Types of Breweries: The Packaging Brewery, Part I

By Tom Hennessy, Colorado Boy Brewing

Palisade Brewery circa 2005

Note: You can subscribe to Tom's blog, The Affordable Brewery, here.

I was speaking with someone recently about cost for equipment for a packaging brewery, and once you ask this question, it only brings up many others. So I've been thinking about breweries in general, and how I would go about opening one up.

There are three types of breweries that I want to address: Packaging Brewery, Tasting Room Brewery and Brewpub. Each one is different in costs and logistics and is too big to cover in one sitting. Rather I think I will break it up into a small paper on each beginning next week.

I'd like to discuss what type of location for each and what will save the most money. Also what to look for in that location. I also want to throw some numbers at you for cost of equipment and a general ballpark on what it would cost to build and outfit the space. Hmmm, it's a lot of info and I don't know if I can fit it all into one article per brewery, but I'll try.

A PACKAGING BREWERY

First off, I don't like packaging breweries. I've owned one (above) and have never worked so hard to turn a profit. For me there are a few problems with packaging breweries.

1. Distribution is a pain and competition for shelf space and tap handles can be brutal.
2. To match prices with what else is out there is difficult until your volume is large enough to have economies of scale. Until then your grain and hops are expensive
3. You sell wholesale which means you have to wait 30 days at a minimum to get paid. Also, if a six-pack sells for $12 you are selling it for about 30% less to the retailer, and if you can't self-distribute, you are selling to the distributer at another 25% discount at least.
4. Your accounts want free stuff. Glasses, coaster, neon signs, etc.
5. It can become factory work, producing for consistency the same product over and over again (which is a good thing).

I could go on but those are my gripes. HOWEVER, if I were to build another packaging brewery I would do it a bit differently. Following would be my steps.

SPACE

I wouldn't be looking at national distribution, but rather my local area. My friend Mike Bristol over in Colorado Springs only concentrated in Colorado Springs, practically owning the town for years before he ever ventured out into the rest of the state.

So I think 5,000 sq. ft would do nicely. Anything over 5,000 and you need to install a sprinkler into the facility, which believe me, is super expensive. This all depends of course on the building and rent structure, so if you could get a bigger building that you didn't need to sprinkler, you would be happier with the extra room for expansion.

Ideally the building would have.

- A loading dock
- High ceilings, at least 20 ft.
- 3-phase power and plenty of it
- Natural gas
- Hooked up to the city sewer (no septic)
- Floor drains would be nice if it had been a dairy or a garage,
- Garage door
- Easy access for a tasting room
- An area outside that could be developed.

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DESIGN

This of course depends on the oyster, but mainly I want as large and well designed tasting area as possible inside and outside. This area will pay all your bills until your product is selling well outside your brewery. After that the tasting room will provide a huge chunk of your profits, so it's worth it to spend some money in these areas. Remember, in the tasting room there are no packaging costs, and people pay right there in your brewery at full price!

I want the people drinking in the tasting area to be able to see the tanks and the brewing going on.

I would still use serving tanks for the pub area, even if most of the beer was to be packaged. Using a 7 BBL non-jacketed tank, takes up a lot less room than 14 kegs. The cooler room should be right behind the bar. This makes serving from the tank to the tap a cinch, and no heavy kegs for your staff to mess with.

Look for pinch points where traffic jams can happen. Typically at the bar, the front door, the restrooms, to name a few. If all goes well, you will have a lot of customers coming and going at the same time you are brewing and packaging.

Add sound deadening panels wherever you can. A big brewery like this will have a lot of hard surfaces, and when you add a couple hundred people, a canning machine, and music, it can go to overload quick.

Anyway, read the link for the Oyster in the top line. It best explains the philosophy.

EQUIPMENT

I would start with a 15 BBL system. You really can't go lower for a packaging brewery and still keep your labor dollars in line. It takes the same labor hours to brew 15 BBL's as it does 5. If I found a 20BBL used I would do that. It would be a steam system, which is expensive, but will do a better job on a larger kettle, and will work for your hot liquor tank. That tank is really important because you want the ability to do back to back brews going forward. This way you can push your 15 BBL kettle by doing quad-brews to fill a 60 BBL fermenter of the beer everyone is clamoring for. For the boiler you can go gas or something like a Sussman Electric Steam Boiler, which is a cheaper install. I see them used all the time on ProBrewer or eBay.

Buy this brewhouse used if you can. I'm seeing them on ProBrewer for about 80k to 90k. I think that's really high, but it's a number to work with. I would get a dairy tank that was jacketed for my hot liquor tank. Since you would be using low pressure steam, it will work in the refrigerated

jackets of the dairy tank that are rated to 15 PSI. Just be sure to pressure test all jackets before you buy!

If you avoid a brewhouse with all the fancy controls and is a uni-block you can really save money. I would talk to manufacturers of equipment like Forgeworks and just buy a new Kettle and Mash tun with fittings. You don't need a platform and the only control you need is the on/off switch for your boiler and your pump.

