GENERAL REQUIREMENTS – MECHANICAL

1. GENERAL

1.1 THE INTENT OF THESE DRAWINGS IS TO PROVIDE COMPLETE AND PROPERLY FUNCTIONING HVAC SYSTEMS. PROVIDE ALL LABOR AND MATERIAL NECESSARY TO ACHIEVE SUCH ENDS. CONTRACTOR IS OBLIGATED TO EXAMINE PLANS. ANY OBSERVED FAULTS OR AMBIGUITY IN THIS PLAN SET SHALL BE CALLED TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE IMMEDIATELY SO THAT THE MATTER MAY BE RESOLVED PRIOR TO SUBMISSION OF BIDS. BY SUBMISSION OF BID, THE CONTRACTOR SHALL ACKNOWLEDGE ACCEPTANCE OF THIS PLAN SET AS AN ADEQUATE DEFINITION OF THE SCOPE OF WORK AND EXTRA COST CLAIMS BASED ON INADEQUACY OF PLANS WILL NOT BE CONSIDERED.

1.2 ALL WORK ON THIS PROJECT SHALL BE INSTALLED IN ACCORDANCE WITH APPLICABLE CODES AND REGULATIONS.

1.3 THESE DRAWINGS ARE SCHEMATIC AND INTENDED TO DEPICT THE GENERAL LOCATION OF HVAC SYSTEM COMPONENTS. CONSULT THE ARCHITECTURAL PLANS FOR PROPER DIMENSIONS AND LOCATION OF EQUIPMENT.

1.4 THE MECHANICAL CONTRACTOR SHALL COORDINATE THE INSTALLATION OF HVAC WORK WITH THE WORK OF OTHER TRADES. MINOR DEVIATIONS FROM THE PLANS MAY BE MADE TO AVOID MINOR CONFLICTS. WHEN MAJOR CONFLICTS ARE APPARENT, THE ARCHITECT SHALL BE ADVISED IMMEDIATELY, AND AFFECTED WORK SHALL NOT BE INSTALLED UNTIL THE CONFLICT HAS BEEN RESOLVED.

1.5 SHOP DRAWINGS

A. ALL SHOP DRAWINGS REQUESTED HEREIN SHALL BE SUBMITTED COMPLETE WITH INDEX AND SHALL BE IDENTIFIED BY PROJECT NAME AND NUMBER. ALL EQUIPMENT SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING:

a. MANUFACTURER'S SPECIFICATIONS, SHALL INCLUDE CERTIFIED PERFORMANCE CHARACTERISTICS, CAPACITY AND ELECTRICAL RATINGS, AND EQUIPMENT DETAILS.

b. MANUFACTURER'S CERTIFIED SCALE DRAWINGS, CATALOG DATA INCLUDING MANUFACTURER'S PRINTED INSTALLATION SERVICE AND START UP INSTRUCTIONS, AND MAINTENANCE REQUIREMENTS.

c. POINT TO POINT ELECTRICAL WIRING AND CONTROLS DIAGRAMS.

B. ALL SHOP DRAWINGS AND WIRING DIAGRAMS SHALL BE PREPARED SPECIFICALLY FOR THIS INSTALLATION. STANDARD FACTORY WIRING DIAGRAMS, WITH REVISIONS CLEARLY MARKED IN INK FOR THIS INSTALLATION, WILL BE ACCEPTED.

C. PRIOR TO SUBMISSION OF SHOP DRAWINGS, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO THOROUGHLY REVIEW, CHECK AND INDICATE ON EACH SHOP DRAWING TO ASCERTAIN THAT THE EQUIPMENT AND/OR SYSTEM COMPLIES WITH THE CONTRACT REQUIREMENTS, THAT THE ELECTRICAL CHARACTERISTICS ARE CORRECT, AND THAT DIMENSIONS OF WORK REQUIRED FIT THE AVAILABLE SPACE. ANY DEVIATIONS FROM THE CONTRACT REQUIREMENTS SHALL BE CLEARLY INDICATED AND SHOWN ON THE SHOP DRAWINGS. THE CONTRACTOR SHALL STAMP EACH SUBMITTAL WITH HIS FIRM'S NAME, DATE OF SUBMITTAL AND HIS APPROVAL REPRESENTING THAT HE HAS COMPLIED WITH THE ABOVE REQUIREMENTS. SHOP DRAWINGS NOT SO CHECKED AND STAMPED WILL BE RETURNED WITHOUT BEING REVIEWED BY THE ARCHITECT. REVIEW OF SHOP DRAWINGS SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FOR THE REQUIREMENTS OF THE CONTRACT DOCUMENTS, NOR ALLOW DEPARTURE FROM THE CONTRACT DOCUMENTS WITHOUT PRIOR WRITTEN APPROVAL FROM THE ARCHITECT/ENGINEER. ERRORS IN SHOP DRAWINGS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR WHETHER THE DRAWINGS ARE REVIEWED OR NOT.

