I think each unique product should have its own pricing formula. I would remove the generic categories all together. If you want to keep them, I think you'll need to expand them a little more (i.e. Flat, Folded, Bound, Pocket Folder, Envelope, Table Tent, Hang Tag.) The bound would have sub categories such as Stitched, Perfect Bound, Wire-O Bound, etc. You can have one entire list of options or "property value types" and select from the list for each new product. As you'll see, most property values can be defined as P1, P2, P3, P4 and worked into the formula accordingly.

The way this is going to work is a base will be established for the lowest common denominator of specs (properties) and formulas will be used to build out the price. There will be one base price per product/size combination. If booklets have size options of 5.5x8.5, 8.5x8.5 and 8.5x11, there would be three base prices. Each base price will have additional properties, each with their own base price or %.

Here is how I picture this working:
Base price of Booklet, 5.5x8.5, 8 pages, 100 lb. gloss, 6 day turn, 250 quantity = $335.25

X = Final Calculated Price
Y = Base Price
H% = Additional Hundred % (used for quantity property)
Q = Requested Quantity (from calculator)
BQ = Base Quantity
P1 = Property Type 1 Base Price (for this example: Pages)
P2 = Property Type 2 Base Price (for this example: Paper)
P3 = Property Type 3 Base Price (for this example: Turnaround)
Z = Quantity of Property Type (this is only applicable to pages)

X = (Y*((((Q-BQ)/100)*H%)+1))+((P1*Z)*((((Q-BQ)/100)*H%)+1))+ (P2* ((((Q-BQ)/100)*H%)+1) + (P3* ((((Q-BQ)/100)*H%)+1)

The 'Z' value is a little tricky because it applies only to pages and it works as a multiplier based on the page count. For example, 8 pages is defined in the base price of $335.25. The P1 value for pages is $215 meaning an additional 4 pages is an additional $215. So 12 pages would be $335.25 + $215. The 'Z' value for 12 pages would be 1 based on $215 x 1 = $215. If we want to go to 16 pages it would be $335.25 + $215 + $215. The 'Z' value would be 2 based on $215 x 2 = $430.

To put numbers to the above formula, let me list values:

Y = $335.25
H% = .008
Q = 8,000
BQ = 250
P1 = $215
P2 = $30
P3 = $50
Z = 3 (20 pages)

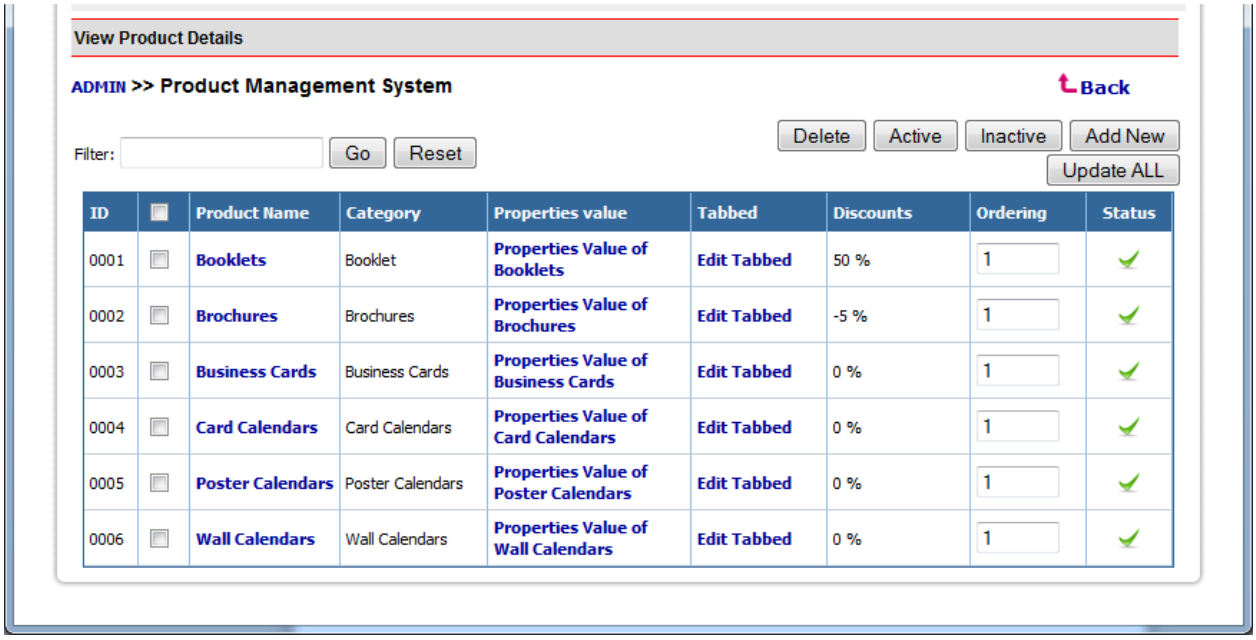
X = ($335.25*((((8000-250)/100)*.008)+1))+(($215*3)*((((8000-250)/100)*.008)+1))+($30*((((8000-250)/100)*.008)+1)+ ($50*((((8000-250)/100)*.008)+1)

