CITY OF SACRAMENTO

1231 I Street, Sacramento, CA 95814

Permit No: 0512925
Insp Area: 1
Thos Bros: 297B3

Site Address: 1112 2ND ST SAC
Parcel No: 006-0072-036

Sub-Type: REP
Housing (Y/N): N

CONTRACTOR
BOS SHEET METAL
3325 52ND AV
SACRAMENTO CA 95823

OWNER
HARVEGO REAL ESTATE
2356 GOLD MEADOW WY
GOLD RIVER, CA 95670

ARCHITECT

Nature of Work: C/O 2 GAS/ELECTRIC PACKAGE ROOF MOUNTED HVAC UNITS ON RESTAURANT

CONSTRUCTION LENDING AGENCY : I hereby affirm under penalty of perjury that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C).

Lender's Name_____ Lender'sAddress_____

LICENSED CONTRACTORS DECLARATION: I hereby affirm under penalty of perjury that I am licensed under provisions of Chapter 9 (commencing with section 7000) of Division 3 of the Business and Professions Code and my license is in full force and effect.

License Class C-20 License Number 254689 Date 1/31/06 Contractor Signature _____

OWNER-BUILDER DECLARATION: I hereby affirm under penalty of perjury that I am exempt from the contractors License Law for the following reason (Sec. 7031.5, Business and Professions Code; any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he or she is licensed pursuant to the provisions of the Contractors License Law (Chapter 9 (commencing with Section 7000) of Division 8 of the Business and Professions Code) or that he or she is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500.00);

_____ I, as a owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professional Code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or herself or through his/her own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he/she did not build or improve for the purpose of sale.)

PAID
CITY OF SACRAMENTO
AUG 24 2005
NO INSPECTION
PRINTER

_____ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions Code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractors License Law).

_____ I am exempt under Sec._____ B & PC for this reason:_____

Date_____ Owner Signature_____

IN ISSUING THIS BUILDING PERMIT, the applicant represents, and the city relies on the representation of the applicant, that the applicant verified all measurements and locations shown on the application or accompanying drawings and that the improvement to be constructed does not violate any law or private agreement relating to permissible or prohibited locations for such improvements. This building permit does not authorize any illegal location of any improvement or the violation of any private agreement relating to location of improvements.

I certify that I have read this application and state that all information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction and herby authorize representative(s) of this city to enter upon the abovementioned property for inspection purposes.

Date 8-24-05 Applicant/Agent Signature _____

WORKER'S COMPENSATION DECLARATION: I hereby affirm under penalty of perjury one of the following declarations:

_____ I have and will maintain a certificate of consent to self-insure for workers' compensation as provided for by Section 3700 of the Labor Code, for the performance of work for which the permit is issued.

X I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Carrier STATE COMP INS FUND Policy Number 1748379 Exp Date 07/01/2006

_____ (This section need not be completed if the permit is for $100 or less) I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

Date 8-24-05 Applicant Signature _____

WARNING: FAILURE TO SECURE WORKER'S COMPENSATION COVERAGE IS UNLAWFUL AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000) IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST AND ATTORNEY'S FEE.

THIS PERMIT SHALL EXPIRE BY LIMITATION IF WORK IS NOT COMMENCED WITHIN 180 DAYS.

APPLICATION FOR COMMERCIAL BUILDING PERMIT

CITY OF SACRAMENTO
PLANNING & BUILDING DIVISION
PERMIT SERVICES SECTION
(916) 808-2534 FAX: (916) 808-7046

ACTIVITY #	Insp. Area
051925	1

*Applicant **MUST** complete ALL Unshaded Areas*

ADDRESS: 1112 Second St, Old Sacramento **Suite:** _____

PARCEL #: _____

CONTACT
Name: Mike Horasley
Street Address: 1112 Second St
City/State/Zip: OLD Sacramento / CA / 95814
Phone: 442-4772
E-Mail: _____

LICENSED CONTRACTOR Lic No. # 254689
Name: Bos Sheet Metal Inc
Street Address: 3325 52nd Ave
City/State/Zip: Sacramento CA 95823
Phone: (916) 428-1780
E-Mail: Mike@Bossheetmetal.com

ARCHITECT/ENGINEER
Name: Mike Pierson / Bos Sheet Metal Inc
Street Address: Same
City/State/Zip: _____
Phone: _____
E-Mail: _____

OWNER
Name: Lloyd Harvego
Street Address: 1112 Second St
City/State/Zip: Old Sacramento CA 95814
Phone: 442-4772
E-Mail: _____

⇨ Will permitee have any employees on the jobsite? ☐ No ☒ Yes ⇨ **Insurance Co.:** State Compensation Fund

⇨ **WORKER'S COMPANSATION POLICY #** 1748379-03 **EXPORATION DATE:** 7/1/06

NATURE OF WORK IN DETAIL: Change Out 1-3 ton & 1-5 ton Gas electric Package with new units (Like for Like)

OCCUPANT/TENANT: Firehouse Restaurant **VALUATION:** $9,720.00

FLOOD STATUS:				S.C.A.T.						
JOB DISCRIPTION	BLDG	SHELL	APT	TI( )	REM( )	SW	FIRE	ADD	OTH	
INSPECTION DISCIPLINES		BLDG	MECH	PLUMB	ELEC		SITE	FIRE		
# Stories	1st Flr Area	Total Area	Use Zone	Occp Group	Const type	Fire Req. Y / N		Fed Code	Vio. [H]	File [Quad]
						SPR	ALARM			
B	L	P	M	E	F	S		D	PW	UTIL

COMMENTS: _____

REGIONAL SANITATION FEES? ☐ Yes ☐ No **HEALTH DEPARTMENT:** ☐ Yes ☐ No

WATER FLOW TEST FOR NEW BUILDINGS OR ADDITIONS? ☐ Provided ☐ Faxed

HEATING

BOS SHEET METAL, INC.