D. FAILURE BY THE CONTRACTOR TO SUBMIT SHOP DRAWINGS IN AMPLE TIME AND/OR NOT IN ACCORDANCE WITH THE REQUIREMENTS OF THESE SPECIFICATIONS FOR REVIEW SHALL NOT ENTITLE THE CONTRACTOR TO AN EXTENSION OF CONTRACT TIME, AND ANY CLAIM FOR EXTENSION OF TIME OR ADDITIONAL COST BY REASON OF SUCH DEFAULT OF THE CONTRACTOR SHALL NOT BE ALLOWED.

E. SUBMIT SHOP DRAWINGS FOR THE FOLLOWING:

- AIR COOLED CONDENSING UNIT, DX COIL AND FAN COIL UNIT, INCLUDING THERMOSTAT
- GAS FURNACE AND DX COIL
- EXHAUST FANS
- AIR DEVICES
- ELECTRIC HEATERS

2. DUCTWORK

2.1 DUCTWORK SHALL BE FABRICATED FROM GALVANIZED SHEET METAL AND SUSPENDED FROM THE BUILDING STRUCTURE IN ACCORDANCE WITH THE LATEST EDITION OF SMACNA DUCT CONSTRUCTION STANDARDS.

2.2 ALL DUCTWORK SHALL BE CONNECTED TO MECHANICAL EQUIPMENT USING RUBBERIZED-CANVAS FLEXIBLE CONNECTIONS.

2.3 PROVIDE FIRE DAMPERS AT ALL PENETRATIONS INTO FIRE RATED STRUCTURE AND PARTITIONS, SUCH AS DUCT SHAFTS, U.L. RATED FLOOR/CEILING ASSEMBLY, ETC. ALL FIRE DAMPERS SHALL BEAR U.L. LABEL.

A. FIRE DAMPERS FOR DUCTS WITH PRESSURE CLASSIFICATION OF 2 INCH W.G. OR LESS SHALL BE PREFCO PRODUCTS, INC. MODEL 5500, TYPE A FRAME OR THE EQUIVALENT BY AIR BALANCE OR CESSCO, FOR DUCTS 5 INCHES HIGH AND LARGER. FOR DUCT HEIGHTS OF 3-1/2 TO 5 INCHES HIGH, USE MODEL 5500 MAX./AIR JR. WHERE SPACE RESTRICTIONS REQUIRE DAMPER THICKNESSES NO GREATER THAN 2 INCHES, USE MODEL 5500E2.

B. FIRE DAMPERS INSTALLED BEHIND AIR REGISTERS OR GRILLES SHALL BE MODEL 5500 E2 WITH TYPE A FRAME.

C. FIRE DAMPERS SHALL BE FURNISHED WITH UL LISTED FUSIBLE LINK RATED AT 160 TO 165 DEGREES F, UNLESS OTHERWISE INDICATED.

2.4 FLEXIBLE DUCTWORK SHALL BE U.L. 181 CLASS 1 FACTORY-INSULATED FIBERGLASS DUCT EQUIVALENT TO OWENS-CORNING INL-25. LENGTH OF FLEXIBLE DUCT SHALL NOT EXCEED 12 FEET. WHEN DISTANCE TO AIR DEVICE IS MORE THAN 12 FEET, PROVIDE RIGID DUCT EXTENSION. FLEXIBLE DUCT SHALL NOT PASS THROUGH SLAB/SLAB PARTITION. PROVIDE RIGID DUCT TO CROSS SLAB TO SLAB WALL AND TRANSITION TO FLEXIBLE. ANY 90 DEGREE BEND IN THE FLEXIBLE DUCTWORK IS NOT PERMITTED.

2.5 ALL DUCTWORK SIZES SHOWN ARE INSIDE DIMENSIONS. ALL SUPPLY AND RETURN AIR DUCTWORK SHALL BE SOUND LINED UP TO A DISTANCE OF 10' FROM THE AIR HANDLING UNIT AND FAN.

2.6 PROVIDE AIR TURNING DEVICES IN DUCTWORK AT ANY CHANGES IN DIRECTION OF 30 DEGREE OR GREATER.

2.7 ALL NECESSARY ALLOWANCES AND PROVISIONS SHALL BE MADE BY THIS CONTRACTOR FOR BEAMS, COLUMNS OR OTHER OBSTRUCTIONS OF THE BUILDING OR THE WORK OF OTHER CONTRACTORS, WHETHER OR NOT SAME IS INDICATED. WHERE NECESSARY TO AVOID OBSTRUCTIONS, THE DUCTS SHALL BE TRANSFORMED, DIVIDED, OFFSET, RAISED OR LOWERED WITH THE REQUIRED FREE AREA BEING MAINTAINED.

2.8 ALL MOTOR DRIVEN MECHANICAL EQUIPMENT SHALL BE MOUNTED WITH VIBRATION ISOLATION DEVICES.

2.9 CONNECTIONS OF BRANCH DUCTWORK TO MAIN AND DIFFUSER SHALL INCLUDE VOLUME DAMPERS.

2.10 AT THE CONTRACTOR'S OPTION, RIGID FIBROUS GLASS DUCTWORK MAY BE PROVIDED IN LIEU OF METAL DUCTWORK WHERE DUCTWORK IS CONCEALED.

PROVIDE FACTORY FABRICATED MOLDED ROUND SECTIONS OR FLAT SHEETS OF RESIN BONDED INERT INORGANIC FIBROUS GLASS, FACED WITH AN EXTERNAL VAPOR BARRIER, CONFORMING TO UL 181, CLASS 1, NFPA 90A, AND SMACNA – "FIBROUS GLASS DUCT CONSTRUCTION STANDARDS", WITH THE FOLLOWING GENERAL PROPERTIES:

- THICKNESS: MINIMUM ONE INCH.
- STIFFNESS (PRODUCT OF 'YOUNG' MODULUS, E, AND MOMENT OF INERTIA, I), Ei: 475 POUNDS PER SQUARE INCH.
- THERMAL CONDUCTIVITY: MAXIMUM 0.25 BTU INCH PER SQUARE FOOT PER DEGREES F PER HOUR.
- PERMEANCE: 0.02 MAXIMUM.

A. INSTALL IN ACCORDANCE WITH SMACNA – "FIBROUS GLASS DUCT CONSTRUCTION STANDARDS", THE MANUFACTURER'S PRINTED INSTRUCTIONS, AND UL 181. IN ADDITION TO MANUFACTURER'S APPROVED METHOD, SEAL JOINTS WITH FIBROUS GLASS FABRIC AND MASTIC.

2.11 CLOTHES DRYER EXHAUST DUCT

A. DUCTWORK SHALL BE CONSTRUCTED OF MINIMUM 26 GAUGE GALVANIZED STEEL WITH LONGITUDINAL SEAM. DUCTWORK SHALL BE CONSTRUCTED WITHOUT ANY SCREWS OR FASTNERS THAT WILL OBSTRUCT THE AIR FLOW. FLEXIBLE DUCT SHALL NOT BE USED.

2.12 VENT CAP SHALL BE OF ALUMINUM, SQUARE OR RECTANGULAR IN SHAPE, AND PROVIDED WITH BACKDRAFT DAMPER.

3. DOUBLE WALL METAL VENTS (TYPE B GAS VENTS):

3.1 DOUBLE WALL GAS VENTS, UL LISTED FOR TYPE B, SHALL CONSIST OF AN INNER PIPE OF SHEET ALUMINUM, AND OUTER PIPE OF GALVANIZED SHEET STEEL.

3.2 PROVIDE UL-LABELED TEES, ELBOWS, INCREASERS, DRAFT HOOD CONNECTORS, METAL CAP WITH BIRD BARRIER, ADJUSTABLE ROOF FLASHING, STORM COLLAR, SUPPORT ASSEMBLY, THIMBLES, FIRE STOP SPACERS, AND FASTENERS, FABRICATED OF SIMILAR MATERIALS AND DESIGNS AS VENT PIPE STRAIGHT SECTIONS.

3.3 INSTALL TYPE B GAS VENTS IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS, UL LISTING, AND REQUIREMENTS OF NFPA 54. MAINTAIN MINIMUM CLEARANCES FROM COMBUSTIBLES SPECIFIED IN UL LISTING.

