

HVAC GENERAL NOTES

- 1. ALL MECHANICAL EQUIPMENT AND INSTALLATIONS SHALL CONFORM WITH THE REQUIREMENTS OF THE 2009 INTERNATIONAL MECHANICAL CODE, THE 2009 INTERNATIONAL BUILDING CODE, THE 2009 INTERNATIONAL ENERGY CODE, STATE AMENDMENTS, NFPA 90A, 101, UNDERWRITERS LABORATORIES (OR ETL), AND ALL APPLICABLE LOCAL CODES AND ORDINANCES.
- PRIOR TO PURCHASING ANY MATERIALS OR STARTING ANY WORK, CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS, DUCTWORK SIZES AND LOCATIONS, EQUIPMENT, ETC. SHOWN ON THE DRAWINGS OR AFFECTING THIS WORK AND SHALL REPORT ANY DEVIATIONS TO THE ARCHITECT.
- 3. SHOP DRAWINGS SHALL BE SUBMITTED TO AND APPROVED BY THE ARCHITECT PRIOR TO ORDERING, PURCHASING, OR FABRICATING ANY MECHANICAL EQUIPMENT. SHOP DRAWINGS SHALL INCLUDE: ALL EQUIPMENT SCHEDULED OR SPECIFIED ON THE DRAWINGS: DUCTWORK DRAWN TO 1/4" SCALE OR THE SCALE SHOWN ON THE DRAWINGS; REFRIGERANT PIPING AND CONTROL WIRING SCHEMATICS CERTIFIED BY THE AIR CONDITIONING EQUIPMENT MANUFACTURER. FAILURE TO SUBMIT REFRIGERANT PIPING DRAWINGS SHALL BE CAUSE FOR REJECTION OF THE ENTIRE SUBMITTAL. LONG LINE REFRIGERANT PIPING APPLICATIONS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S CURRENT SPLIT SYSTEM LONG-LINE APPLICATION GUIDELINE.
- 4. ALL MECHANICAL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
- 5. ALL MECHANICAL EQUIPMENT AND SYSTEMS SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR AFTER ACCEPTANCE BY OWNER.
- 6. ALL HVAC COMPRESSORS SHALL HAVE EXTENDED 4 YEAR MANUFACTURER'S WARRANTY FOR A 5-YEAR TOTAL WARRANTY.
- FOR EXACT LOCATION OF OUTDOOR AIR CONDITIONING UNITS, SEE ARCHITECTURAL DRAWINGS.
- INSTALL ROOF MOUNTED OUTDOOR AIR CONDITIONING EQUIPMENT LEVEL ON CURB (BY OTHERS). MOUNT ALL EQUIPMENT ON NEOPRENE PADS. ALL ROOFTOP MOUNTED EQUIPMENT SHALL BE INSTALLED, PER DETAILS AND AS RECOMMENDED BY THE MANUFACTURER.
- MOUNT TOP OF THERMOSTATS AND HUMIDISTAT SENSORS 46" AFF UNLESS NOTED OTHERWISE. PROVIDE CLEAR LOCKING GUARD ASSEMBLIES FOR ALL PUBLIC AREA THERMOSTATS. COORDINATE THERMOSTAT LOCATIONS WITH OTHER TRADES. ALL THERMOSTATS SHALL BE ADA COMPLIANT.
- ALL WORK SHALL BE COORDINATED AND PERFORMED WITH PRIOR APPROVAL FROM THE OWNER TO SUIT HIS OPERATING CONDITIONS.
- 11. AFTER CONSTRUCTION, THE ENTIRE HVAC SYSTEM SHALL BE CLEANED, TESTED AND ADJUSTED TO SATISFY EQUIPMENT SCHEDULE. DWELLING LIVING UNITS AND CLUB AREAS SHALL NOT REQUIRE AN AIR TEST AND BALANCE BE PERFORMED.
- 12. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL MECHANICAL EQUIPMENT, DUCTWORK, PIPING, ETC. TO FIT WITHIN THE SPACE ALLOWED BY THE ARCHITECTURAL AND STRUCTURAL CONDITIONS. CUTTING OR OTHERWISE ALTERING ANY STRUCTURAL MEMBERS SHALL NOT BE PERMITTED WITHOUT WRITTEN PERMISSION FROM THE ARCHITECT.
- 13. ALL PIPE AND DUCT PENETRATIONS OF FIRE AND/OR SMOKE-RATED ASSEMBLIES SHALL BE FIRE-STOPPED AS REQUIRED TO RESTORE THE ASSEMBLY TO ITS ORIGINAL INTEGRITY. FIRE BARRIER PRODUCTS SHALL BE AS MANUFACTURED BY TREMCO, HILTI, 3M OR APPROVED EQUAL.
- MANUAL OVER-RIDE CONTROL (EMERGENCY SHUT-DOWN) SWITCHES FOR ALL HVAC UNITS SHALL BE LOCATED IN LOCKING COVER ADJACENT TO FIRE ALARM ANNUNCIATOR PANEL OR OTHER LOCATION APPROVED BY LOCAL AUTHORITY HAVING JURISDICTION AND PER NFPA 92A.
- 15. PROVIDE ACCESS PANELS IN NON-ACCESSIBLE CEILINGS AND IN WALL STRUCTURE TO ALLOW ADEQUATE ROOM FOR MAINTENANCE OF EQUIPMENT AND BALANCING OF SYSTEMS. ACCESS PANELS IN CEILING AND WALLS SHALL BE PROVIDED WHERE SHOWN ON THE DRAWINGS OR NECESSARY TO ACCESS DAMPERS, VALVES, ETC. COORDINATE EXACT LOCATION OF ALL ACCESS PANELS WITH THE ARCHITECT DURING THE SHOP DRAWING PROCESS.
- 16. ALL MECHANICAL EQUIPMENT SHALL BE LABELED WITH A SEMI-RIGID PLASTIC LAMINATE NAMEPLATE WITH 2" HIGH WHITE LETTERS ON A BLACK BACKGROUND SECURELY AFFIXED TO THE EQUIPMENT. THE NAMEPLATE SHALL SHOW THE EQUIPMENT TAG USED ON THESE DRAWINGS. ON RESIDENTIAL PROJECTS, THE NAMEPLATE ON THE OUTDOOR EQUIPMENT SHALL INDICATE THE APARTMENT UNIT NUMBER IT SERVES AS WELL AS THE EQUIPMENT ID TAG.
- 17. REFER TO ARCHITECTURAL PLANS FOR ALL FURRDOWN CEILING AREAS.
- 18. PANCAKE STYLE AIR HANDLERS LOCATED ABOVE TOILET AREAS SHALL BE INSTALLED IN A MINIMUM 14—INCH DEEP INSIDE CLEAR FURRDOWN RETURN AIR PLENUM, REFERENCE ARCHITECTURAL PLANS.
- 19. REFER TO ARCHITECTURAL PLANS FOR FLOOR AND CEILING ASSEMBLY UL RATINGS AND DETAILS.
- 20. GENERAL CONTRACTOR SHALL COORDINATE THE INSTALLATION OF WOOD TRUSS SHOP DRAWINGS AND FIELD TRUSSES TO AVOID WOOD TRUSSES CONFLICTING WITH VERTICAL SHAFTS AND INDIVIDUAL AIR HANDLING UNIT DISCHARGE PLENUMS.

MECHANICAL/ELECTRICAL COORDINATION:

- CONTRACTOR SHALL COORDINATE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH ELECTRICAL DRAWINGS PRIOR TO ORDERING EQUIPMENT OR SUBMITTING SHOP DRAWINGS, AND SHALL FURNISH EQUIPMENT WIRED FOR THE VOLTAGES SHOWN THEREIN. SHOP DRAWING SUBMITTALS SHALL CLEARLY STATE THAT THE ELECTRICAL CHARACTERISTICS OF ALL EQUIPMENT HAS BEEN COORDINATED WITH THE ELECTRICAL CONTRACT DOCUMENTS AND THE ELECTRICAL CONTRACTOR.
- ALL MECHANICAL EQUIPMENT REQUIRING ELECTRICAL POWER SHALL BE INSTALLED WITH DISCONNECT SWITCHES AT EACH PIECE OF EQUIPMENT. COORDINATE SWITCH TYPE (FUSED OR NON-FUSED) WITH EQUIPMENT CHARACTERISTICS, MANUFACTURER'S RECOMMENDATIONS AND THE ELECTRICAL DRAWINGS.
- ALL REQUIRED CONTROL WIRING (INCLUDING POWER WIRING REQUIRED FOR CONTROL PANELS, DEVICES, ETC.) NOT SHOWN ON THE ELECTRICAL DRAWINGS SHALL BE INCLUDED AS PART OF THE MECHANICAL WORK, WIRING IN HVAC PLENUM SPACES SHALL BE INSTALLED ACCORDING TO CODE REQUIREMENTS.
- 4. UNLESS NOTED OTHERWISE, TRANSFORMERS, CONTROLS AND CONTROL WIRING REQUIRED FOR ALL MECHANICAL SYSTEMS SHALL BE FURNISHED WITH THE EQUIPMENT IT SERVES AND INSTALLED BY THE MECHANICAL CONTRACTOR. MOTOR STARTERS FOR HVAC EQUIPMENT SHALL BE FURNISHED WITH THE MOTOR OR APPARATUS WHICH IT OPERATES. MOTOR STARTER INSTALLATION SHALL BE BY THE DIVISION 16 CONTRACTOR.

DUCT SMOKE DETECTORS:

- 1A. ALL FANS SUPPLYING MORE THAN 2000 CFM OF AIR TO ANY SPACE SHALL BE INSTALLED WITH A SMOKE DETECTOR IN THE RETURN DUCTWORK, DUCT SMOKE DETECTORS SHALL BE INSTALLED IN THE RETURN AIR PATH OF AIR DISTRIBUTION SYSTEMS UTILIZING A COMMON SUPPLY AND/OR RETURN AIR PLENUM WITH A COMBINED DESIGN CAPACITY GREATER THAN 2000 CFM.
- 1B. THE SMOKE DETECTOR SHALL BE WIRED TO STOP THE FAN UPON DETECTION OF SMOKE, AND SIGNAL THE BUILDING FIRE ALARM CONTROL PANEL. THE SMOKE DETECTOR SHALL BE FURNISHED BY THE ELECTRICAL CONTRACTOR, MOUNTED IN THE DUCT BY THE MECHANICAL CONTRACTOR, AND WIRED BY THE ELECTRICAL

HEATING

KW

1/3 15.0 250 (

(OUTPUT)

3/4 20.0

1/3 | 10.0

3/4 20.0

ACCESSORIES

1,2,3,4,5,6,7,8,9,10,/4

2345678916;

1,2,3,4,5,6,7,8,9,10\

12345078910,1

1,2,3,4,5,6,7,8,9,10 / 4

COMMON AREA SPLIT SYSTEM DX WITH ELEC. HEAT

TOTAL

ESP

CFM N. W.G. HP

2.5 | 27.3 | 21.8 | 1050 | 0.50" | 1/3 | 10.0 | 100 | 1

AIR DISTRIBUTION:

- 1. SUPPLY, OA AND RETURN DUCTWORK SHALL BE CONSTRUCTED OF GALVANIZED SHEETMETAL AS RECOMMENDED IN SMACNA DUCT CONSTRUCTION STANDARDS. EDITION. ALL JOINTS AND SEAMS IN ALL SHEETMETAL DUCTWORK SHALL BE SEALED WITH DUCT SEALER.
- ALTERNATE DUCTWORK 1" THICK FIBERGLASS DUCT BOARD (MINIMUM R-6 OR AS REQUIRED BY APPLICABLE ENERGY CODE), WITH GLASS FABRIC REINFORCED VAPOR BARRIER, JOHNS-MANVILLE TYPE 475 OR EQUAL. FIBERGLASS DUCTWORK AND TAPING SYSTEM SHALL BE U.L.-181 LISTED AND SHALL BEAR THE U.L. LABEL. ALL FIBERGLASS DUCTWORK AND ACCESSORIES SHALL BE FABRICATED BY A MANUFACTURER'S AUTHORIZED FABRICATOR, SHALL BE INSTALLED WITH THE FABRICATOR'S SUPERVISION AND ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. FIBERGLASS DUCTWORK SHALL NOT BE USED OUTDOORS.
- 4. ALL DUCTWORK SHALL BE SUPPORTED BY THE BUILDING STRUCTURE AND SHALL NOT REST ON CEILING TILES OR CEILING STRUCTURE. DUCT SUPPORTS AND ATTACHMENT TO STRUCTURE SHALL BE PER SMACNA STANDARDS.
- 7. FLEXIBLE DUCTWORK SHALL BE THERMAFLEX M-KE (U.L. 181 LISTED, CLASS 1 FLEXIBLE AIR DUCT) OR EQUAL. PROVIDE THERMAFLEX M-KE R-8 (R-VALUE - 8.0 MINIMUM OR AS REQUIRED BY LOCAL ENERGY CODE) IN ATTICS AND OTHER UNCONDITIONED SPACES. AIR CONNECTORS ARE NOT ACCEPTABLE. FLEX DUCT DIAMETER SHALL MATCH DEVICE NECK DIAMETER. FLEXIBLE DUCTWORK SHALL BE INSTALLED AS STRAIGHT AS POSSIBLE AND SHALL BE ROUTED AND SUPPORTED WITHOUT FORMING CRIMPS OR OTHER AIR FLOW RESTRICTIONS. PROVIDE SQUARE TO ROUND ADAPTERS OR BOOTS TO CONNECT TO AIR DEVICE NECK WHEN REQUIRED.
- ROUND AND FLEXIBLE SUPPLY AIR DUCTWORK SHALL BE CONNECTED TO MAIN DUCTS WITH A TAB TYPE FITTING. THE DAMPER SHALL BE LOCATED AS SPECIFIED ON THE EQUIPMENT SCHEDULE.
- 9. TAPE, BED AND SEAL AIR TIGHT ALL PENETRATIONS FROM RETURN AIR PLENUMS TO NON RETURN AIR PLENUMS THAT ARE REQUIRED DUE TO DUCTWORK, PIPING OR OTHER ITEMS.
- DUCTWORK DIMENSIONS SHOWN ON THE DRAWINGS ARE INSIDE CLEAR DIMENSIONS.
- 11. EXTERNAL STATIC PRESSURE (ESP) DOES NOT INCLUDE COIL, CASING OR FILTER PRESSURE DROP.
- 12. INSTALL FIRE DAMPERS IN ALL RATED WALLS, FLOOR AND CEILING PENETRATIONS. FIRE DAMPERS SHALL BE THE DYNAMIC TYPE WITH BLADES OUT OF THE AIRSTREAM WHERE POSSIBLE. REFER TO THE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF RATED ASSEMBLIES. PROVIDE ACCESS DOORS IN DUCTWORK AT EACH FIRE DAMPER LOCATION. INSTALL SMOKE DAMPERS IN ALL DUCT PENETRATIONS THROUGH SMOKE RATED WALLS. WHERE DUCTS PENETRATE WALLS THAT CARRY BOTH FIRE AND SMOKE RATINGS, THE DAMPERS INSTALLED SHALL BE COMBINATION FIRE AND SMOKE DAMPERS. ALL DAMPERS SHALL BE U.L. 555 AND/OR 555S LABELED.
- 13. LOCATIONS OF GRILLES, REGISTERS, & DIFFUSERS SHOWN ON THE DRAWINGS ARE APPROXIMATE. COORDINATE EXACT LOCATIONS WITH LIGHTS. CEILING

1. DUCT INSULATION:

- a. Duct wrap shall be ul listed fiberglass blanket insulation with foil vapor barrier. Punctures and tears in the foil jacket shall BE PATCHED WITH FOIL TAPE TO MAINTAIN THE INTEGRITY OF THE VAPOR BARRIER. INSULATE SHEET METAL DUCTWORK IN THE THICKNESSES AND
- SHEET METAL SUPPLY DUCTWORK IN NON-AIR CONDITIONED AREAS: 2" THICK, 1-1/2 LB/FT3 DENSITY.
- SHEET METAL SUPPLY DUCTWORK IN AIR CONDITIONED AREAS: 2" THICK, 3/4 LB/FT3 DENSITY.
- OUTSIDE AIR DUCTWORK: 2" THICK, 1-1/2 LB/FT3 DENSITY.
- RETURN DUCTWORK IN NON-AIR CONDITIONED AREAS: 2" THICK, 1-1/2 LB/FT3 DENSITY.
- ALL SUPPLY AND RETURN DUCTWORK WITHIN AN OPEN ATTIC SPACE: 2" THICK, 1-1/2 LB/FT3 DENSITY (MIN R-8). ELEVATOR RELIEF DUCTWORK SHALL BE WRAPPED USING A U.L. LISTED AND APPROVED FIRE WRAP OR ENCLOSED IN AN APPROVED ASSEMBLY. FIRE WRAP ASSEMBLY SHALL PROVIDE THE SAME RATING AS THE ELEVATOR HOISTWAY ASSEMBLY RATING.
- 2. DUCT LINER: LINE ALL SHEETMETAL DUCTWORK A MINIMUM OF 10'-0" (OR AS INDICATED) DOWNSTREAM OF ROOFTOP UNITS. DUCT LINER SHALL BE 1" THICK, 3 LB/FT' DENSITY (MINIMUM R VALUE = 4.0 OR AS REQUIRED BY APPLICABLE ENERGY CODE); CERTAINTEED "TOUGHGARD 2" OR EQUAL BY KNAUF OR JOHNS-MANVILLE. THE LEADING EDGE OF THE DUCT LINER SHALL HAVE A SHEETMETAL NOSING.

PIPE INSULATION:

REFRIGERANT SUCTION PIPING SHALL BE INSULATED WITH 1-1/2 THICK FLEXIBLE ELASTOMERIC TUBING INSULATION, AP ARMAFLEX PIPE INSULATION MANUFACTURED BY ARMACEL OR EQUAL. INSULATION SHALL BE SLID OVER PIPING FROM ONE END BEFORE PIPE ENDS ARE JOINED AND SHALL NOT BE SLIT OR CUT. ALL JOINTS AND SEAMS SHALL BE SEALED WEATHER-TIGHT. FINISH COAT FOR FLEXIBLE ELASTOMERIC INSULATION INSTALLED OUTDOORS SHALL BE WATER-BASED LATEX ENAMEL DESIGNED FOR USE OVER ALL FORMS OF FLEXIBLE ELASTOMERIC INSULATION. FINISH COAT SHALL PROVIDE A PROTECTIVE FINISH SUITABLE TO BOTH INDOOR AND OUTDOOR APPLICATIONS, FORMULATED FOR COLD WEATHER FLEXIBILITY TO

RESIST CRACKING AND WEATHER-RESISTANT TO ULTRAVIOLET (UV) AND OZONE. COATING SHALL BE ARMAFLEX WB FINISH OR EQUIVALENT

- 4. REFRIGERANT PIPING SHALL BE TYPE L OR REFRIGERATION SERVICE COPPER TUBING WITH BRAZED JOINTS.
- 5. CONDENSATE FROM ALL AIR CONDITIONING EQUIPMENT SHALL BE TRAPPED AND ROUTED TO THE NEAREST FLOOR DRAIN OR TO EXTERIOR DRY WELLS. CONDENSATE PIPING SHALL BE SCHEDULE 40 PVC (EXCEPT INSULATED COPPER IN HVAC PLENUMS). CONDENSATE SHALL BE PUMPED AS REQUIRED.

