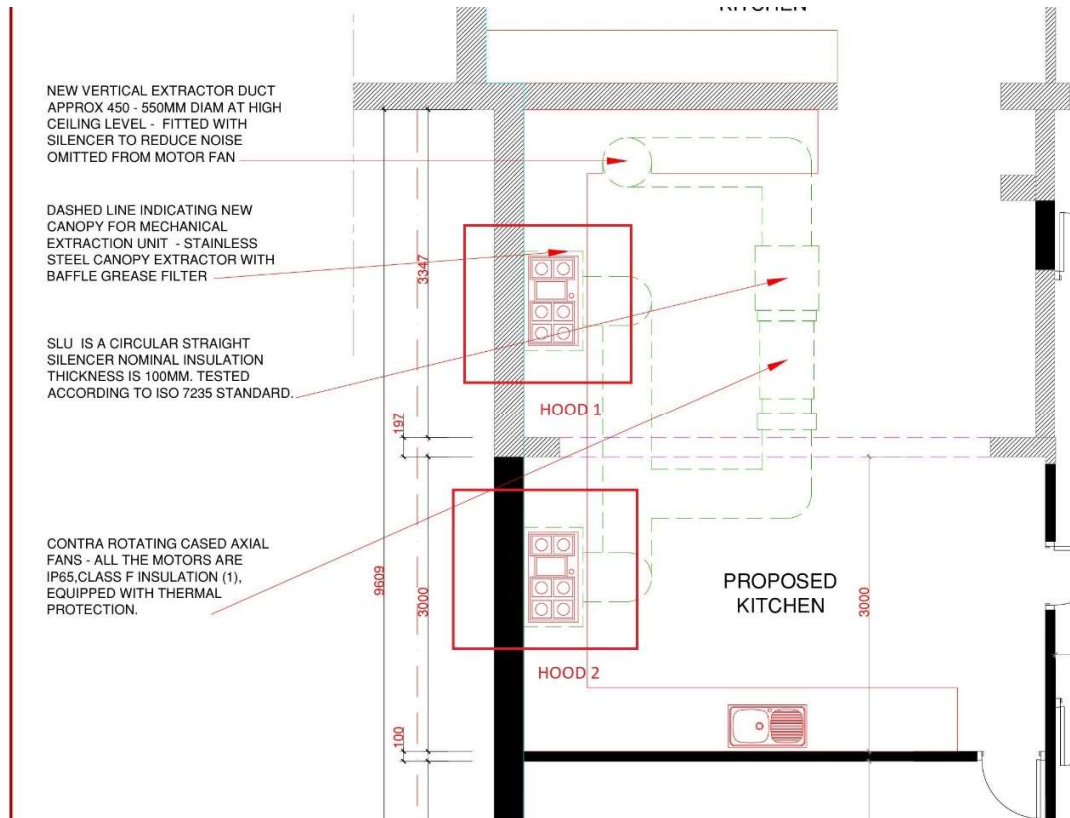


Hood 1 Sizing

EATER RESTAURANT

MAY - 2025



HOOD 1 and HOOD 2 is Typical

- 1- Hood Type 1
- 2- Hood shape Wall-Mounted Canopy

Typical Exhaust Flow Rates by Cooking Equipment Category For Listed Type I Hoods				
Type of Hood	Exhaust Flow Rate, cfm per linear foot of hood			
	Light Duty	Medium Duty	Heavy Duty	Extra-Heavy Duty
Wall-mounted canopy	150 to 200	200 to 300	200 to 400	350+
Single-island canopy	250 to 300	300 to 400	300 to 600	550+
Double-island canopy (per side)	150 to 200	200 to 300	250 to 400	500+
Eyebrow	150 to 250	150 to 250	—	—
Back shelf/proximity/ pass-over	100 to 200	200 to 300	300 to 400	Not recommended