4. D-SERIES DUAL CHANNEL VENTS:

4.1 FOR DIRECT-VENTING TYPE WATER HEATERS OR FIRE PLACES, PROVIDE D-SERIES DUAL CHANNEL VENT PIPES. THE ENTIRE SYSTEM, INCLUDING ELBOWS, INCREASERS, METAL CAP, ADJUSTABLE ROOF FLASHING, STORM COLLAR, SUPPORT ASSEMBLY, THIMBLES, FIRE STOP SPACERS, AND FASTENERS, SHALL BE AGA DESIGN CERTIFIED AND SHALL COMPLY WITH ALL APPLICABLE LOCAL CODES.

4.2 INSTALL D-SERIES VENTS IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS, UL LISTING, AND REQUIREMENTS OF NATIONAL FUEL GAS CODE ANSI Z223.1.

5. PIPING

5.1 CONDENSATE DRAIN PIPING SHALL BE SCHEDULE 40 PVC PIPE AND FITTINGS.

6. MECHANICAL INSULATION

6.1 FLAME/SMOKE RATINGS: PROVIDE COMPOSITE MECHANICAL INSULATION (INSULATION, JACKETS, COVERINGS, SEALERS, MASTICS AND ADHESIVES) WITH FLAME-SPREAD INDEX OF 25 OR LESS, AND SMOKE-DEVELOPED INDEX OF 50 OR LESS, AS TESTED BY ASTM E 84 (NFPA 255) METHOD.

6.2 DUCTWORK INSULATION

A. FLEXIBLE FIBERGLASS DUCTWORK INSULATION: ASTM C 553, TYPE I, CLASS B-4.

B. JACKETS FOR DUCTWORK INSULATION: ASTM C 921, TYPE I.

C. INSULATION OMITTED: DO NOT INSULATE FIBROUS GLASS DUCTWORK, OR LINED DUCTWORK.

D. INSULATE ALL SUPPLY, RETURN AND OUTSIDE AIR DUCTWORK IN ATTIC WITH 2" THICK FLEXIBLE FIBERGLASS (LIMITED TO CONCEALED LOCATIONS).

7. EQUIPMENT

7.1 INSTALL ALL EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

7.2 CONTROLS AND ACCESSORIES FOR EQUIPMENT SHALL BE PROVIDED BY EQUIPMENT MANUFACTURER.

7.3 PROVIDE MOTOR STARTERS, ELECTRICAL DISCONNECTS, TRANSFORMERS, CONTROL WIRING AND ALL OTHER REQUIRED ACCESSORIES NECESSARY FOR AUTOMATIC OPERATION OF MECHANICAL EQUIPMENT.

8. AUTOMATIC TEMPERATURE CONTROLS

8.1 THERMOSTAT SHALL BE INSTALLED ON THE WALL 5'-6" ABOVE FINISHED FLOOR WHERE SHOWN ON THE FLOOR PLANS.

8.2 ALL CONTROL WIRING REQUIRED, WHETHER IT IS 120 VOLT OR LOW VOLTAGE, SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR.

9. AIR BALANCE

9.1 UPON COMPLETION OF THE PROJECT, AN AIR BALANCE SHALL BE PERFORMED ON ALL NEW SYSTEMS SERVING THIS PROJECT AND BALANCE REPORT SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER PRIOR TO ACCEPTANCE OF THE WORK.

AIR COOLED CONDENSING UNIT (ACCU) AND DX COIL (DX) SCHEDULE

UNIT NO	AIR COOLED CONDENSING UNIT: CAPACITY- TOT MBH	SEN (MIN) MBH	POWER 2/: MIN CIRCUIT AMP	MOCP 'TRANE' AMP	PROTOTYPE MODEL NO	NOTE	UNIT SERVICE NO	DX COIL: CFM	FA SF	FV FPM (MAX)	SPD ROW IN WC (MIN)	NO PROTOTYPE MODEL NO	NOTE
ACCU-1R	22.9	15.6	10.0	15	20 TTR025C1	3/5/	DX-1 ACCU-1R/GF-1	1000	4.35	230	0.22	2 TXC030C4	4/
ACCU-2R	30.1	21.6	10.0	20	30 TTR030C1	3/5/	DX-2 ACCU-2R/GF-2	1200	4.13	291	0.22	3 TXC036C4	4/
ACCU-3R	36.2	25.5	10.0	25	40 TTR036C1	3/5/	DX-3 ACCU-3R/GF-3	1400	4.58	306	0.22	3 TXC042C4	4/
ACCU-2W	30.0	21.0	10.0	18	30 30WCU-10AB	3/6/	DX-2 ACCU-2W/GF-2	1200	4.13	291	0.22	3 TXC036C4	4/

