

DIVISION 5 SPECIFICATIONS

GENERAL REQUIREMENTS FOR MECHANICAL WORK

PART 1 - GENERAL

1.01 RELATED DOCUMENTS - PROVISIONS OF THE GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS AND DIVISION 1 - GENERAL REQUIREMENTS, AND APPLICABLE PROVISIONS ELSEWHERE IN THE CONTRACT DOCUMENTS APPLY TO WORK OF DIVISION 5 MECHANICAL.

1.02 SUMMARY OF WORK - PROVIDE ALL LABOR, MATERIALS, SUPERVISION, TOOLS, SERVICES, EQUIPMENT AND INCIDENTALS NECESSARY FOR COMPLETE AND OPERATIONAL SYSTEMS AS SPECIFIED UNDER THIS DIVISION AND AS SHOWN ON THE CONTRACT DOCUMENTS.

1.05 CODES AND STANDARDS

A. ALL WORK SHALL COMPLY WITH THE LATEST EDITION OF APPLICABLE CODES AS SET FORTH BY THE LOCAL, STATE, AND FEDERAL JURISDICTIONS HAVING AUTHORITY.  
B. ALL WORK SHALL CONFORM TO THE APPLICABLE PROVISIONS AND RECOMMENDATIONS SET FORTH IN STANDARDS ISSUED BY THE FOLLOWING:

1. AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR CONDITIONING ENGINEERS (ASHRAE).
2. AMERICAN SOCIETY FOR TESTING MATERIALS (ASTM).
3. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA).
4. SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION (SMACNA).
5. UNDERWRITERS LABORATORY (UL).
6. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).

PART 2 - PRODUCTS

2.01 SUBMITTALS

A. PRODUCT DATA SHEETS - SUBMIT PRODUCT DATA SHEETS FOR ALL EQUIPMENT AND MAJOR MATERIALS SHOWING DIMENSIONAL INFORMATION, PERFORMANCE DATA, AND UTILITY REQUIREMENTS SUCH AS BUT NOT LIMITED TO NATURAL GAS CONSUMPTION RATES, ELECTRICAL SERVICE REQUIREMENTS, DOMESTIC WATER REQUIREMENTS, AND ASSOCIATED CONNECTION SIZES.  
B. SHOP DRAWINGS - SUBMIT SHOP DRAWINGS APPROPRIATE FOR USE BY SHEET METAL MANUFACTURERS IN FABRICATING DUCTWORK, BY THE MECHANICAL CONTRACTOR'S FIELD PERSONNEL IN INSTALLATION OF MATERIALS AND EQUIPMENT, AND BY OTHER TRADES IN COORDINATING PLACEMENT OF COINCIDENTAL OR AFFECTED MATERIALS AND EQUIPMENT.  
C. OPERATION AND MAINTENANCE MANUALS - SUBMIT MANUALS FOR USE BY THE OWNER IN PERFORMING ROUTINE MAINTENANCE AND SERVICE ON ALL EQUIPMENT.

PART 3 - EXECUTION

3.01 COORDINATION - COORDINATE AND DIRECT WORK UNDER THIS DIVISION WITH WORK UNDER THE OTHER DIVISIONS AND WITH THE GENERAL CONTRACTOR IN SUCH A MANNER AS TO AVOID DELAYS IN THE PROJECT SCHEDULE OR DAMAGE TO OR REMOVAL AND RELOCATION OF WORK IN PLACE.

SHEETMETAL DUCTWORK

PART 1 - GENERAL

1.04 DESCRIPTION

A. CONTRACT DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 1 SPECIFICATION SECTIONS, APPLY TO WORK OF THIS SECTION.  
B. RELATED SECTIONS

1. SECTION BASIC MECHANICAL REQUIREMENTS
2. SECTION TESTING, ADJUSTING AND BALANCING HVAC SYSTEMS
3. THIS SECTION SPECIFIES SHEETMETAL DUCTWORK.

1.05 SUBMITTALS

A. PROVIDE PERFORMANCE DATA AT CONDITIONS SPECIFIED IN THE CONTRACT DRAWINGS.  
B. PROVIDE SCALABLE DRAWINGS SHOWING LOCATION AND SIZES OF ALL DUCTS INCLUDING ELEVATIONS AND NECESSARY OFFSETS REQUIRED TO ROUTE AROUND WORK OF OTHER TRADES.  
C. SUBMIT AS-BUILT DRAWINGS DOCUMENTING ANY CHANGES IN LOCATIONS AND/OR SIZES.