You'll notice some repetition in the above formula: ((((8000-250)/100)*.008)+1)
I'm guessing you could do this calculation once and apply it to each 'P' option. So, for example, if you run this formula first, let's call it 'F', you would have something like this:
X=(Y*F)+((P1*Z)*F)+(P2*F)+(P3*F)
This looks much cleaner.

To circle around to my beginning comments, each unique product will have a different 'P' value which is why I think we need to remove categories and define each product on its own merit.

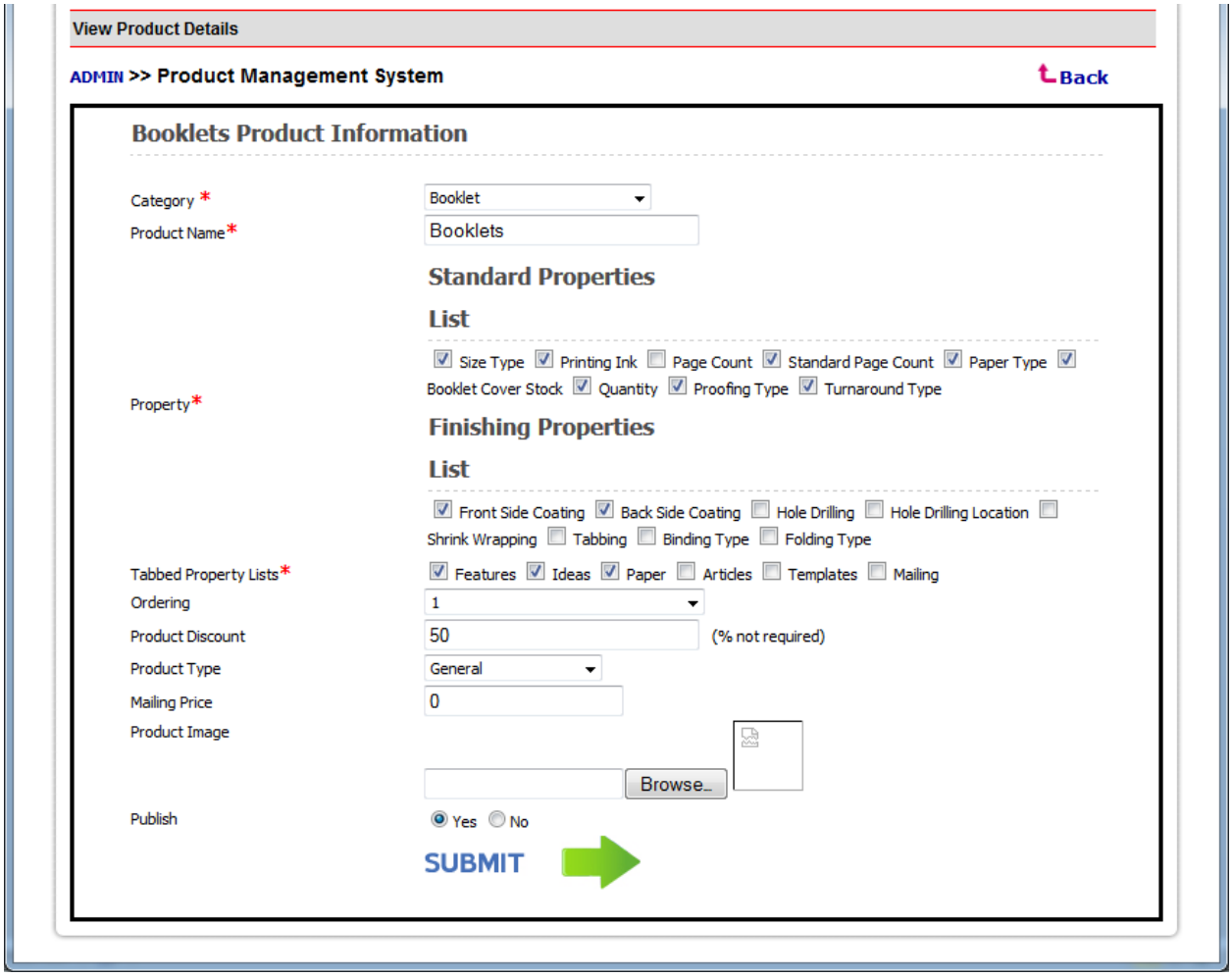
Now to the design of how I'd like to see this done. My apologies if this jumps around a bit:

Obviously we still need the products but I think we should possibly remove the categories as shown below. Either this or expand them per my above comments.



ID		Product Name	Category	Properties value	Tabbed	Discounts	Ordering	Status
0001		Booklets	Booklet	Properties Value of Booklets	Edit Tabbed	50 %	1	✓
0002		Brochures	Brochures	Properties Value of Brochures	Edit Tabbed	-5 %	1	✓
0003		Business Cards	Business Cards	Properties Value of Business Cards	Edit Tabbed	0 %	1	✓
0004		Card Calendars	Card Calendars	Properties Value of Card Calendars	Edit Tabbed	0 %	1	✓
0005		Poster Calendars	Poster Calendars	Properties Value of Poster Calendars	Edit Tabbed	0 %	1	✓
0006		Wall Calendars	Wall Calendars	Properties Value of Wall Calendars	Edit Tabbed	0 %	1	✓

If I click on "booklets" in the "product name" column, I get this:



I think you could have no categories and just list every Standard and Finishing property here. You click on those you want as you do now but what options are available won't be limited by the category. Furthermore, for my calculations to work, you have to expand what's offered above. Page count is shown but there are two pages count types. There should only be one. I know these properties have values associated with them when defined but I don't think this is necessary. It would be much simplier if the admin user could just create any property they want for purposes of description and not calculation. The calculations for each property would occur in the product section.
We should convert turnaround to a property here with check boxes for the different turnaround options. This will be easier than doing it as a separate property value.

If you select "properties value of booklets" from the first screen shot, you get this:

View contents Details

ADMIN >>PRODUCT >> Booklets Attribute Management System Back

Booklets Attribute Information

Standard Properties Information

Property Name	Property value	Order
Printing Ink	Printing Ink Property Value	2
Booklet Cover Stock	Booklet Cover Stock Property Value	6
Base Price	Base Price Property Value	7
Proofing Type	Proofing Type Property Value	8
Turnaround Type	Turnaround Type Property Value	9

Finishing Properties Information

Property Name	Property value	Order
Front Side Coating	Front Side Coating Property Value	1
Back Side Coating	Back Side Coating Property Value	2

Currently you have to select “base price property value” from the above and enter values for each size, page, paper and quantity option. This is where the true base price would be entered per the comments above. You’ll need to select the “base” options including quantity to define the base price. For all products a base will be defined for each quantity. So you will still have this:

View Property Values Details

admin>>Booklets >>Base Property values >> Size Type Back

Import Export Delete Active Inactive Add Existing values Update ALL

ID		Name	Add /Edit values	show Prcie	Order	Status
0001		8.5 x 5.5	8.5 x 5.5	Show	5	✓
0002		11x8.5	11x8.5	Show	7	✓
0003		8.5 x 11	8.5 x 11	Show	8	✓

When you click on a size it takes you here:

View Property Values Details

admin>>Booklets >>Base Property values >>8.5 x 5.5 >>Standard Page Count Back

Import Export Delete Active Inactive Add Existing values Update ALL

ID		Name	Add/Edit Values	Order	Status
0001		4 Pager	4 Pager	0	✓
0002		8 Pager	8 Pager	1	✓

This is where the major changes need to start happening. If you click on a page count it takes you to paper then when you click on paper it takes you to quantity. I’d like to see the clicks reduced and all “base” options defined at this point. Maybe you’d have something like this to select each base:

You could click on links like the above for paper, pages, quantity, etc. So imagine it works like the above property values management where that property populates in the same window and you define the base by simply checking a box. Now it knows "100 lb. gloss book" for example is included in the base price. Maybe you could then select or define the base multiplier for the other paper options. So something like this:

Property (P4)	Base	Additional to Base
100 lb. Gloss Book	☑	
100 lb. Matte Book	☐	$40.00
10 pt. Gloss Cover	☐	$85.00
10 pt. Matte Cover	☐	$110.00

You could still have the same or similar way to add the properties. Notice how I gave the paper property a "P4" designation. I'm not sure if this will be needed based on my formula. Since every product will have different properties, base properties and additional to base prices you need some way to designated what belongs to what product.