AIR CONDITIONING

3325 - 52nd Avenue

State Contractor's License No. 254689
Phone 428-1780

Sacramento, CA 95823

Proposal and Agreement

Customer Name Firehouse [redacted] Restaurant Phone _____ Date 8-18-2005

Address _____ Job Address _____

City, State, Zip Sacramento, CA Work Phone(s) _____ _____

We will furnish, install and service the equipment listed below at the price, terms and conditions outlined on both sides of this proposal.

EQUIPMENT SPECIFICATIONS

Make Carrier Model Number(s) 1 - 48GX036 & 1 - 48GX060 _____

SEER 12 EER _____ AFUE 80 Btuh Cooling 3 & 5 ton Btuh Heating _____ CFM -

Installation shall include: Install 2 Carrier packaged rooftop air conditioning units. Complete with Duct transitions, filter rack on the 5 ton unit, permit, start-up, electrical disconnect, hook up to existing electrical, hook up to existing condensate drain piping, gook up to existing gas pipe, removal of existing equipment.

X in boxes = Yes

- ☒ New _____ Amp disconnect
- ☐ New _____ Amp electric service
- ☐ New low voltage wiring
- ☐ New weather resistant equipment stand
- ☐ New reinforced equipment pad
- ☐ New vibration isolation pads
- ☐ New properly sized refrigerant lines
- ☐ Refrigerant Recovery per E.P.A. Req.
- ☐ Insulate refrigerant suction line(s)
- ☐ Install refrigerant drier(s)
- ☒ Charge to manufacturer's specs
- ☐ Evacuate refrigerant system
- ☐ _____

- ☒ Remove existing equipment from premises
- ☐ Install energy saving setback thermostat
- ☐ New copper wire from _____ to _____
- ☐ Make air tight plenum transition
- ☐ _____ new supply diffuser(s)
- ☐ New duct run from _____ to _____
- ☐ Noise reducing flexible duct connector
- ☐ Balance for uniform supply air distribution
- ☐ Provide for external combustion air
- ☐ New gas piping from _____ to _____
- ☐ New vent pipe and cap
- ☐ Clean work area to customer's satisfaction
- ☐ _____

- ☐ New condensate drain system
- ☐ New condensate pump
- ☐ Install aux. condensate drain pan
- ☐ New high efficiency air filter
- ☐ New humidification system
- ☐ New return air filter grill
- ☒ Meet all code requirements
- ☒ Complete system start up
- ☒ 1 year parts warranty
- ☒ 1 year labor warranty
- ☒ 5 year compressor warranty
- ☐ _____ year service agreement
- ☒ Includes all permits

☐ Option (below) ☐ Alternative (below) ☐ Is (☐ Is Not) included in price

Installed Price $ 9,720.00

Total Amount $ 9,720.00

Down Payment $ 0

Balance Due $ 9,720.00

Terms: ~~100% UPON COMPLETION~~ Net 30 Days – PROPOSAL EXPIRES 30 DAYS FROM DATE

Acceptance (Customer)

By _____ Date _____

Approval (Company)

By [signature] Date 8-18-05

Terms & Conditions On Reverse Side

HEATING **BOS SHEET METAL, INC.** AIR CONDITIONING

3325 52nd Avenue
State Contractor's License No.. 254689
Phone 428-1780
Sacramento, California 95823

FAN & OUTLET TEST REPORT

JOB ADDR: 1112 Second St.
AREA SERVED Dining Room
BSM JOB NO. 05-255
SECTION PAGE 1 OF 2
TECH.
UNIT # 1
DATE 8/29/05

MOTOR NAME PLATE DATA
MFG
HP V FLA
PHASE RPM

UNIT NAME PLATE DATA
MFG Carrier
MODEL 48GX0600905
TYPE Gas/Electric
SIZE 5 Ton

FAN DATA	DESIGN	TEST
TOTAL SP		
FILTER SP		
FAN SP		
CFM TOTAL	1990	1980
CFM RA	1240	1190
CFM OA	750	790
RPM		

MOTOR DATA	TEST
VOLTS	
AMPS	
RPM	
BHP	

SHEAVE	DATA
MOTOR	
BLOWER	
BELT	

FILTER	DATA
SIZE	12x20x1
TYPE	DISP.
QUANTITY	3

ROOM	OPENING NO.	OPENING TYPE	OPENING SIZE	FACTOR	DESIGN FPM	DESIGN CFM	TEST 1 FPM	TEST 1 CFM	TEST 2 FPM	TEST 2 CFM
Supply Duct		S/A	15x30		637	1990	576	1800	634	1980
Return Duct		R/A	15x30		397	1240	519	1620	381	1190

HEATING

BOS SHEET METAL, INC.

AIR CONDITIONING

3325 52nd Avenue

State Contractor's License No.. 254689
Phone 428-1780

Sacramento, California 95823

FAN & OUTLET TEST REPORT

JOB ADDR: 1112 Second St.

AREA SERVED Dining Room

BSM JOB NO. 05-255

SECTION PAGE 2 OF 2

TECH.

UNIT # 2

DATE 8/29/05

MOTOR NAME PLATE DATA

MFG

HP V FLA

PHASE RPM

UNIT NAME PLATE DATA

MFG Carrier

MODEL 48GX00360603

TYPE Gas/Electric

SIZE 3 Ton

FAN DATA	DESIGN	TEST
TOTAL SP		
FILTER SP		
FAN SP		
CFM TOTAL	1200	1300
CFM RA	675	755
CFM OA	525	545
RPM		

MOTOR DATA	TEST
VOLTS	
AMPS	
RPM	
BHP	

SHEAVE	DATA
MOTOR	
BLOWER	
BELT	

FILTER	DATA
SIZE	12x20x1
TYPE	DISP.
QUANTITY	3

ROOM	OPENING NO.	OPENING TYPE	OPENING SIZE	FACTOR	DESIGN FPM	DESIGN CFM	TEST 1 FPM	TEST 1 CFM	TEST 2 FPM	TEST 2 CFM
Supply Duct		S/A	18x24		400	1200	373	1120	433	1300
Return Duct		R/A	18x24		225	675	285	855	5252	755

