature case 2).

Table K.3.7-15
Summary of DSC Load Combinations

	Horiz. DW		Vertical DW		Internal Pressure [8]	External Pressure	Thermal Condition	Lifting Loads	Other Loads	Service Level
	DSC	Fuel	DSC	Fuel						
NON-OPERATIONAL LOAD COMBINATIONS										
NO-1 Fab. Leak Testing	--	--	--	--	--	14.7 psi	70°F	--	155 kip axial	Test
NO-2 Fab. Leak Testing	--	--	--	--	12 psi	--	70°F	--	155 kip axial	Test
NO-3 DSC Uprighting	X	--	--	--	--	--	70°F	X	--	A
NO-4 DSC Vertical Lift	--	--	X	--	--	--	70°F	X	--	A
FUEL LOADING LOAD COMB.										
FL-1 DSC/Cask Filling	--	--	Cask	--	--	Hydrostatic	100°F Cask	x	x	A
FL-2 DSC/Cask Filling	--	--	Cask	--	Hydrostatic	Hydrostatic	100°F Cask	x	x	A
FL-3 DSC/Cask Xfer	--	--	Cask	--	Hydrostatic	Hydrostatic	100°F Cask	--	--	A
FL-4 Fuel Loading	--	--	Cask	X	Hydrostatic	Hydrostatic	100°F Cask	--	--	A
FL-5 Xfer to Decon	--	--	Cask	X	Hydrostatic	Hydrostatic	100°F Cask	--	--	A
FL-6 Inner Cover Plate Welding	--	--	Cask	X	Hydrostatic	Hydrostatic	100°F Cask	--	--	A
FL-7 Fuel Deck Seismic Loading	--	--	Cask	X	Hydrostatic	Hydrostatic	100°F Cask	--	Note 9	C
DRAINING AND DRYING LOAD COMBINATIONS										
DD-1 DSC Blowdown	--	--	Cask	X	Hydrostatic + 20 psi	Hydrostatic	100°F Cask	--	--	A
DD-2 Vacuum Drying	--	--	Cask	X	0 psia	Hydrostatic + 14.7 psi	100°F Cask	--	--	A
DD-3 Helium Backfill	--	--	Cask	X	12 psi	Hydrostatic	100°F Cask	--	--	A
DD-4 Final Helium Backfill	--	--	Cask	X	3.5 psi	Hydrostatic	100°F Cask	--	--	A
DD-5 Outer Cover Plate Welding	--	--	Cask	X	3.5 psi	Hydrostatic	100°F Cask	--	--	A
ANSFER TRAILER LOADS										
TL-1 Vertical Xfer to Trailer	--	--	Cask	X	10.0 psi	--	0°F Cask	--	--	A
TL-2 "	--	--	Cask	X	10.0 psi	--	100°F Cask	--	--	A
TL-3 Laydown	Cask	X	--	--	10.0 psi	--	0°F Cask	--	--	A
TL-4 "	Cask	X	--	--	10.0 psi	--	100°F Cask	--	--	A

	Horiz. DW		Vertical DW		Internal Pressure [8]	External Pressure	Thermal Condition	Handling Loads	Other Loads	Service Level
	DSC	Fuel	DSC	Fuel						
TRANSFER TO / FROM ISFSI										
TR-1 Axial Load - Cold	Cask	X	--	--	10.0 psi	--	0°F Cask	1g Axial	--	A
TR-2 Transverse Load - Cold	Cask	X	--	--	10.0 psi	--	0°F Cask	1g Transverse	--	A
TR-3 Vertical Load - Cold	Cask	X	--	--	10.0 psi	--	0°F Cask	1g Vertical	--	A
TR-4 Oblique Load - Cold	Cask	X	--	--	10.0 psi	--	0°F Cask	½g Axial + ½g Trans + ½g Vert	--	A
TR-5 Axial Load - Hot	Cask	X	--	--	10.0 psi	--	100°F Cask	1g Axial	--	A
TR-6 Transverse Load - Hot	Cask	X	--	--	10.0 psi	--	100°F Cask	1g Transverse	--	A
TR-7 Vertical Load - Hot	Cask	X	--	--	10.0 psi	--	100°F Cask	1g Vertical	--	A
TR-8 Oblique Load - Hot	Cask	X	--	--	10.0 psi	--	100°F Cask	½g Axial + ½g Trans + ½g Vert	--	A
TR-9 25g Corner Drop [10]	Note 1		Note 1		20.0 psi		100°F Cask[2]		25g CornerDrop	D
TR-10 75g Side Drop [10]	Note 1		--	--	20.0 psi	--	100°F Cask[2]	--	75g Side Drop	D
TR-11 75g End Drop [10]			Note 1		20.0 psi		100°F Cask[2]		25g End Drop	D

(continued on next page)

Table K.3.7-15
Summary of DSC Load Combinations

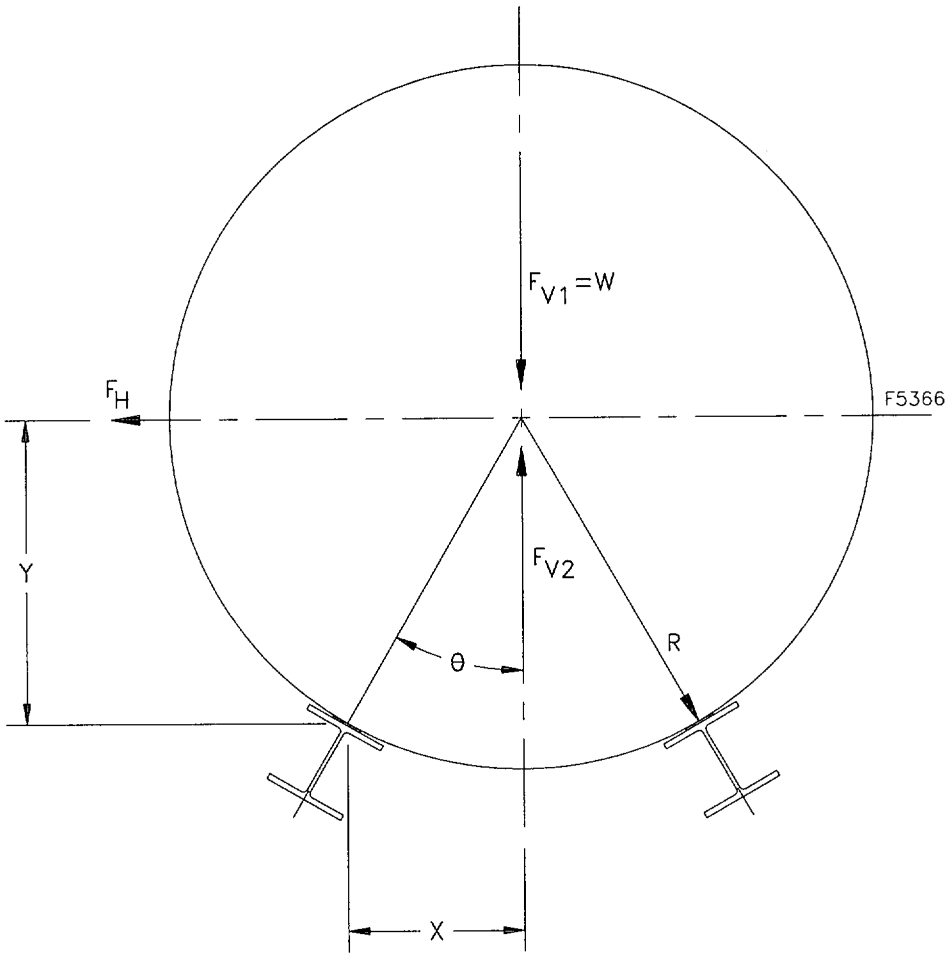
(continued)

	Horiz. DW		Vertical DW		Internal Pressure [8]	External Pressure	Thermal Condition	Handling Loads	Other Loads	Service Level
	DSC	Fuel	DSC	Fuel						
HSM LOADING										
LD-1 Normal Loading - Cold	Cask	X	--	--	10.0 psi	--	0°F Cask	+80 Kip	--	A
LD-2 Normal Loading - Hot	Cask	X	--	--	10.0 psi	--	100°F Cask	+80 Kip	--	A
LD-3 Normal Loading - Hot	Cask	X	--	--	10.0 psi	--	125°F w/shade[5]	+80 Kip	--	A
LD-4 Off-Normal Load - Cold	Cask	X	--	--	20.0 psi	--	0°F Cask	+80 Kip	Failed Fuel	B
LD-5 Off-Normal Load - Hot	Cask	X	--	--	20.0 psi	--	100°F Cask	+80 Kip	Failed Fuel	B
LD-6 Off-Normal Load - Hot	Cask	X	--	--	20.0 psi	--	125°F w/shade[5]	+80 Kip	Failed Fuel	B
LD-7 Accident Loading	Cask	X	--	--	20.0 psi	--	125°F w/shade[5]	+80 Kip	Failed Fuel	C/D
HSM STORAGE										
HSM-1 Off-Normal Storage	HSM	X	--	--	10.0 psi	--	-40°F HSM	--	--	B
HSM-2 Normal Storage	HSM	X	--	--	10.0 psi	--	0°F HSM	--	--	A
HSM-3 Off-Normal Storage	HSM	X	--	--	10.0 psi	--	125°F HSM	--	--	B
HSM-4 Off-Normal Temp. + Failed Fuel	HSM	X	--	--	20.0 psi	--	125°F HSM [2]	--	Failed Fuel	C
HSM-5 Blocked Vent Storage	HSM	X	--	--	65.0 psi [7]	--	125°F HSM / BV[2,4]	--	--	D
HSM-6 Blocked Vent + Failed Fuel Storage	HSM	X	--	--	65.0 psi [7]	--	125°F HSM / BV[2,4]	--	Failed Fuel	D
HSM-7 Earthquake Load - Cold	HSM	X	--	--	10.0 psi	--	0°F HSM [2]	--	Seismic	C
HSM-8 Earthquake Load - Hot	HSM	X	--	--	10.0 psi	--	100°F HSM [2]	--	Seismic	C
HSM-9 Flood Load (50' H_2O) - Cold	HSM	X	--	--	0.0 psi	22	0°F HSM [2]	--	Flood[3]	C
HSM10 Flood Load (50' H_2O) - Hot	HSM	X	--	--	0.0 psi	22	100°F HSM [2]	--	Flood[3]	C
HSM UNLOADING										
UL-1 Normal Unload - Cold	HSM	X	--	--	10.0 psi	--	0°F HSM	-60 Kip	--	A
UL-2 Normal Unload - Hot	HSM	X	--	--	10.0 psi	--	100°F HSM	-60 Kip	--	A
UL-3 Normal Unload - Hot	HSM	X	--	--	10.0 psi	--	125°F HSM	-60 Kip	--	A
UL-4 Off-Normal Unload - Cold	HSM	X	--	--	20.0 psi	--	0°F HSM	-60 Kip	--	B
UL-5 Off-Normal Unload - Hot	HSM	X	--	--	20.0 psi	--	100°F HSM	-60 Kip	--	B
UL-6 Off-Normal Unload - Hot	HSM	X	--	--	20.0 psi	--	125°F HSM	-60 Kip	--	B
UL-7 Off-Normal Unloading - FF/Hot[6]	HSM	X	--	--	21.0 psi	--	100°F HSM	-80 kip	--	C
UL-8 Off-Normal Unloading - FF/Hot[6]	HSM	X	--	--	65.0 psi[6,7]	--	100°F HSM	-80 kip	--	D
DSC UNLOADING/REFLOOD										
RF-1 DSC Reflood	--	--	Cask	X	20.0	Hydrostatic	100°F Cask	--	--	D

See following page for notes.

Notes to Table K.3.7-15:

1. 25g and 75g drop accelerations include gravity effects. Therefore, it is not necessary to add an additional 1.0g load.
2. For Level D events, only the maximum temperature case is considered. (Thermal stresses are not limited for Level D events and maximum temperatures give minimum allowables).
3. Flood load is an external pressure equivalent to 50 ft. of water.
4. BV = HSM Vents are blocked
5. At temperatures over 100oF, a sunshade is required over the TC. Temperatures for these cases are enveloped by the 100oF (without sunshade) case.
6. As described in Section K.4 this pressure assumes release of the fuel cover gas and 30% of the fission gas. Although unloading requires the HSM door to be removed, the pressure and temperatures are based on the blocked vent condition. Pressure is applied to the outer pressure boundary.
7. This pressure is applied to the inner or outer pressure boundary.
8. Unless noted otherwise, pressure is applied to the inner pressure boundary
9. Fuel deck seismic loads are enveloped by handling loads.
10. The 75g top end drop and bottom end drop are not credible events. However, consideration of 75g end drops and a 75g side drop conservatively envelop the effects of a 25g corner drop.



WHERE:

R = 33.625 in., DSC outer radius
θ = 30°
X = R Sin θ = 16.8 in.
Y = R Cos θ = 29.1 in.
F_{V1} = W = weight of DSC
F_{V2} = W(0.17g) = upward vertical seismic load
F_H = W(0.37g) = horizontal seismic load