PART 2 - PRODUCTS

2.02 SHEETMETAL DUCT

A. CONCEALED RECTANGULAR SHEET METAL TO BE CONSTRUCTED FROM ZINC-COATED STEEL SHEETS WITH A MINIMUM 6-40 COATING.  
B. EXPOSED RECTANGULAR SHEET METAL TO BE CONSTRUCTED FROM GALVANNEAL (PAINTABLE) SHEETS.  
C. LOW-PRESSURE RECTANGULAR DUCT FOR THE CONSTANT VOLUME SUPPLY TO BE CONSTRUCTED PER 1" E.S.P. TABLES AS PUBLISHED IN 1995 SMACNA MANUAL, INCLUDING ADDENDUM 1.  
D. LOW-PRESSURE RECTANGULAR DUCT FOR ALL OTHER LOW PRESSURE, INCLUDING BUT NOT LIMITED TO THE CONSTANT VOLUME RETURN AIR, EXHAUST AIR, AND SUPPLY AIR DOWNSTREAM OF THE TERMINAL BOXES, TO BE CONSTRUCTED PER 1" E.S.P. TABLES AS PUBLISHED IN 1995 SMACNA MANUAL, INCLUDING ADDENDUM 1.  
E. TRANSVERSE CONNECTORS ARE TO BE PER THE 1995 SMACNA STANDARDS.  
F. TURNING VANES INCLUDED FOR ALL SUPPLY AIR SQUARE THROAT SQUARE HEEL 90-DEGREE ELBOWS.  
G. NEOPRENE FLEX CONNECTORS PROVIDED FOR ALL FAN UNIT CONNECTIONS.  
H. ALL RECTANGULAR SUPPLY AIR AND RETURN AIR DUCT ASSOCIATED WITH AHU 1-4 TO BE LINED WITH 1" JOHNS-MANVILLE LINEAROSTIC RC LINER.  
I. METAL WORKING INCLUDED FOR LINED DUCT AT THE UNIT DISCHARGE.  
J. ALL FITTINGS TO BE ASSEMBLED. ALL STRAIGHT DUCT TO BE IN "L" SECTIONS.  
K. NDS TO BEAD DUCT IN LIEU OF CROSS-BREAKING.

PART 3 - EXECUTION

3.01 INSTALLATION

A. SHEETMETAL DUCT  
1. LOW PRESSURE  
A. ALL SUPPLY AND RETURN AIR DUCTS SHALL BE INTERNALLY INSULATED WITH 1", 15 PCF FIBERGLASS DUCT LINER. ALL OTHER LOW-PRESSURE DUCTS SHALL BE UNLINED AND EXTERNALLY INSULATED WHERE APPLICABLE AND AS SPECIFIED ELSEWHERE HEREIN.  
B. ALL EXHAUST DUCTWORK TO BE UNINSULATED.

3.02 STARTUP

A. VERIFY THAT DUCTWORK IS SEALED AIR TIGHT AT OPERATING CONDITIONS.  
B. VERIFY THAT THERE ARE NO OBSTRUCTIONS IN DUCTWORK PRIOR TO OPERATING ANY FANS.  
C. VERIFY THAT ALL DUCTWORK IS INSTALLED STRAIGHT AND PLUMB.  
D. VERIFY THAT ALL DUCTWORK SCHEDULED TO BE PAINTED IS CLEAN AND READY TO ACCEPT PAINT.

DUCTS/FABRIC DUCT SYSTEM

PART 1-GENERAL

1.01 DESCRIPTION OF WORK

A. EXTENT OF NON-METAL DUCTWORK IS INDICATED ON DRAWINGS AND BY REQUIREMENTS OF THIS SECTION.  
B. TYPES OF NON-METAL DUCTWORK REQUIRED FOR THIS PROJECT INCLUDE THE FOLLOWING:  
1. FABRIC AIR DISPERSION PRODUCTS.