CERTIFICATE OF COMPLIANCE

Part 1 of 2 **MECH-1**

PROJECT NAME: Firehouse Restaurant	This set of plans and specifications must be kept on the job at all times and it is unlawful to make any changes or alterations from the same without written permission from the Building Inspection Division. The approval of this plan and specification SHALL NOT be held to permit the violation of any City Ordinance or State Law.	DATE: 8/24/2005
PROJECT ADDRESS: 1112 Second Street Old Sacramento		Building Permit #
PRINCIPAL DESIGNER - MECHANICAL: Bos Sheet Metal, Inc.	TELEPHONE: (916) 428-1780	Checked by/Date
DOCUMENTATION AUTHOR: Bos Sheet Metal, Inc.	TELEPHONE: (916) 428-1780	Enforcement Agency Use

CITY OF SACRAMENTO CALIFORNIA PLANNING & DEVELOPMENT REVIEWED UNDER TITLE 15 CITY CODE City of SACRAMENTO, CALIF. BUILDING INSPECTION DIVISION

GENERAL INFORMATION

DATE OF PLANS	BUILDING CONDITIONED FLOOR AREA: 2,400 Sq.Ft.		CLIMATE ZONE: 12	
BUILDING TYPE	[X] NONRESIDENTIAL	[ ] HIGH RISE RESIDENTIAL	[ ] HOTEL/MOTEL GUEST ROOM	
PHASE OF CONSTRUCTION	[ ] NEW CONSTRUCTION	[ ] ADDITION	[X] ALTERATION	[ ] EXISTING + ADDITION
METHOD OF MECHANICAL COMPLIANCE	[X] PRESCRIPTIVE	[ ] PERFORMANCE		
PROOF OF ENVELOPE COMPLIANCE	[ ] PREVIOUS ENVELOPE PERMIT	[ ] ENVELOPE COMPLIANCE ATTACHED		

STATEMENT OF COMPLIANCE

This Certificate of Compliance lists the building features and performance specifications needed to comply with Title 24 Parts 1 and 6 of the California Code of Regulations. This certificate applies only to building mechanical requirements.

CITY COPY

The documentation preparer hereby certifies that the documentation is accurate and complete.

DOCUMENTATION AUTHOR	SIGNATURE	DATE
Mike Pierson		8-24-05

The Principal Mechanical Designer hereby certifies that the proposed building design represented in this set of construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application. The proposed building has been designed to meet the mechanical requirements contained in Sections 110 through115, 120 through 124, 140 through 142, 144 and 145.

Please check one:

- [ ] I hereby affirm that I am eligible under the provisions of Division 3 of the Business and Professions Code to sign this document as the person responsible for its preparation; and that I am licensed in the State of California as a civil engineer, or mechanical engineer or I am a licensed architect.
- [ ] I affirm that I am eligible under the exemption to Division 3 of the Business and Professions Code by Section 5537.2 or 6737.3 to sign this document as the person responsible for its preparation; and that I am a licensed contractor performing this work.
- [ ] I affirm that I am eligible under the exemption to Division 3 of the Business and Professions Code to sign this document because it pertains to a structure or type of work described pursuant to Business and Professions Code sections 5537, 5538, and 6737.1.

PRINCIPAL MECHANICAL DESIGNER - NAME	SIGNATURE	DATE	LIC. #
Bos Sheet Metal, Inc.		8-24-05	259689

MECHANICAL MANDATORY MEASURES

Indicate location on plans of Note Block for Mandatory Measures —

INSTRUCTIONS TO APPLICANT

For detailed instructions on the use of this and all Energy Efficiency Standards compliance forms, please refer to the Nonresidential Manual published by the California Energy Commission.

MECH-1: Required on plans for all submittals. Parts 2 may be incorporated in schedules on plans.

MECH-2: Required for all submittals, but may be incorporated in schedules on plans.

MECH-3: Required for all submittals unless required outdoor ventilation rates and airflows are shown on plans per Section 4.3.4.

MECH-4: Required for Prescriptive submittals.

MECH-5: Optional. Performance use only for mechanical distribution summary.

APPROVED
City of Sacramento Plan Review
PLUMBING/MECHANICAL
8-24-05
Date
Signature

1112 2ND ST.
05 12925

CERTIFICATE OF COMPLIANCE

Part 2 of 2 **MECH-1**

PROJECT NAME: Firehouse Restaurant

DATE: 8/24/2005

SYSTEM FEATURES

SYSTEM NAME	MECHANICAL SYSTEMS: AC-1	AC-2		NOTE TO FIELD
TIME CONTROL	Programmable Switch	Programmable Switch		
SETBACK CONTROL	Heating & Cooling Required	Heating & Cooling Required		
ISOLATION ZONES	n/a	n/a		
HEAT PUMP THERMOSTAT?	n/a	n/a		
ELECTRIC HEAT?	n/a	n/a		
FAN CONTROL	Constant Volume	Constant Volume		
VAV MINIMUM POSITION CONTROL?	No	No		
SIMULTANEOUS HEAT/COOL?	No	No		
HEATING SUPPLY RESET	Constant Temp	Constant Temp		
COOLING SUPPLY RESET	Constant Temp	Constant Temp		
HEAT REJECTION CONTROL	n/a	n/a		
VENTILATION	Air Balance	Air Balance		
OUTDOOR DAMPER CONTROL	Auto	Auto		
ECONOMIZER TYPE	No Economizer	No Economizer		
DESIGN O.A. CFM (MECH-3, COLUMN I)	450 cfm	750 cfm		
HEATING EQUIPMENT TYPE	Gas Furnace	Gas Furnace		
HEATING EQUIPMENT EFFICIENCY	80% AFUE	79% AFUE		
COOLING EQUIPMENT TYPE	Packaged DX	Packaged DX		
COOLING EQUIPMENT EFFICIENCY	12.0 SEER / 10.5 EER	12.0 SEER / 10.5 EER		
MAKE AND MODEL NUMBER	CARRIER 48GX03609030	CARRIER 48GX06009050		
PIPE INSULATION REQUIRED?	Yes	Yes		
PIPE/DUCT INSULATION PROTECTED?	Yes	Yes		
HEATING DUCT LOCATION / R-VALUE	Ducts in Attic / 4.2	Ducts in Attic / 4.2		
COOLING DUCT LOCATION / R-VALUE	Ducts in Attic / 4.2	Ducts in Attic / 4.2		
VERIFIED SEALED DUCTS IN CEILING/ROOF SPACE	No	No		

CODE TABLES: Enter code from table below into columns above.