Figure K.3.7-1
DSC Lift-Off Evaluation

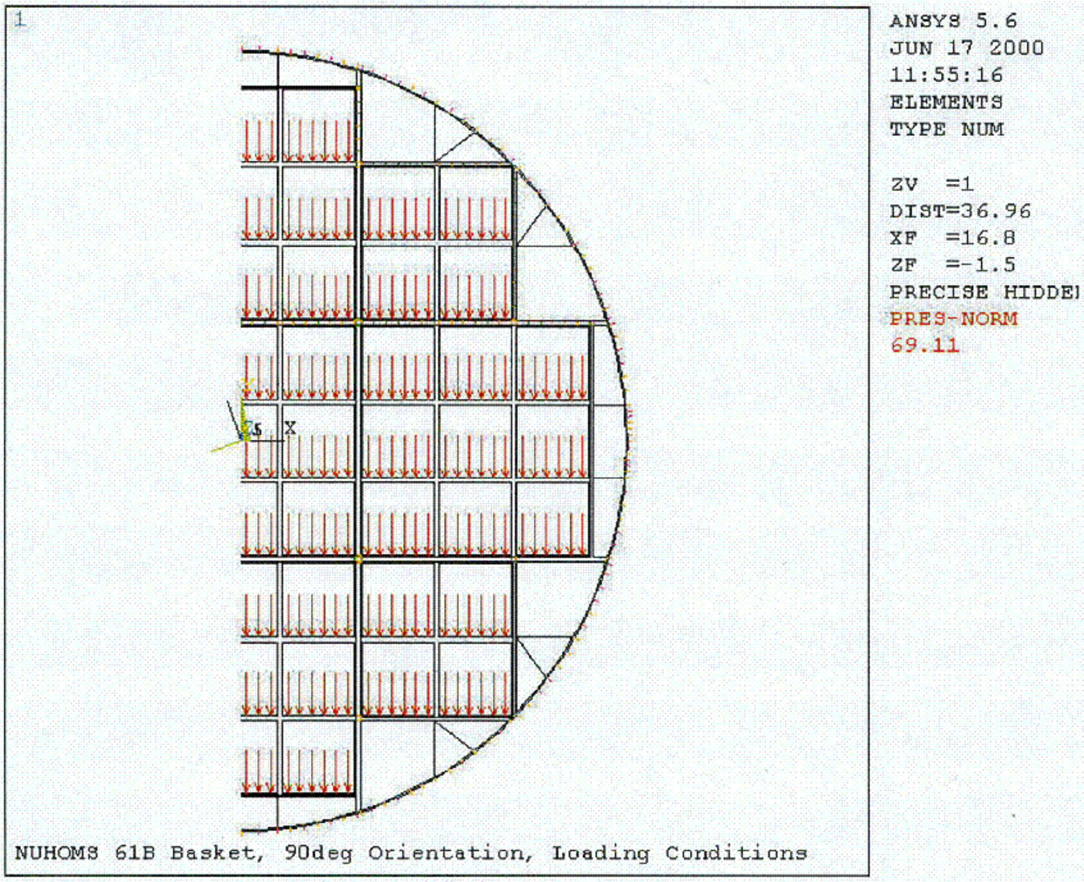


Figure K.3.7-2
90° and 180° Orientation Side Drop – Loading Conditions

C01

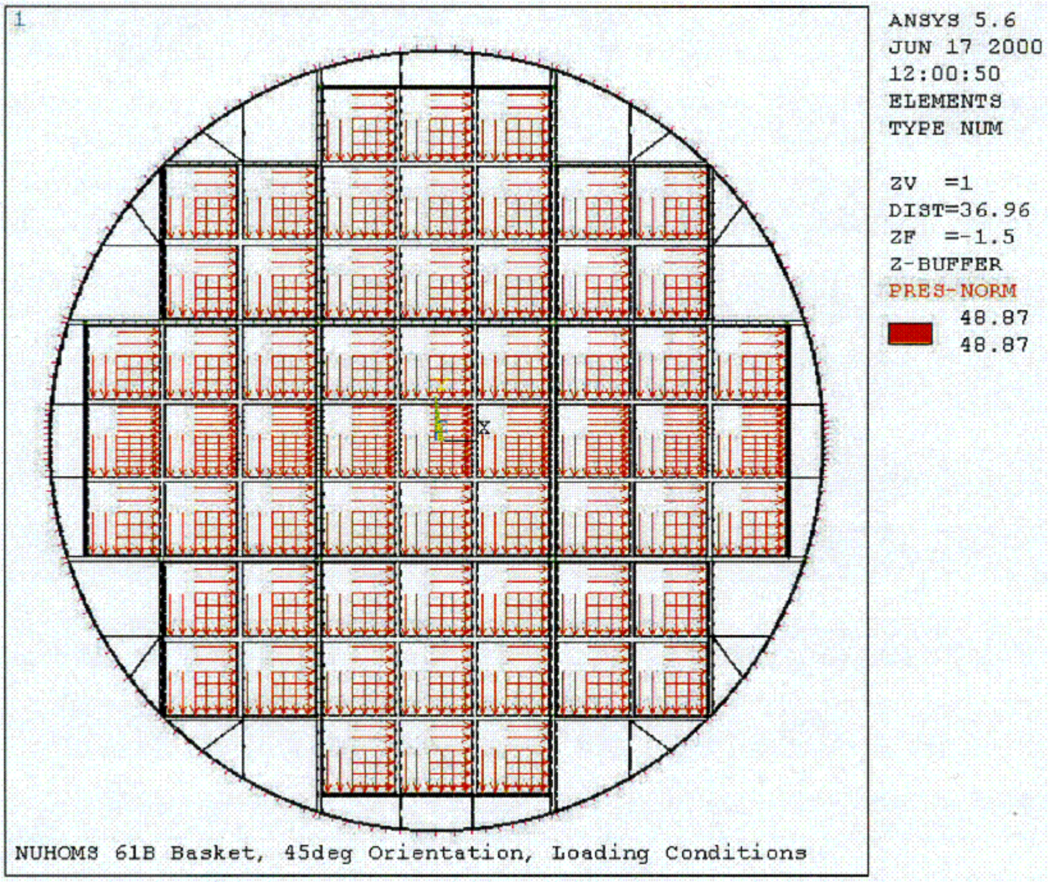


Figure K.3.7-3
45° Orientation Side Drop – Loading Conditions

C02

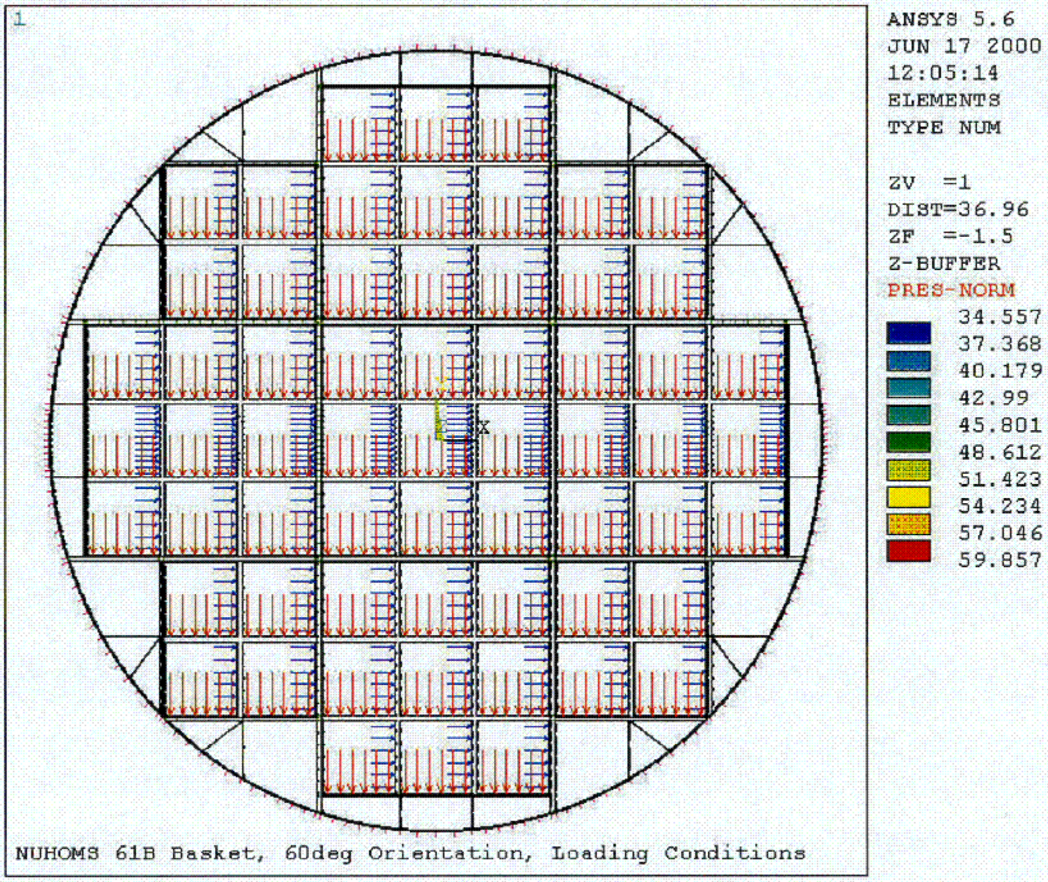


Figure K.3.7-4
60° Orientation Side Drop – Loading Conditions

C03

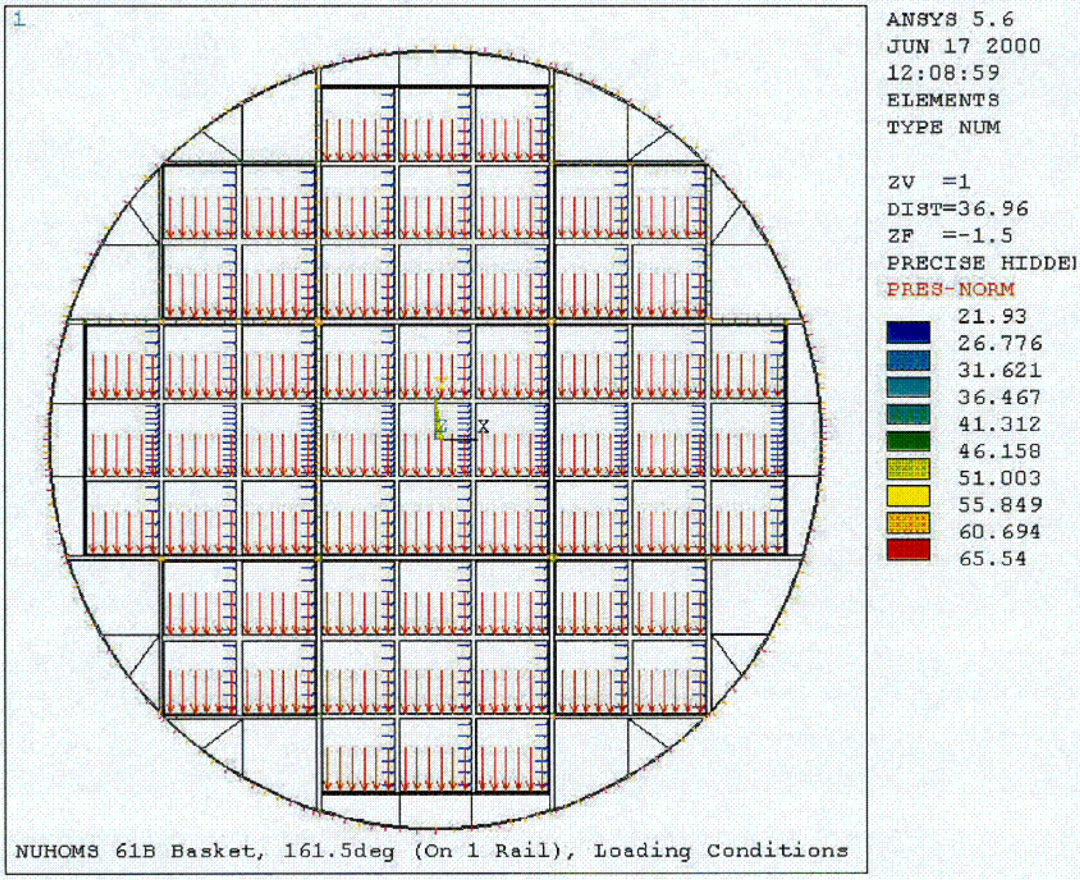


Figure K.3.7-5
161.5° Orientation Side Drop – Loading Conditions

C04

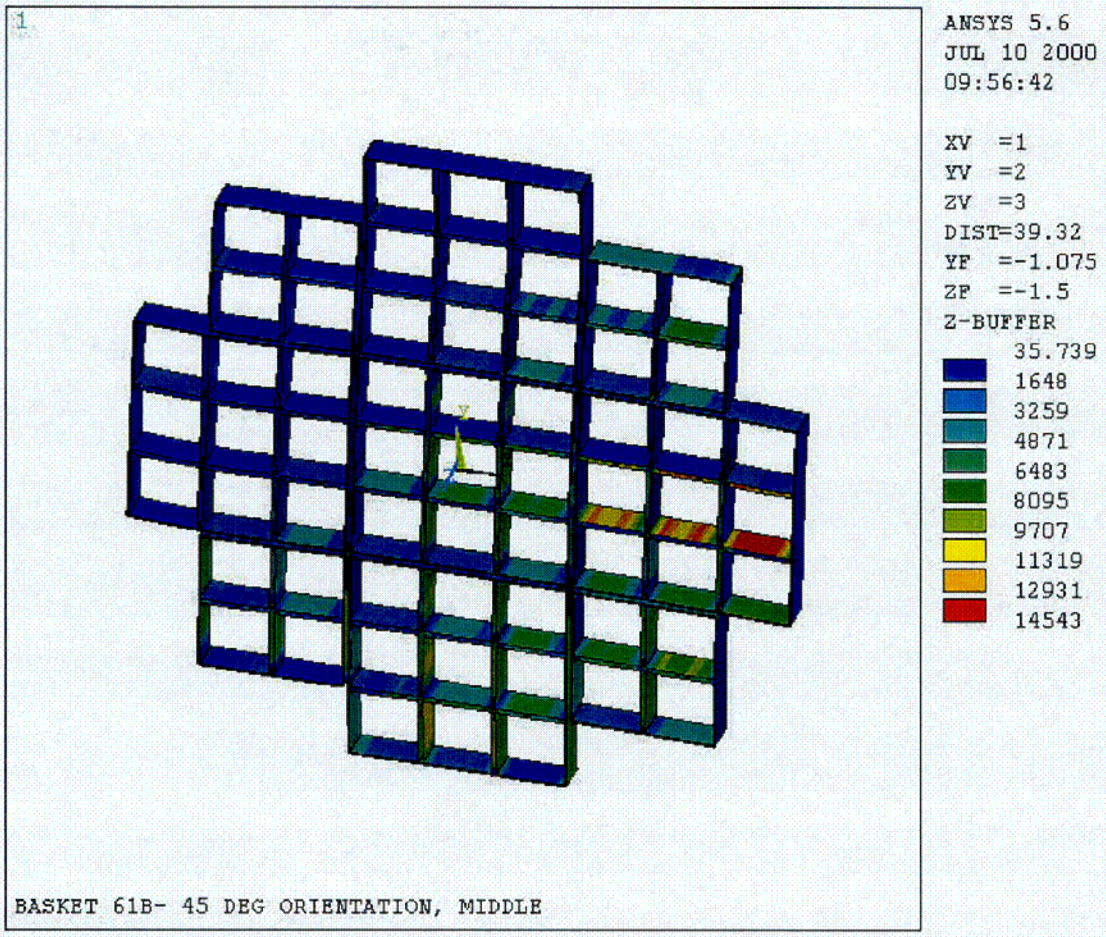


Figure K.3.7-6
45° Orientation Side Drop – Basket, P_m (75.5g)

C05

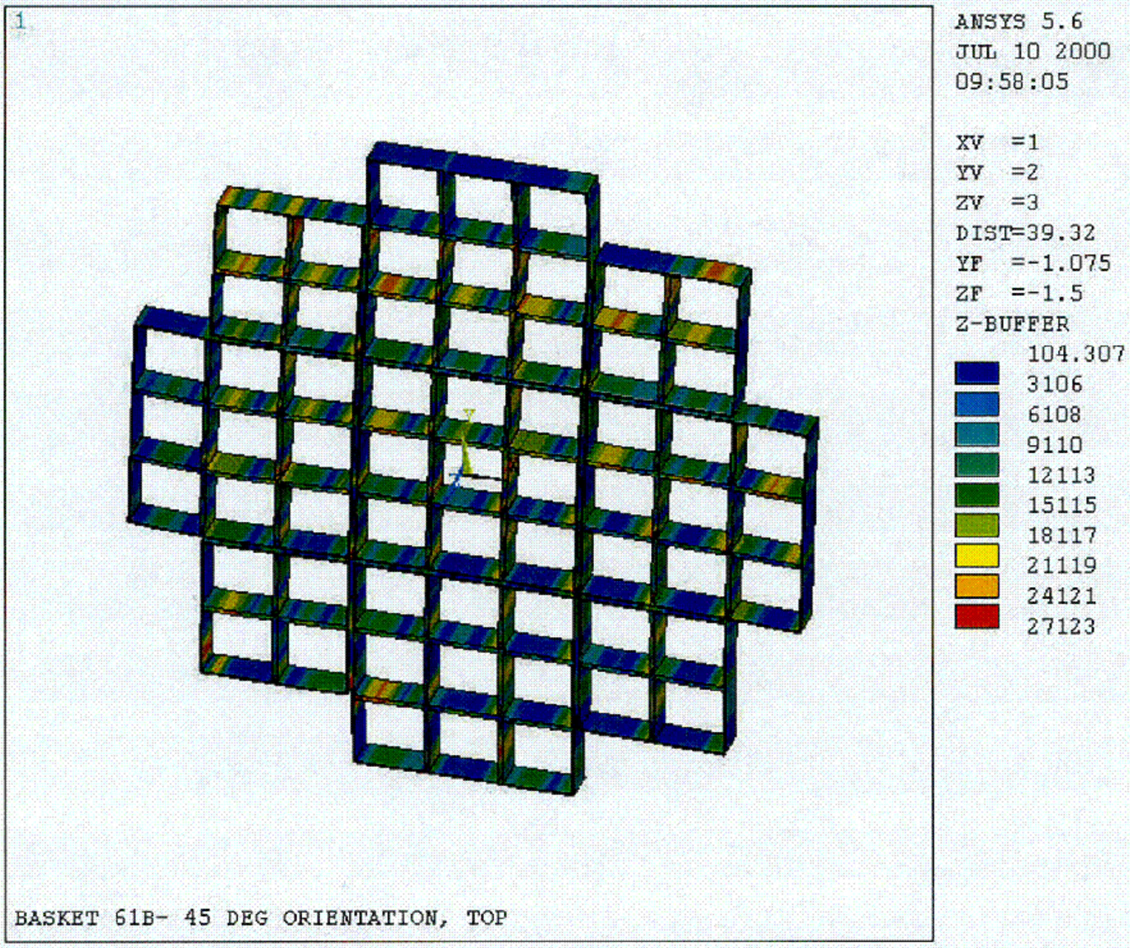


Figure K.3.7-7
45° Orientation Side Drop – Basket, $P_m + P_b$ (75.5g)

C06

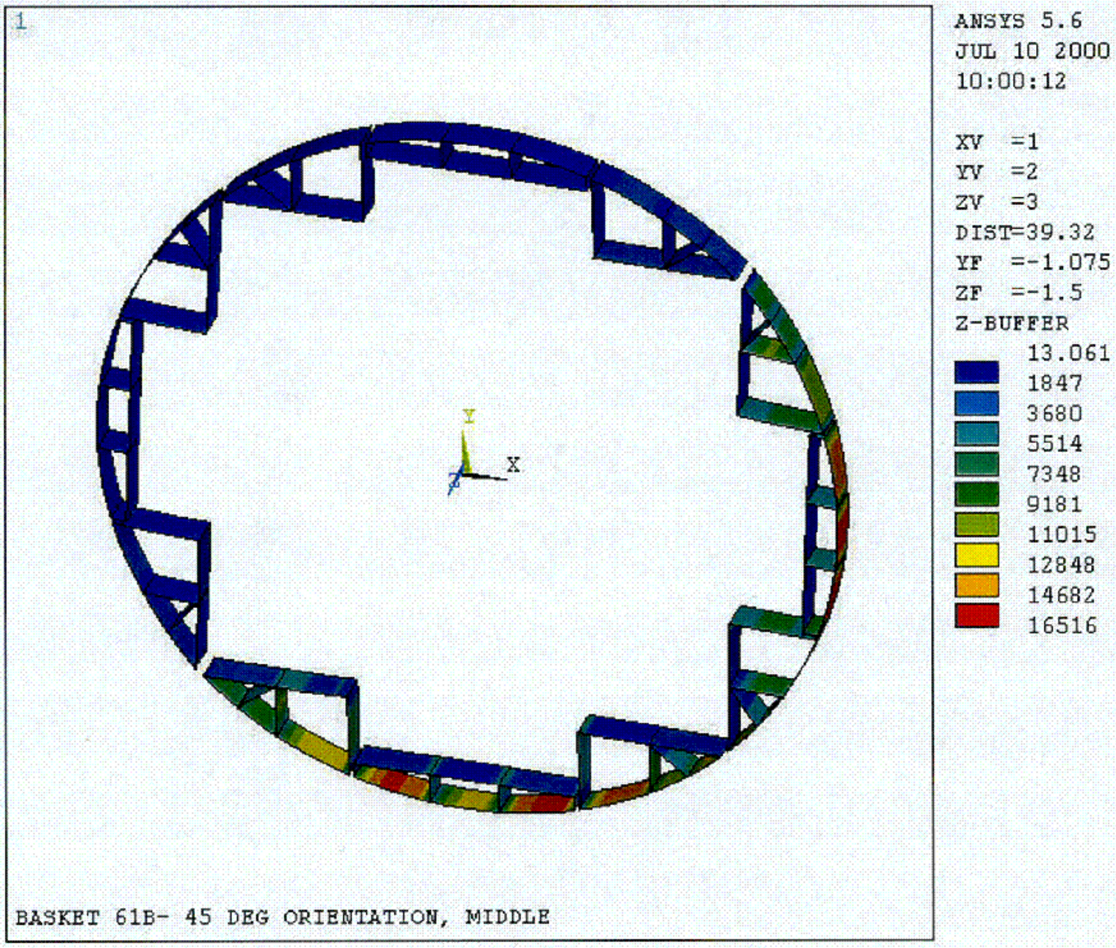


Figure K.3.7-8
45° Orientation Side Drop – Rails, P_m (75.5g)

C07

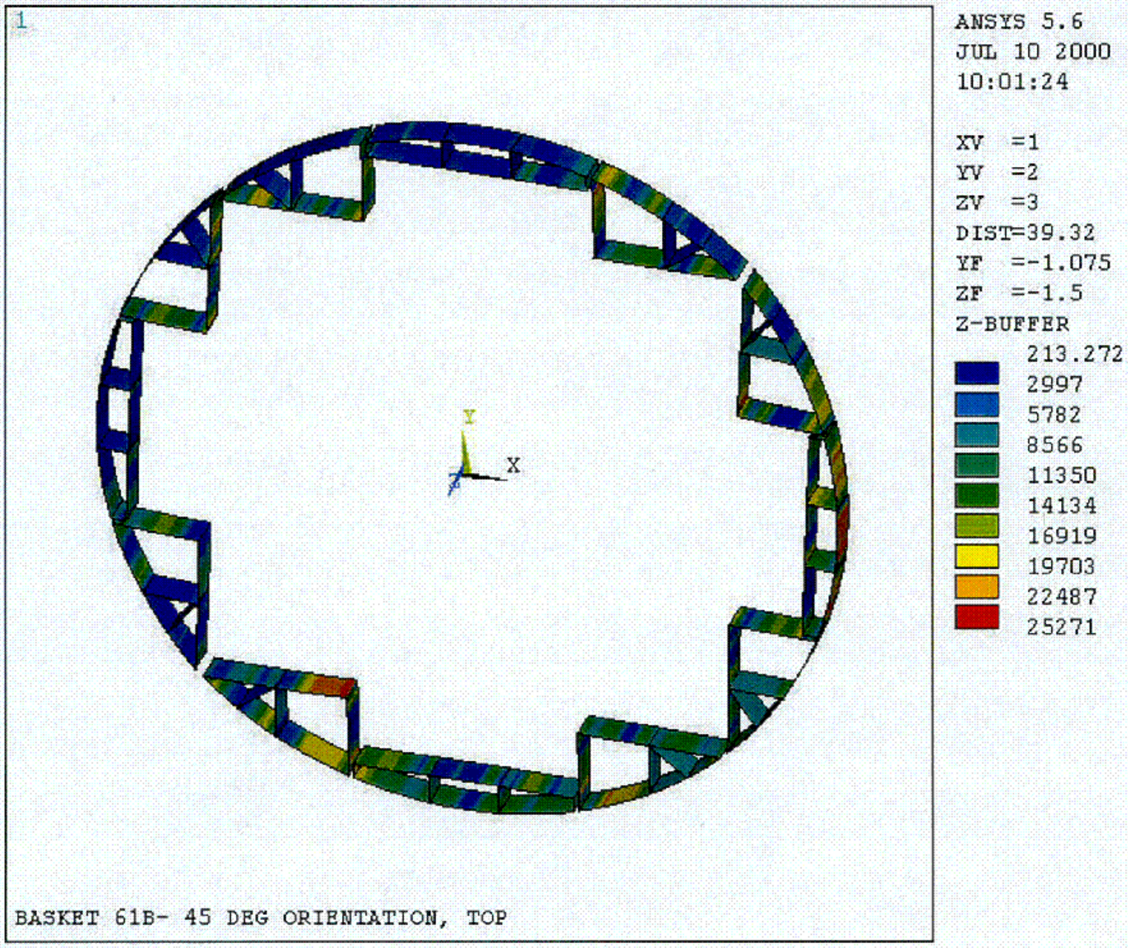


Figure K.3.7-9
45° Orientation Side Drop – Rails, $P_m + P_b$ (75.5g)

C08

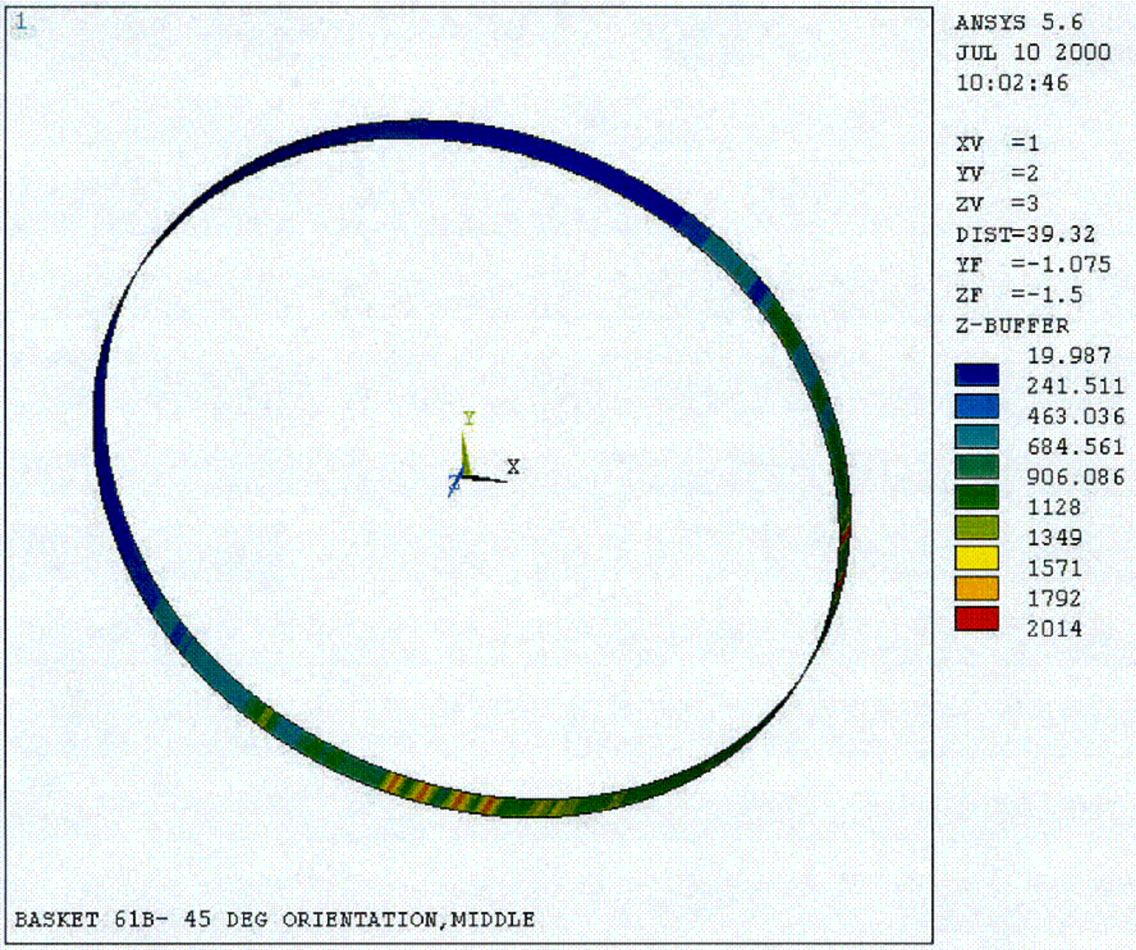


Figure K.3.7-10
45° Orientation Side Drop – Canister, P_m (75.5g)

C09

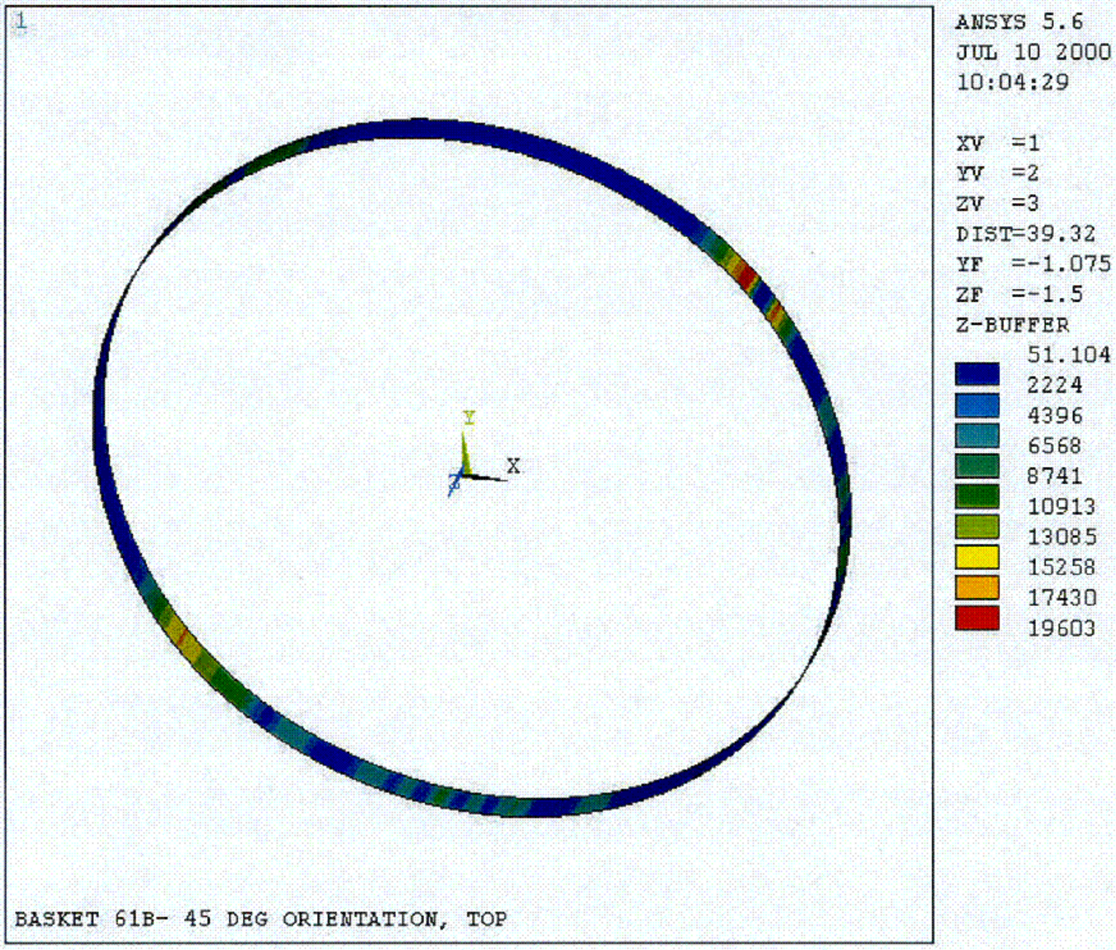


Figure K.3.7-11
45° Orientation Side Drop – Canister, $P_m + P_b$ (75.5g)

