

UGS CONNECTION



AMERICAS 2008



Siemens PLM Software

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Migrating I-deas Sheet Metal to UG NX

Steve Frye (sfrye@hennypenny.com)

937-456-8691



Migrating I-deas Sheet Metal to UG NX

Steve Frye - Introduction

- Henny Penny employee since 1982
- Last 22 years have been spent in Engineering, the first 12 as Senior Mechanical Designer
- Last 10 years I-deas CAD Administrator
- Expanded role as Teamcenter Engineering Administrator in 2008
- Participated in CMM beta testing the last 5 years
- Participated in Sheet Metal beta testing the last 3 years
- Sheet Metal Focus Group Leader – 2007



Migrating I-deas Sheet Metal to UG NX

Henny Penny Corporation - Introduction

- Henny Penny Corporation is a Global manufacturer of Food Service Equipment.
- Employs ~500 people worldwide
- Corporate headquarters - Eaton, OH
- Second facility - Suzhou, China
- Third facility – Refcon, in Norwood, NJ
- Additional Sales Offices:
 - ❁ Mexico City
 - ❁ Paris
 - ❁ Moscow
 - ❁ Beirut
 - ❁ Singapore





Migrating I-deas Sheet Metal to UG NX

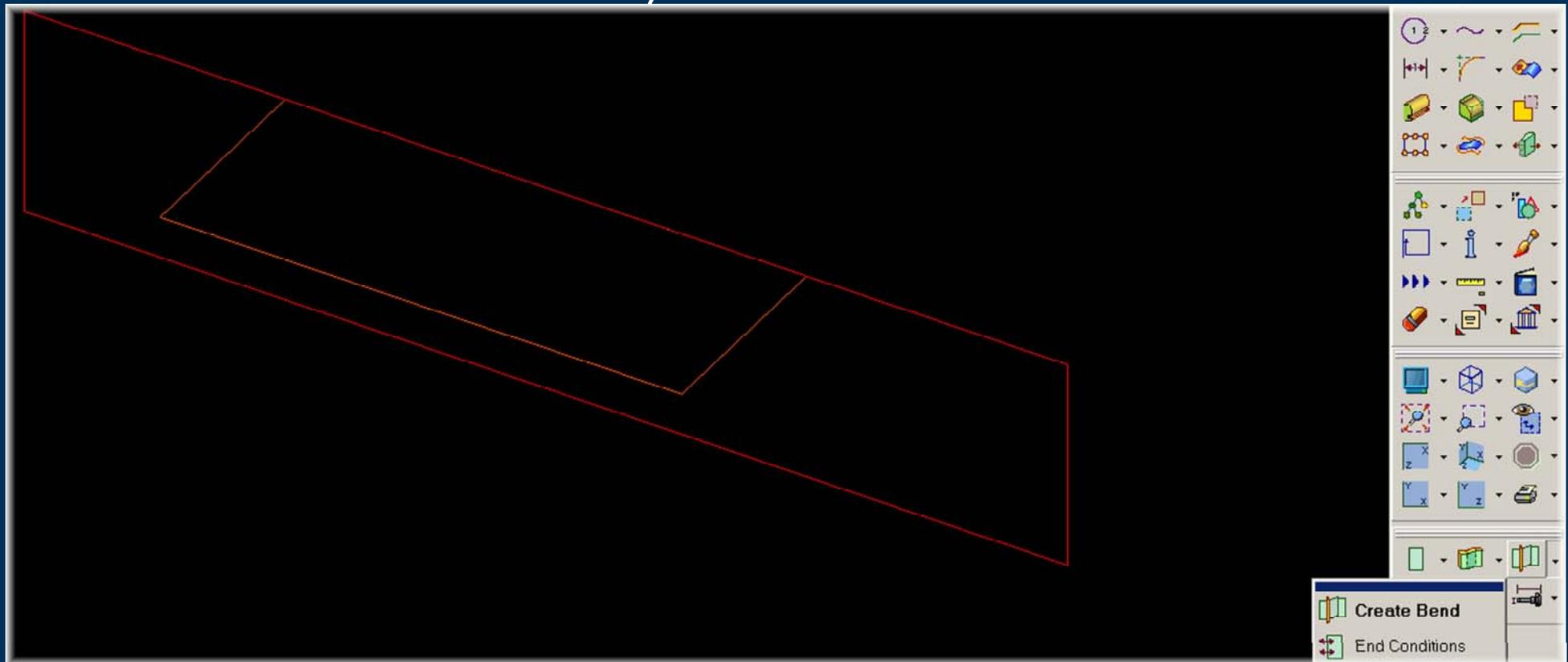
- Henny Penny was founded in 1957 to market the world's first commercial pressure fryer
- Since, we have expanded our product line with open fryers, rotisseries, heated merchandisers, combi ovens, blast chillers, warming cabinets and more



Migrating I-deas Sheet Metal to UG NX

Henny Penny uses several methods to develop their sheet metal parts depending on the type of part