1.02 QUALITY ASSURANCE

A. BUILDING CODES AND STANDARDS:  
1. PRODUCT MUST BE CLASSIFIED BY UNDERWRITERS LABORATORIES IN ACCORDANCE WITH THE 25/50 FLAME SPREAD / SMOKE DEVELOPED REQUIREMENTS OF NFPA 90-A AND ARE ALSO CLASSIFIED IN ACCORDANCE WITH ICC EVALUATION SERVICE AG-81.  
2. ALL PRODUCT SECTIONS MUST BE LABELED WITH THE LOGO AND CLASSIFICATION MARKING OF UNDERWRITERS LABORATORIES.  
B. DESIGN & QUALITY CONTROL:  
1. MANUFACTURER MUST HAVE DOCUMENTED DESIGN SUPPORT INFORMATION INCLUDING DUCT SIZING, VENT AND ORIFICE LOCATION, VENT AND ORIFICE SIZING, LENGTH, AND SIEGING. PARAMETERS FOR DESIGN INCLUDING MAXIMUM AIR TEMPERATURE, VELOCITY, PRESSURE AND FABRIC PERMEABILITY, SHALL BE CONSIDERED AND DOCUMENTED.

1.03 SUBMITTALS

A. PRODUCT DATA: SUBMIT MANUFACTURER'S SPECIFICATIONS ON MATERIALS AND MANUFACTURED PRODUCTS USED FOR WORK OF THIS SECTION.  
B. BUILDING CODE DATA: SUBMIT UL FILE NUMBER UNDER WHICH PRODUCT IS CLASSIFIED BY UNDERWRITERS LABORATORIES.

1.04 WARRANTY

A. MANUFACTURER MUST PROVIDE A 5 YEAR WARRANTY PROGRAM FOR PRODUCTS SUPPLIED FOR THE FABRIC PORTION OF THIS SYSTEM.

1.05 DELIVERY, STORAGE AND HANDLING

A. PROTECT FABRIC AIR DISPERSION SYSTEMS FROM DAMAGE DURING SHIPPING, STORAGE AND HANDLING.  
B. WHERE POSSIBLE STORE PRODUCTS INSIDE AND PROTECT FROM WEATHER. WHERE NECESSARY TO STORE OUTSIDE, STORE ABOVE GRADE AND ENCLOSE WITH A VENTED WATERPROOF WRAPPING.

PART 2 - PRODUCTS

2.01 MANUFACTURER

SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS MANUFACTURED IN THE UNITED STATES, CHOOSE ONE OF THE FOLLOWING:

A. DUCTSOX CORPORATION

2.02 FABRIC AIR DISPERSION SYSTEM

A. DURATEX FABRIC AIR DIFFUSERS SHALL BE CONSTRUCTED OF A COATED HOVEN FIRE RETARDANT FABRIC COMPLYING WITH THE FOLLOWING PHYSICAL CHARACTERISTICS:  
1. FABRIC CONSTRUCTION: 100% POLYESTER  
2. COATING: NON-AIR PERMEABLE COATING  
3. WEIGHT: 5.2 OZ/YD<sup>2</sup> PER ASTM D3916  
4. COLOR: (MUST SPECIFY WHITE, CHARCOAL, OR TAUPE)  
5. AIR PERMEABILITY: 0.04712 PER ASTM D3171, FRAZER  
6. TEMPERATURE RANGE: 0 DEGREES F TO 180 DEGREES F  
7. FIRE RETARDANCY: CLASSIFIED BY UNDERWRITERS LABORATORIES IN ACCORDANCE WITH THE FLAME SPREAD/SMOKE DEVELOPED REQUIREMENTS OF NFPA 90-A.