C10

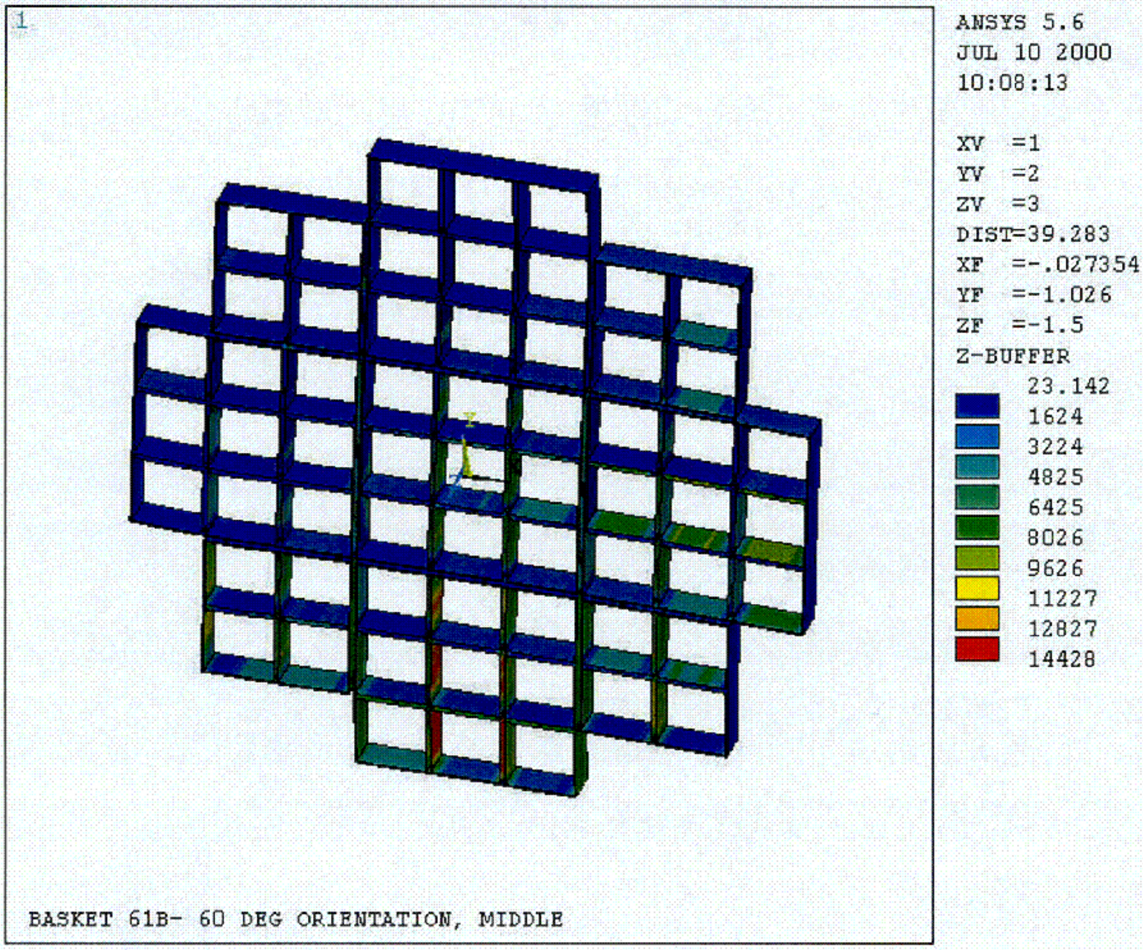


Figure K.3.7-12
60° Orientation Side Drop – Basket, P_m (75.5g)

C11

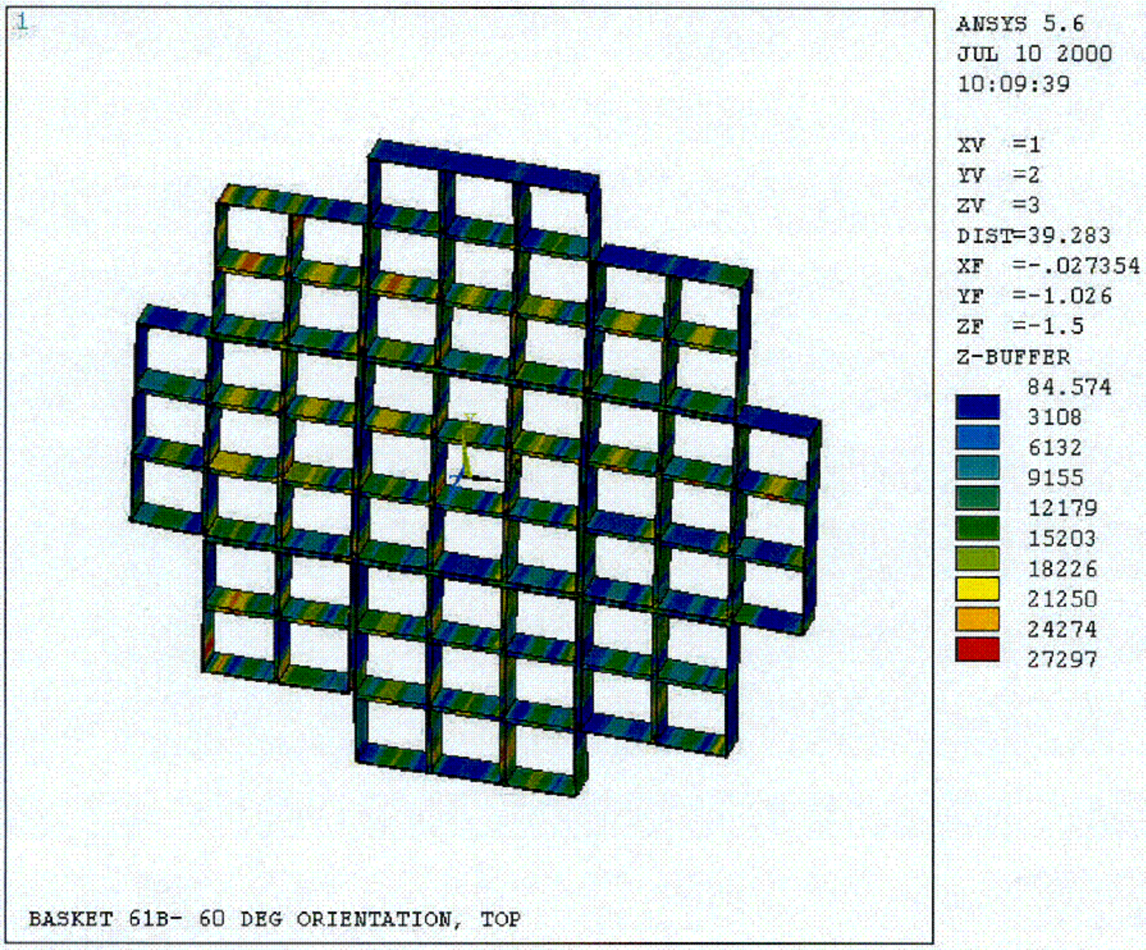


Figure K.3.7-13
60° Orientation Side Drop – Basket, $P_m + P_b$ (75.5g)

C12

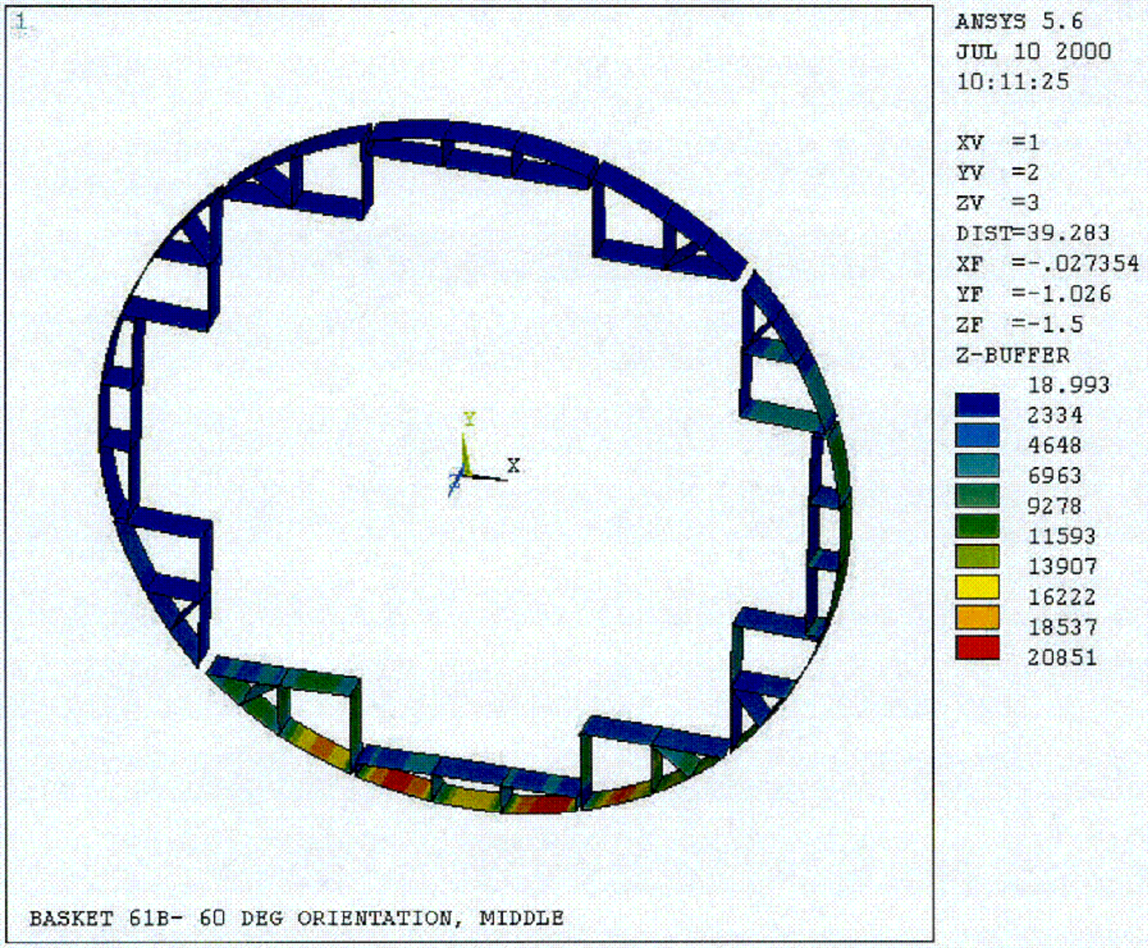


Figure K.3.7-14
60° Orientation Side Drop – Rails, P_m (75.5g)

C13

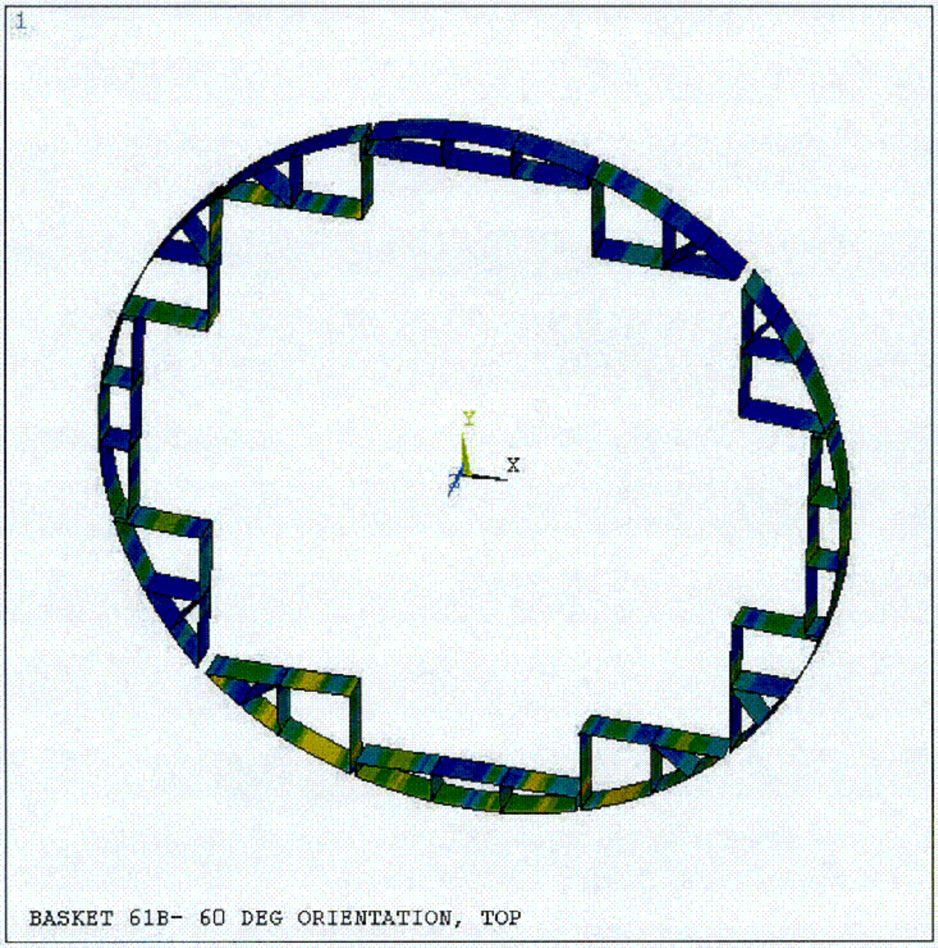


Figure K.3.7-15
60° Orientation Side Drop – Rails, $P_m + P_b$ (75.5g)

C14

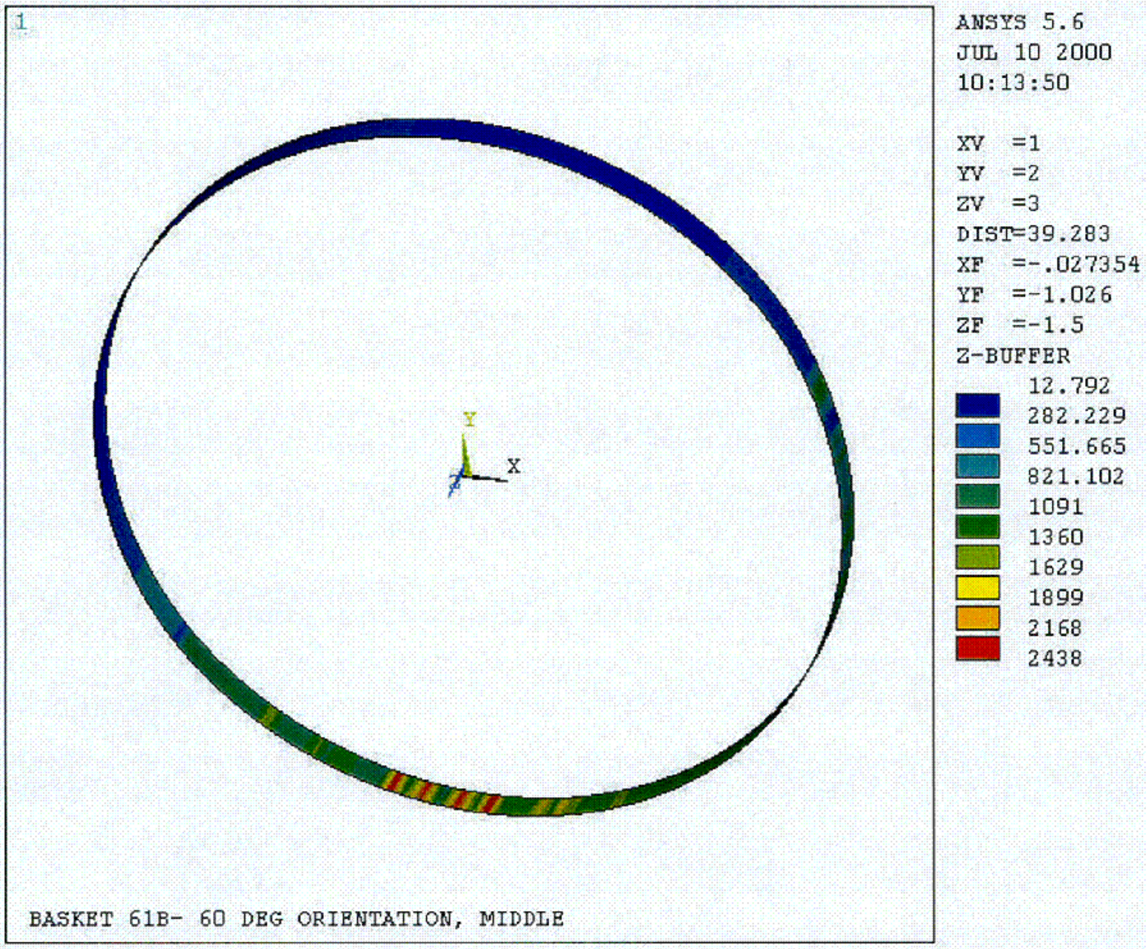


Figure K.3.7-16
60° Orientation Side Drop – Canister, P_m (75.5g)

C15

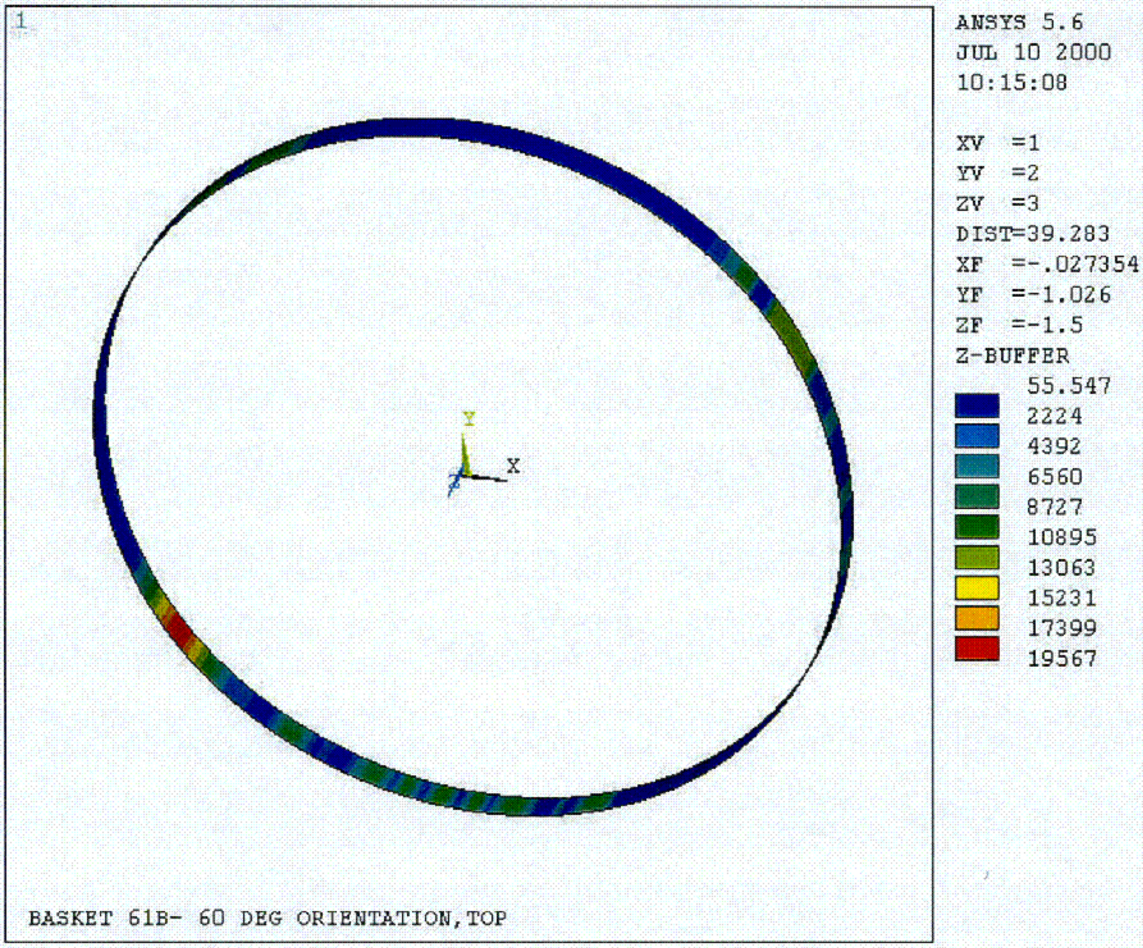


Figure K.3.7-17
60° Orientation Side Drop – Canister, $P_m + P_b$ (75.5g)

C16

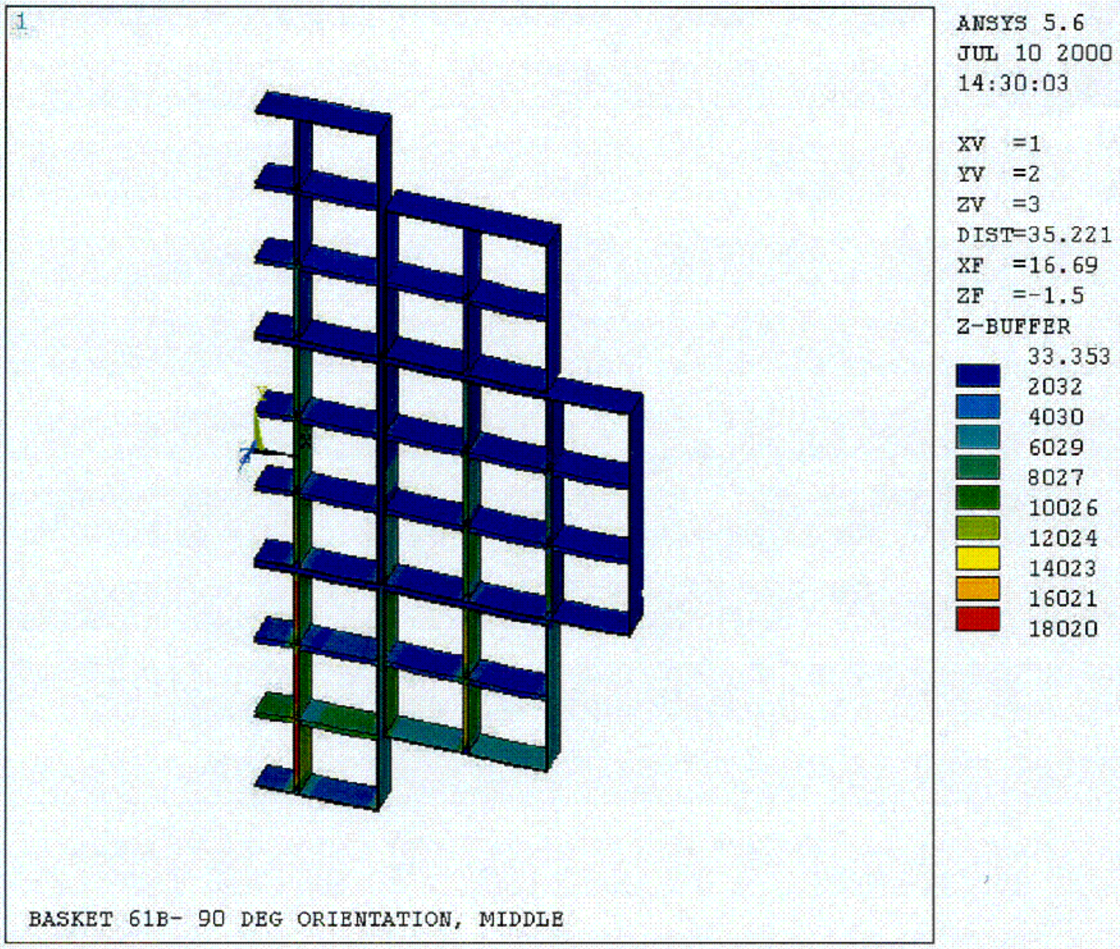


Figure K.3.7-18
90° Orientation Side Drop – Basket, P_m (75.5g)

