GAS PRACTICAL ASSESSMENT

COMMON START - follow this order before working on any appliance

01	Get the correct manufacturer instructions Read make and model on the data plate. Find the correct gas type, MJ/h, test-point pressure, injector details and lighting instructions.
02	Electrical safety - volt pen Check the volt pen works on a known live point; scan appliance body, pipework and nearby metal; check pen works again. Where electrical isolation is needed, use the TAFE-approved prove-dead procedure.
03	Look around the appliance Check for gas smell, damaged parts, correct gas supply, stable appliance, isolation valve, hose / pipework, burner condition, ventilation, flue or rangehood and nearby combustibles. All appliance controls OFF.
04	Water manometer - gas-tightness test Connect at the assessor-approved regulator/test point. Use the correct Appendix E test for that section of piping and appliances. Where the applicable method specifies 7 minutes, allow at least 2 minutes to settle and 5 minutes to measure. Record readings. Book / manual: Appendix E; TAFE assessment method
05	Regulator lock-up - a different check With gas demand stopped, watch the regulator outlet pressure using the water manometer. It should settle within the regulator maker’s limits rather than keep climbing. Record it separately from the tightness test. Book / manual: Regulator instructions
06	Check joints for leaks Use approved leak-detection solution at accessible joints and test connections; bubbles mean a leak. Use electronic gas detector as instructed to check around valve, joints, appliance and room.
07	Write down data plate details Make/model, gas type, MJ/h, working pressure, approval and injector size (where listed). Do not copy the settings from another appliance.
08	Check final pressure and leaks Read water manometer again and write down exact result. If pressure drops or joints bubble, stop and correct before carrying on.
09	GET TEACHER BEFORE REMOVING GAUGE Teacher checks the manometer reading, the time and your record, then signs the test. Do not disconnect first.
10	Restore the test point After permission: disconnect test equipment as directed; refit and seal plug, then recheck for leaks. Only now start appliance lighting/commissioning.

GET TEACHER TO SIGN THE TEST BEFORE DISCONNECTING THE WATER MANOMETER

CHEF DOMESTIC COOKER - CFG503WCH

WHAT EACH PART IS / WHAT IT DOES / WHY YOU CHECK IT





Your Chef cooker: 4 manual hob burners, separate grill and gas oven. The grill/oven use the fitted piezo spark; hob is manually lit on this variant.

Burners - atmospheric - Four cooktop burners, grill burner and oven burner. Atmospheric means gas draws in air from the room before it burns. You need a steady flame, especially on low.

Ignition - different for hob and oven - Your CFG503WCH variant has manually lit hob burners; the separate grill and oven use a piezo push-button spark. Piezo makes the spark - it does NOT hold the safety valve open.

Flame failure - thermoelectric / thermocouple - The maker confirms flame failure protection; a heated thermocouple at a protected burner holds the valve open. Flame goes out = gas shuts off after cool-down. No thermopile or fryer-style ECO is specified for this Chef model.

Cooktop knob - manual gas tap - When you turn from HIGH to LOW you directly reduce gas. It is NOT a thermostat. It does not measure pan temperature.

Oven thermostat - thermostatic gas valve - The oven knob selects a temperature. When the oven warms up, the valve reduces/controls the gas flame. Its sensing mechanism is not confirmed by the photographed plate; check exact valve before calling it liquid-expansion or rod-and-tube.

Oven bypass screw - minimum flame - A small calibrated passage in the oven gas control that lets the required low-flame gas through when the thermostat turns down. It is different from the cooktop low-fire adjustment; check the correct screw for NG/LPG.

Type of thermostat - exact subtype unverified - The maker confirms an oven gas thermostat and bypass. Its control acts on oven temperature, unlike the hob tap. Liquid-expansion / rod-and-tube describe sensing technology; modulating / snap-acting describe flame control. Do not write either sensor type without the gas-valve part number.

Flue - not separately flued - Burnt gas leaves into the kitchen/room rather than a dedicated outside flue pipe. That is why the room’s fresh-air and extraction requirements matter.

Input / pressure - Chef CFG503 manual lists NG 58.1 MJ/h, while a later CFG503WCH product sheet lists 58.7 MJ/h. Copy the actual plate. NG nominal appliance test-point = 1.00 kPa; propane = 2.75 kPa.

WHY THE TWO ADJUSTMENTS ARE DIFFERENT

Cooktop LOW screw: makes the simmer flame small but still alight. Oven bypass: keeps a safe little flame when the oven thermostat has turned the heat down. The oven can have a thermostatically controlled low flame even though the cooktop does not.

AS/NZS 5601.1:2022 - FIND THESE IN YOUR BOOK

6.10.1.1 + Figure 6.10.1.1 - clearance above and beside a domestic cooker.

6.10.1.9 - high-level flexible hose connection on a freestanding domestic cooker.

6.10.1.3 - several domestic cookers in classrooms: high + low permanent outdoor openings.

CHEF COOKER - DO THESE STEPS

The cooker controls may vary - identify the fitted ignition button before lighting

01	Finish safety and water-manometer checks Manufacturer plate, electrical check, 7-minute test if applicable, regulator lock-up, leak detector, and teacher sign-off must be done first.
02	Light cooktop burner 1 Turn/press the correct knob to HIGH and use fitted igniter as in Chef instructions; keep knob in while thermocouple heats. The flame should stay lit once released.
03	Check all 4 cooktop burners For each: HIGH -> LOW -> HIGH. Look for a stable small flame on LOW and no flame lifting, going out or flashing back.
04	Light the separate grill Use the grill knob and its ignition method. Check that the flame lights evenly and stays alight; follow required door position.
05	Light the gas oven Use the oven knob and specified ignition method. The oven thermostat sets the cooking temperature and later turns the main flame down to low.
06	Digital manometer - burner running At the approved cooker regulator test nipple, measure gas pressure while burner load is operating. Compare with the manual for actual gas. Record kPa.
07	Check oven low-fire/bypass Turn oven from demand for heat to the minimum flame condition as instructed. Confirm it stays alight. Oven bypass screw is at the oven gas valve; locate from Chef service diagram - do not mistake it for a cooktop screw.
08	Oven temperature test Place suitable probe in the oven at assessor-approved position; set oven to 180°C. Record when heating reduces/cycles and actual temperature (may differ from dial).
09	Check installation Gas hose high-level connection if used, restraint/anti-tilt, connection routing, clearances to overhead cupboard/rangehood and room ventilation.
10	Record, finish, teacher Record working pressure, low flame, cut-out temperature and any dropout test; reseal and leak-check test point. Get teacher to check results before pack-up.

FAST FAULT CHECK

Hob lights then dies: weak flame on thermocouple, wrong hold time, faulty thermocouple. Oven dies at low: check the oven low-fire/bypass arrangement and pressure, not the hob injector. Yellow/sooty flame: burner/air/gas-pressure fault - have combustion checked.