B. SYSTEMS FABRICATION REQUIREMENTS

1. DISPERSION ORIFICE SIZING, UP TO 5 INCH DIAMETER (DESIGN DEPENDANT).  
2. SIZE, QUANTITY, AND LOCATION OF ORIFICES TO BE SPECIFIED AND APPROVED BY MANUFACTURER.  
3. INLET CONNECTION TO METAL DUCT VIA FABRIC DRUM BAND WITH ANCHOR PATCHES AS SUPPLIED BY MANUFACTURER. ANCHOR PATCHES TO BE SECURED TO METAL DUCT VIA ZIP SCREEN FASTENER - SUPPLIED BY CONTRACTOR.  
4. LENGTHS TO INCLUDE REQUIRED ZIPPERS AS SPECIFIED BY MANUFACTURER.  
5. SYSTEM TO INCLUDE ADJUSTABLE FLOW DEVICES TO BALANCE TURBULENCE, AIRFLOW AND DISTRIBUTION AS NEEDED. FLOW RESTRICTION DEVICE SHALL INCLUDE ABILITY TO ADJUST THE AIRFLOW RESISTANCE FROM 0.06 - 0.60 IN W.G. STATIC PRESSURE.  
6. FABRIC SYSTEM SHALL INCLUDE CONNECTORS TO ACCOMMODATE SUSPENSION SYSTEM LISTED BELOW. ANY DEVIATION FROM A STRAIGHT RUN SHALL BE MADE USING A GORED ELBOW OR AN EFFICIENCY TEE. NORMAL 90 DEGREE ELBOWS ARE 5 GORES AND THE RADIUS OF THE ELBOW IS 15 TIMES THE DIAMETER OF THE DUCTSOX.

C. DESIGN PARAMETERS

1. FABRIC AIR DIFFUSERS SHALL BE DESIGNED FROM 0.25" WATER GAGE MINIMUM TO 3.1" MAXIMUM WITH 0.5" AS THE STANDARD.  
2. FABRIC AIR DIFFUSERS SHALL BE LIMITED TO DESIGN TEMPERATURES BETWEEN 0 DEGREES F AND 180 DEGREES F (-18 DEGREES C AND 82 DEGREES C).  
3. DESIGN CFM, STATIC PRESSURE AND DIFFUSER LENGTH SHALL BE DESIGNED OR APPROVED BY THE MANUFACTURER. DO NOT USE FABRIC DIFFUSERS IN CONCEALED LOCATIONS.  
4. USE FABRIC DIFFUSERS ONLY FOR POSITIVE PRESSURE AIR DISTRIBUTION COMPONENTS OF THE MECHANICAL VENTILATION SYSTEM.

D. SUSPENSION HARDWARE (ONE OF FOLLOWING)

1. TENSION CABLE SYSTEM SHALL BE INSTALLED USING A TENSION CABLE SYSTEM INCLUDING A SINGLE (1 ROW) OF CABLE LOCATED 3" ABOVE TOP-DEAD-CENTER OF THE FABRIC DUCT. HARDWARE TO INCLUDE CABLE, EYE BOLTS, CABLE CLAMPS AND TURNBUCKLES AS REQUIRED. SYSTEM ATTACHMENT SHALL BE MADE USING NYLON SNAP CLIPS SPACED 24 INCHES. COMPONENT OPTIONS INCLUDE STANDARD GALVANIZED STEEL CABLE.

PART 3 - INSTALLATION

3.01 INSTALLATION OF FABRIC AIR DISPERSION SYSTEM

A. INSTALL CHOSEN SUSPENSION SYSTEM IN ACCORDANCE WITH THE REQUIREMENTS OF THE MANUFACTURER. INSTRUCTIONS FOR INSTALLATION SHALL BE PROVIDED BY THE MANUFACTURER WITH PRODUCT.

3.02 CLEANING AND PROTECTION

A. CLEAN AIR HANDLING UNIT AND DUCTWORK PRIOR TO THE DUCTSOX SYSTEM UNIT-BY-UNIT AS IT IS INSTALLED. CLEAN EXTERNAL SURFACES OF FOREIGN SUBSTANCE WHICH MAY CAUSE CORROSIVE DETERIORATION OF FACINGS.  
B. TEMPORARY CLOSURE: AT ENDS OF DUCTS WHICH ARE NOT CONNECTED TO EQUIPMENT OR DISTRIBUTION DEVICES AT THE OF DUCTWORK INSTALLATION, COVER WITH POLYETHYLENE FILM OR OTHER COVERING WHICH WILL KEEP THE SYSTEM CLEAN UNTIL INSTALLATION IS COMPLETED.  
C. IF DUCTSOX SYSTEMS BECOME SOILED DURING INSTALLATION, THEY SHOULD BE REMOVED AND CLEANED FOLLOWING THE MANUFACTURER'S STANDARD TERMS OF LAUNDRY.