NOTES:
1/ COOLING CAPACITY SHALL BE BASED ON 95 F AMBIENT, 80 F DB/67 F WB EVAPORATOR ENTERING TEMPERATURE, AT RATED AIR FLOW.
2/ UNIT SHALL BE OF AT 208 V, 1 PHASE.
3/ PROVIDE UNIT WITH THE FOLLOWING:
- PROGRAMMABLE ROOM THERMOSTAT WITH NIGHT SET-BACK FEATURE.
- PRE-CHARGED REFRIGERANT SUCTION (WITH FOAM RUBBER INSULATION) AND LIQUID TUBING.
4/ UNIT SHALL BE FOR VERTICAL UPWARD AIR FLOW CONFIGURATION.
5/ UNIT SHALL BE THE PAD MOUNTED ON ROOF. REFER TO FLOOR PLANS FOR LOCATIONS.
6/ MODEL NO IS BASED ON "U.S. A/C PRODUCTS'. UNIT SHALL BE THRU-THE-WALL TYPE. REFER TO FLOOR PLANS FOR LOCATIONS.

GAS FURNACE (GF) SCHEDULE

UNIT NO	HEATING: AFUE	CAPACITY- %	INPUT MBH	OUTPUT MBH	BLOWER: CFM	IN WC	ESP	MOTOR HP	COMBUSTION	POWER 1/: MOTOR HP	FAN	MOCP CIRCUIT AMP	'TRANE' AMP	PROTOTYPE MODEL NO	NOTE
GF-1	92	60	55	1000	0.5	1/3		1/60	8.3	15	TUX060C936A	2/3/			
GF-2	92	60	55	1200	0.5	1/3		1/60	8.3	15	TUX060C936A	2/3/			
GF-3	92	80	75	1400	0.5	1/3		1/40	9.4	15	TUX080C942A	2/3/			

NOTES:
1/ UNIT SHALL BE OF 120 VOLT, 1 PHASE.
2/ PROVIDE UNIT WITH 1" THICK THROW-AWAY FILTER AT RETURN AIR INLET.
3/ UNIT SHALL BE FOR VERTICAL-UPWARD AIR FLOW CONFIGURATION.

EXHAUST FAN (EF) SCHEDULE

UNIT NO	TYPE	CFM	TSP (IN)	RPM	MOTOR: HP	WATT	VOLT-PH	ACCESSORIES 2/	PROTOTYPE 'GREENHECK' MODEL NO	NOTE
EF- 1	CLGC	50	0.15	2200		90	120-1	DBD/IG	'BROAN' 688	3/
EF- 2-5	PROP	15000	0.125	593	1.5		208-3	DBD/FG/MG	SP-EL36-15	5/
EF- 6/7	PROP	21000	0.125	502	2.0		208-3	DBD/FG/MG	SP-EL42-20	5/
EF- 8	PROP	360	0.125	1550	1/50		120-1	DBD/FG/MG	S1-110-424-D	4/
EF- 9	PROP	640	0.125	1050	1/20		120-1	DBD/FG/MG	S1-12-436-E	4/
EF- 10	PROP	180	0.125	1550	1/80		120-1	DBD/FG/MG	S1-8-426-D	4/
EF- 11	CLGC	740	0.375	1095		435	120-1	DBD/	CSP-262	3/
EF- 12	CLGC	420	0.375	1070		217	120-1	DBD/	CSP-252	3/
EF- 13	PROP	180	0.125	1550	1/80		120-1	DBD/FG/MG	S1-8-426-D	3/
EF- 14	PROP	210	0.125	1650	1/40		120-1	DBD/FG/MG	S1-8-428-P	4/
EF- 15	PROP	240	0.125	1650	1/40		120-1	DBD/FG/MG	S1-8-428-P	4/
EF- 16	PROP	180	0.125	1550	1/80		120-1	DBD/FG/MG	S1-8-426-D	4/
EF- 17	PROP	180	0.125	1550	1/80		120-1	DBD/FG/MG	S1-8-426-D	3/
EF- 18	PROP	580	0.125	1050	1/20		120-1	DBD/FG/MG	S1-12-432-E	3/
EF- 19	PROP	210	0.125	1650	1/40		120-1	DBD/FG/MG	S1-8-428-P	4/
EF- 20	PROP	210	0.125	1650	1/40		120-1	DBD/FG/MG	S1-8-428-P	4/
⚠ EF- 21	CLGC	510	0.250	1080		325	120-1	BD/RCAP	CSP-255	6/