RHEEM 800 SERIES 135 L INDOOR HWU

WHAT IT HAS / WHAT IT DOES / WHY IT MATTERS



Your Rheem heater: roof flue at the top, draught diverter, lower gas thermostat/control and water pipes.

Burner - atmospheric - Main burner underneath the 135 L tank uses air from the room. The Rheem 800135 data sheet lists 30 MJ/h, subject to gas-type plate check.

Pilot - standing pilot - Small flame stays on. When the water thermostat calls for heat the pilot lights the main burner.

Igniter - piezo - Push-button spark to light pilot; it does not keep the gas valve open.

Thermocouple - flame failure - Its tip is heated by the pilot. It produces millivolts to hold gas safety valve open. Once pilot goes out it cools and gas shuts off. A 13-30 mV figure is not a universal test pass range.

Water thermostat - adjustable gas temperature control - Senses stored water temperature and turns the main gas burner on when water cools / off when it gets hot. The exact sensing mechanism (rod-and-tube, fluid, etc.) must be read from installed control part number, not guessed.

Flue - natural draught open flue - Hot combustion products rise naturally up a vertical flue. It uses room air, not a fan. The draught diverter on top lets air join the rising flue gases and reduces disturbances.

What thermostat type means - Rod-and-tube: different metals expand at different rates and move the valve. Liquid expansion: trapped fluid expands and moves a mechanism. Snap-acting: main flame switches on/off. Modulating: flame gets larger/smaller. Do not label the Rheem as one of these sensing types without the gas-control part number.

Twin-wall flue - Two layers of pipe help with temperature/clearance design, but do NOT make the heater room-sealed. It still needs room air and can spill at the draught diverter.

Spillage / why it happens - Burnt gas leaves the draught diverter into the room instead of rising up the flue - perhaps because of blockage, poor draught or exhaust fans sucking air out.

Other safety - water-side relief valve - A temperature/pressure relief (TPR) valve protects the tank from excessive heat/pressure; this is not a fryer ECO. The exact gas-control overheat protection must be identified from its own valve manual.

AS/NZS 5601.1:2022 - FIND THESE IN YOUR BOOK

6.4.6.2 + Table 6.4.6.2 - calculate fresh-air openings for the WHOLE room; add other gas appliances.

6.4.12 - draught diverter and atmospheric burner draw air from same space.

6.7 to 6.9; 6.9.2 - flue design, connections and natural-draught roof terminal requirements.

Appendix H - sizing natural-draught flue from height, lateral run, input and flue type.

Appendix Q - spillage check for open-flued appliances.

6.10.4 - storage heater in bathroom or toilet: maximum appliance input 40 MJ/h; other installation rules still apply.

6.11.4; AS/NZS 3500.4 - commissioning and heated-water safety/temperature control.

RHEEM STORAGE HWU - DO THESE STEPS

Natural draught flued heater | Classroom target: 65°C stored water

01	Complete gas checks, then check tank water Safety, water-manometer and leak checks signed by teacher. Verify cold supply is on and tank is full; run hot tap to expel air.
02	Check flue and room air Look at draught diverter, flue joint/support, roof terminal and combustion air. Check whether rangehood/exhaust fans can cause negative pressure.
03	Light the standing pilot Use heater lighting label: pilot control and piezo spark, then hold for manufacturer-specified time so thermocouple heats. Pilot must stay alight.
04	Run the main burner Turn thermostat to call for hot water. Pilot lights main burner. Check flame is blue/stable and there is no soot or spillage.
05	Digital pressure at appliance Use the correctly labelled inlet/outlet test point on the heater gas control. With main burner operating, compare working pressure to water heater data plate/manual.
06	Thermocouple mV + dropout With correct millivolt meter and approved in-line test adapter, measure across the thermocouple/safety circuit points specified for fitted valve; note loaded reading. Teacher directs flame-failure/dropout test; record seconds until valve closes.
07	Water temperature at 65°C Set thermostat as directed, allow water to heat. Measure with suitable thermometer at the approved location. Record actual water temperature when burner cuts out, NOT just dial setting.
08	Flue temp + spillage test Use approved flue temperature probe/sampling position (not outer flue skin); record °C. With extraction equipment in its test state, check spillage at draught diverter as Appendix Q directs.
09	Finish + sign off Record pressure, mV, dropout, actual water temp, flue temp, ventilation/spillage result. Check ports for leaks, refit covers, get teacher.

FAST FAULT CHECK

Pilot dies: check pilot flame on thermocouple and safety circuit. Water not heating: check whether thermostat calls for gas and pilot is proven. Flue spilling: stop use; check flue obstruction, room air and running extraction fans.

WALDORF RN8610G - 6 BURNER RANGE

Two versions: F (no cooktop pilot) / PF (cooktop standing pilots)





Your two range photographs. Identify the rating plate and F or PF burner arrangement before choosing the lighting procedure.

Burners - atmospheric open burners - Six exposed cooktop flames; each burner draws its combustion air from room. Model manual rates six at 28 MJ/h each, plus a 30 MJ/h gas oven: 198 MJ/h total (check plate).

F control - flame failure only - Cooktop burner has thermocouple but NO pilot: hold its knob and light the main flame manually. Once thermocouple is hot it holds the safety valve open.

PF control - pilot AND flame failure - Each cooktop burner has a small standing pilot plus thermoelectric safety. Pilot is lit first; later turning on burner allows pilot to light main flame.

Cooktop taps - manual high/low - Not thermostats. You control flame size by hand; the low-fire screw is for a reliable simmer flame.

Oven pilot - piezo - Built-in spark ignites small oven pilot, which then ignites main oven burner. Pilot has flame-failure protection.

Oven thermostat - gas control with low-fire - Oven knob selects a temperature (manual shows 100-290°C). When oven warms, gas control reduces the main flame to a small safe flame; the oven has its own low-fire screw.

Thermostat words explained - Low-fire or modulating behaviour means the main oven burner reduces to a small flame rather than fully switching off every time. Snap-acting means main heat switches on/off. Liquid-expansion and rod-and-tube describe the SENSOR, not the flame size.

Thermostat sensor subtype - Manufacturer confirms thermostatic control and low fire, but does not identify liquid-expansion/rod-and-tube on visible specification. Do not guess this subtype from the knob.

Flue - hood, not a room-sealed pipe - Combustion products from top and oven discharge into commercial kitchen ventilation/hood. Hot appliance flueways still need required clearances.

AS/NZS 5601.1:2022 - FIND THESE IN YOUR BOOK

5.2.9.2 - commercial kitchen emergency isolation where more than one catering appliance is connected.