HEAT PUMP THERMOSTAT?	Y: Yes N: No
ELECTRIC HEAT?	
VAV MINIMUM POSITION CONTROL?	
SIMULTANEOUS HEAT / COOL?	
HEAT AND COOL SUPPLY RESET?	
HIGH EFFICIENCY?	
PIPE INSULATION REQUIRED?	
PIPE/DUCT INSULATION PROTECTED?	
SEALED DUCTS IN CEILING/ROOF SPACE?	

TIME CONTROL	SETBACK CTRL.	ISOLATION ZONES	FAN CONTROL
S: Prog. Switch O: Occupancy Sensor M: Manual Timer	H: Heating C: Cooling B: Both	Enter Number of Isolation Zones.	I: Inlet Vanes P: Variable Pitch V: VFD O: Other C: Curve

VENTILATION	OUTDOOR DAMPER	ECONOMIZER	O.A. CFM
B: Air Balance C: Outside Air Cert. M: Out. Air Measure D: Demand Control N: Natural	A: Auto G: Gravity	A: Air W: Water N: Not Required EC: Economizer Control See Section 144(e)3	Enter Outdoor Air CFM. Note: This shall be no less than Col. H on MECH-3.

NOTES TO FIELD - For Building Department Use Only

MECHANICAL EQUIPMENT SUMMARY

Part 1 of 2 **MECH-2**

PROJECT NAME Firehouse Restaurant

DATE 8/24/2005

CHILLER AND TOWER SUMMARY

Equipment Name	Equipment Type	Qty.	Efficiency	Tons	PUMPS Tot. Qty	GPM	BHP	Motor Eff.	Drive Eff.	Pump Control

DHW / BOILER SUMMARY

System Name	System Type	Distribution Type	Qty	Rated Input	Vol. (Gals.)	Energy Factor or Recovery Efficiency	Standby Loss or Pilot	TANK INSUL. Ext. R-Val.

CENTRAL SYSTEM RATINGS

System Name	System Type	Qty.	HEATING Output	Aux. kW	Eff.	COOLING Output	Sensible	Efficiency	Economizer Type
CARRIER 48GX03609030	Packaged DX	1	70,000	0.0	80% AFUE	35,000	24,500	12.0 SEER / 10.5 EER	No Economizer
CARRIER 48GX06009050	Packaged DX	1	70,000	0.0	79% AFUE	58,500	40,950	12.0 SEER / 10.5 EER	No Economizer

CENTRAL SYSTEM FAN SUMMARY

System Name	Fan Type	SUPPLY FAN Motor Location	CFM	BHP	Motor Eff.	Drive Eff.	RETURN FAN CFM	BHP	Motor Eff.	Drive Eff.
CARRIER 48GX03609030	Constant Volume	Blow-Through	1,200	0.50	77.0%	100.0%	none			
CARRIER 48GX06009050	Constant Volume	Draw-Through	1,990	0.75	77.0%	100.0%	none			

MECHANICAL VENTILATION

MECH-3

PROJECT NAME: Firehouse Restaurant

DATE: 8/24/2005

MECHANICAL VENTILATION

A	B	C	D	E	F	G	H	I	J	K
	AREA BASIS			OCCUPANCY BASIS						
ZONE/SYSTEM	COND. AREA (SF)	CFM PER SF	MIN. CFM (B x C)	NO. OF PEOPLE	CFM PER PERSON	MIN. CFM (ExF)	REQ'D O.A. (MAX OF D OR G)	DESIGN OUTDOOR AIR CFM	VAV MIN. RATIO	TRANS-FER AIR
Dining Room	900	0.50	450				450	450		
AC-1						Total	450	450		
Dining Room	1,500	0.50	750				750	750		
AC-2						Total	750	750		

PROVIDE AIR BALANCE REPORT FOR FINAL MECHANICAL INSPECTION

C Minimum Ventilation Rate per Section 121, Table 1-F.
E Based on Expected Number of Occupants or at least 50% of Chapter 10 1997 UBC Occupant Density.
I Must be greater than or equal to H, or use Transfer Air. Design Outdoor Air includes ventilation from Supply Air System & Room Exhaust Fans.
K Must be greater than or equal to (H minus I), and, for VAV, greater than or equal to (H-J).