C17

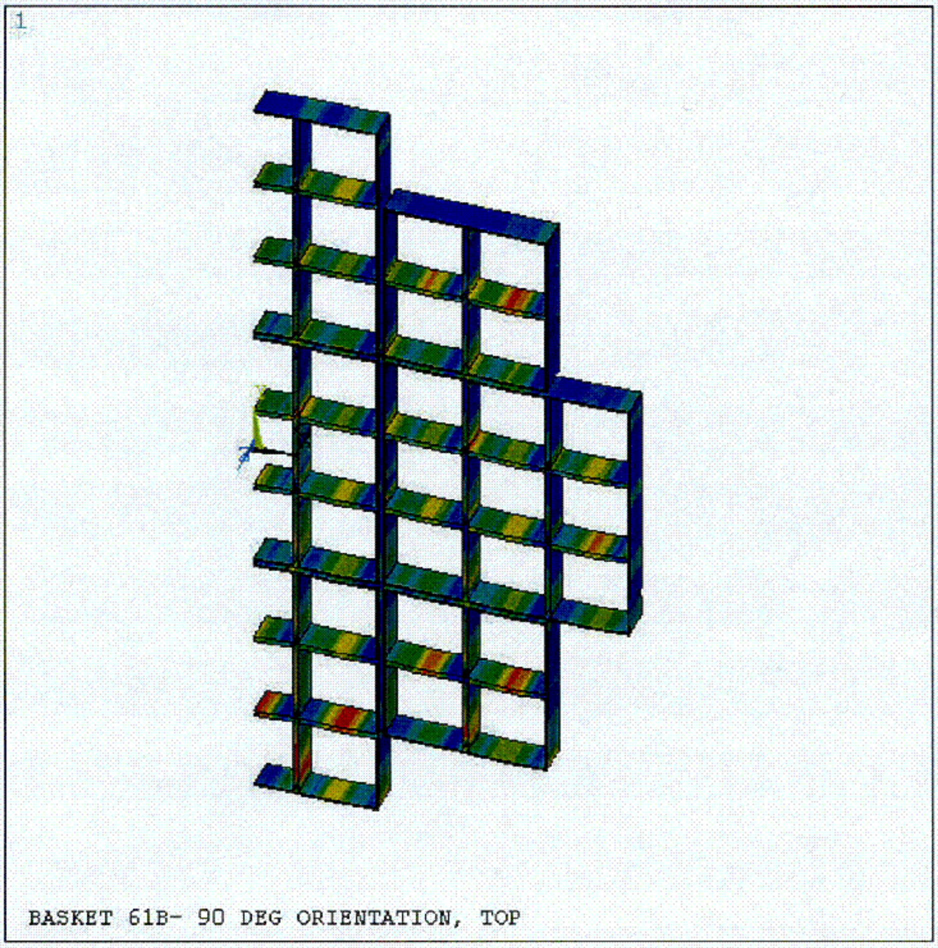


Figure K.3.7-19
90° Orientation Side Drop – Basket, $P_m + P_b$ (75.5g)

C18

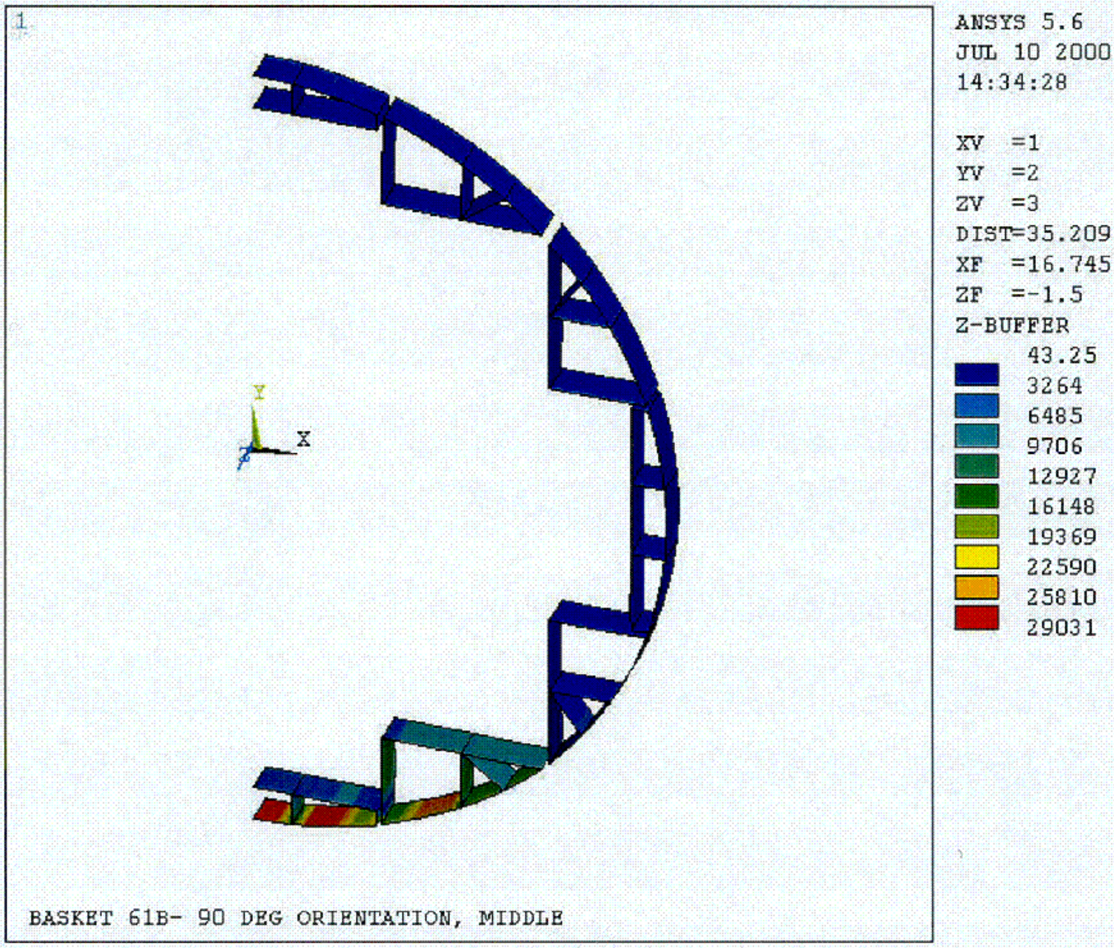


Figure K.3.7-20
90° Orientation Side Drop – Rails, P_m (75.5g)

C19

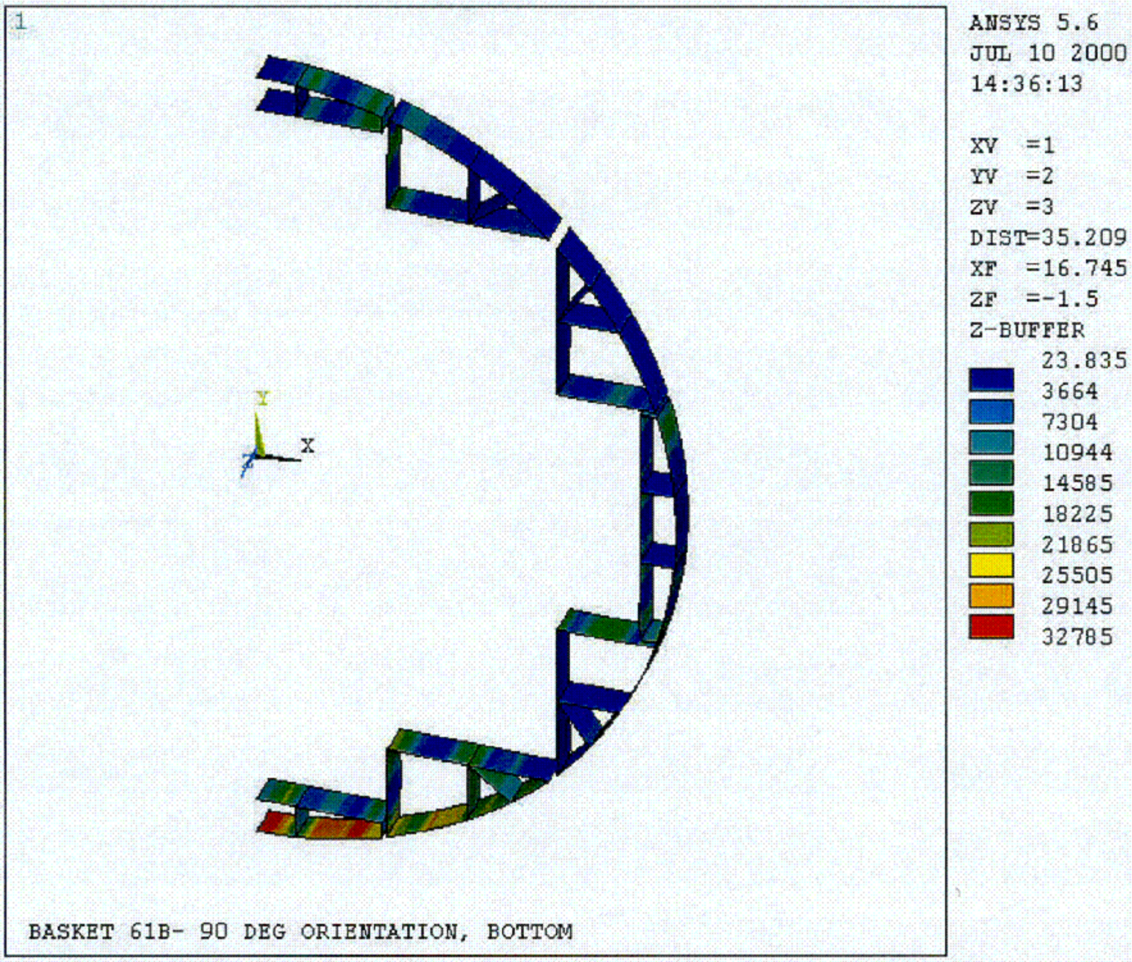


Figure K.3.7-21
90° Orientation Side Drop – Rails, $P_m + P_b$ (75.5g)

C20

Figure K.3.7-22
90° Orientation Drop – Canister, P_m (75.5g)

C21

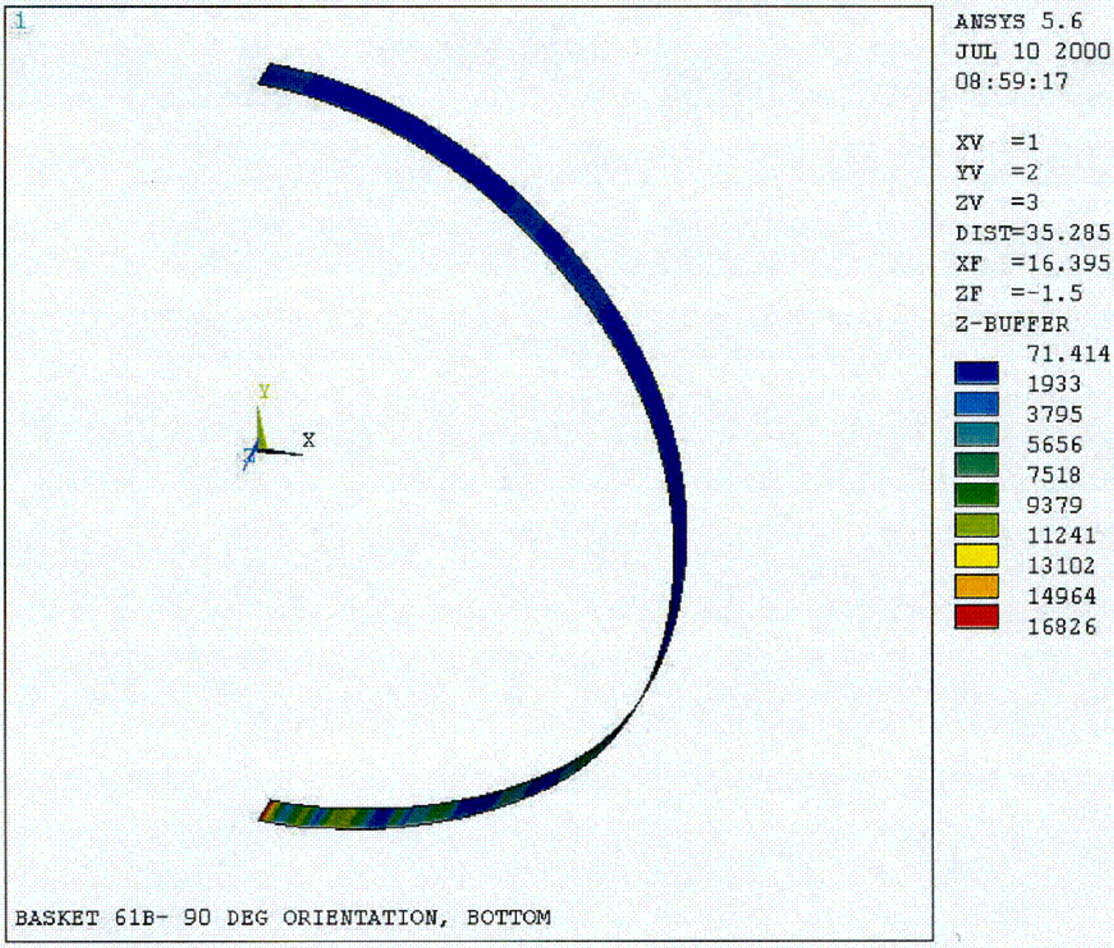


Figure K.3.7-23
90° Orientation Side Drop– Canister, $P_m + P_b$ (75.5g)

C22

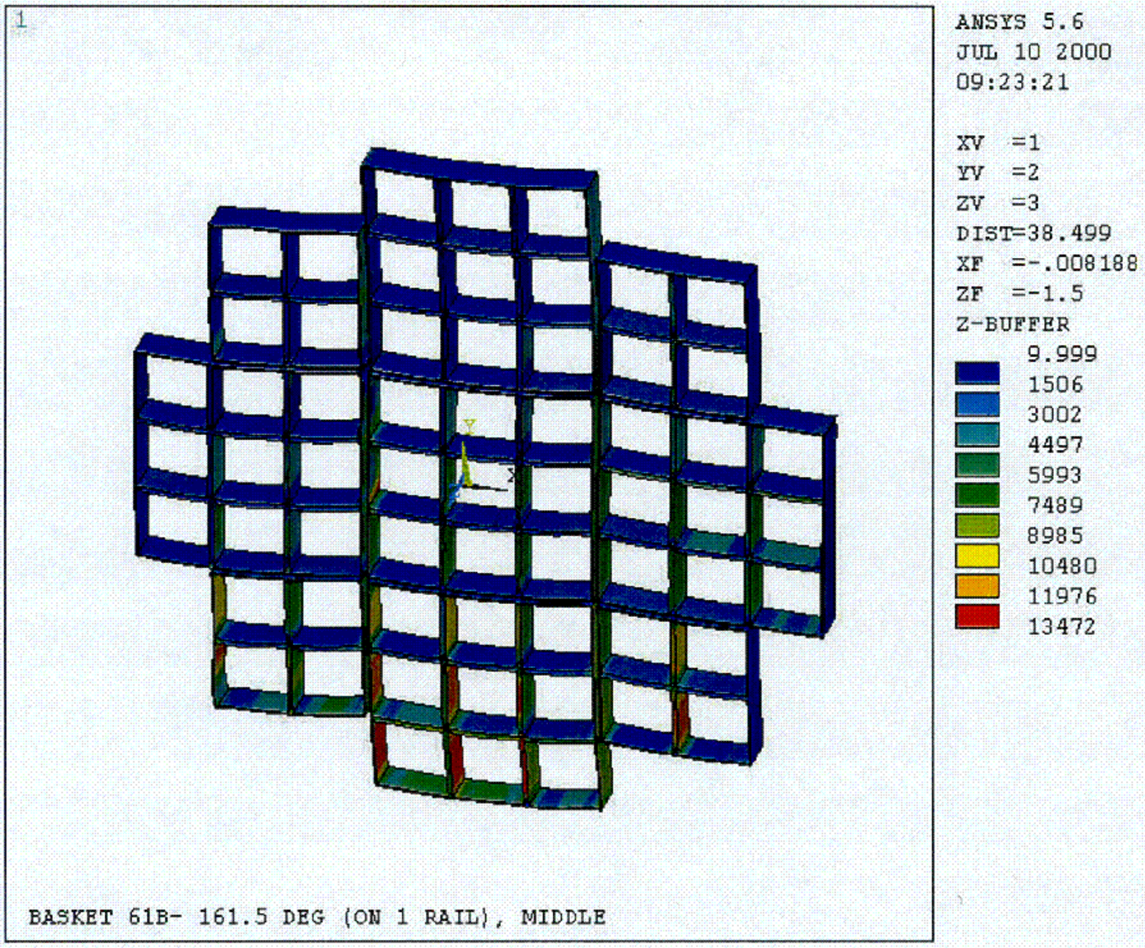


Figure K.3.7-24
161.5° Orientation Side Drop – Basket, P_m (75.5g)

C23

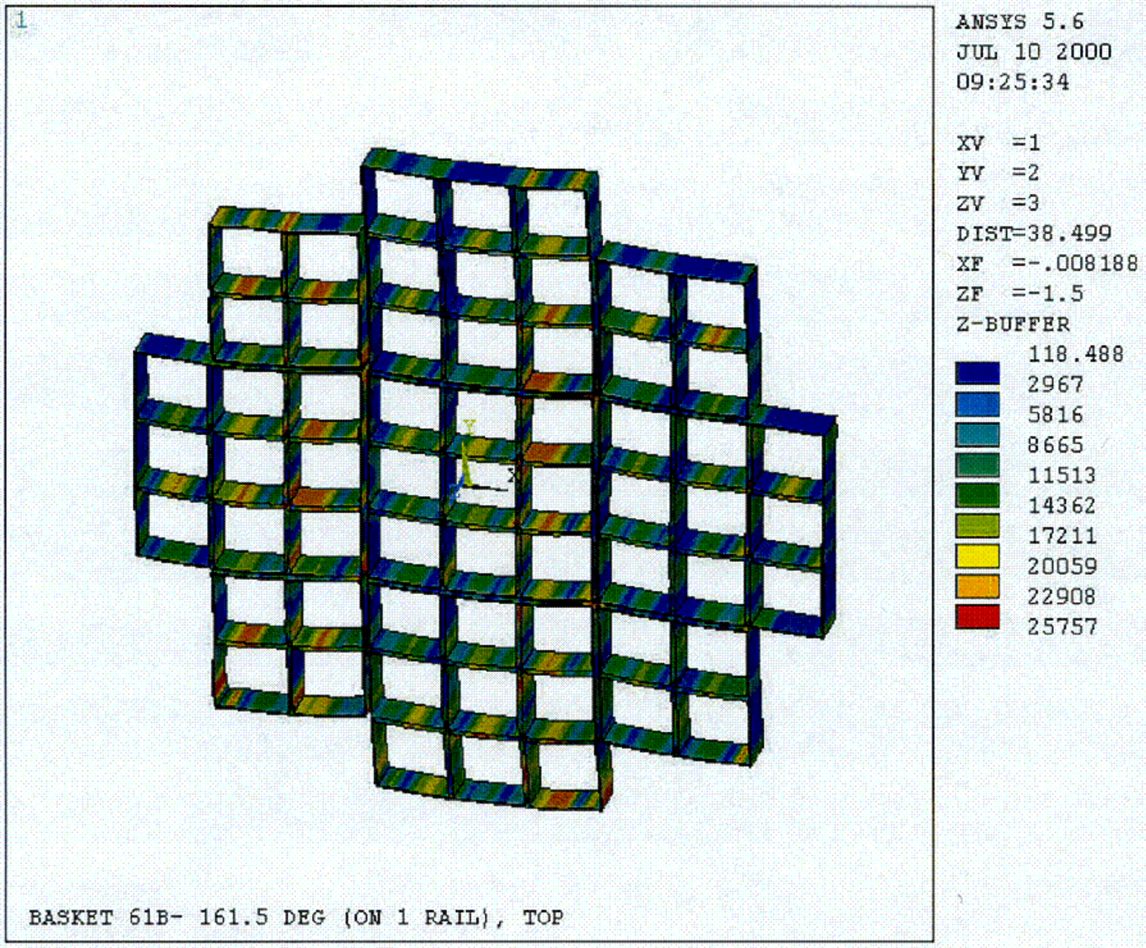


Figure K.3.7-25
161.5° Orientation Side Drop – Basket, $P_m + P_b$ (75.5g)

C24

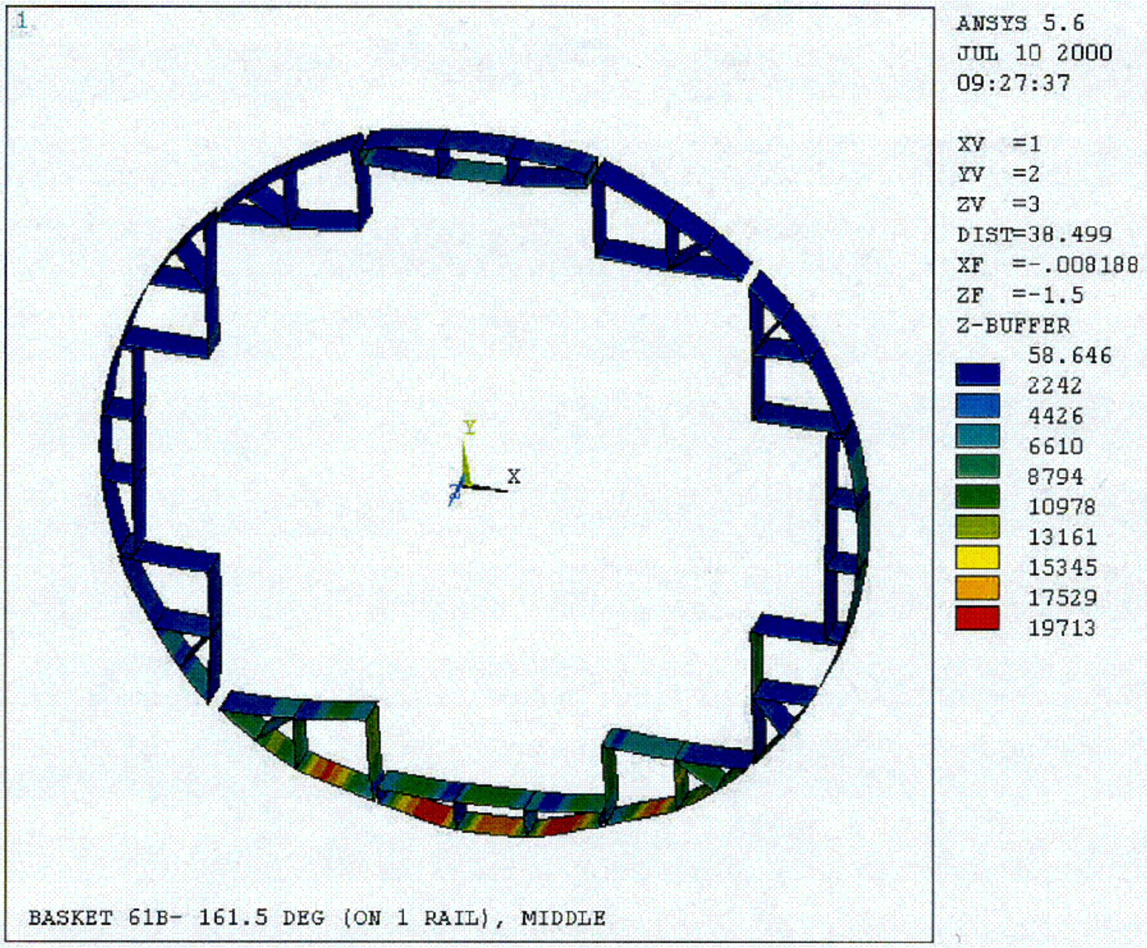


Figure K.3.7-26
161.5° Orientation Side Drop – Rails, P_m (75.5g)

