QUALITY COMMISSIONING SHEET (QCS)

3.28.18

(GS-NS-BS) -_____ BY_____

Job Name: CN_____ **Date:** JD_____ **Installer** TN_____
ID Unit Mod# _____OD Unit Mod#_____
Coil Mod# _____ Piston # _____ Stat_____ Auid#_____
Hum #_____ PAP _____ Cln Eff_____ Other_____
Notes: _____

Thermostat #_____ Show all wiring. Colors-jumpers etc. Choose non-variable speed. Relabel as needed.

R	C	W1	W2	**D**	HTR AUX	Y1/E1	Y2/E2	G	O/B	BK			HUM AUX	HUM AUX	OD SEN	OD SEN

Indoor Unit: Show all wiring. Colors-jumpers etc.

R	C	W1	W2-W3	**D**		Y1 in /E1	Y1 out	Y2 /E2	G	O/B	BK		HUM SOL.	HUM COM		

Rheem high eff. Coil wiring. Electronic EEV.

R	**C**	**Y1**	**Y2**

Outdoor Unit: Show all wiring. Colors etc. Sensor wire is independent. Sensor wire mounted correctly.

R	C	E 1	E 2	**D**		Y1	Y2	G	O/B		X-AUX				OD SEN	OD SEN

□ **Drain safeties/pumps wired and tested to break R to stat? _____**
□ **Humidifier wired and tested in all positions-comes on and off correctly? _____**
□ **PAP-Clean Effects air cleaners wired and tested for operation? _____**
□ **UV Light wired and tested for operation? _____**
□ **RHEEM-WIFI MODULE INSTALLED? _____**

UNIT CONFIGURATIONS-DIP SWITCHES ETC. SET UP PER INSTRUCTIONS FOR YOUR EQUIPMENT!
AIRFLOWS-TONNAGES-COMPRESSOR TYPES-UNIT TYPES-DELAYS-ETC. ETC.

DIPS																
ON																
OFF																

CN JD TN

FURNACE DATA: _____

FUEL- □ NG □ LP □ OIL Stage 1 gas press_____ Stage 2 gas press_____ HTG CFM Setting_____

HEATING DELTA ΔT

RETURN AIR TEMP	
STAGE 1 TEMP	
STAGE 2 TEMP	
XV MODULATE TEMP	
DELTA T (SA-RA)	

Set stg 2 gas press first always. Check RA temp upstream of any humidifier or by-pass pipe. RA may be taken at a dominant RA Grille if necessary. Make sure all temps are in a good airflow stream. Slabs may require SA taken at a close by register. The DELTA T, is critical to a properly operating furnace! If a number looks wrong try a different test point! Allow 10 min run time! Ck. XV Modulate in test.

OPTIONAL FORMULA: HTG CFM _____= BTU OUTPUT _____÷ (ΔT _____ X 1.08 = _____)

AIR HANDLER HEATER AMPS: 1 _____ 2 _____ 3 _____ 4 _____ 5 _____ (Set to EMERGENCY HEAT for this test)

RETURN AIR TEMP	
EMG HEAT TEMP	
DELTA T (SA-RA)	

AIR HANDLER SA temp should not be taken in direct line of sight of the heaters themselves! Same humidifier restrictions apply.

OPTIONAL FORMULA

HEATER BTU OUPUT = TOTAL HEATER AMPS _____ x VOLTAGE _____ x 3.413 = BTU OUT PUT _____

COOLING UNIT DATA: _____

COOLING UNIT DELTA T IS CHECKED IN DRY AND WET BULB TEMPS. DELTA IS (RA-SA) ENTHALPY IS OPTIONAL. ALWAYS TEST VARI SPEED UNITS AT 100%. USE CHECK CHARGE TO ADJUST CHARGE ON VARI SPEED UNITS. ALWAYS CHECK CHARGE IN STAGE 2 AFTER AT LEAST 10 MINUTES OF RUN TIME! READINGS ARE AFTER ANY REFRIGERANT ADJUSTMENTS ARE MADE.

OUTDOOR AMBIENT_____◦	**DRY BULB**	**WET BULB**	**ENTHALPY**
INDOOR RA TEMP			
STG 1 OR **VARI SPEED**			
STG 2 TWO SPEED UNITS			
ΔT = (RA-SA)			

OPTIONAL FORMULA: CLG BTU OUT PUT _____ = ENTHALPY ΔT _____ x 4.45 x CLG CFM_____

AIRFLOW ADJUSTMENT CHART: CHECK PROBLEM REGISTERS BEFORE AND AFTER NEW EQUIPMENT IS INSTALLED! ON VARI SPEED UNITS USE TEST AIRFLOW 100%. IF AIRFLOW IS OK PER CUSTOMER OR OLD UNIT DOES NOT RUN MAKE A NOTE OF IT IN THE DATA BOXES BELOW!