MECHANICAL MANDATORY MEASURES — Part 1 of 2 — MECH-MM

PROJECT NAME	DATE
Firehouse Restaurant	8/24/2005

	DESCRIPTION		Designer	Enforcement
	Equipment and Systems Efficiencies			
☐	§ 111	Any appliance for which there is a California standard established in the Appliance Efficiency Regulations will comply with the applicable standard.		
☒	§ 115(a)	Fan type central furnaces shall not have a pilot light.		
☒	§ 123	Piping, except that conveying fluids at temperatures between 60 and 105 degrees Fahrenheit, or within HVAC equipment, shall be insulated in accordance with Standards Section 123.		
☐	§ 124	Air handling duct systems shall be installed and insulated in compliance with Sections 601, 603 and 604 of the Uniform Mechanical Code.		
	Controls			
	§ 122(e)	Each space conditioning system shall be installed with one of the following:		
☒	§ 122(e)1A	Each space conditioning system serving building types such as offices and manufacturing facilities (and all others not explicitly exempt from the requirements of Section 112 (d)) shall be installed with an automatic time switch with an accessible manual override that allows operation of the system during off-hours for up to 4 hours. The time switch shall be capable of programming different schedules for weekdays and weekends and have program backup capabilities that prevent the loss of the device's program and time setting for at least 10 hours if power is interrupted; or		
☒	§ 122(e)1B	An occupancy sensor to control the operating period of the system; or		
☒	§ 122(e)1C	A 4-hour timer that can be manually operated to control the operating period of the system.		
☒	§ 122(e)2	Each space conditioning system shall be installed with controls that temporarily restart and temporarily operate the system as required to maintain a setback heating and/or a setup cooling thermostat setpoint.		
☐	§ 122(g)	Each space conditioning system serving multiple zones with a combined conditioned floor area more than 25,000 square feet shall be provided with isolation zones. Each zone: shall not exceed 25,000 square feet; shall be provided with isolation devices, such as valves or dampers, that allow the supply of heating or cooling to be setback or shut off independently of other isolation areas; and shall be controlled by a time control device as described above.		
☒	§ 122(a&b)	Each space conditioning system shall be controlled by an individual thermostat that responds to temperature within the zone. Where used to control heating, the control shall be adjustable down to 55 degrees F or lower. For cooling, the control shall be adjustable up to 85 degrees F or higher. Where used for both heating and cooling, the control shall be capable of providing a deadband of at least 5 degrees F within which the supply of heating and cooling is shut off or reduced to a minimum.		
☒	§ 122(c)	Thermostats shall have numeric setpoints in degrees Fahrenheit (F) and adjustable setpoint stops accessible only to authorized personnel.		
☐	§ 112(b)	Heat pumps shall be installed with controls to prevent electric resistance supplementary heater operation when the heating load can be met by the heat pump alone.		

MECHANICAL MANDATORY MEASURES — Part 2 of 2 — MECH-MM

PROJECT NAME	DATE
Firehouse Restaurant	8/24/2005

		Description	Designer	Enforcement
		Ventilation		
[X]	§ 121(e)	Controls shall be provided to allow outside air dampers or devices to be operated at the ventilation rates as specified on these plans.		
[X]	§ 122(f)	Gravity or automatic dampers interlocked and closed on fan shutdown shall be provided on the outside air intakes and discharges of all space conditioning and exhaust systems.		
[X]	§ 122(f)	All gravity ventilating systems shall be provided with automatic or readily accessible manually operated dampers in all openings to the outside, except for combustion air openings.		
[X]	§ 121(f)1	Air Balancing: The system shall be balanced in accordance with the National Environmental Balancing Bureau (NEBB) Procedural Standards (1983), or Associated Air Balance Council (AABC) National Standards (1989); or		
[X]	§ 121(f)2	Outside Air Certification: The system shall provide the minimum outside air as shown on the mechanical drawings, and shall be measured and certified by the installing licensed C-20 mechanical contractor and certified by (1) the design mechanical engineer, (2) the installing licenced C-20 mechanical contractor, or (3) the person with overall responsibility for the design of the ventilation system; or		
[X]	§ 121(f)3	Outside Air Measurement: The system shall be equipped with a calibrated local or remote device capable of measuring the quantity of outside air on a continuous basis and displaying that quantity on a readily accessible display divice; or		
[X]	§ 121(f)4	Another method approved by the Commission.		
		Service Water Heating Systems		
[ ]	§ 113(b)2	If a circulating hot water system is installed, it shall have a control capable of automatically turning off the circulating pump(s) when hot water is not required.		
[ ]	§ 113(b)3B	Lavatories in restrooms of public facilities shall be equipped with controls to limit the outlet temperature to 110 degrees F.		
[ ]	§ 113(b)3C	Lavatories in restrooms of public facilities shall be equipped with one of the following: Outlet devices that limit the flow of hot water to a maximum of 0.5 gallons per minute. Foot actuated control valves, and outlet devices that limit the flow of hot water to a maximum of 0.75 gallons per minute. Proximity sensor actuated control valves, and outlet devices that limit the flow of hot water to a maximum of 0.75 gallons per minute. Self-closing valves, and outlet devices that limit the flow of hot water to a maximum of 2.5 gallons per minute, and 0.25 gallons/cycle (circulating system). Self-closing valves, and outlet devices that limit the flow of hot water to a maximum of 2.5 gallons per minute, and 0.50 gallons/cycle (non-circulating system). Self-closing valves, and outlet devices that limit the flow of hot water to a maximum of 2.5 gallons per minute, and 0.75 gallons/cycle (foot switches and proximity sensor controls).		