6.10.2.6 / 6.10.2.7 - under-unit connection rules and commercial high-level flexible hose connection.

6.10.2.2 + Table 6.10.2.2 - grease-filter clearance: OPEN BURNERS category 1050 mm.

6.10.2.3 + Table 6.10.2.3 - minimum distances to combustible side/rear walls; manufacturer may require greater.

6.4.9 + Table 6.4.9 / 6.4.10 - mechanical fresh air and interlock when required air comes from a mechanical system.

6.6.3 / 6.11.4 - appliance isolation and commissioning.

6.10.2.9 - commercial catering in classrooms: permanent high/low vents OR compliant hood and make-up air.

WALDORF RN8610G - DO THESE STEPS

First decide whether your TAFE cooker is F or PF - they light differently

01	Complete common start Data plate, electric check, tightness, lock-up, leak tests and teacher sign-off; check hood and gas emergency isolation.
02	Identify F or PF - look for pilot tubes F = no cooktop pilot. PF = small standing pilot at each burner. This decides lighting method; do not assume both ranges use same method.
03	F version: light cooktop main flame Turn/hold knob at HIGH and manually light main burner by manual method. Thermocouple warms; release when stable.
04	PF version: light pilot then main Light the small standing pilot as manual directs, ensure it stays on; then use cooktop knob to turn on main flame.
05	Check all 6 flames For each burner HIGH -> LOW -> HIGH; the flame must remain alight at LOW without flame lifting. Check thermocouple protection as directed.
06	Light oven pilot and main burner Use oven piezo, check pilot stays lit, turn thermostat up to call for main flame. Observe oven flame.
07	Digital operating pressure Measure at maker’s manifold pressure test point with the specified number of burners on high. Manual lists NG operating 0.95 kPa and LPG 2.6 kPa (check plate/gas).
08	Low flames and bypass Cooktop: low-fire screw on each gas tap sets simmer. Oven: own low-fire screw sets little flame when thermostat turns down. Only adjust if assessor calls for it using manual procedure.
09	Oven to 180°C Use independent oven probe; set 180°C, record real cut-out/reduction and restart temperatures.
10	Check location and finish Hood grease filter clearance, hot rear/combustibles, gas hose position/chain if movable, emergency stop/isolation and required room fresh air. Record/teacher.

FAST FAULT CHECK

F burner goes out when knob released: thermocouple flame/heating or safety valve. PF has no main flame: check pilot first. Oven burns too high at minimum: oven low-fire setting, not cooktop adjustment.

WALDORF RN8410G - 4 BURNER RANGE

YOUR EXACT TAFE COOKER | read the rating plate first | 4 burners and static gas oven





1. DATA PLATE - WRITE THESE VALUES

What it says	Answer for your cooker
Make / model	Waldorf (Moffat) / RN8410G
Serial / approval / build	206282 / SC354 / 06-00
Gas / rated total	NATURAL GAS / 104 MJ/h
Natural-gas test pressure	1.0 kPa - rating plate (not a measured result)
Cooktop / oven / pilot jets	4 x 2.1 mm / 2.25 mm / 0.32 mm
Gas connection	3/4-inch BSP male

2. WHAT THIS COOKER HAS - SIMPLE EXPLANATION

Component / type	What it means on your cooker
Cooktop burners	Four open atmospheric burners. Gas mixes with air in the burner tube; flame heats the pan directly.
Flame failure	Thermoelectric protection where fitted. Flame heats a sensing tip and holds the safety valve open; flame lost = gas shuts off. Check fitted controls.
Cooktop low flame	Low setting should keep each flame lit and stable. Gas tap turndown adjustment is DIFFERENT from the oven thermostat bypass.
Oven / thermostat	Static gas oven (no fan circulation). Mechanical thermostat controls heat. Exact internal sensor type on this 2000 unit is not confirmed by the current manual.
Oven pilot	Pilot lighting and flame sensing must be identified on this actual valve. Later RN8410G manuals show an oven standing pilot.
Oven low-fire	Some variants have a low-fire/bypass screw on oven thermostat valve. Check old valve model before adjusting or swapping newer screw sizes.
Flue	FLUELESS commercial range: no individual flue pipe or flue terminal to outside. Oven products leave its oven flueway into the kitchen and must be managed by room extraction/ventilation.
ECO / thermopile	Do not assume either is present. The fitted valve and wiring must be checked before claiming separate over-temperature protection or thermopile.

Important version difference: current Moffat RN8410G manuals show 136 MJ/h, 0.95 kPa and different injector sizes. Your 2000 rating plate says 104 MJ/h, 1.0 kPa and the jet sizes above. The current manual gives a model-family operating sequence, NOT proof of the old control setting.

RN8410G - DO THESE STEPS IN ORDER

Use this with the COMMON START on page 1 of your original handbook

1	Get the manual + check your plate - Identify RN8410G, NAT GAS, 104 MJ/h, 1.0 kPa and the 4 x 2.1 mm cooktop / 2.25 mm oven / 0.32 mm pilot jets. The old fitted control may differ from the latest manual. Book: Manufacturer instruction + rating plate
2	Electrical safety then visual site check - Use your TAFE volt-pen screening and approved electrical safety procedure. Look for gas odour, damage, accessible shut-off valve, gas hose/chain and working exhaust hood. Book: AS/NZS 5601.1 5.9; 6.10.2.7; 6.10.2.9
3	Water manometer + leak / lock-up - Carry out the specified installation tightness test, then separate regulator lock-up check with water manometer. Soapy water and gas detector to inspect connections. Use correct test boundary and pressure. Book: AS/NZS 5601.1 App E; regulator instructions
4	GET TEACHER TO SIGN OFF TEST - Record actual pressure and timing; DO NOT disconnect pressure test equipment until teacher has witnessed / initialled as required. Book: TAFE practical form
5	Record the gas plate - Fill make, model, serial, approval, fuel, input and injector sizes. Label 1.0 kPa as RATED pressure until you actually measure it. Book: Manufacturer plate
6	Check connection and hose - Check which hose is installed: AS 1869 Class B FLEXIBLE or AS 4631 SEMI-RIGID. Check chain length, valve, hose route and appliance movement. See next page. Book: AS/NZS 5601.1 6.10.2.6-.8
7	Light cooktop burners - Only after gas test sign-off, follow the fitted burner lighting instructions. Check all four at high, low, high; low flame must not blow out. Book: Moffat RN8410G operation; check old controls
8	Measure operating pressure - Fit digital manometer to the identified MANIFOLD test point, with gas flowing. Your plate target is 1.0 kPa. Record actual figure; do not change regulator without checking its own instructions. Book: Old plate; Moffat manual: Commissioning
9	Adjust LOW flame only if needed - Find low-fire adjustment on each cooktop gas tap under/behind knob (only where provided). Teacher checks steady low flame on all four; do not alter injectors. Book: Moffat manual: Open Burners / Low Fire
10	Prove oven safe to light - Open oven, confirm no gas present in combustion space as assessment requires, wear eye protection and check oven pilot / flame-failure operation. Book: TAFE assessment form; Moffat Oven Pilot Ignition
11	Oven test at assessor setpoint - Set thermostat to 200 degrees C if following the supplied assessment form. Measure independently; the sheet asks for 195-205 degrees C. Adjust calibration only by fitted thermostat manual with teacher. Book: TAFE form: 200 degrees C (+/-5); Moffat Thermostat
12	Finish + get teacher - Shut controls OFF, isolate as required, re-seal and leak-check test points, refit covers / chain, record results. TEACHER CHECKS BEFORE FINAL SIGN-OFF. Book: AS/NZS 5601.1 6.11; TAFE form