ROOM/REGISTER NAME OR #	**CHECK IN**	**TEST 1**	**TEST 2**	**FINAL CHECK OR DELTA**

CUSTOMER SIGNATURE IS REQUIRED_____

OUTDOOR UNIT COOLING MODE. (Winter Time Install Cooling Check Shall Be Done per Cold Weather Charge Procedures-Per JA… see your LSI manual) only adjust charge in stage two! SHOW AMOUNT OF REFRIGERANT ADDED # _____.

Ambient OD _____°	HIGH PRESSURE	LIQUID LINE TEMP	SUB COOL	SUCTION PRESSURE	SUCTION LINE TEMP	SUPER HEAT	UNIT AMP DRAWS (Line 1)
Stage 1- single speed units							
Stage 2-24 v on Stg 2 wire?							
XV –vari speed- in check charge							

OUTDOOR UNIT HEATING MODE.

Ambient OD _____°	HIGH PRESSURE	LIQUID LINE TEMP		SUCTION PRESSURE	HOT GAS LINE TEMP		UNIT AMP DRAWS (LINE 1)
Stage 1- single speed units							
Stage 2-24 v on Stg 2 wire?							
XV –vari speed- in check charge							

COMMENTS:

CN JD TN

QUALITY CONTROL CHECK LIST: Put a check (√) in the box if completed and checked! Circle the box if does not apply.

□ **Gas line is tested with bubble solution and is leak free. Any pilots are relit!**

□ New gas lines are pressure tested with a Kuhlman Gauge. Gas lines are properly supported.

□ New exterior gas lines are painted, sleeved, sealed at the wall.

□ CSST gas pipe if on the job must be bonded per code.

□ Condensate line is cleaned, glued, tested, leak free!

□ All drain safeties have been wired in and checked.

□ Drain safeties-pump safeties are used accordingly.

□ Any pump lines in the attic are installed per LSI install process. Protected from freezing. This is critical!

□ **All venting meets code and mfg instructions!**

□ All venting is within furnace footage in instructions.

□ All vents and drains have correct pitch and support.

□ Proper clearance to venting is maintained. C & B vent.

□ Vent terminations meet code and instructions.

□ Flue liner installed and sealed correctly. Always install flue liners first thing!

□ Proper combustion air exists or has been approved by manager. Measurements & Calculations completed.

□ All exterior holes in the home are appropriately sealed. Proper sealing, caulking and cement is used.

□ All holes, gaps and air leaks at equipment is sealed.

□ New ducting in attics and crawl space is sealed per code and properly insulated. Correct R-value is used. R-8 flex pipe. Other ducts to R-6.

□ New ducts sized per LSI standards at a minimum.

□ Any indoor equipment (Furn or AH) is installed level.

□ Proper clearance to all equipment is maintained.

□ Wiring connections etc. are all neat and strapped.

□ CO alarm properly installed. (1) In each sleeping area. **(DO NOT JUST LEAVE IT WITH CUSTOMER)**

□ Drains on mini splits are done correctly.

□ Wall properly sealed behind the mini split. No leakage.

□ **Refrigerant lines have been purged while brazing with nitrogen and leak tested with nitrogen. Flares on mini split leak tested. Thread sealant used.**

□ Proper vacuum to 350 microns completed.

□ Line set is kink and leak free. Sizes _____ & _____

□ Outdoor unit is level and supported, no excess gravel used

□ Any open holes or slots in electrical boxes, panels etc. are correctly plugged and filled.

□ Breakers are correctly sized and labeled in the panel.

□ Logan's electrical data sheet completed and left on site. Correct type and size of wire and fuses verified.

□ White wire on 240 volts is relabeled black.

□ Furnace is on a designated circuit.

□ Door of air handler has been marked to indicate heater bank installed.

□ Humidifier has been tested for at least 10 minutes for water blow off. Proper operation is confirmed.

□ LP kit installed per instructions. Pressures set correctly. Proper venting is observed.

□ Gas furnace has been checked in all stages. (30 minutes minimum)

□ AC or HP has been checked in all stages. (30 minutes minimum)

□ Air Handler has been checked and heaters work. (30 minutes minimum)

□ Blower set up is correct. Airflow is correct.

□ **Customer Quality Assurance form signed by customer.**

□ **JOB IS INSTALLED PER CODE-MFG INSTRUCTIONS-THE LOGAN CONTRACT-LSI PROFESSIONAL INSTALLATION PROCESS!**

□ **Additional notes from installer to office below.**