C25

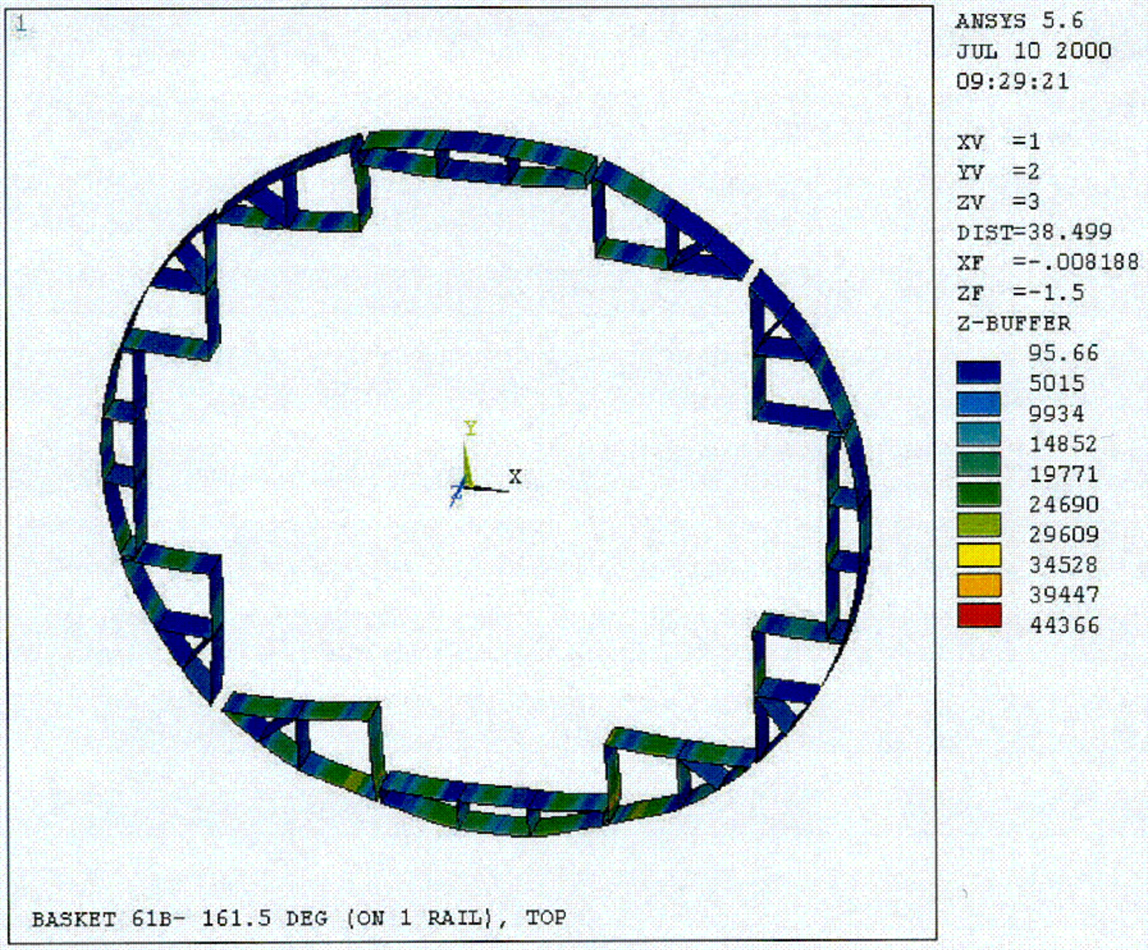


Figure K.3.7-27
161.5° Orientation Side Drop – Rails, $P_m + P_b$ (75.5g)

C26

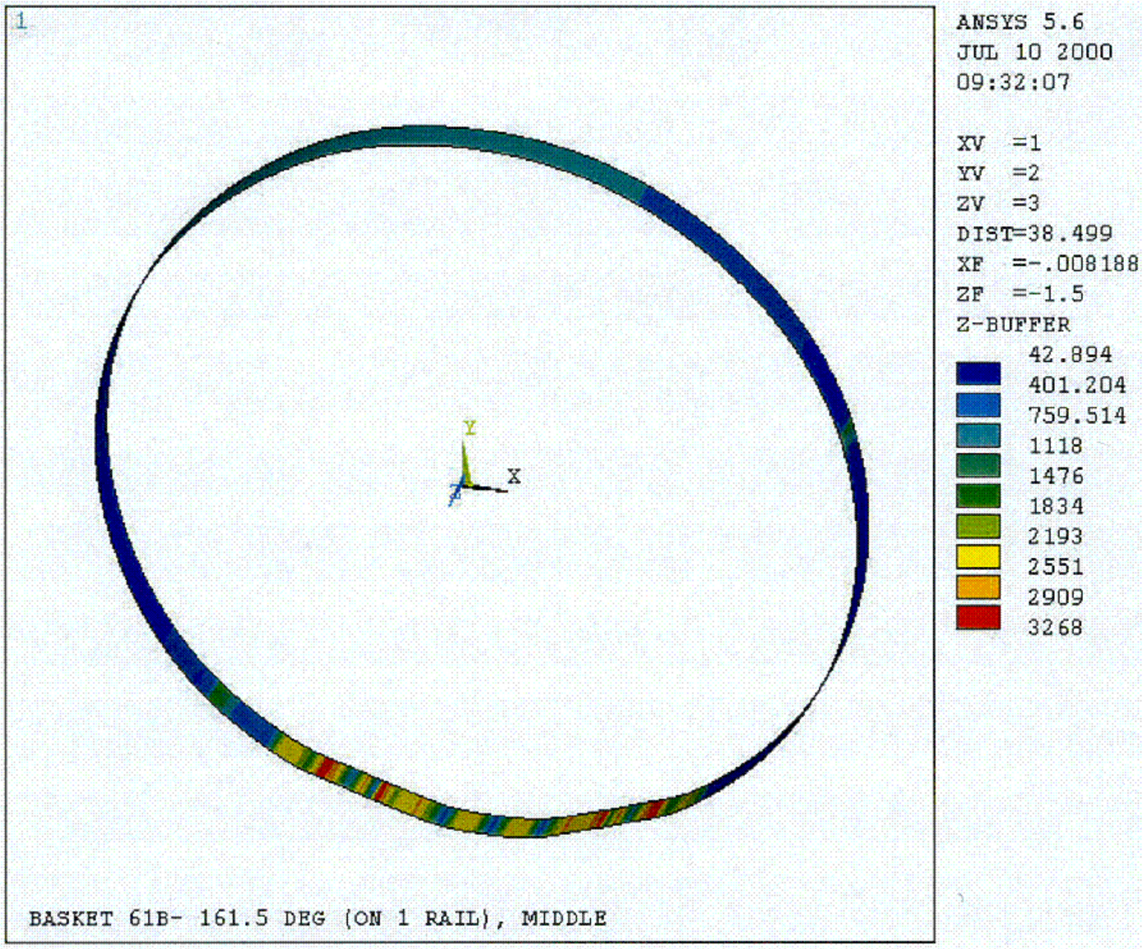


Figure K.3.7-28
161.5° Orientation Side Drop – Canister, P_m (75.5g)

C27

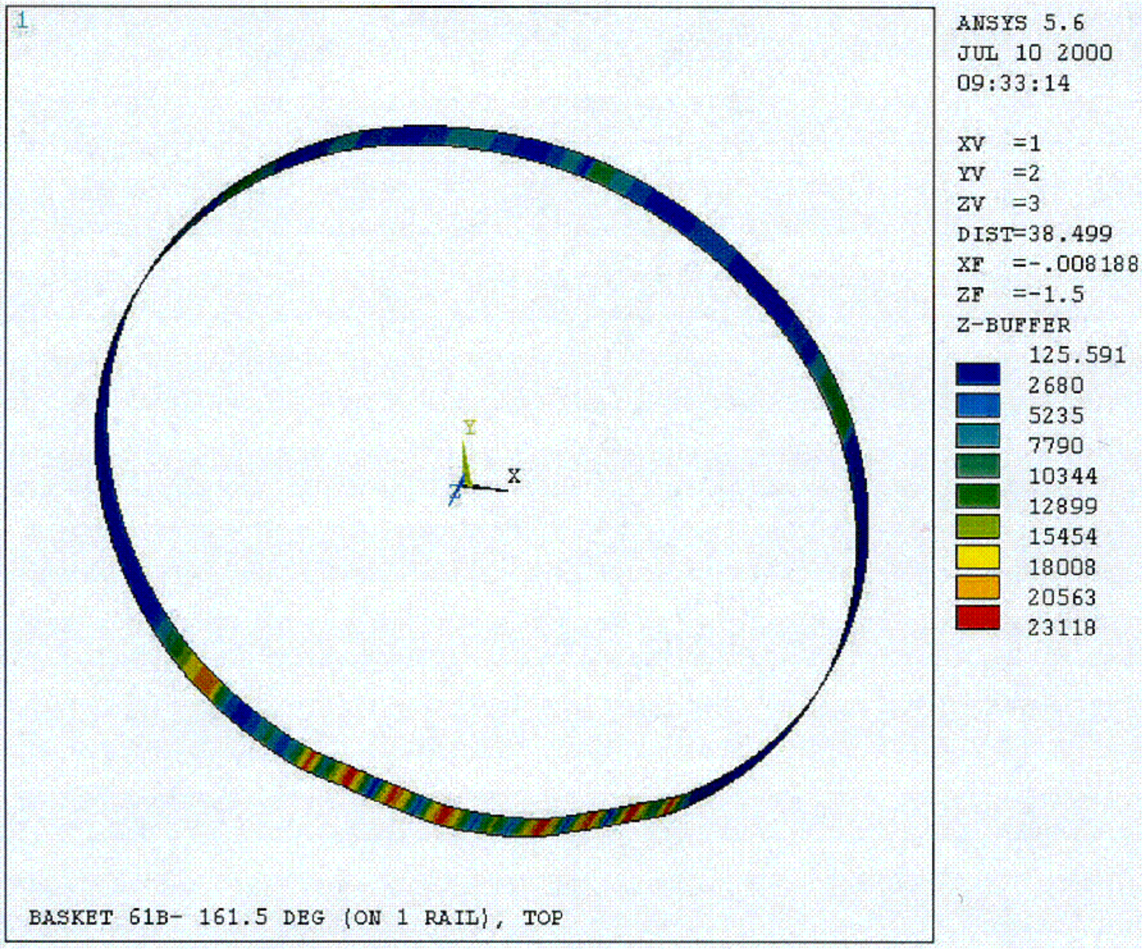


Figure K.3.7-29
161.5° Orientation Side Drop – Canister, $P_m + P_b$ (75.5g)

C28

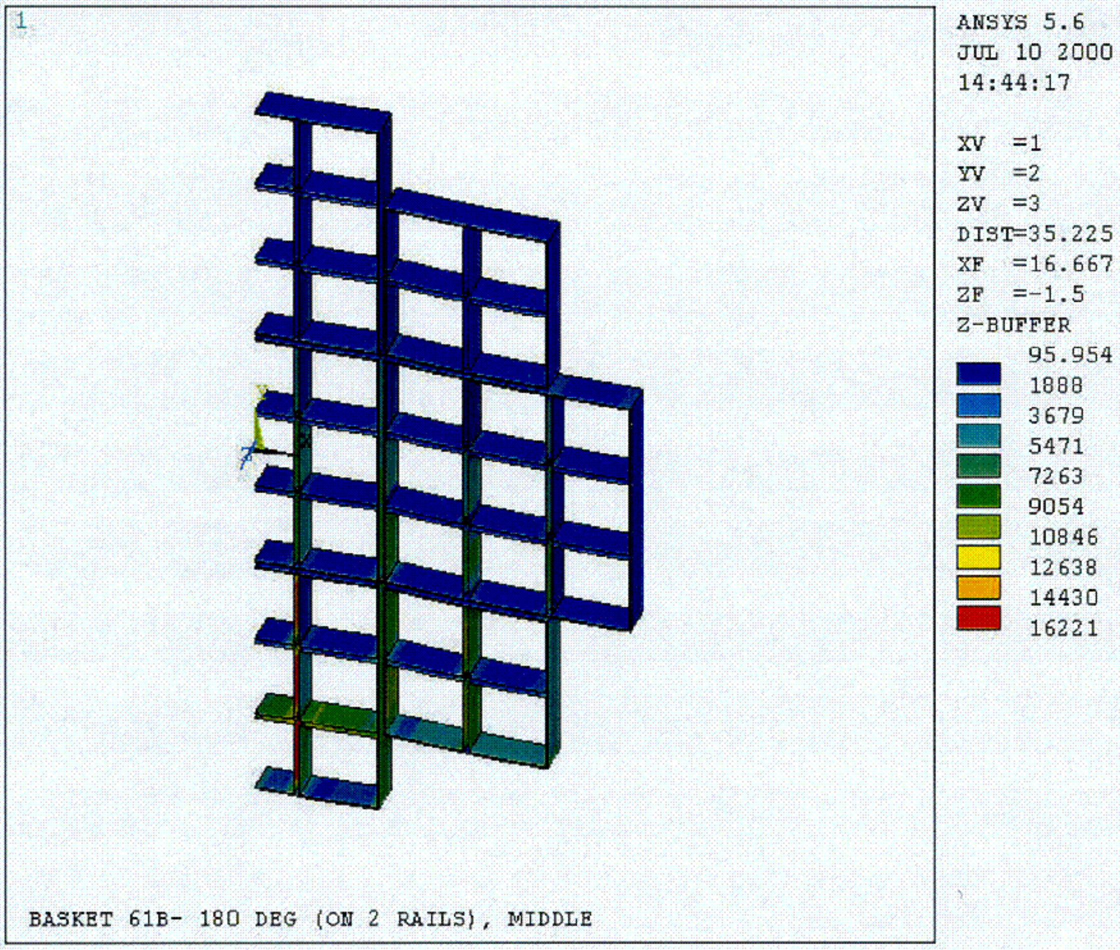


Figure K.3.7-30
180° Orientation Side Drop – Basket, P_m (75.5g)

C29

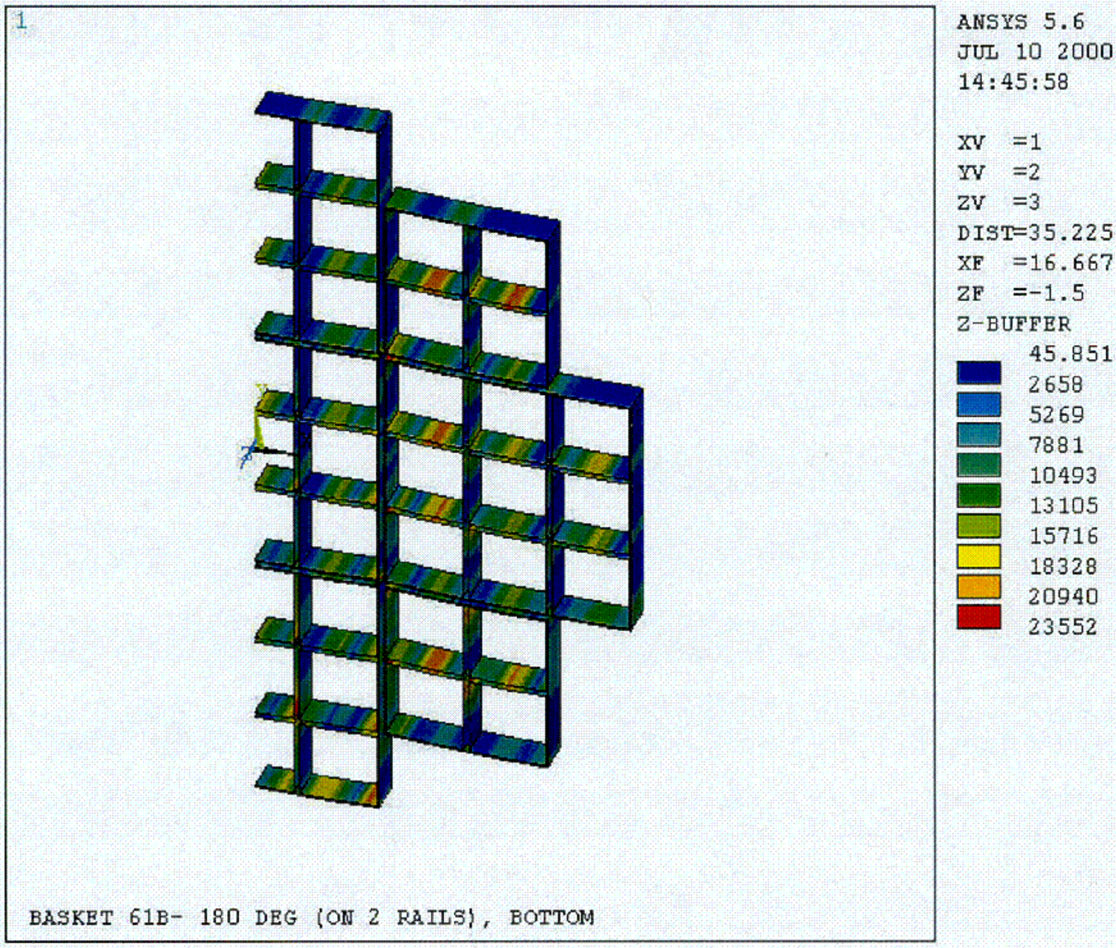


Figure K.3.7-31
180° Orientation Side Drop – Basket, $P_m + P_b$ (75.5g)

C30

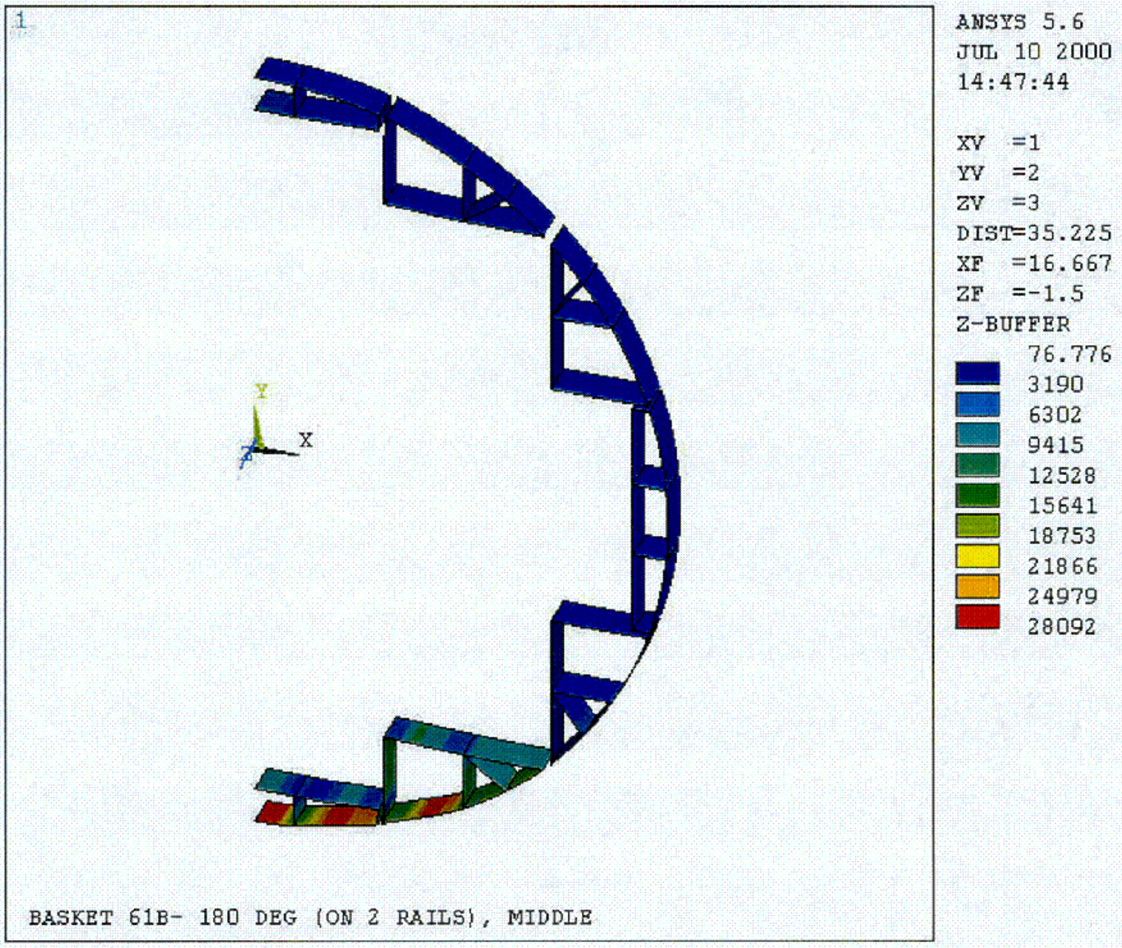


Figure K.3.7-32
180° Orientation Side Drop – Rails, P_m (75.5g)

C31

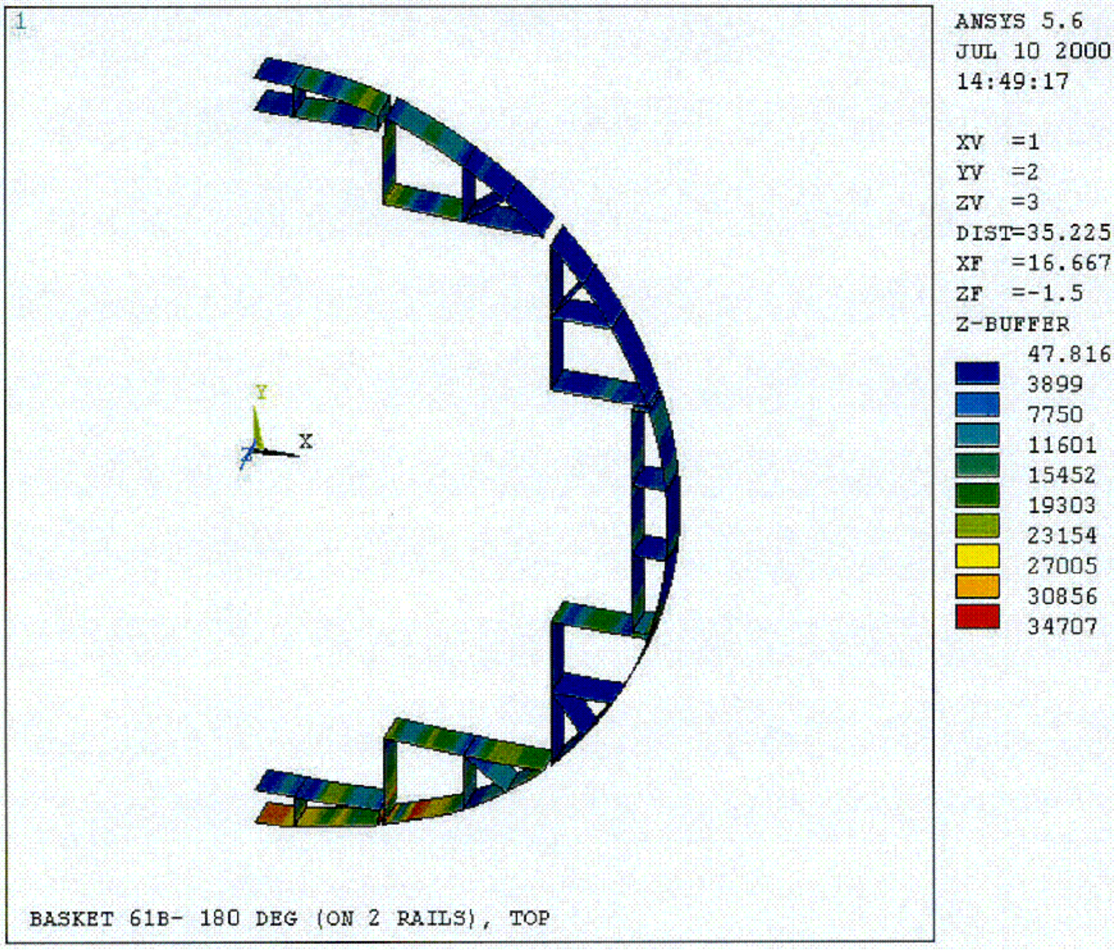


Figure K.3.7-33
180° Orientation Side Drop – Rails, $P_m + P_b$ (75.5g)