SPLIT SYSTEM AIR-CONDITIONING UNITS

PART 1 - GENERAL

1.06 DESCRIPTION

A. CONTRACT DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 1 SPECIFICATION SECTIONS, APPLY TO WORK OF THIS SECTION.  
C. RELATED SECTIONS

3. SECTION BASIC MECHANICAL REQUIREMENTS

4. SECTION TESTING, ADJUSTING AND BALANCING HVAC SYSTEMS  
C. THIS SECTION SPECIFIES DIRECT-EXPANSION (DX) SPLIT SYSTEM AIR-CONDITIONING UNITS.

1.07 SUBMITTALS

A. PROVIDE PERFORMANCE DATA AT CONDITIONS SPECIFIED IN THE CONTRACT DRAWINGS.  
B. PROVIDE DIMENSIONAL DATA FOR UNITS AND ASSOCIATED ACCESSORIES, INCLUDING INSTALLED OPERATING WEIGHT.  
C. PROVIDE ELECTRICAL SERVICE REQUIREMENTS AT SPECIFIED VOLTAGE INCLUDING MINIMUM CIRCUIT AMPACITY (MCA) AND MAXIMUM OVERCURRENT PROTECTION (MOCP).  
D. PROVIDE, AT PROJECT COMPLETION, OPERATION AND MAINTENANCE MANUALS.

1.08 SPECIAL WARRANTY - THE COMPRESSORS SHALL BE WARRANTED BY THE UNIT MANUFACTURER FOR A PERIOD OF 4 YEARS BEYOND THE INITIAL ONE-YEAR WARRANTY PERIOD FOR THE PROJECT. THIS WARRANTY SHALL NOT INCLUDE LABOR REQUIRED FOR REPLACEMENT.

PART 2 - PRODUCTS

2.03 MANUFACTURERS

D. LENOX INDUSTRIES  
E. TRANE  
F. CARRIER COOPERATION

2.02 PRODUCT DESCRIPTION

A. THE MECHANICAL CONTRACTOR SHALL PROVIDE THE SYSTEM(S) AS SPECIFIED ON THE DRAWINGS, INCLUDING ALL LISTED ACCESSORIES.  
B. THE MECHANICAL CONTRACTOR SHALL PROVIDE ALL MATERIALS AND ACCESSORIES INCIDENTAL TO PROPER INSTALLATION AND OPERATION OF THE SYSTEMS AT ANTICIPATED CONDITIONS, WHETHER SHOWN ON THE DRAWINGS OR NOT.  
C. THE MECHANICAL CONTRACTOR SHALL FURNISH ALL ACCESSORIES NECESSARY TO COMPLY WITH THE INTERNATIONAL ENERGY CONSERVATION CODE (IECC).

PART 3 - EXECUTION

3.01 EXAMINATION

A. VERIFY THAT THE SPACE IS READY TO RECEIVE WORK AND SERVICE CLEARANCES ARE AS INDICATED ON SHOP DRAWINGS.  
B. VERIFY THAT PROPER POWER SUPPLY IS AVAILABLE.

3.02 INSTALLATION

A. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.  
B. SUSPEND AIR-HANDLING UNITS FROM THE STRUCTURE USING ANGLE IRON SUPPORTS SUSPENDED FROM 5/8" DIAMETER THREADED ROD ATTACHED TO THE TOP IN A MANNER APPROVED BY THE ARCHITECT AND STRUCTURAL ENGINEER, AND ATTACHED AT THE ANGLE IRON USING SPRING VIBRATION ISOLATORS.

3.03 STARTUP

A. THE MECHANICAL CONTRACTOR SHALL EMPLOY THE SERVICES OF A QUALIFIED TECHNICIAN TO COMPLETE ALL ITEMS AND RECORD ALL NECESSARY DATA IN ACCORDANCE WITH THE MANUFACTURER'S STARTUP PROCEDURES.  
B. THE MECHANICAL CONTRACTOR SHALL MAKE ADJUSTMENTS TO THE FAN SPEED IN ORDER TO ESTABLISH THE SUPPLY AIRFLOW WITHIN TOLERANCES SPECIFIED IN SECTION 1540 TESTING, ADJUSTING AND BALANCING HVAC SYSTEMS.  
C. THE MECHANICAL CONTRACTOR SHALL ADJUST THE ECONOMIZER DAMPER MINIMUM POSITION SETTING IN ORDER TO ESTABLISH OUTSIDE AIR INTAKE FLOW RATES WITHIN TOLERANCES SPECIFIED IN SECTION 1540 TESTING, ADJUSTING AND BALANCING HVAC SYSTEMS.

