

University of California, Davis
Brewery, Winery & Food Pilot Facilities

PROCESS LOAD SUMMARY

Room Description	Schedule Process	Space/Plug Load (avg)	Space/Process Load - Peak	Frequency of Peak	System load	Primary Process Load Characteristics	Corallary Loads and comments
Fruit Cellar	24/7 Aug-Nov; Room may be used for additional barrel storage during other parts of the year		14 kw - refrigeration	24 times overnight during fall harvest season		8-16 tons per day up to a seasonal total of 50-100 tons. Fruit needs to be chilled from 85 degrees F to 50 degrees F in 18 hours	
Fermentation Room	8/5 August - September: Fruit Processing	3 kw	6 kw - equipment	3-4 hours daily		Destemer, press and conveyance loads usually in the morning	
	24/7 September - Dec: Teaching and Research Fermentation		5 kw - pumps and mobile chiller	25 minutes, 4 times a day during fermentation	120 kbtu peak to chilled water jackets	Research fermentation starts in September, Teaching fermentation starts in October L6; 69-127 kbtu/hr of heat generated by fermentation at peak	Some tanks may remain full until March
	8/2 Jan-June: Bottling of teaching wine		4kw - equipment	8 hours daily, 2 days a week		500-2,000 cases, bottler requires N2 bottles, vac and compressed air, 208v skid	Vac and compressed air
Wine Cellar #1-3	24/7 November - August		see load characteristics description	1-2 times a year		First 6 weeks of storage CO2 levels highest, Malolactic fermentation max is 24 60 gal barrels heated from 58-75 degrees (no time limit)	
Long Term Barrel Storage	24/7					1-2 barrels a day average batch, small temp differential	
Research Bottle Storage	24/7					None	
Donor Bottle Cellar	24/7					None	
Laboratories	24/7	5 w/sf				Lab equipment	
Clean in Place	14 tanks 4 times annually, no specific TOD		?	see load characteristics description		Filtration, Pumping and Heating, Water Purification - 6 15 minute cycles, 1 tank at a time, anytime of day, more typical mornings	Barrel cleaning with 100 degree F water at 10gpm;
Winery Data Room	24/7	20 w/sf				Servers, UPS	Provide chilled water to space for future rack cooling
Dairy Food Processing	Varies	10 kw	20 kw - equipment	4 hours 2-3 days a week	100 kbtu peak steam load	Process steam and chilled water; used for classes	
General Food Processing	8/5 July to Sept for Peach Processing; 8/5 August to November for Tomato Processing; 8/5 November and December for Olive processing	12 kw	50 kw - equipment	Daily	2500 kbtu peak steam load	Tomato paste procesing 2 days a week over 9wks of tomato harvest; Blast freezer runs 4 hours at a time; Freeze dryer runs 5-7 days at a time	Direct exhaust of process steam required for space temperature maintenance
	January - June	5 kw	10 kw	Once a month for 5 days	300 kbtu peak steam load	Peak from freeze dryer and or steam kettles	
Processing Freezer #1	24/7		see load characteristics description	Daily		primarily holding temperature with batches of 5-15 gallons added daily that need to reach set point in 24 hours	

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Processing Cooler #1	24/7		see load characteristics description	Daily		during tomato processing will bring in 4-6 tons of fruit a day that has to go from 110-50f in 6 hours	
Processing Cooler #2	24/7		see load characteristics description	Daily		same capacity as #1 but not simultaneously used	
Brewery Cooler	24/7		see load characteristics description	24 times a year		16 gal batches cooled from 32f-29f in 12 hours	
Brewery	18 runs a year/12 in spring quarter		10 kw - equipment	8 hour run	24 kw steam peak	Steam kettles are not insulated from the space	300 gallons purified water
	Fermentation and bottling after brew run		5 kw - equipment	24/7	320 kbtu peak to glycol	Fermentation runs 5-7 days after brew run	
Dry Storage	18 runs a year/12 in spring quarter	1 kw	2 kw - equipment	1 hour		1.3kw milling equipment runs for 10 minutes, space has upright freezer and standard refrigerator	
Glycol/CIP Room	See Brewery						
Telecom/Data	24/7	25 w/sf					