RN8410G - HOSES / CHAIN / INSTALLATION

Answer your practical questions from AS/NZS 5601.1:2022 (check current amendments)





Question	Write / say this	Where to find
Restraining chain	Must be NO LONGER than 80% of the hose length where appliance >20 kg is moveable/slidable with a hose. Example: 1,200 mm hose = chain max 960 mm.	6.10.2.7(e); 6.2.14
Grease filter	At least 1,050 mm above the open burners (nearest cooking surface/trivet to filter).	6.10.2.2; Table 6.10.2.2
Isolation	YES - accessible gas shut-off; with high hose: quarter-turn manual valve BEFORE hose.	6.6.3; 6.10.2.7(i)
Hose / clearance	Approved flexible hose (AS 1869 Class B or D); no kinks or crush; bottom of loop at least 50 mm above floor; protect from wall; connection at high level.	6.10.2.7(a)-(i)
Semi-rigid connector	AS 4631 semi-rigid is only allowed here if appliance is permanently fixed and protected from movement or knocks. Do not treat it as an unrestricted mobile range hose.	6.10.2.8
Combustible walls	Use manufacturer clearance PLUS minimum standard Table 6.10.2.3, including 250 mm side clearance for applicable open-flame setup and 50 mm rear flueway minimum category. Verify actual geometry.	6.10.2.3; Table 6.10.2.3
Ventilation in TAFE room	Either permanent openings direct outside at high and low level OR proper exhaust canopy and make-up air system. Shared-room appliance load affects method.	6.10.2.9; 6.4.5 / 6.4.6; AS 1668
Flue terminal	NOT APPLICABLE: this range has no individual external flue terminal; it is flueless / Type A cooking equipment. Check hood and appliance flueway instead.	6.10.2; manufacturer
Under-cooker gas inlet	If supply connection point is under range, hose cannot connect directly there; extend to approved higher-level connection as required.	6.10.2.6

Hose photo note: one label reads MH-Keeflex S-Core AS 1869 Class B, full flexibility, 20 mm I.D. Another reads AS 4631 semi-rigid, 20 mm I.D. They are two distinct categories. Identify which is actually connected before ticking compliant.

RN8410G - FAULTS / QUESTIONS / RECORD

Simple troubleshooting, injector calculation and where to look in the book

IF SOMETHING DOES NOT WORK

Fault / question	First things to check
Cooktop won't light	Gas isolation ON? Burner seated / cap fitted? Correct manual lighting sequence? Is gas available? Stop if gas accumulates.
Flame dies when knob released	Flame-failure sensing tip not properly heated; check pilot or burner flame, sensing connection and valve with teacher.
Low flame goes out	Check pressure, blocked burner ports and correct low-fire screw for the fitted gas tap; do not enlarge a jet.
Yellow flame / soot	Possible dirty air inlet, poor mixing, blocked burner or wrong gas pressure. Shut down and address combustion / ventilation problem.
Oven fails to light / heat	Check pilot, flame safety, thermostat demand and gas valve; follow F/PF or specific old valve sequence.
Oven misses 200 degrees C	Check separate calibrated probe, thermostat cycling and oven door seal first. Calibrate only using correct control-specific instructions.
Regulator pressure wrong	Plate target is 1.0 kPa. First confirm gauge, tap, gas supply and 80% appliance load. Do not blindly set a modern unit to 0.95 or old unit to 0.95.

GAS CONSUMPTION QUESTION - YOU NEED THE TIME AND TABLE

From your actual rating plate: 4 x 2.1 mm natural-gas cooktop injectors, 2.25 mm oven main, 0.32 mm oven pilot. To solve the worksheet using orifices: look up gas flow for EACH size at specified pressure in your TAFE jet/orifice table, add relevant burners (include pilot if specified) then convert volume rate to cubic metres over the recorded minutes + seconds.

Formula: Volume (m3) = (total gas volume rate, m3/h) x (60 x minutes + seconds) / 3600. If starting with MJ/h, divide energy rate by the applicable natural-gas heating value (MJ/m3) first. A sample rated-input comparison is 104 MJ/h, but the worksheet specifically wants the orifice-table working.

WHAT TO RECORD / GET SIGNED

[ ] Test type & pressure: _____ kPa; stabilisation: _____ min; measurement: _____ min; result: _____

[ ] Teacher tightness sign-off (before disconnect): _____

[ ] Manifold measured running pressure: _____ kPa (plate target 1.0 kPa)

[ ] Low flame (4 burners): PASS / FAIL; teacher initials: _____

[ ] Oven setpoint 200 degrees C; actual stabilised reading: _____ degrees C (required range 195-205)

[ ] Final gas isolation / test point seals / hose / chain check: _____; teacher: _____

SOURCES FOR YOUR BOOK

AS/NZS 5601.1:2022: 6.10.2.2 + Table 6.10.2.2 (grease filter); 6.10.2.3 + Table 6.10.2.3 (combustibles); 6.10.2.6 (under-appliance inlet); 6.10.2.7 (high-level hose / chain / isolation); 6.10.2.8 (semi-rigid); 6.10.2.9 (classroom ventilation); 6.6.3 (isolation); Appendix E (tightness); Appendix F (pipe sizing); 6.11 (commissioning).

Manufacturer: Moffat RN8410G Installation & Operation, manual 228689-19 (newer family): https://www.moffat.com.au/sites/default/files/products/manual/RN8410_RN8820_G_OM_AN.pdf . Model-year limit: this newer manual does not establish the exact 2000-unit control variant or override its plate. Find the correct 2000 service instruction/valve identification before adjusting thermostat or regulator.

WALDORF FN8118G FRYER

WHAT IT HAS / WHAT IT DOES / WHY IT MATTERS





Your two Waldorf fryer photographs. Match the badge to FN8118G before using the single-pilot U-burner instructions. Photo shape alone does not prove model.