- 1. DRYER FLEXIBLE DUCTWORK SHALL BE CONNECTED TO A MANUFACTURED DRYER WALL BOX (BY IN-O-VATE OR EQUAL). THE FLEXIBLE DUCTWORK SHALL CONNECT THE LAUNDRY DRYER TO THE BOX CONNECTION USING A C-CLAMP AND BE INSTALLED AS SHOWN ON PLANS. THE DRYER CONNECTION IN THE DWELLING UNIT SHALL BE BASED ON LAUNDRY DRYER TYPE AND COORDINATED IN THE FIELD.
- 2. DRYER VENT DUCTWORK SHALL BE 4 OR 5-INCH ROUND AND BE 26 GAUGE GALVANIZED STEEL INSTALLED WITH LONGITUDINAL SEAMS FACING UP. ROUTE DRYER VENT TO THE EXTERIOR WALL CAP AS DIRECT AS POSSIBLE. DO NOT SECURE DUCTWORK WITH SHEET METAL SCREWS.
- 3. TOILET AND LAUNDRY EXHAUST DUCTWORK SHALL BE FURNISHED WITH A BUILT-IN BACK-DRAFT DAMPER. TOILET EXHAUST SHALL INCLUDE INSECT SCREEN.
- 4. DWELLING UNIT KITCHEN RANGE HOODS SHALL BE VENTLESS, RECIRCULATING TYPE AND BE PROVIDED BY OTHERS.
- NATURAL VENTILATION PROVIDED VIA OPERABLE WINDOWS.

TAG	MODEL	DUTY	СҒМ	E.S.P.	SONES	MOTOR SIZE	RPM	DRIVE	WEIGHT (LBS)	ACCESSORIES
EF-1(TYP.)	(B)670	TOILET EXHAUST	50	0.25"	3.5	FRACTIONAL	1050	DIRECT	15	1,2,3
EF-2	SP-B200	TOILET EXHAUST	150	0.375"	3.7	FRACTIONAL	902	DIRECT	25	1,2,3,4
EF-3	SP-B200	TOILET EXHAUST	150	0.375"	3.7	FRACTIONAL	902	DIRECT	25	1,2,3,4
EF-A(TYP.)	SBE-3L48	GARAGE VENTILATION	38,200	0.25"	36	7.5	642	BELT	450	6,7,8,9,10,11,12
EF-B(TYP.)	SE2-16-435-B	GARAGE VENTILATION	1,400	0.25"	17.5	1/6	1160	DIRECT	40	3,5,8,9,11
EF-C(TYP.)	KRU 12-4	ROOF VENTILATION	50	0.03"	3.0	FRACTIONAL	FRAC	DIRECT	60	1,3,4,13,14,15
EF-D(TYP.)	KRU 12-4	ROOF VENTILATION	75	0.03"	3.0	FRACTIONAL	FRAC	DIRECT	60	1,3,4,13,14,15
EF-E(TYP.)	KRU 12-4	ROOF VENTILATION	100	0.03"	3.0	FRACTIONAL	FRAC	DIRECT	60	1,3,4,13,14,15
EF-F(TYP.)	KRU 12-4	ROOF VENTILATION	120	0.03"	3.0	FRACTIONAL	FRAC	DIRECT	60	1,3,4,13,14,15
EF-G(TYP.)	KRU 12-4	ROOF VENTILATION	140	0.03"	3.0	FRACTIONAL	FRAC	DIRECT	60	1,3,4,13,14,15
EF-V(MP.)	SP-8150	VRASH EXHAUST	75	D.375	1.9	FRACUIONAL	676	DIRECT	15	7,3,4,46
CF 4	TD 100	CUDDLY FAN MAINT	70	0.125	2.0	EDACTIONAL	EDAC	DIDECT	2	1750 /4

13. 1/4" INSECT SCREEN.

15. 14" ROOF CURB.

TA. COMBINATION THEBMOSTATYHUMIDITY SENSOR SET AT LITU'F

16. WIRE INTO DEDICATED WALL SWITCH WITH INDICATOR LIGHT.

MOUNT PLAQUE ABOVE SWITCH "TRASH EXHAUST"

TADJ AND 40%RH (ADJ.).

A. COOLING CAPACITIES ARE BASED ON 105'F AMBIENT, 80'F DB/67'F WB ENTERING AIR TEMPERATURE.

TONS

B. COMPRESSOR MANUFACTURER SHALL PROVIDE A REFRIGERANT PIPING DIAGRAM APPROVED BY FACTORY FOR TYPICAL SYSTEMS SHOWING COMPONENTS SUCH AS SUCTION LINE ACCUMULATOR AND RECOMMENDED PIPE SIZES FOR PROPER OPERATION.

TOT. SENS.

COOL COOL

3.5 | 37.7 | 28.5 | 1380 | 0.40"

5.0 | 55.0 | 41.0 | 1805 | 0.50"

2.0 | 23.1 | 19.2 | 750 | 0.40"

5.0 | 55.0 | 41.0 | 1805 | 0.50"

C. 13 SEER MINIMUM UNITS.

ACCESSORIES:

AH/CU-1

AH/CU-2

AH/CU-5

AH/CU-4

AH/CU-5

 7-DAY PROGRAMMABLE T-STAT PER 2009 IECC. 2. REMOVEABLE/THROWAWAY FILTER IN FILTER RACK.

INDOOR

MODEL No.

ARUF3642

ARUF4860

ARUF1824

ARUF4860

ARUF3030

- INDOOR UNIT TO HAVE FACTORY MOUNTED THERMAL EXPANSION VALVE IF REQUIRED FOR 13.0 SEER RATING.
- EXTERNAL REFRIGERANT FILTER DRYER AT OUTDOOR CONDENSER UNIT IF REQUIRED BY MANUFACTURER.
- ROOF MOUNTED OUTDOOR UNITS SHALL BE INSTALLED PER PLANS. DISCONNECT FOR INDOOR UNITS BY DIVISION 15 DISCONNECT FOR OUTDOOR UNITS BY DIVISION 16
- 8. PRIMARY CONDENSATE SHALL BE TRAPPED AND ROUTED AS SHOWN ON PLUMBING PLANS. REFER TO UNIT PLANS, AND PLUMBING PLANS.
- PROVIDE FLOAT SAFE-T-SWITCH IN DRAIN PAN FOR SECONDARY CONDENSATE. FIELD INSTALLED ELECTRIC NEAT KUP FOR HEAT OUTPUT SPECIFED ON SCHEDULE.

OUTDOOR

MODEL No.

GSX13042

GSX13060

GSZ13024

GSX13060

GSX13030

- 11. PROVIDE SMOKE DETECTOR IN RETURN AIR PATH.
- SELECTIONS ARE BASED ON PRODUCTS BY: GOODMAN.

FANS

TAG	MODEL	DUTY	CFM	E.S.P.	SONES	MOTOR SIZE	RPM	DRIVE	WEIGHT (LBS)	ACCESSORIES
EF-1(TYP.)	(B)670	TOILET EXHAUST	50	0.25"	3.5	FRACTIONAL	1050	DIRECT	15	1,2,3
EF-2	SP-B200	TOILET EXHAUST	150	0.375"	3.7	FRACTIONAL	902	DIRECT	25	1,2,3,4
EF-3	SP-B200	TOILET EXHAUST	150	0.375"	3.7	FRACTIONAL	902	DIRECT	25	1,2,3,4
EF-A(TYP.)	SBE-3L48	GARAGE VENTILATION	38,200	0.25"	36	7.5	642	BELT	450	6,7,8,9,10,11,12
EF-B(TYP.)	SE2-16-435-B	GARAGE VENTILATION	1,400	0.25"	17.5	. 1/6	1160	DIRECT	40	3,5,8,9,11
EF-C(TYP.)	KRU 12-4	ROOF VENTILATION	50	0.03"	3.0	FRACTIONAL	FRAC	DIRECT	60	1,3,4,13,14,15
EF-D(TYP.)	KRU 12-4	ROOF VENTILATION	75	0.03"	3.0	FRACTIONAL	FRAC	DIRECT	60	1,3,4,13,14,15
EF-E(TYP.)	KRU 12-4	ROOF VENTILATION	100	0.03"	3.0	FRACTIONAL	FRAC	DIRECT	60	1,3,4,13,14,15
EF-F(TYP.)	KRU 12-4	ROOF VENTILATION	120	0.03"	3.0	FRACTIONAL	FRAC	DIRECT	60	1,3,4,13,14,15
EF-G(TYP.)	KRU 12-4	ROOF VENTILATION	140	0.03"	3.0	FRACTIONAL	FRAC	DIRECT	60	1,3,4,13,14,15
EF-YMP.)	SP_B150	UPASH EXLUAUST	75	D:375	1.9	FRACUIDINAL	676	DIRECT	15	7,3,4,6
SF-1	TD-100	SUPPLY FAN, MAINT.	30	0.125	2.0	FRACTIONAL	FRAC	DIRECT	2	1,3,5,9

. GRAVITY BACKDRAFT DAMPER. . WIRE INTO DEDICATED WALL SWITCH (COORDINATE WITH ELECTRICAL).

DISCONNECT BY DIV. 15. 4. UNIT MOUNTED SPEED CONTROL SWITCH. 5. CONTINUOUS DUTY. . INTERLOCK TO CO2 CONTROLLER.

MOTORIZED DAMPER, INTERLOCKED TO FAN. FLUSH EXTERIOR WALL HOUSING. 9. OL/CUL-705/ POWER VENTIDATORS". 10. HAND ON/OFF/AUTO (HOA) — COMBO STARTER AND DISCONNECT.

SELECTIONS ARE BASED ON PRODUCTS BY BROAN (EF-1), KANALFLAKT (EF-C,D,E,F,&G), S&P (SF-1) AND GREENHECK (ALL REMAINING FANS).

LEGEND

SYMBOL	DESCRIPTION	ABBREVIATIONS	SYMBOL	DESCRIPTION	ABBREVIATIONS
	CEILING DIFFUSER W/FLEX DUCT	CD	©205 CFM	AIR DISTRIBUTION DEVICE TAG, BALANCE TO 205 CFM	
	CEILING RETURN GRILLE W/FLEX DUCT	RAG	♦ SD	SMOKE DETECTOR	SD
Introduction to the light of th	SIDEWALL SUPPLY AIR GRILLE	S. REG		RETURN AIR	R.A
and	SIDEWALL RETURN AIR GRILLE	RAG		SUPPLY AIR	· S.A.
P eranana	FIRE DAMPER / CEILING RADIATION DAMPER	FD / CRD		ABOVE FINISHED FLOOR	AFF
	MANUAL VOLUME DAMPER	MVD		EXTERNAL STATIC PRESSURE (IN W.C.)	ESP
	EXHAUST FAN	EF		DRY BULB	DB
AND CONTRACTOR OF THE PROPERTY	RISE	R		WET BULB	WB
La constitución de la constituci	DROP	D		ENTERING AIR TEMPERATURE	EAT
Ū	THERMOSTAT	T-STAT		LEAVING AIR TEMPERATURE	LAT
Θ	EQUIPMENT DESIGNATION			OUTSIDE AIR	OA
	TRANSFER GRILLE	TXR		RETURN AIR GRILLE	RAG
	OPPOSED BLADE DAMPER	OBD	SFD	COMBINATION SMOKE/FIRE DAMPER	SFD
	SEALED RA PLENUM FURRDOWN		111111	ARCHITECTURAL FURRDOWN	

APARTMENT SPLIT SYSTEM DX WITH ELEC. HEAT

TAG	INDOOR AH MODEL NO. (GOODMAN)	OUTDOOR CU MODEL NO. (GOODMAN)	NOM. TONS	MBH TOT. COOL	MBH SENS. COOL	TOTAL CFM	ESP	MAX. FAN HP	AUXILIARY HEATING KW (MIN. OUTPUT)	ACCESSORIES 4
AH/CU-A1	ACNF2406	GSX13018	1.5	15.2	12.0	565	0.4"	1/4	6.0	1,2,3,4,5,6,7,8,9,10,11
AH/CU-A1R	ACNF2408	GSX13024	2.0	19.1	15.0	735	0.4"	1/4	8.0	1,2,3,4,5,6,7,8,9,10,11
AH/CU-A2	ACNF2406	GSX13018	1.5	15.2	12.0	565	0.4"	1/4	6.0	1,2,3,4,5,6,7,8,9,10,11
AH/CU-A2SP	ACNF2408	GSX13024	2.0	19.1	15.0	735	0.4"	1/4	8.0	1,2,3,4,5,6,7,8,9,10,11
AH/CU-A3	ACNF2408	GSX13024	2.0	19.1	15.0	735	0.4"	1/4	0.8	1,2,3,4,5,6,7,8,9,10,11
AH/CU-A4	ACNF2408	GSX13024	2.0	19.1	15.0	735	0.4"	1/4	8.0	1,2,3,4,5,6,7,8,9,10,11
AH/CU-B1A	ACNF2406	GSX13018	1.5	15.2	12.0	565	0.4"	1/4	6.0	1,2,3,4,5,6,7,8,9,10,11
AH/CU-B1B	ACNF2406	GSX13018	1.5	15.2	12.0	565	0.4"	1/4	6.0	1,2,3,4,5,6,7,8,9,10,11
AH/CU-B2A	ACNF2406	GSX13018	1.5	15.2	12.0	565	0.4"	1/4	6.0	1,2,3,4,5,6,7,8,9,10,11
AH/CU-B2B	ACNF2406	GSX13018	1.5	15.2	12.0	565	0.4"	1/4	6.0	1,2,3,4,5,6,7,8,9,10,11
AH/CU-B3A	ACNF2408	GSX13024	2.0	19.1	15.0	735	0.4"	1/4	8.0	1,2,3,4,5,6,7,8,9,10,11
AH/CU-B3B	ACNF2408	GSX13024	2.0	19.1	15.0	735	0.4"	1/4	8.0	1,2,3,4,5,6,7,8,9,10,11
AH/CU-E1	ACNF2406	GSX13018	1.5	15.2	12.0	565	0.4"	1/4	6.0	1,2,3,4,5,6,7,8,9,10,11
AH/CU-E1R	ACNF2408	GSX13024	2.0	19.1	15.0	735	0.4"	1/4	8.0	1,2,3,4,5,6,7,8,9,10,11

COOLING CAPACITIES ARE BASED ON 105°F AMBIENT, 75°F DB/63°F WB ENTERING AIR TEMPERATURE.

B. COMPRESSOR MANUFACTURER SHALL PROVIDE A REFRIGERANT PIPING DIAGRAM APPROVED BY FACTORY FOR TYPICAL SYSTEMS SHOWING

COMPONENTS SUCH AS SUCTION LINE ACCUMULATOR AND RECOMMENDED PIPE SIZES FOR PROPER OPERATION. C. 13 SEER MINIMUM UNITS.

- FACTORY-INSTALLED ELECTRIC HEAT WITH THERMAL OVERLOADS.
- 7-DAY PROGRAMMABLE T-STAT. REMOVABLE/THROWAWAY FILTER IN RETURN GRILLE.
- INDOOR UNIT TO HAVE FACTORY MOUNTED THERMAL EXPANSION VALVE IF REQUIRED FOR 13.0 SEER RATING. FXTFRNAL REFRIGERANT FILTER DRYER AT OUTDOOR CONDENSER UNIT IF REQUIRED BY MANUFACTURER.
- ROOF MOUNTED OUTDOOR UNITS SHALL BE INSTALLED PER PLANS.
- DISCONNECT FOR INDOOR UNITS BY DIVISION 16. DISCONNECT FOR OUTDOOR UNITS BY DIVISION 16.
- 9. PRIMARY CONDENSATE SHALL BE TRAPPED AND ROUTED TO LAVATORY TAILPIECE.

 10. SECONDARY CONDENSATE ROUTED ABOVE THE WITH ESCURCHEON PLATE.
- PROVIDE CEILING ACCESS PANEL FOR UNIT MAINTENANCE AND REMOVAL.
- SELECTIONS ARE BASED ON PRODUCTS BY, COODMAN.

GRILLES, REGISTERS & DIFFUSERS

TAG	SERIES	CFM	BLOW	DUTY	NECK	SIZE	DAMPER	MATERIAL
A	A100	30-50	SEE PLANS	SUPPLY	4"ø	8x4	YES	ALUMINUM: , .
В	A100	50-90	SEE PLANS	SUPPLY	5"ø	8x6	YES	ALUMINUM
С	100	90-125	SEE PLANS	SUPPLY	6"ø	10x6	YES	STEEL
D	100	125-150	SEE PLANS	SUPPLY	7"ø	12x6	YES	STEEL
E	100	150-200	SEE PLANS	SUPPLY	8"ø	14x6	YES	STÉEL
F	100	200-250	SEE PLANS	SUPPLY	9"ø OR 10 " ø	14x8	YES	STEEL
G	A170	SEE DWGS.	SEE PLANS	RET/EXH/TRNSFR	SEE PLANS	SEE PLANS	(***)	STEEL 35° BLADES
Н	A170	SEE DWGS.	SEE PLANS	RET/EXH/TRNSFR	SEE PLANS	SEE PLANS	(***)	ALUMINUM 35° BLADES
J	A170	SEE DWGS.	SEE PLANS	TRANSFER	18x8	20x10	NO	STEEL 35° BLADES
К	E240-V0	SEE DWGS.	SEE PLANS	SUPPLY	SEE PLANS	SEE PLANS	XES(GBD)	STEEL DOUBLE DEFLECTION
L	300RS	SEE DWGS.	SEE PLANS	SUPPLY	SEE PLANS	SEE PLANS	NO	STEEL DOUBLE DEFLECTION
М	350RL	SEE DWGS.	SEE PLANS	RETURN	SEE PLANS	SEE PLANS	NO	STEEL 35° BLADES

A. REFER TO ARCHITECTURAL DRAWINGS FOR TYPE OF CEILING AND/OR SUSPENSION SYSTEM.

I.E. A 8x4 'K' GRILLE WITH 4"Ø NECK ON THE PLANS WOULD BE RATED FOR 30-50 CFM.

B. FINISH SHALL BE OF THE TYPE AND COLOR SELECTED BY ARCHITECT. SUBMIT FINISH CHART WITH SHOP DRAWINGS.

C. SUPPLY REGISTERS TO HAVE 1/2" FIN SPACING. D. ALL SUPPLY DOUBLE DEFLECTION GRILLES TO HAVE OPPOSED BLADE DAMPER (SCREW DRIVER CONTROL).

(***) REFERENCE PLANS FOR ALL REQUIRED OPPOSED BLADE DAMPERS. F. 'K' GRILLE CFM'S SHALL BE EQUIVALENT TO CFM'S OF TYPE 'A' THROUGH 'F' DIFUSERS OF SAME FACE AND NECK SIZE FOR ALL DWELLING UNITS.