FAN TYPE:
CLGC = CEILING CABINET
PROP = PROPELLER

ABBREVIATIONS:
DBD DISCHARGE BACKDRAFT DAMPER
FG FAN GUARD
IG INLET GRILLE (PLASTIC, MATTE WHITE)
MG MOTOR GUARD
RCAP ROOF CAP

NOTES:
1/ ALL MANUFACTURER MODEL NO SHALL BE BASED ON 'GREENHECK', UNLESS OTHERWISE INDICATED.
2/ EACH UNIT SHALL BE PROVIDED WITH DISCONNECT SWITCH, OR PLUG-IN MOTOR CONNECTION.
3/ WIRE FAN MOTOR IN SERIES WITH ROOM LIGHT SWITCH.
4/ UNIT FAN SHALL BE STARTED BY WALL MOUNTED THERMOSTAT.
5/ UNIT FAN SHALL START/STOP THROUGH A ELECTRONIC TIME CLOCK WITH MINIMUM 4 CIRCUITS. PROVIDE ONE TIME CLOCK FOR EACH GARAGE. AS A MINIMUM, THREE (3) OF THE FANS SHALL OPERATE CONTINUOUSLY: EF-2 (OR EF-3), EF-4 (OR EF-5), EF-6 (OR EF-7)
6/ INTERLOCK UNIT FAN TO START/STOP WITH GF-2.

OCT 2000 Reviewed Mechanical Section B.P.R.

Start 11/1/00

FAX TRANSMITTAL FROM JCS ENGINEERING INC. ATTACHED

AIR COOLED CONDENSING UNIT (ACCU) AND FAN COIL UNIT (FC) SCHEDULE

UNIT NO	AIR COOLED CONDENSING UNIT: COMBINED CAPACITY- TOT MBH	SEN (MIN) MBH	POWER 2/: MIN CIRCUIT AMP	MOCP 'TRANE' AMP	PROTOTYPE MODEL NO	NOTE	UNIT NO	INDOOR FAN COIL UNIT: FAN CFM	ESP (IN WC)	RPM	MOTOR HP	FA SF	FV FPM (MAX)	SPD ROW	NO IN WC(MIN)	ELECTRIC: HEATER KW	MCA AMP	MOCP AMP	VOLT/ PH	'TRANE' MODEL NO	PROTOTYPE NOTE
ACCU-12	15.1	10.1	10.5	11	15 TTR012C1	4/	FC-18V	600	0.2	1075	1/4	2.22	270	0.2	4	4.8	24	30	208-1	TWV018B140A	6/
ACCU-12	15.0	10.0	10.3	11	15 TTR012C1	4/	FC-18H	400	0.2	1075	1/8	2.22	180	0.2	4	4.8	24	30	208-1	TWH018B140A	5/

NOTES:
1/ COOLING CAPACITY SHALL BE BASED ON 95 F AMBIENT, 80 F DB/67 F WB EVAPORATOR ENTERING TEMPERATURE, AT RATED AIR FLOW.
2/ UNIT SHALL BE OF AT 208 V, 1 PHASE.
4/ PROVIDE UNIT WITH THE FOLLOWING:
- PROGRAMMABLE ROOM THERMOSTAT WITH NIGHT SET-BACK FEATURE.
- PRE-CHARGED REFRIGERANT SUCTION (WITH FOAM RUBBER INSULATION) AND LIQUID TUBING.
5/ UNIT SHALL BE FOR HORIZONTAL AIR FLOW CONFIGURATION.
6/ UNIT SHALL BE FOR VERTICAL UPWARD AIR FLOW CONFIGURATION.