Burner - multi-jet target U-burner - Many small jets fire onto a U-shaped heat area under/around fryer tank. This is NOT the FN8120 infrared burner. 90 MJ/h total, 18 L oil model.

Pilot - one manually lit pilot - Turn gas control to PILOT, hold knob and light the pilot at its viewing opening with the proper long lighter. No piezo is listed for FN8118G. Keep held about 10-15 seconds after lighting as manual directs.

Thermocouple - flame-failure safety - Pilot heat makes small voltage. If pilot goes out, valve must stop gas.

Thermopile - power for main gas valve - Several thermocouples joined to make more millivolts; power opens the main valve. Takes about 30 seconds to heat after pilot lights, so main burner may delay.

Oil thermostat - mechanical 90-190°C - The dial tells the burner when to heat oil and when to turn off. The manual confirms it is MECHANICAL. It does not specify whether the sensor uses liquid expansion or bimetal, so check control part number before naming that subtype.

Thermostat mechanism vs action - Liquid-expansion means warming liquid moves the control; bimetal means two bonded metals bend as they heat. Snap-acting means ON/OFF heating; modulating means flame reduces gradually. Manual confirms mechanical control and burner cycling, not which sensing material is inside.

Over-temp ECO - Separate temperature limit. If ordinary thermostat fails and oil gets dangerously hot (manual states above about 220°C), it shuts the appliance down. This is a safety control, NOT a normal cooking thermostat.

Flue / hood - Hot gases leave via rear appliance flue outlet into the kitchen extraction area. It is not a conventional domestic open flue to the roof.

Pressure points - On the gas control: IN is gas coming to valve; OUT is gas going to main burner. Running pressure OUT can only be checked when burner is alight.

AS/NZS 5601.1:2022 - FIND THESE IN YOUR BOOK

6.10.2.2 + Table 6.10.2.2 - deep fryer grease-filter clearance = 600 mm from top of pan (or higher manufacturer requirement).

6.10.2.3 + Table 6.10.2.3 - clearance from nearby combustible walls and hot rear flueway.

6.10.2.6 / 6.10.2.7 - commercial fixed/under-unit and hose high-level connections.

6.4.9 / 6.4.10 / 6.4.6.2 - kitchen fresh air, ventilation interlock and room fresh-air requirements.

6.10.2.9 - commercial cooking classroom ventilation - outdoor high/low vents OR hood and make-up air.

6.11.4 / Appendix E / Appendix F - commission, tightness test, pipe size.

WALDORF FN8118G - DO THESE STEPS

Single manual pilot, multi-jet U-burner, mechanical thermostat

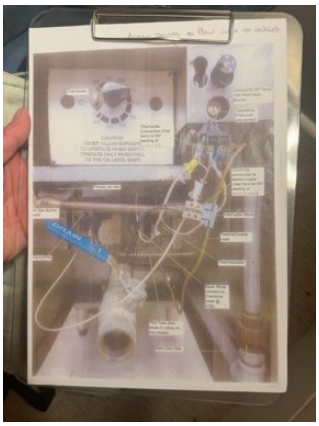
01	Complete common start Gas type/plate, electrical, water manometer, lock-up, soap/detector and teacher test sign-off.
02	Check the tank before lighting Drain valve CLOSED and correct oil level; extraction hood running. Never heat empty oil pan.
03	Find main controls Identify gas control knob OFF/PILOT/HIGH; separate thermostat dial; pilot viewing hole and over-temp safety connection.
04	Light the single pilot Turn gas control to PILOT according to maker’s procedure; light the pilot with approved method; keep knob held until flame-failure thermocouple has heated.
05	Turn on main U-burner Choose operating mode and set oil thermostat above present temperature. Main U-burner lights from pilot once thermopile has developed enough voltage (can delay around 30 sec).
06	Digital manometer IN then OUT Once pilot/main operating, connect to identified gas valve test points under assessor direction: IN = supply; OUT = burner pressure with main on. Record kPa and compare with model gas table.
07	Oil temperature at 180°C Set thermostat to 180°C, put oil thermometer in approved safe measurement location, record burner OFF (cut-out) and next ON (restart).
08	Check mV and safety Correct adapter: thermocouple usually low tens of mV, thermopile far higher; do not use same pass range. Teacher directs dropout and ECO function checks. No overheating oil to trip ECO.
09	Check extraction / finish Check 600 mm grease-filter minimum for deep fryer, combustible flueway clearance, gas connection/isolation, test-point seal and leak check. Get teacher to approve readings.

FAST FAULT CHECK

Pilot dies when released: pilot flame not heating thermocouple, dirty pilot, safety circuit or gas control. Pilot stays but main won’t light: thermopile still heating, thermostat not calling, safety chain or gas pressure.

WALDORF FN8120G FAST-FRI FRYER

WHAT IT HAS / WHAT IT DOES / WHY IT MATTERS





Left: your annotated TAFE control diagram showing thermocouple, thermopile, interrupt block and pilot tubes. Check the actual fryer nameplate before using this diagram.

Burners - TWO infrared burners - Two 45 MJ/h burners heat fryer by infrared radiation. Together = 90 MJ/h. Different operation and flame appearance to FN8118 U-burner.

Oil - 20 L tank - Fill to the manufacturer oil level marks before heating.

Pilots - two standing pilot flames - The manual shows left and right pilot burners with cross-lighting; small pilots light the main infrared burners.

Ignition - piezo spark - A push-button makes spark at pilot. The single-tank FN8120 also has a separate flame-failure button on some versions. Do not treat its controls as FN8118.

Thermocouple - flame-failure protection - Heated by pilot, keeps safety valve energised. Pilot goes out -> safety shuts gas off.

Thermopile - gas valve power - Heated by pilot(s), provides higher millivolt output for main valve. A delay of about 30 seconds after lighting pilot is normal.

Thermostat - mechanical oil thermostat - Dial sets oil temperature from 145-195°C. When oil reaches selected temperature, main burners stop; on cooling they restart. Exact inner sensing mechanism is not named in the available manual.

Thermostat mechanism vs action - A thermostat may sense heat using expanding fluid or bending metal; that is different from how it controls heat. This fryer turns main burners ON/OFF to maintain oil temperature, but the manufacturer does not name its exact sensor material.

Over-temp ECO - Separate high-temperature cut-out; manufacturer says over 220°C can trip it if primary thermostat fails.

Flue outlet / hood - Rear outlet carries very hot products to extraction area; NOT a room-sealed balanced flue. Do not knock oil/basket debris into hot outlet.

AS/NZS 5601.1:2022 - FIND THESE IN YOUR BOOK

6.10.2.2 + Table 6.10.2.2 - fryer grease filter minimum 600 mm above pan.

6.10.2.3 + Table 6.10.2.3 - hot equipment/rear flueway to combustibles.

