

UTILITIES LOAD & CAPACITY WORKSHEET

A fill-in worksheet for building a diversified utility demand schedule — steam, compressed air, refrigeration and chilled water, process water and effluent, and electrical power — from a stated production basis, and comparing it against the capacity you are about to buy. Companion to the A3 utilities readiness checklist.

VERSION 1.0 · JUL 2026 · 6 SHEETS · 1 SUMMARY · GATES: CONCEPT · BASIC ENGINEERING

HOW TO USE THIS WORKSHEET

- 1 Complete Sheet 1 first — every later sheet derives from it. Work to the **peak hour of the worst realistic day**, not the daily average.
- 2 For each consumer: **diversified demand = rated demand × utilisation × simultaneity**. Utilisation is how hard the machine works while running; simultaneity is how likely it is to run at the same time as the rest.
- 3 Enter CIP, sanitation and start-up as consumers in their own right. In many plants the **CIP window, not production, sets the steam and hot-water peak**.
- 4 Carry each sheet's total to the summary on page 4 and compare it with the capacity being selected. **Margin is a decision to be recorded**, with the name of whoever approved it — not a default.

01 PRODUCTION & SITE BASIS

COMPLETE FIRST

Everything downstream inherits these numbers. If they are assumptions rather than decisions, mark them as such.

Project / site	_____	Prepared by / date	_____
Product / family	_____	Revision / status	_____
Design capacity	_____ T/DAY	Peak hourly rate	_____ T/H
Shifts × hours/shift	_____	Operating days/year	_____
Number of lines	_____	CIP circuits × cycles/day	_____
Expansion — day one	_____ %	Expansion — ultimate	_____ %
Site design DB / WB	_____ °C	Site elevation	_____ M
Peak-hour scenario used	_____	Existing utilities on site	_____

ASSUMPTIONS & OPEN QUESTIONS

List every steam consumer including CIP, hot-water generation, sterilisation and space/tank heating. Add the peak-hour case, not the shift average.

Distribution pressure BAR G Condensate return target %

State free air delivered at the point of use. Record the ISO 8573-1 class per consumer — food-contact air is a separate network, not a filtered branch.

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Enter the holding load and the pull-down duty separately — sizing on holding load alone is the most common cold-side error.

Chilled-water flow / return _____ °C Refrigerant / safety class _____

Every stream drawn must leave somewhere — as product, as loss, or as effluent. The line that does not balance is the one to investigate.

Group by area or system. Mark every consumer that must stay live on standby power in the last column.

07 SUMMARY — DEMAND VERSUS SELECTED CAPACITY				
UTILITY	DIVERSIFIED	SELECTED	MARGIN %	REDUNDANCY
Steam				
Compressed air				
Refrigeration / chilled water				
Process / potable water				
Effluent treatment				
Electrical power				

PMG has engineered 250+ food & beverage factories across 15+ markets — from concept layout and hygienic design to detailed engineering, construction supervision and commissioning.

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