EXTRUDED ALUMINUM STATIONARY LOUVERS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. EXTRUDED ALUMINUM STATIONARY LOUVERS WITH DRAINABLE BLADES.

1.2 RELATED SECTIONS

A. SECTION CAST-IN-PLACE CONCRETE.  
B. SECTION MASONRY UNITS.  
C. SECTION STRUCTURAL METAL FRAMING.  
D. SECTION ROUGH CARPENTRY.  
E. SECTION METAL WALL PANELS.  
F. SECTION FLASHINGS AND SHEET METAL.  
G. SECTION JOINT SEALANTS.  
H. SECTION PAINTS.

1.3 SECTION AIR OUTLETS AND INLETS

1.5 REFERENCES

A. AAMA 605.2 - HIGH PERFORMANCE ORGANIC COATINGS ON ARCHITECTURAL EXTRUSIONS AND PANELS.  
B. AAMA 500 - TEST METHODS FOR LOUVERS, DAMPERS AND SHUTTERS.  
C. AAMA 511 - CERTIFIED RATINGS PROGRAM FOR AIR CONTROL DEVICES.

1.4 SUBMITTALS

A. COMPLY WITH CONTRACT REQUIREMENTS FOR SUBMITTAL PROCEDURES.

B. PRODUCT DATA: SUBMIT MANUFACTURER'S PRODUCT DATA INCLUDING PERFORMANCE DATA.

C. SHOP DRAWINGS: SUBMIT SHOP DRAWINGS INDICATING MATERIALS, CONSTRUCTION, DIMENSIONS, ACCESSORIES, AND INSTALLATION DETAILS.

1.5 QUALITY ASSURANCE

A. LOUVERS LICENSED TO BEAR AAMA CERTIFIED RATINGS SEAL. RATINGS BASED ON TESTS AND PROCEDURES PERFORMED IN ACCORDANCE WITH AAMA 511 AND COMPLY WITH AAMA CERTIFIED RATINGS PROGRAM. AAMA CERTIFIED RATINGS SEAL APPLIES TO AIR PERFORMANCE AND WATER PENETRATION RATINGS.

1.6 DELIVERY, STORAGE AND HANDLING

A. DELIVERY: DELIVER MATERIALS TO SITE IN MANUFACTURER'S ORIGINAL UNOPENED CONTAINERS AND PACKAGING, WITH LABELS CLEARLY INDICATING MANUFACTURER AND MATERIAL.  
B. STORAGE: STORE MATERIALS IN A DRY AREA INDOORS, PROTECTED FROM DAMAGE AND IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

C. HANDLING: PROTECT MATERIALS AND FINISHES DURING HANDLING AND INSTALLATION TO PREVENT DAMAGE.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. RIEKIN MANUFACTURING

2.2 EXTRUDED ALUMINUM STATIONARY LOUVERS

A. FABRICATION  
1. MODEL: ELFBST0X  
2. PERFORMANCE RATINGS: AAMA LICENSED.  
3. FRAME:  
A. MATERIAL: EXTRUDED ALUMINUM, ALLOY 6063-T5.  
B. WALL THICKNESS: 0.081 INCH (2.1 MM), NOMINAL.  
C. DEPTH: 6 INCHES (152 MM).  
D. DOWNSPOUTS AND GULKING SURFACES.  
E. BLADES:  
A. STYLE: DRAINABLE.  
B. MATERIAL: EXTRUDED ALUMINUM, ALLOY 6063-T5.  
C. WALL THICKNESS: 0.081 INCH (2.1 MM), NOMINAL.  
D. ANGLE: 315 DEGREES.  
E. CENTERS: 5-24/32 INCHES (150 MM), NOMINAL.  
5. BIRD SCREEN:  
A. MATERIAL: ALUMINUM, [3/4 INCH X 0.081 INCH (19 MM X 1.3 MM), EXPANDED, FLATTENED] (1/2 INCH MESH X 0.063 INCH (1.3 MM MESH X 1.6 MM), INTERCRIMP).  
B. FRAME: REMOVABLE, REINFORCEABLE.  
6. GUTTERS: DRAIN GUTTERS IN HEAD FRAME AND EACH BLADE.  
7. DOWNSPOUTS: DOWNSPOUTS IN JAMBS TO DRAIN WATER FROM LOUVER FOR MINIMUM WATER CASCADE FROM BLADE TO BLADE.  
8. VERTICAL SUPPORTS: HIDDEN VERTICAL SUPPORTS TO ALLOW CONTINUOUS LINE APPEARANCE UP TO 120 INCHES (3048 MM).  
9. SILL: STEEPLY ANGLED INTEGRAL SILL ELIMINATING AREAS OF STANDING OR TRAPPED MOISTURE WHERE MOLD OR MILDEW MAY THRIVE AND EFFECT INDOOR AIR QUALITY.  
10. ASSEMBLY: FACTORY ASSEMBLE LOUVER COMPONENTS. ALL WELDED CONSTRUCTION.

B. PERFORMANCE DATA:  
1. BASED ON TESTING 48 INCH X 48 INCH (1219 MM X 1219 MM) SIZE UNIT IN ACCORDANCE WITH AAMA 500.  
2. FREE AREA: 51 PERCENT, NOMINAL.  
3. FREE AREA SIZE: 9.08 SQUARE FEET (0.84 M<sup>2</sup>).  
4. MAXIMUM RECOMMENDED AIR FLOW THRU FREE AREA: 1023 FEET PER MINUTE (312 MM/MIN).  
5. AIR FLOW: 1284 CUBIC FEET PER MINUTE (269 M<sup>3</sup>/MIN).  
6. MAXIMUM PRESSURE DROP: 0.25 INCHES W.G. (6.35 MM W.G.).  
7. WATER PENETRATION: MAXIMUM OF 0.01 OUNCES PER SQUARE FOOT (31 GM/2) OF FREE AREA AT AN AIR FLOW OF 1023 FEET PER MINUTE (312 MM/MIN) FREE AREA VELOCITY WHEN TESTED FOR 15 MINUTES.

C. DESIGN LOAD: INCORPORATE STRUCTURAL SUPPORTS REQUIRED TO WITHSTAND WIND LOAD OF 20 POUNDS PER SQUARE FOOT.

2.3 ACCESSORIES

A. BIRD SCREENS

2.4 FACTORY FINISH

A. MODIFIED FLUOROPOLYMER (50 PERCENT KYNAR) COATING:  
1. CONFORM TO AAMA 605.2.  
2. APPLY COATING FOLLOWING CLEANING AND PRETREATMENT.  
3. CLEANING: AA-C242RDX.  
4. DRY LOUVERS BEFORE FINAL FINISH APPLICATION.  
5. TOTAL DRY FILM THICKNESS: APPROXIMATELY 12 MILS (0.03 MM), WHEN BAKED AT 450 DEGREES F (232 DEGREES C) FOR 10 MINUTES.

PART 3 - EXECUTION

3.1 EXAMINATION

A. INSPECT AREAS TO RECEIVE LOUVERS. NOTIFY THE ARCHITECT OF CONDITIONS THAT WOULD ADVERSELY AFFECT THE INSTALLATION OR SUBSEQUENT UTILIZATION OF THE LOUVERS. DO NOT PROCEED WITH INSTALLATION UNTIL UNSATISFACTORY CONDITIONS ARE CORRECTED.

3.2 INSTALLATION

A. INSTALL LOUVERS AT LOCATIONS INDICATED ON THE DRAWINGS AND IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.  
B. INSTALL LOUVERS PLUMB, LEVEL, IN PLANE OF WALL, AND IN ALIGNMENT WITH ADJACENT WORK.  
C. INSTALL JOINT SEALANTS AS SPECIFIED IN SECTION 07420.

3.3 CLEANING

A. CLEAN LOUVER SURFACES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

B. REPAIR MINOR DAMAGED SURFACES AS DIRECTED BY ARCHITECT.

END OF SECTION

TESTING, ADJUSTING AND BALANCING HVAC SYSTEMS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS - PROVISIONS OF THE GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS AND DIVISION 1 - GENERAL REQUIREMENTS, AND APPLICABLE PROVISIONS ELSEWHERE IN THE CONTRACT DOCUMENTS APPLY TO WORK OF DIVISION 5 MECHANICAL.

1.02 SUMMARY OF WORK - PROVIDE LABOR AND MATERIAL NECESSARY FOR THE COMPLETE OPERATIONAL TESTING OF THE HVAC SYSTEMS INCLUDING STARTUP BASED ON SPECIFIC MANUFACTURER'S STARTUP PROCEDURES, AS WELL AS ADJUSTING ALL AIRSIDE SYSTEM COMPONENTS TO ESTABLISH DESIGN AIRFLOWS AS SHOWN ON THE CONTRACT DRAWINGS AND WITHIN TOLERANCES AS SPECIFIED HEREIN.

1.03 QUALIFICATIONS

A. ALL PERSONNEL PERFORMING INITIAL STARTUP OF EQUIPMENT SHALL BE TRAINED IN THE SPECIFIC PROCEDURES PRESCRIBED BY THE MANUFACTURERS OF SAID EQUIPMENT.  
B. ALL PERSONNEL PERFORMING AIR BALANCE WORK SHALL BE UNDER THE DIRECT SUPERVISION OF A PERSON POSSESSING A CERTIFICATION FOR AIR-SIDE SYSTEMS ISSUED BY THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB).

1.04 SUBMITTALS - AT PROJECT COMPLETION, THE MECHANICAL CONTRACTOR SHALL FURNISH A REPORT TABULATING AIRFLOW READINGS AT EACH AIR DEVICE, MAXIMUM AND MINIMUM AIRFLOWS AT EACH TERMINAL UNIT, AND ALL APPLICABLE OPERATIONAL DATA FOR HEATING AND COOLING EQUIPMENT, AS WELL AS DRAWINGS THAT CLEARLY IDENTIFY ALL DEVICES LISTED IN THE REPORT. THE REPORT SHALL BEAR THE SEAL OF THE NEBB CERTIFIED SUPERVISOR.

PART 2 - N/A

PART 3 - EXECUTION

3.01 ALL WORK SHALL BE PERFORMED IN A MANNER CONSISTENT WITH THE NEBB STANDARDS AND GUIDELINES.

SPLIT SYSTEM SCHEDULE		
AIR-COOLED CONDENSING UNIT		
DESIGNATION	CU-1 THRU 4	
MANUFACTURER	LENOXX	
MODEL	H524-120-3Y	
NOM. CAPACITY (TONS)	10	
OUTSIDE AIR TEMP. (F)	100.0	
TOTAL CAPACITY (MBH)	121.77	
VOLTAGE/PHASE/Hz	208/230-3-60	
MCA (AMPS)	54.0	
MOCP (AMPS)	90	
ACCESSORIES	---	
NOTES	---	
AIR-HANDLING UNIT		
DESIGNATION	AH-1 THRU 4	
MANUFACTURER	LENOXX	
MODEL (GAS FURNACE)	---	
MODEL (COIL)	CBH17-135V-3	
NOM. CAPACITY (TONS)	10	
TOTAL CAPACITY (MBH)	121.77	
SENSIBLE CAPACITY (MBH)	95.05	
OUTSIDE AIR TEMP. (F)	100.0	
ENT. AIR TEMP., DB/MB (F)	74.6/65.8	
SUPPLY AIR CFM	3,410	
E.S.P. (IN W.G.)	0.75	
OUTSIDE AIR CFM	650	
BLOWER MOTOR HP	1 1/2	
VOLTAGE/PHASE/Hz	230-3-60	
FLA (AMPS)	5.6	
MOCP (AMPS)	---	
ACCESSORIES	1,2	
NOTES	---	
ACCESSORIES:	1. ECONOMIZER	
	2. 1-DAY PROGRAMMABLE THERMOSTAT	
	3. ---	
	4. ---	
	5. ---	
NOTES:	1. ---	
	2. ---	
	3. ---	
	4. ---	
	5. ---	

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