6.10.2.6 / 6.10.2.7 - commercial gas supply hose and high-level connection.

6.4.9 / 6.4.10 / 6.11.4 - extraction make-up air, interlock where applicable, and running checks.

6.10.2.9 - commercial catering classroom ventilation.

WALDORF FN8120G - DO THESE STEPS

Two infrared burners - confirm left/right pilot arrangement

01	Common safety and manometer checks Confirm 7-minute method where relevant, regulator lock-up, leak checks and teacher sign-off before appliance work.
02	Check oil level / gas / hood Drain CLOSED; fryer filled to correct level and extraction working. Confirm you have the FN8120 and not FN8118.
03	Locate controls Identify thermostat, gas control OFF/PILOT/FULL, separate flame-failure button, piezo igniter(s), thermocouple, thermopile and ECO block.
04	Light the right-hand pilot Use correct manufacturer FN8120 PILOT procedure, including holding required flame-failure control and piezo. Check pilot lights and cross-lights left side as designed.
05	Light main infrared burners After pilots stable, set thermostat to heat and turn control to FULL. Main burners should ignite from pilots; allow about 30 seconds for thermopile heating if just lit.
06	Digital pressure at IN and OUT With appliance running, maker diagram: upper test port = supply IN; lower test port = burner OUT. Record supply and operating kPa, compare with gas-specific specification.
07	Test thermostat at 180°C Set oil thermostat 180°C. Measure with suitable immersion thermometer; write actual temperature when main flame turns OFF and back ON.
08	Check safety circuits Thermocouple and thermopile mV via correct connection; if pilot goes out flame failure shuts gas off. Teacher to direct dropout/ECO test, not by deliberately overheating oil.
09	Finish / teacher Check rear hot outlet, hood grease filter, combustible clearance, flexible gas connection, isolation and all test points. Recheck leaks; teacher signs result.

FAST FAULT CHECK

Pilot goes out on release: insufficient hold time, weak pilot, thermocouple, over-temp circuit or valve. Both pilots lit, no main flame: check thermostat demand, thermopile and main valve. Oil does not stop heating: stop and check temperature controls.

ROOM / INSTALLATION CHECKS

This applies to the actual TAFE room, not just the single appliance

1. Ventilation - where is the fresh air coming from?

A room with the door leading straight outside is not automatically ventilated enough. Measure the actual permanent, unobstructed opening area. Use total gas input in that room and room volume. If another open-flued heater, a cooker and a fryer share one space, their combined effect matters.

Find: 6.4.6.2 and Table 6.4.6.2; 6.4.6.3 calculation; 6.4.9 and Table 6.4.9 if fans provide fresh air; 6.4.10 if an interlock is needed.

2. Exhaust fans can cause flue spillage

The fan pulls air out. If not enough make-up air enters, the room can become negative pressure. The Rheem natural-draught flue may then spill combustion products into the room. This is why you check fans during commissioning. Find 6.3.1, 6.4.6.2 and Appendix Q.

3. Commercial kitchen grease filter distance

These are different for the equipment: open-flame range 1050 mm between burner/trivet and filter; deep fryer 600 mm between top of pan and filter. Find 6.10.2.2 and Table 6.10.2.2. More stringent manufacturer requirements still apply.

4. High-level connection - domestic vs commercial

Domestic cooker: 6.10.1.9. Commercial range/fryer: 6.10.2.7. Both cover a high-level gas hose arrangement, but they are NOT the same clause. An under-appliance commercial hose connection is restricted under 6.10.2.6. Check restraining chains, isolation and hose clearance.

5. Gas piping minimum size

There is no honest single minimum DN just from model number. The gas appliance inlet thread (for example 1/2-inch or 3/4-inch BSP) is not the same thing as the correct main pipe size. Pipe sizing uses gas type, all appliances on that pipe section, run length, pressure/drop and material. Find Appendix F and the manufacturer input tables.

6. Water-heater location / prohibited places

A Rheem storage HWU is NOT an instantaneous water heater. The instantaneous heater bedroom / bathroom prohibition in 6.10.3.1 is not automatically this model. For storage HWU in a bathroom or toilet, see 6.10.4 (input not above 40 MJ/h) and check ventilation / flue / manufacturer suitability. Cooking appliances must follow their own location and clearance rules; no gas cooking appliance is made suitable for a bedroom just because there is a door outside.

7. Water-heater flue vs appliance outlet

Rheem: natural-draught roof flue, sizing in Appendix H and vertical terminal requirements in 6.9.2. The fryer/range: hot flueway/outlet exhausting into a commercial kitchen hood, not the same roof-terminal procedure. Do not automatically apply Figure 6.9.3 to the Rheem vertical natural-draught outlet.

WORKBOOK QUICK ANSWERS - BY APPLIANCE

Answers to location, flue, ventilation, clearance, connections and test questions

CHEF CFG503WCH - DOMESTIC COOKER

Flue / terminal: flueless cooking appliance - no individual roof flue or terminal. Ventilation: gas cooking uses room air; use 6.4.6.2/Table 6.4.6.2 and 6.4.6.3.2; because this is a TAFE room with multiple domestic cookers, 6.10.1.3 also requires permanent outdoor high/low ventilation. Where: domestic cooker clearances 6.10.1.1/Fig 6.10.1.1; combined living/sleeping 6.10.1.14. Gas hose: high-level domestic connection 6.10.1.9. Tests: Appendix E + 6.11.4.

RHEEM 800135 - OPEN-FLUED STORAGE HWU

Flue / terminal: natural-draught open flue, draught diverter; roof terminal 6.9.2, sizing Appendix H (actual 7 m height / 1.2 m offset requires table selection, not a guessed DN). Spillage: Appendix Q after normal warm-up and relevant fans running. Ventilation: 6.4.6.2/Table 6.4.6.2 + 6.4.6.3.1 or mixed room 6.4.6.3.3. Where: storage heater bathroom/toilet 6.10.4 has maximum 40 MJ/h, plus manufacturer requirements. Water: AS/NZS 3500.4; stored water 60°C minimum per Rheem; task target 65°C.

WALDORF RN8610G - COMMERCIAL RANGE (F OR PF)

Flue / terminal: cooking appliance vented to commercial hood; not a separate room-sealed flue terminal. Ventilation: classroom-specific 6.10.2.9; mechanical hood / make-up air AS 1668.1 / 1668.2 and 6.4.9/6.4.10 as applicable. Clearance: 1050 mm open-burner to grease filter Table 6.10.2.2; adjacent combustible zones Table 6.10.2.3. Gas: commercial hose 6.10.2.6/.7; restraint >20 kg movable 6.2.14; isolation 6.6.3. Test: 6.11.4.