The multi page products are a little tricky. Maybe something like this would work:

Property (P2)	Base	Additional to Base	Use Multiplier?	Multiplier to Addl.
8 pages	☑		☐	
12 pages	☐	$215.00	☐	
16 pages	☐		☑	2
20 pages	☐		☑	3
24 pages	☐		☑	4
28 pages	☐		☑	5
32 pages	☐		☑	6
36 pages	☐		☑	7
40 pages	☐		☑	8
44 pages	☐		☑	9

What this is trying to do is establish the 'Z' value in the formula. The "Multiplier to Addl." would be the 'Z' value. There is probably a better way to do this but the goal is to not have to manually populate the "Additional to Base" for each page option. It wouldn't be difficult to do the first time but if you're constantly tweaking your pricing it will become a little tedious.

The quantity property could be really simple or really complicated. I prefer the complicated solution if we're going to have flexibility throughout the quantity range. Much like the above examples, you would define a base quantity. From there, the simple solution is to define an additional hundreds percentage. This would look like this:

Property (P6)	Base	Addl. Hundred %
250	☑	0.005642

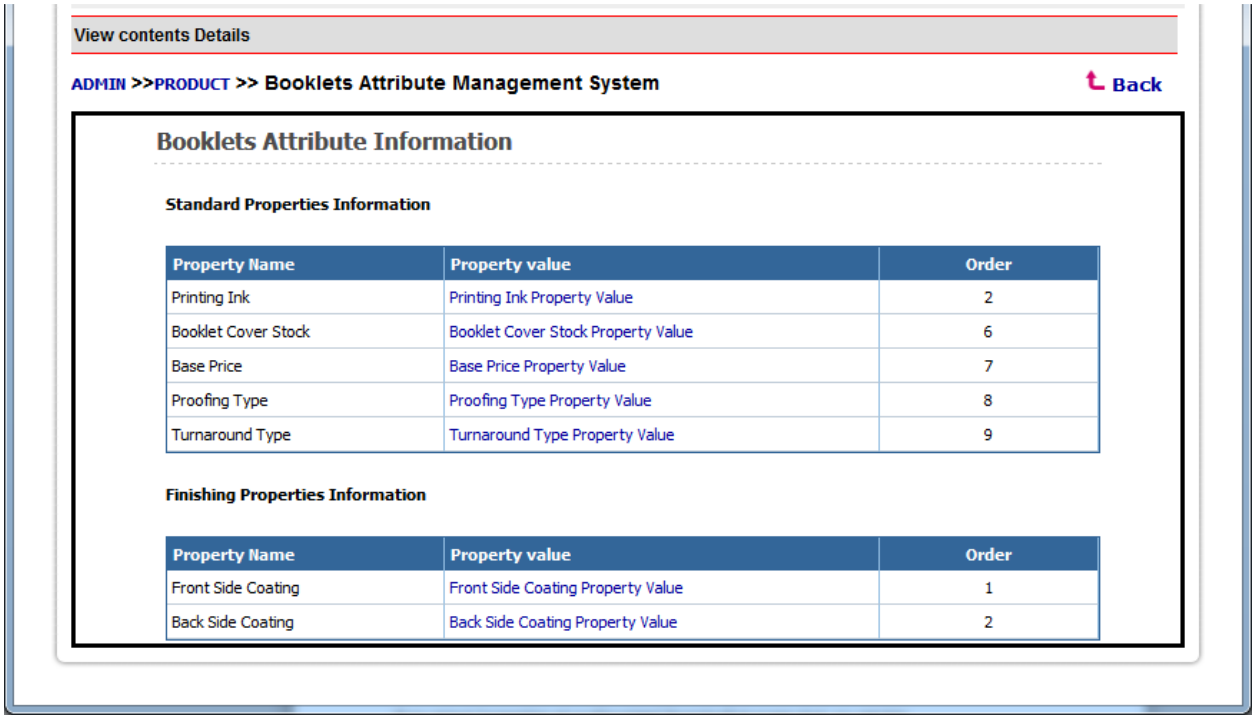
The quantity should probably be a dropdown of all the quantities available for that product. Or you make it generic and just have a constant dropdown for all products with small values like 1, 5, 10, 25, 50, 100, 200, 250, 500, 1000. These values should cover the base quantity for every product.