Carrier
HEATING & COOLING

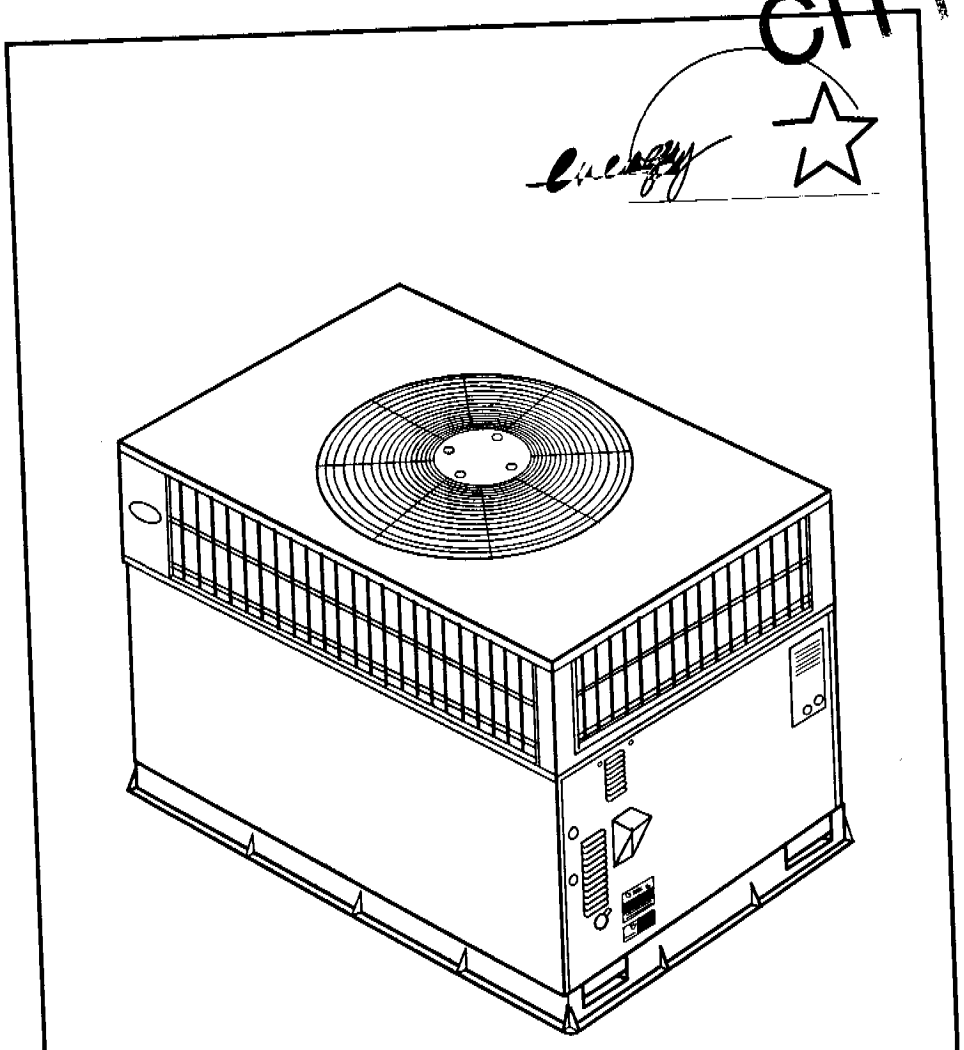
Product Data

48GX/48GXN Single-Packaged Gas Heating/Electric Cooling Units

2 to 5 Nominal Tons

AC-1 - 48GX036 - 3TON

AC-2 - 48GX060 - 5TON



Single-Packaged Rooftop Products with Energy-Saving Features.

- Direct Spark Ignition
- Low Sound Levels
- Up to 81% AFUE
- 12 SEER

FEATURES/BENEFITS

One-piece heating and cooling units with low sound levels, easy installation, low maintenance, and dependable performance.

Easy Installation

Factory-assembled package is a compact, fully self-contained, combination gas heating/electric cooling unit that is pre-wired, pre-piped, and pre-charged for minimum installation expense.

These units are available in a variety of standard and optional heating/cooling size combinations with voltage options to meet residential and light commercial requirements. Units are lightweight and install easily on a rooftop or at ground level. The high tech composite unit base eliminates rust problems associated with ground level applications.

Convertible duct configuration

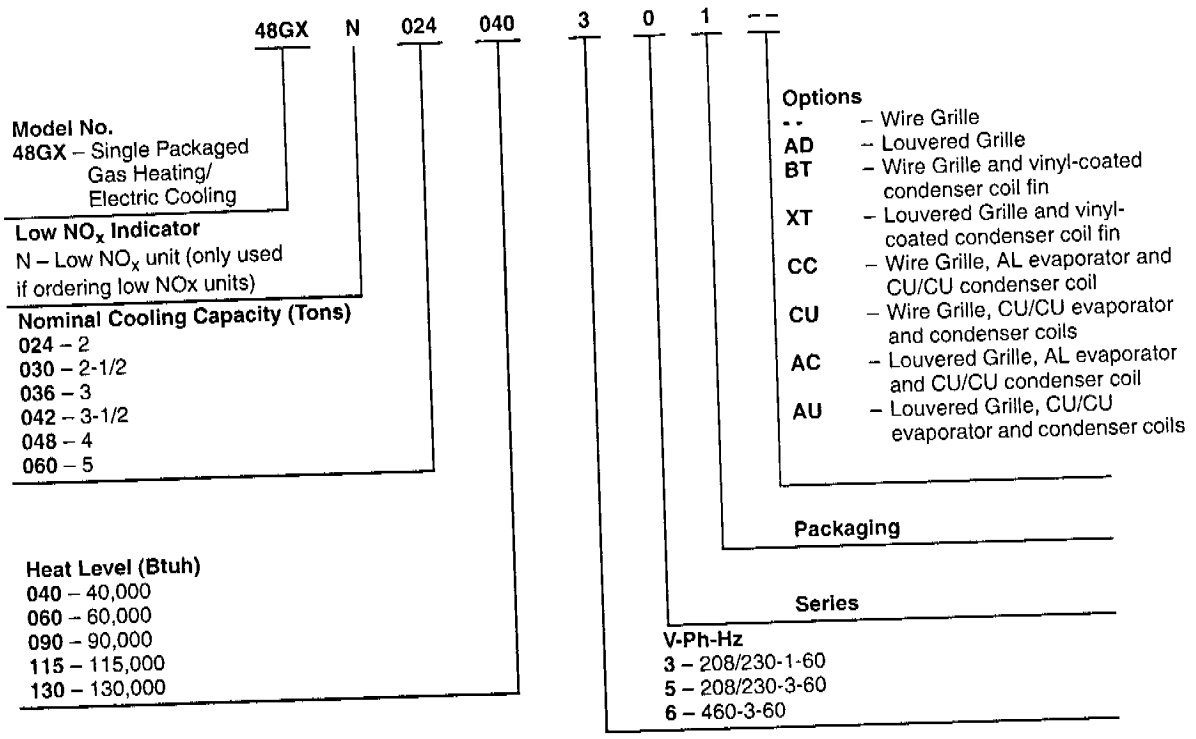
Unit is designed for easy use in either downflow or horizontal applications. Each unit is easily converted from horizontal to downflow with the use of the two standard duct covers.

Efficient operation

High-efficiency design with SEER (Seasonal Energy Efficiency Ratios) of 12.0 and AFUE (Annual Fuel Utilization Efficiency) ratings as high as 81%.