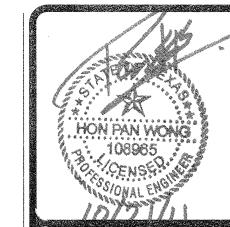
SELECTIONS ARE BASED ON PRODUCTS BY: AIRMATE (A THRU K) AND TITUS (L AND M).



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Checked By: AHS



9-2-2011 DESIGN REVISIONS 9-13-2011

REVISIONS 4\ 10-17-2011 CONSTRUCTIC



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PROJECT

SHEET NUMBER

X-1.0 NOTES 8

SCHEDULES MECHANICAL - FINISHED FLOOR

4"ø OR 5"ø EXHAUST VENT DOWN

THRU FLOOR PLATE AND INTO

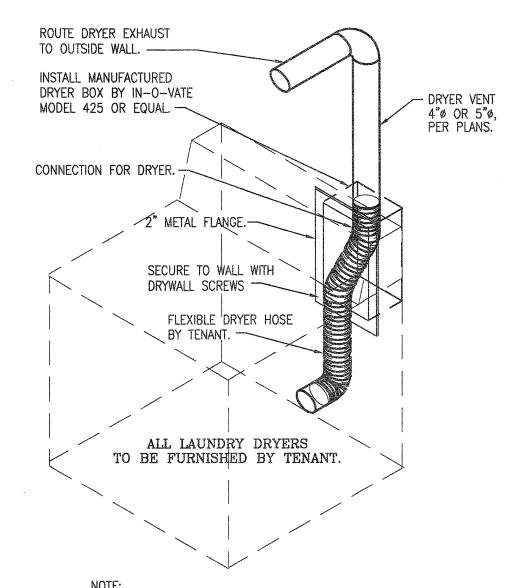
TRUSS SYSTEM, TRANSITION IN

TRUSS SYSTEM FROM A 4"ø TO

TOP LEVEL EXHAUST FAN DUCTING DETAIL

TOP PLATE SHALL BE - 4"ø OR 5"ø EXHAUST VENT DOWN CUT AND FIRESTOPPED THRU FLOOR PLATE AND INTO USING UL APPROVED FIRE TRUSS SYSTEM, TRANSITION IN STOP MATERIAL ----TRUSS SYSTEM FROM A 4"Ø TO DRYFR VENT BOX, MODEL 425 BY IN-O-VATE, UL RATED FOR 1-HR WALL, DETAIL W-L-7129 ---INTERIOR PARTITION WALL HAVING ADEQUATE DEPTH FOR - FINISHED FLOOR INSTALLATION OF VENT BOX ---

LOWER LEVELS DRYER VENT DUCTING DETAIL



TOP LEVEL

DRYER VENT DUCTING DETAIL

EXHAUST FAN DUCTING DETAIL

INTERIOR PARTITION WALL HAVING ADEQUATE DEPTH FOR INSTALLATION OF VENT BOX

DRYER VENT BOX, MODEL 4D

BY IN-O-VATE, UL RATED

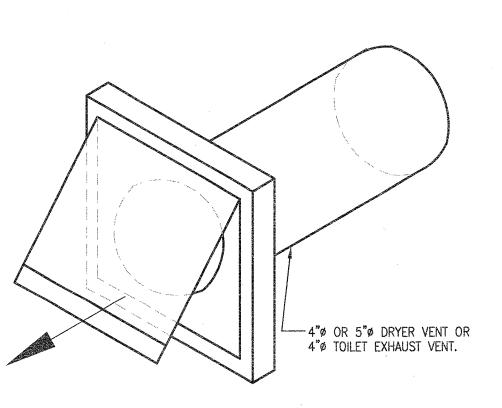
FOR 1-HR WALL, DETAIL W-L-7129 -----

CUT AND FIRESTOPPED

USING UL APPROVED FIRE

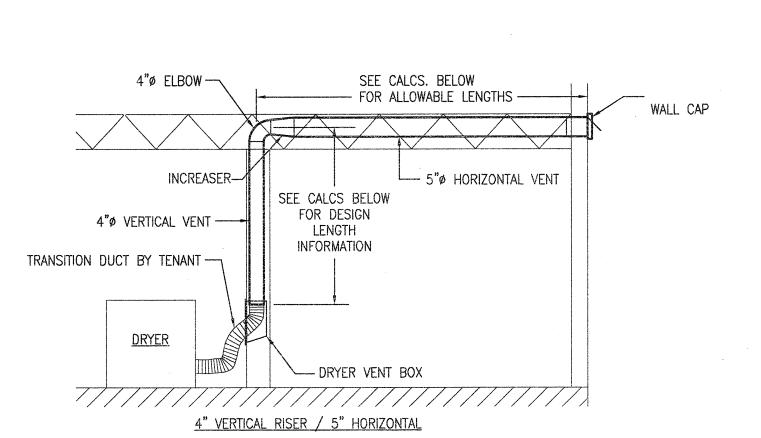
1. DRYER VENT BOXES IN FIRE RATED WALLS SHALL BE UL LISTED. 2. INSTALL MANUFACTURED ONE HOUR RATED "DRYER BOX" BY IN-O-VATE. 3. INSTALL PER MANUFACTURER'S REQUIREMENTS TO MAINTAIN FIRE RATING. WWW.DRYERBOX.COM

DRYER VENT BOX DETAIL SCHEMATIC - NO SCALE



1. PROVIDE WITH INTEGRAL BACKDRAFT DAMPER
2. WALL CAP BY VENTCRAFT, OR APPROVED EQUAL. 3. PROVIDE CAP WITH PAINT GRIP COATING FOR FIELD PAINTING.

DRYER AND TOILET EXHAUST WALL CAP DETAIL



ALTERNATE DRYER VENTING SUBJECT TO BUILDING OFFICIAL APPROVAL

DX PACKAGED ROOFTOP UNITS WITH GAS HEAT

TOTAL O.A. ESP FAN F

A. COOLING CAPACITY BASED ON 80°F DB/67°F WB ENTERING AIR TEMPERATURE AND 105°F DB OUTDOOR AIR TEMPERATURE.

CFM (IN.WG) BHP

COOL/HEAT

DÚTY

COOL/HEAT

NOMINAL

HORIZONTAL CONFIGURATION WITH 14" MIN HIIGH ROOF CURB.

2. 7-DAY PROGRAMMABLE COMBINATION THERMOSTAT/HUMIDISTAT WITH LOCKING

4. UNIT SHALL SHUTDOWN UPON SIGNAL FROM BUILDING FIRE ALARM SYSTEM.

MODEL No.

B. R-410a REFRIGERANT.

. BELT DRIVE MOTOR.

. CRANKCASE HEATER.

LOW AMBIENT OPERATION.

COVER BY UNIT MANUFACTURER.

COMPRESSOR ANTI-RECYCLE CONTROLS.

PROVIDE SMOKE DETECTOR IN RETURN AIR DUCT.

8. SINGLE POINT POWER CONNECTION WITH DISCONNECT.

SELECTIONS ARE BASED ON PRODUCTS BY: CARRIER.

ACCESSORIES:

COOLING

SENSIBLE

53.0

10. FIELD SUPPLIED BELT DRIVE.

13. BAROMETRIC RELIEF DAMPER.

14. ECONOMIZER.

11. SMOKE DETECTOR IN RETURN AIR DUCT.

12. SUPPLY AIR FANS SHALL RUN CONTINUOUSLY.

LOWEST AND HIGHEST FLOORS SERVED.

47. MOJORIZED O TOOK OUTSIDE AIR BAMPET

18. POWERED EXHAUST. (RTU-1,3,5,7) ONLY

16. MINIMUM OF 2 STAGES OF GAS HEAT.

TOTAL

70.8

MBH COOL. MBH COOL. EER INPUT

HEATING

12.0 90.0/125.0 103.0

9. FACTORY-INSTALLED HUMIDIMIZER DEHUMIDIFICATION SYSTEM.

15. REMOTE THERMOSTAT SENSOR FOR DRY BULD AVERAGING AT

OUTPU

ACCESSORIES

1,2,3,4,5,6,7,8.9,10.11.

12,13,14,15,16,17,18

(TO BE USED WHEN 2009 IMC SECTION 506.4.1 CANNOT BE MET)

BASIS FOR ALTERNATE DESIGN:

(1) CALCULATE ALLOWABLE DUCT PRESSURE LOSS PER 2009 IMC 506.4.1:

PER CODE - 25 FT. EQUIVALENT TYPICAL DRYER EXHAUST RATE - 200 CFM

COEFFICIENT OF FRICTION (f4) FOR 200 CFM THROUGH 4" ROUND DUCT = 2.2 IN. W.G. PER 100 FT.

CODE PRESSURE LOSS => 25 FT. x 2.2 IN. W.G. / 100 FT. = 0.55 IN. W.G.

(2) ALTERNATE ENGINEERED DESIGN IS COMPOSED AS ILLUSTRATED ABOVE:

1. A VERTICAL LENGTH OF 4" ROUND VENT DUCT STUBBED UP FROM A RECESSED DRYER VENT BOX.

2. ONE (1) 4" ROUND 90' ELBOW AT THE TOP OF THE VERTICAL DUCT WITHIN THE RATED FLOOR/CEILING ASSEMBLY.

3. ONE (1) 4"-TO-5" ROUND TRANSITION INCREASER.

4. A HORIZONTAL LENGTH OF 5" ROUND VENT DUCT ROUTED OUT THROUGH THE EXTERIOR WALL TO A WALL CAP. THEREFORE ALTERNATE ENGINEERED DESIGN MUST NOT EXCEED 0.55 IN. W.G. PRESSURE LOSS THROUGH THE DRYER VENT SYSTEM.

(3) FITTING PRESSURE LOSS DEDUCTIONS AND FRICTION FACTORS:

VERTICAL LENGTH 1: 6'-0" OF 4" VERTICAL DUCT = 0.13 IN. W.G.

4" 90 DEGREE ELBOW = 0.11"

4"-T0-5" INCREASER = 0.00" WALL CAP TERMINATION = 0.00"

COEFFICIENT OF FRICTION (15) FOR 200 CFM THROUGH 5" ROUND DUCT = 0.76 IN. W.G. PER 100 FT.

(4) CALCULATE THE MAXIMUM EQUIVALENT 5" ROUND HORIZONTAL DUCT LENGTH LIMITATIONS:

MAXIMUM 5" HORIZ. DUCT PRESS. LOSS = CODE PRESS. LOSS - 4" VERTICAL DUCT LOSS - 4" ELBOW => 1: 0.55 IN. - 0.13 IN. - 0.11 IN. = 0.31 IN. W.G.

THEREFORE THE MAXIMUM ALLOWABLE PRESSURE DROP THROUGH THE 5" ROUND DUCT IS 0.31 IN. W.G.

MAXIMUM EQUIVALENT 5" HORIZ. DUCT LENGTH = MAX. 5" PRESS. LOSS / f5 =>

1: 0.31 IN. / (0.76 IN./100 FT.) = 40.8 EQUIVALENT FT.

THEREFORE THE MAXIMUM EQUIVALENT 5" ROUND HORIZONTAL DUCT LENGTH IS 40.8 EQUIVALENT FT. AND THE TOTAL EQUIVALENT LENGTH IS 51.8 EQUIVALENT FT.

CODE ALTERNATE DRYER VENT LENGTH DESIGN WITH VENT BOX

GARAGE VENTILATION CONTROL SYSTEM

CARBON MONOXIDE DETECTION SYSTEM: PROVIDE (1) STAND ALONE GAS DETECTION SYSTEM WITH FIVE TO SIX REMOTE SENSORS PER PARKING GARAGE LEVEL MANUFACTURED BY CRITICAL ENVIRONMENT TECHNOLOGIES (RANDY BARNES AT BARTOS INDUSTRIES 214-350-6871). INCLUDED WITH THE CARBON MONOXIDE CONTROL SYSTEM WILL BE A WATER/DUST TIGHT CORROSION RESISTANT CONTROL PANEL ENCLOSURE AND AUTOMATIC RESETTING THERMAL CIRCUIT FUSE.

EVERY GAS DETECTION CONTROL PANEL AND REMOTE SENSOR SHALL BE INTERLOCKED TO THE FAN(S) AS NOTED ON THESE PLANS AND SCHEDULES. MECHANICAL VENTILATION SYSTEMS FOR ENCLOSED PARKING GARAGES ARE NOT REQUIRED TO OPERATE CONTINUOUSLY WHERE THE SYSTEM IS ARRANGED TO OPERATE AUTOMATICALLY UPON DETECTION OF A CONCENTRATION OF CARBON MONOXIDE OF 25 PARTS PER MILLION (PPM). THE SYSTEM SHALL NOT REDUCE THE VENTILATION RATE BELOW 0.05 CFM/SQFT OF FLOOR AREA AND SHALL BE CAPABLE OF PRODUCING A VENTILATION RATE OF 1.5 CFM/SQFT OF FLOOR AREA.

MODEL NUMBERS:

CO CONTROL PANEL: PDCA088 (LOCATE PANELS AS SHOWN ON PLANS)

REMOTE CO DETECTION SENSOR (TYP. 5): DST-MCO (LOCATE SENSORS AS SHOWN ON PLANS)

ELECTR	IC HEAT	ERS
NA SANDANIA NA PARAMENTANIA NA PARAMENTANIA NA PARAMENTANIA NA PARAMENTANIA NA PARAMENTANIA NA PARAMENTANIA NA	AND STREET THE CONTRACTOR OF THE STREET, STREE	
		A LOUIS PRINTS

TAG	MODEL No.	DESCRIPTION	HEAT CAPACITY	MOUNTING	ACCESSORIES
EH-A	AFA	WALL HEATER	4.0 kW	SEE DRAWINGS	1,2,3,4
EH-B	AFA	WALL HEATER	3.0 kW	SEE DRAWINGS	1,2,3,4

A. UNIT INSTALLED MUST BE CAPABLE OF DELIVERING KW OUTPUT SPECIFIED AT AVAILABLE VOLTAGE AND PHASE.

ACCESSORIES:

. TAMPER PROOF CONTROLS. 2. INTEGRAL THERMOSTAT & DISCONNECT SWITCH.

SELECTIONS ARE BASED ON PRODUCTS BY: RAYWALL

3. AUTO-RESET THERMAL OVERLOADS.

WALL/CEILING MOUNTING BRACKET.

DUCTLESS SPLIT SYSTEM HEAT PUMPS

	TAG	MODEL NO. OUTDOOR/INDOOR	AIRFLOW (INDOOR UNIT) (CFM)	TOTAL COOLING (MBH)	TOTAL HEATING (MBH)	COOLING EAT (DB/WB)	ACCESSORIES
	AH\HP-E1,E2	PUZ-A18NHA/PKA-A18GAL	425	18.0	19.0	80/67	1;2,3,4,5,6
	ALL HP-1	PUZ-A18NHA/PKA-A18GAL	425	18.0	19.0	80/67	1,2,3,4,5,6
(AH\HP-M	PUZ-A18NHA/PKA-A18GAL	425	18.0	19.0	80/67	1,2,3,4,5,6
	ARHER 72	PUZ-A36NHA/PKA-A36GAL	990	34.2	37.0	80/67	1,2,3,4,5,6
	AH\HP-FP	PUZ-A36NHA/PKA-A36GAL	990	34.2	37.0	80/67	1,2,3,4,5,6

A. COOLING CAPACITIES BASED ON 95°F AMBIENT COOLING, 80°F db/67°F wb ENTERING AIR TEMPERATURE AND 47°F AMBIENT HEATING. B. ROUTE 3/4" AH CONDENSATE TO NEAREST PLUMBING DRAIN. SEE PLUMBING DRAWINGS.

ACCESSORIES:

MICROPROCESSOR CONTROL WITH NON-REMOVABLE MOUNTING BRACKET.

DISCONNECT SWITCH FOR INDOOR UNIT SHALL BE BY DIVISION 16. DISCONNECT SWITCH FOR OUTDOOR UNIT SHALL BE BY DIVISION 16

4. CONDENSATE PUMP W/CHECK VALVE ON INDOOR UNIT (FIELD MOUNTED)

5. WASHABLE FILTER. 6. PRE-CHARGED REFRIGERANT LINE SET.

C. 13 SEER MINIMUM UNITS.

SELECTIONS ARE BASED ON PRODUCTS BY: MITSUBISHI.

WALL LOUVERS

TAG	MODEL No.	DUTY	SIZE WxH (INCHES)	FREE AREA (SQ.FT.)	CFM	MAX. PRESS. DROP (IN. W.C.)	OPERATOR	ACCESSORIES
WL-A	EAH-690	RELIEF	72"x18"	3.0	SEE PLANS	0.05"	ELECTRIC	1,2,3,4
WL-B	EDJ-401	EXHAUST	24"x12"	0.60	SEE PLANS	0.05"	NONE	1,2
WL-C	EDJ-401	INTAKE	30x12"	0.75	SEE PLANS	0.05"	NONE	1,2

A. FINAL COLOR SELECTION SHALL BE MADE BY ARCHITECT AT TIME OF SHOP DRAWING APPROVAL.

ACCESSORIES:

1. BIRD SCREEN. 2. BAKED ENAMEL FINISH.

3. SHALL BE NORMALLY CLOSED BUT SPEN DURING LOSS OF POWER AND DURING FIRE ALARM.
4. INTERLOCK TO FIRE ALARM SYSTEM / SMOKE DETECTOR.

ELECTIONS BASED ON GREENHECK!