I would also buy used fermenters and start with three. Used should be under 10k each.

You need one bright tank. This is a jacketed tank that after fermentation, you filter into, carbonate and then package. Go with a 30BBL so you would be ready when you expand, but a 15 BBL would be fine too and you wouldn't waste CO2 by carbonating 15 BBL's in a 30 BBL tank.

Now about those serving tanks. Even simple Grundy's would work. You would just transfer out of your bright tank to these, and save the rest of the beer in your bright to package out of. If you later found that you couldn't keep up with demand out of your simple little Grundy's, well than congratulations! You are making a fistful of money and can afford really nice larger serving tanks. Just make sure that your cooler behind the bar is big enough for expansion.

As a packaging brewery you want a lab of some sort. Not only for yeast cell counts and viability, but you also want to be able to test your packaged product for air. In addition you should be doing swab tests all over your brewery and doing gram stains to look for infection points. This is also done with your packaged beer pouring the beer into this hour glass device with a filter pad in between the top part and bottom part. You create a vacuum in the device so all the beer flows from one chamber to the other. Then you place the filter the beer ran through on a media plate to see if anything grows. It shouldn't because you filter.

And speaking of filtration, you should not only filter to get the yeast out, but you want to make your beer shelf stable as well. Those liquor stores aren't going to take care of your beer as well as yourself. When I had the Palisade Brewery, we transferred the beer out of the fermenter and through a DE filter to get the yeast out, but then it went straight into a plate and frame filter with .05 micron filter sheets. Now your beer might be such that you don't filter at all, or you simply don't want to strip out any flavor or color, but I include this just so you can think about it.

For packaging equipment, that would depend on how you wanted to package. Most folks are canning now, and that is still a good way to go. You can buy a decent semi-automatic canning line for under 75k. As you grow you will want something faster and include things to make packaging easier. Maybe people are ready to go back to bottles?

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I would not package anything until I had been open for at least six months. During that time I would be able to tell which of our beers were most popular, and those would be the ones I would market. Until then I would be making beer for my tasting room, and sending kegs out to bars as a test market.

Here is what this looks like.

Equipment	Quantity	Budget Ea.	Total Budget	
Brew Kettle	1	90000	12000	Used
Mash Tun	1	0	13000	Included
Fermenter	3	9000	27000	Used
Serving Tank	6	3000	18000	Used
Hot Liq.	1	9000	9000	Dairy
Boiler	1	10000	10000	Used
Glycol Chiller	1	10000	10000	Used
Pump	2	2500	5000	CPE
Heat Exch.	1	5000	5000	Mueller
Keg Cleaner	1	10000	10000	Used
Keg Sink	1	700	700	Home Depot
Filter	1	3000	3000	Used DE
Grist Hydrator	1	500	500	Bennett
Auger	1	1000	1000	Farmer Boy A
Mill	1	4000	4000	Forgeworks
O2 Infuser	1	350	350	GW Kent
Valves	50	53	2650	Glacier Tank
Clamps	75	6	450	Glacier Tank
CO2 Stones	9	100	900	GW Kent
Flow Meter	1	1150	1150	GW Kent
Zahm CO2	1	1500	1500	Zahm
Tees	10	28	280	
Elbows	5	21	105	
Press Relief	9	179	1611	
TC/hose Brb	9	18	162	
TC/FPT	7	13	91	
TC/Beer nut	6	18	108	
TC/Blank	7	3.5	24.5	
Racking Arm	9	59	531	
TC/manifold	1	150	150	
Gaskets	100	0.5	50	
TC/Hose Lg.	12	15	180	
TC/Prs. Gge	1	83	83	
Hot Hose	18	12	216	
Trans Hose	24	4	96	
Sample Valves	1	45	45	
Kegs(used)	50	100	5000	Gopher Kegs
Total			**143,932.50**	

This doesn't include:

- Delivery Vehicle
- Forklift
- Legal and Accounting work
- Build out (depends on the building)
- Furniture and fixtures for the tasting room.
- Packaging machine (depends on size, cans, bottles, etc. But plan on 100k)
- Staff Salaries for training
- Artwork for labels

Conclusion

My thought is I could get this done for $500,000 to $750,000. So much depends on the availability of used equipment, and the location itself and how much work it needs. This is realistic, however, based on my own experience and helping with our students from our Brewery Immersion Course,

There is simply too much ground to cover in just one article, but this should get you thinking in the right direction.

Next week I will tackle a tasting room brewery, which is a packaging brewery but smaller. It is also something I would totally do.

Contributing Author
Tom Hennessy **Founder, Colorado Boy Brewing**

Tom Hennessy has opened seven breweries of his own and helped open over 100 more with his Colorado Boy Brewery Immersion Course. His video Frankenbrew, from 1995 has become a cult classic in the brewing world. His three brewing books include The Brewery Operations Manual, Colorado Boy SOP, and The Affordable Brewery. Tom lives, brews and writes in his mountain town of Ridgway, Colorado.