C32

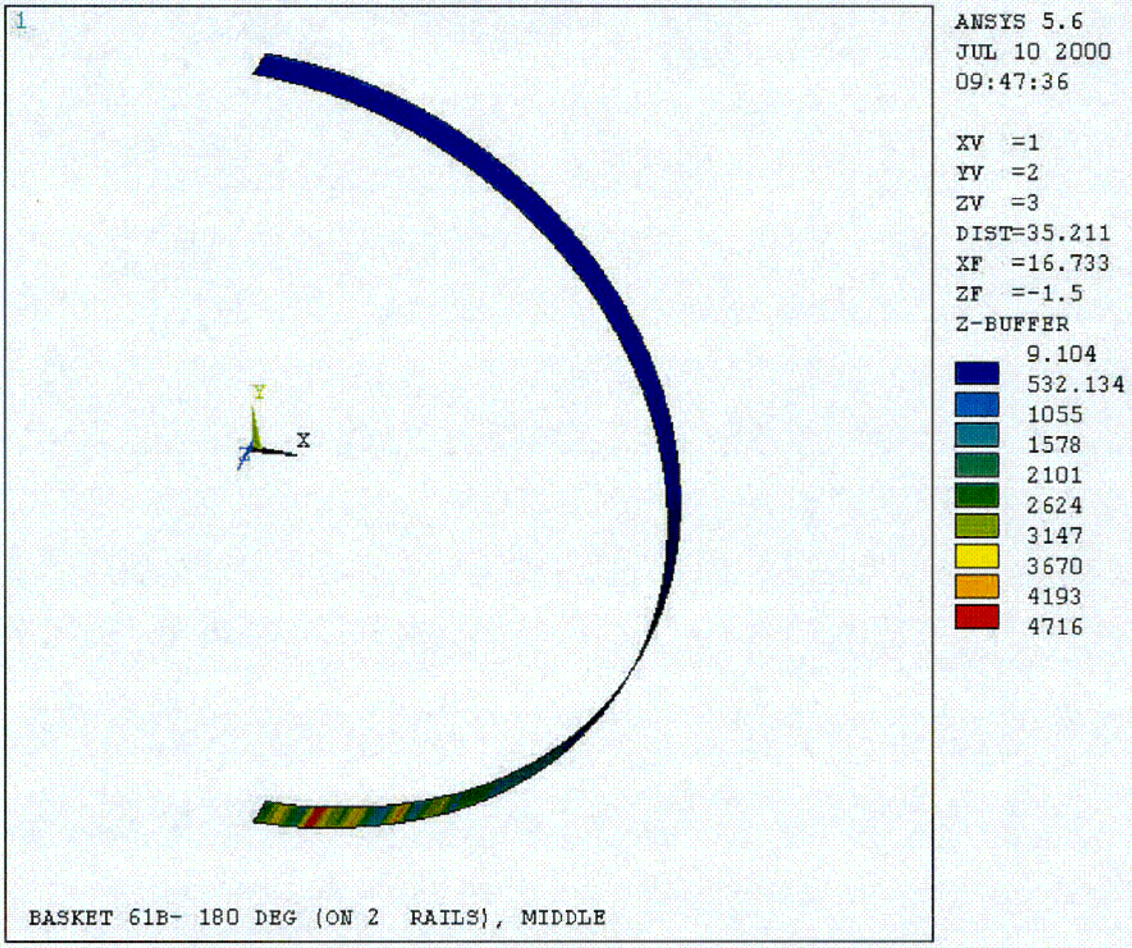


Figure K.3.7-34
180° Orientation side Drop – Canister, P_m (75.5g)

C33

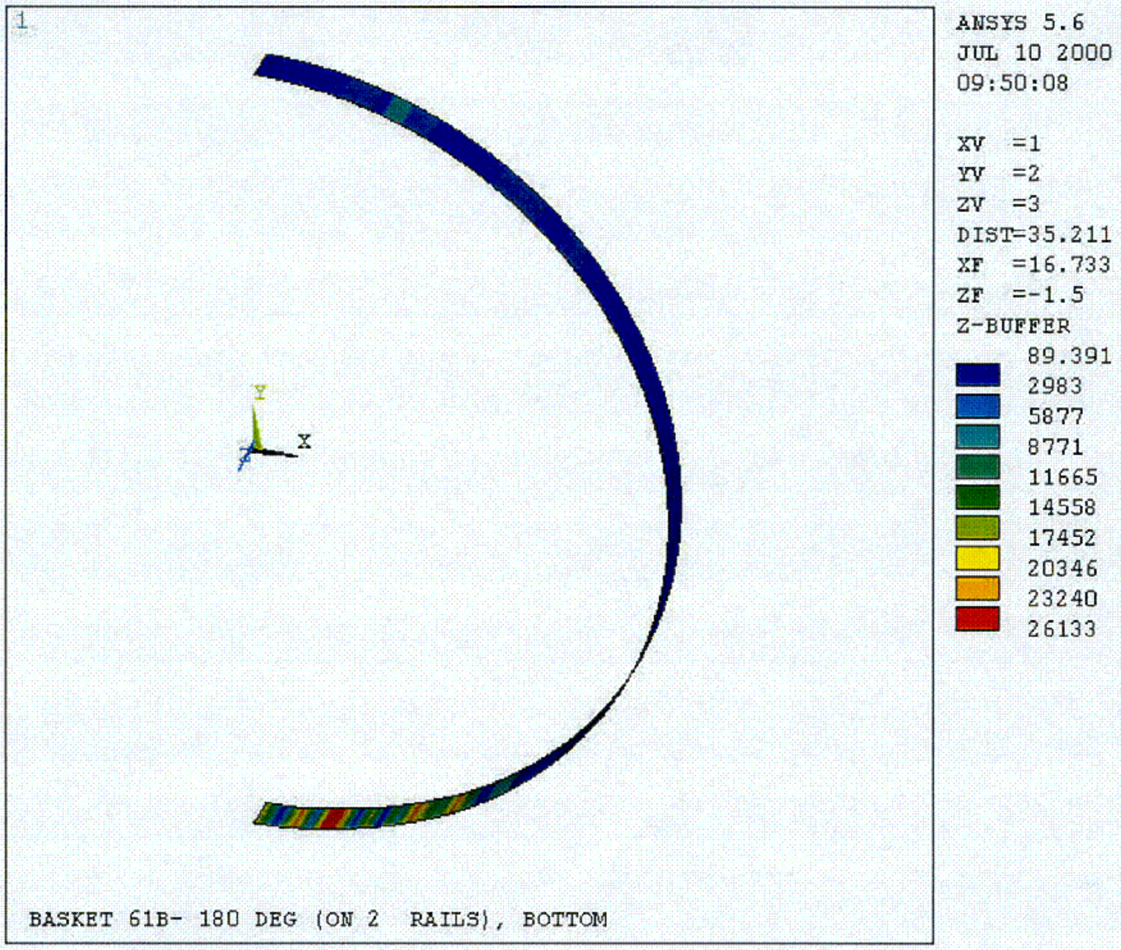


Figure K.3.7-35
180° Orientation Side Drop – Canister, $P_m + P_b$ (75.5g)