ELECTRIC UNIT HEATER (UH) SCHEDULE

UNIT NO	TYPE	HTG CAP (KW)	FAN CFM	VOLT-PH	PROTOTYPE 'BERCO' MODEL NO	NOTE
1	WI	2.00		208-1	FR 2020	1/
2	PROP	3.10	350	208-1	HUH-524T	1/
3	PROP	3.75	350	208-1	HUH-524T	1/
4	PROP	2.50	350	208-1	HUH-524T	1/

UNIT TYPE:
PROP = PROPELLER
WI = WALL INSERT

NOTES:
1/ PROVIDE UNIT MOUNTED THERMOSTAT FOR EACH UNIT.

ELECTRIC BASEBOARD HEATER (EBH) SCHEDULE 1/

UNIT NO	LENGTH FT	HEATING CAP (KW)	VOLT/PH	PROTOTYPE 'BERKO' MODEL NO	NOTE
2	2	0.50	120/1	MBB2-512-M	

NOTES:
1/ PROVIDE EACH UNIT WITH UNIT MOUNTED THERMOSTAT.

AIR DEVICE SCHEDULE

MARK	TYPE	MOUNTING	FACE TYPE	MAT	ACCESS-ORIES	PROTOTYPE 'MANUFACTURER' MODEL NO	NOTE
S1	REGISTER	CEILING	LOUVER BLADE	ST	VC/PC	'HART & CODLEY' 661	1/3/
S2	REGISTER	FLOOR	LOUVER BLADE	ST	VC/PC	'HART & CODLEY' 210	1/4/
S3	REGISTER	SIDEWALL	LOUVER BLADE	ST	VC/PC	'HART & CODLEY' 661	1/3/
S4	REGISTER	CEILING	LOUVER BLADE	ST	VC/PC	'TITUS' 300 RL	5/6/
S5	REGISTER	SIDEWALL	LOUVER BLADE	ST	VC/PC	'TITUS' 300 RL	5/7/
S6	DIFFUSER	CEILING	LOUVER FACE	ST	VC/PC	'TITUS' TMSA	5/10/
R1	GRILLE	SIDEWALL	LOUVER BLADE	ST	PC	'HART & CODLEY' 672	1/2/
R2	REGISTER	CEILING	LOUVER BLADE	ST	VC	'TITUS' 350 RL	5/8/
R3	REGISTER	SIDEWALL	LOUVER BLADE	ST	VC	'TITUS' 350 RL	5/9/
E1	REGISTER	SIDEWALL	LOUVER BLADE	ST	VC	'TITUS' 350 RL	5/9/
E2	REGISTER	CEILING	LOUVER BLADE	ST	VC	'TITUS' 350 RL	5/8/
T1	GRILLE	SIDEWALL	LOUVER BLADE	ST		'TITUS' 350 RL	5/9/

PC = PATTERN CONTROL
ST = STEEL
VC = VOLUME CONTROL
S = SUPPLY
R = RETURN
E = EXHAUST
T = TRANSFER

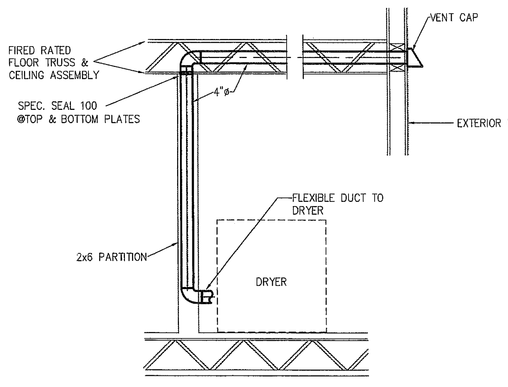
NOTES:
1/ BORDERS SHALL BE 7/8" MINIMUM. ALL AIR DEVICES SHALL BE FINISHED OFF-WHITE, UNLESS OTHERWISE NOTED.
2/ SINGLE DEFLECTION GRILLE OF 1/2" BLADE SPACING.
3/ TWO WAY DEFLECTION GRILLE OF 1/3" BLADE SPACING.
4/ GOLDEN SAND FINISH.
5/ BORDERS SHALL BE 1-1/4" MINIMUM. ALL AIR DEVICES SHALL BE FINISHED OFF-WHITE, UNLESS OTHERWISE NOTED.
6/ DOUBLE DEFLECTION GRILLE OF 3/4" BLADE SPACING.
7/ DOUBLE DEFLECTION GRILLE OF 3/4" BLADE SPACING, FACE GRILLE PARALLEL TO THE HORIZONTAL.
8/ SINGLE DEFLECTION FACE GRILLE OF 3/4" BLADE SPACING.
9/ SINGLE DEFLECTION FACE GRILLE OF 3/4" BLADE SPACING, PARALLEL TO THE HORIZONTAL.
10/ ADJUSTABLE HORIZONTAL TO VERTICAL PATTERN. FACE PANEL SHALL BE 12" x 12".