HON PAN WONG 108985 REVISIONS

9-2-2011 2 9-13-2011 ANSI/FHA COMMENTS

3\9-23-2011

10-17-2011 CONSTRUCTION



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PROJECT

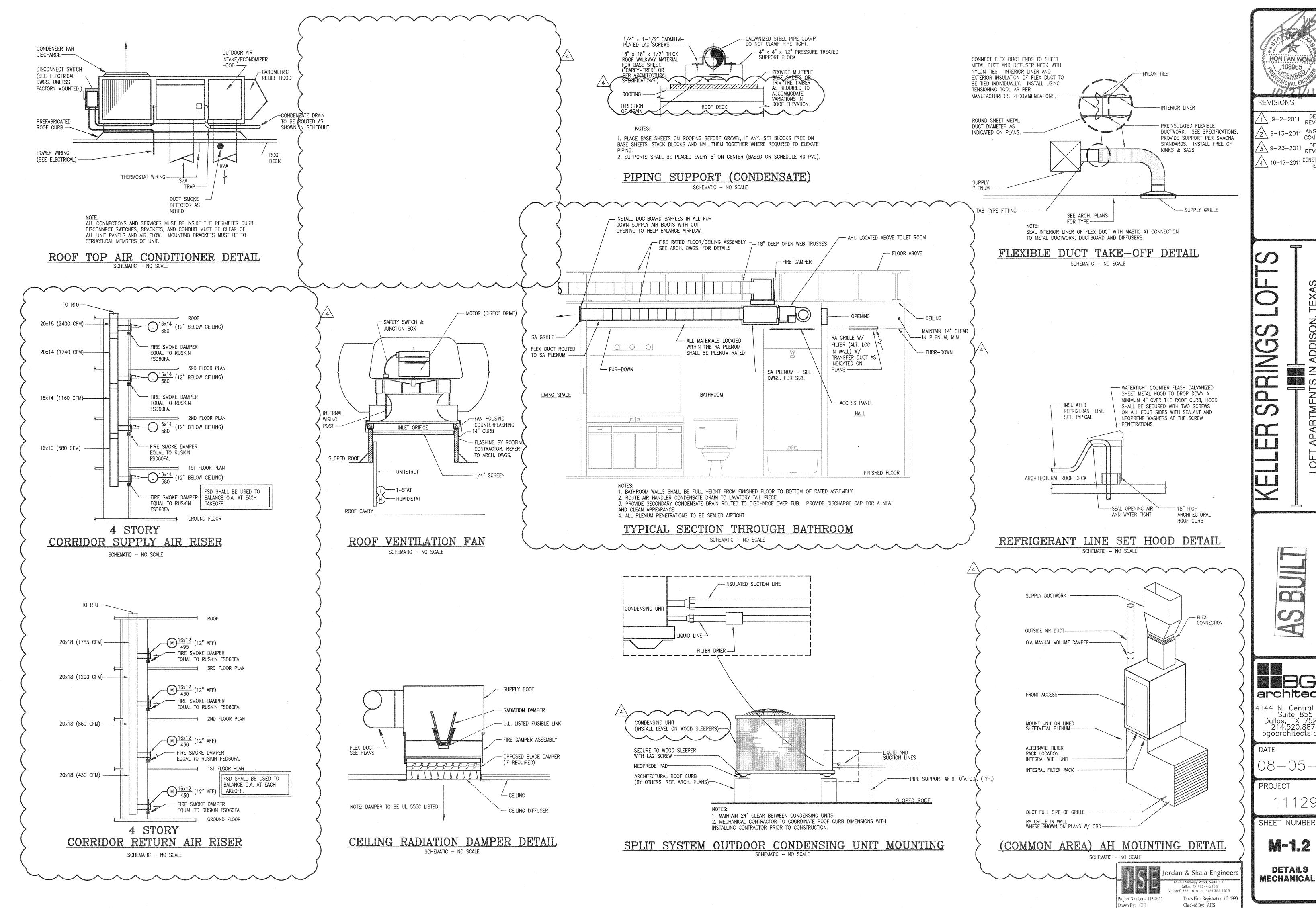
SHEET NUMBER

DETAILS &

SCHEDULES MECHANICAL

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dan & Skala Engineers



HON PAN WONG ,108965

REVISIONS

 $\sqrt{9-2-2011}$ DESIGN REVISIONS 2 9-13-2011 ANSI/FHA

COMMENTS 9-23-2011 DESIGN REVISIONS 4\ 10-17-2011 CONSTRUCTION

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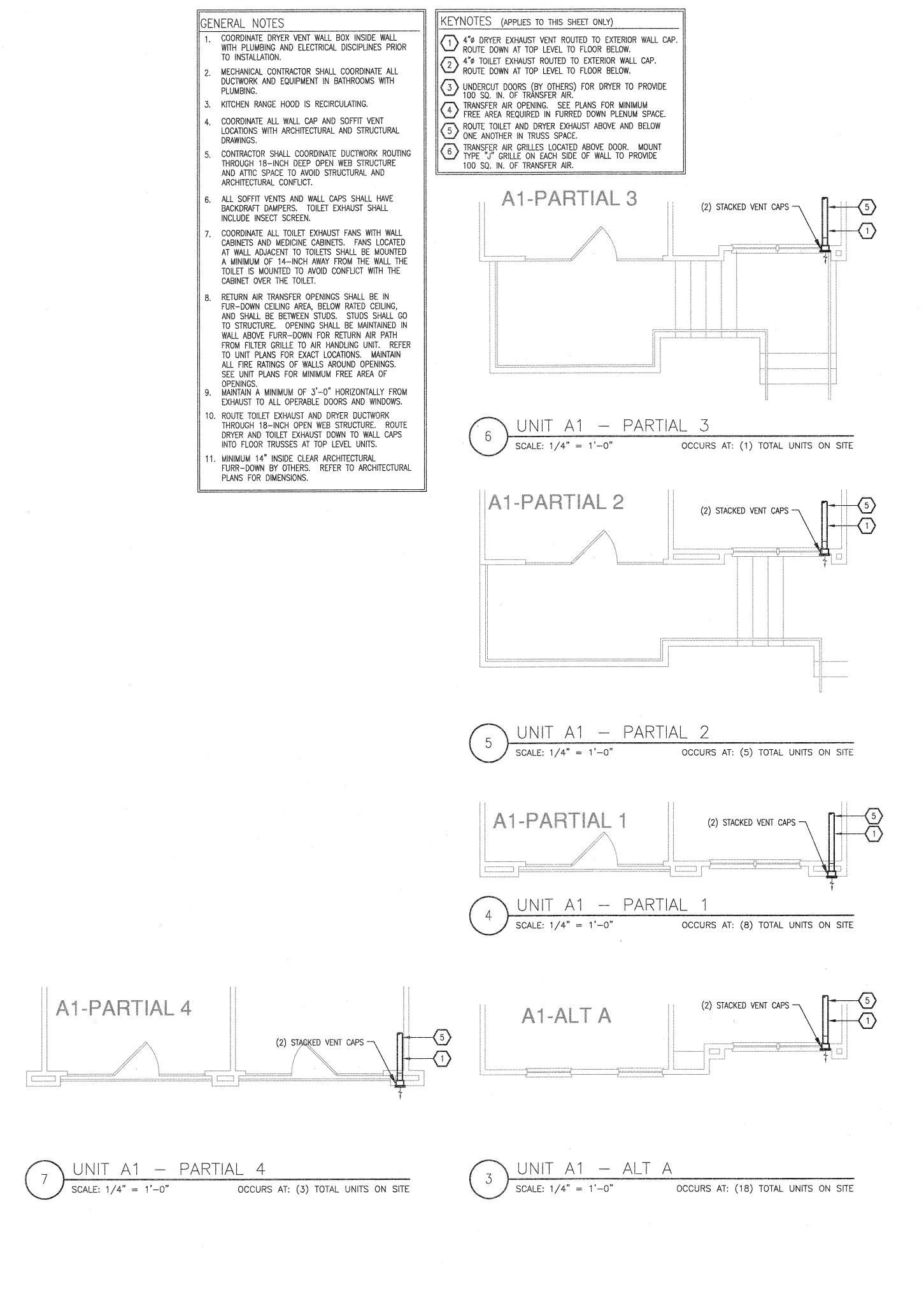
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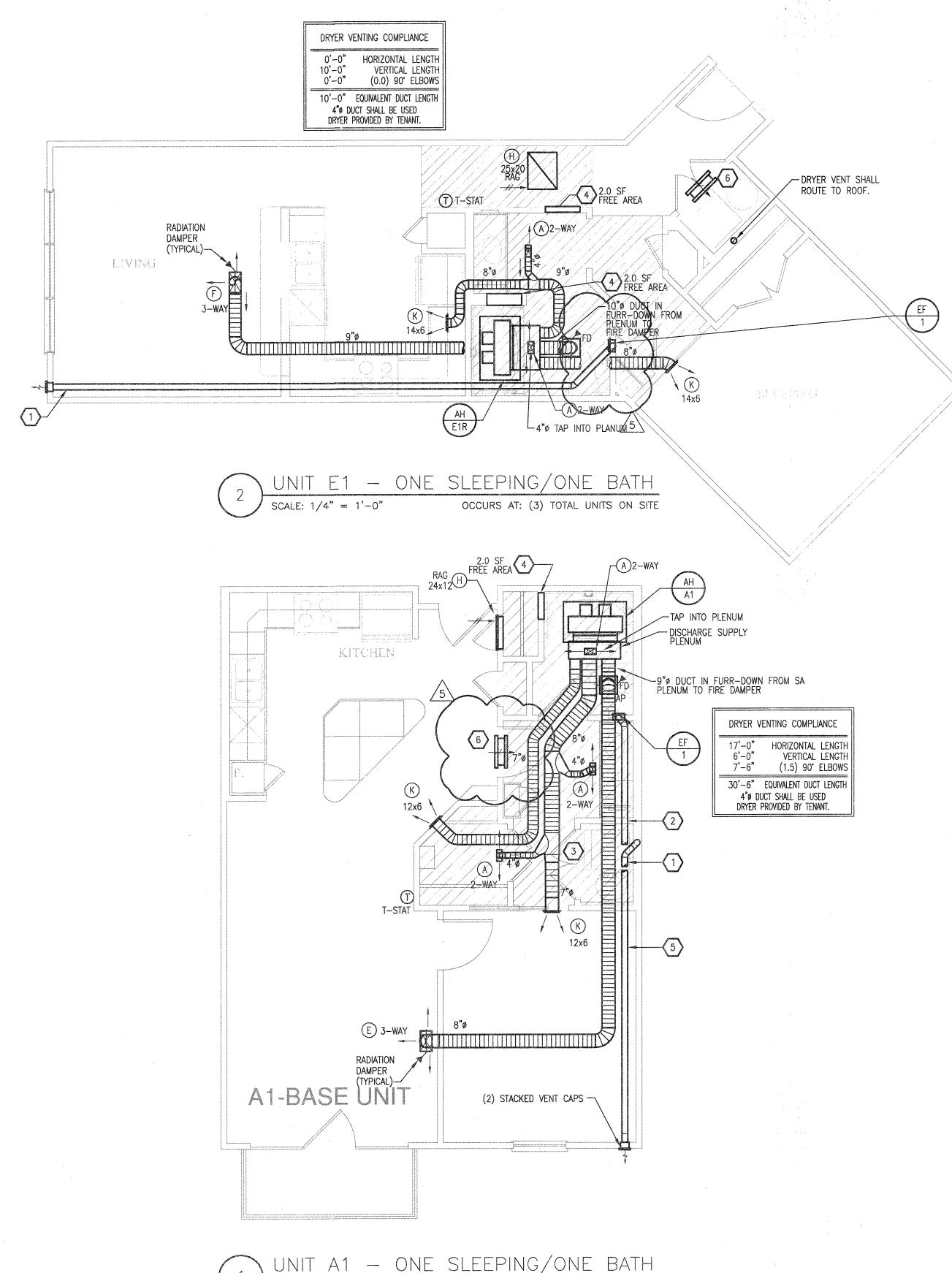
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11129

SHEET NUMBER

DETAILS





OCCURS AT: (19) TOTAL UNITS ON SITE



REVISIONS

1 9-2-2011 DESIGN REVISIONS

2 9-13-2011 ANSI/FHA COMMENTS 3 9-23-2011 DESIGN REVISIONS

4 10-17-2011 CONSTRUCTION ISSUE

5 12-21-2011 DESIGN REVISIONS

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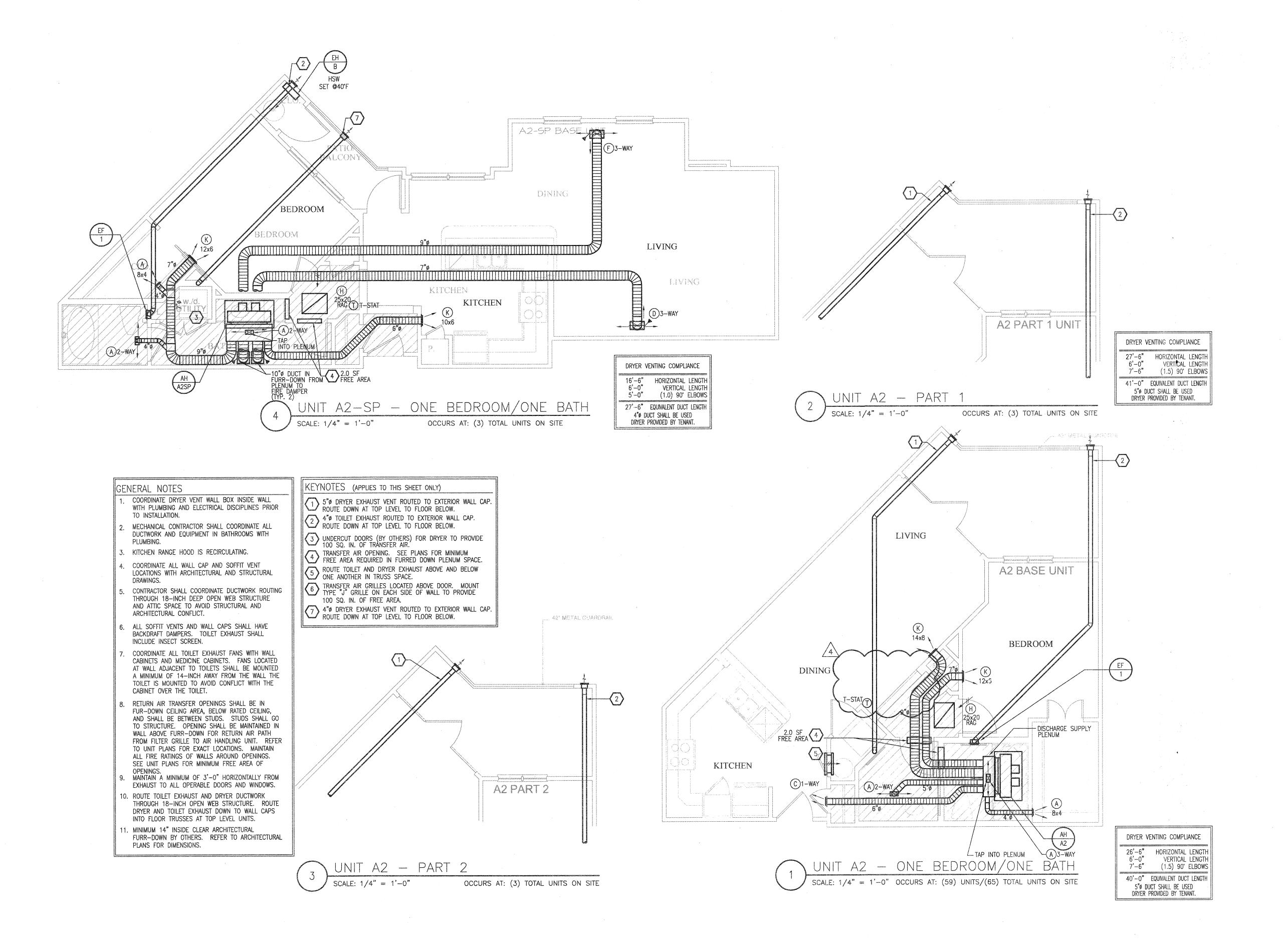
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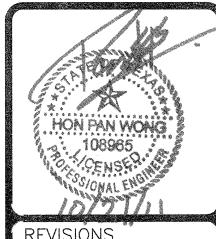
PROJECT

11129 SHEET NUMBER

M-2.1 A1 UNIT







9-2-2011 DESIGN REVISIONS 2 9-13-2011 ANSI/FHA COMMENTS

3 9-23-2011 DESIGN REVISIONS 4 10-17-2011 CONSTRUCTION ISSUE

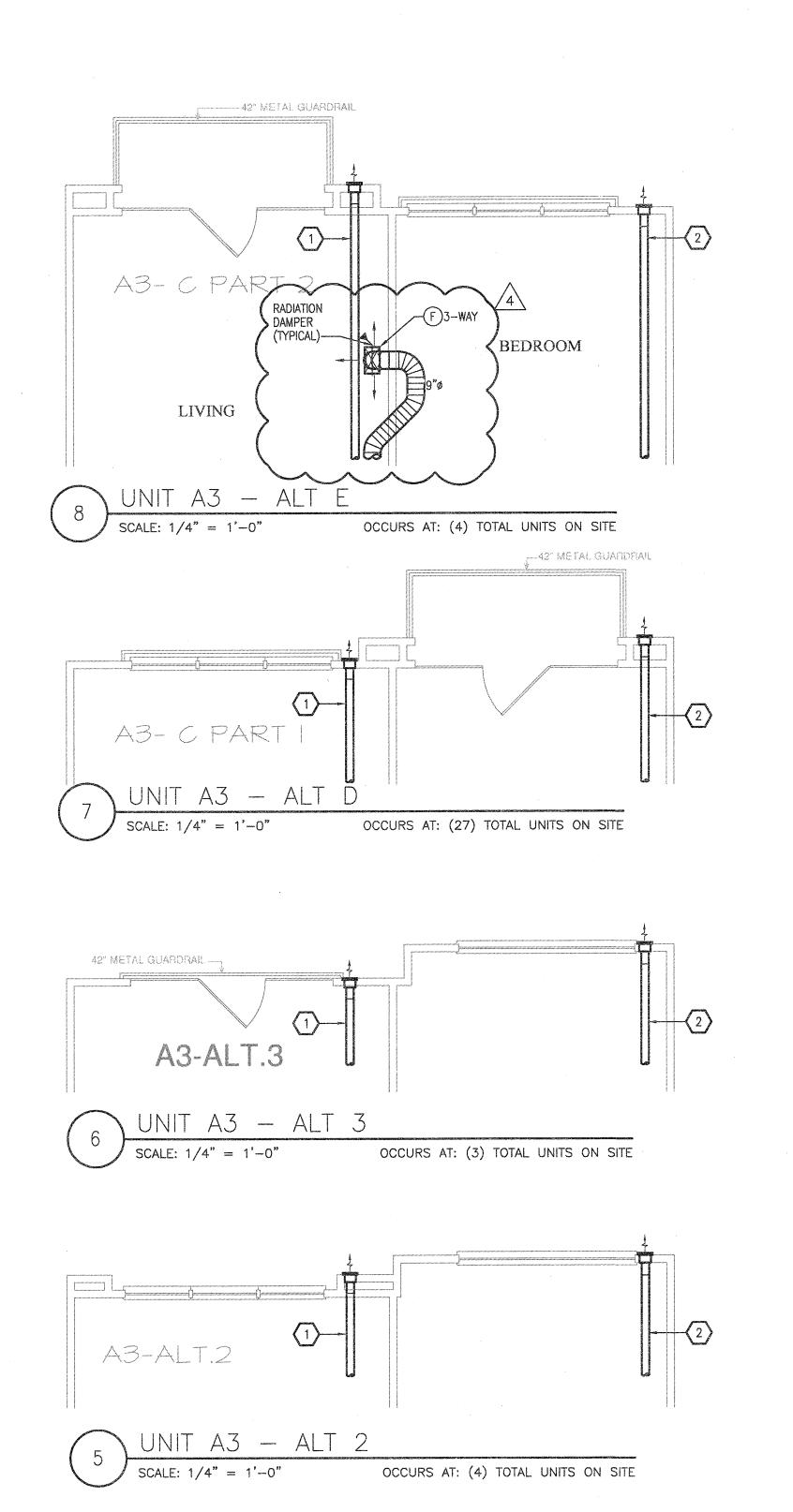


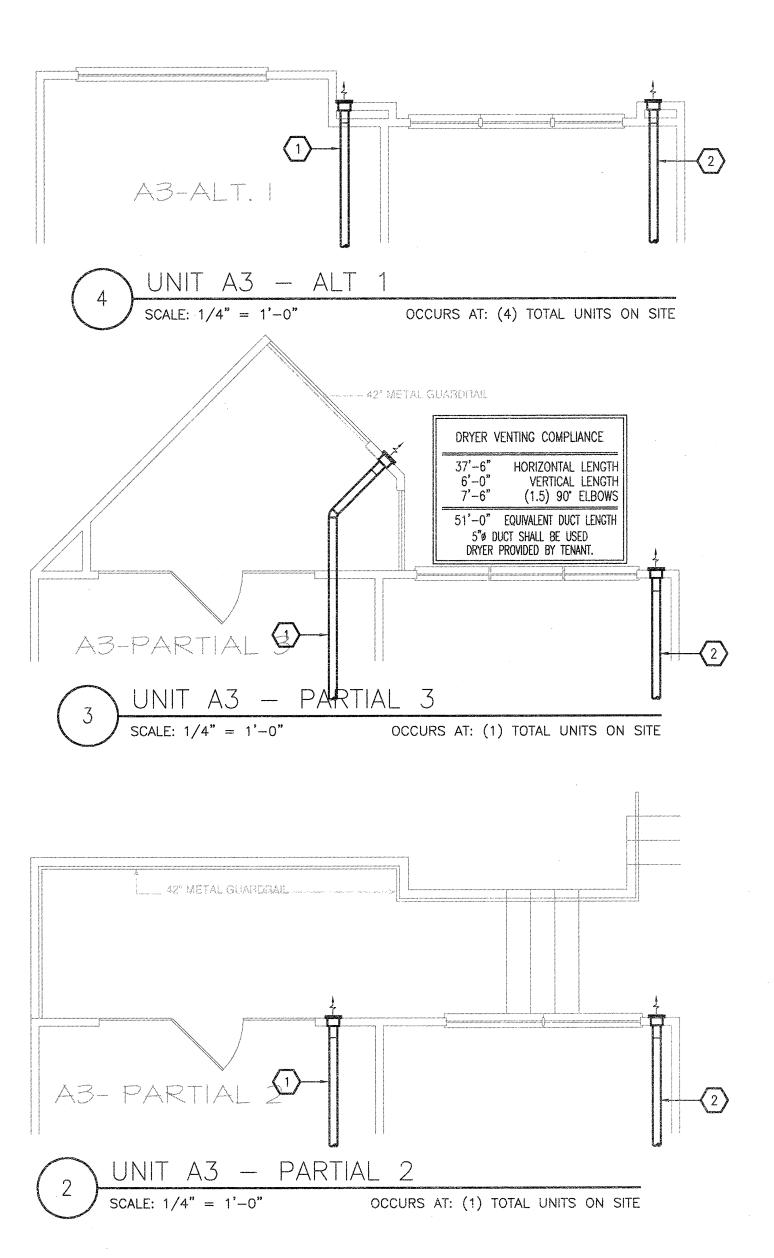
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PROJECT