Type I Hood Requirements by Appliance Type					
Appliance Description	Size	Type I Hoods			
		Light Duty	Med. Duty	Heavy Duty	Extra-Heavy Duty
Braising pan/tilting skillet, electric	All	X			
Oven, baking, electric and gas	All	X			
Oven, rotisserie, electric and gas	All	X			
Oven, combination, electric and gas	All	X			
Oven, convection, full-size, electric and gas	All	X			
Oven, convection, half-size, electric and gas (protein cooking)	All	X			
Oven, conveyor, electric	All	X			
Oven, deck, electric and gas	All	X			
Oven, revolving rack, electric and gas	All	X			
Oven, rapid cook, electric	All	X			
Oven, roasting, electric and gas	All	X			
Oven, rotisserie, electric and gas	All	X			
Oven, stone hearth, gas	All	X			
Range, cooktop, induction	All	X			
Range, discrete element, electric (with or without oven)	All	X			
Salamander, electric and gas	All	X			
Braising pan/tilting skillet, gas	All		X		
Broiler, chain conveyor, electric	All		X		
Broiler, electric, under-fired	All		X		
Fryer, doughnut, electric and gas	All		X		
Fryer, kettle, electric and gas	All		X		
Fryer, open deep-fat, electric and gas	All		X		
Fryer, pressure, electric and gas	All		X		
Griddle, double-sided, electric and gas	All		X		
Griddle, flat, electric and gas	All		X		
Oven, conveyor, gas	All		X		
Range, open-burner, gas (with or without oven)	All		X		
Range, hot top, electric and gas	All		X		
Smoker, electric and gas	All		X		
Broiler, chain conveyor, gas	All			X	
Broiler, electric and gas, over-fired (upright)	All			X	
Broiler, gas, under-fired	All			X	
Grill, plancha, electric and gas	All			X	
Oven, tandoor, gas	All			X	
Range, wok, gas and electric	All			X	
Oven, stone hearth, wood-fired or wood for flavoring	All				X
Solid fuel cooking appliances combusting a solid fuel (such as wood, charcoal, or coal) to provide all or part of the heat for the cooking process	All				X

Source: ASHRAE Standard 154-2011.

Air flow rated Exhausted = Length(ft) * Exhaust flow rate (cfm/ft)

Appliance	Length(ft)	Q	Total Length(ft)	Duty	CFM/Linear ft	CFM
HOOD 1	3.3	1	3.3	Medium	250	825
HOOD 2	3.3	1	3.3	Medium	250	825

Total Exhaust Air Cfm of Hood 1 is 825 cfm ≈ 850 cfm

Total Exhaust Air Cfm of Hood 1 is 825 cfm ≈ 850 cfm

Total Fresh Air Cfm of Hood 1 = 80% of Exhaust Air = 0.8 * 850 ≈ 680 cfm

Total Fresh Air Cfm of Hood 2 = 80% of Exhaust Air = 0.8 * 850 ≈ 680 cfm

Hood 1 and Hood 2 Size ((1m) (Length) , W (0.6 m), H 50 cm))

- Exhaust Fan = Exhaust Air Hood 1 + Hood 2 = 850 + 850 = **1700 CFM @ 1.25" in.wg**
Fresh Air (Make up Air) optional = 0.8*1700 = 1360 cfm
- Duct Size is 450 mm Dia Round duct is enough
- Static pressure relative to Greenheck report =
Note duct length (worst case) = 11 m (36.3 ft)

0.30" per 100 feet of duct (assuming duct air velocity falls within 1,000 to 1,800 feet per minute)

Number of 90-degree elbow = 5 (0.08" drop)

Number of TEE = 1 (0.08" drop)

Hood Pressure drop = 0.5 in.wg

Silencer Pressure drop = 0.036 in.wg (Relative to specs)

Appliance Duty Category

Light	Medium	Heavy	Extra Heavy
200°	200°	315°	370°
- Ovens - Steamers - Cheese Melters	- Hot Top/Element Ranges - Griddles - Fryers - Pasta Cookers - Conveyor Ovens (Pizza) - Rotisseries	- Open Burner Gas Ranges - Broilers - Wok Ranges	- Appliance using solid fuels e.g. wood, charcoal, briquettes
50 FPM	85 FPM	150 FPM	185 FPM

We will use Baffle Filter in the hood

So, pressure drop across the Hood = $19 \times 1 = 19$ Pa

Pressure Drop across a Hood with Baffle Filters A General Guide	
Exhaust Flow Rate per Linear Meter (CFM)	Ps (mm)
530 - 850	6 - 12
850 - 1150	12 - 19
1150 - 1500	19 - 26
>1500	>26

REFERENCES

- 1- ASHRAE APPLICATION 2019 – KITCHEN VENTILATION
- 2- NFPA 96: Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations