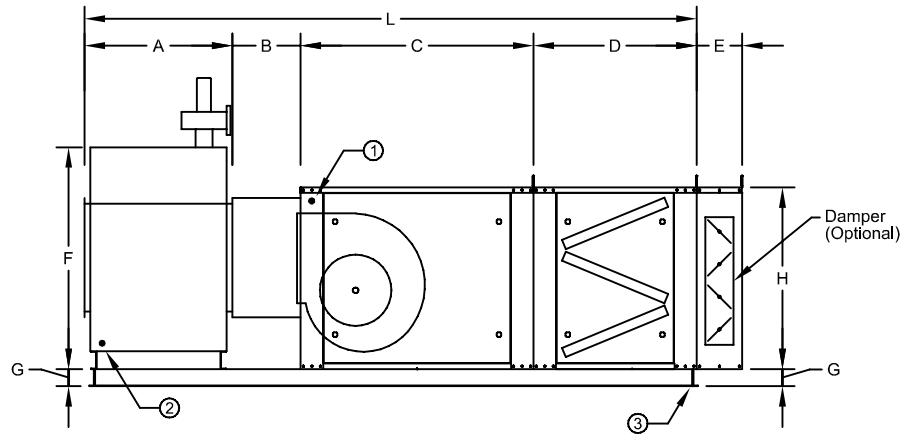
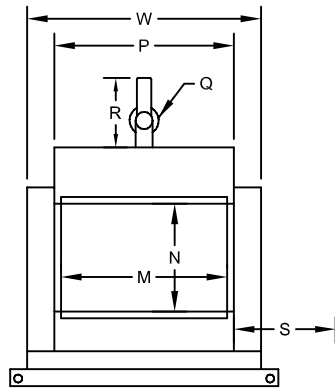


Model IFG Indirect Fired Make-Up Air Heater Indoor Unit (100% OA or 100% RA)



- ① Electrical connection
- ② Gas connection
- ③ Lifting lugs (4)

Notes:

1. Access doors typical on both sides.
2. Other drawings are available with a cooling coil section, an evaporative cooler and/or a mixing box section.
3. Consult factory for any special construction applications.
4. Gas inlet size: 1/2" NPT for 200 MBH heaters and below; all others 3/4" NPT.
5. Temperature rise: 20 degree minimum, 90 degree maximum.
6. Dimensions "W" and "H" are the width and height of the air handler.
7. Dimensions "P" and "F" are the width and height of the heater section.
8. Dimensions "Q" and "R" are the flue opening diameter and height of the power venter.
9. Dimension "S" is the recommended clearance to service the burner drawer.
10. Dimension "L" is the overall length of the unit excluding the optional damper section "E".
11. Dimension "G" is the height of the base rail that runs the full length and width of the unit: "L"x"W".
12. Overall weight of the unit must include both the air handler and heater weights.
13. CFM limits are shown for the air handler and heater; both must be satisfied.

Heater Information								CFM Limits	
MBH	M	N	P	Q	R	S	Wgt	Min.	Max.
100	15.50	19.0	17.88	4.0	12.0	23.88	220#	800	2600
150	18.25	19.0	20.63	4.0	12.0	26.63	250#	1200	3600
200	23.75	19.0	26.13	5.0	12.0	32.13	300#	1600	7000
250	29.25	19.0	31.63	5.0	12.0	37.63	330#	2000	7000
300	34.75	19.0	37.13	6.0	12.0	43.13	380#	2400	11000
350	40.25	19.0	42.63	6.0	12.0	48.63	410#	2800	13000
400	45.75	19.0	48.13	6.0	12.0	54.13	460#	3200	14000

Air Handler Information			CFM Limits	
MBH	Housing	Wgt	Min.	Max.
IFG-109	#1	400#	800	2600
IFG-110		420#	1200	3600
IFG-110	#2	480#	1600	3600
IFG-112		490#	1800	5000
IFG-115		530#	3000	7000
IFG-209	#2W	670#	2400	5200
IFG-210		710#	3000	7000
IFG-115	#3	820#	3400	7000
IFG-118		860#	4000	10000
IFG-120		960#	5000	14000
IFG-120-HD		980#	5000	14000

Model	Housing	Heater Sizes	A	B	C	D	E	F	G	H	L	W	Filters
IFG-109-SM	#1	100,150,200,250	26.00	12.00	33.00	28.00	8.00	50.75	3.00	32.00	99.00	33.20	(4) 16x20
IFG-109													
IFG-110													
IFG-110	#2	200,250,300	26.00	12.00	41.00	28.75	8.00	50.75	3.00	32.00	107.75	41.20	(6) 20x20
IFG-112													
IFG-115													
IFG-209-SM	#2W	300,350,400	26.00	12.00	41.00	28.75	8.00	49.75	3.00	32.00	107.75	52.70	(6) 16x20 (3) 20x20
IFG-209													
IFG-210													
IFG-115	#3	300,350,400	26.00	12.00	57.23	28.25	8.00	59.31	3.00	46.00	123.48	52.70	(8) 16x20 (4) 20x20
IFG-118													
IFG-120													
IFG-120-HD													

To maintain KEES' policy of continuous product development, we reserve the right to change prices, specifications, ratings and dimensions without notice or obligation.

Project	Location		
Engineer			
Architect	Dwg. No.	SD-IFG-1 Indoor	
Contractor	Date	08/09	



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MODEL IFG INDOOR INDIRECT FIRED MAKE-UP AIR HEATER

Qty.	Model	CFM	S.P.	BHP	RPM	HP	Volts	Ph.	BTU (Input/Output)	Tag

General Construction

Housing

- Galvanized steel
- 1" fiberglass insulation
- Weatherproof construction
- Large access panels

Housing Options

- ☐ Painted housing - machinery grey
- ☐ Painted housing - special color: _____
- ☐ Double wall insulation
- ☐ Foil faced insulation
- ☐ Hinged access doors

Blower Section

- Forward curved, DWDI blower
- Precision machined steel shaft
- Blower wheels statically and dynamically balanced
- Adjustable V-belt drives
- Pulleys and belts selected for not less than 165% of driven HP
- Fan and motor mounted on vibration isolators
- Self-aligning pre-lubricated bearings
- EPACT rated motor

☐ ODP (standard)

☐ TEFC

☐ VFD

☐ Other _____

Electrical

- Unit is field wired (standard)
- Optional
 - ☐ Disconnect switch only (mounted and wired to motor)
 - _____ NEMA1
 - _____ NEMA3R
 - ☐ Motor control center with disconnect switch, one motor starter, fuse blocks and control transformer; single point wiring.
 - ☐ Extra motor starters:
 - _____ HP
 - _____ HP
 - ☐ Other _____

Heater Section

- AGA and CGA certified heater
- Indirect fired gas burner
 - ☐ Natural gas (standard)
 - ☐ Propane fuel
- 80% combustion efficiency
- Power vented
- Heat exchanger
 - ☐ 409 SS (standard)
 - ☐ 321 SS
 - ☐ Aluminized steel
- Burners
 - ☐ Aluminized steel (standard)
 - ☐ 409 SS
- Gas valve
 - ☐ One stage gas valve _____ with ductstat _____ with room stat
 - ☐ Two stage gas valve _____ with ductstat _____ with room stat
 - ☐ Electronic modulating _____ with ductstat _____ with ductstat and room override stat
 - _____ with room stat
 - _____ with DDC controls by others
 - ☐ Other _____
- High temperature limit switch
- Electric spark intermittent pilot
- All components UL recognized and wired to terminal strip

Optional Accessories

Damper Options

- ☐ Motorized intake damper (mounted)
- ☐ End switch on damper

Filter Options

- _____ Thickness
- ☐ Aluminum cleanable
- ☐ Fiberglass throw-away
- ☐ 30% efficient pleated
- ☐ Other _____

Cooling Options (requires drawing from factory)

- ☐ Chilled water
- ☐ Dx direct expansion
- ☐ Evaporative

Other Options

- ☐ Remote control panel
- Enclosure - surface mounted
 - ☐ NEMA12 plastic enclosure (standard)
 - ☐ Metal enclosure (NEMA rating: _____)
- 2-Position switches
 - ☐ Fan ☐ Heat ☐ Cool ☐ Hood lights
- Indicator lights
 - ☐ Fan ☐ Heat ☐ Cool ☐ Hood lights
 - ☐ Alarm ☐ Filter ☐ Other _____
- 3-Position switches
 - ☐ Heat-Off-Cool ☐ Summer-Off-Winter
 - ☐ Fan-Off-Auto ☐ Other _____
- ☐ Mild weather thermostat (inlet air sensor)
- ☐ Low temperature limit (freezestat)
- ☐ Clogged filter switch
- ☐ Gas pressure safety switch (high, low or both)
- ☐ Convenience outlet (115V service receptacle)
- ☐ High gas pressure regulator
- ☐ Time clock
- ☐ Occupied/Unoccupied (Night setback)
- ☐ Discharge diffuser (3-way or 4-way)
- ☐ Wall mounted intake hood
- ☐ Elevation (over 2,000'): _____
- ☐ Other _____

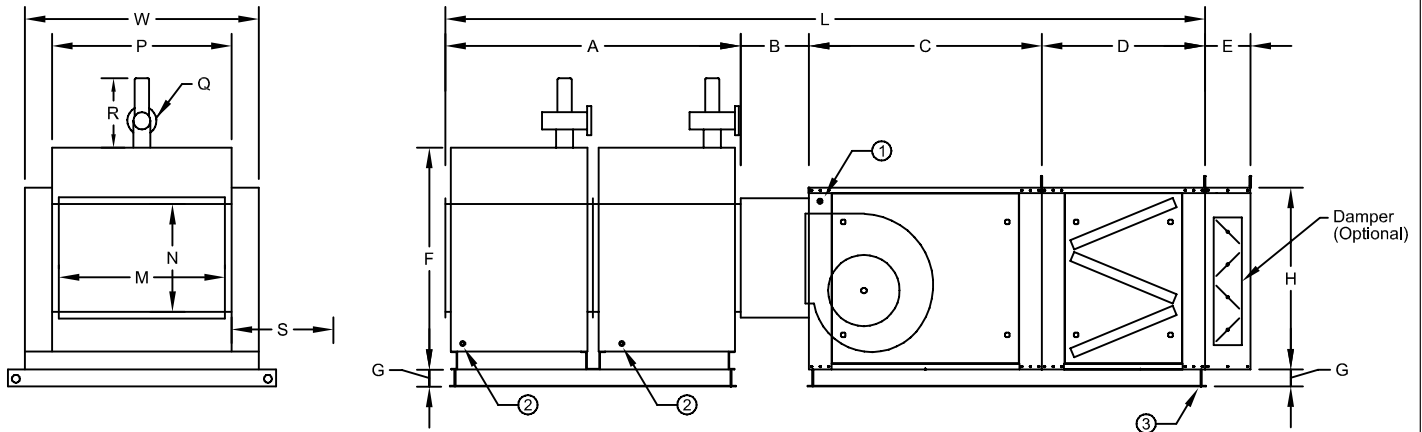
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Project	Location		
Engineer			
Architect	Dwg. No.	SD-IFG-1 Indoor	
Contractor	Date	08/09	



KEES INCORPORATED
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Model IFG Indirect Fired Make-Up Air Heater Indoor Unit (100% OA or 100% RA)



Heater Information								CFM Limits	
MBH	M	N	P	Q	R	S	Wgt	Min.	Max.
500	29.25	19.0	31.63	5.0	12.0	37.63	660#	3000	7000
600	34.75	19.0	37.13	6.0	12.0	43.13	760#	3700	11000
700	40.25	19.0	42.63	6.0	12.0	48.63	820#	4500	13000
800	45.75	19.0	48.13	6.0	12.0	54.13	920#	5000	14000

- ① Electrical connection
- ② Gas connection
- ③ Lifting lugs (4 on each section)

Notes:

- Access doors typical on both sides.
- Other drawings are available with a cooling coil section, an evaporative cooler and/or a mixing box section.
- Consult factory for any special construction applications.
- Gas inlet size: 3/4" NPT.
- Temperature rise: 40 degree minimum, 120 degree maximum.
- Dimensions "W" and "H" are the width and height of the air handler.
- Dimensions "P" and "F" are the width and height of the heater section.
- Dimensions "Q" and "R" are the flue opening diameter and height of the power venter.
- Dimension "S" is the recommended clearance to service the burner drawer.
- Dimension "L" is the overall length of the unit excluding the optional damper section "E".
- Dimension "G" is the height of the base rails that run the full length and width of the two sections. These base rails are "A"x"W" and "C+D"x"W" with a canvas connection "B" between them.
- Overall weight of the unit must include both the air handler and heater weights.
- CFM limits are shown for the air handler and heater; both must be satisfied.

Air Handler Information			CFM Limits	
MBH	Housing	Wgt	Min.	Max.
IFG-112	#2	490#	3000	5000
IFG-115		530#	3000	7000
IFG-209	#2W	670#	3000	5200
IFG-210		710#	3000	7000
IFG-115	#3	820#	3400	7000
IFG-118		860#	4000	10000
IFG-120		960#	5000	14000
IFG-120-HD		980#	5000	14000

Model	Housing	Heater Sizes	A	B	C	D	E	F	G	H	L	W	Filters
IFG-112	#2	500, 600	52.00	12.00	41.00	28.75	8.00	50.75	3.00	32.00	133.75	41.20	(6) 20x20
IFG-115													
IFG-209-SM	#2W	600, 700, 800	52.00	12.00	41.00	28.75	8.00	49.75	3.00	32.00	133.75	52.70	(6) 16x20 (3) 20x20
IFG-209													
IFG-210													
IFG-115	#3	600, 700, 800	52.00	12.00	57.23	28.25	8.00	59.31	3.00	46.00	149.48	52.70	(8) 16x20 (4) 20x20
IFG-118													
IFG-120													
IFG-120-HD													

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Project	Location		
Engineer			
Architect	Dwg. No.	SD-IFG-2 Indoor	
Contractor	Date	08/09	



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MODEL IFG INDOOR INDIRECT FIRED MAKE-UP AIR HEATER

Qty.	Model	CFM	S.P.	BHP	RPM	HP	Volts	Ph.	BTU (Input/Output)	Tag

General Construction

Housing

- Galvanized steel
- 1" fiberglass insulation
- Weatherproof construction
- Large access panels

Housing Options

- ☐ Painted housing - machinery grey
- ☐ Painted housing - special color: _____
- ☐ Double wall insulation
- ☐ Foil faced insulation
- ☐ Hinged access doors

Blower Section

- Forward curved, DWDI blower
- Precision machined steel shaft
- Blower wheels statically and dynamically balanced
- Adjustable V-belt drives
- Pulleys and belts selected for not less than 165% of driven HP
- Fan and motor mounted on vibration isolators
- Self-aligning pre-lubricated bearings
- EPACT rated motor

- ☐ ODP (standard)
- ☐ TEFC
- ☐ VFD
- ☐ Other _____

Electrical

- Unit is field wired (standard)
- Optional
 - ☐ Disconnect switch only (mounted and wired to motor)
 - _____ NEMA1
 - _____ NEMA3R
 - ☐ Motor control center with disconnect switch, one motor starter, fuse blocks and control transformer; single point wiring.
 - ☐ Extra motor starters:
 - _____ HP
 - _____ HP
 - ☐ Other _____

Heater Section

- AGA and CGA certified heater
- Indirect fired gas burner
 - ☐ Natural gas (standard)
 - ☐ Propane fuel
- 80% combustion efficiency
- Power vented
- Heat exchanger
 - ☐ 409 SS (standard)
 - ☐ 321 SS
 - ☐ Aluminized steel
- Burners
 - ☐ Aluminized steel (standard)
 - ☐ 409 SS
- Gas valve
 - ☐ Two stage gas valve _____ with ductstat _____ with room stat
 - ☐ Three stage gas valve _____ with ductstat _____ with room stat
 - ☐ Four stage gas valve _____ with ductstat _____ with room stat
 - ☐ Electronic modulating _____ with ductstat _____ with ductstat and room override stat _____ with room stat _____ with DDC controls by others
 - ☐ Other _____
- High temperature limit switch
- Electric spark intermittent pilot
- All components UL recognized and wired to terminal strip

Optional Accessories

Damper Options

- ☐ Motorized intake damper (mounted)
- ☐ End switch on damper

Filter Options _____ Thickness

- ☐ Aluminum cleanable
- ☐ Fiberglass throw-away
- ☐ 30% efficient pleated
- ☐ Other _____

Cooling Options (requires drawing from factory)

- ☐ Chilled water
- ☐ Dx direct expansion
- ☐ Evaporative

Other Options

- ☐ Remote control panel
- Enclosure - surface mounted
 - ☐ NEMA12 plastic enclosure (standard)
 - ☐ Metal enclosure (NEMA rating: _____)
- 2-Position switches
 - ☐ Fan ☐ Heat ☐ Cool ☐ Hood lights
- Indicator lights
 - ☐ Fan ☐ Heat ☐ Cool ☐ Hood lights
 - ☐ Alarm ☐ Filter ☐ Other _____
- 3-Position switches
 - ☐ Heat-Off-Cool ☐ Summer-Off-Winter
 - ☐ Fan-Off-Auto ☐ Other _____
- ☐ Mild weather thermostat (inlet air sensor)
- ☐ Low temperature limit (freezestat)
- ☐ Clogged filter switch
- ☐ Gas pressure safety switch (high, low or both)
- ☐ Convenience outlet (115V service receptacle)
- ☐ High gas pressure regulator
- ☐ Time clock
- ☐ Occupied/Unoccupied (Night setback)
- ☐ Discharge diffuser (3-way or 4-way)
- ☐ Wall mounted intake hood
- ☐ Elevation (over 2,000'): _____
- ☐ Other _____

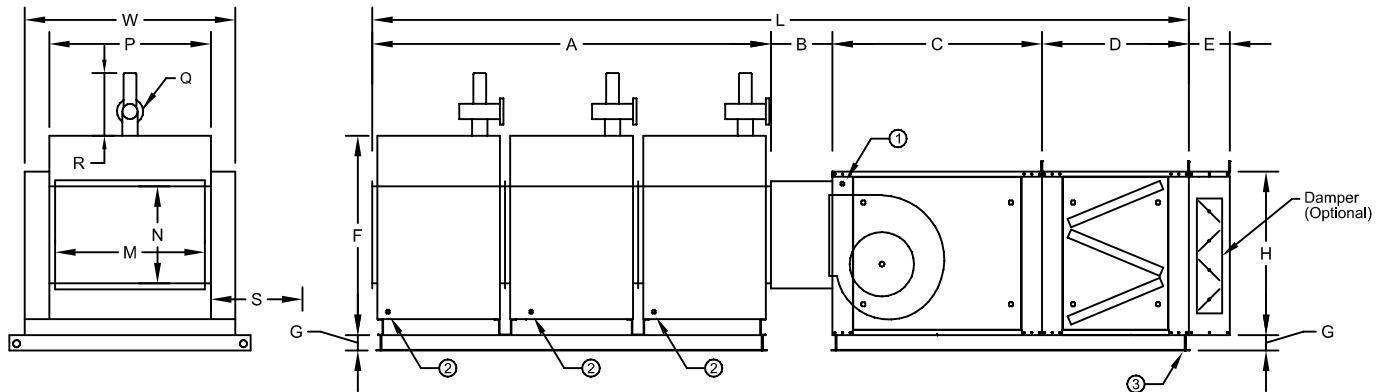
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Project		Location	
Engineer			
Architect		Dwg. No.	SD-IFG-2 Indoor
Contractor		Date	08/09



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Model IFG Indirect Fired Make-Up Air Heater Indoor Unit (100% OA or 100% RA)



Heater Information								CFM Limits	
MBH	M	N	P	Q	R	S	Wgt	Min.	Max.
900	34.75	19.0	37.13	6.0	12.0	43.13	1140#	4000	11000
1050	40.25	19.0	42.63	6.0	12.0	48.63	1230#	4500	13000
1200	45.75	19.0	48.13	6.0	12.0	54.13	1380#	5000	14000

- ① Electrical connection
- ② Gas connection
- ③ Lifting lugs (4 on each section)

Notes:

1. Access doors typical on both sides.
2. Other drawings are available with a cooling coil section, an evaporative cooler and/or a mixing box section.
3. Consult factory for any special construction applications.
4. Gas inlet size: 3/4" NPT.
5. Temperature rise: 60 degree minimum, 180 degree maximum.
6. Dimensions "W" and "H" are the width and height of the air handler.
7. Dimensions "P" and "F" are the width and height of the heater section.
8. Dimensions "Q" and "R" are the flue opening diameter and height of the power venter.
9. Dimension "S" is the recommended clearance to service the burner drawer.
10. Dimension "L" is the overall length of the unit excluding the optional damper section "E".
11. Dimension "G" is the height of the base rails that run the full length and width of the two sections. These base rails are "A"x"W" and "C"+D"x"W" with a canvas connection "B" between them.
12. Overall weight of the unit must include both the air handler and heater weights.
13. CFM limits are shown for the air handler and heater; both must be satisfied.

Air Handler Information			CFM Limits	
MBH	Housing	Wgt	Min.	Max.
IFG-118	#3	860#	4000	10000
IFG-120		960#	5000	14000
IFG-120-HD		980#	5000	14000

Model	Housing	Heater Sizes	A	B	C	D	E	F	G	H	L	W	Filters
IFG-118	#3	900, 1050, 1200	78.00	12.00	57.23	28.25	8.00	59.31	3.00	46.00	175.48	52.70	(8) 16x20
IFG-120													(4) 20x20
IFG-120-HD													

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Project	Location		
Engineer			
Architect	Dwg. No.	SD-IFG-3 Indoor	
Contractor	Date	08/09	



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MODEL IFG INDOOR INDIRECT FIRED MAKE-UP AIR HEATER

Qty.	Model	CFM	S.P.	BHP	RPM	HP	Volts	Ph.	BTU (Input/Output)	Tag

General Construction

Housing

- Galvanized steel
- 1" fiberglass insulation
- Weatherproof construction
- Large access panels

Housing Options

- ☐ Painted housing - machinery grey
- ☐ Painted housing - special color: _____
- ☐ Double wall insulation
- ☐ Foil faced insulation
- ☐ Hinged access doors

Blower Section

- Forward curved, DWDI blower
- Precision machined steel shaft
- Blower wheels statically and dynamically balanced
- Adjustable V-belt drives
- Pulleys and belts selected for not less than 165% of driven HP
- Fan and motor mounted on vibration isolators
- Self-aligning pre-lubricated bearings
- EPACT rated motor

☐ ODP (standard)

☐ TEFC

☐ VFD

☐ Other _____

Electrical

- Unit is field wired (standard)
- Optional
 - ☐ Disconnect switch only (mounted and wired to motor)
 - _____ NEMA1
 - _____ NEMA3R
 - ☐ Motor control center with disconnect switch, one motor starter, fuse blocks and control transformer; single point wiring.
 - ☐ Extra motor starters:
 - _____ HP
 - _____ HP
 - ☐ Other _____

Heater Section

- AGA and CGA certified heater
- Indirect fired gas burner
 - ☐ Natural gas (standard)
 - ☐ Propane fuel
- 80% combustion efficiency
- Power vented
- Heat exchanger
 - ☐ 409 SS (standard)
 - ☐ 321 SS
 - ☐ Aluminized steel
- Burners
 - ☐ Aluminized steel (standard)
 - ☐ 409 SS
- Gas valve
 - ☐ Three stage gas valve _____ with ductstat _____ with room stat
 - ☐ Four stage gas valve _____ with ductstat _____ with room stat
 - ☐ Six stage gas valve _____ with ductstat _____ with room stat
 - ☐ Electronic modulating _____ with ductstat _____ with ductstat and room override stat
 - _____ with room stat
 - _____ with DDC controls by others
 - ☐ Other _____
- High temperature limit switch
- Electric spark intermittent pilot
- All components UL recognized and wired to terminal strip

Optional Accessories

Damper Options

- ☐ Motorized intake damper (mounted)
- ☐ End switch on damper

Filter Options _____ Thickness

- ☐ Aluminum cleanable
- ☐ Fiberglass throw-away
- ☐ 30% efficient pleated
- ☐ Other _____

Cooling Options (requires drawing from factory)

- ☐ Chilled water
- ☐ Dx direct expansion
- ☐ Evaporative

Other Options

- ☐ Remote control panel
- Enclosure - surface mounted
 - ☐ NEMA12 plastic enclosure (standard)
 - ☐ Metal enclosure (NEMA rating: _____)
- 2-Position switches
 - ☐ Fan ☐ Heat ☐ Cool ☐ Hood lights
- Indicator lights
 - ☐ Fan ☐ Heat ☐ Cool ☐ Hood lights
 - ☐ Alarm ☐ Filter ☐ Other _____
- 3-Position switches
 - ☐ Heat-Off-Cool ☐ Summer-Off-Winter
 - ☐ Fan-Off-Auto ☐ Other _____
- ☐ Mild weather thermostat (inlet air sensor)
- ☐ Low temperature limit (freezestat)
- ☐ Clogged filter switch
- ☐ Gas pressure safety switch (high, low or both)
- ☐ Convenience outlet (115V service receptacle)
- ☐ High gas pressure regulator
- ☐ Time clock
- ☐ Occupied/Unoccupied (Night setback)
- ☐ Discharge diffuser (3-way or 4-way)
- ☐ Wall mounted intake hood
- ☐ Elevation (over 2,000'): _____
- ☐ Other _____

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Project				Location			
Engineer				 KEES INCORPORATED 400 S. Industrial Dr. Elkhart Lake, WI 53020 Phone: (920) 876-3391 Fax: (920) 876-3065 Website: www.kees.com			
Architect							
Dwg. No.	SD-IFG-3 Indoor						
Contractor							
	Date	08/09					