SHEET NUMBER

M-2.2 A2 & A2-SP UNIT MECHANICAL





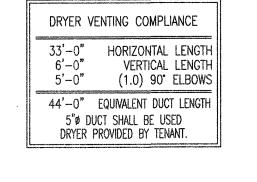
DRYER VENTING COMPLIANCE 33'-0" HORIZONTAL LENGTH VERTICAL LENGTH 5'-0" (1.0) 90° ELBOWS 44'-0" EQUIVALENT DUCT LENGTH 5"ø DUCT SHALL BE USED DRYER PROVIDED BY TENANT.

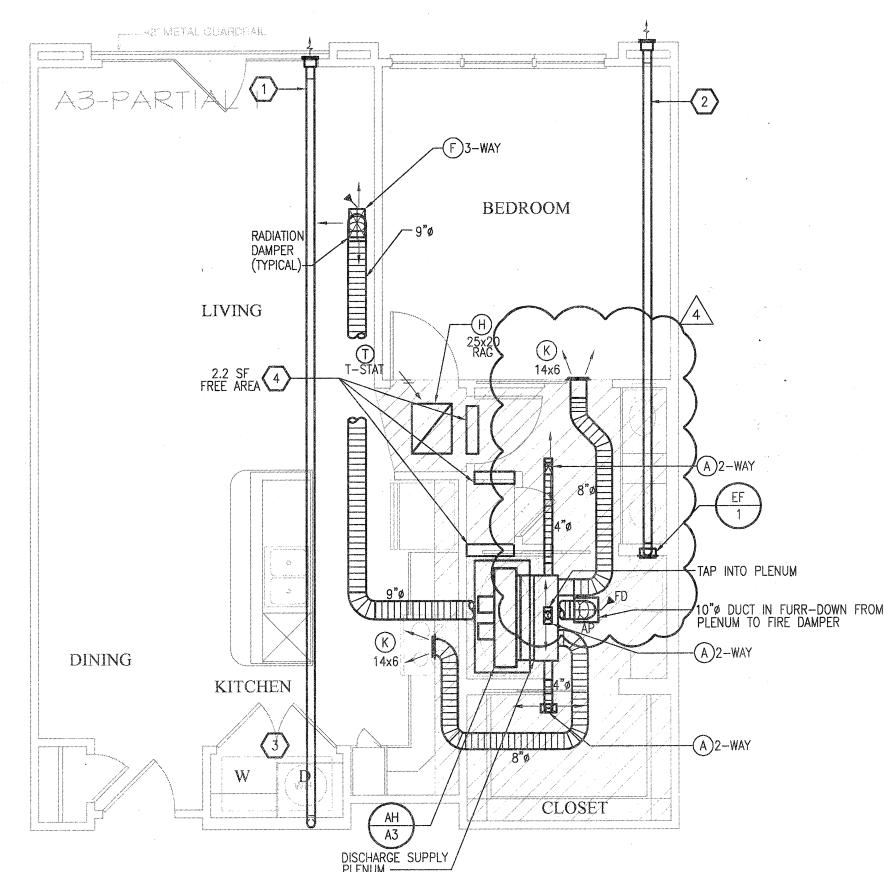
KEYNOTES (APPLIES TO THIS SHEET ONLY)

2 4"ø TOILET EXHAUST ROUTED TO EXTERIOR WALL CAP. ROUTE DOWN AT TOP LEVEL TO FLOOR BELOW.

UNDERCUT DOORS (BY OTHERS) FOR DRYER TRANSFER AIR. TO PROVIDE 100 SQ. IN. OF FREE AREA.

TRANSFER AIR OPENING. SEE PLANS FOR MINIMUM FREE AREA REQUIRED IN FURRED DOWN PLENUM SPACE.





A3 - ONE BEDROOM/ONE BATH

SCALE: 1/4" = 1'-0"OCCURS AT: (8) UNITS/(49) TOTAL A3 UNITS ON SITE

GENERAL NOTES

PLUMBING.

DRAWINGS.

ARCHITECTURAL CONFLICT.

INCLUDE INSECT SCREEN.

CABINET OVER THE TOILET.

TO INSTALLATION.

COORDINATE DRYER VENT WALL BOX INSIDE WALL WITH PLUMBING AND ELECTRICAL DISCIPLINES PRIOR

MECHANICAL CONTRACTOR SHALL COORDINATE ALL

DUCTWORK AND EQUIPMENT IN BATHROOMS WITH

KITCHEN RANGE HOOD IS RECIRCULATING.

COORDINATE ALL WALL CAP AND SOFFIT VENT LOCATIONS WITH ARCHITECTURAL AND STRUCTURAL

CONTRACTOR SHALL COORDINATE DUCTWORK ROUTING

THROUGH 18-INCH DEEP OPEN WEB STRUCTURE

AND ATTIC SPACE TO AVOID STRUCTURAL AND

ALL SOFFIT VENTS AND WALL CAPS SHALL HAVE BACKDRAFT DAMPERS. TOILET EXHAUST SHALL

COORDINATE ALL TOILET EXHAUST FANS WITH WALL CABINETS AND MEDICINE CABINETS. FANS LOCATED AT WALL ADJACENT TO TOILETS SHALL BE MOUNTED A MINIMUM OF 14-INCH AWAY FROM THE WALL THE TOILET IS MOUNTED TO AVOID CONFLICT WITH THE

RETURN AIR TRANSFER OPENINGS SHALL BE IN

FUR-DOWN CEILING AREA, BELOW RATED CEILING,

AND SHALL BE BETWEEN STUDS. STUDS SHALL GO TO STRUCTURE. OPENING SHALL BE MAINTAINED IN

WALL ABOVE FURR-DOWN FOR RETURN AIR PATH FROM FILTER GRILLE TO AIR HANDLING UNIT. REFER TO UNIT PLANS FOR EXACT LOCATIONS. MAINTAIN ALL FIRE RATINGS OF WALLS AROUND OPENINGS. SEE UNIT PLANS FOR MINIMUM FREE AREA OF

MAINTAIN A MINIMUM OF 3'-0" HORIZONTALLY FROM EXHAUST TO ALL OPERABLE DOORS AND WINDOWS.

THROUGH 18-INCH OPEN WEB STRUCTURE. ROUTE

DRYER AND TOILET EXHAUST DOWN TO WALL CAPS

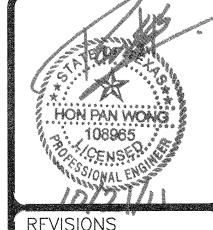
FURR-DOWN BY OTHERS. REFER TO ARCHITECTURAL

. ROUTE TOILET EXHAUST AND DRYER DUCTWORK

INTO FLOOR TRUSSES AT TOP LEVEL UNITS.

MINIMUM 14" INSIDE CLEAR ARCHITECTURAL

PLANS FOR DIMENSIONS.



1 9-2-2011 DESIGN REVISIONS /2\ 9-13-2011 ANSI/FHA COMMENTS /3\ 9-23-2011

4 10-17-2011 CONSTRUCTION ISSUE



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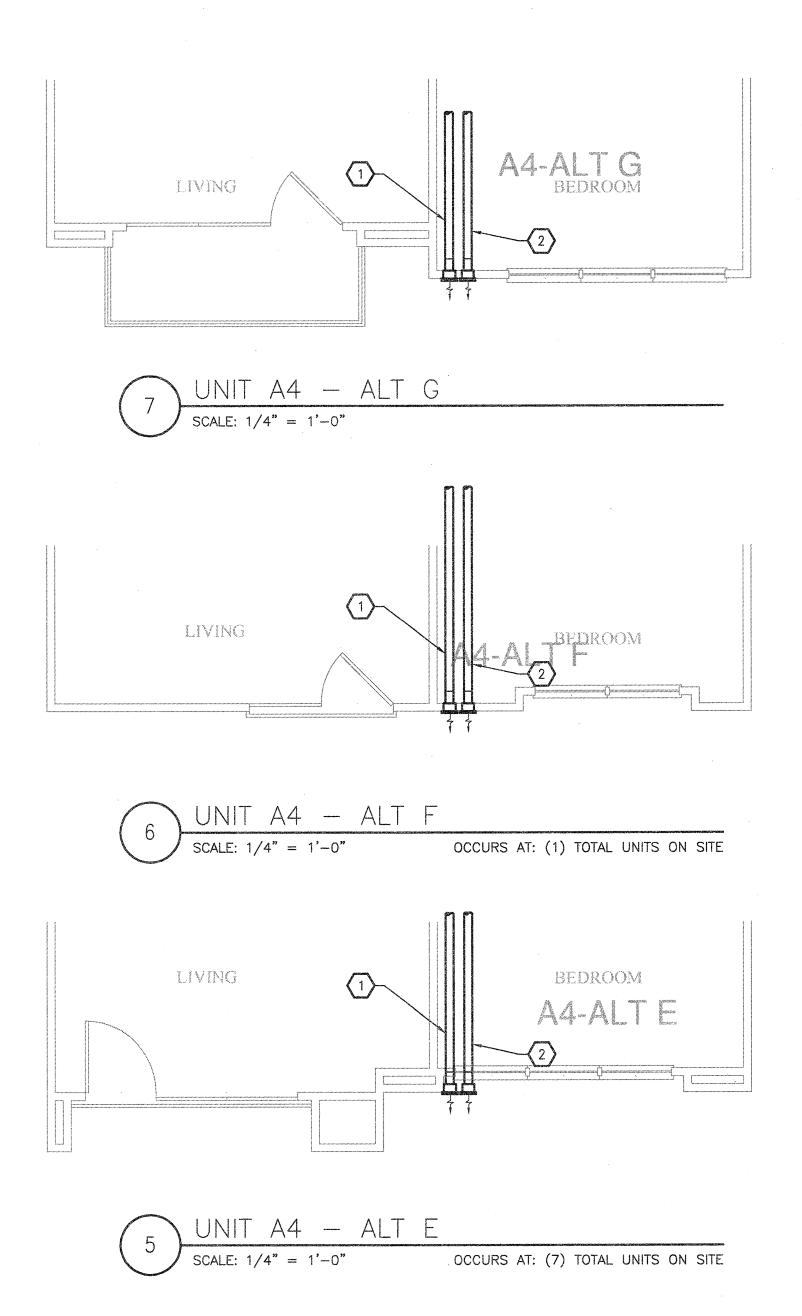
PROJECT

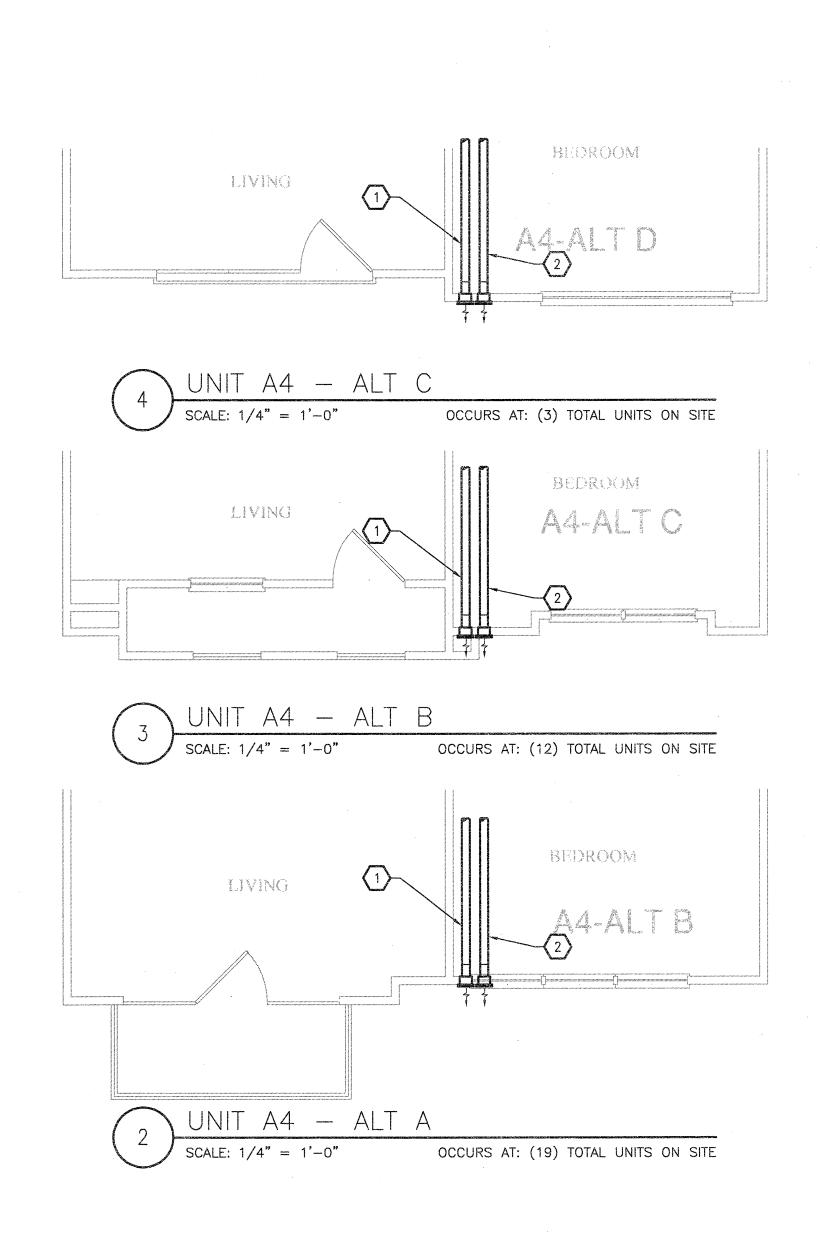
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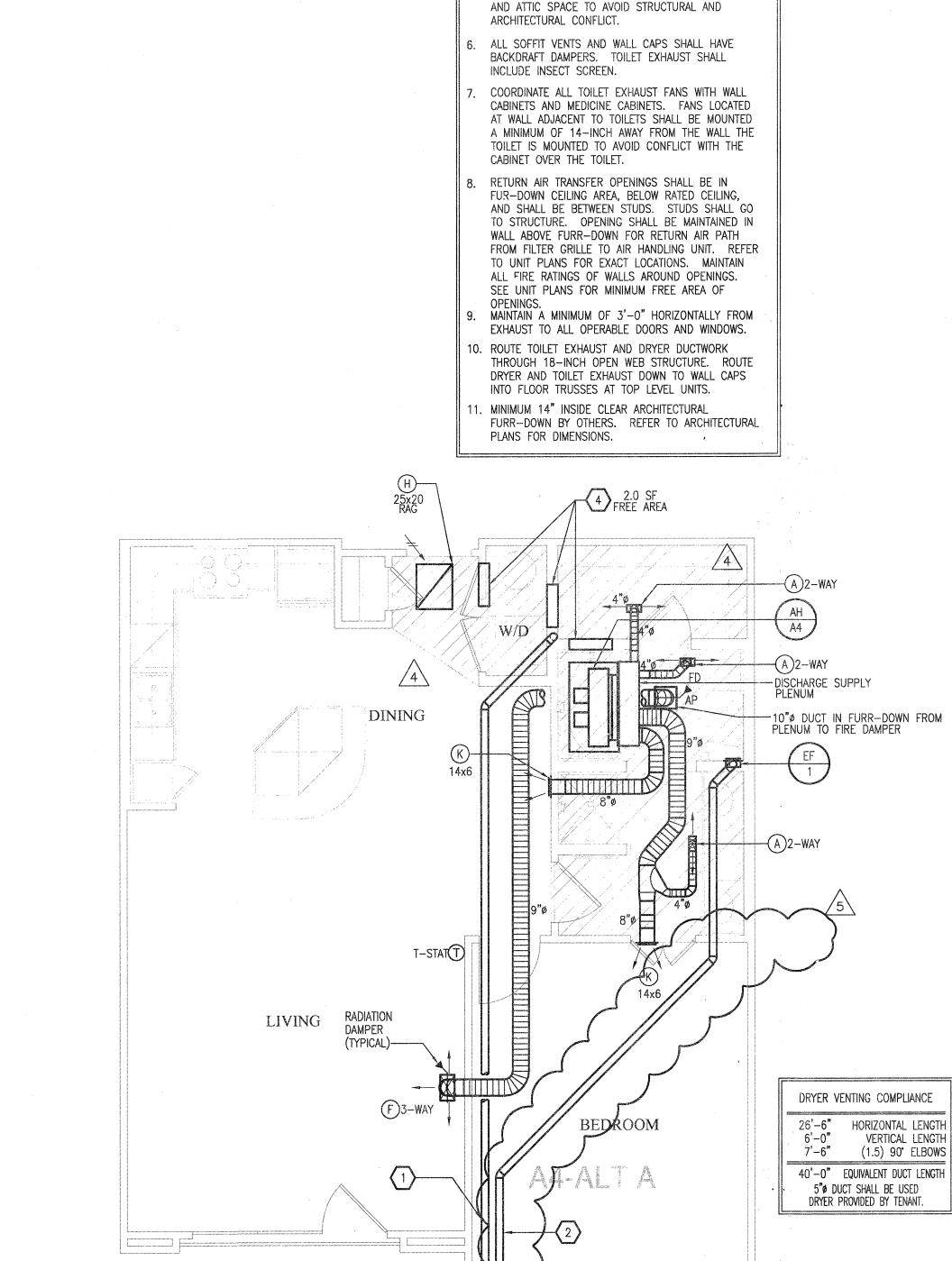
M = 2.3

A2-SP UNIT









GENERAL NOTES

TO INSTALLATION.

PLUMBING.

DRAWINGS.

COORDINATE DRYER VENT WALL BOX INSIDE WALL WITH PLUMBING AND ELECTRICAL DISCIPLINES PRIOR

MECHANICAL CONTRACTOR SHALL COORDINATE ALL DUCTWORK AND EQUIPMENT IN BATHROOMS WITH

KITCHEN RANGE HOOD IS RECIRCULATING.

OCCURS AT: (1) TOTAL UNITS ON SITE

COORDINATE ALL WALL CAP AND SOFFIT VENT

LOCATIONS WITH ARCHITECTURAL AND STRUCTURAL

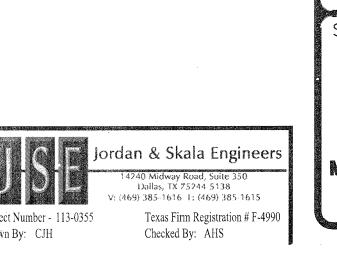
CONTRACTOR SHALL COORDINATE DUCTWORK ROUTING THROUGH 18-INCH DEEP OPEN WEB STRUCTURE

KEYNOTES (APPLIES TO THIS SHEET ONLY)

4" TOILET EXHAUST ROUTED TO EXTERIOR WALL CAP. ROUTE DOWN AT TOP LEVEL TO FLOOR BELOW.

3 UNDERCUT DOORS (BY OTHERS) FOR DRYER TO PROVIDE 100 SQ. IN. OF TRANSFER AIR.

TRANSFER AIR OPENING. SEE PLANS FOR MINIMUM FREE AREA REQUIRED IN FURRED DOWN PLENUM SPACE.



DRYER VENTING COMPLIANCE

26'-6" HORIZONTAL LENGTH 6'-0" VERTICAL LENGTH 7'-6" (1.5) 90' ELBOWS

40'-0" EQUIVALENT DUCT LENGTH

5" DUCT SHALL BE USED DRYER PROVIDED BY TENANT.

REVISIONS

9-2-2011 DESIGN REVISIONS /2\ 9-13-2011 ANSI/FHA COMMENTS /3\9-23-2011

/4\ 10-17-2011 CONSTRUCTION

5 12-21-2011 DESIGN REVISIONS

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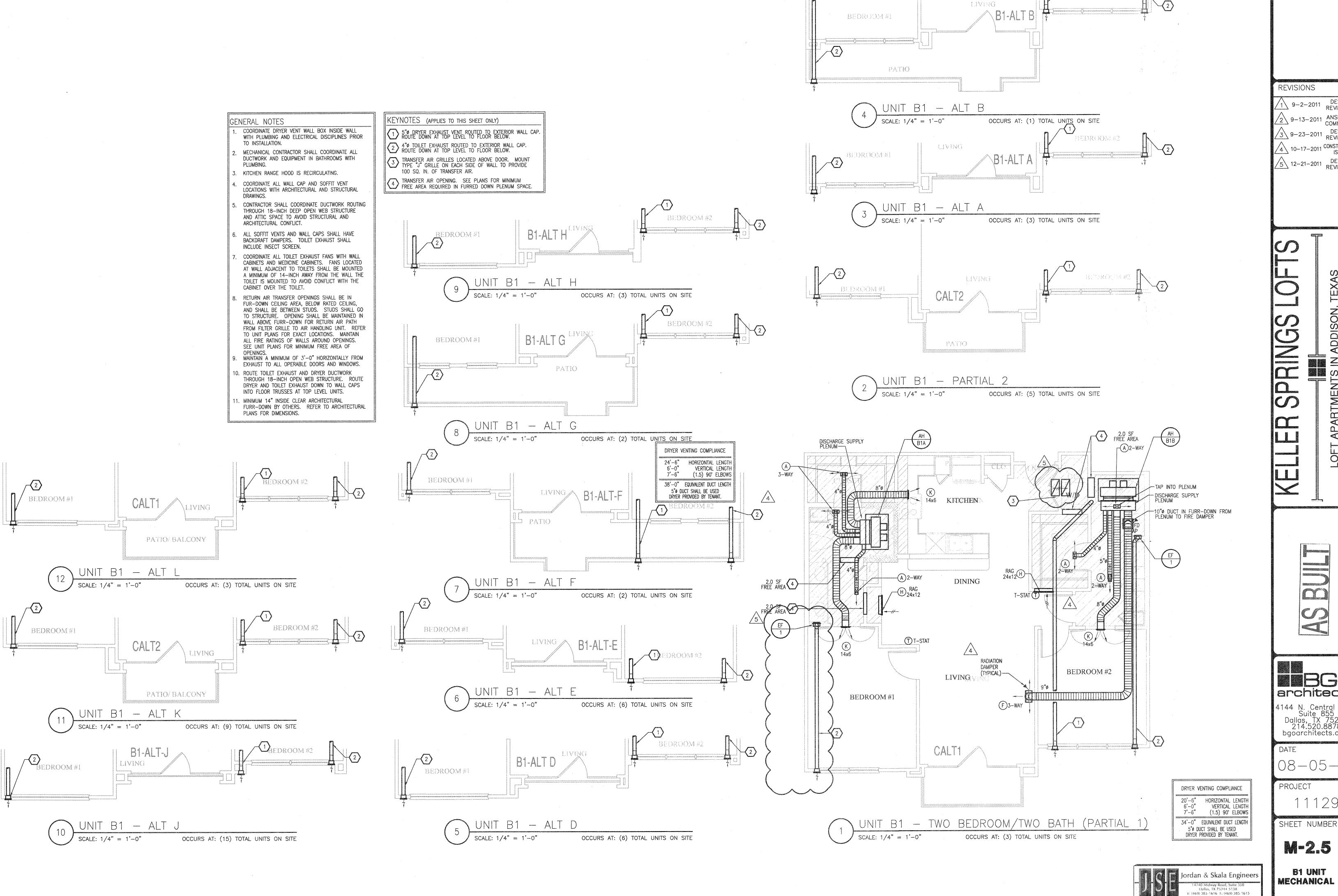
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A4 UNIT MECHANICAL



REVISIONS

1 9-2-2011 DESIGN REVISIONS /2\ 9-13-2011 ANSI/FHA 3 9-23-2011 DESIGN REVISIONS

4 10-17-2011 CONSTRUCTION ISSUE 5 12-21-2011 DESIGN REVISIONS

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PROJECT

M=2.5

B1 UNIT MECHANICAL

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- COORDINATE DRYER VENT WALL BOX INSIDE WALL WITH PLUMBING AND ELECTRICAL DISCIPLINES PRIOR TO INSTALLATION.
- MECHANICAL CONTRACTOR SHALL COORDINATE ALL DUCTWORK AND EQUIPMENT IN BATHROOMS WITH PLUMBING.
- KITCHEN RANGE HOOD IS RECIRCULATING.
- COORDINATE ALL WALL CAP AND SOFFIT VENT LOCATIONS WITH ARCHITECTURAL AND STRUCTURAL
- CONTRACTOR SHALL COORDINATE DUCTWORK ROUTING THROUGH 18-INCH DEEP OPEN WEB STRUCTURE AND ATTIC SPACE TO AVOID STRUCTURAL AND ARCHITECTURAL CONFLICT.
- ALL SOFFIT VENTS AND WALL CAPS SHALL HAVE BACKDRAFT DAMPERS. TOILET EXHAUST SHALL INCLUDE INSECT SCREEN.
- COORDINATE ALL TOILET EXHAUST FANS WITH WALL CABINETS AND MEDICINE CABINETS. FANS LOCATED AT WALL ADJACENT TO TOILETS SHALL BE MOUNTED A MINIMUM OF 14-INCH AWAY FROM THE WALL THE TOILET IS MOUNTED TO AVOID CONFLICT WITH THE CABINET OVER THE TOILET.
- RETURN AIR TRANSFER OPENINGS SHALL BE IN FUR-DOWN CEILING AREA, BELOW RATED CEILING, AND SHALL BE BETWEEN STUDS. STUDS SHALL GO TO STRUCTURE. OPENING SHALL BE MAINTAINED IN WALL ABOVE FURR-DOWN FOR RETURN AIR PATH FROM FILTER GRILLE TO AIR HANDLING UNIT. REFER TO UNIT PLANS FOR EXACT LOCATIONS. MAINTAIN ALL FIRE RATINGS OF WALLS AROUND OPENINGS. SEE UNIT PLANS FOR MINIMUM FREE AREA OF
- MAINTAIN A MINIMUM OF 3'-0" HORIZONTALLY FROM
- EXHAUST TO ALL OPERABLE DOORS AND WINDOWS. 10. ROUTE TOILET EXHAUST AND DRYER DUCTWORK THROUGH 18-INCH OPEN WEB STRUCTURE. ROUTE
- DRYER AND TOILET EXHAUST DOWN TO WALL CAPS INTO FLOOR TRUSSES AT TOP LEVEL UNITS.
- 1. MINIMUM 14" INSIDE CLEAR ARCHITECTURAL FURR-DOWN BY OTHERS. REFER TO ARCHITECTURAL PLANS FOR DIMENSIONS.

KEYNOTES (APPLIES TO THIS SHEET ONLY)

- 4"0 TOILET EXHAUST ROUTED TO EXTERIOR WALL CAP. ROUTE DOWN AT TOP LEVEL TO FLOOR BELOW.
- UNDERCUT DOORS (BY OTHERS) FOR DRYER TRANSFER AIR TO PROVIDE 100 SQ. IN. OF TRANSFER AIR.
- TRANSFER AIR OPENING. SEE PLANS FOR MINIMUM FREE AREA REQUIRED IN FURRED DOWN PLENUM SPACE.

REVISIONS

1 9-2-2011 DESIGN REVISIONS 9-13-2011 ANSI/FHA COMMENTS

3 9-23-2011 DESIGN REVISIONS 4 10-17-2011 CONSTRUCTION ISSUE



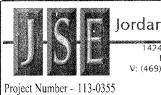
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M = 2.6**B2 UNIT**

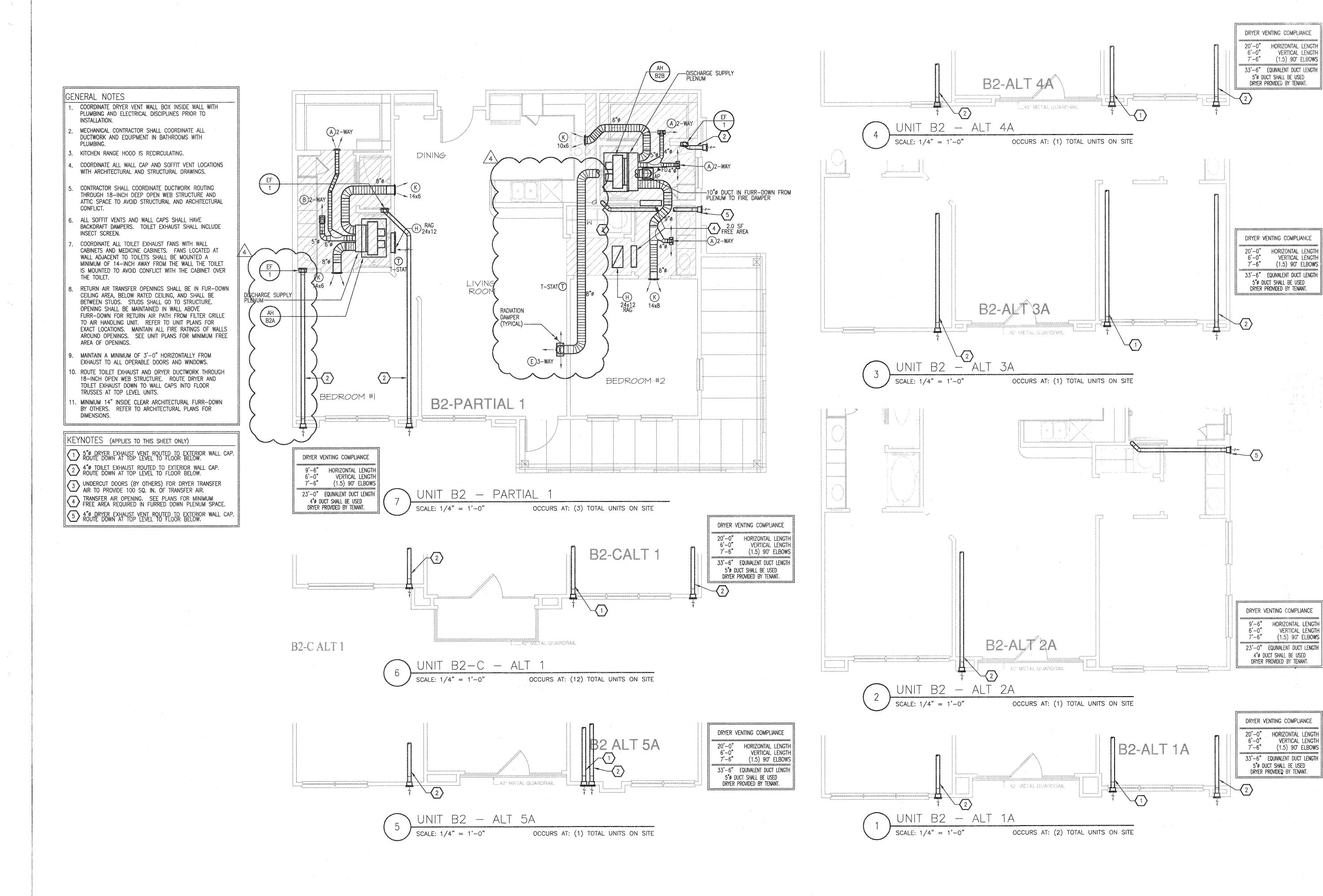
MECHANICAL



Drawn By: CJH

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Texas Firm Registration # F-4990 Checked By: AHS







1 9-2-2011 DESIGN REVISIONS 2 9-13-2011 ANSI/FHA COMMENTS 3 9-23-2011 DESIGN REVISIONS 4 10-17-2011 CONSTRUCTION ISSUE

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B2 ALT UNIT MECHANICAL

REVISIONS

1 9-2-2011 DESIGN REVISIONS 2 9-13-2011 ANSI/FHA COMMENTS

3 9-23-2011 DESIGN REVISIONS 4 10-17-2011 CONSTRUCTION ISSUE

MECHANICAL CONTRACTOR SHALL COORDINATE ALL DUCTWORK AND EQUIPMENT IN BATHROOMS WITH

KITCHEN RANGE HOOD IS RECIRCULATING.

COORDINATE ALL WALL CAP AND SOFFIT VENT LOCATIONS WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS.

CONTRACTOR SHALL COORDINATE DUCTWORK ROUTING THROUGH 18-INCH DEEP OPEN WEB STRUCTURE AND ATTIC SPACE TO AVOID STRUCTURAL AND ARCHITECTURAL

ALL SOFFIT VENTS AND WALL CAPS SHALL HAVE BACKDRAFT DAMPERS. TOILET EXHAUST SHALL

COORDINATE ALL TOILET EXHAUST FANS WITH WALL CABINETS AND MEDICINE CABINETS. FANS LOCATED AT WALL ADJACENT TO TOILETS SHALL BE MOUNTED A MINIMUM OF 14-INCH AWAY FROM THE WALL THE TOILET IS MOUNTED TO AVOID CONFLICT WITH THE CABINET OVER

RETURN AIR TRANSFER OPENINGS SHALL BE IN FUR-DOWN CEILING AREA, BELOW RATED CEILING, AND SHALL BE BETWEEN STUDS. STUDS SHALL GO TO STRUCTURE. OPENING SHALL BE MAINTAINED IN WALL ABOVE FURR-DOWN FOR RETURN AIR PATH FROM FILTER GRILLE TO AIR HANDLING UNIT. REFER TO UNIT PLANS FOR EXACT LOCATIONS. MAINTAIN ALL FIRE RATINGS OF WALLS AROUND OPENINGS. SEE UNIT PLANS FOR MINIMUM FREE

MAINTAIN A MINIMUM OF 3'-0" HORIZONTALLY FROM EXHAUST TO ALL OPERABLE DOORS AND WINDOWS. O. ROUTE TOILET EXHAUST AND DRYER DUCTWORK THROUGH 18-INCH OPEN WEB STRUCTURE. ROUTE DRYER AND TOILET EXHAUST DOWN TO WALL CAPS INTO FLOOR TRUSSES AT TOP LEVEL UNITS.

MINIMUM 14" INSIDE CLEAR ARCHITECTURAL FURR-DOWN BY OTHERS. REFER TO ARCHITECTURAL PLANS FOR

KEYNOTES (APPLIES TO THIS SHEET ONLY)

4" TOILET EXHAUST ROUTED TO EXTERIOR WALL CAP. ROUTE DOWN AT TOP LEVEL TO FLOOR BELOW.

UNDERCUT DOORS (BY OTHERS) FOR DRYER TO PROVIDE 100 SQ. IN. OF TRANSFER AIR.

TRANSFER AIR OPENING. SEE PLANS FOR MINIMUM FREE AREA REQUIRED IN FURRED DOWN PLENUM SPACE.

lordan & Skala Engineers

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Checked By: AHS

Texas Firm Registration # F-4990

Project Number - 113-0355

Drawn By: CJH

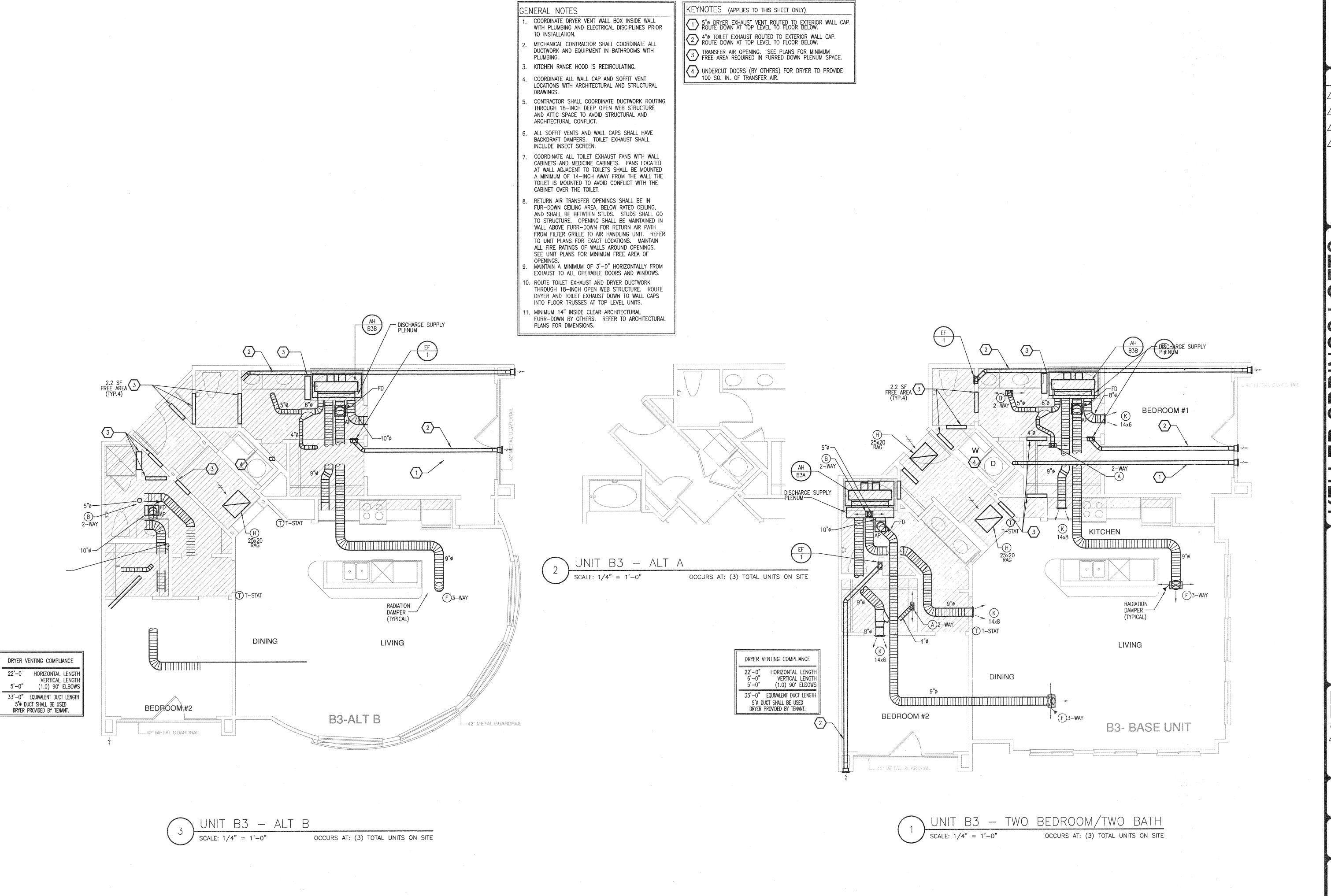


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PROJECT

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M = 2.8**B2** & **B2 ALT UNIT** MECHANICAL



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REVISIONS

9-2-2011 DESIGN REVISIONS

9-13-2011 ANSI/FHA COMMENTS

3 9-23-2011 DESIGN REVISIONS

10-17-2011 CONSTRUCTION ISSUE

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PROJECT

11129 SHEET NUMBER

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B3 &

B3 ALT UNIT

MECHANICAL

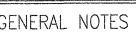
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Dallas, TX 75244-5138
V: (469) 385-1616
F: (469) 385-1615
Texas Firm Registration # F-4990
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SCALE: 1/4" = 1'-0"

UNIT B3-1 - TWO BEDROOM/TWO BATH

OCCURS AT: (1) TOTAL UNITS ON SITE



- COORDINATE DRYER VENT WALL BOX INSIDE WALL WITH
 PLUMBING AND ELECTRICAL DISCIPLINES PRIOR TO
 INSTALLATION.
- 2. MECHANICAL CONTRACTOR SHALL COORDINATE ALL DUCTWORK AND EQUIPMENT IN BATHROOMS WITH PLUMBING.
- 3. KITCHEN RANGE HOOD IS RECIRCULATING.
- 4. COORDINATE ALL WALL CAP AND SOFFIT VENT LOCATIONS WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS.
- 5. CONTRACTOR SHALL COORDINATE DUCTWORK ROUTING THROUGH 18-INCH DEEP OPEN WEB STRUCTURE AND ATTIC SPACE TO AVOID STRUCTURAL AND ARCHITECTURAL CONFLICT.
- 6. ALL SOFFIT VENTS AND WALL CAPS SHALL HAVE BACKDRAFT DAMPERS. TOILET EXHAUST SHALL INCLUDE INSECT SCREEN.
- 7. COORDINATE ALL TOILET EXHAUST FANS WITH WALL CABINETS AND MEDICINE CABINETS. FANS LOCATED AT WALL ADJACENT TO TOILETS SHALL BE MOUNTED A MINIMUM OF 14—INCH AWAY FROM THE WALL THE TOILET IS MOUNTED TO AVOID CONFLICT WITH THE CABINET OVER THE TOILET.
- 8. RETURN AIR TRANSFER OPENINGS SHALL BE IN FUR-DOWN CEILING AREA, BELOW RATED CEILING, AND SHALL BE BETWEEN STUDS. STUDS SHALL GO TO STRUCTURE. OPENING SHALL BE MAINTAINED IN WALL ABOVE FURR-DOWN FOR RETURN AIR PATH FROM FILTER GRILLE TO AIR HANDLING UNIT. REFER TO UNIT PLANS FOR EXACT LOCATIONS. MAINTAIN ALL FIRE RATINGS OF WALLS AROUND OPENINGS. SEE UNIT PLANS FOR MINIMUM FREE AREA OF OPENINGS.
- MAINTAIN A MINIMUM OF 3'-0" HORIZONTALLY FROM EXHAUST TO ALL OPERABLE DOORS AND WINDOWS.
- 10. ROUTE TOILET EXHAUST AND DRYER DUCTWORK THROUGH
 18-INCH OPEN WEB STRUCTURE. ROUTE DRYER AND
 TOILET EXHAUST DOWN TO WALL CAPS INTO FLOOR
 TRUSSES AT TOP LEVEL UNITS.
- 11. MINIMUM 14" INSIDE CLEAR ARCHITECTURAL FURR-DOWN BY OTHERS. REFER TO ARCHITECTURAL PLANS FOR DIMENSIONS.

KEYNOTES (APPLIES TO THIS SHEET ONLY)

- 5 % DRYER EXHAUST VENT ROUTED TO EXTERIOR WALL CAP.
- 4" TOILET EXHAUST ROUTED TO EXTERIOR WALL CAP. ROUTE DOWN AT TOP LEVEL TO FLOOR BELOW.
- TRANSFER AIR OPENING. SEE PLANS FOR MINIMUM FREE AREA REQUIRED IN FURRED DOWN PLENUM SPACE.
- 4 UNDERCUT DOORS (BY OTHERS) FOR DRYER TO PROVIDE 100 SQ. IN. OF TRANSFER AIR.

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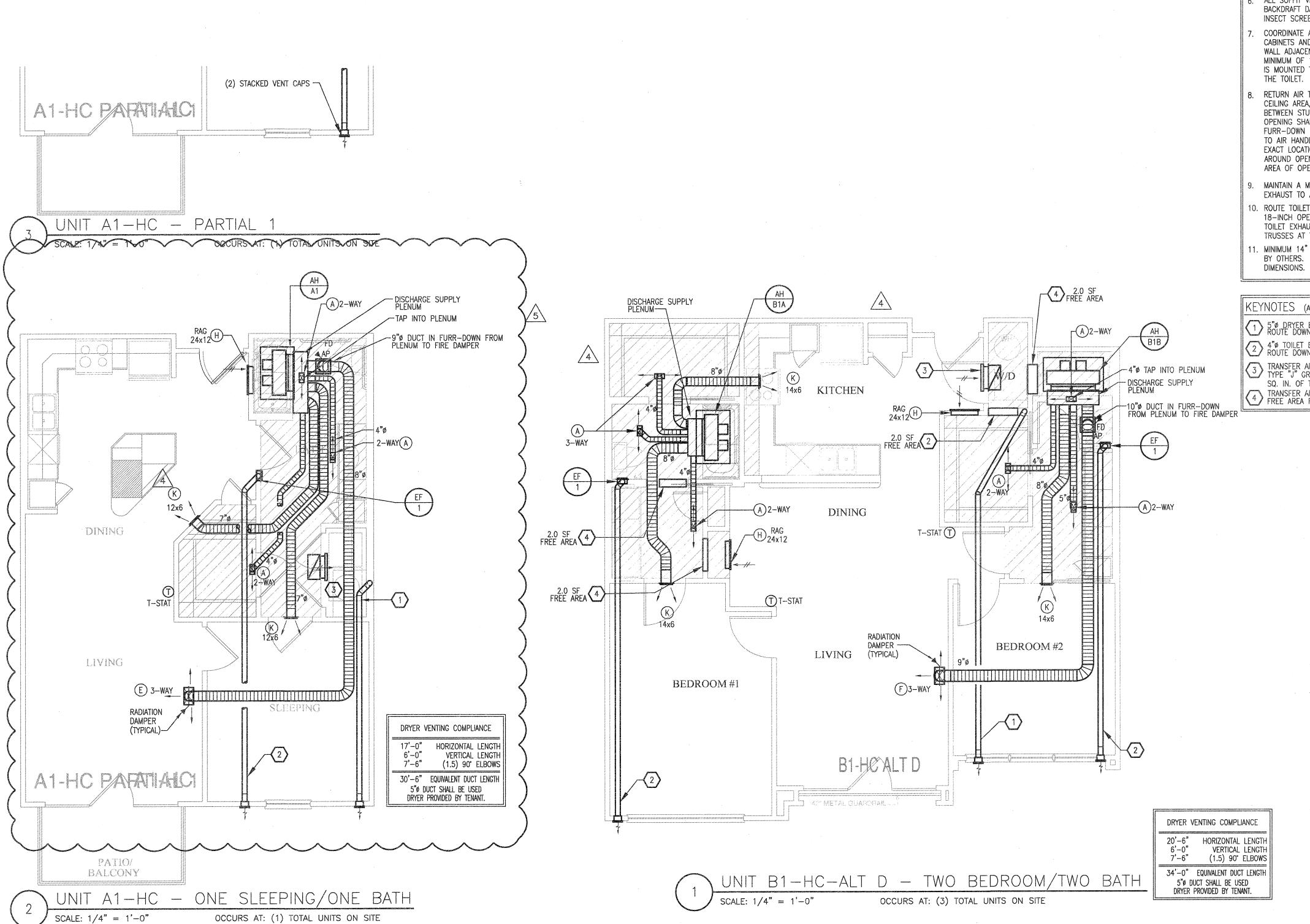
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V: (469) 385-1616 1: (469) 385-1615

Project Number - 113-0355

Drawn By: CJH

Checked By: AHS



GENERAL NOTES

- COORDINATE DRYER VENT WALL BOX INSIDE WALL WITH PLUMBING AND ELECTRICAL DISCIPLINES PRIOR TO INSTALLATION.
- MECHANICAL CONTRACTOR SHALL COORDINATE ALL DUCTWORK AND EQUIPMENT IN BATHROOMS WITH PLUMBING.
- KITCHEN RANGE HOOD IS RECIRCULATING.
- COORDINATE ALL WALL CAP AND SOFFIT VENT LOCATIONS WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS.
- CONTRACTOR SHALL COORDINATE DUCTWORK ROUTING THROUGH 18-INCH DEEP OPEN WEB STRUCTURE AND ATTIC SPACE TO AVOID STRUCTURAL AND ARCHITECTURAL
- ALL SOFFIT VENTS AND WALL CAPS SHALL HAVE BACKDRAFT DAMPERS. TOILET EXHAUST SHALL INCLUDE INSECT SCREEN.
- COORDINATE ALL TOILET EXHAUST FANS WITH WALL CABINETS AND MEDICINE CABINETS. FANS LOCATED AT WALL ADJACENT TO TOILETS SHALL BE MOUNTED A MINIMUM OF 14-INCH AWAY FROM THE WALL THE TOILET IS MOUNTED TO AVOID CONFLICT WITH THE CABINET OVER
- RETURN AIR TRANSFER OPENINGS SHALL BE IN FUR-DOWN CEILING AREA, BELOW RATED CEILING, AND SHALL BE BETWEEN STUDS. STUDS SHALL GO TO STRUCTURE. OPENING SHALL BE MAINTAINED IN WALL ABOVE FURR-DOWN FOR RETURN AIR PATH FROM FILTER GRILLE TO AIR HANDLING UNIT. REFER TO UNIT PLANS FOR EXACT LOCATIONS. MAINTAIN ALL FIRE RATINGS OF WALLS AROUND OPENINGS. SEE UNIT PLANS FOR MINIMUM FREE AREA OF OPENINGS.
- MAINTAIN A MINIMUM OF 3'-0" HORIZONTALLY FROM EXHAUST TO ALL OPERABLE DOORS AND WINDOWS.
- O. ROUTE TOILET EXHAUST AND DRYER DUCTWORK THROUGH 18-INCH OPEN WEB STRUCTURE. ROUTE DRYER AND TOILET EXHAUST DOWN TO WALL CAPS INTO FLOOR TRUSSES AT TOP LEVEL UNITS.
- 1. MINIMUM 14" INSIDE CLEAR ARCHITECTURAL FURR-DOWN BY OTHERS. REFER TO ARCHITECTURAL PLANS FOR

- 2 4"0 TOILET EXHAUST ROUTED TO EXTERIOR WALL CAP. ROUTE DOWN AT TOP LEVEL TO FLOOR BELOW.
- SQ. IN. OF TRANSFER AIR...

KEYNOTES (APPLIES TO THIS SHEET ONLY)

TRANSFER AIR GRILLES LOCATED ABOVE DOOR. MOUNT TYPE "J" GRILLE WALL AND CEILING TO PROVIDE 100

TRANSFER AIR OPENING. SEE PLANS FOR MINIMUM FREE AREA REQUIRED IN FURRED DOWN PLENUM SPACE.