1112 2ND ST.
05129S

Model number nomenclature



LEGEND
AL — Aluminum
CU — Copper

ARI* capacities

COOLING CAPACITIES AND EFFICIENCIES

UNIT 48GX	NOMINAL TONS	STANDARD CFM	NET COOLING CAPACITIES (Btuh)	SEER†	SOUND RATINGS‡ (dB)
024040 024060	2	800	24,000	12.0	72
030040 030060	2-1/2	1000	30,000	12.0	72
AC-1 → 036060 036090	3	1200	35,000	12.0	74
042060 042090	3-1/2	1400	42,000	12.0	74
048090 048115 048130	4	1450	48,000	12.0	80
AC-2 → 060090 060115 060130	5	1750	58,000	12.0	78

LEGEND
Bels — Sound Levels (decibels)
db — Dry Bulb
SEER — Seasonal Energy Efficiency Ratio
wb — Wet Bulb

* Air Conditioning & Refrigeration Institute.

† Rated in accordance with U.S. Government DOE Department of Energy) test procedures and/or ARI Standard 210/240-89.

‡ Tested in accordance with ARI Standard 270-95 (not listed in ARI).

NOTES:
1. Ratings are net values, reflecting the effects of circulating fan heat. Ratings are based on:
   Cooling Standard: 80°F db, 67°F wb indoor entering-air temperature and 95°F db outdoor entering-air temperature.
2. Before purchasing this appliance, read important energy cost and efficiency information available from your retailer.

ARI* capacities (cont)

HEATING CAPACITIES AND EFFICIENCIES

UNIT 48GX	HEATING INPUT (Btuh)	OUTPUT CAPACITY (Btuh)	TEMPERATURE RISE RANGE (°F)	AFUE (%)
024040	40,000	31,000	20-50	80.1
030040				80.1
024060	60,000	46,000	35-65	78.4
030060		46,000	35-65	78.4
AC-1 → 036060		46,000	25-55	78.7
042060		47,000	15-45	78.7
036090	88,000	70,000	45-75	79.9
042090	90,000	71,000	35-65	79.9
048090	90,000	70,000	25-55	78.6
AC-2 → 060090	90,000	70,000	25-55	78.6
048115	115,000	92,000	35-65	81.1
060115				
048130	130,000	104,000	40-70	80.3
060130		103,000		

LEGEND

AFUE — Annual Fuel Utilization Efficiency

NOTE: Before purchasing this appliance, read important energy cost and efficiency information available from your retailer.

OUTDOOR SOUND: OCTAVE BAND DATA — DECIBELS

UNIT	48GX					
Frequency (Hz)	024	030	036	042	048	060
63	43.6	52.6	49.5	56.8	54.7	55.5
125	54.1	47.3	56.4	56.9	64.0	64.1
250	57.1	58.2	61.0	64.0	69.9	66.6
500	64.9	63.2	67.4	68.0	73.3	70.6
1000	67.6	66.1	68.1	67.7	73.5	72.6
2000	64.1	64.0	65.8	64.6	70.4	69.8
4000	59.7	61.3	64.8	61.3	66.7	67.5
8000	53.5	57.0	56.8	55.5	60.5	61.6

LEGEND

Sound Levels (decibels)

Physical data

AC-1

UNIT SIZE 48GX	024040	024060	030040	030060	036060	036090	042060	042090
NOMINAL CAPACITY (ton)	2	2	2-1/2	2-1/2	3	3	3-1/2	3-1/2
OPERATING WEIGHT (lb)	290	290	313	313	321	321	382	382
COMPRESSORS	Scroll							
Quantity	1							
REFRIGERANT (R-22)								
Quantity (lb)	3.7	3.7	4.4	4.4	5.2	5.2	6.4	6.4
REFRIGERANT METERING DEVICE	Acutrol™ Device							
Orifice ID (In.)	.034	.034	.030	.030	.032	.032	.034	.034
CONDENSER COIL								
Rows—Fins/In.	1—17	1—17	1—17	1—17	2—17	2—17	2—17	2—17
Face Area (sq ft)	10.8	10.8	12.7	12.7	9.1	9.1	12.3	12.3
CONDENSER FAN								
Nominal Cfm	2350	2350	2350	2350	2350	2350	3300	3300
Diameter (in.)	22	22	22	22	22	22	22	22
Motor Hp (Rpm)	1/8 (825)	1/8 (825)	1/8 (825)	1/8 (825)	1/8 (1100)	1/8 (825)	1/4 (1100)	1/4 (1100)
EVAPORATOR COIL								
Rows—Fins/In.	3—15	3—15	3—15	3—15	3—15	3—15	3—15	3—15
Face Area (sq ft)	3.1	3.1	3.7	3.7	3.7	3.7	4.7	4.7
EVAPORATOR BLOWER								
Nominal Airflow (Cfm)	800	800	1000	1000	1200	1200	1400	1400
Size (In.)	10 x 10	10 x 10	10 x 10	10 x 10	11 x 10	11 x 10	11 x 10	11 x 10
Motor Hp (RPM)	1/4 (1075)	1/4 (1075)	1/4 (1075)	1/4 (1075)	1/2 (1075)	1/2 (1075)	3/4 (1075)	3/4 (1075)
FURNACE SECTION*								
Burner Orifice No. (Qty—Drill Size) Natural Gas	2—44	2—38	2—44	2—38	2—38	3—38	2—38	3—38
Burner Orifice No. (Qty—Drill Size) Liquid Propane	2—50	2—46	2—50	2—46	2—46	3—46	2—46	3—46
RETURN-AIR FILTERS (in.)†								
Throwaway	20 x 20 x 1	20 x 20 x 1	20 x 20 x 1	20 x 20 x 1	20 x 24 x 1	20 x 24 x 1	24 x 30 x 1	24 x 30 x 1