WALDORF FN8118G + FN8120G - COMMERCIAL FRYERS

Flue / terminal: rear hot-gas flueway to canopy, no dedicated domestic rooftop gas terminal. Ventilation: classroom 6.10.2.9 and kitchen hood / make-up air requirements. Clearance: 600 mm fryer pan to grease filter Table 6.10.2.2, combustible clearance Table 6.10.2.3, plus actual manual. Gas: commercial high hose 6.10.2.7; under-equipment connection limitation 6.10.2.6; 6.6.3 isolation. Controls: both have thermocouple, thermopile and overtemp ECO. 180°C is the assessor target for oil cycling, not a setting for the ECO.

Minimum pipe size: there is no single correct DN from the appliance brand alone. First check the manufacturer connection thread, then calculate the upstream supply pipe using Appendix F for total MJ/h, actual pipe length/material and allowed pressure drop.

WRITE THESE RESULTS IN YOUR WORKBOOK

One sheet for each appliance | Teacher checks before you finish

Make/model: _____ Gas: _____

Total input: _____ MJ/h Approval: _____ Injector: _____ mm

Electrical safety checks completed: _____ Teacher: _____

Water manometer start pressure: _____ End: _____ Time: _____

Gas tightness result: _____ Regulator lock-up: _____ kPa

TEACHER SIGN OFF BEFORE TEST EQUIPMENT REMOVED: _____

Appliance static: _____ kPa Running IN: _____ kPa OUT: _____ kPa

Burner / pilot type: _____

Thermocouple: _____ mV Thermopile: _____ mV Drop-out: _____ s

Thermostat target: _____ °C Actual cut-out: _____ °C

Actual restart: _____ °C Low flame / bypass: _____

Water heater flue temperature: _____ °C Spillage: _____

Room ventilation calculation / hood result: _____

Leak test at final test ports: _____ Gas isolation checked: _____

Faults / action: _____

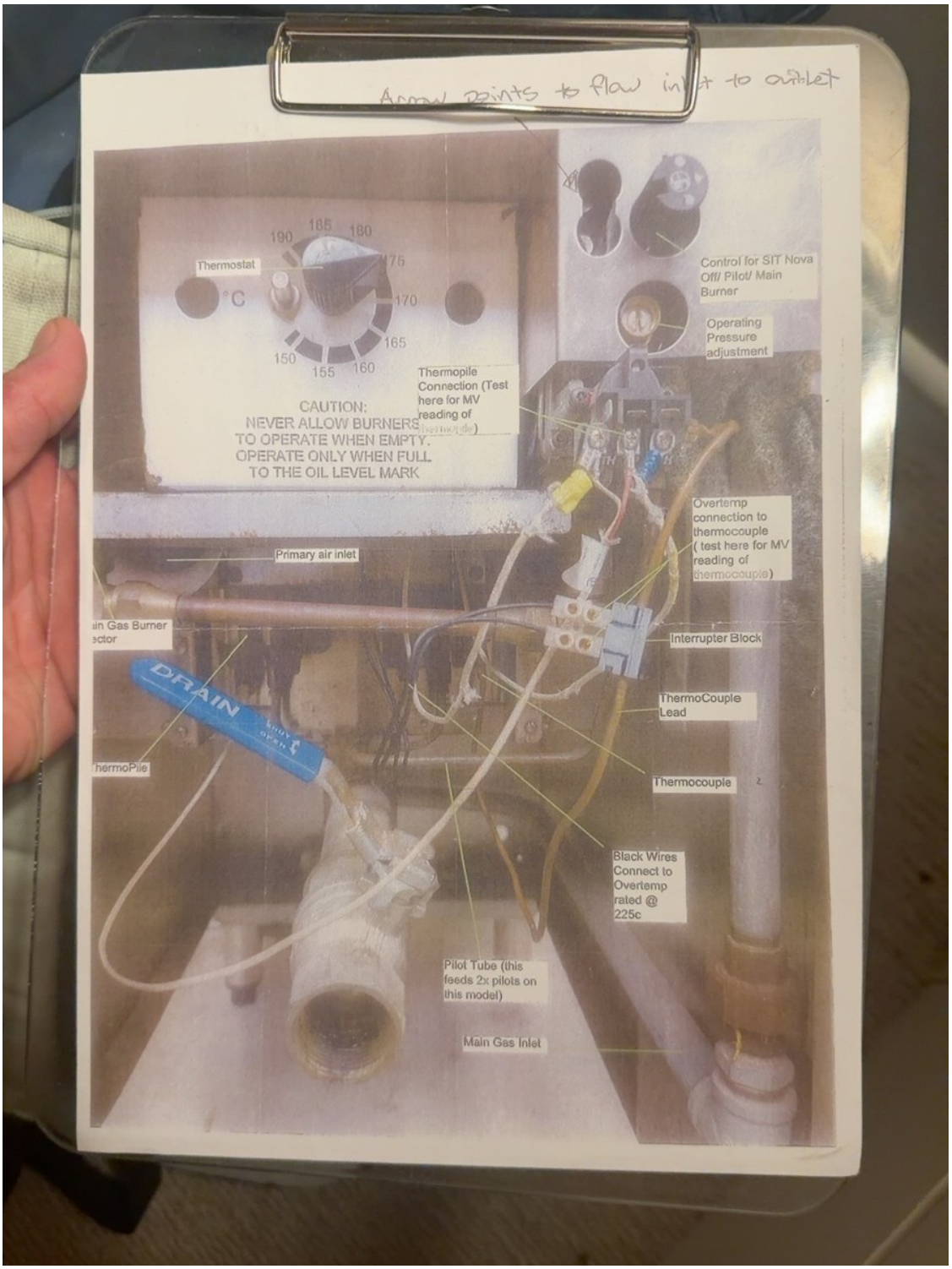
_____

GET TEACHER TO CHECK AND SIGN OFF BEFORE FINAL PACK-UP

Teacher: _____ Date: _____

WALDORF FRYER - CONTROL PARTS PHOTO

Your annotated photo | Use to locate components before recording mV or testing safety devices



What to spot: pilot tube brings gas to the small pilot; thermocouple keeps flame-failure valve open; thermopile makes more power for the main valve; interrupt block includes the over-temperature safety circuit; thermostat knob sets oil temperature; the gas control has pressure test points. This is a training diagram - identify the ACTUAL valve model on the fryer first.

GLOSSARY - SAY IT IN SIMPLE WORDS

Fast definitions for the assessor: what it is, where you find it, why it matters

Atmospheric burner - Burner pulls its combustion air from the surrounding room without a fan. All four examples use this general principle.

Standing pilot - A small flame kept burning so it can light the main flame. HWU, commercial oven and both fryers have one; Waldorf F cooktop burners do not.

Piezo - A button that makes one spark. Chef grill/oven, Rheem pilot, Waldorf oven and FN8120 use it where fitted; FN8118 pilot is manually lit.