REVISIONS

1 9-2-2011 DESIGN REVISIONS

2 9-13-2011 ANSI/FHA

 $\sqrt{3}$ 9-23-2011 DESIGN REVISIONS

4 10-17-2011 CONSTRUCTION

5 12-21-2011 DESIGN REVISIONS

COMMENTS



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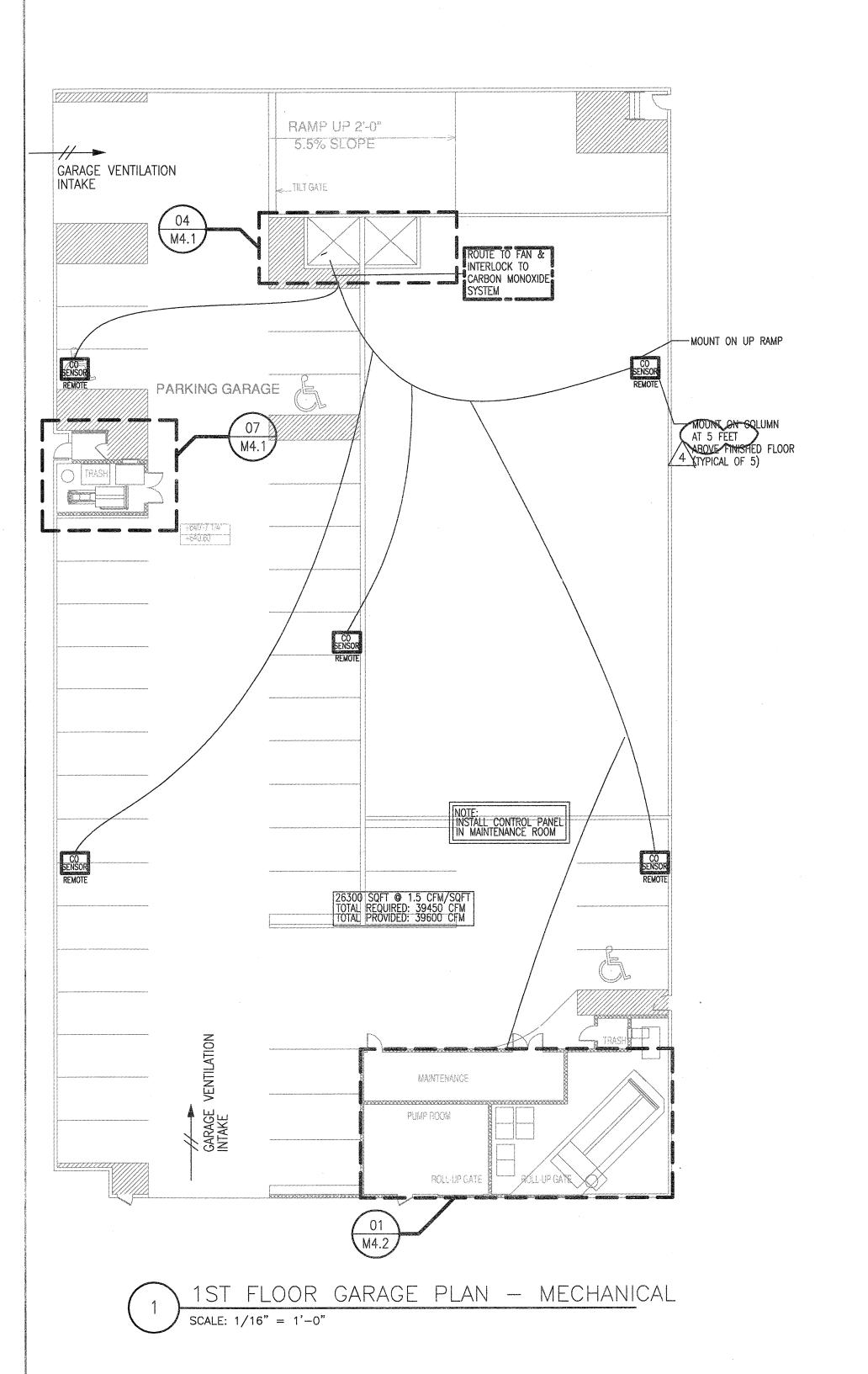
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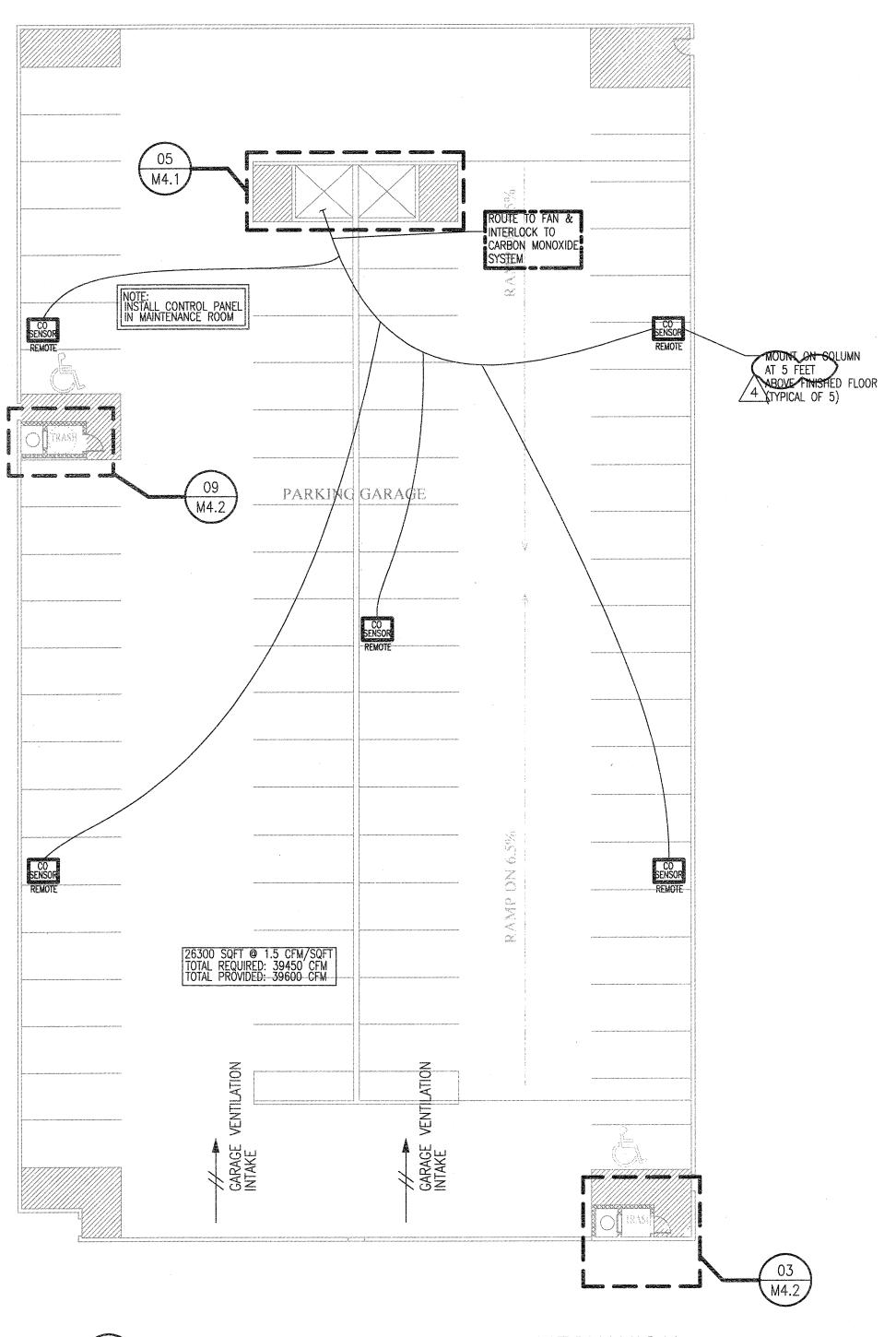
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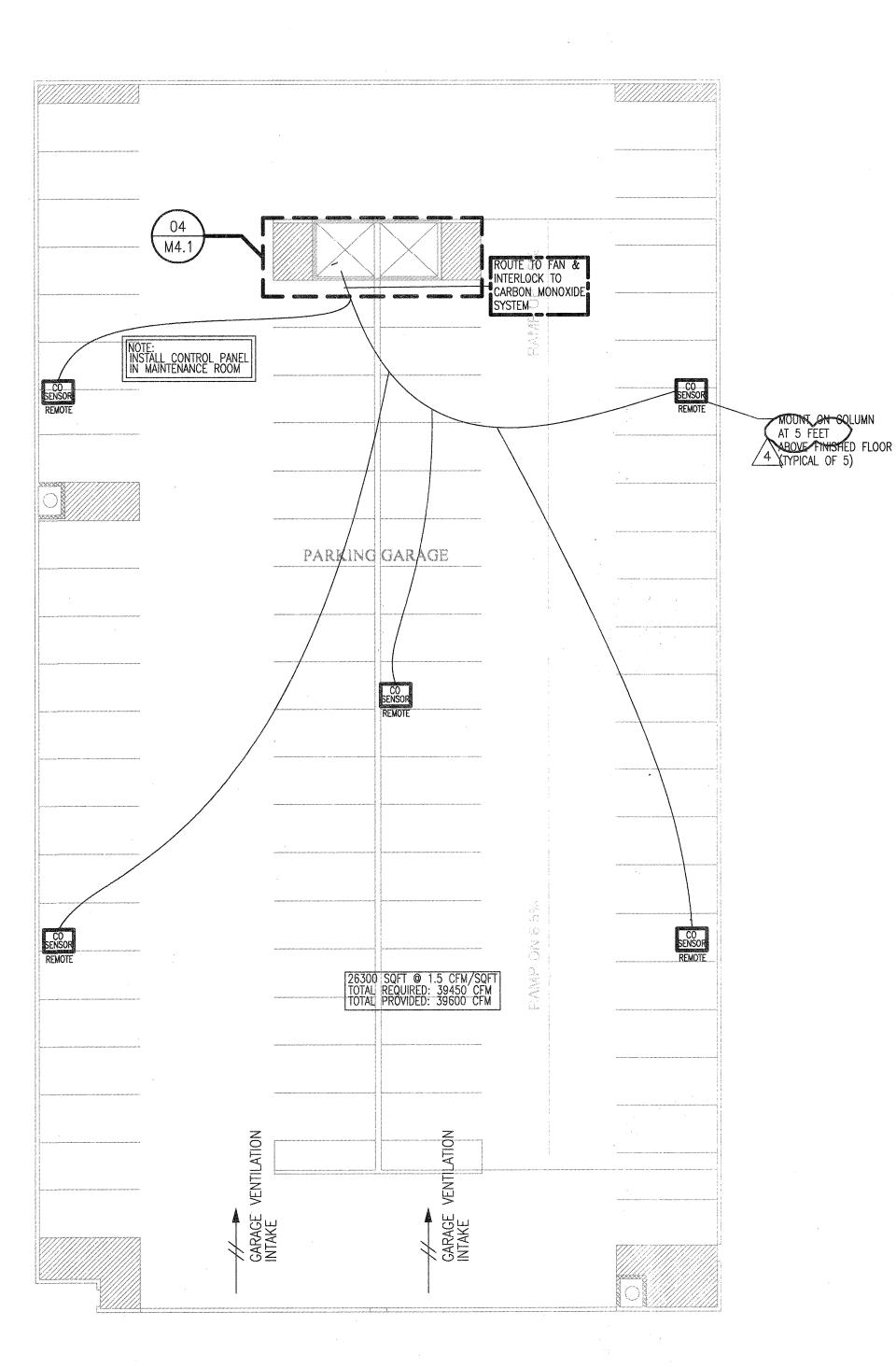
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dan & Skala Engineers





2ND FLOOR GARAGE PLAN - MECHANICAL SCALE: 1/16" = 1'-0"



3RD FLOOR GARAGE PLAN - MECHANICAL SCALE: 1/16" = 1'-0"

> 7th FLOOR IS OPEN ABOVE, NO MECHANICAL VENTING IS REQUIRED.





1 9-2-2011 DESIGN REVISIONS

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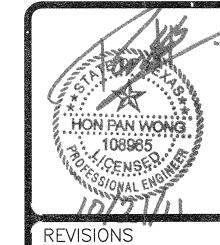
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GARAGE MECHANICAL

OVERALL FIRST FLOOR PLAN SCALE: NOT TO SCALE





1 9-2-2011 DESIGN REVISIONS

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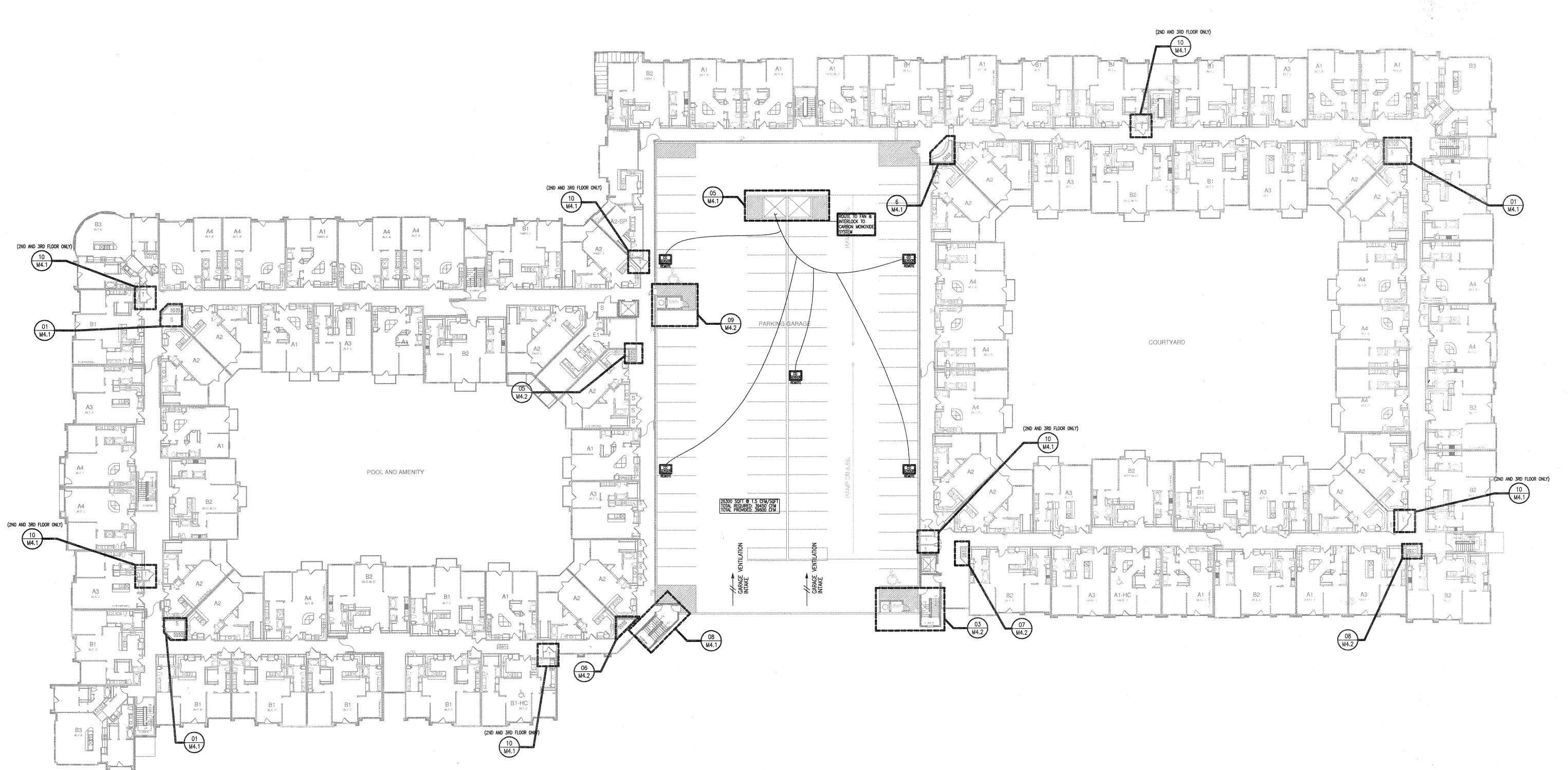
DATE

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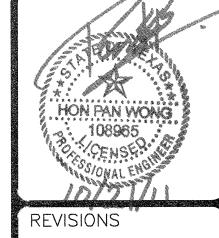
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FIRST FLOOR BUILDING MECHANICAL



SCALE: NOT TO SCALE

OVERALL SECOND-FOURTH FLOOR PLAN



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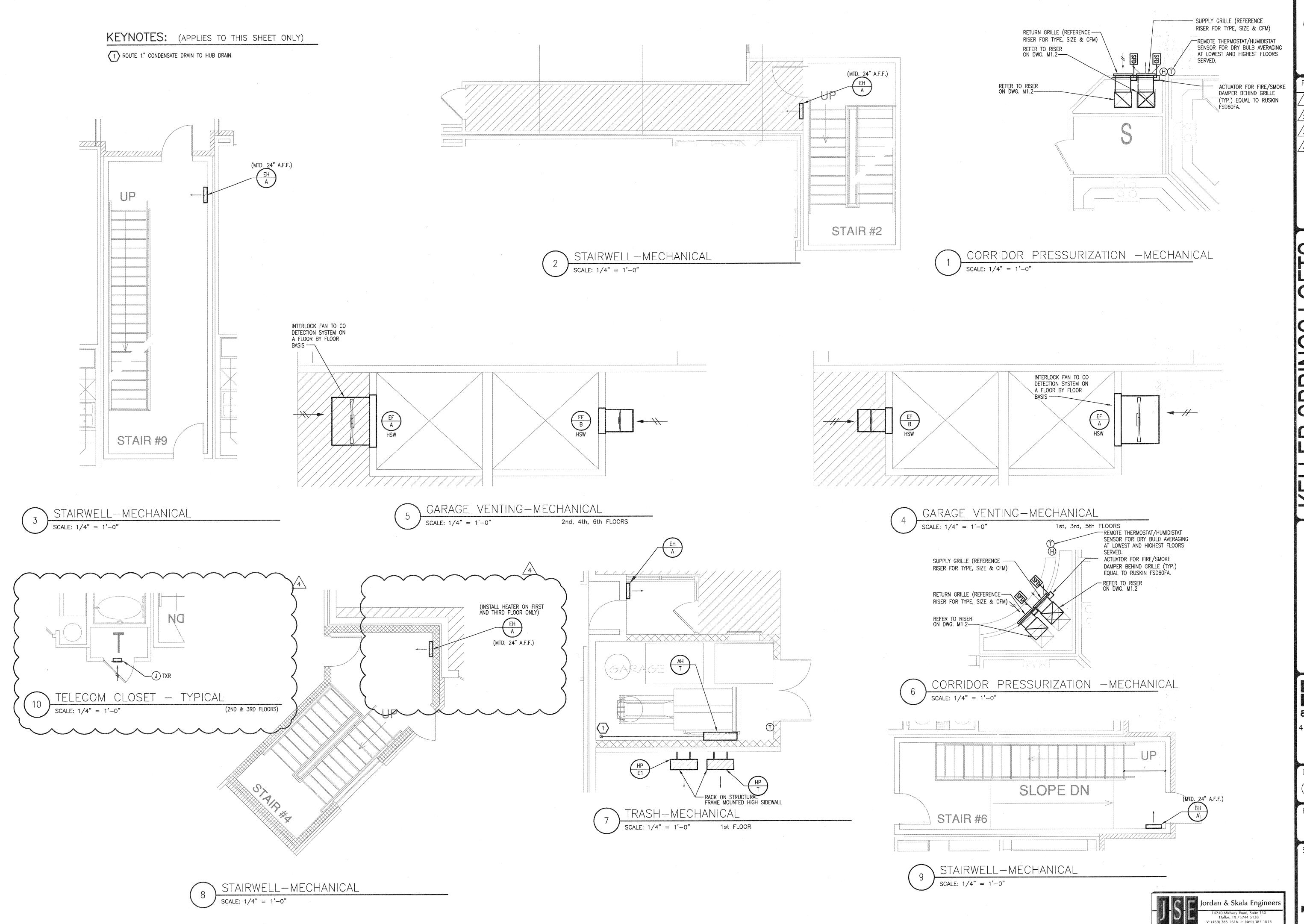
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M = 3.2SECOND FLOOR BUILDING

MECHANICAL

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REVISIONS

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3 9-23-2011 DESIGN REVISIONS

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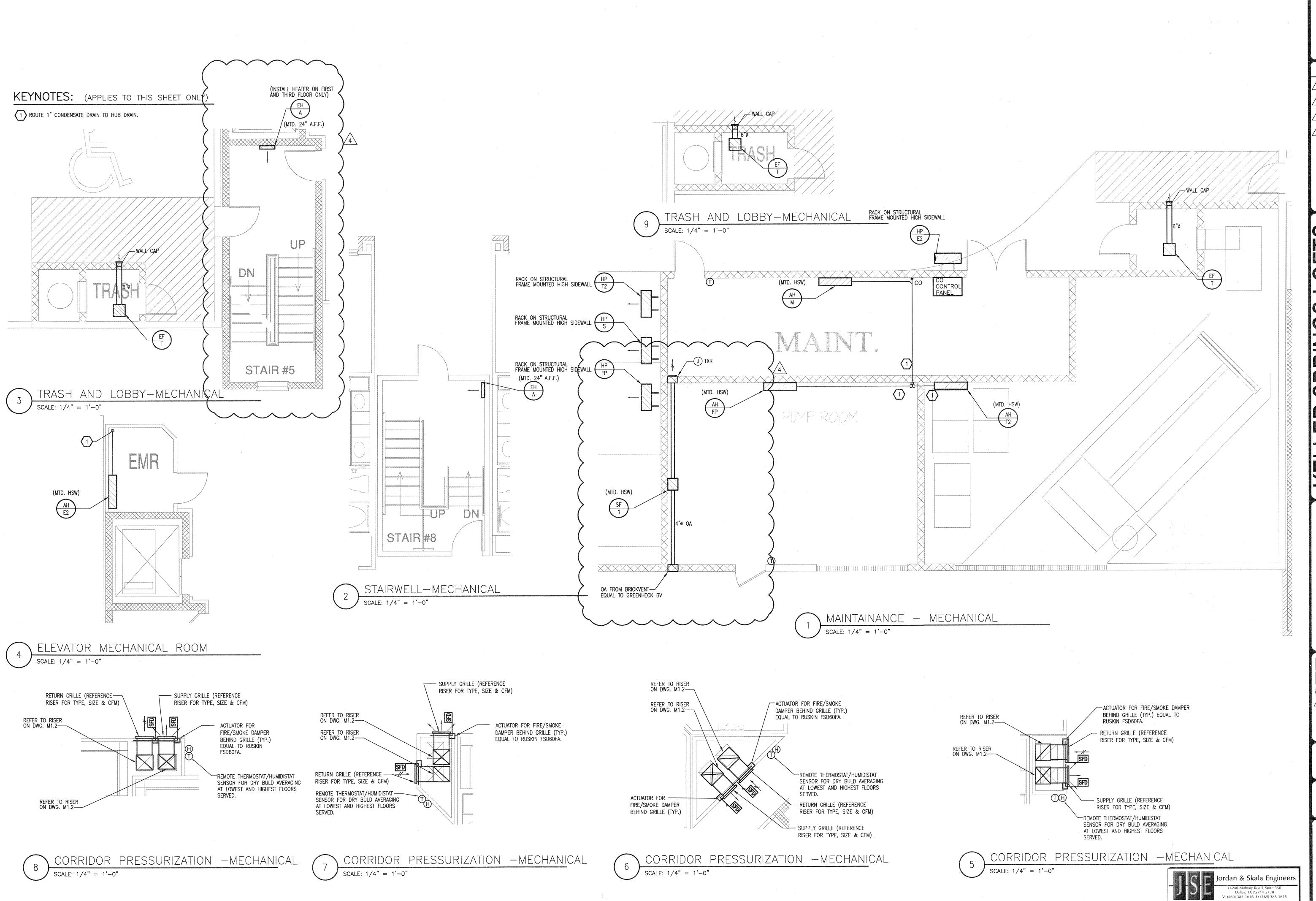
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PART PLANS MECHANICAL

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SHEET NUMBER **N=4.2**

PART **PLANS** MECHANICAL

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