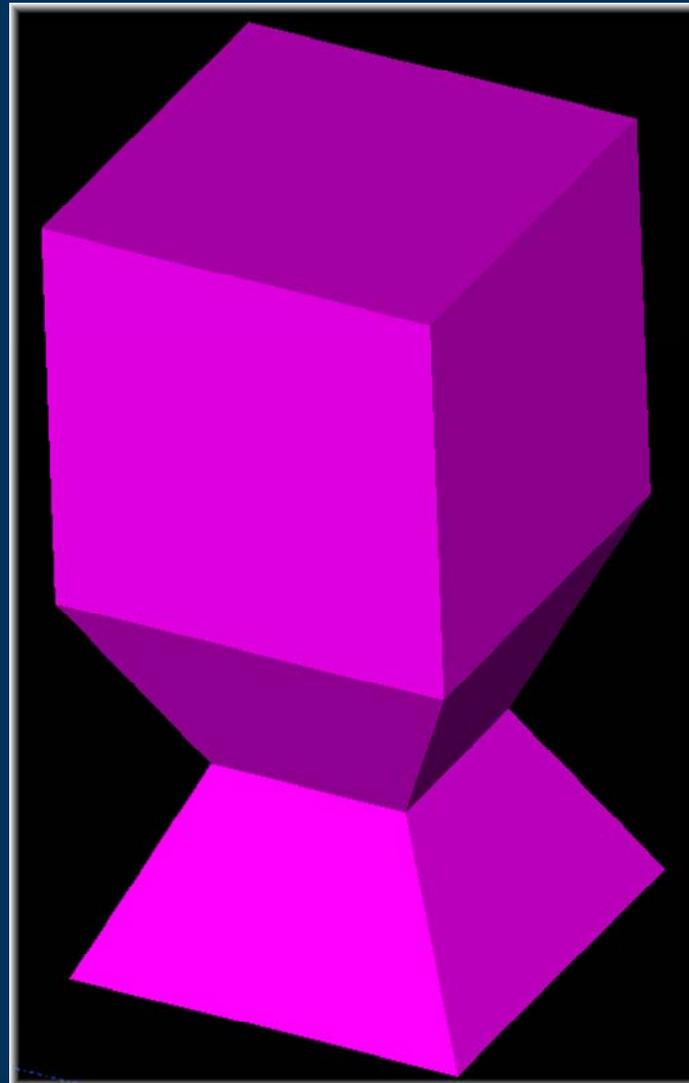
1) Panel Method





Migrating I-deas Sheet Metal to UG NX

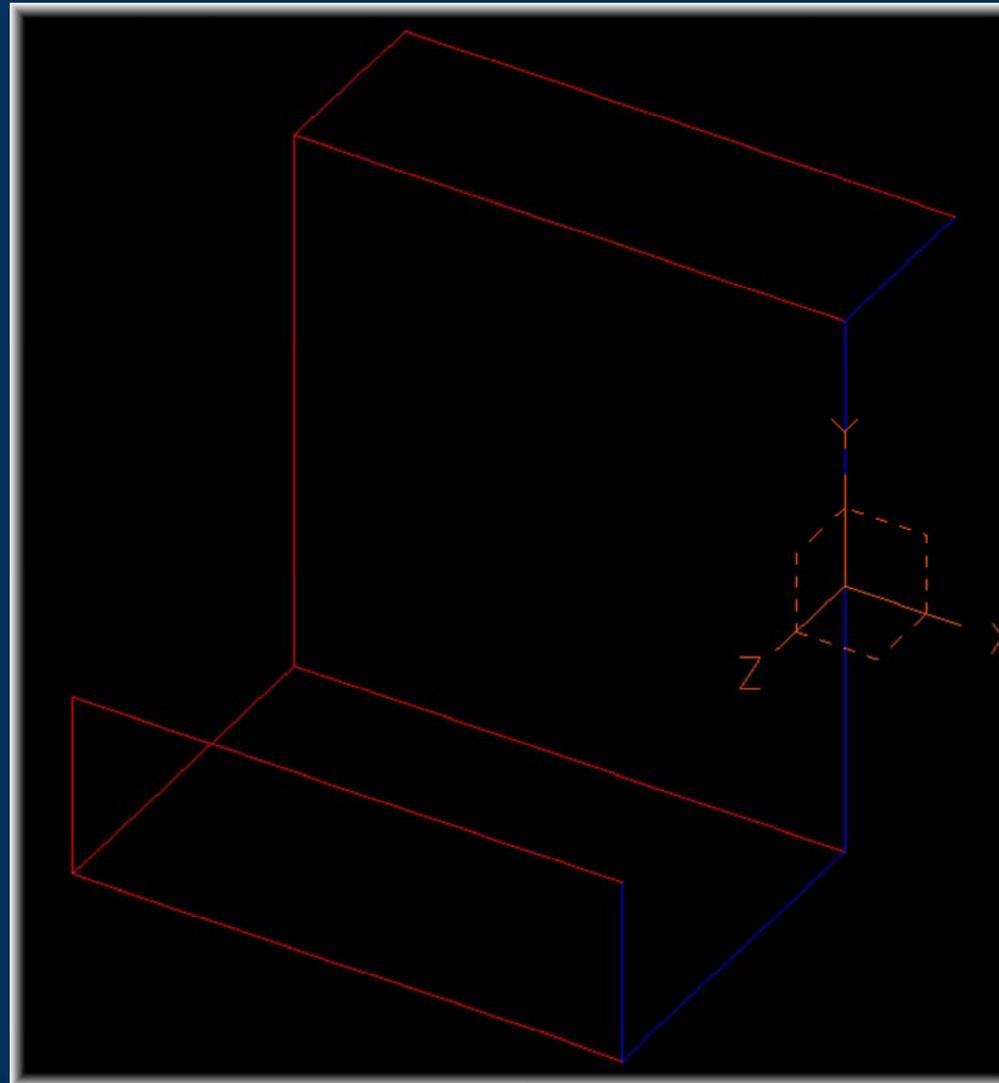
2) Sheet Metal from Solid





Migrating I-deas Sheet Metal to UG NX

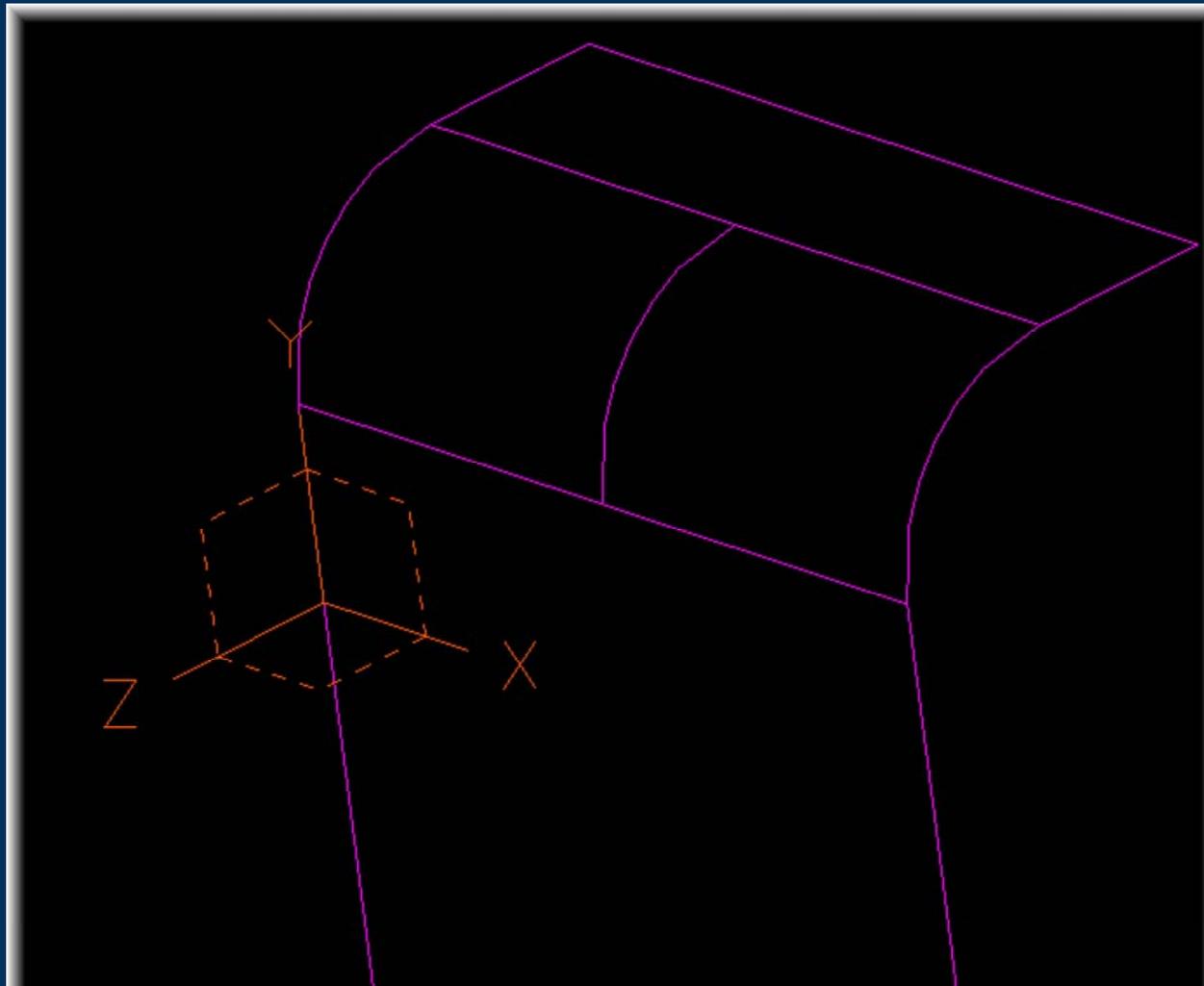
3) Open Extrude





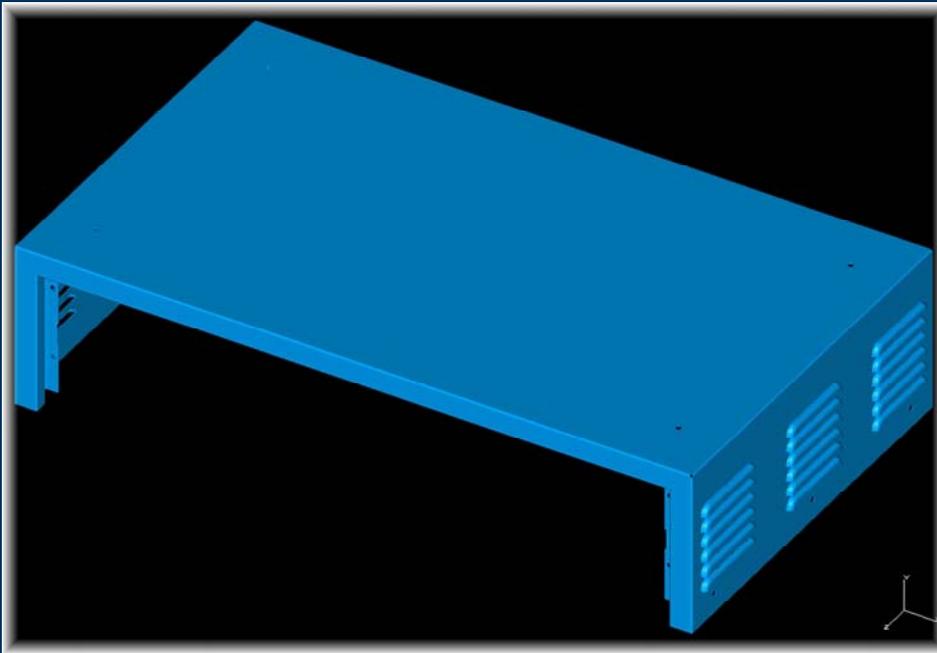
Migrating I-deas Sheet Metal to UG NX

4) Bend from Cylindrical Surface





Migrating I-deas Sheet Metal to UG NX



Creation Method:

Solid with Panels

Unique Features:

- Split Surface – Panel Creation
- Louvers
- Feature Patterns
- Reflect
- Features After Sheet Metal



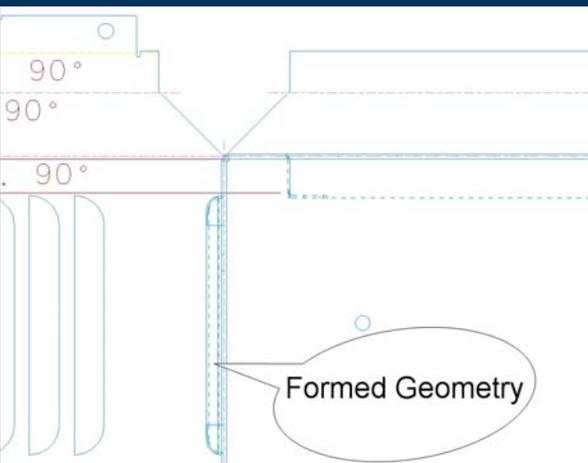
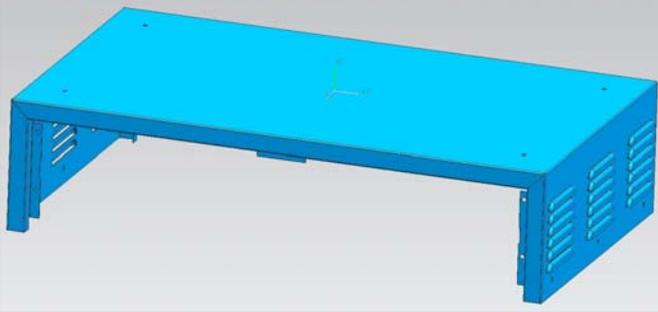
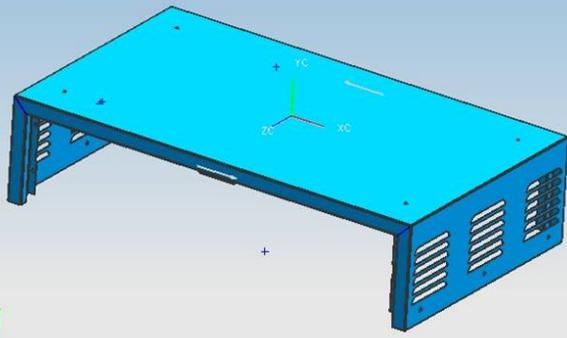
Migrating I-deas Sheet Metal to UG NX

Migrations Results 2007:

- Failure before Sheet Metal
- Skipped Failed Stress Reliefs
- Shell Failed
- Louvers not completed

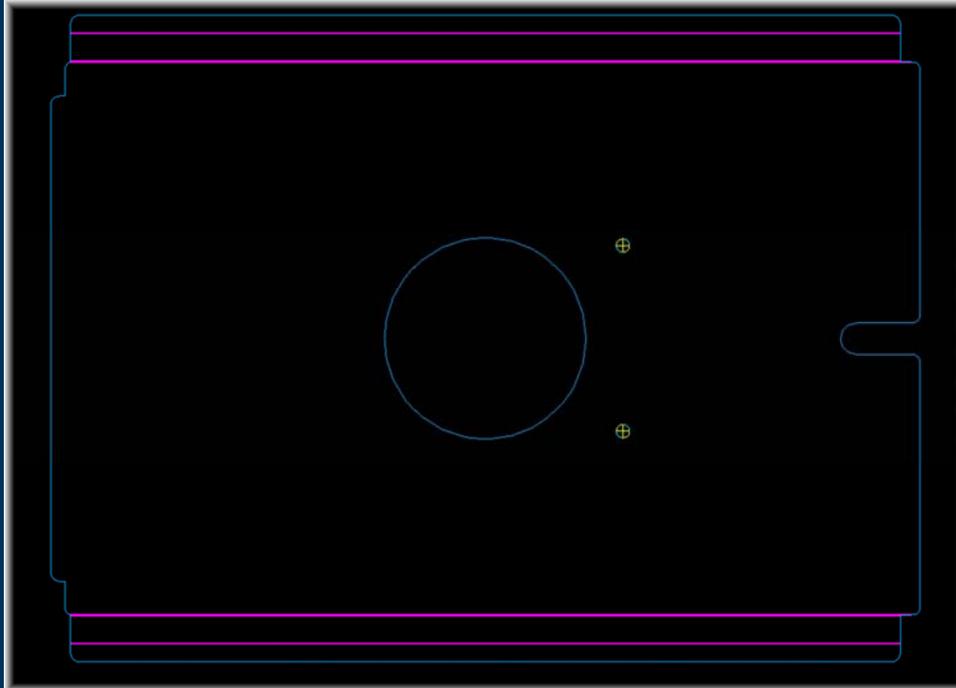
Migrations Results 2008:

- Would not migrate in IP 23 (memory error), fixed in IP 24
- Resultant part is a BRep
- Drawing migrated with errors
- Flat Solid not created in drawing part
- Drafting Symbols did not migrate





Migrating I-deas Sheet Metal to UG NX

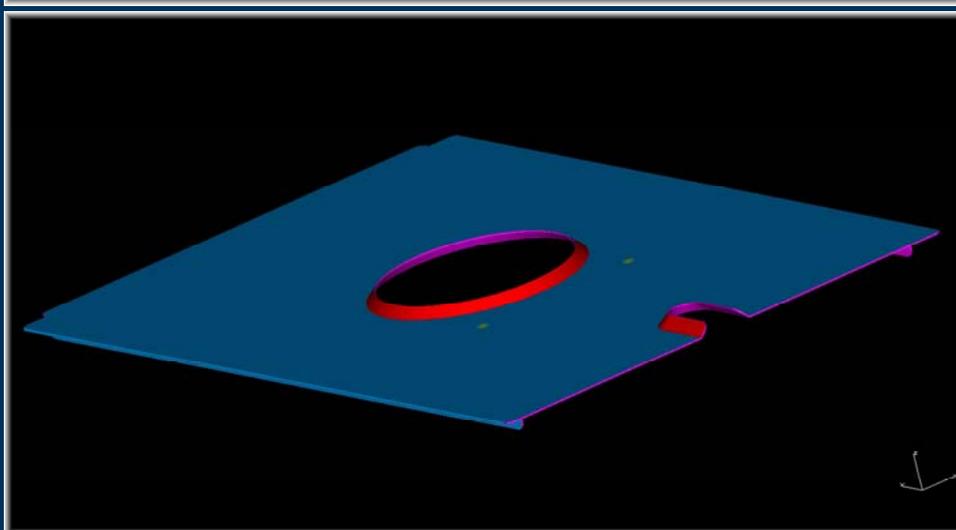


Creation Method:

Open Extrude with Panels

Unique Features:

- Split Surface - Etching
- Rolled Edge
- Hems
- Features After Sheet Metal





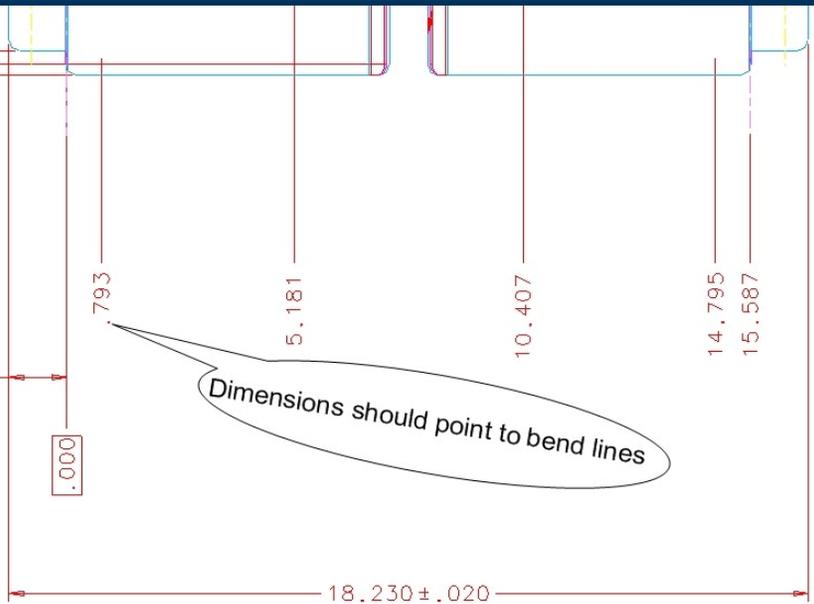
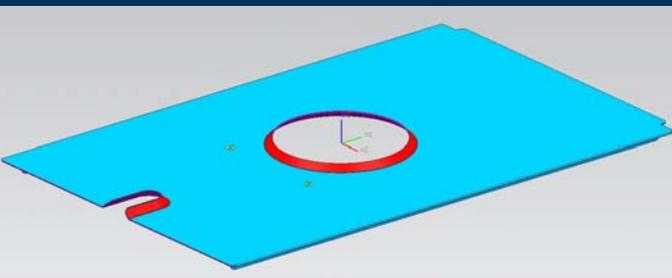
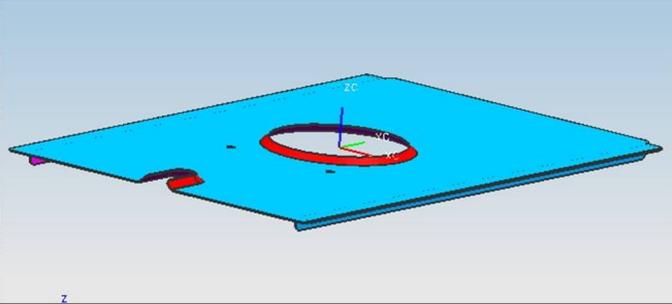
Migrating I-deas Sheet Metal to UG NX

Migration Results 2007:

- Sheet Metal failed
- Failed Extrude, Cut & Pattern
- Features between Sheet Metal and Shell not supported
- Features after Sheet Metal failed

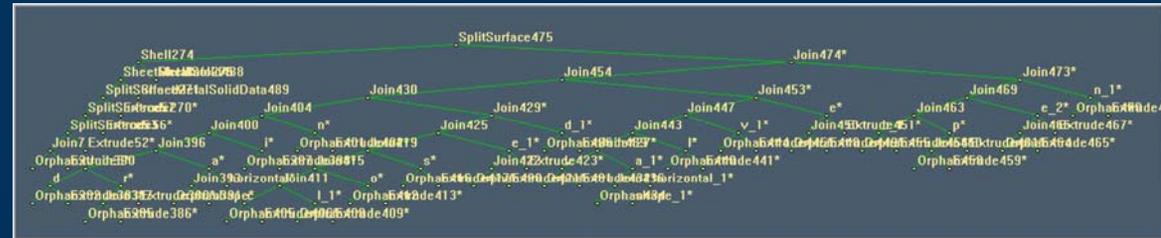
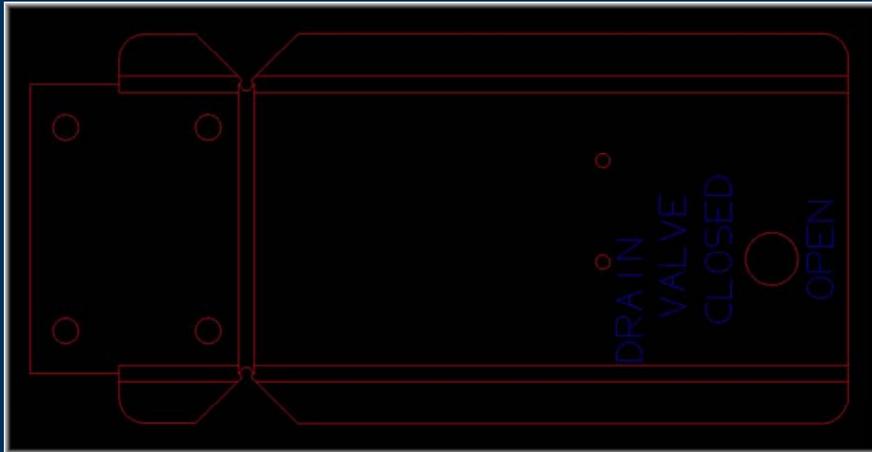
Migration Results 2008:

- Migration Failed
- Failed to create NX part
- Could not create Unfolded or Flat Pattern from results
- Resultant part is a BRep
- Part cannot be converted to sheet metal
- Drawing migrated with errors





Migrating I-deas Sheet Metal to UG NX



Creation Method:

Solid with Split Surface Panels

Unique Features:

- Split Surface - Text
- Features After Sheet Metal
- Punch Bend Relief's



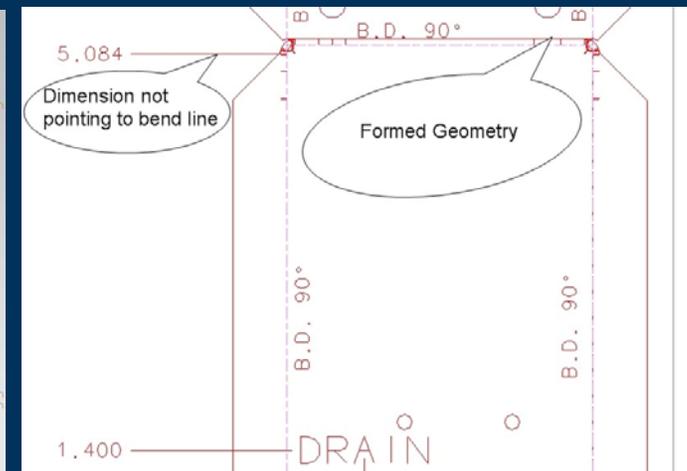
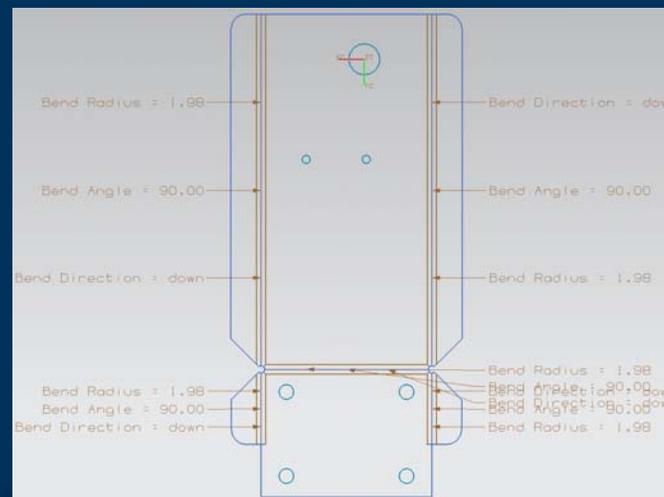
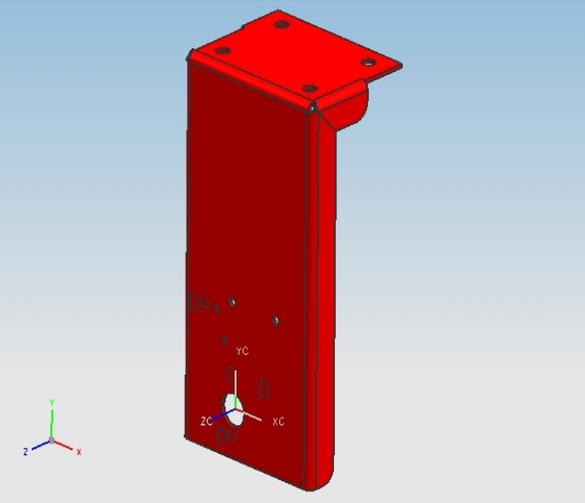
Migrating I-deas Sheet Metal to UG NX

Migration Results 2007:

- Failed before Sheet Metal
- Shell Failed
- Features Added After Sheet Metal

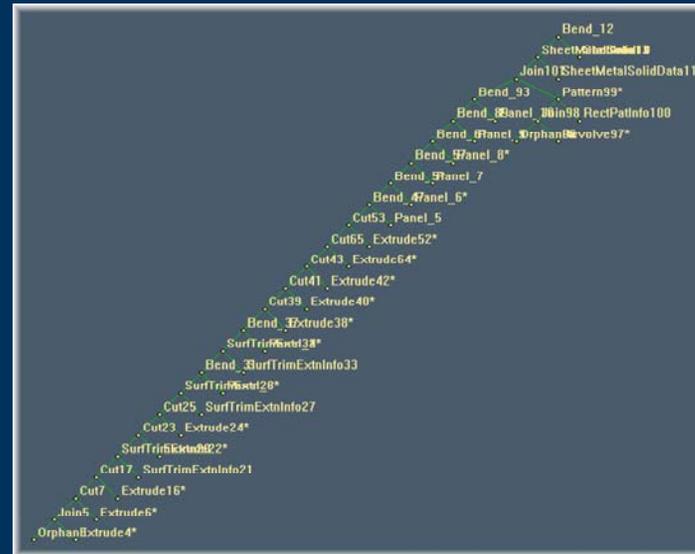
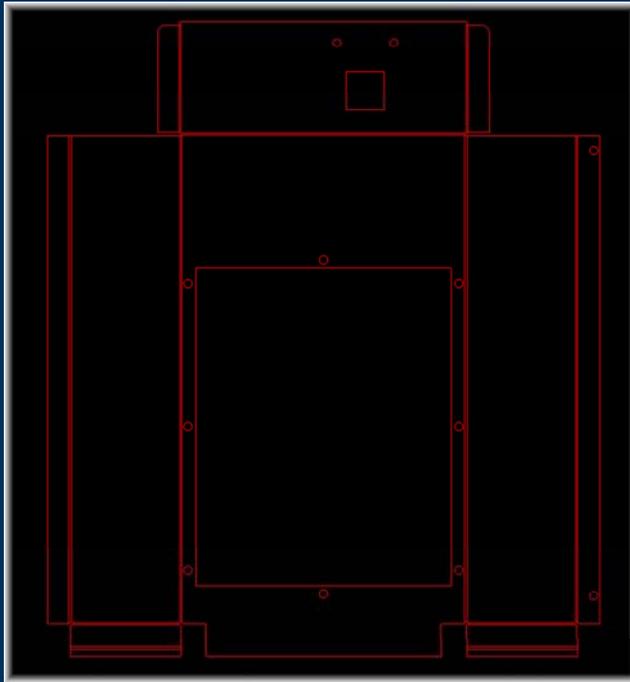
Migration Results 2008:

- Part migrated successfully
- Drawing migrated with errors
- Text is not reflected in Flat Pattern
- It does however, show up on the Flat drawing





Migrating I-deas Sheet Metal to UG NX

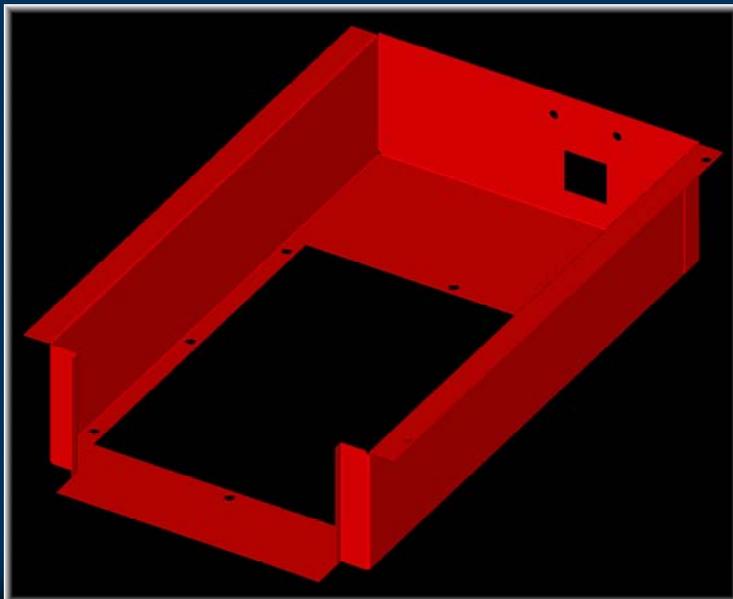


Creation Method:

Solid with Surface Deletes and Panels

Unique Features:

- Trim/Extend Surface
- Bend Over Bend
- Feature Pattern





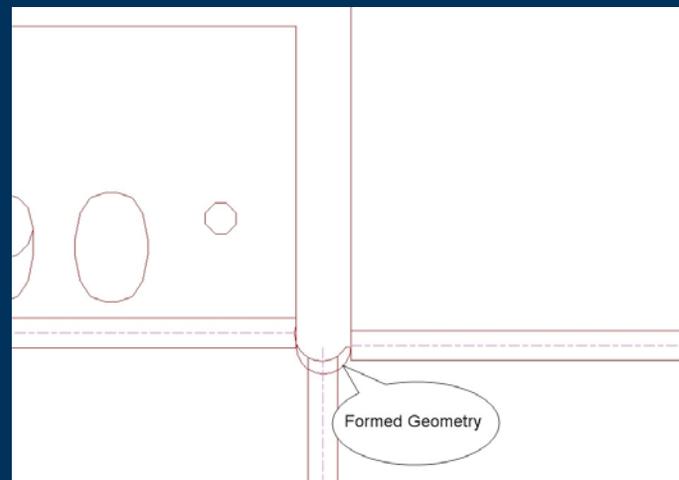
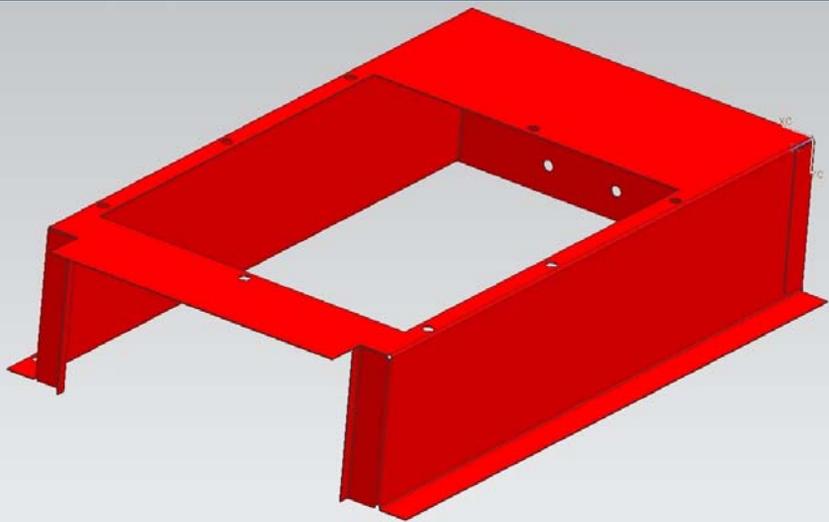
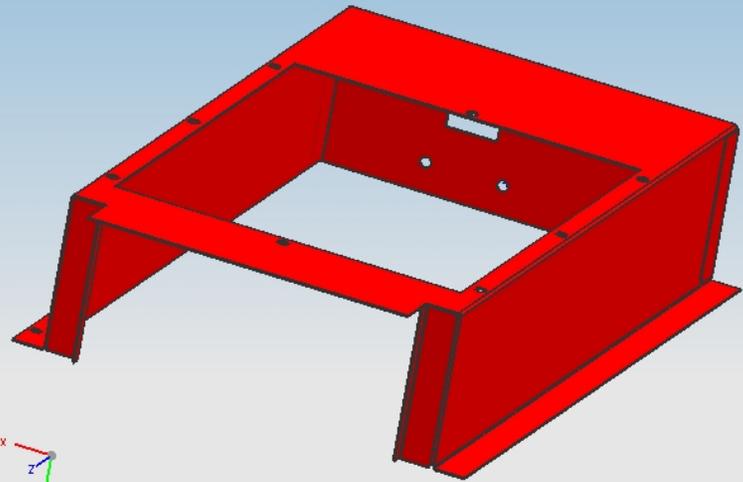
Migrating I-deas Sheet Metal to UG NX

Migration Results 2007:

- Failed Fidelity Check
- No Failed Features Defined
- BREP Part

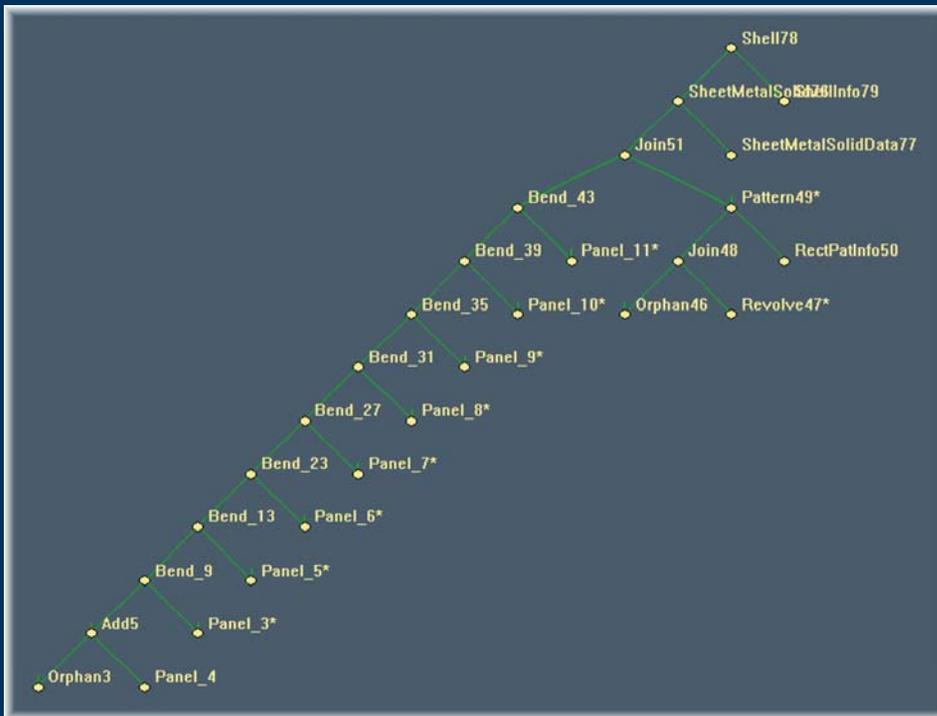
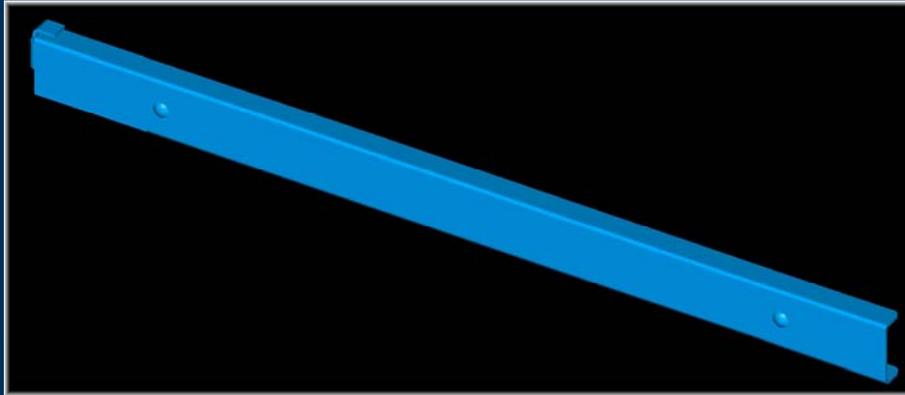
Migration Results 2008:

- Part migrated successfully!
- Drawing migrated With errors





Migrating I-deas Sheet Metal to UG NX



Creation Method:

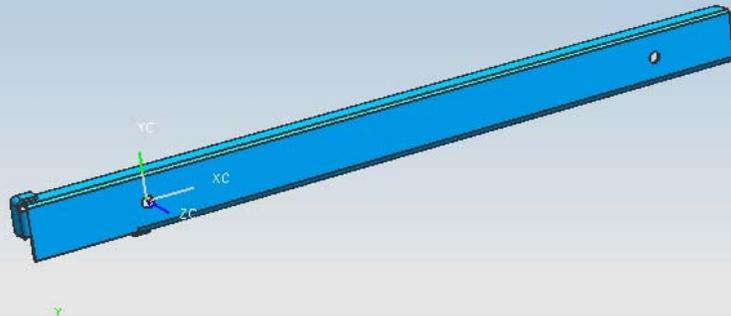
Panels

Unique Features:

- Hem
- Bend Over Bend
- Dimples
- Feature Pattern

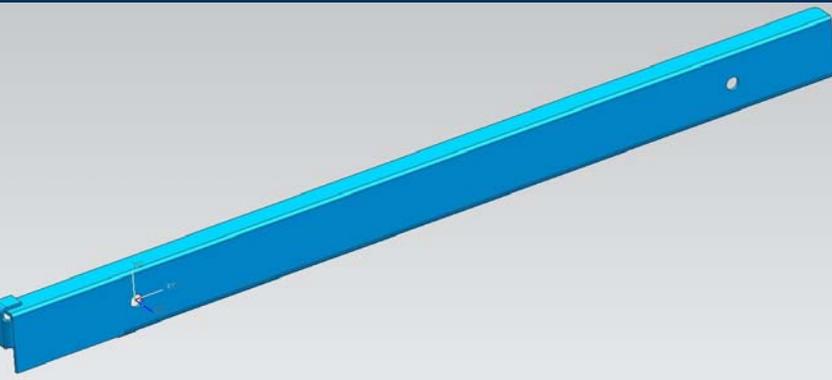


Migrating I-deas Sheet Metal to UG NX



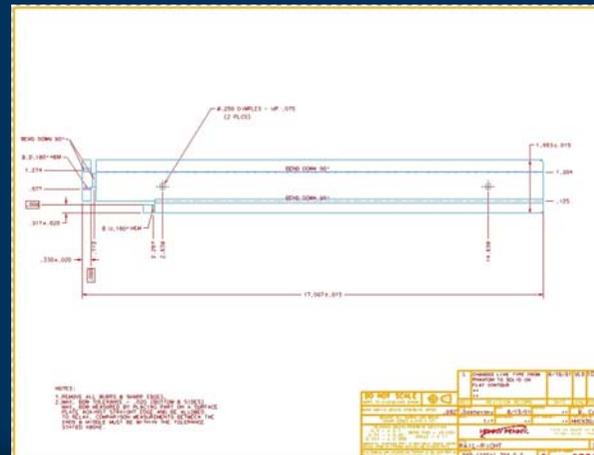
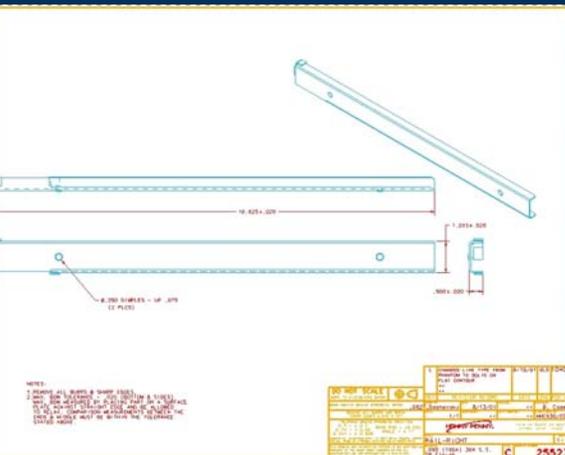
Migration Results 2007:

- Failed Fidelity Check
- No Failed Features Defined
- BREP Part



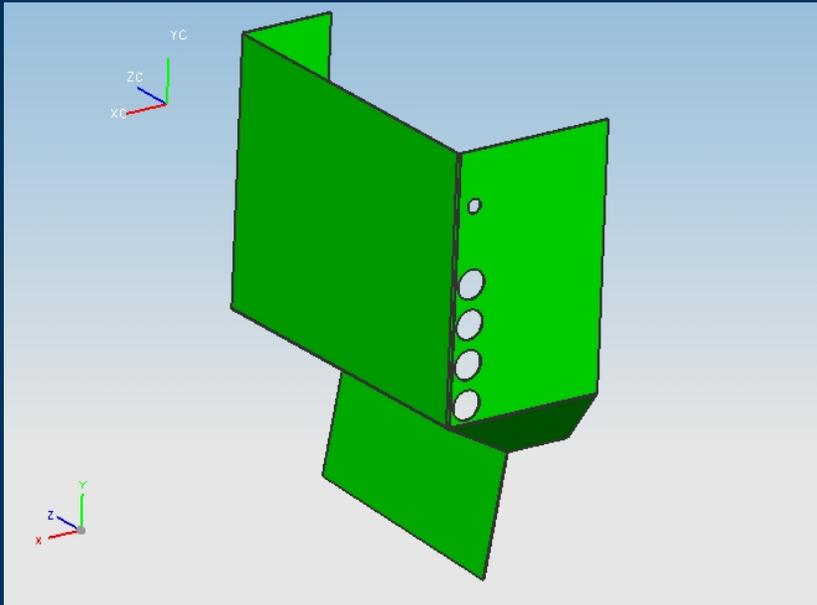
Migration Results 2008:

- Part migrated successfully but without dimples
- Drawing migrated Successfully!





Migrating I-deas Sheet Metal to UG NX

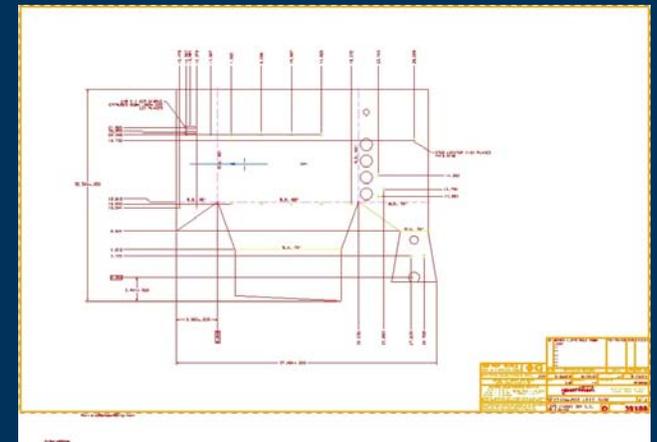
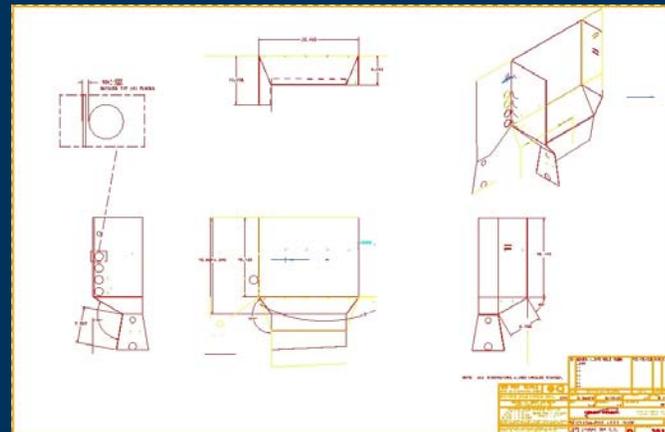
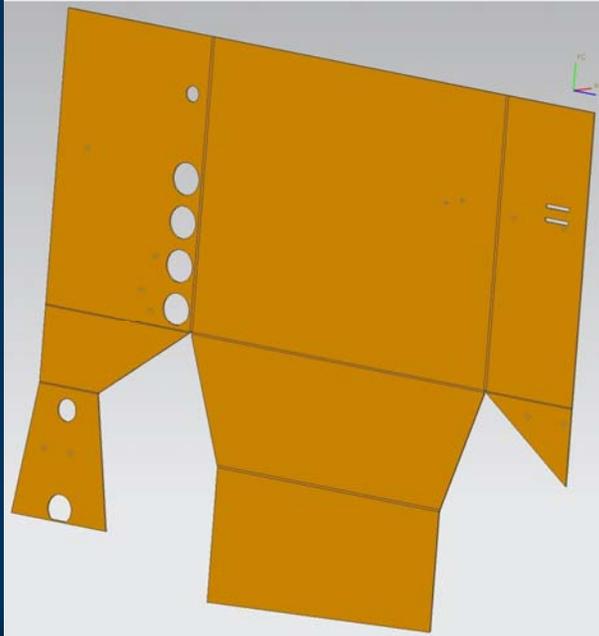


Migration Results 2007:

- Shell Failed
- Patterns Failed
- Features after Sheet Metal failed

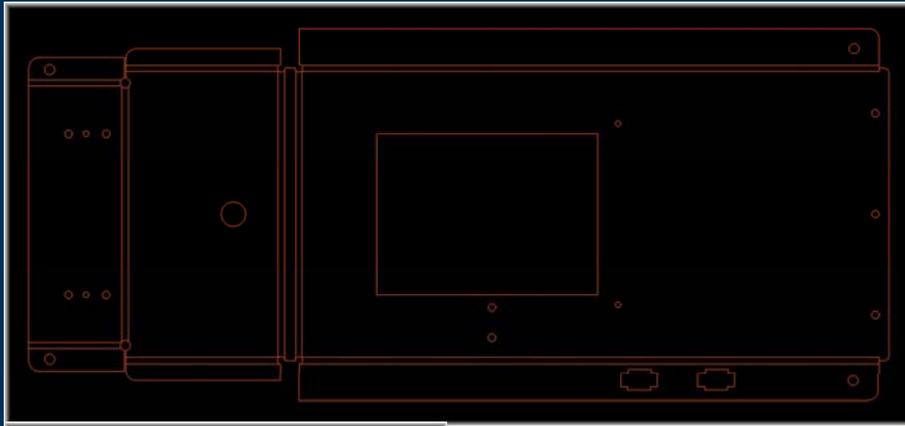
Migration Results 2008:

- Formed part does not migrate
- Drawing migrated with errors
- Flat Solid not created in drawing part





Migrating I-deas Sheet Metal to UG NX



Creation Method:

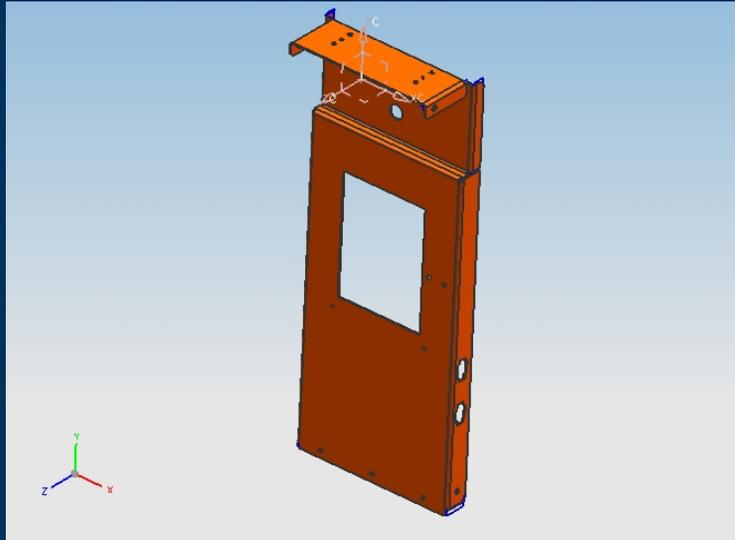
Solid with Split Surface and Panels

Unique Features:

- Adjacent Bends Opposite Directions
- Bend Relief's



Migrating I-deas Sheet Metal to UG NX

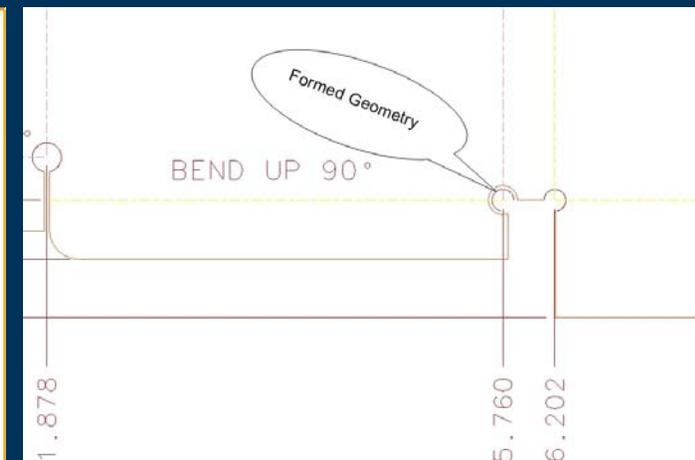
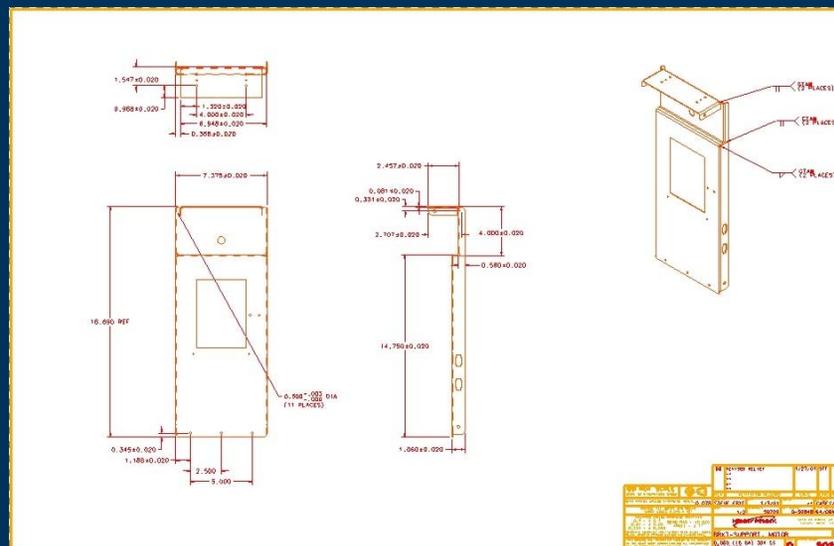


Migration Results 2007:

- Failed Fidelity Check
- Shell Failed
- BREP Part

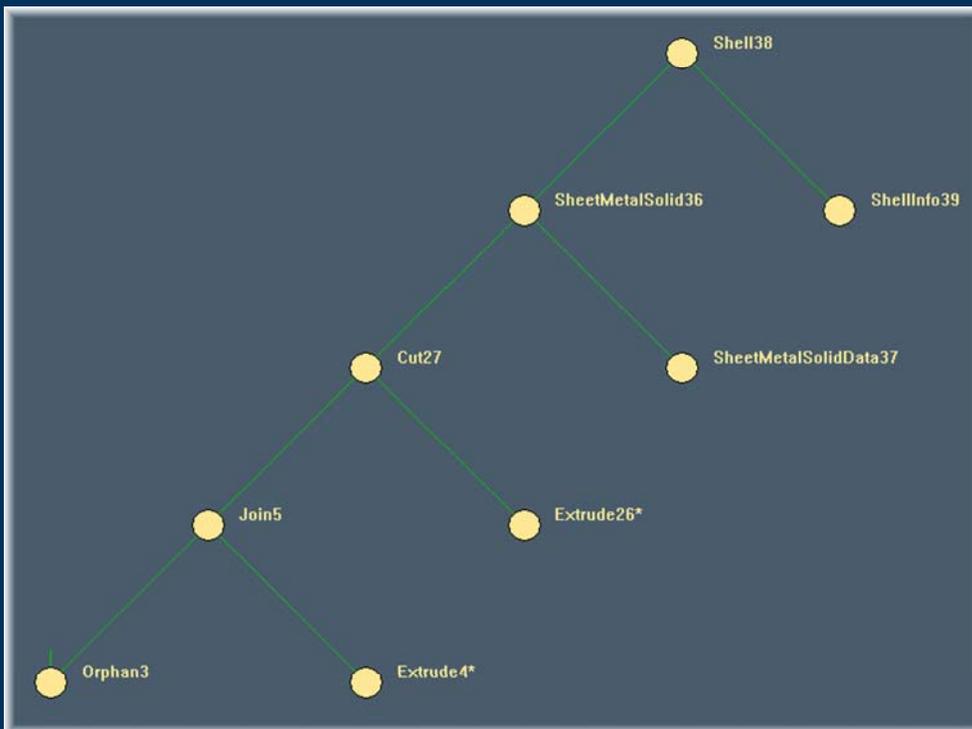
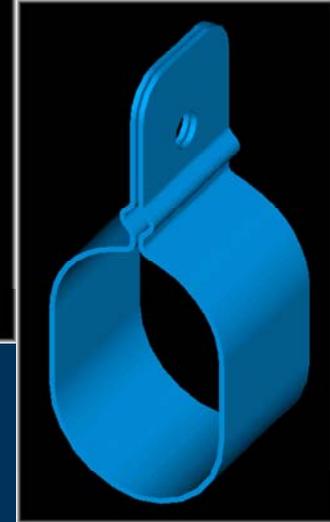
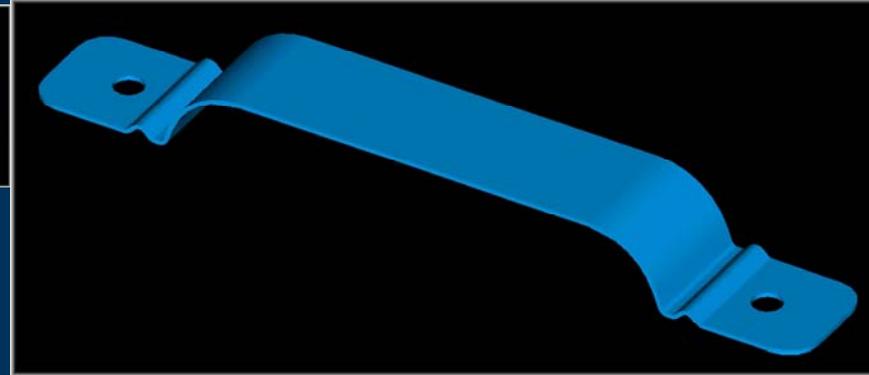
Migration Results 2008:

- Part Migrated Completely
- Drawing Migrated with errors





Migrating I-deas Sheet Metal to UG NX



Creation Method:

BFCS – Bends From
Cylindrical Surfaces

Unique Features:

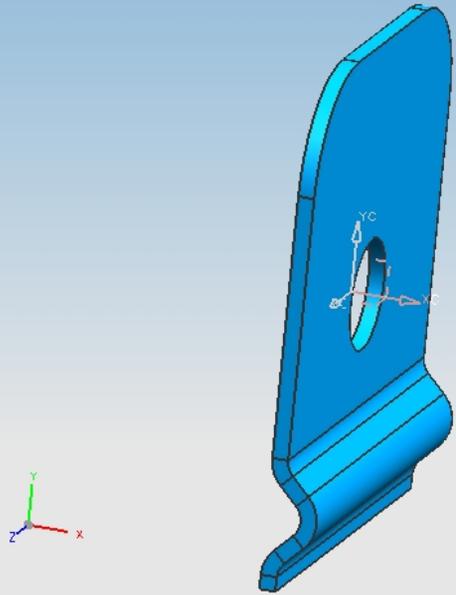
- 180° Bend



Migrating I-deas Sheet Metal to UG NX

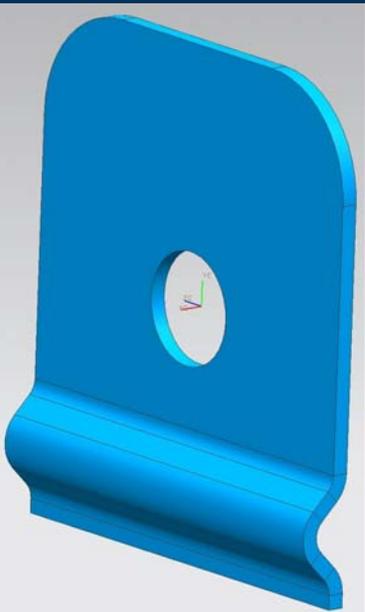
Migration Results 2007:

- Part fails to update in I-deas before migration



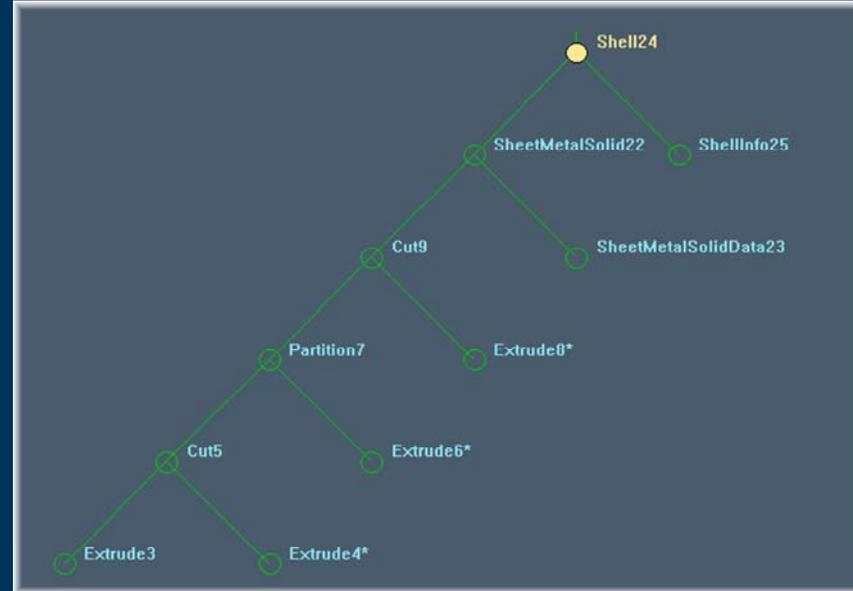
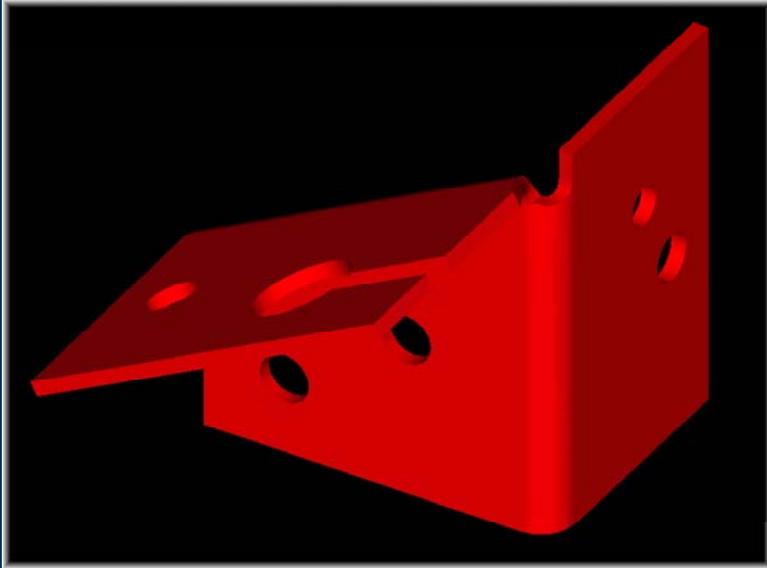
Migration Results 2008:

- Part fails to update in I-deas before migration





Migrating I-deas Sheet Metal to UG NX

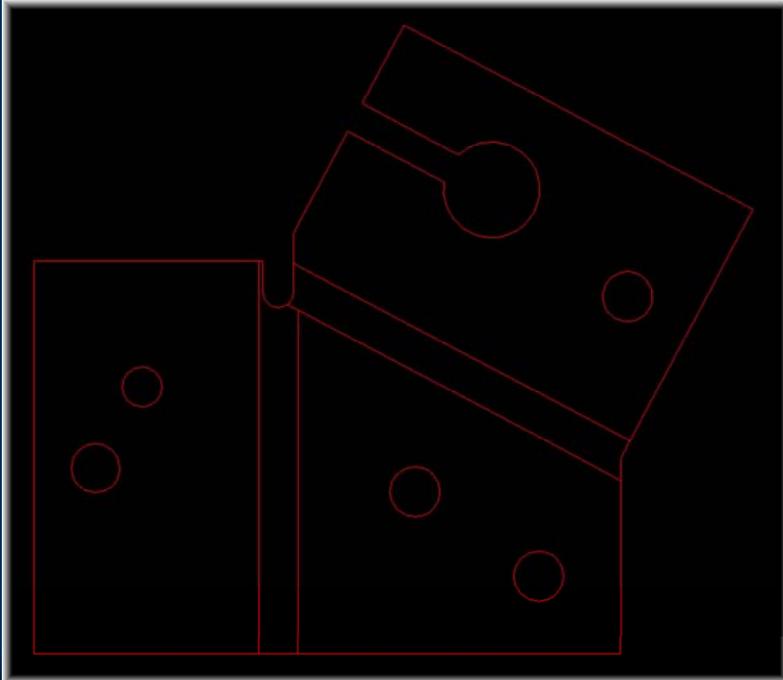


Creation Method:

Solid with Partition

Unique Features:

- Adjacent Bends Opposite Directions
- Bend Relief's





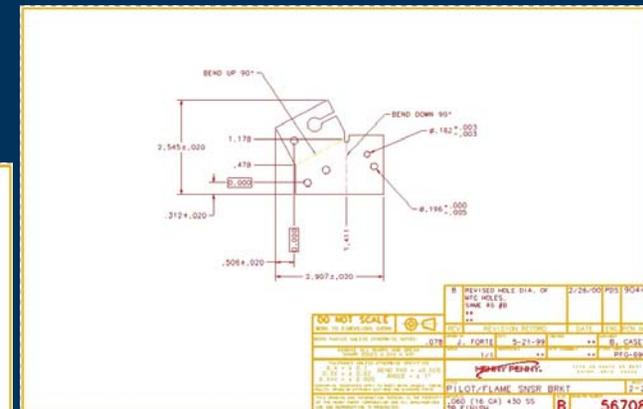
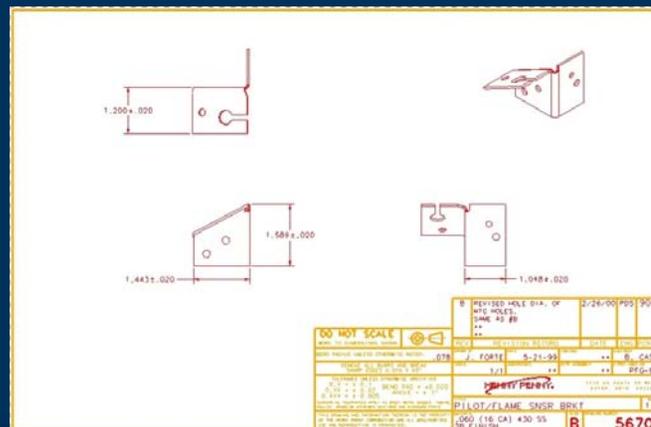
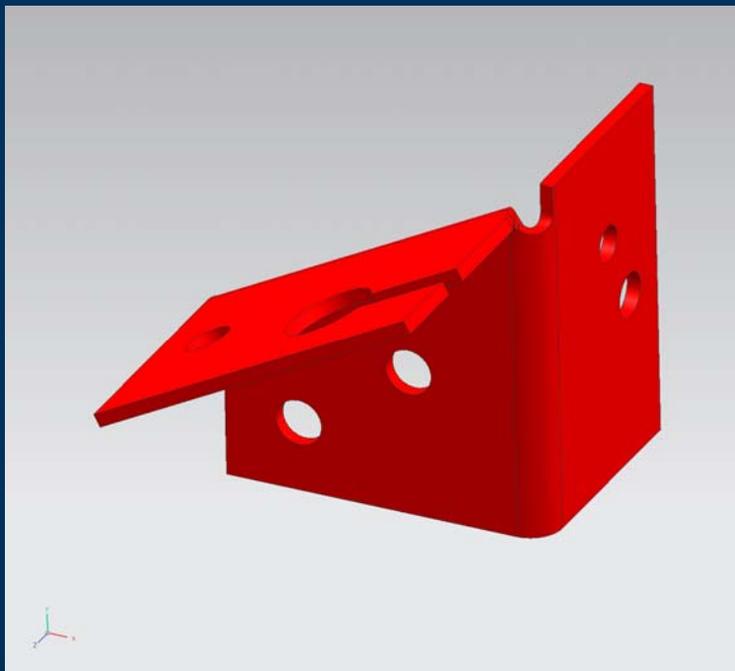
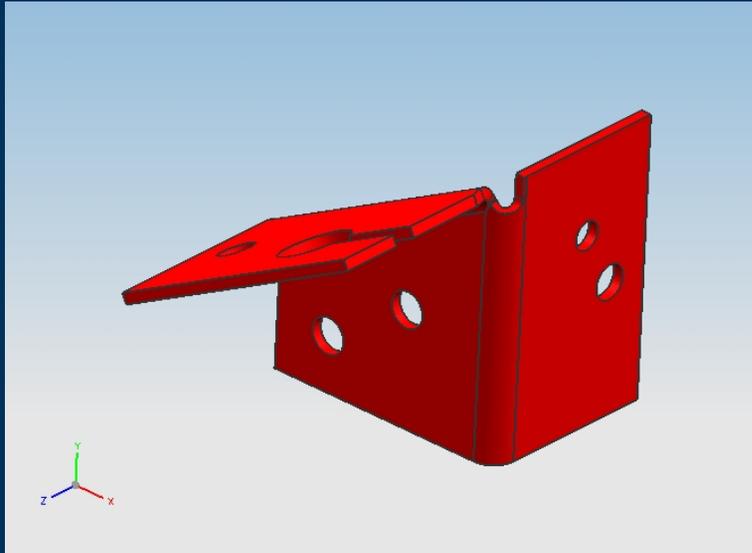
Migrating I-deas Sheet Metal to UG NX

Migration Results 2007:

- Failed Fidelity Check
- Shell failed
- BREP Part

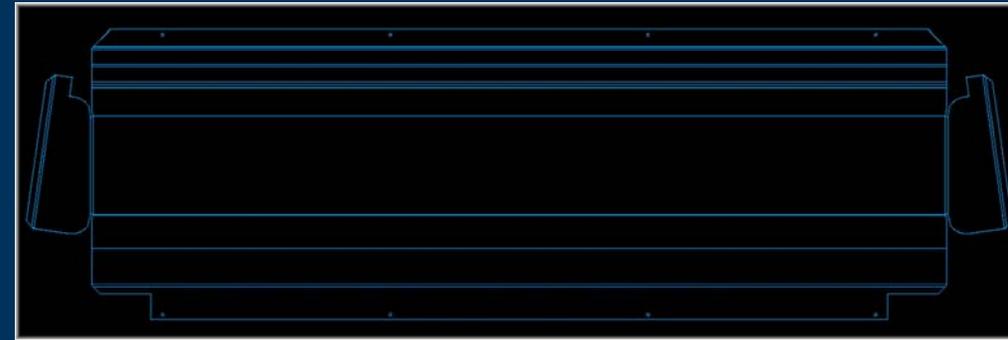
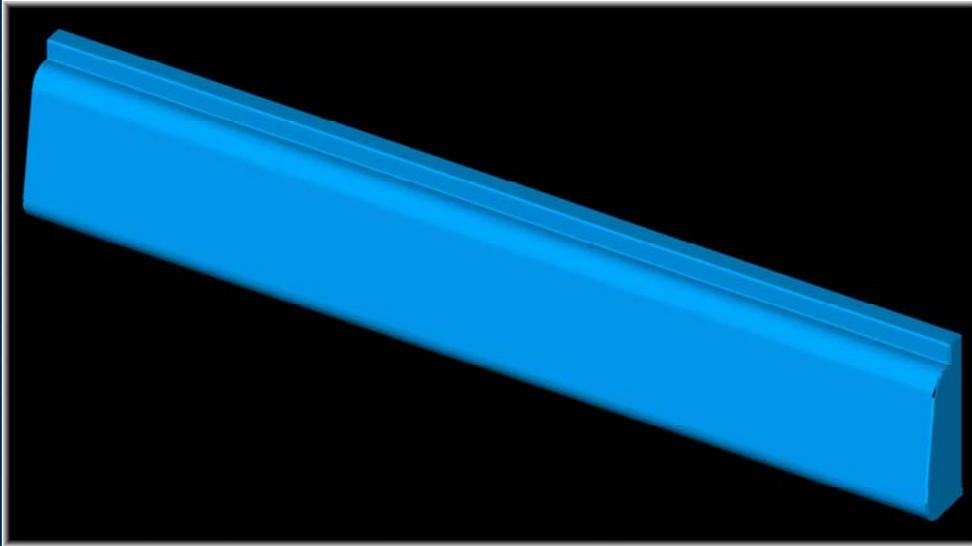
Migration Results 2008:

- Part Migrated Completely
- Drawing Migrated Completely





Migrating I-deas Sheet Metal to UG NX



Creation Method:

Open Extrude with Panels

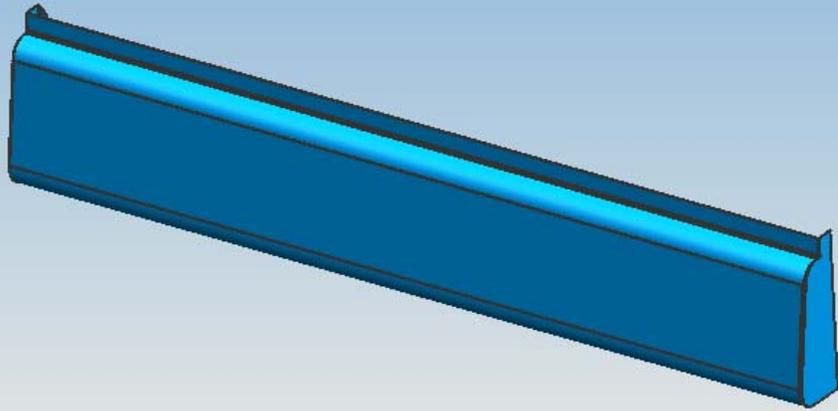
Unique Features:

- Bend Relief's
- Large Radius Bends Adjacent to Small Radius Bends
- Rectangular Patterns





Migrating I-deas Sheet Metal to UG NX

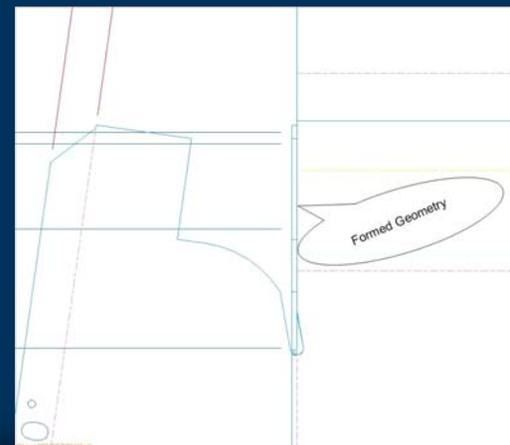
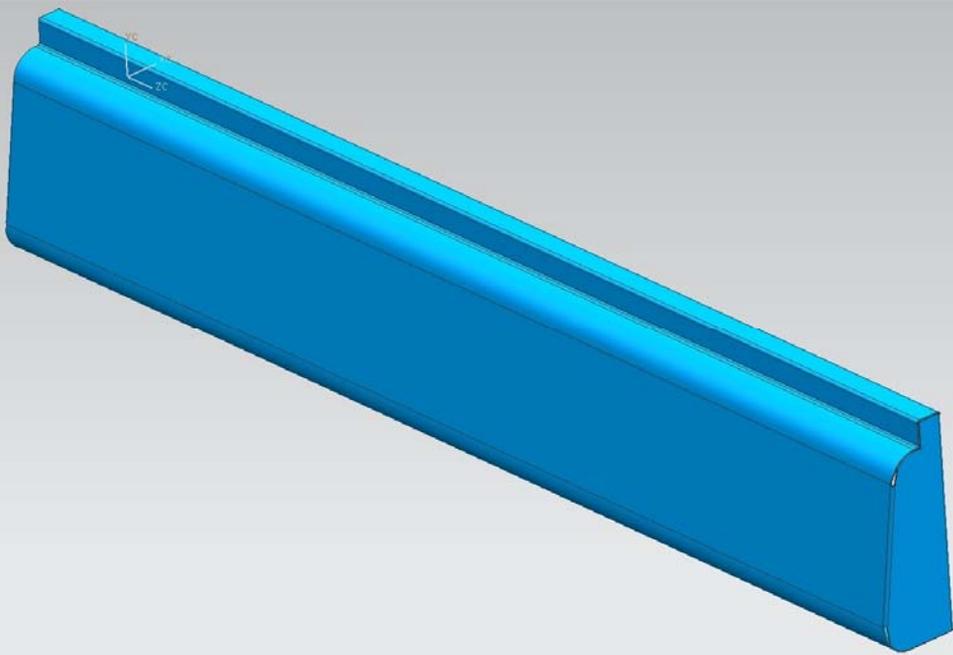


Migration Results 2007:

- Partial Results – Bends failed to migrate
- Shell Failed

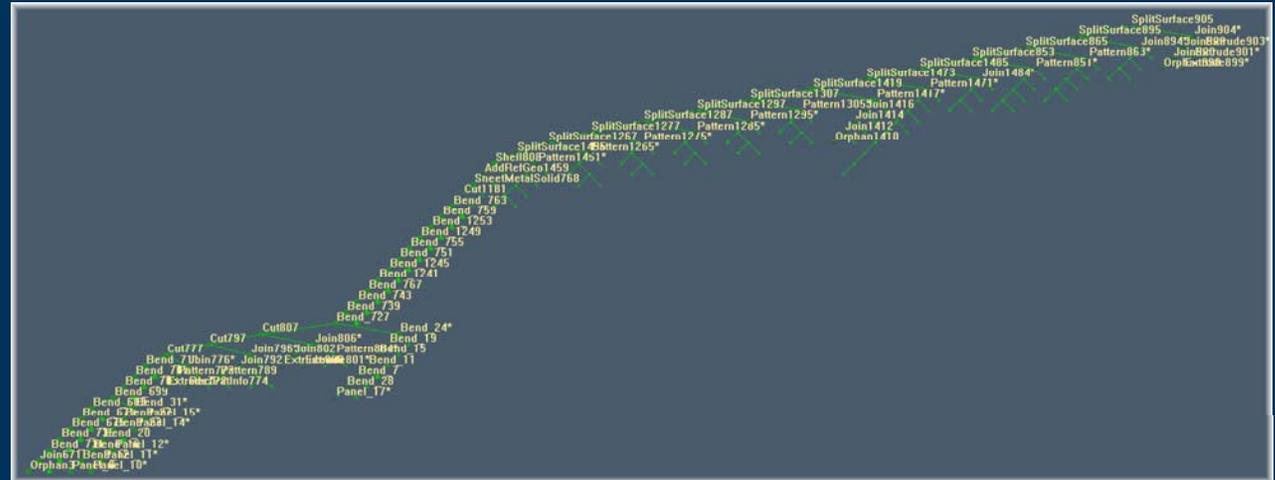
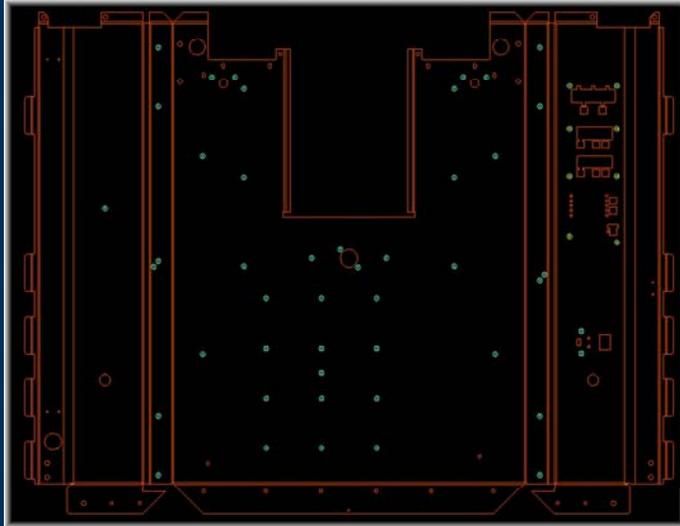
Migration Results 2008:

- Failed to Create NX Part
- Resultant part is a BRep
- PR 5859731 filed – Fixed in NX 6.0.1
- Drawing migrated with errors





Migrating I-deas Sheet Metal to UG NX

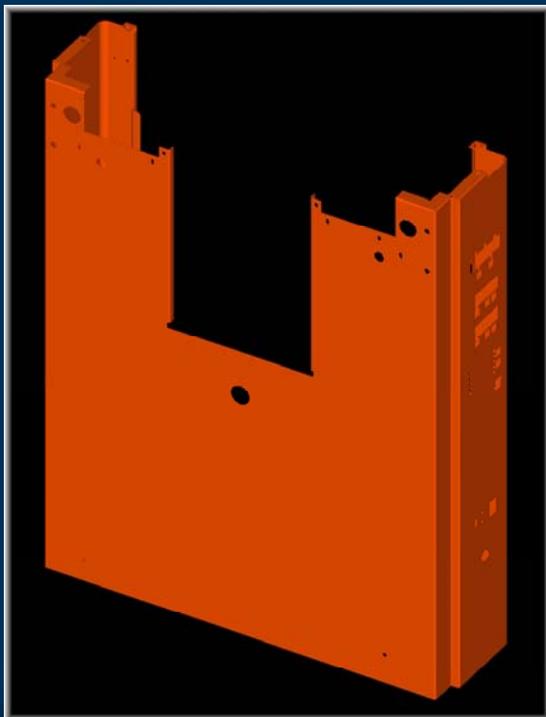


Creation Method:

Panels

Unique Features:

- Rectangular Patterns
- Split Surface – Etching
- Many Features with Large History Tree
- Features After Sheet Metal





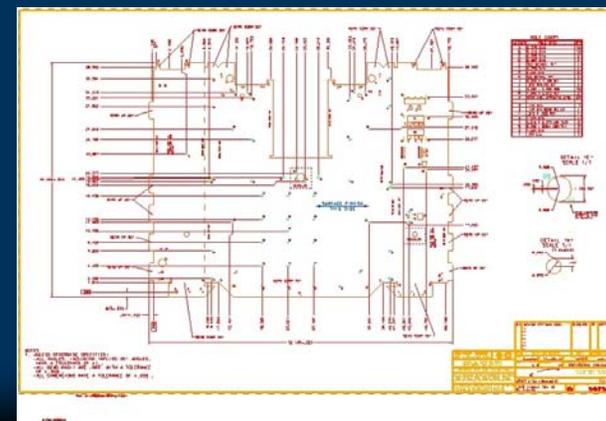
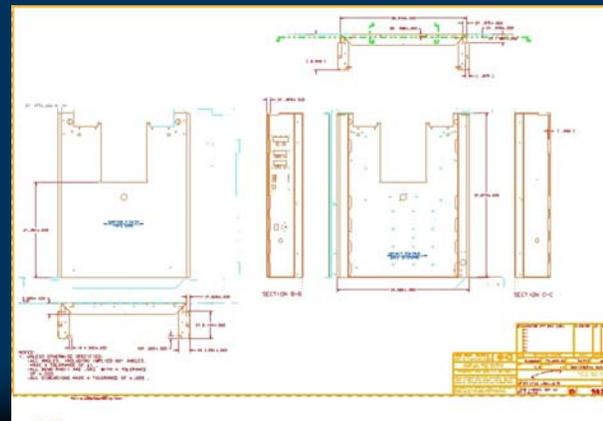
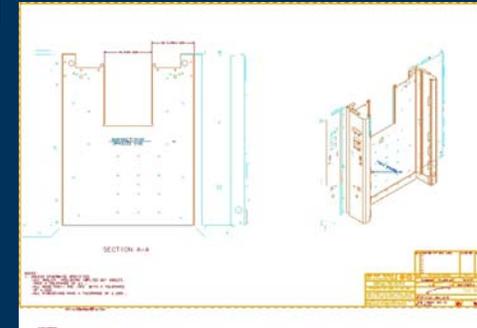
Migrating I-deas Sheet Metal to UG NX

Migration Results 2007:

- Sheet Metal failed
- Shell failed
- Features after Sheet Metal failed
- Skipped failed Punched Holes

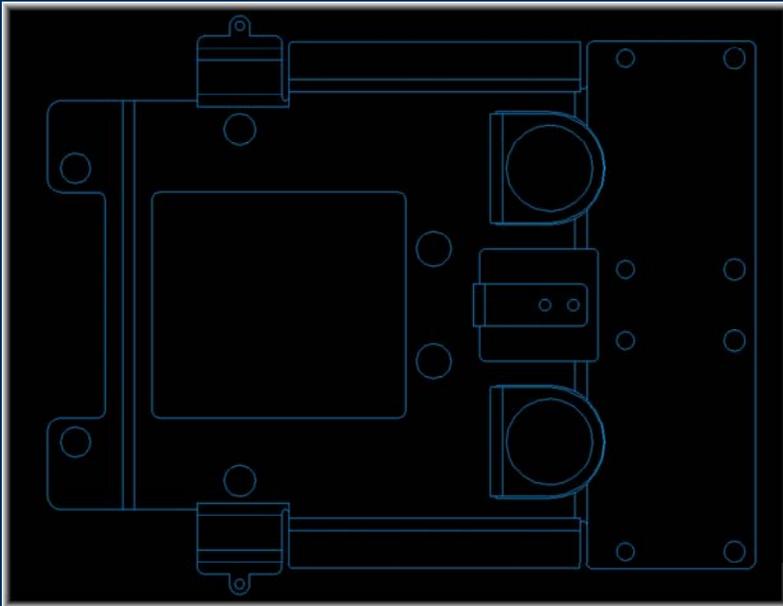
Migration Results 2008:

- Formed part does not migrate
- Formed drawing migrates with bad geometry
- Flat Solid not created in drawing part





Migrating I-deas Sheet Metal to UG NX

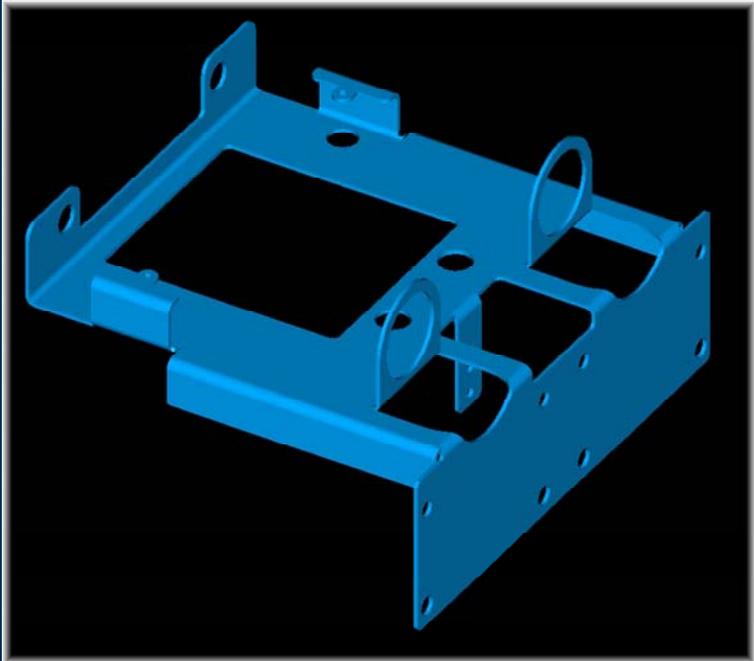


Creation Method:

Open Extrude with Split Surface and Panels

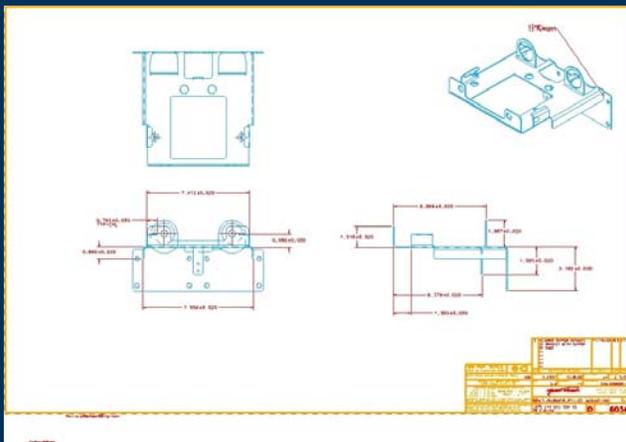
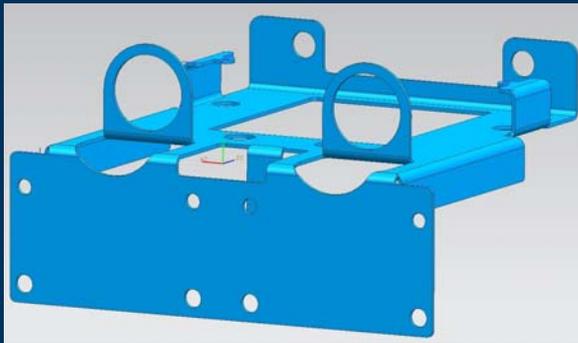
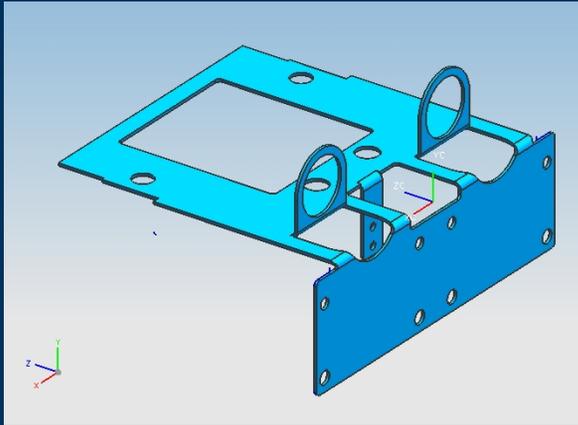
Unique Features:

- Adjacent Bends Opposite Directions
- Panel Across Bend
- Bend Relief's





Migrating I-deas Sheet Metal to UG NX

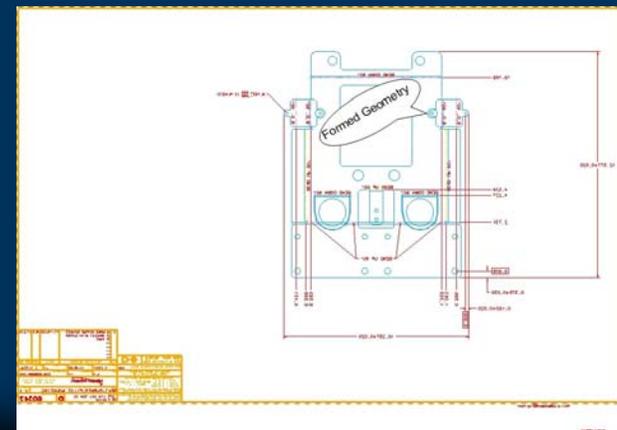


Migration Results 2007:

- Failures before Sheet Metal
- Sheet Metal failed
- Skipped failed Punched Hole
- Partial Results – Bends failed to migrate