Thermocouple / millivolts - One heat-sensing metal junction gives a tiny voltage when hot. It holds a flame-failure gas valve open. If the pilot flame goes out the voltage falls.

Thermopile - Several thermocouple junctions making more voltage to help power main gas control. Both Waldorf fryers use one; not a Chef cooker feature.

Flame-failure device (FFD) - Gas safety shut-off when a required pilot or burner flame goes out. It may use a thermocouple or an electronic flame sensor.

ECO / high-limit - Separate backup heat cut-out. Both fryers have one, acting at dangerous oil temperature. Do not adjust it as the cooking thermostat.

TPR valve - Water-heater temperature/pressure relief valve; protects the tank water side and is different from a gas ECO.

Mechanical thermostat - A temperature control operated by a heat-sensitive mechanism, not an electronic display. It tells the burner to add heat or stop/reduce heating.

Liquid expansion vs bimetal vs rod/tube - Different ways a thermostat SENSES temperature: liquid swells; paired metals bend; different metals expand differently. These do not tell you whether flame is low or off.

Snap-acting vs modulating - How the gas flame is CONTROLLED: snap-acting turns heat on/off; modulating reduces/increases the flame. Not the same question as sensor type.

Bypass screw / low-fire screw - Sets the small amount of gas that keeps a flame lit when control turns down. Oven and some cooktop taps have DIFFERENT screws. Do not alter without manual.

Natural-draught open flue - Hot exhaust rises up its pipe without a fan; the burner draws air from room. Rheem does this.

Draught diverter / spillage - Diverter sits at base of flue and decouples draught effects. Spillage means exhaust comes OUT into the room instead of going up.

Balanced / room-sealed flue - Combustion air comes from outside in a sealed circuit. The Rheem with twin-wall pipe is NOT automatically balanced.

Flueless / rear flueway - No individual flue pipe to outside; cookers and commercial equipment discharge into room/canopy system. Hood still needs extraction and make-up air.

Static / working / OUT pressure - Static is gas not flowing; working is while burning; OUT is burner operating pressure on the gas valve. Digital manometer is for the latter when lit.

Regulator lock-up / gas-tightness - Lock-up checks regulator outlet pressure once flow stops; tightness checks gas escaping from test section. They are two DIFFERENT checks.

Free area / make-up air - Free area = unobstructed hole area after louvres/mesh. Make-up air replaces air extracted by the hood, preventing room negative pressure.

Injector / MJ/h / minimum DN - Injector sets gas flow at burner. MJ/h is energy input. Pipe DN is sized from gas type, length, material and loads - NOT just inlet fitting thread.

STANDARDS BOOK - FAST LOOKUP

AS/NZS 5601.1:2022; check current amendments in your TAFE book

AS/NZS 5601.1:2022 - FIND THESE IN YOUR BOOK

3.3.2–3.3.3 - isolation and purging after work

3.5 / Appendix E - pressure and tightness testing

5.1–5.9 - pipe materials, supports, location, hose assemblies and joining (select actual material)

5.9.6; 6.2.13–6.2.14 - hose rules and restraint for moveable appliances

6.2.8 / 6.3.1–6.3.3 - electrical and siting, appliance location and access

6.4.5 / 6.4.6.2 + Table 6.4.6.2 - natural room ventilation and how much free opening is needed

6.4.6.3.1, .3.2, .3.3 - calculating open-flued, flueless, or mixed-room ventilation

6.4.9 + Table 6.4.9 / 6.4.10 - mechanical ventilation and interlock, where required

6.6.3 / 6.6.5 - isolation valve and appliance regulator

6.7–6.9 / 6.9.2 / Appendix H - flue installation, natural-draught terminal and flue sizing

6.10.1.1 + Fig 6.10.1.1 / 6.10.1.2 - domestic cooker overhead + side combustible clearances

6.10.1.3 / 6.10.1.9 / 6.10.1.14 - domestic cooker in classroom / high-level hose / combined living-sleeping

6.10.2.1–6.10.2.3 + Tables 6.10.2.2/.3 - commercial linked ranges, grease filters, combustibles

6.10.2.6–6.10.2.9 - commercial under-unit hose / high-level hose / semi-rigid / classroom vents

6.10.3.1 vs 6.10.4 - instantaneous heater prohibited locations are different from storage heater bathroom/toilet limit

6.11.4 / Appendices N, P, Q - appliance commissioning; checklist; open-flue spillage

Appendices C, F, H - combustible protection, pipe sizing and natural-draught flue sizing

AS/NZS 3500.4, AS 1668.1 / AS 1668.2 - hot-water delivery / commercial extraction and make-up air

For flue terminal questions: identify the actual appliance first. Rheem has its own natural-draught roof terminal; the two fryers and range do not each have a separate domestic roof terminal. A manual / figure for room-sealed terminals cannot just be copied to the Rheem.

MANUALS & STANDARDS - WHERE TO LOOK

Source names and links for checking exact valve versions and settings

AS/NZS 5601.1:2022 (check TAFE latest amendment) - public preview

https://webstore.ansi.org/preview-pages/SAI/preview_00-8392073870-primary.pdf

Chef CFG503WCH, Chef 540 Upright Cooker manual

https://manualsfile.com/product/k4qt1ehg4wm.html

Rheem 800 series 135 L indoor gas - official installation manual

https://www.rheem.com.au/rheem/medias/install-instruct-Rheem-gas-indoor-800-series-122630-Rev-01-2024-Nov.pdf?attachment=true

Waldorf RN8610G static oven - maker installation/operation manual

https://caterlink-web.s3.ap-southeast-2.amazonaws.com/public/partdocs/RN8610G-LPGmanual.pdf

Waldorf FN8118G fryer - maker installation/operation manual

https://caterlink-web.s3.ap-southeast-2.amazonaws.com/public/partdocs/FN8118G-NGmanual.pdf

Waldorf FN8120G fryer - maker installation/operation manual

https://www.southernhospitality.co.nz/documentation/product/open/id/1578/EMW9HX%20-%20Waldorf%20FN8120G%20-%20User%20Guide.pdf

Waldorf FN8120G manufacturer technical sheet

https://moffat.global.ssl.fastly.net/sites/default/files/products/specification/FN8120G_AN.pdf

WHAT YOU SHOULD NOT GUESS

• The exact internal thermostat sensor (liquid-expansion, rod/tube or bimetal) unless the exact control part/manual identifies it.

• A universal millivolt pass range or flame-failure cut-out time. Measure with the specified adapter and compare to that control maker.

• A minimum pipe DN from just the fitting thread; size the whole supply with Appendix F.

• The room ventilation opening size without room volume, all connected MJ/h and extraction details.

• A flue clearance/roof terminal distance without identifying the actual flue construction and terminal type.