C34

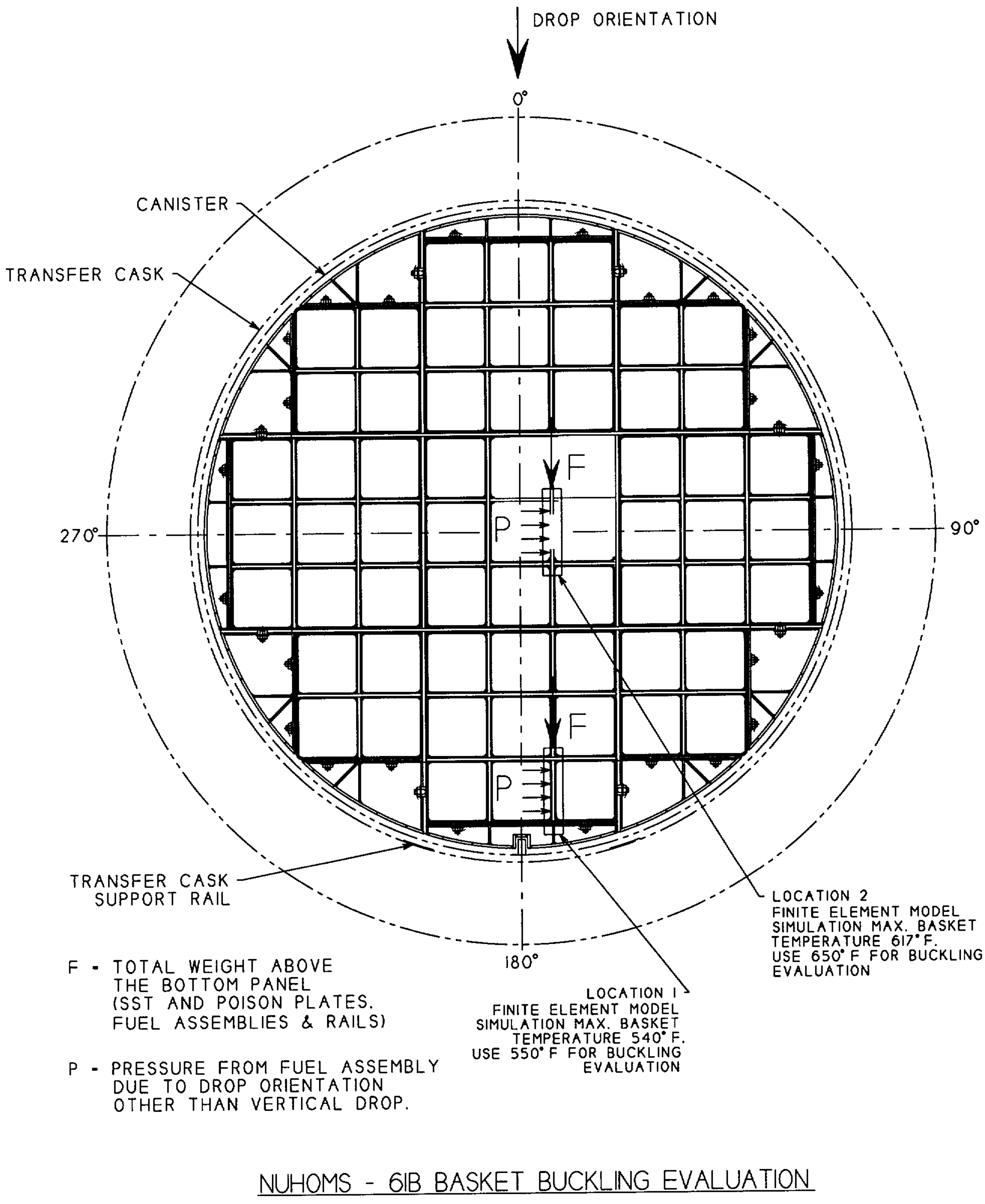


Figure K.3.7-36
NUHOMS®-61BT Basket Buckling Evaluation

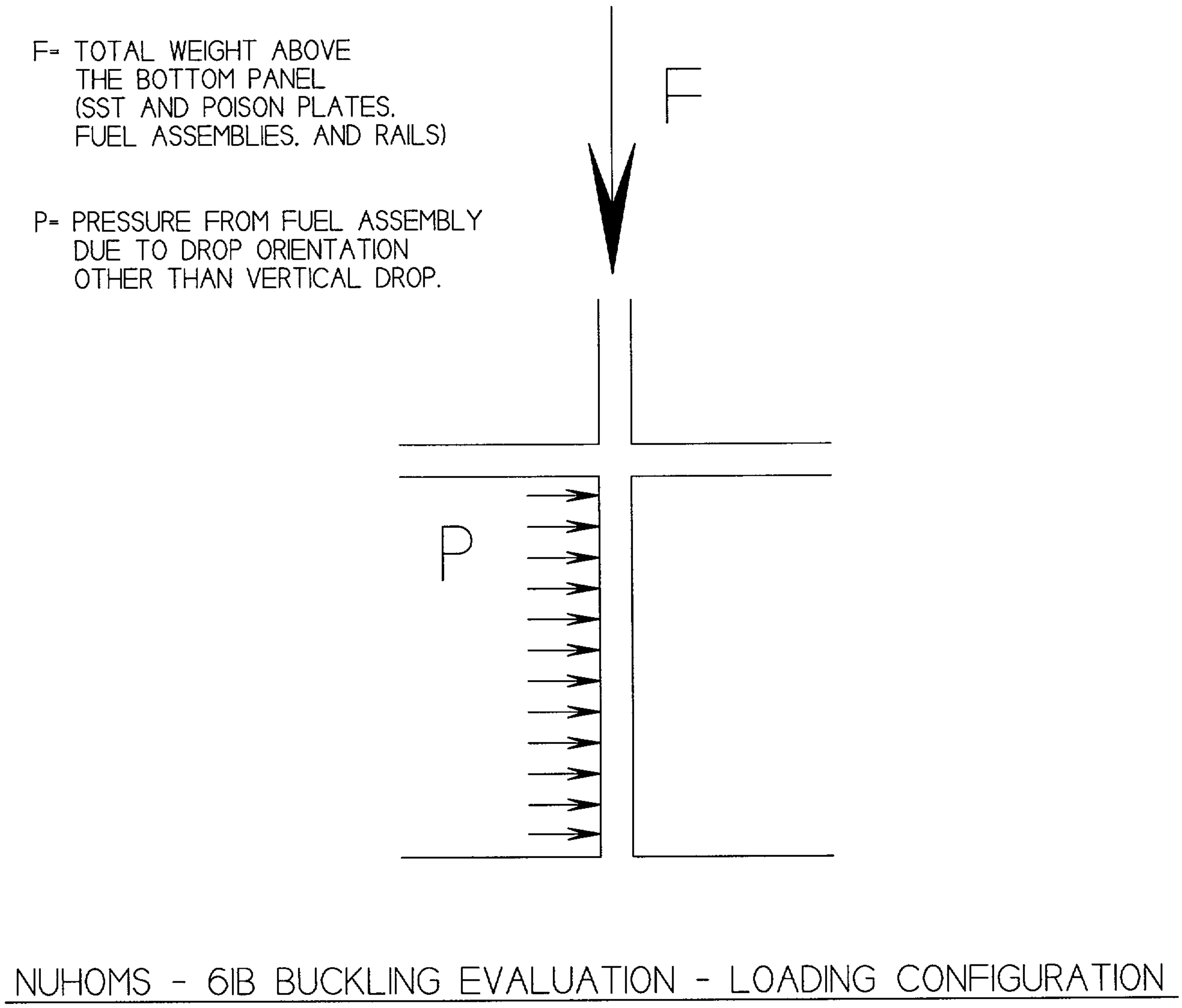


Figure K.3.7-37
NUHOMS®-61BT Basket Model Geometry

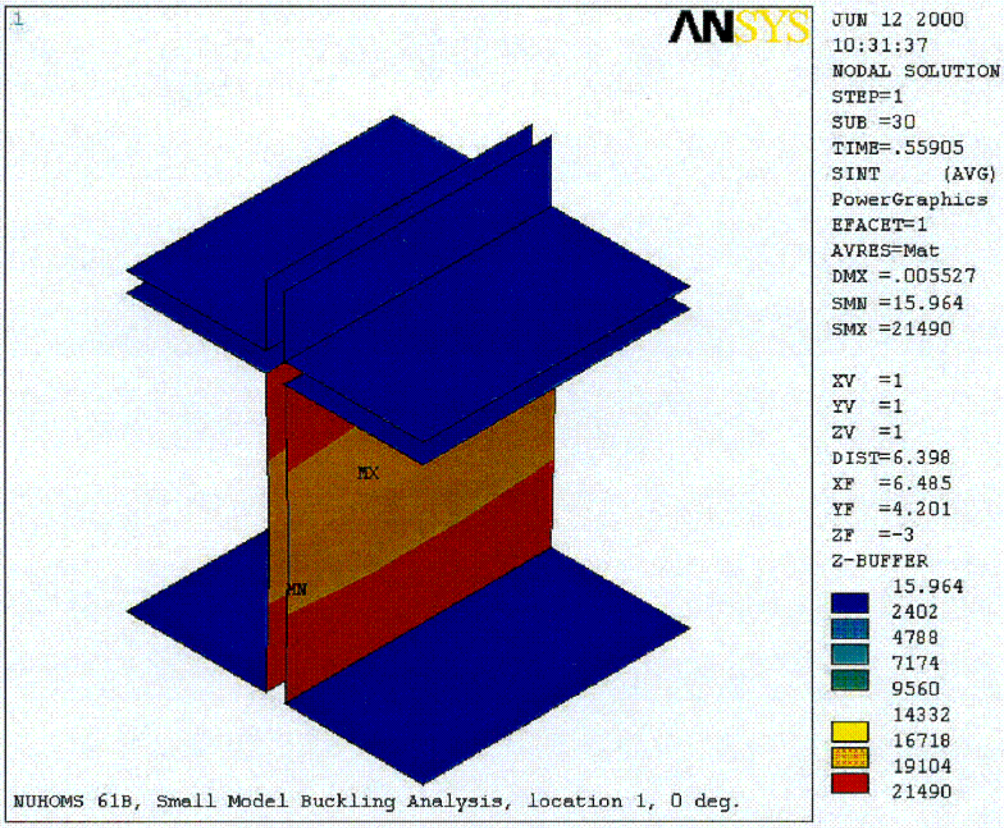


Figure K.3.7-38
Vertical Drop Buckling Analysis, Location 1

C35

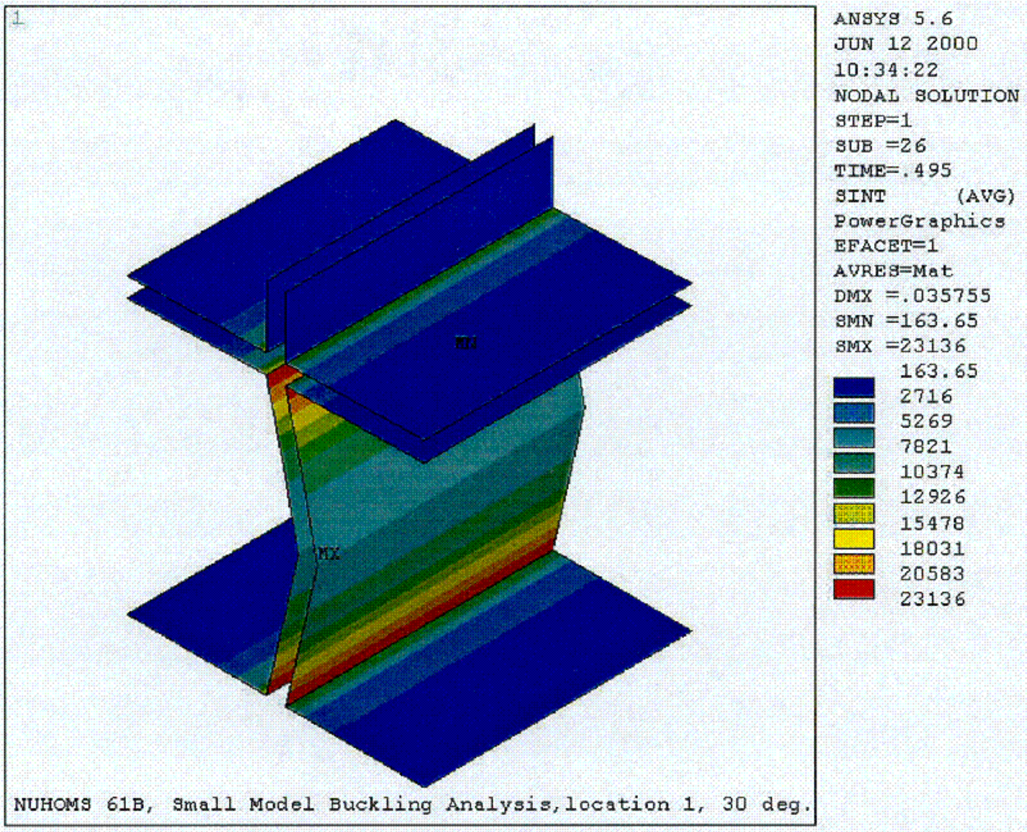


Figure K.3.7-39
30° Drop Buckling Analysis, Location 1

C36

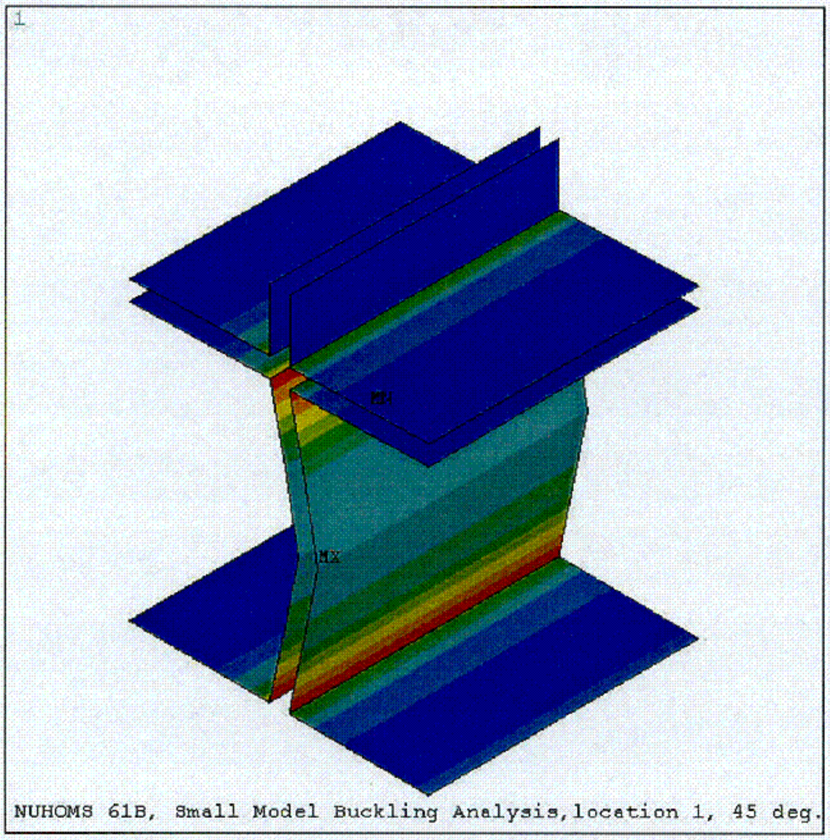


Figure K.3.7-40
45° Drop Buckling Analysis, Location 1

C37

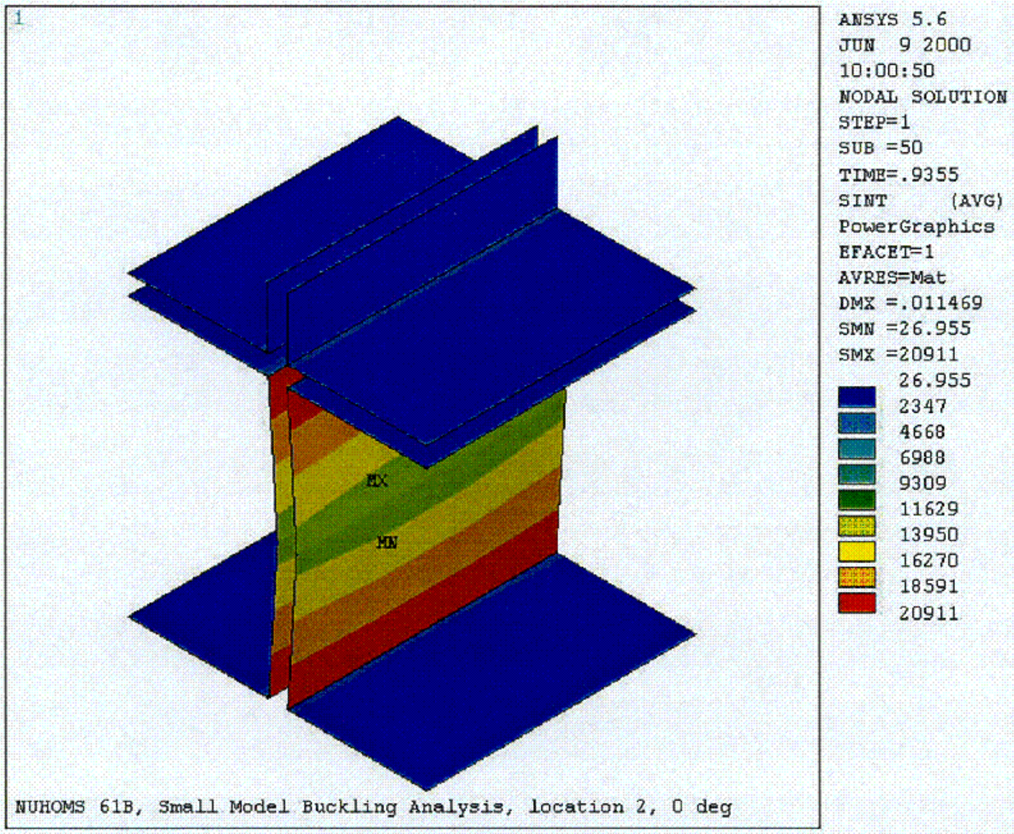


Figure K.3.7-41
Vertical Drop Buckling Analysis, Location 2

C 38

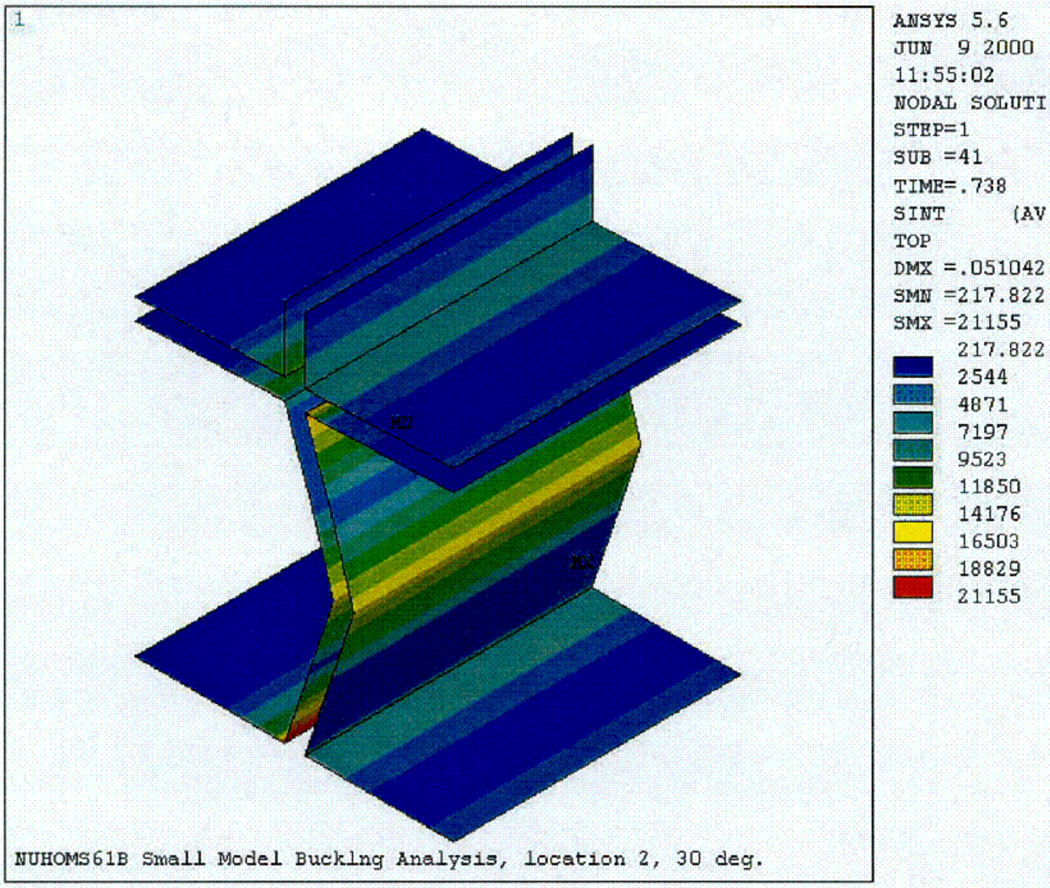


Figure K.3.7-42
30° Drop Buckling Analysis, Location 2

C39

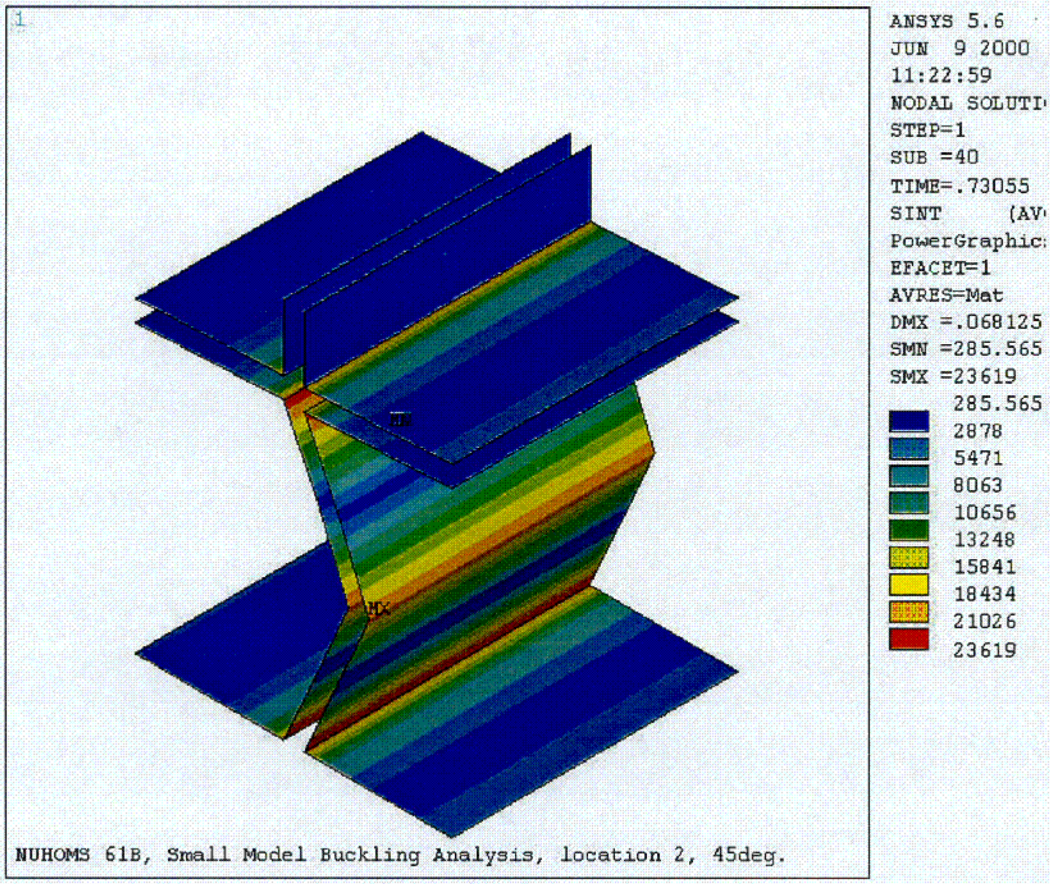


Figure K.3.7-43
45° Drop Buckling Analysis, Location 2

C 40

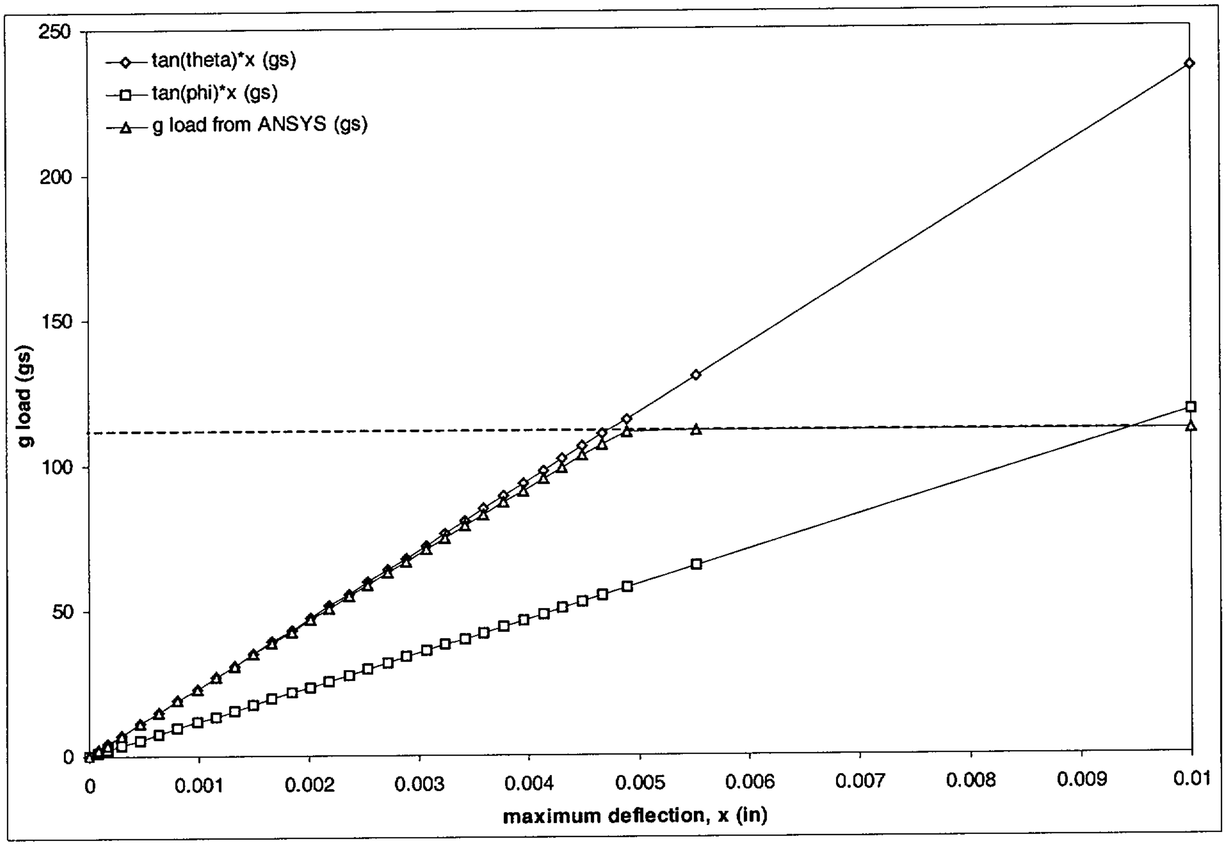


Figure K.3.7-44
Allowable Collapse Load Determination, Location 1, Vertical Drop

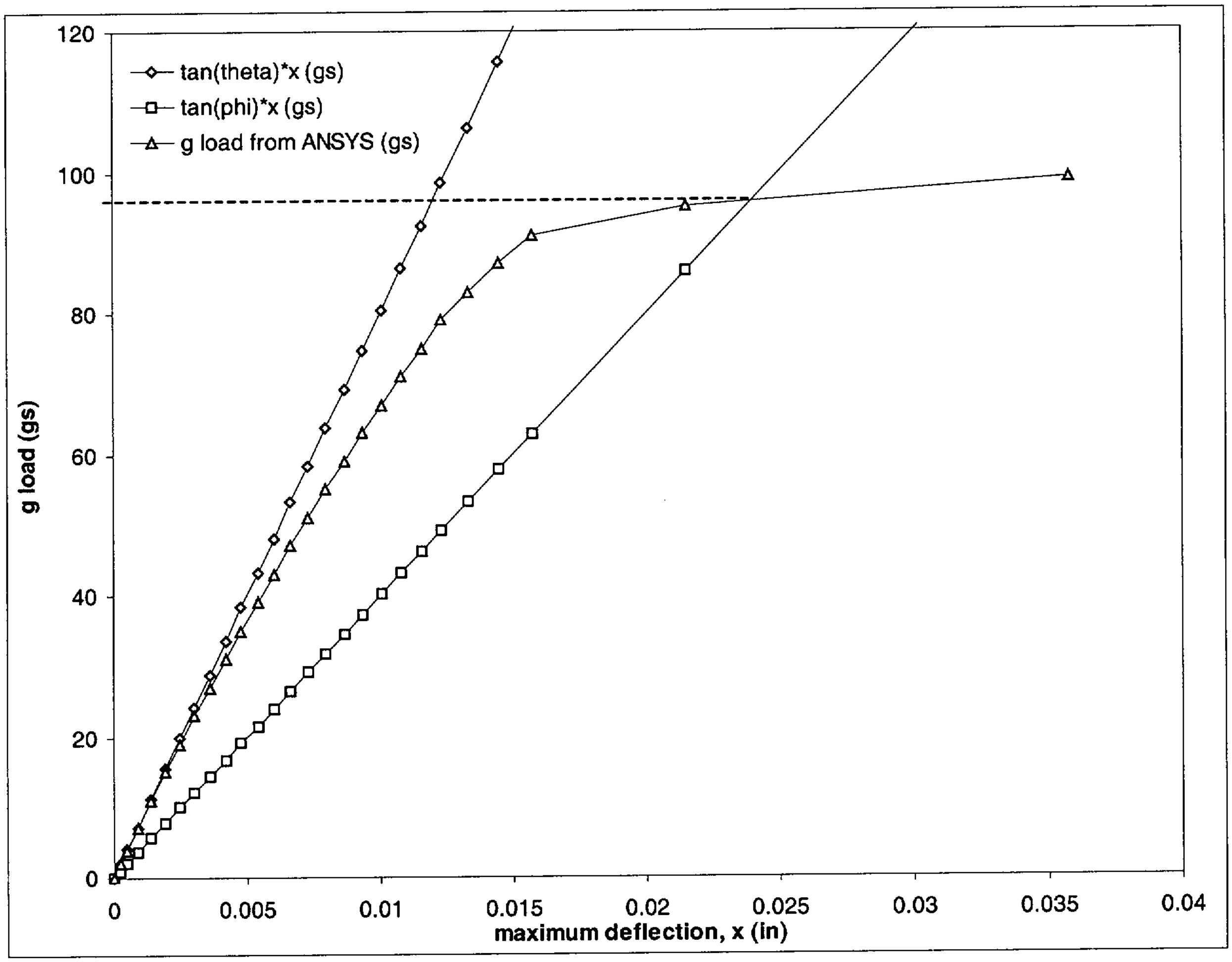


Figure K.3.7-45
Allowable Collapse Load Determination, Location 1, 30° Drop