AC-2

UNIT SIZE 48GX	048090	048115	048130	060090	060115	060130
NOMINAL CAPACITY (ton)	4	4	4	5	5	5
OPERATING WEIGHT (lb)	421	421	421	468	468	468
COMPRESSORS	Scroll					
Quantity	1					
REFRIGERANT (R-22)						
Quantity (lb)	8.3	8.3	8.3	8.1	8.1	8.1
REFRIGERANT METERING DEVICE	Acutrol Device					
Orifice ID (In.)	.034	.034	.034	.032	.032	.032
CONDENSER COIL						
Rows—Fins/In.	2—17	2—17	2—17	2—17	2—17	2—17
Face Area (sq ft)	12.3	12.3	12.3	16.4	16.4	16.4
CONDENSER FAN						
Nominal Cfm	3300	3300	3300	3300	3300	3300
Diameter (in.)	22	22	22	22	22	22
Motor Hp (Rpm)	1/4 (1100)	1/4 (1100)	1/4 (1100)	1/4 (1100)	1/4 (1100)	1/4 (1100)
EVAPORATOR COIL						
Rows—fins/in.	4—15	4—15	4—15	4—15	4—15	4—15
Face Area (sq ft)	4.7	4.7	4.7	4.7	4.7	4.7
EVAPORATOR BLOWER						
Nominal Airflow (Cfm)	1600	1600	1600	1750	1750	1750
Size (in.)	11 x 10	11 x 10	11 x 10	11 x 10	11 x 10	11 x 10
Motor Hp (RPM)	3/4 (1075)	3/4 (1075)	3/4 (1075)	1.0 (1075)	1.0 (1075)	1.0 (1075)
FURNACE SECTION*						
Burner Orifice No. (Qty—Drill Size) Natural Gas	3—38	3—33	3—31	3—38	3—33	3—31
Burner Orifice No. (Qty—Drill Size) Liquid Propane	3—46	3—42	3—41	3—46	3—42	3—41
RETURN-AIR FILTERS (in.)†						
Throwaway	24 x 30 x 1	24 x 30 x 1	24 x 30 x 1	24 x 30 x 1	24 x 30 x 1	24 x 30 x 1

* Based on altitude of 0 to 2000 feet.

† Required filter sizes shown are based on the larger of the ARI (Air Conditioning and Refrigeration Institute) rated cooling airflow or the heating airflow velocity of 300 ft/min for throwaway type or 450 ft/min for high-capacity type. Air filter pressure drop for non-standard filters must not exceed 0.08 in. wg.

Electrical data

UNIT SIZE 48GX	V-PH-Hz	VOLTAGE RANGE		COMPRESSOR		OUTDOOR FAN MOTOR	INDOOR FAN MOTOR	POWER SUPPLY	
		Min	Max	RLA	LRA	FLA	FLA	MCA	MAX FUSE or CKT BKR
024	208/230-1-60	187	253	10.9	54.0	0.9	2.0	16.5	25
030	208/230-1-60	187	253	13.5	73.0	0.8	2.1	19.8	30
	208/230-3-60	187	253	9.0	63.0	0.8	2.1	14.2	20
036	208/230-1-60	187	253	16.7	97.0	0.8	3.6	25.3	40
	208/230-3-60	187	253	11.2	75.0	0.8	3.6	18.4	25
	460-3-60	414	506	5.4	37.5	0.9	1.9	9.6	15
042	208/230-1-60	187	253	17.9	104.0	1.6	4.1	28.1	45
	208/230-3-60	187	253	12.4	88.0	1.6	4.1	21.2	30
	460-3-60	414	506	6.1	44.0	0.9	2.0	10.5	15
048	208-230/1/60	187	253	23.4	126.0	1.6	4.1	34.9	45
	208/230-3-60	187	253	13.0	93.0	1.6	4.1	21.9	30
	460-3-60	414	506	6.4	46.5	0.9	2.0	10.8	15
060	208/230-1-60	187	253	28.8	169.0	1.6	6.2	43.8	60
	208/230-3-60	187	253	17.3	123.0	1.6	6.2	29.4	45
	460-3-60	414	506	9.0	62.0	0.9	3.2	15.4	20

LEGEND

FLA — Full Load Amps
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps
MOCP — Maximum Overcurrent Protection
RLA — Rated Load Amps

*Heater capacity (KW) based on heater voltage of 208v, 240v, & 480v. If power distribution voltage to unit varies from rated heater voltage, heater KW will vary accordingly.

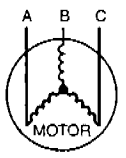
NOTES:

1. In compliance with NEC (National Electrical Code) requirements for multimotor and combination load equipment (refer to NEC Articles 430 and 440), the overcurrent protective device for the unit shall be Power Supply fuse. The CGA (Canadian Gas Association) units may be fuse or circuit breaker.
2. Minimum wire size is based on 60 C copper wire. If other than 60 C wire is used, or if length exceeds wire length in table, determine size from NEC.
3. Unbalanced 3-Phase Supply Voltage
   Never operate a motor where a phase imbalance in supply voltage is greater than 2%. Use the following formula to determine the percentage of voltage imbalance.

   % Voltage imbalance

   $$= 100 \times \frac{\text{max voltage deviation from average voltage}}{\text{average voltage}}$$

EXAMPLE: Supply voltage is 460-3-60.



AB = 452 v
BC = 464 v
AC = 455 v

$$\text{Average Voltage} = \frac{452 + 464 + 455}{3}$$

$$= \frac{1371}{3}$$

$$= 457$$

Determine maximum deviation from average voltage.
(AB) 457 452 = 5 v
(BC) 464 457 = 7 v
(AC) 457 455 = 2 v

Maximum deviation is 7 v.

Determine percent of voltage imbalance.

$$\% \text{ Voltage Imbalance} = 100 \times \frac{7}{457}$$

$$= 1.53\%$$

This amount of phase imbalance is satisfactory as it is below the maximum allowable 2%.

IMPORTANT: If the supply voltage phase imbalance is more than 2%, contact your local electric utility company immediately.