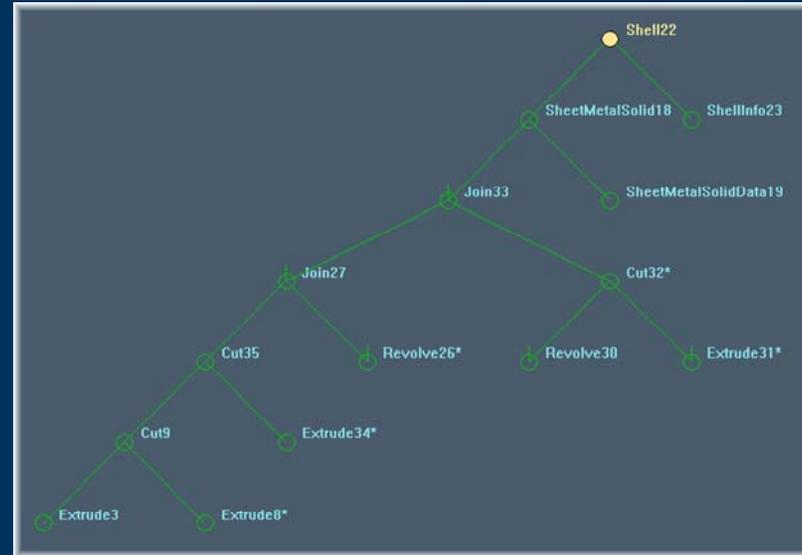
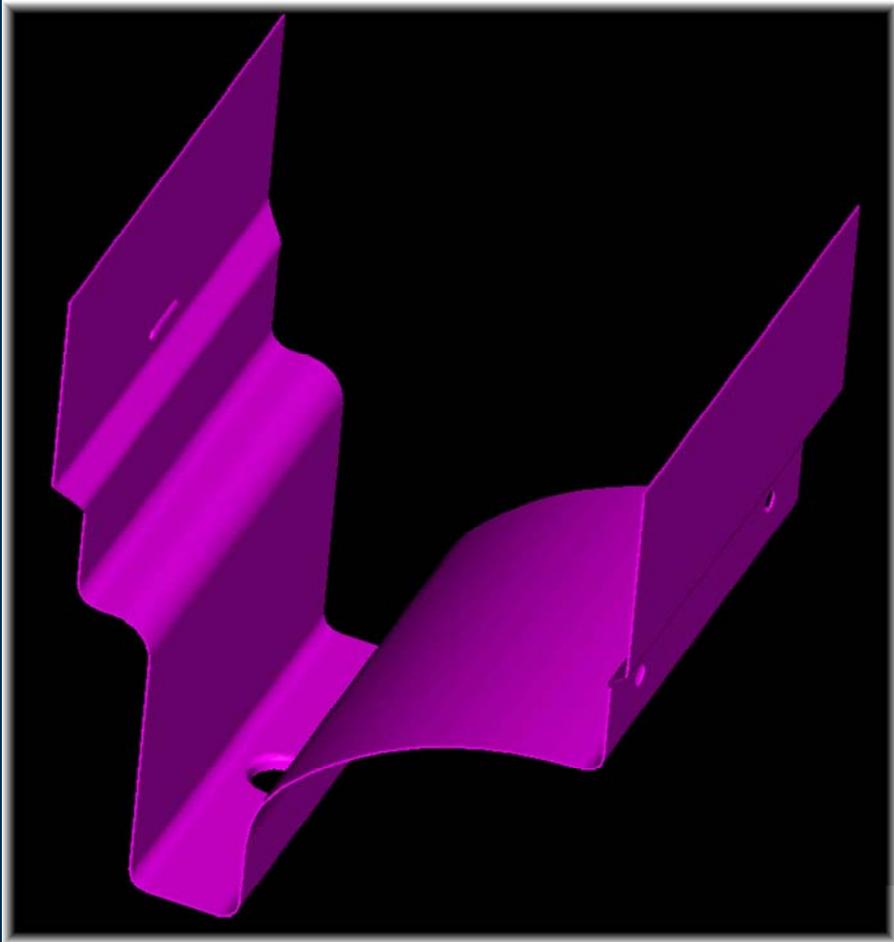
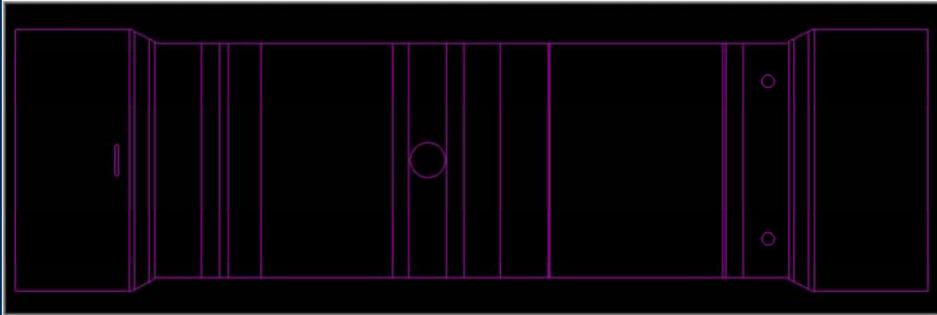
Migration Results 2008:

- Part migrated successfully!
- Drawing migrated with errors
- Flat Solid not created in drawing part (Cause is being investigated – no PR yet)





Migrating I-deas Sheet Metal to UG NX



Creation Method:

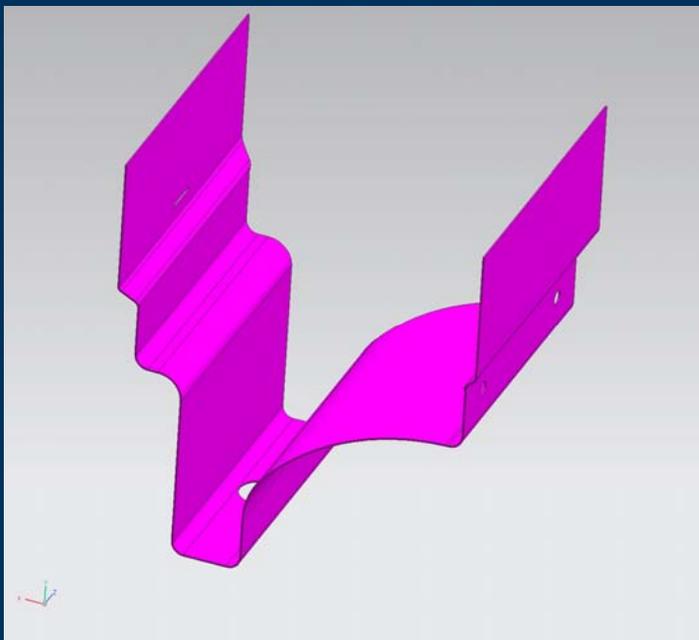
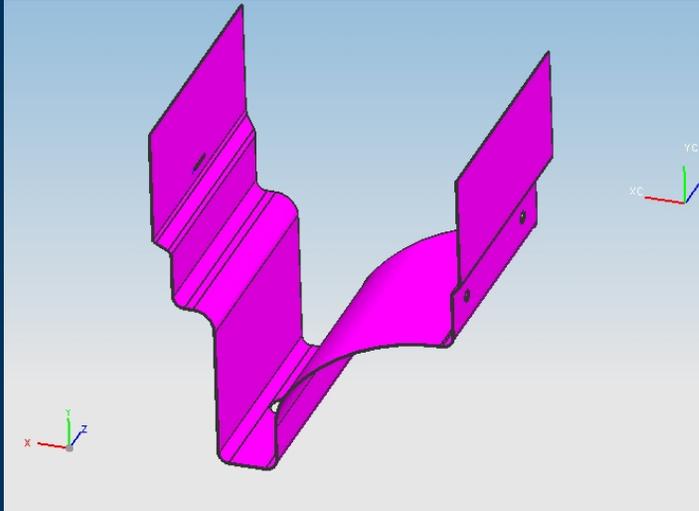
Open Extrude and BFCS

Unique Features:

- Extruded Feature
- Dimple



Migrating I-deas Sheet Metal to UG NX

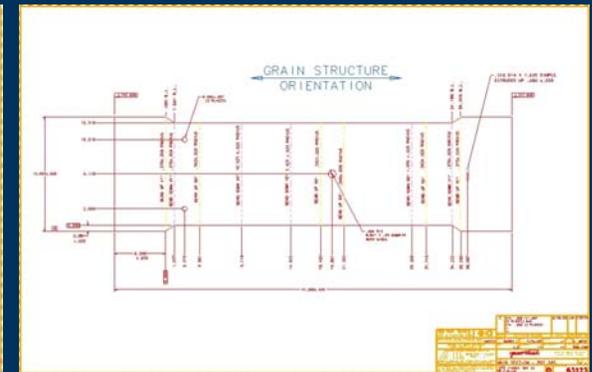
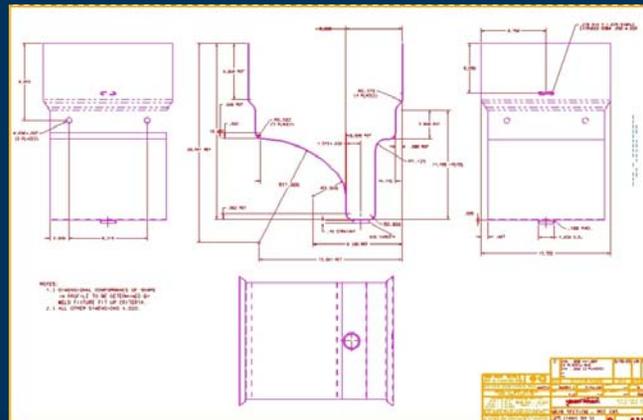


Migration Results 2007:

- Failed Fidelity Check
- BREP Part

Migration Results 2008:

- Part migrated with missing features
- Extrusions did not migrate
- Drawing migrated Successfully!
- Flat Solid not created in drawing part





Migrating I-deas Sheet Metal to UG NX

Results Summary

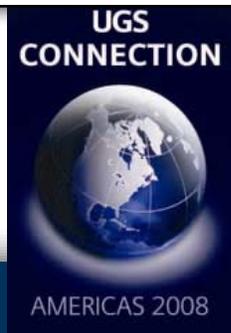
Part Number	Migration Status		Operation Status		BRep Features		Unsupported Features		Unattempted Features		Suppressed Features	
	2007	2008	2007	2008	2007	2008	2007	2008	2007	2008	2007	2008
24575	Incomplete	Incomplete	Failure	Failure	2	0	1	1	2	0	27	27
24617	Incomplete	Incomplete	Failure	Failure	5	2	5	5	4	2	0	0
24984	Incomplete	Complete	Failure	Warnings	8	0	8	7	0	0	0	0
25548	Incomplete	Complete	Failure	Warnings	5	0	1	1	0	0	0	0
25523	Incomplete	Complete	Failure	Warnings	2	0	1	1	0	0	0	0
39188	Incomplete	Complete	Failure	Warnings	0	4	20	24	16	0	0	0
50847	Incomplete	Complete	Failure	Warnings	1	0	0	0	0	0	0	0
52047	Complete	Complete	Success	Warnings	1	0	0	0	0	0	0	0
56708	Incomplete	Complete	Failure	Warnings	2	0	1	0	0	0	0	0
58528	Incomplete	Incomplete	Failure	Failure	3	0	2	2	0	0	0	0
59756	Incomplete	Incomplete	Failure	Failure	0	1	32	36	2	5	2	2
60342	Incomplete	Complete	Failure	Warnings	3	0	2	2	3	0	0	0
63123	Incomplete	Complete	Warnings	Warnings	3	0	2	2	0	0	0	0
64212	Incomplete	Complete	Failure	Warnings	8	3	6	9	7	0	0	0
					43	10	81	90	34	7	29	29



Migrating I-deas Sheet Metal to UG NX

Results Summary

Part Number	Part	Flat Solid	Drawing	
			Flat	Formed
24575	BRep	No	Yes-W/Issues	Yes-W/Issues
24617	BRep	No	No	No
24984	Yes	No	Yes-W/Issues	Yes
25448	Yes	Yes	Yes-W/Issues	Yes
25523	Yes-W/Issues	Yes	Yes	Yes
39188	Unfolded	No	Yes-W/Issues	Yes-W/Issues
50847	Yes	Yes	Yes-W/Issues	Yes
52047	No	No	No	No
56708	Yes	Yes	Yes	Yes
58528	BRep	No	Yes-W/Issues	Yes
59756	Unfolded	No	Yes-W/Issues	Yes-W/Issues
60342	Yes	No	Yes-W/Issues	Yes-W/Issues
63123	Yes-W/Issues	Yes	Yes	Yes
64212	Unfolded	Yes	Yes	Yes-W/Issues
Successful	5	6	4	7
UnSuccessful	9	8	10	7
Total	14	14	14	14
% Successful	36%	43%	29%	50%



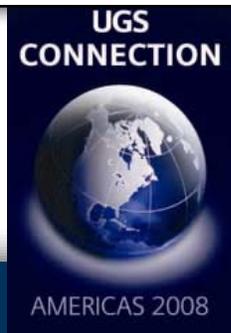
Migrating I-deas Sheet Metal to UG NX

Testing Observations 2007

- Simple parts with basic history tree migrate well
- Mixed modeling approach parts do not migrate
- Part orientation changes from I-deas to NX during migration
- Features after Sheet Metal cause the migration of geometry to fail
- Inconsistency in migration results of like parts. Parts modeled with same approach and with identical history tree migrate with mixed result
- Too many failures before the sheet metal node

Testing Results 2007

- 40% of Henny Penny Sheet Metal parts migrated to NX successfully
- Total number of Sheet Metal parts ran through CMM – 160
- 19 PR's submitted to UGS during CMM Beta Testing



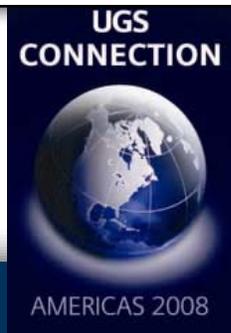
Migrating I-deas Sheet Metal to UG NX

Testing Observations 2008

- Features after Sheet Metal cause the migration of geometry to fail
- Just because the sheet metal part migrates successfully, doesn't mean the Flat Solid will be created or the drawing views will migrate cleanly.
- Still too many features before the sheet metal node not supported

Testing Results 2008

- 36% of Henny Penny Sheet Metal parts migrated to NX successfully
- Total number of Sheet Metal parts ran through CMM – 14
- 7 PR's submitted to UGS during CMM Beta Testing



Migrating I-deas Sheet Metal to UG NX

Conclusions

- After participating in the last five CMM Beta tests, the sheet metal migration is about where it was expected to be from Henny Penny's standpoint.
- BREP, while "pretty" is not what we want to work with.
- Drawings have issues with overlaying geometry. In the formed views, see flat geometry overlayed. In the flat views, see formed geometry overlayed. This erroneous geometry is not selectable, therefore cannot be hidden.
- Implementing Teamcenter Engineering this year. Will migrate to NX when we feel comfortable with both the Sheet Metal and CMM products.
- Will begin using the NX product after Teamcenter is up and running and when we are able to use the NX Sheet Metal in a production environment for new products.
- We will continue to work with UGS BETA testing both the Sheet Metal and CMM products. We will migrate our I-deas Sheet Metal data when we feel comfortable with the results from our testing.



Migrating I-deas Sheet Metal to UG NX

What Does All This Mean To You?

- Probably nothing at all!
- You need to test your data. Your results will differ greatly from our results, based upon your modeling techniques.
- Participate in the CMM and Sheet Metal Beta testing!
- Track down Ashley Eckhoff for the Sheet Metal
- Track down Paul McDonald or Mike Hicks for CMM



Questions?
Comments?

Steve Frye

sfrye@hennypenny.com

(937) 456-8691