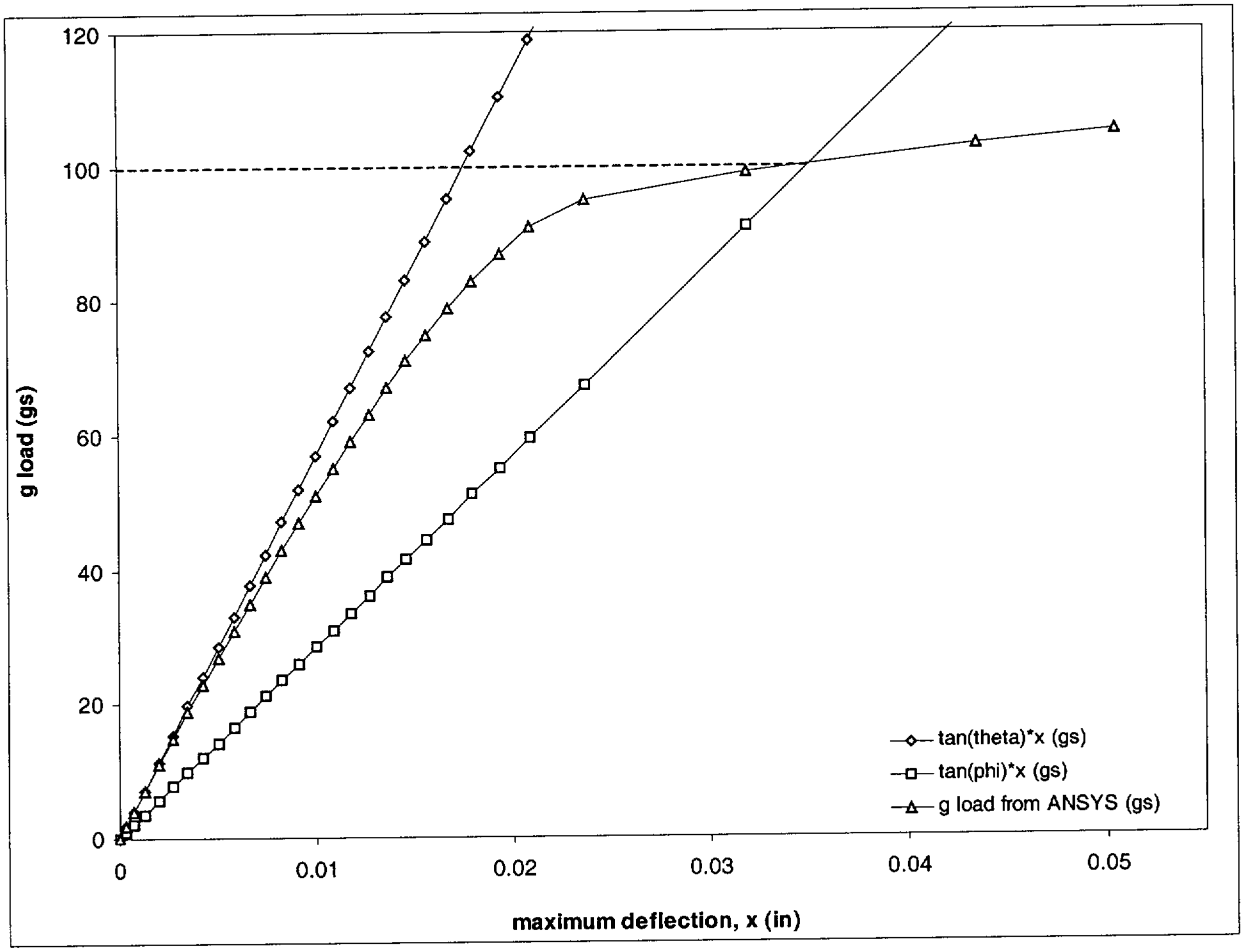


Figure K.3.7-46
Allowable Collapse Load Determination, Location 1, 45° Drop

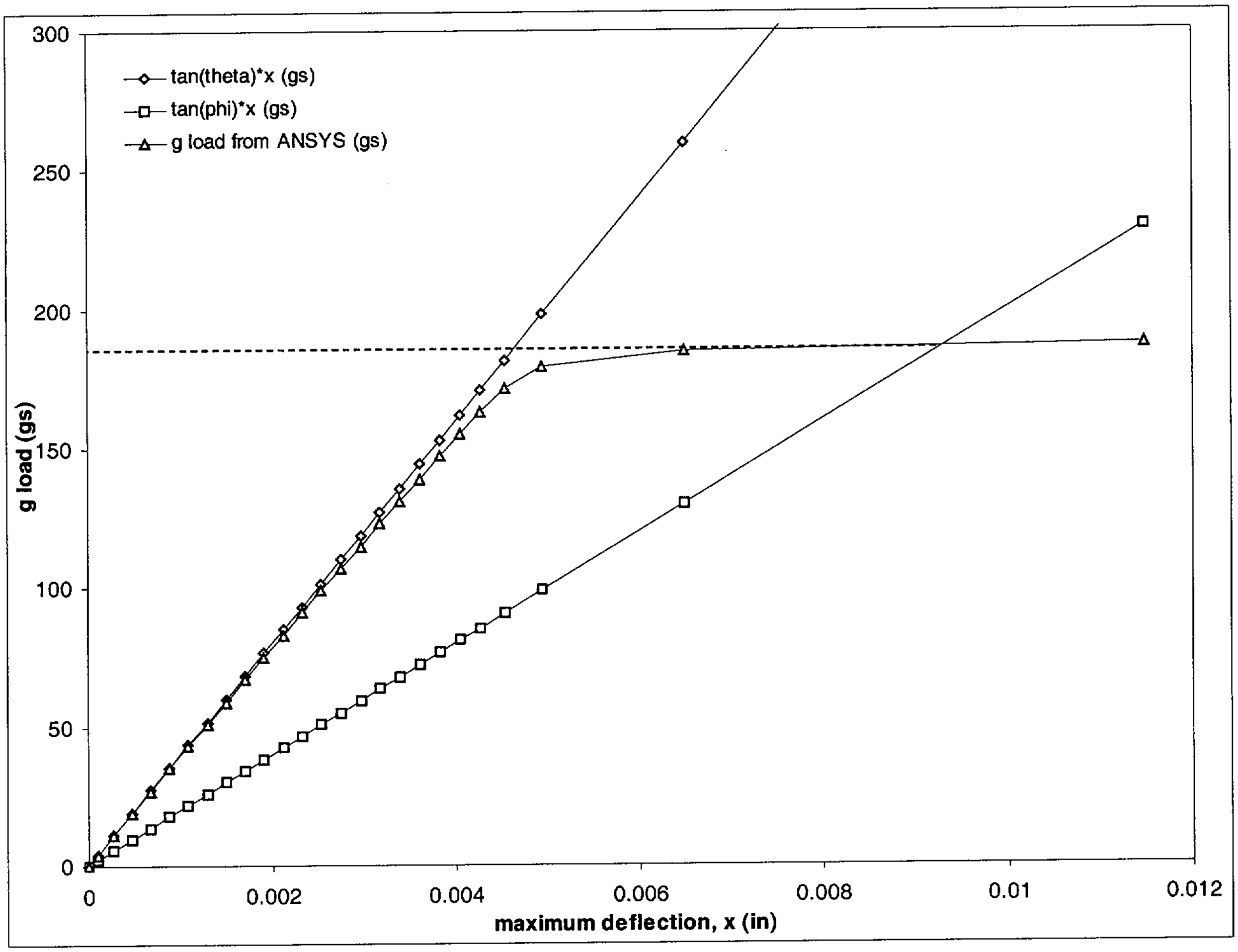


Figure K.3.7-47
Allowable Collapse Load Determination, Location 2, Vertical Drop

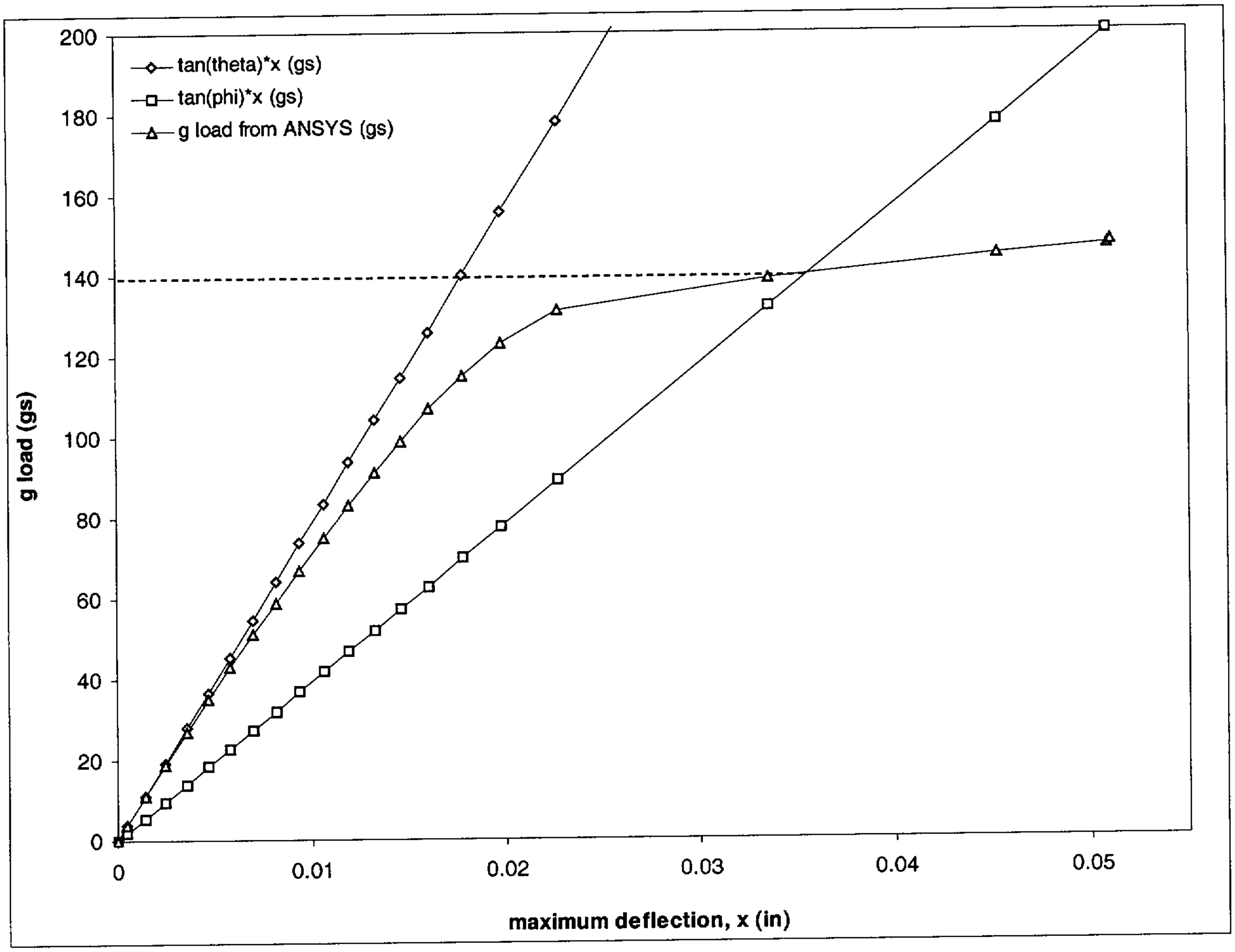


Figure K.3.7-48
Allowable Collapse Load Determination, Location 2, 30° Drop

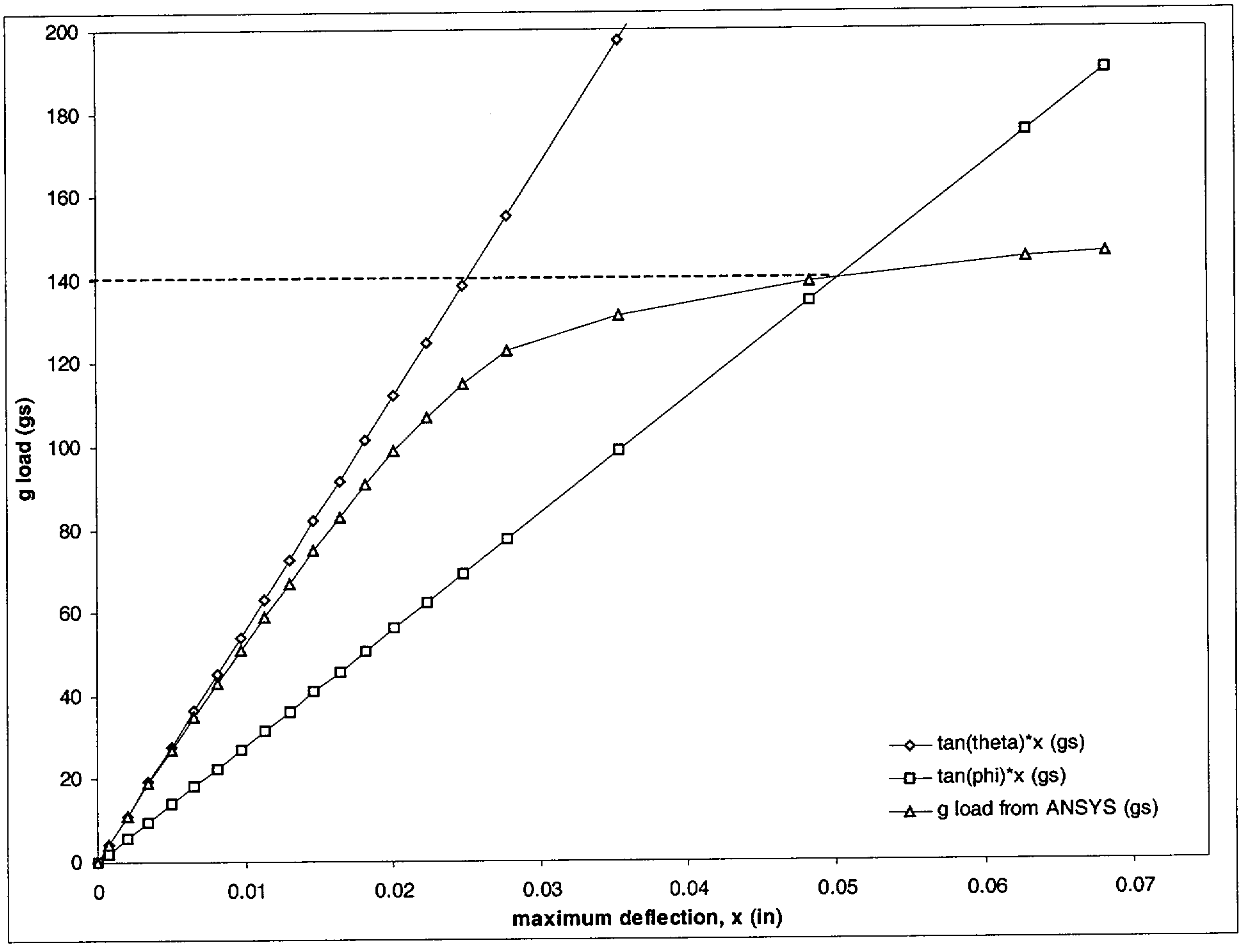


Figure K.3.7-49
Allowable Collapse Load Determination, Location 2, 45° Drop

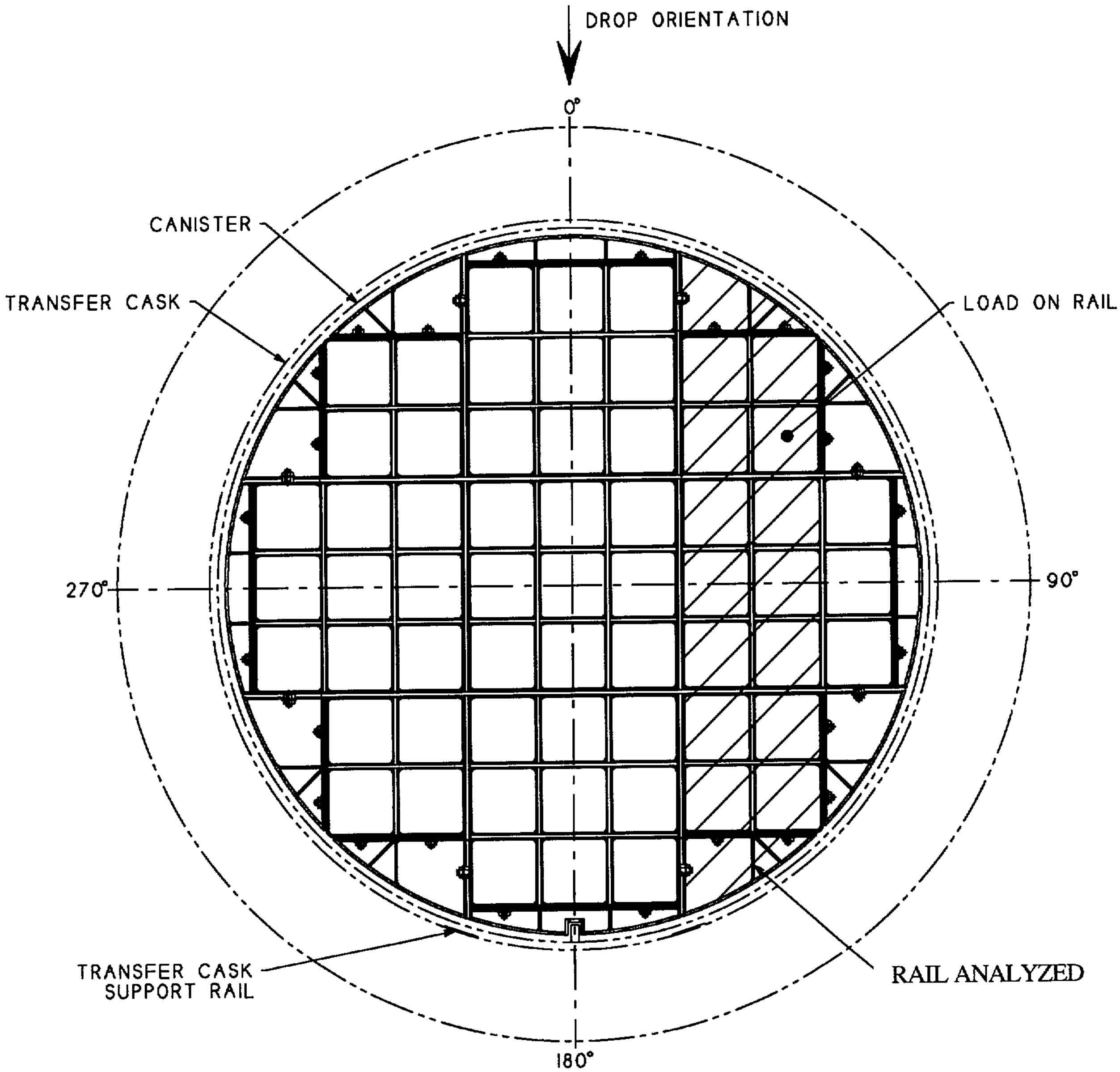


Figure K.3.7-50
NUHOMS®-61BT Basket Rail Buckling Evaluation

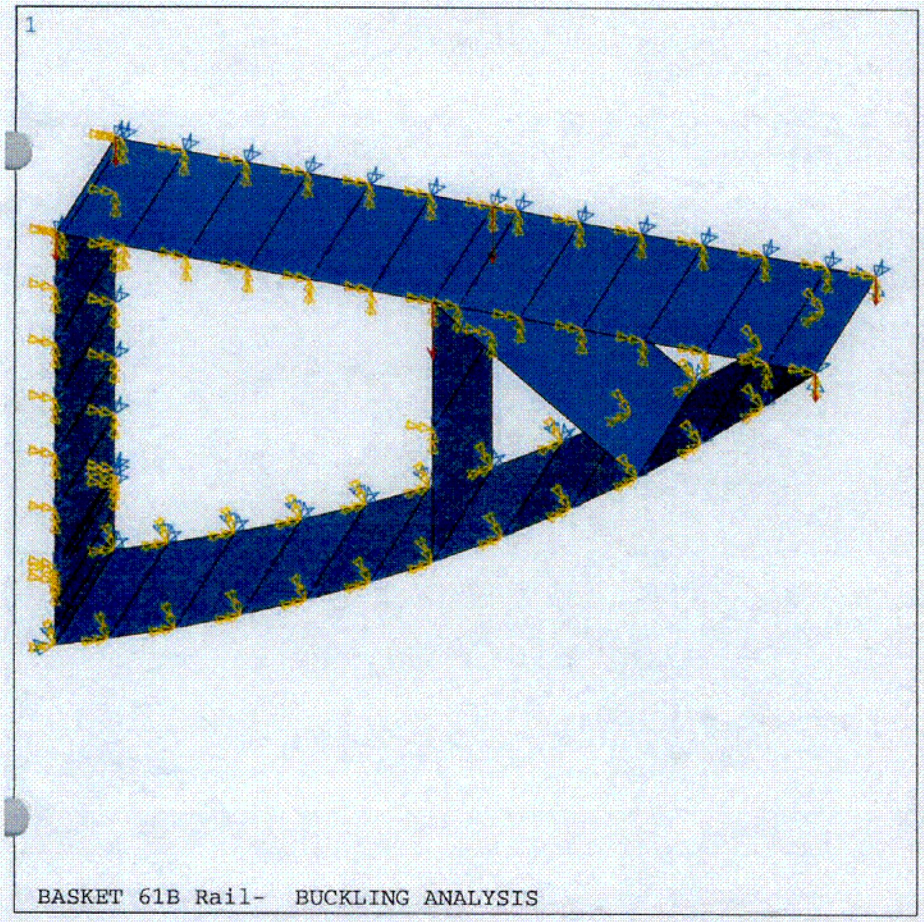


Figure K.3.7-51
NUHOMS®-61BT Basket Rail Model and Boundary Conditions

C41

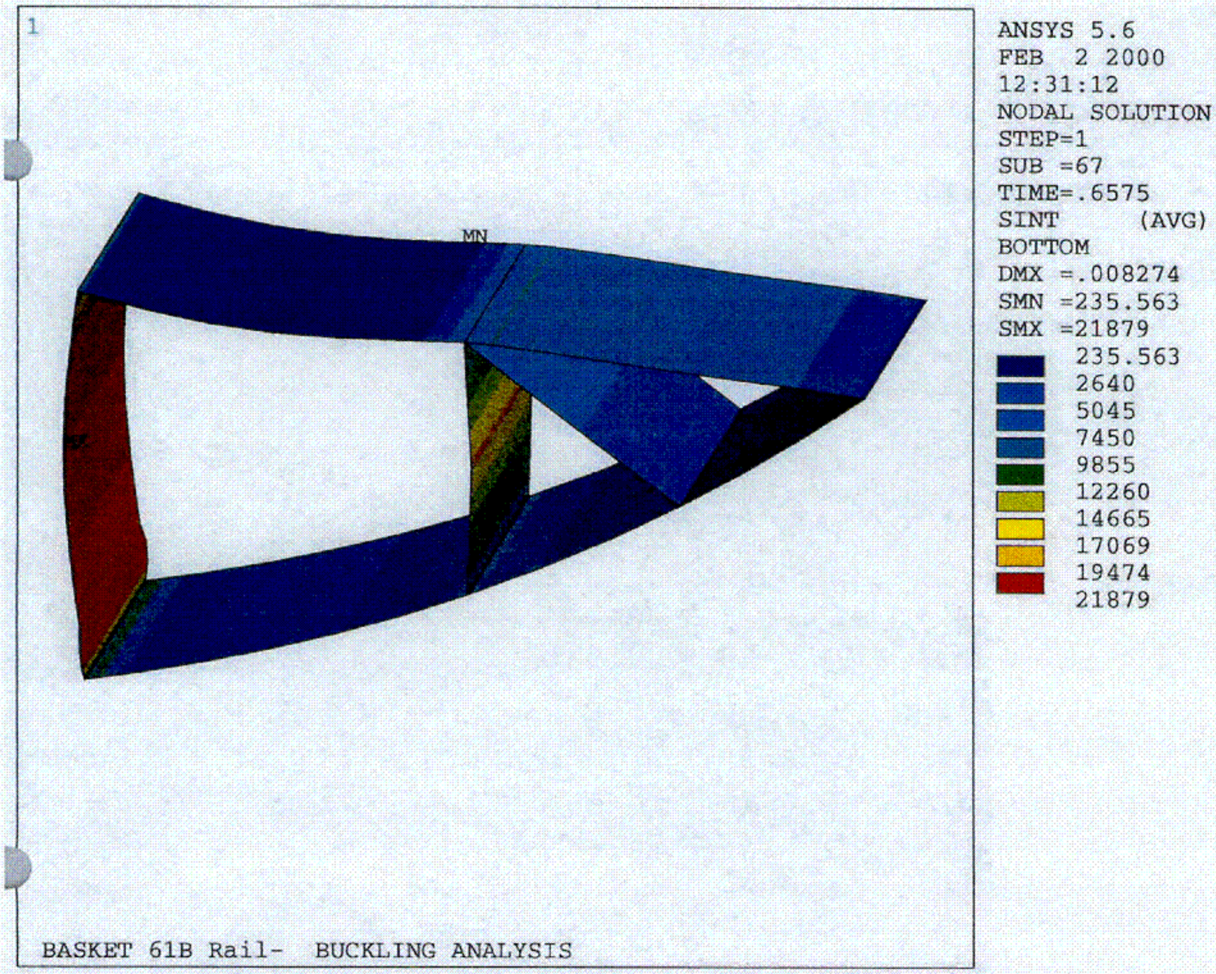


Figure K.3.7-52
NUHOMS®-61BT Basket Rail Buckling Analysis, Case 1

C42

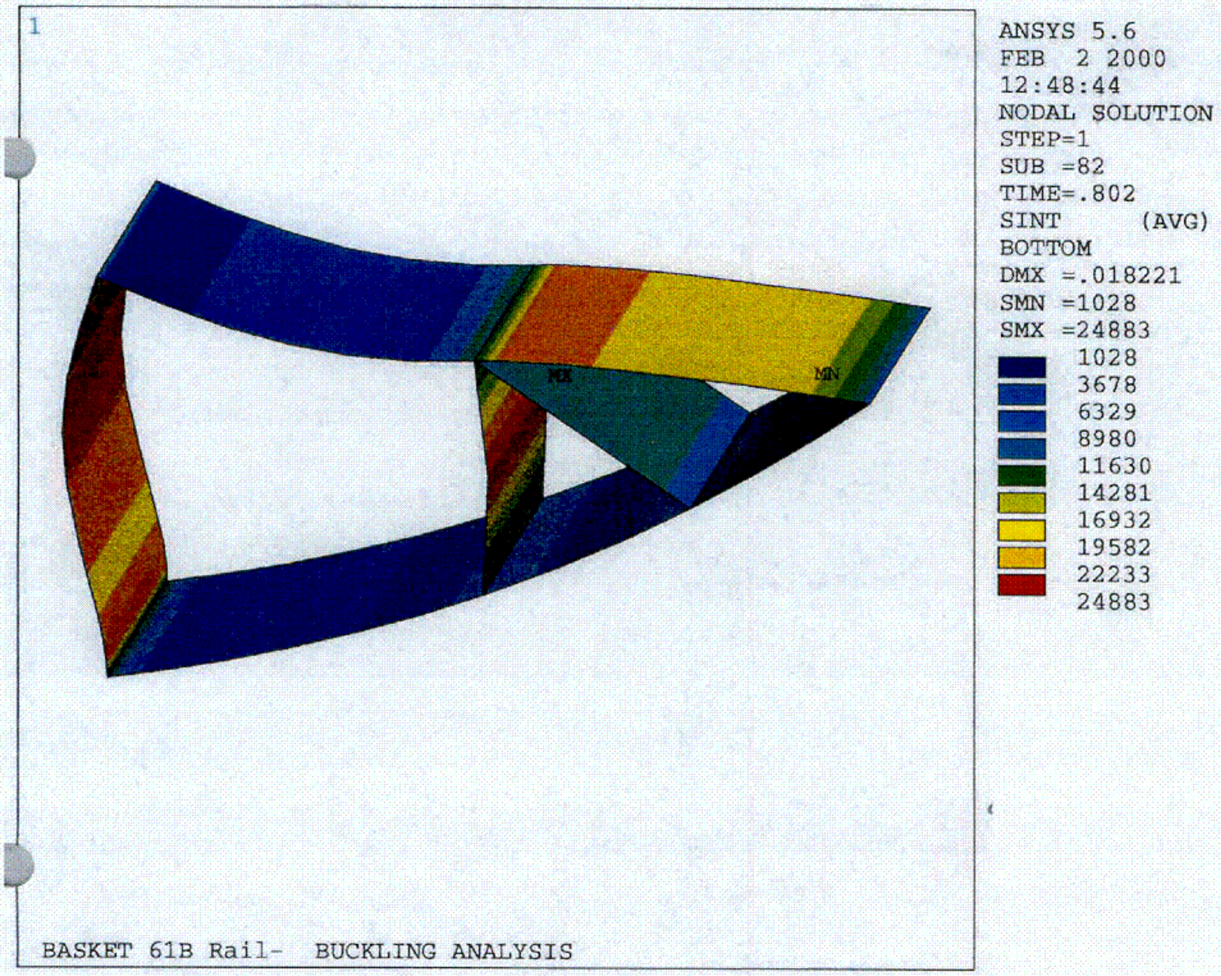


Figure K.3.7-53
NUHOMS®-61BT Basket Rail Buckling Analysis, Case 2

C43

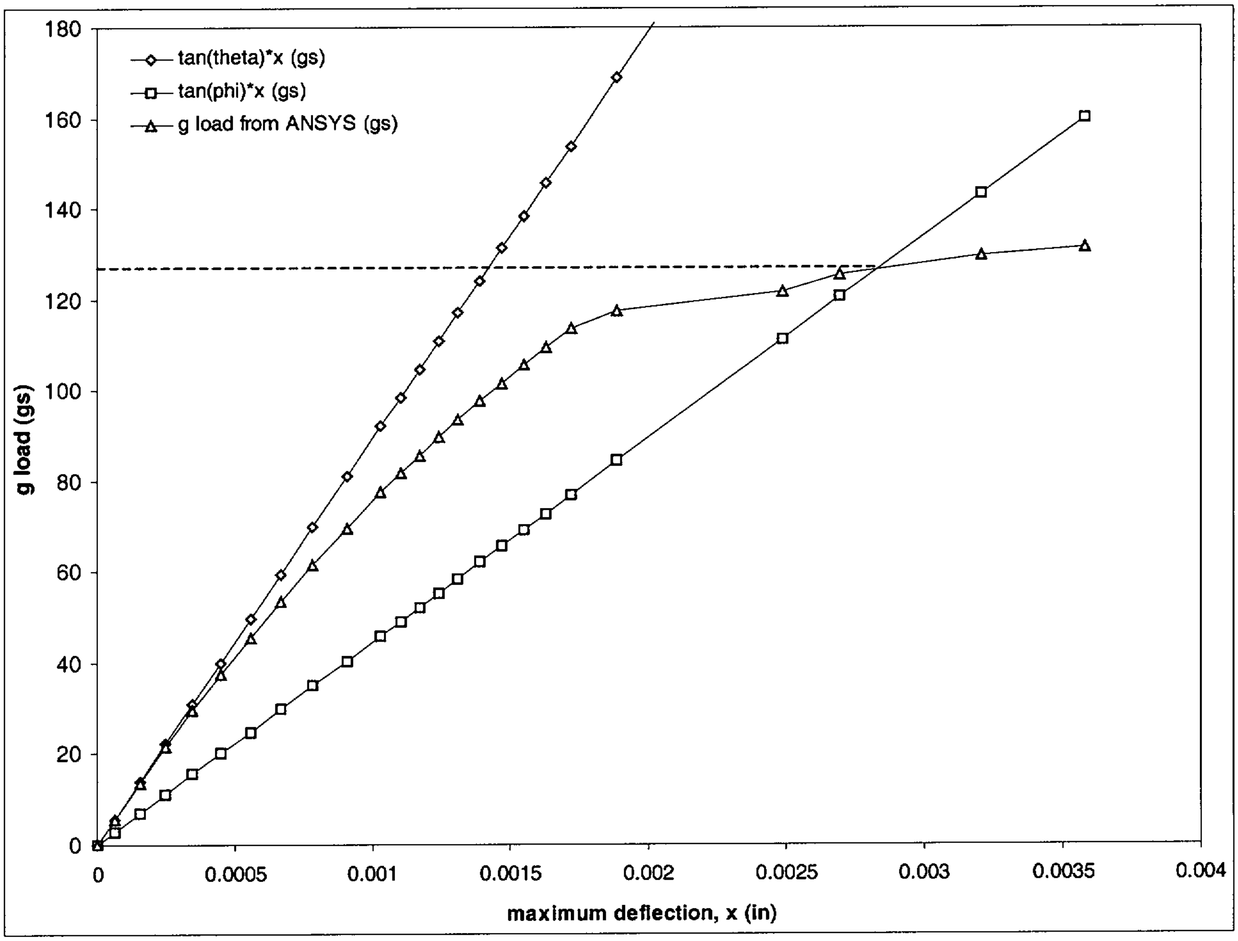


Figure K.3.7-54
Allowable Collapse Load Determination for Basket Rail

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