Where this gets tricky is if you want to provide an additional hundred % for different quantity ranges. After reverse engineering UPrinting's pricing, a single % gets us close but not close enough. To have more control, we would need to be able to adjust ranges. I'm thinking it would look something like this:

Property (P6)			Base	Addl. Hundred %
250			☑	0.005642
2500	-	5000		0.004380
5000	-	10000		0.003675
10000	-	50000		0.002933
50000	-	100000		0.002123

This is complicated for many reasons. First, you need dropdowns or some way to select the various quantity ranges. The ending quantity of one must be the starting quantity of the other. If you don't want to use the quantity ranges does the drop down have a "-" selection so it's ignored? Or do you populate the drop downs with the lowest available quantity and have a check box to recognize the range if the box is checked? Or maybe it's only recognized if there is a value in the % column? Lastly, the "Addl. Hundred %" is the 'H%' in my formula. The formula needs to use the % for the higher quantity within the range selected. For example, if the user chooses a quantity of 25,000, the formula would need to use the 0.002933 value as H%.

Jumping back to the products, I think we can remove some of the attributes as shown here:



Most of the above has been about the "Base Price Property Value". I think the ink value can be incorporated into the above formula as a property. After looking at UPrinting's products, they only seem to offer one sided or two sided printing (4/0 or 4/4). Some products have 4/0 as the only option (posters) and others 4/4 as the only option (booklets). I'd like to do the same thing. So booklets wouldn't even have an ink property because the only option is 4/4. Postcards, which could have both options, would just have the 4/0 printing as the base with an additional for 4/4 like in the paper example above. Booklet cover and turnaround could be done in the same way. Each product would have this defined in the base then as an additional. I would get rid of the coating as a property altogether. The coating can be included in the paper for example: 10 pt. Gloss Cover vs. 10 pt. High Gloss Cover. The "high gloss" would have UV coating. This is how UPrinting does it and I like it. Other finishing properties

like folding, drilling, etc. should be included as properties for that product like we've been discussing. So the above page would only have two options: Base pricing & proofing. Actually, the more I think about it the more proofing should probably be tied to the properties. What I mean is it will cost a lot more to "hardcopy" proof an 80 page book than it will a postcard. I think you could move proofing to a property within the product like everything else and set it up like this:

Property (P9)	Base	Additional to Base
Free Electronic Proof	☑	
Hardcopy Proof	☐	$25.00

Multi page products would have to have a similar multiplier to the page multiplier:

Property (P9)	Base	Additional to Base	Use Multiplier?	Multiplier to Addl.
Free Electronic Proof	☑		☐	
8 pages	☐	$25.00	☐	
12 pages	☐		☑	2
16 pages	☐		☑	3
20 pages	☐		☑	4

To do this correctly/accurately you'd have to do the same thing for inks. 4/4 will cost more to proof than 4/0.

The last thought about proofs are they also need to incorporate the shipping cost which is tied to ship method and location. Since the proofing pricing is shown during checkout, we should be able to ask for the zip code in order to calculate the proofing ship cost. I can't get to this option on UPrinting's site without uploading a file so I can't see how they do it. Regardless, proofing pricing needs to be fixed.

After looking at UPrinting's site, they have an interesting discount method. They will apply a 10% discount up to a certain point, say $100. Once the discount reaches $100 it stays flat. Any way to apply this to our products?

We also need to revisit our shipping prices. We've had some strange anomalies where clients get $40 shipping prices when it should cost hundreds. And some items aren't practical to ship UPS so it should default to something like "custom quote" meaning we will need to provide a quote for shipping separate from the calculator.

So to wrap this up into final thoughts:

Keep the "Property Values" page and info but remove any sort of formula associated with each property. The "Products" page is where you will create and define your products. The interface will be much simpler and similar to the "Property Values" page. A base price will be defined for each product and size. From there base prices or percentages will be used to calculate the final price. The categories can probably be removed if possible. An overall discount can still be applied to each product from the product's main page.