AIR DEVICE SIZING SCHEDULE

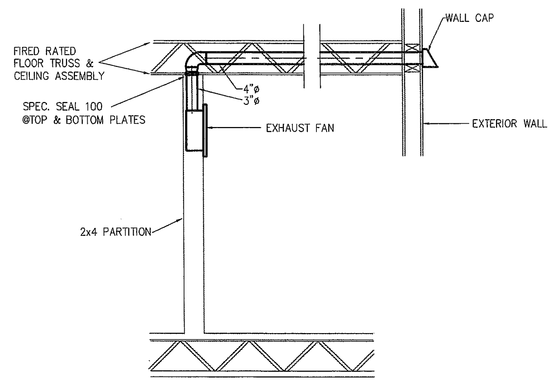
TYPE	CFM RANGE	SIZE
S1	0 - 95	10x6
	96 - 115	12x6
	116 - 160	12x8
S2	0 - 100	4x10
	101 - 125	6x8
	126 - 160	6x10
S3	0 - 55	8x4
	56 - 75	10x4
	76 - 90	8x6
	91 - 110	14x4

FLEXIBLE DUCTWORK SIZING SCHEDULE

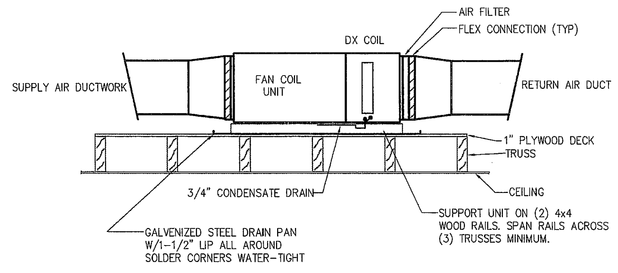
SUPPLY AIR CFM RANGE	DUCT SIZE (IN DIA)	NOTE
0 - 70	5	
71 - 110	6	
111 - 160	7	
161 - 230	8	



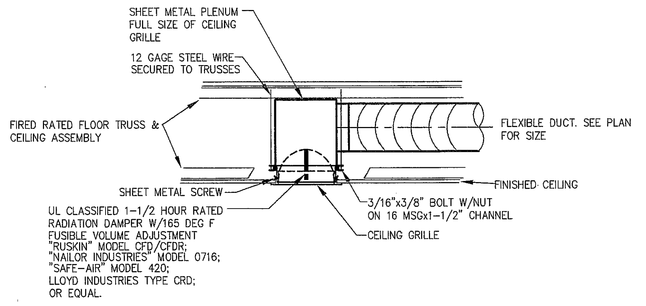
DETAIL – DRYER VENT
NOT TO SCALE



DETAIL – WALL MOUNTED EXHAUST FAN
NOT TO SCALE



DETAIL – HORIZONTAL FAN COIL UNIT IN ATTIC
NOT TO SCALE



DETAIL – RADIATION DAMPER AT CEILING GRILLE
NOT TO SCALE

THE LESSARD ARCHITECTURAL GROUP INC.
8603 WESTWOOD CENTER DRIVE
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703/760-9344
FAX 703/760-9328
email@lessardgroup.com
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URBAN DESIGN • ARCHITECTURAL ILLUSTRATIONS

OWNER / DEVELOPER
JADE DEVELOPMENT COMPANY
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GREENHORN & O'MARA, Inc.
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M.E.P. ENGINEER
JCS ENGINEERING Inc.
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GEOTECHNICAL ENGINEER

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COMMONWEALTH OF VIRGINIA
JOSEPH C. SOARES
LICENSE NO. 012330
REGISTERED PROFESSIONAL ENGINEER

CHECKED BY :
DATE CHECKED :

NO.	REVISION	DATE
1	COUNTY COMMENTS	09/07/00

DRAWING TITLE :
SCHEDULES & DETAILS

PROJECT NAME :
METRO PLACE CONDOS AT DUNN LORING FAIRFAX COUNTY VIRGINIA.

DRAWN BY : SFK
PROJECT NO. : JAD-14
DATE : 01/31/00
SCALE :

SHEET NO. :
M-18

ACAD\LESSARD\METRO